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ABOVE: French-Chinese Art Center, by Standardarchitecture. Photograph © Chen Su.

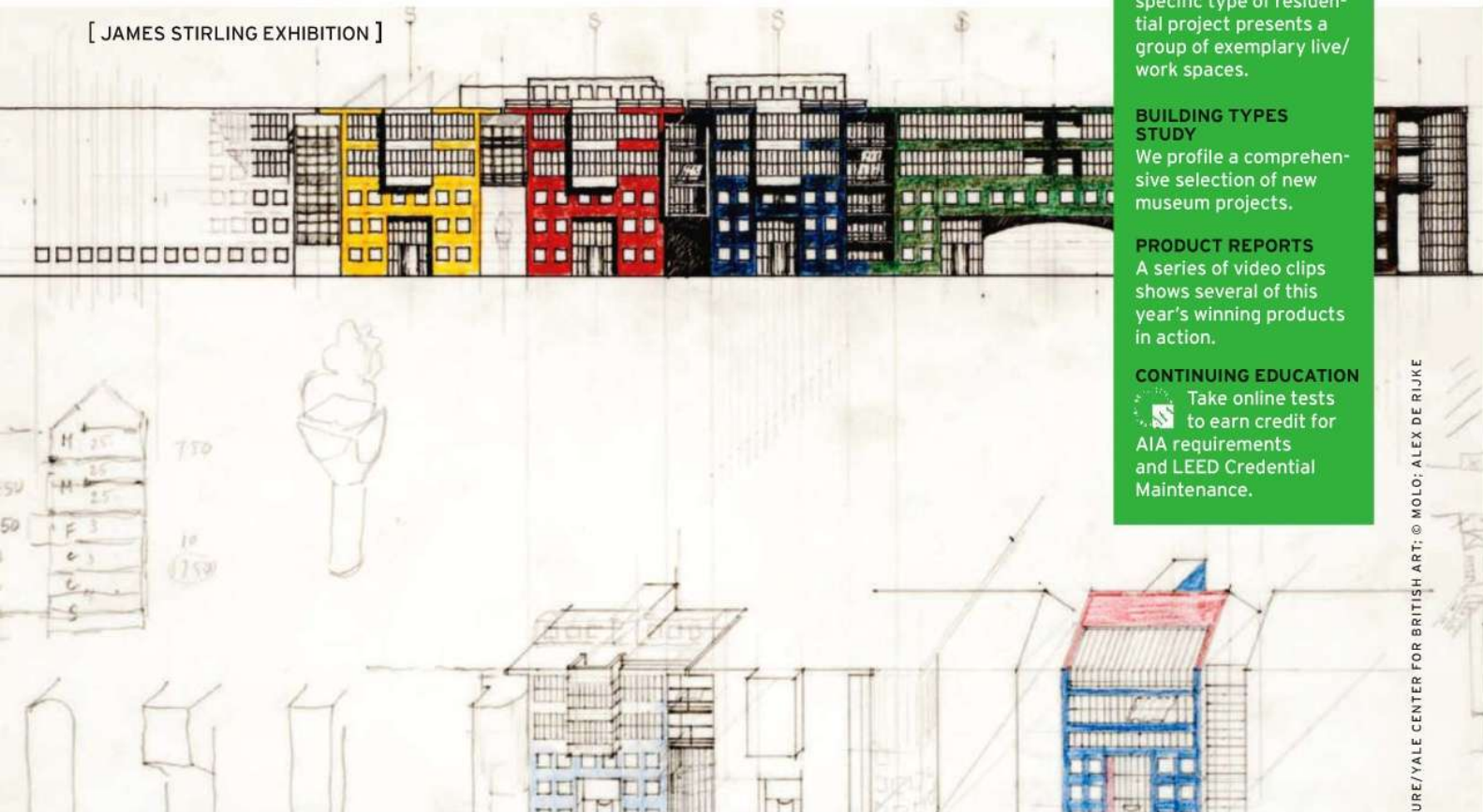
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[ COMMENTS ]

“Tom Buresh really deserves the credit for building the [University of Michigan] program up from the ashes. Formerly an instructor at SCI-Arc, he took over as chair in 2003 and cultivated a truly amazing program. He’s just now taken over the chair at UC Berkeley, so look for it to head up to the top of the list in a few years.”

—Anonymous, on “America’s Best Architecture Schools 2011”

[ABOVE] Southampton Beach House | Designed by Alexander Gorlin Architects | Southampton, New York | Photo submitted by “plapidus”

[BELOW] Prescott House | Designed by Studio 804/ Dan Rockhill | Kansas City, Kansas | Photo submitted by “a”



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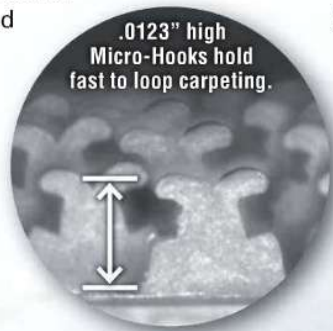
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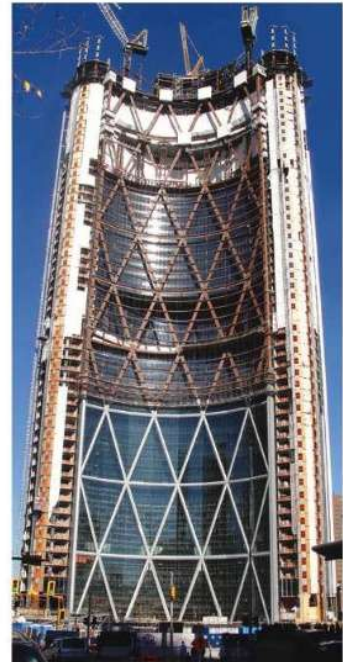
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# Ahead of the curve...

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## A Book to Dive Into

A new work on a past master stuns with its beauty and highlights an important transitional practice for a new generation's scrutiny. **By Robert Ivy, FAIA**

**THE TEXTURE OF** the stonework almost jumps off the page. Such is the quality of the photography and reproduction that the sensuous features of building materials appear tactile, almost hyperrealistic, when rendered in large-scale black-and-white prints. Page after page we encounter the architecture at varying scales: Detailed images of interlaced cast-iron or terra-cotta ornament pull the viewer in, while artful shots of surrounding neighborhoods, with real people, automobiles, and sunlight, from the 1950s and 1960s place the architecture in its urban milieu. We turn from whole to part to whole effortlessly, breathing in the massive city's air – all prompted by the encyclopedic, loving rendition granted by this visual documentation that traces a firm's trajectory.

At a time when many of us have declared the imminent death of the printed book, and when every firm in its infancy seems capable of launching a monograph, along comes a blockbuster that bowls us over. The book in question, *The Complete Architecture of Adler & Sullivan*, released this fall by the University of Chicago Press, revisits a powerful body of work and reminds us of architectural history's ability to change our perspective.

The well informed might wonder why the excitement for this recent publication. Louis Sullivan has been extensively chronicled: Works completed in the previous century include Sullivan's own writings, such as *The Autobiography of an Idea* (1924), and Robert Twombly's *Louis Sullivan: His Life and Work* (1986). Other architectural books feature lush presentation – think of the litany of handsome books on Frank Lloyd Wright's Fallingwater, for one example. However, *The Complete Architecture of Adler & Sullivan* warrants special attention for reintroducing an important subject to the 21st century through a comprehensive, beautiful photographic record.

If for no other reason, the enterprise deserves our admiration for its tenacity, as the story of its making spans generations. In 1952, Aaron Siskind taught a graduate photography class at the Institute of Design at the Illinois Institute of Technology. Among his students was Richard Nickel, who joined with others in documenting Sullivan and Dankmar Adler's buildings. Following the initial effort, Nickel made Sullivan and Adler the subject of his own graduate thesis in photography in 1957. Soon after, Nickel collaborated with Siskind on a book project that assumed its own dynamic – Nickel became drawn to actual preservation of Sullivan's legacy, from details to whole rooms, and in 1972 lost his own life in an accident during the demolition of the Chicago Stock Exchange building.

Fortunately, *The Complete Architecture of Adler & Sullivan* had proceeded far enough to merit completion and elicited support from a subsequent ad hoc group called the Richard Nickel Committee, which included Chicago architect John Vinci and architectural designer Ward Miller. Miller and Vinci persisted heroically across decades and share author's honors with Siskind and Nickel.

The resulting effort recasts Adler and Sullivan's accomplishments in ways

that will encourage architects and historians toward reappraisal of the firm's achievements. Their mastery of certain forms, particularly the design of theaters and assembly spaces, appears clearly throughout these pages, as do their early attempts at more rational and legible components for high-rise construction. In seeing the totality, we regret that too many buildings have been lost to the wrecking ball.

As expected, the book consists of a luxurious collection of black-and-white prints, typically taken with a large-format camera, as well as a selective assortment of color photographs. Interspersed throughout the pictures are essays on critical phases of the architects' work, including early influences. The writers have compiled a complete catalogue raisonné of every project undertaken by the firm, with photographs and drawings where available. Gray, square, simple, and elegant in design, this book requires a big table: You cannot tuck it into a briefcase or carryall.

As much as Adler and Sullivan spanned a period when buildings surged upward, they also stood at a crossroads where people philosophized about structure. Their own construction pioneered certain techniques, such as individual footings for segments of tall buildings; at the same time, they also interlaced spandrels and cornices with organic and geometric ornament. In *Adler & Sullivan*, we are drawn to both currents in their work – the rational and the intuitive. The assembly halls and industrial buildings and urban blocks derived from the Richardsonian Romanesque architecture exhibit a powerful coherence and simplicity that presage Modernist design. But we are simultaneously lured into the naturalistic ornament.

Sullivan's joy in materials and ornament – an interest that has found little accommodation in our own era – sings through the pages of this work. This predilection is carefully documented through its progression in his own life experiences, from his years with Frank Furness in Philadelphia through his work in Chicago and beyond (St. Louis, Buffalo, across the Midwest), and even in the garden of his home in Ocean Springs, Mississippi. The unapologetic deployment of ornament warrants appreciation and understanding by practitioners today.

Now that we know the trajectory of architectural history and the ubiquity of high-rise construction, as well as the evolution of organic architecture, this book poses the question of where Sullivan's conjoined structural and naturalistic motives have led. For our generation, pressed into more sustainable solutions by necessity and seeking artful expression of our own ideas, can Louis Sullivan's ideals spur our own thought? As our buildings continue to race upward, we remain concerned with our relationship to the natural world. *Adler & Sullivan* opens the door to the dialogue while saturating our senses with architecture: a book and a subject to pick up, touch, and dive into.

**Road not taken**

Regarding William Rawn's Cambridge Public Library [October 2010, page 76]: Given the engaging rhythmic cadence, the balance, the proportions, and the warmth of the original building, a static, "pristine" volume to set off the dynamic qualities of the original seems logical. But might it have been more adventurous to take on the challenge of singing harmony with the original, listening to its cues and strengthening the dynamism rather than setting off the original with neutrality, however competently expressed? As challenging as that would have been, I would have loved to have seen the result.

TIMOTHY L. MARSTERS, AIA | BOSTON

**Easy reading**

I became so thoroughly engrossed in reading your recent article on the Living Building Challenge, "Live | Build | Sustain" [October 2010, page 110], that I missed my train stop! Thank you for making a potentially

difficult, technical story not only easy to read, but exciting.

MICHAEL CHUSID | TARZANA, CALIF.

**Something is rotten**

Having just returned from South Korea and a visit to Songdo, I can't believe you are touting New Songdo City as green [October 2010, page 61]. Creating 1,500 acres out of tidal flats and estuaries is anything but green, especially when developed solely on spec. The lack of insight and critique in this article does not serve the profession well.

Organizing a master plan around the borrowed vocabulary of New York City's Central Park when Korea has its own history of urban parks, Biwon in particular; reinstalling canals and lakes after pushing back the sea; and covering the infilled land with LEED-certified buildings is nothing short of colonialism. In this case it is the subjugation of the natural sea environment that is being brought into control.

Instead of the question raised in

the article of "how will it finish?"

I ask, How did it start? and, What is our responsibility as architects, urbanists, and planners to the health of our planet beyond the adoption of declarations and certifications?

DIANE ELLIOTT GAYER, AIA  
BURLINGTON, VT.

**Bleak forecast**

Your October news story "Recovery? What Recovery?" [page 27] did not include a significant figure: the percentage of people who had been in architecture firms at the onset of the major economic decline who are no longer in practice. While no comprehensive data exists, this number stands today between 35 and 40 percent, based on empirical data from firms across the country. Of longer-term concern is the situation the profession will face when markets revive and the demand for architectural services increases dramatically. When this happens, those entering the profession will begin their careers absent the guidance that

would have come from practitioners with five to seven years of experience.

HUGH HOCHBERG | SEATTLE

Send letters to [rivy@mcgraw-hill.com](mailto:rivy@mcgraw-hill.com).

**Correction**

In November's Lighting Products section the photograph shown for the Tycoon freestanding lamp from Waldmann Lighting [page 141] was incorrect. The correct image is shown here.



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## [ URBAN REGENERATION ]

## Dublin Docklands

The Irish capital revamps its riverfront industrial lands, creating a mixed-use development with architecture by design luminaries such as Libeskind, Roche, and Calatrava.

**THE ECONOMIC BOOM** that began in the mid-1990s and transformed Ireland from one of Europe's poorest countries into a Celtic Tiger has been all but dead for several years. However, the fruits of the more prosperous times are evident everywhere, including in the Dublin Docklands – about 1,300 acres of former industrial land and economically challenged residential neighborhoods along the north and south banks of the Liffey River, between the city center and Dublin Bay.

Since 1997, the Dublin Docklands Development Authority (DDDA), a self-financing state body, has been overseeing the Docklands' social and economic regeneration and the physical makeover of its core into a dense and modern mixed-use district. In that time, the area has attracted \$6.8 billion in public and private investment, the number of people working there has almost doubled, to 40,000, and the residential population has increased to 22,000 from 17,500, says the DDDA.

Architecture has played a big role in the growth. Among the many buildings completed in the last two years are a community center enclosed in a concrete skin with porthole-like windows, by Dublin's O'Donnell + Tuomey; a convention center by the Irish-born, Connecticut-based Kevin Roche with a cylindrical glass atrium overlooking the river; and a 2,000-seat theater by Daniel Libeskind featuring his hallmark angular and canted surfaces. The district also has new parks, office and retail space, and residential units (both market-rate and affordable).

Not surprisingly, the DDDA has suffered along with the rest of the Irish economy. In its 2009 annual report (the most recent available), the authority claims a deficit of \$25.3 million, a good portion of which can be attributed to a drop in property values. Stalled Docklands projects include the Watchtower – a 330-foot-tall mixed-use building by Dublin's Scott Tallon Walker with Wilkinson Eyre Architects, London. Also on hold is Foster + Partners' mostly residential triangular U2 Tower, so-named because it would house the rock band's studio. A hotel adjacent to the Libeskind theater, by Portuguese architect Manuel Aires Mateus, is almost complete but has no operator. "The whole development is in hibernation," says Loretta Lambkin, DDDA spokeswoman.

A few other undeveloped sites still exist within the core of the Docklands district. New transportation infrastructure, including a traffic bridge by Santiago Calatrava and an extension of the light-rail system, both completed in late 2009, should make the remaining parcels more attractive for development when the market improves, predicts Lambkin. "Other projects will come on the back of those," she says.



1. The Docklands was conceived as a 24-hour district and includes cultural facilities like Studio Daniel Libeskind's Grand Canal Theatre. It faces a Piazza by Martha Schwartz with a "red carpet."
2. Completed this fall, a convention center by Kevin Roche John Dinkeloo and Associates sits just next to Santiago Calatrava's Samuel Beckett bridge over the Liffey.

Despite the downturn, the DDDA still has grand long-term ambitions, including extending the redevelopment farther east to the Poolbeg Peninsula, which juts out from the south bank of the Liffey into the bay. Here, the authority plans to remake 100 acres of industrial land into another mixed-use quarter. The pace of construction will depend on the state of the economy, but officials expect that realization of the scheme will extend over the next two decades. *Joann Gonchar, AIA*

## [ LANDSCAPE DESIGN ]

**A Green Oasis for Saarinen's Gateway Arch**

**IN THE 1960S**, after the Eero Saarinen-designed Gateway Arch in St. Louis was built, the work became an American icon as recognizable as the Statue of Liberty. But plans never materialized to develop the surrounding grounds into a fully accessible public site, leaving the Arch isolated on its urban island, cut off by a tangle of expressways, bridges, and parking.

To correct that, federal, state, and local officials launched a design competition in December 2009 to redo the grounds. Some 49 teams were winnowed to five, and in late September, the competition organizers announced that jurors had chosen a team led by New York-based Michael Van Valkenburgh Associates to perform the work.

The MVVA team, which comprises 15 firms in all, including Steven Holl Architects and Greenberg Consultants, is now working with the city of St. Louis and the National Park Service to refine the plans, create a construction budget, and map out a strategy toward a completion date of 2015. The team is expected to present a more advanced scheme by the end of January.

Among much else, the MVVA proposal will create parklike greenways over and under the expressway separating the Arch grounds from downtown St. Louis. An existing parking garage to the north will be replaced with smaller parking lots scattered within a five-minute walk. The grounds sloping to the Mississippi River will be redone as a cobblestone beach to create a more accessible gathering spot for visitors. And elevated walkways will be built in an avian sanctuary across the river, in Illinois, as part of an extensive park there.

Given the size of the site – some 250 acres, including roughly 91 acres of national parkland – the winning design presents a complex array of information that team leader Michael Van Valkenburgh admitted cannot be grasped in a quick glance. “Our scheme is incredibly worked-out technically,” he said in an interview. “We kind of killed ourselves on this thing.”

Donald Stastny, FAIA, the manager of the competition, suggested that one



**A team led by Michael Van Valkenburgh has won a competition to redesign the grounds surrounding the Gateway Arch in St. Louis.**

reason the MVVA team won was that its entry was the most landscape-focused of the final five offerings. (The other teams were headed by Behnisch Architekten; PWP Landscape Architecture, Foster + Partners, and Civitas; Skidmore, Owings & Merrill, Hargreaves Associates, and Bjarke Ingels Group; and Weiss/Manfredi, Architecture/Site Design/Urbanism.) Some of the other entries would have introduced more buildings into a site that already contained what Van Valkenburgh called a “perfect piece of architecture” – the Arch itself.

Van Valkenburgh said viewers may mistake the winning entry as too minimalist. “If they’re not used to thinking of landscape as being the source of dramatic change, they think this is sort of modest,” he said. “I think the robust way we use landscape is more powerful than people realize.” *John Gallagher*

**ON THE BOARDS**

**Project** V&A Dundee  
**Location** Dundee, Scotland  
**Architect** Kengo Kuma

A team lead by Kengo Kuma has won a competition to design a Scottish branch of the London-based Victoria & Albert Museum. The \$75 million stone-clad building will rise from the banks of the River Tay and will showcase local design talent and touring international exhibitions. Kuma's concept beat out more than 120 entries; his team includes cre8architecture, Optimised Environments, CBA, and Arup. Work is slated to begin in 2012, with an opening planned for 2014.



**Project** T Bailey Office  
**Location** Anacortes, Washington  
**Architect** Olson Kundig

Olson Kundig Architects has conceived an 11,700-square-foot office addition for the steel fabricator T Bailey Inc. The steel-and-glass box will sit on a 13-foot-high concrete base and adjoin an existing factory. Visitors will travel along a path leading to the facility and pass through a 14-foot-diameter horizontally positioned steel pipe. At the building's entrance, they will ascend a curving staircase set within an upright, 22-foot-diameter pipe. Construction is expected to begin in 2011.



**Project** Vineyard Resort  
**Location** China  
**Architect** Denton Corker Marshall

Located north of Beijing near the Great Wall, the 100-hectare Zhongkun Beijing Luoying Vineyard sits on a gently sloping plain bordered by a mountain range. For the site's winery and resort, Australia-based Denton Corker Marshall conceived an unadorned horizontal complex that echoes the terraced form of vineyards. The project includes tasting facilities, wine cellars, restaurants, a conference venue, and an art gallery, along with luxury clubhouses and a boutique hotel.

**Winning Streak****ZAHA HADID IS ON A ROLL.**

First, her MAXXI Museum in Rome won the prestigious 2010 Stirling Prize, awarded in October by the Royal Institute of British Architects. Now the museum has been named the “World's Best Building of the Year.” The announcement was made on November 5 during the third annual World Architecture Festival in Barcelona. MAXXI beat out 14 other finalists.

Hadid also is scoring projects. The 2004 Pritzker Prize laureate has been tapped to design London's new Serpentine Sackler Gallery – an adaptive reuse project that calls for the transformation of an early 19th-century munitions facility in Kensington Gardens into a modern architectural landmark. Completion is slated for 2012.

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[ ACCOLADES ]

## A Remarkable Revival

Two Dutch firms have won the 2010 World Monuments Fund/Knoll Modernism Prize for bringing a Netherlands hospital back to life.

**"WE ASSOCIATE MODERNISM** of the late 1920s with gleaming whiteness," says Barry Bergdoll, chief architecture and design curator at the Museum of Modern Art in New York City. "This is not architecture that looks particularly good in a ruinous state."

Yet in 1995, the Modernist landmark Zonnestraal Sanatorium, located in Hilversum, the Netherlands, was the picture of shambles. For their meticulous restoration of the building, the Dutch firms Bierman Henket Architecten and Wessel de Jonge Architecten have won the 2010 World Monuments Fund/Knoll Modernism Prize. The firms were honored during a November 18 ceremony at MoMA.

Hubert-Jan Henket, a principal at Bierman Henket, and de Jonge are also founders of Docomomo International, the burgeoning conservation group devoted to works of historical Modernism.

The biannual Modernism Prize was introduced in 2008, when it was conferred on Brenne Gesellschaft von Architekten for restoring the ADGB Trade Union School in Bernau, Germany. The prize is one of three prongs in WMF's "Modernism at Risk" initiative, which the New York-based group launched with the furniture manufacturer Knoll in 2006.

While the program directly supports conservation projects and operates a traveling exhibition for architecture students, "the prize is geared toward a professional audience, as well as the public at large so they can see that restoration is an alternative to demolition," says WMF president and CEO Bonnie Burnham.

Bergdoll, who chaired this year's jury, says they chose the winner based on the importance of the original building, the tenacity with which preserva-



Located in Hilversum, the Netherlands, the Zonnestraal Sanatorium fell into disuse after World War II.

tion was pursued, and technical execution. The latter criterion "gets particularly interesting with relation to Modernist buildings," he says, "because there are decisions to be made about restoring materials that might not be in use, or about updating the envelope's thermal performance."

Zonnestraal's historical significance is well established. Beginning in 1926, Dutch architects Bernard Bijvoet and Johannes Duiker, with structural engineer Jan Gerko Wiebenga, designed the sanatorium for the Diamond Workers Union of Amsterdam as part of a health-care campus for tuberculosis convalescents.

The sanatorium included a nursery, canteen, workshop, and other pavilions. Completion took place in stages. "You can almost date the pavilions by

the relationship of the window to parapet wall – there are all these localized solutions," says Bergdoll. "But at whatever date, the sanatorium represents almost primal rationalism. Nothing is hidden. There is this attempt to find a structural solution out of concrete, steel, and glass. It's an incredibly straightforward, no-nonsense iconic language."

Despite instant-icon status, Zonnestraal fell into disuse after World War II. It was rediscovered in the 1960s, and in 1982 the Dutch government commissioned Henket and de Jonge to create a restoration plan for the sanatorium as part of a larger conservation study.

Ultimately, the architects reconstructed the building's facades, partitions, casement windows, and finishes, specifying handmade components that were no longer in production. Completed last year, the building again performs a health-care function, with sports-injury and obesity clinics occupying the main building and workshops, respectively.

Reviving Zonnestraal catalyzed Henket and de Jonge to establish Docomomo in 1988. Officially known as the International Working Party for Documentation and Conservation of Buildings, Sites and Neighborhoods of the Modern Movement, it was the first group to advocate solely for the preservation of Modern buildings.

Bergdoll hopes that the WMF prize can help systematize efforts in regard to researching, rebuilding, expanding, and reusing these structures. Yet, he notes, each project will present its own challenges. "Preservation is like English case law," he says. "You're following guidelines, but there are always decisions to be made." *David Sokol*

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## [ INTERVIEW ] Ole Scheeren

Deputy Editor Clifford A. Pearson catches up with Ole Scheeren, who after 15 years at the Office for Metropolitan Architecture, including 8 years as a partner, is striking out on his own. His new practice, Büro Ole Scheeren, is based in Beijing (where he has lived for the past six years) and Hong Kong (where he has been a visiting professor at Hong Kong University since January 2010). He brings with him as a partner Eric Chang, an American architect who worked at OMA in Beijing.

### Clifford A. Pearson: You were a partner at OMA and ran the firm's Beijing office. Why leave?

Ole Scheeren: I reached a point in my life, both professionally and personally, when I needed to grow up and stand on my own. I had a fairly independent role at OMA, running the China office and my own projects, but I was still part of an existing envelope. We had completed all our work on CCTV and TVCC, so it seemed like the right time to make a break.

### What did you take from your time at OMA?

I learned a huge amount working with Rem [Koolhaas]. My 15 years with him are a big part of my past and my reality. When I started at OMA 15 years ago, there were about 30 people. Now there are a couple of hundred. It has become a supertanker. One of the reasons I left was to get back to a smaller-size practice, to be more agile.

### How big is Büro Ole Scheeren?

We have 20 people. About 40 percent are local Chinese, another 20 percent are Chinese-speaking, and the rest come from all over the world. This international mix is important for us; everyone brings a different perspective, a different stake in the process.

### What are you working on?

We've been reasonably successful securing projects in our first seven months. We're working on an 820-foot-tall tower in Kuala Lumpur, near the Petronas Towers. It will have a mix of uses, including offices, residences, and retail. We're also designing a megadevelopment in Chongqing, an 8.6-million-square-foot hyper-city block. It will have cultural and public elements along with residential, office, and retail components. And we entered a competition for a 2,000-seat theater near Beijing and should hear very soon whether we won. We're also doing a studio for a Beijing-based artist, a small project that brings a very contemporary design to a historical context on the outskirts of the city. That's what I want to do — work on different scales, get

small, do personal projects.

### When OMA won the commission to design CCTV, you moved to Beijing. How has that affected your approach to design?

I felt strongly that to understand the context, I needed to be directly engaged with it. I've been living in China for six years now and have been going back and forth here for nine years. My first visit was 19 years ago. Without this intense presence here, I don't think CCTV would have happened. I'm not here just for the business; I live and work here.

### What do you foresee for the future?

I hope in the next year, maybe even sooner, to open an office in Europe, probably London. I like the idea of reversing the direction of influence, to bring what I've learned in the East back to the West.

## [ COMPETITION WIN ]

### With Caen Library, OMA Finally Makes Inroads into France

AFTER YEARS of "sending love letters to France," the Office for Metropolitan Architecture has won a competition to design a library in the northwestern city of Caen, says associate in charge Clément Blanchet. It will be the firm's first cultural building in the country.

Blanchet says that OMA, founded in 1975, has wanted to expand its presence in France for more than two decades and hopes to one day open a Paris office. The Bibliothèque Multimédia à Vocation Régionale (BMVR) is a "very important step," toward that goal, says Blanchet, who works out of OMA's Rotterdam office

and oversees all of the firm's projects in French-speaking areas. (OMA's built projects in France include two private houses and Euralille, a business and civic center.)

Caen's new, 137,000-square-foot library will replace a smaller library on the Bassin Saint-Pierre, a marina on the canal that leads to the English

Channel. The new four-story facility will serve as a link between the waterfront and a park, explains Blanchet.

Resembling an X, the library is designed as two intersecting axes. Each of the four planes houses a discipline — human sciences, science and technology, literature, and arts — and points to four landmarks in Caen

(a central train station to the south, new construction in the west, and 11th-century churches in the north and east). At the building's center are two reading rooms. "By intersecting two axes, you create a gradual transition from shared public space to more intimate space," says Blanchet.

According to the firm, the library will meet the Haute Qualité Environnementale, a standard for sustainable building in France. Green features include a seawater heat pump and natural ventilation. BMVR is expected to open by May 2015.

OMA proposed designs for three other libraries in France in the 1980s and '90s. Its Seattle Central Library, completed in 2004, received acclaim for its bold design and the way it elevated the importance of social interaction. The firm's design for the Education City Central Library in Qatar is in progress. *Laura Raskin*



The 127,000-square-meter building is composed of two intersecting axes.



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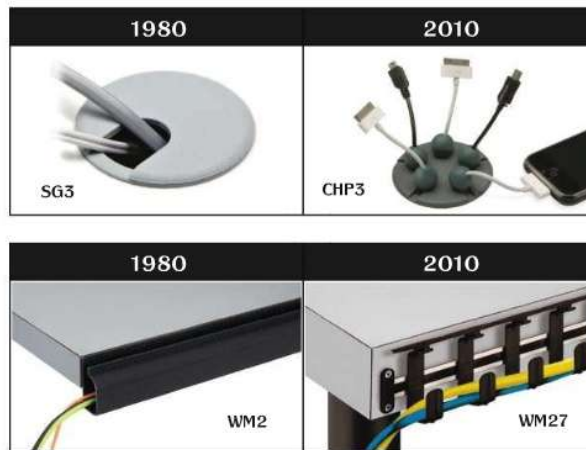
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James Bond vehicles will be displayed in a redesigned old car dealership.

## Gensler Tapped for Bond Museum

**WHEN THE IAN FLEMING** Foundation offered Gensler the chance to design a James Bond automobile museum, the project architect didn't expect to be scoping out sites in Middle America. Brian Vitale, senior associate in Gensler's Chicago office, thought, "Great. When's the next plane to London?"

Before long, Vitale found himself in a remote cornfield in Mokence, Illinois – population 3,200 – standing in front of two large storage sheds. "It couldn't have been a more perfect James Bond setting," says Vitale.

The sheds contain many of the 34 vehicles the nonprofit group wants to display in its new 14,000-square-foot Museum of Bond Vehicles & Espionage. The automobiles, which the Mokence-based organization has been acquiring since 1992, were all featured in movies based on Ian Fleming novels, such as a white Lotus submarine nicknamed "Wet Nellie" in *The Spy Who Loved Me*, or a 1969 Mercury Cougar convertible from *On Her Majesty's Secret Service*.

Expected to cost \$2 million, the museum will occupy a former General Motors dealership near downtown Mokence. The foundation envisions it as a national tourist destination that will attract more than 20,000 people per year. To see Bond attractions, "the only place you can go now, anywhere in the world, is four hours north of London," says Doug Redenius, the foundation's co-founder and vice president, referring to the Bond Museum in Keswick, England. "Everybody is really anxious about wanting to see this."

Construction is expected to start as soon as the owner raises the money needed to move forward. The group hopes to open the museum in 2012 – the 50th anniversary of *Dr. No*, the first Bond movie.

The museum's future home was donated by the city. The dealership closed roughly a decade ago and was turned into a community center; due to underuse, the city offered up the building to house the vehicle collection.

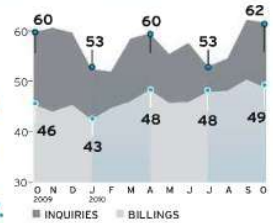
Vitale chose to encase the existing 11,000-square-foot structure in black, factory-painted, corrugated metal with a car-display window as its focal point. The window's far right side is canted to resemble a 7, as in "007." The rest of the facility will contain no apparent openings, reinforcing its secretive espionage theme. Gensler also has designed an L-shaped, 3,000-square-foot addition for the building.

The museum's interior will be mostly white contrasted with bold graphics. A concrete floor and exposed ductwork will give it a workshop theme akin to the Q-Branch laboratory, where Bond famously tested his cars and gadgets. Appropriately, most vehicles will be displayed in what once were shop service bays, which are free of columns.

Designing a Bond museum presented some unusual limitations. Originally, Vitale wanted zeros etched into the glass to underscore the "007" name, but that was nixed after the trademark owner rejected it during negotiations. Dealing with anything James Bond, says Vitale, "is copyright hell." *Tudor Van Hampton*

## ABI Downturn

After rising above 50 in September, the architectural billings index slipped to 48.7 in October. A score below 50 denotes a drop in demand for design services. Kermit Baker, AIA chief economist, says the lack of credit and sluggish economy "are the main impediments to a revival of the design and construction industry." The October inquiries score was 61.7.



## HLW Celebrates 125 Years



Irving Trust Building (1931), New York City.

**FEW FIRMS LIVE** out the rigors of a century. At 183, Kentucky-based Mason & Hanger appears to be the oldest. A mere 58 years its junior, the New York City-based HLW International is celebrating its 125th birthday this year. Founded in 1885 as the eponymous office of Cyrus L. W. Eidlitz, HLW has undergone nine name changes over the decades. Its progenitors have designed some of Manhattan's most iconic projects, including the Irving Trust Building at 1 Wall Street (1931). Today, with 200 employees in five offices worldwide, and current projects like the renovation of the United Nations Headquarters, HLW seems to be thriving. What's the secret to its longevity? There are no stars, according to managing partner, Susan Boyle. "We allow every member on a project team to participate," she says. *Linda Lentz*

## Revealed: Aga Khan Award Winners

**FIVE PROJECTS HAVE** won the esteemed 2010 Aga Khan Award for Architecture: Bridge School in Xiashi, Fujian, China; Ipekyol Textile Factory in Edirne, Turkey; Madinat Al-Zahra Museum in Cordoba, Spain; Revitalization of the Hypercentre of Tunis in Tunisia; and Wadi Hanifa Wetlands in Riyadh, Saudi Arabia. Bestowed every three years, the Aga Khan Award recognizes notable projects in communities where Muslims have a significant presence. The prize fund totals \$500,000. This year's recipients were chosen by a master jury from a shortlist of 19 projects, whittled down from 401 original nominations. The winners were honored at a November 24 ceremony in Doha, Qatar. Look for more coverage in a future issue of RECORD. *Jenna M. McKnight*



The Bridge School, by Li Xiaodong Atelier, is located in a remote village in China.



## Italian Design Street Walking

New York, November 29<sup>th</sup>, 2010 – January 8<sup>th</sup>, 2011

A great trio of events on the theme of Italian lifestyle,  
where art, culture and design intersect.

In April 2011, the Salone del Mobile will commemorate its 50<sup>th</sup> anniversary,  
but that doesn't mean we can't start celebrating  
high-quality Italian design a little early.  
Because quality, combined with innovation and beauty,  
is what makes today's best design products,  
which will in turn become the classics of tomorrow.

Milan's Salone del Mobile thus disembarks in New York  
with a great trio of events that integrates art, culture and design  
in an unprecedented way, thanks in part to the participation  
of 20 of the most prestigious Italian manufacturers with an established presence  
on the American market and showrooms in New York.

In addition to this circuit of 20 showrooms, each of which  
has an 'Italian-style' surprise in store for visitors, "I Saloni Milano" project  
(29 November-8 January) also features two major cultural events.

The first, *Perchance to Dream*, is an installation by Robert Wilson  
that pairs a videoportrait of Italian dancer Roberto Bolle,  
internationally renowned male principal of the American Ballet Theatre  
of New York, with the elegance and functionality of a series  
of landmarks of Italian design. At Center 548, 548 West 22<sup>nd</sup> Street,  
from 30<sup>th</sup> November to 18<sup>th</sup> December 2010.

The second is a re-edition of Peter Greenaway's take  
on *Leonardo's Last Supper*, which debuted in Milan  
during the 2008 edition of the Salone del Mobile.  
The celebrated artist and film director has created a veritable 'clone'  
of da Vinci's masterpiece, combining art, poetry, music  
and cutting-edge technology in an emotionally charged multimedia spectacle.  
At the Park Avenue Armory, from 2<sup>nd</sup> December 2010 to 8<sup>th</sup> January 2011.

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Cosmit is the organiser of the Salone Internazionale del Mobile, launched in 1961 by a coalition of furniture manufacturers within the FederlegnoArredo trade association, and which became the most prestigious international event in the world of furniture design and production. In addition to the Salone Internazionale del Mobile, which is held every April in Milan, Cosmit is the organisational force behind the biennial events EuroLuce and SaloneUfficio/International Biennial Workplace Exhibition (odd years), Eurocucina/International Kitchen Furniture Exhibition and the International Bathroom Exhibition (even years), and the annual International Furnishing Accessories Exhibition and the SaloneSatellite. All these events occupy nearly 230,000 sq.m at the Milan Fairgrounds in Rho, and represent the production of more than 2,500 of the most dynamic companies on the international market, not to mention that of the 700 young designers of the SaloneSatellite. The Saloni have been visited in 2010 by 297,460 industry professionals, more than 50% of whom come from 160 countries. Responding to the request of a significant number of veteran Milanese exhibitors, in 2005 Cosmit launched "i Saloni WorldWide. Furnishing Ideas Made in Italy", held annually in Moscow in October and until 2009 in New York. Cosmit is a member of the ICSID (International Council of Societies of Industrial Design) and ADI (Association for Industrial Design).

[www.cosmit.it](http://www.cosmit.it)



Founded in 1945, FederlegnoArredo is the Italian Federation of wood, cork, furniture and furnishing manufacturers. It gathers more than 2,400 Italian industries. It is part of Confindustria, the main confederation of Italian Industry. It offers services and benefits to the member companies: supports technical and economic development; promotes and carries out professional training and technical education; processes data and gives reports on the production and economic situation; promotes the industry through exhibitions, professional trade fairs and consortiums. It contributes to the protection of the environment by promoting the use of wood. It plans many initiatives of international relevance: thanks to its company network it is one of the leaders in the world of international trade fairs, with the Salone Internazionale del Mobile within the Saloni of Milan, organized by Cosmit Spa - member of FederlegnoArredo srl - since 1961; and MADEexpo - Milano Architettura Design Edilizia, the international event for projects, architecture and building, hosted more than 1,700 exhibitors and 242,000 visitors coming from 118 countries, during its 2010 edition. It has offices in Milan, Venice, Rome and Brussels, and representative offices in Beijing, Moscow and Mumbai.

[www.federlegnoarredo.it](http://www.federlegnoarredo.it)



The Italian Trade Commission (ITC) is the government agency entrusted with promoting trade, business opportunities and industrial cooperation between Italian companies and those worldwide. With its network of 116 offices in 88 countries around the world, the Italian Trade Commission provides information and assistance to all those foreign companies that wish to develop business in Italy. In particular, the Italian Trade Commission provides an overview of the fundamentals of the Italian economy, with information on Italian foreign trade and national trade policies, as well as the most up-to-date information on Italian laws and regulations to attract and facilitate foreign investment. The creation of the online Made in Italy Official Portal (accessible through [www.italtrade.com](http://www.italtrade.com)) is a further tool to promote Made in Italy products on international markets. The Italtrade portal offers foreign partners the opportunity to access information on the Italian market in the business language of each country. The ITC gathers offers and requests from foreign companies interested in developing business with Italian partners. Foreign companies can also find details of trade fairs and exhibitions held in Italy throughout the year. To learn more about Italian design as well as furniture & lighting, please contact us at:

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## THE EMERGING ARCHITECT

A look at just a few of the many recent university design-build projects that are giving architecture students across the country real-world lessons on how buildings get made. BY INGRID SPENCER

# University Design-Build

### Texas Tech University

Lubbock, Texas

Inspired by Henry David Thoreau's cabin at Walden Pond and Le Corbusier's Cabanon in Roquebrune-Cap-Martin in Southern France, the Sustainable Cabin, a prefab dwelling created to test and quantify sustainable architectural concepts, is Texas Tech's first built project for the school's design-build program, which began in 2008. The project is a study of minimal spatial needs for living, as well as a laboratory for testing and measuring the performance of green systems, such as photovoltaics, compost toilets, and rainwater harvesting. Texas Tech's College of Visual and Performing Arts contributed the cabin's art.

### Montana State University

Bozeman, Montana

Montana State University's School of Architecture students, though not yet with a formal design-build program, have been involved in hands-on projects locally, statewide, and internationally for the past eight to 10 years, as part of the university's outreach mission. Projects have included a park shelter at a campground north of Yellowstone National Park, the Khumbu Climbing School, a sustainable building where Sherpas can learn safe climbing skills, in Phortse, Nepal, and a renovation of the Igherm (or Casbah) in Zawiya Ahansal, Morocco. The school's latest project, completed this fall, is the Hyalite Pavilion, a 1,000-square-foot pavilion structure designed to facilitate activities at its location along the Hyalite Reservoir in the Gallatin National Forest,



1



2

1. Texas Tech's Sustainable Cabin was created with the recycled metal chassis of a double-wide mobile home.
2. The University of Arkansas's Little Rock Prefab residence updates vernacular precedents.
3. The University of Virginia's ecoMOD4, emphasizes movement within the house and a connection to the outside.

south of Bozeman. The project won a 2010 AIA Montana Honor Award.

### University of Virginia Charlottesville, Virginia

Since 1999, architecture students at the University of Virginia have been designing and building real-world projects, first as campus improvement initiatives at the university itself and then through ecoMOD, a design-build-evaluate partnership of the UVA School of Architecture and School of Engineering and Applied Science that creates prefab, environmentally sound modular houses for affordable housing organizations. Six ecoMOD houses have been built for



3

technologies for neighborhoods in Allegheny County. So far, the program has produced one completed project, the Hamnett Homestead Sustainable Living Center, a community center and urban farm. Another project, CAFÉ 524, a net-zero adaptive reuse project that will house a nonprofit business incubator and a for-profit café, is currently under construction. A third, the Leslie Park Pool, an adaptive reuse project, is in the design phase.

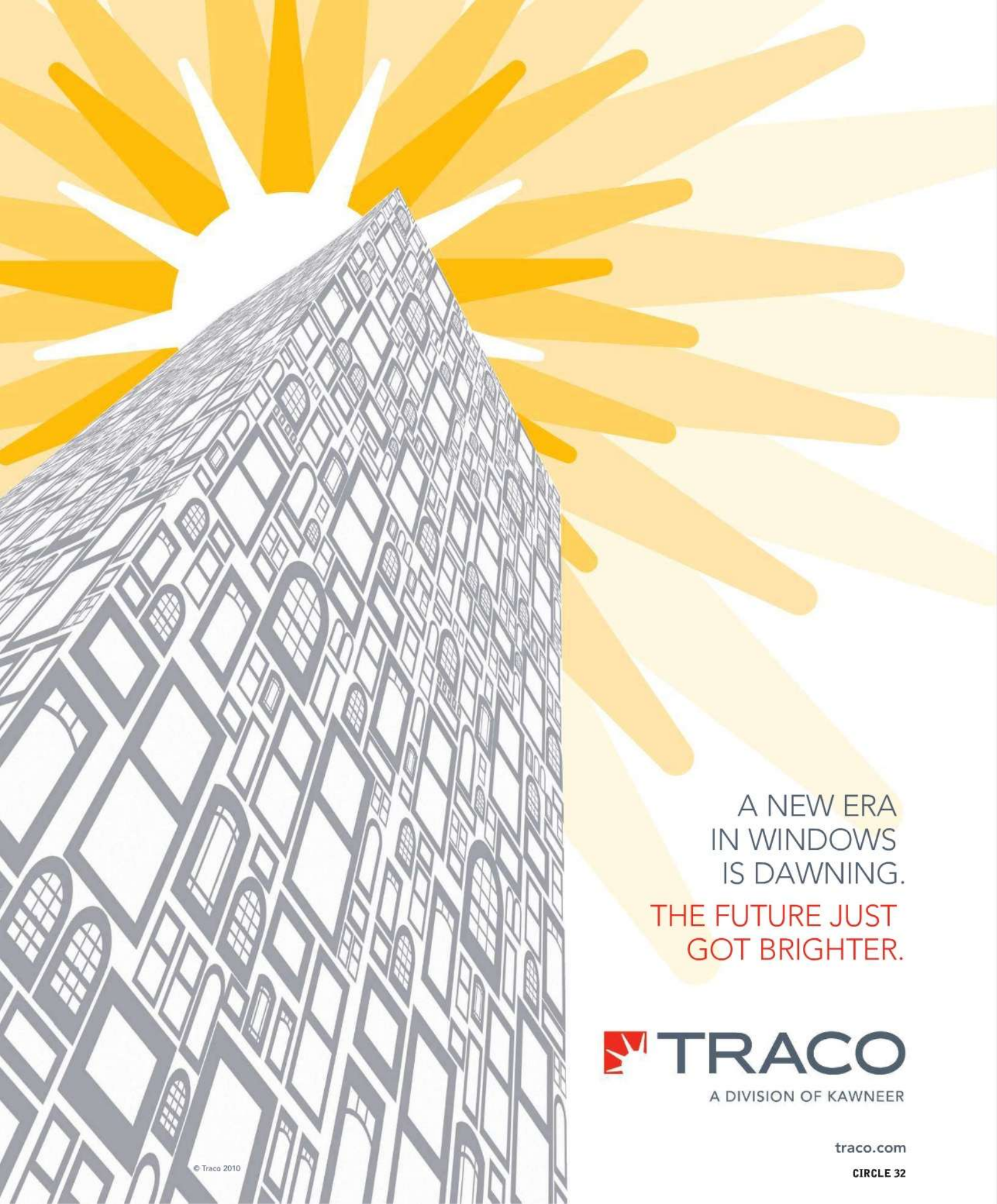
### University of Arkansas Fayetteville, Arkansas

Little Rock Prefab, a 1,260-square-foot house addressing issues of sustainable design and affordability in the context of inner-city America, and the Outdoor Classroom, a project that provides a new outdoor teaching space at an urban elementary school, are the latest of 16 built projects created by students participating in the school's design-build program since it began in 1999. All projects serve the community as part of the program's Tectonic Landscapes initiative, which focuses on creating inspiring built projects in small, unremarkable, and often forgotten places.

Piedmont Housing Alliance and Habitat for Humanity since the program's inception in 2004. Recently completed is ecoMOD4, the Thru House, built for an Afghan refugee family in partnership with Habitat for Humanity.

### Carnegie Mellon University Pittsburgh, Pennsylvania

Carnegie Mellon University School of Architecture's Urban Design Build Studio's mission since 2008 has been to develop regionally specific, climate appropriate building



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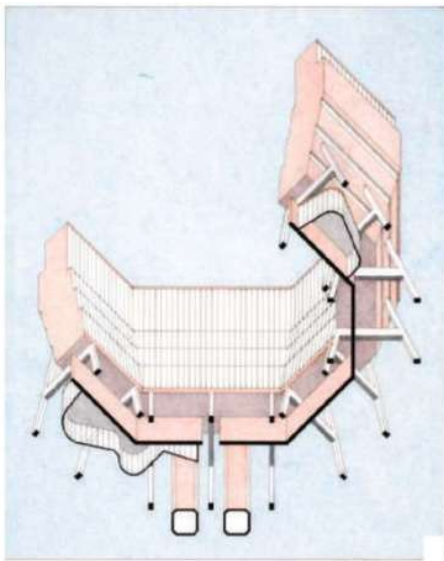
**EXHIBITION NOTES FROM THE ARCHIVE**  
**JAMES FRAZER STIRLING, ARCHITECT AND TEACHER**  
 YALE CENTER FOR BRITISH ART, YALE UNIVERSITY, UNTIL JANUARY 2, 2011

## Polishing Stirling By Alexander Gorlin, FAIA

**WITHIN LOUIS KAHN'S** burnished steel jewel box, the Yale Center for British Art at Yale University, in New Haven, Connecticut, is a remarkable exhibition of the recently forgotten British architect Sir James Stirling. Co-produced by the Yale Center and the Canadian Centre for Architecture in Montreal, this sly show is a sleight of hand. Guest curator Anthony Vidler, dean of The Cooper Union's architecture school in New York, avoids making any conclusions about Stirling's work. Nevertheless, he has organized the exhibition into thematic categories that shed light on the contradictory work of this controversial master. At the time of his early death at 68 in 1992, Stirling was wildly popular, although mainly among architects. Today, in part because of the extraordinarily rapid MTV-like cycle of fame, most young architects have never heard of him.

Stirling's career fits mainly into two parts – the first a robust revival of Modernist abstraction and materiality found in his Engineering Building at Leicester University (1963). At the time, it appeared to be a shockingly raucous cacophony of Russian Constructivist and Victorian-like shapes of brick and glass. Although a series of related buildings – such as the History Faculty Building, University of Cambridge (1968), and the Florey Building at Queen's College, University of Oxford (1971) – followed, Stirling soon abandoned this line of endeavor and merrily embraced the exploration of historical form. In retrospect, some of these works look suspiciously close to the worst excesses of Postmodernism, rivaling those of Michael Graves, FAIA, or Robert Stern, FAIA. None of these projects approached the classic finality of Leicester, except perhaps the Neue Staatsgalerie, Stuttgart (1984). Meanwhile, a number of his buildings, including housing in England at Runcorn (1977) and Preston (1962), have been torn down, and even those at Leicester, Oxford, and Cambridge have been plagued by faulty workmanship. Today, when one is either thoroughly modern, à la Rem Koolhaas or Herzog & de Meuron, or traditional, like Allan Greenberg, few attempt an architectural synthesis, and therein lies the retrospective's appeal.

It is fitting to have the show, aptly titled "Notes from the Archive," open at Yale University, where Stirling was a yearly fixture, teaching from 1959 to 1983. (He was also a professor of mine.) Here can be found the extraordinary and fairly quaint testaments to the talent of this architect's architect in the period just prior to the age of digital design. Tiny hand sketches and doodles, drawings on yellow trace, paper models, and other arcana are on display in a drily presented installation.



However, there should be a sign at the entrance: "Abandon all hope of learning anything about why James Stirling was considered so great, unless you already know his work in detail."

In contrast to most contemporary shows about architects, this one is similar to an exhibition of medieval miniatures: It is for connoisseurs and aficionados of the one-inch-plan diagram that magically, by spell and incantation, becomes a full-fledged work of architecture. Only architects, critics, and the most knowing admirers of the genre can make any sense whatsoever of these artifacts. Oddly, the most lucid part of the show is the presentation of Stirling's student thesis at Liverpool University's School of Architecture, which has numerous drawings, including one of a naked woman frolicking in a bedroom.

Perhaps the most memorable part of the exhibition is leaving it and being confronted by the massive concrete cylinder of the main stair in Louis Kahn's museum, in which the Stirling show is ensconced. Here, then, you imagine two masters, Kahn and Stirling, in a metaphorical dialogue about the fundamental nature of architecture. One knows, of course, that in a real-life conversation, the rowdy Stirling would shout out something improper or outrageous. He liked to shake things up – just as he did through his often-radical architecture.

*Alexander Gorlin, FAIA, is author of the forthcoming Tomorrow's Houses: New England Modernism (Rizzoli).*



1. Axonometric, Florey Building, Queen's College, University of Oxford, 1966-71.

2. James Stirling, ca. 1960.

3. The show includes Stirling's favorite objects: the "Grand Confort" chair, 1929, by Le Corbusier and Charlotte Perriand (left); the English Side Chair (Hope Chair), ca. 1802-10, from a design by Thomas Hope; and prints by Eduardo Paolozzi, all 1965.



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# design vanguard 2010

In times of stress, new patterns often appear first at the edges – those places both geographic and metaphoric that are far from traditional centers of activity or thought. So it should come as no surprise that a small firm in Vancouver, Canada, is pioneering a form of practice that doesn't depend solely on clients to generate paying work. Or that a pair of Harvard graduates decided Louisville, Kentucky, offered them the best chance to make a difference. Or that a Chinese firm is doing some of its most innovative work in Tibet and a firm from Switzerland is pushing boundaries in Inner Mongolia. Even in a large city such as London, some architects are working at the edge of the typical project life span, creating works that last just a few days or weeks. By definition, the emerging architects profiled each year in our Design Vanguard stand on the outside – of the profession, the economic system, the power structure – figuring out ways to break in or make the old centers irrelevant. *Clifford A. Pearson*

## FEATURED FIRMS

CARMODY GROARKE

HIROSHI NAKAMURA & NAP ARCHITECTS

W.PA / WORKS PARTNERSHIP ARCHITECTURE

MOLO

STANDARDARCHITECTURE

IVÁN JUÁREZ & PATRICIA MENESES

CHENCHOW LITTLE ARCHITECTS

L.E.F.T

HHF ARCHITECTS

DE LEON & PRIMMER ARCHITECTURE WORKSHOP

Continued

ARCHITECT PORTRAITS BY GRAFILU



**From the ephemeral to the permanent, a London-based firm is exploring the means and meaning of architecture in projects both public and private.**

**LOCATION:** London, England

**FOUNDED:** 2006

**DESIGN STAFF:** 8

**PRINCIPALS:** Andrew Groarke (left), Kevin Carmody

**EDUCATION:** Groarke – University of Sheffield, M.A., 1996; University of Sheffield, B.A., 1993. Carmody – Royal Melbourne Institute of Technology, B.Arch., 1997; Bachelor of Applied Science, Canberra University, 1995

**WORK HISTORY:** Groarke – Haworth Tompkins, London, 2002–2005; David Chipperfield Architects, London, 1998–2002. Carmody – Hamilton Associates, London, 2005–2006; David Chipperfield Architects, London, 2000–05; Metier 3 Architects, Australia, 1997–99

**KEY COMPLETED PROJECTS:** Studio East Dining, London, 2010; Regents Place Pavilion, London, 2010; Brioni/Wallpaper Pavilion for the Milan Furniture Fair, Milan, 2010; 7 July Memorial, London, 2009; Underground Spa, Ireland, 2008

**KEY CURRENT PROJECTS:** *Drawing Fashion* exhibition at the Design Museum London, 2010; Bistrottheque restaurant, London, 2010; PEER Gallery, London, 2011;

High House, Norfolk, UK, 2012; Sheffield Festival Centre, Sheffield, UK, 2013

**WEB SITE:** [www.carmodygroarke.com](http://www.carmodygroarke.com)

# CARMODY GROARKE

**HAVING DESIGNED A PAVILION** for a three-day event and a memorial required to stand for at least 200 years, Kevin Carmody and Andrew Groarke have wrestled with that most slippery of human constraints: time. Confronting such extremes on the scale of project life spans has underlined for the London-based architects the need to find appropriate solutions to questions of materials, construction, iconography, and context. So for the 72-hour-long installation they built at the 2010 Milan Furniture Fair, they used 12,000 red threads lit from above, emphasizing the ephemeral nature of the piece. But for the 7 July Memorial in London's Hyde Park (honoring the 52 people killed in the terrorist bombings in the city's subway system in 2005), they created a small forest of 52 stainless-steel columns that projects an image of strength and permanence.

"We're interested in the friction that's generated from working on very different kinds of assignments – from pop-ups to memorials," says Carmody. "Ultimately, though, each project comes down to a series of value judgments," adds Groarke, referring to decisions affecting the type and cost of materials, the construction process, spatial relationships, and other aspects of design. For example, the architects decided they would use only "borrowed" materials for a dining pavilion in London that would stay up for just three weeks. So instead of creating waste in the form of elements used once then discarded, they designed a structure made with standard scaffolding poles that can be used again and again. "Buildings need to respond to their particular circumstances," states Carmody. "They have responsibilities to the site, the brief, the users, and the larger context."

Carmody and Groarke met while working at David Chipperfield Architects. They served on a team designing a studio complex for the artist Antony Gormley, a project that provided spaces for drawing, painting, sculpting, welding, casting, and photography. "It taught us the importance of using light and space in very particular ways," explains Groarke. It also brought them in close collaboration with Gormley, a leading figure in contemporary British art. "We realized that working with an artist isn't about making architecture more like art; it's about making architecture that's driven by a series of ideas," says Carmody. "It's about researching the limits and goals of architecture," says Groarke. "The architect's contract is different from the artist's contract," adds Groarke, explaining how architects must respond to a client's needs and to a broad range of concerns – from the environment to the social context.

Talking about an underground spa they designed in Ireland – a project in which an ethereal light washes surfaces both solid and liquid – the two men explain that they're not interested in details for details' sake. Rather, they try to focus on the larger spatial and functional issues. They also want to take intimate and everyday moments in a project and make them memorable – a countertop in a kitchen, let's say, or the sequence of moving from swimming pool to changing room.

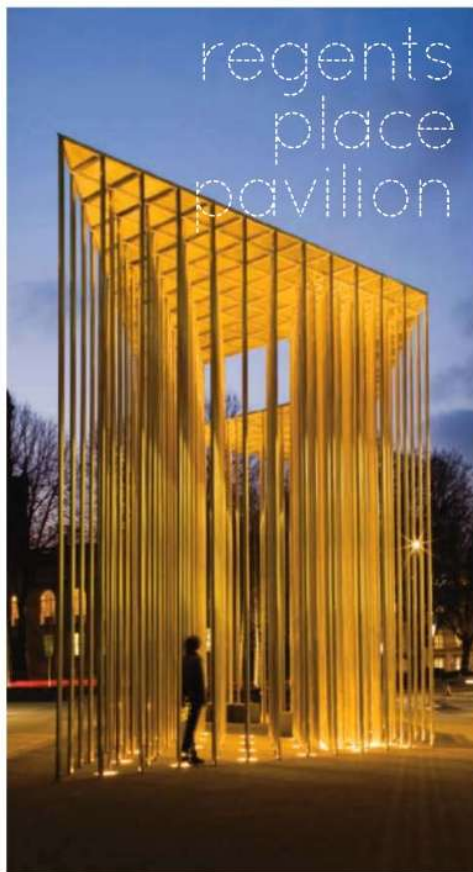
The firm is busy with projects such as a temporary performance space in Germany's Ruhr valley; a house in Norfolk, U.K.; and a festival center in Sheffield. "We're interested in balancing opposing forces," says Carmody, "public and private, temporary and permanent, but always maintaining a connection with craft." *Clifford A. Pearson*





**PERCHED ON TOP OF A 115-FOOT-HIGH PARKING** garage still under construction, this temporary dining pavilion in London oriented visitors to a series of views filled with high-profile architecture both in process and completed. In one direction it framed the stadium being built for the 2012 Olympics, in another Zaha Hadid's aquatic center also under construction, and in the distance Norman Foster's "Gerkin" and the office towers of Canary Wharf. A pop-up satellite of the restaurant Bistrottheque, the 8,600-square-foot pavilion took 10 weeks to design and build, then remained up for just three weeks during the summer of 2010. Employing a witty and ecologically responsible strategy, Carmody Groarke built the pavilion with materials salvaged from the construction site underneath it: scaffolding poles for the structural frame, rough lumber for interior partitions and flooring, and polyethylene wrapping (used to hold steel elements together during transport) for the building's translucent envelope. The spokes of the starburst-shaped pavilion provided intimate spaces for up to 140 diners, while the angled roofs expanded views of the architectural attractions in the surrounding landscape. The architects say they spent a week at a scaffolding yard learning the craft of temporary construction.





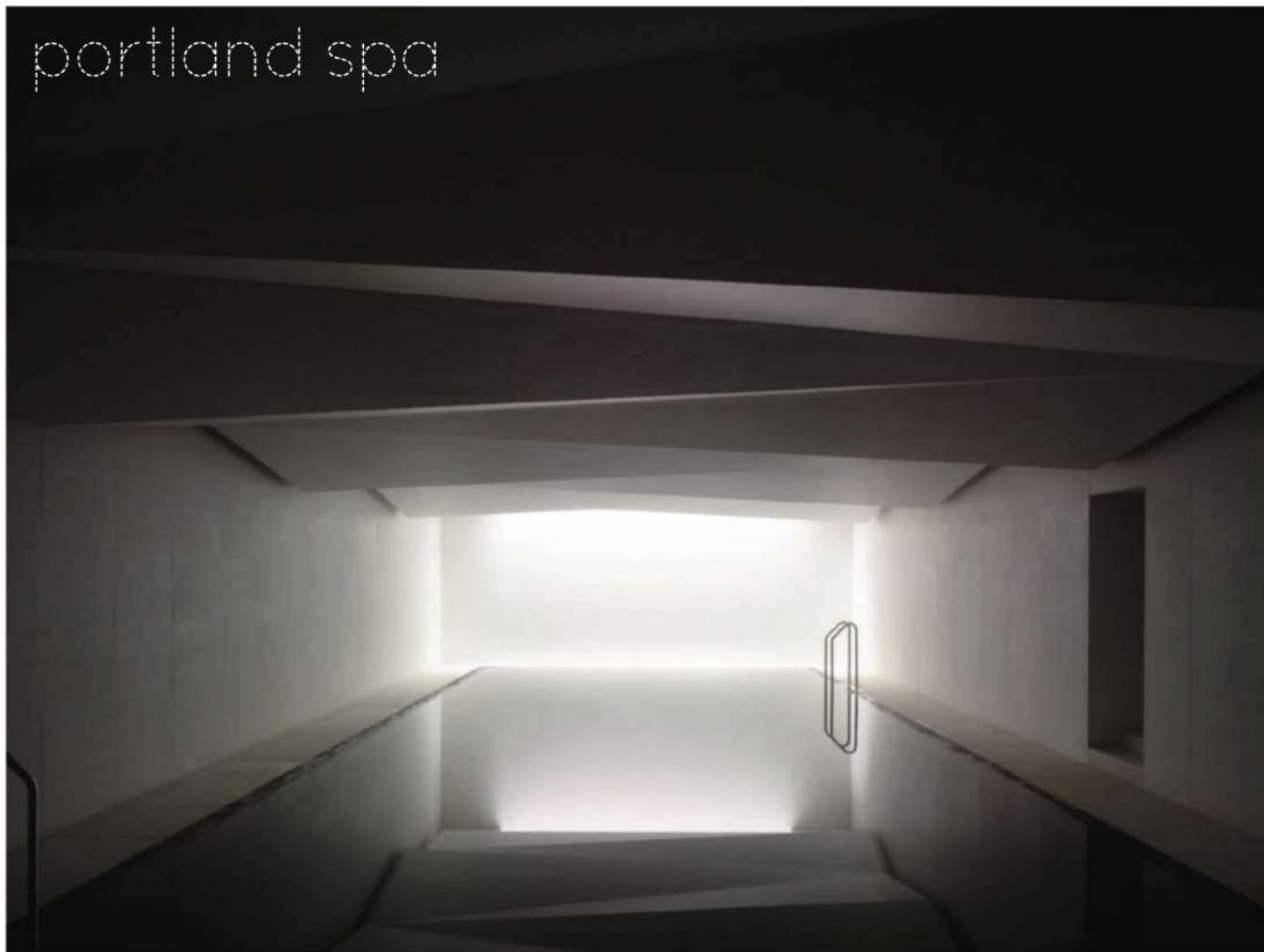
**IN THE ENGLISH TRADITION OF FOLLIES, THIS** permanent pavilion in London attracts the eye and draws visitors to a structure that's neither indoors nor out. But instead of sitting on the grounds of a country estate, this pavilion helps animate a streetscape built for a new commercial development. "The steel rods represent a copse of ornamental trees supporting a shimmering gold canopy" 25 feet above the street, say the architects. By removing some rods, Carmody Groarke created pathways through and seating areas within the steel forest. Up-lighting at night creates a moiré effect for people passing by.

**BUILT TO HONOR THE 52 PEOPLE KILLED DURING THE** 2005 terrorist bombings in London's subways and buses, this memorial organizes 52 cast stainless-steel pillars in four clusters, one for each of the bombing sites. The design creates a place that allows for both communal grief and private contemplation in one of London's largest and most visited parks. Each 3.5-meter- (11.5-foot)-high pillar weighs 1,875 pounds, giving it a sense of strength and permanence. Carmody Groarke won the project in an open competition and collaborated with Arup on the design. The architects and engineers met with the families of the victims during the design process and brought in artist Antony Gormley as a consultant.



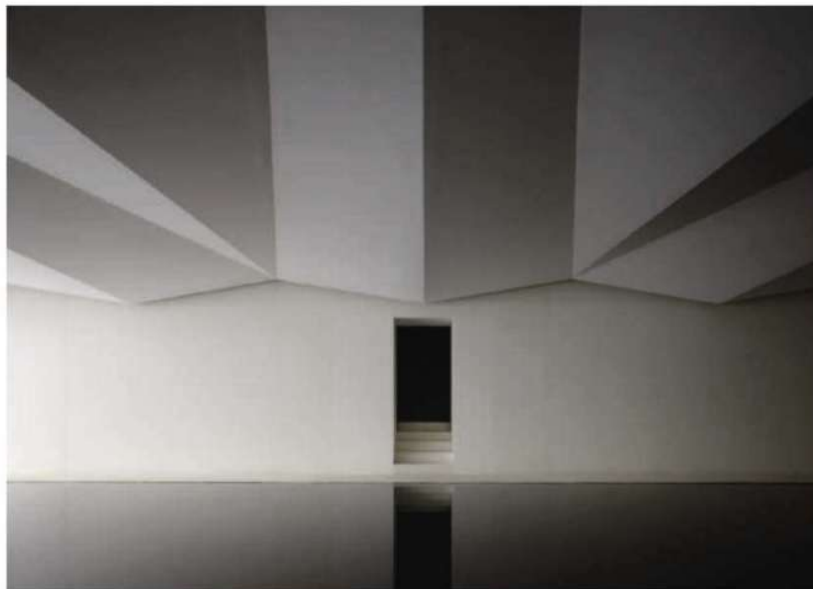
**A NEW ENTRANCE BUILDING FOR THE SHEFFIELD FESTIVAL CENTRE** provides additional space for cinemas and offices for the arts organization. Won in a competition, the 30,000-square-foot project will also increase the client's street presence and offer roof terraces where visitors can relax and take in views of the city. The architects used a series of large windows and stepped building forms to give the project a robust public profile. Inside, they tucked the new cinemas in the basement level, added new offices on upper levels, designed an enlarged bar, renovated space in an existing warehouse building, and tied the various parts of the complex together.





**TUCKED BELOW AN EXISTING MANSION IN LIMERICK,** Ireland, this private spa turns an underground facility into a poetic essay on space, light, and reflection. As part of the renovation of the former Bishop of Ireland's palace and its conversion to a private residence, Carmody Groarke excavated below the building to create a 4,850-square-foot spa with a 55-foot-long swimming pool, sauna, treatment rooms, and gymnasium.

The client asked the architects for a set of spaces with a completely different character from those in the house above and a place that visitors would discover as a surprise. Carmody Groarke responded with a Zenlike design that starts with almost austere, stone-clad surfaces (including the pool), then animates them subtly with a folded ceiling made of plaster and a combination of daylight and electric light. The ceiling not only plays an important visual role in creating interesting reflections on the water and catching the light but serves the more utilitarian function of hiding all the mechanical equipment needed for the pool and spa. So what people don't notice is as important as the halo of light hovering above the water and lingering in their memories.





**A Tokyo-based architect demonstrates a knack for handling materials and fitting buildings into their natural and urban contexts.**

**LOCATION:** Tokyo, Japan

**FOUNDED:** 2002

**DESIGN STAFF:** 12

**PRINCIPAL:** Hiroshi Nakamura

**EDUCATION:** Meiji University, M.Arch., 1999;  
Meiji University, B.Arch., 1997

**WORK HISTORY:** Kengo Kuma & Associates,  
1999–2002

**KEY COMPLETED PROJECTS:** Roku  
Museum, Tochigi, 2010; House C, Chiba, 2008;  
Dancing Trees, Singing Birds, Tokyo, 2007;  
Lotus Beauty Salon, Mie, 2006;  
House SH, Tokyo, 2005;  
Lanvin Boutique Ginza, Tokyo, 2004

**KEY CURRENT PROJECT:** Jingumae Forest  
Building, Tokyo, 2012

**WEB SITE:** [www.nakam.info](http://www.nakam.info)

*Naomi R. Pollock, AIA, is  
ARCHITECTURAL RECORD's Tokyo-based  
special correspondent.*

# HIROSHI NAKAMURA & NAP ARCHITECTS

**IN JAPAN, WHERE** few buildings are made to last, trees are mostly dispensable, and real estate remains among the world's priciest, most architects simply nod politely to the notion of context. But the Tokyo-based designer Hiroshi Nakamura worships it. Whether they are cupping leafy boughs, jutting between tree trunks, or echoing urban eclecticism, his quirky buildings fit their sites as perfectly as toes in a *tabi* sock. Nakamura's environmental awareness began during his childhood in the city of Kanazawa, where he liked to build nestlike cardboard houses. As a student at Meiji University, he caught the attention of Kengo Kuma, who was serving as a competition juror and offered him a job in 1999.

In his three years at Kuma's office, Nakamura ran several small projects through to completion and learned from the skilled craftsmen and carpenters who often collaborate with the firm. As project architect for Plastic House in Tokyo, he saw how Kuma used contemporary materials, a skill he would need on the commission that launched his solo career – a high-profile boutique in the heart of Ginza for the French fashion house Lanvin. The client for this project, who had wanted a young architect from the start, hired Nakamura after visiting Plastic House. At Plastic House, a translucent plastic skin admits daylight inside; but at Lanvin, Nakamura punctured the facade with clear acrylic cylinders to dot the shop interior with daylight. Following his mentor's model, he worked closely with fabricators, in this case shipbuilders, to create the boutique's unique facade. It consists of two layers of steel plate punctured with 3,000 portholelike openings and pinned together by the acrylic pegs.

Nakamura continued to craft his architecture with House C, a weekend retreat for a young family near the Chiba Prefecture coast. A large, one-room dwelling looking out to sea, the building takes a literal approach to fitting into its setting. Using trowels and shovels, family members teamed up with Nakamura's staff to slather the entire exterior with ocher-colored soil from the site and plant native grasses on the roof. But Nakamura's reverence for nature isn't limited to the countryside. His project Dancing Trees, Singing Birds – a six-unit housing complex in central Tokyo, nestles within an existing grove of trees, with each apartment crafted to fit between the trunks and branches. In a similar vein, the recently completed Roku Museum dips and swoops to mold itself around the site's newly planted trees.

Right now, Nakamura is working on Upper Forest, a large commercial complex that will actually add trees to the city. Won in an international competition, the project stands at the key intersection of Meiji Street and Omotesando, Tokyo's elegant boulevard lined with designer boutiques and rows of leafy zelkovas. Nakamura's design calls for a collage of small volumes that will hold tenant spaces and respond to the neighborhood's chaotic built environment; a rooftop garden will echo the greenery at grade.

Nakamura's ecological stance breaks with convention in Tokyo, where organic growth usually means the steady cycle of demolition and construction. His care and respect for landscape seems rooted in the past but also bodes well for the city's future, establishing an important precedent for the next crop of designers. *Naomi R. Pollock, AIA*



**THIS SIX-UNIT HOUSING COMPLEX APPEARS TO STAND IN A JUNGLE, BUT IT** actually sits in the heart of Tokyo. Embedded in a grove of mature trees, the building responds to the setting with eight cantilevered boxes that maximize the size of the apartments without requiring contractors to cut a single bough. Enlisting the help of an arborist, Nakamura achieved this feat by painstakingly finding the trees' roots, then building around them. Above grade, he measured the branches and simulated their growth and movement to determine where to put the protruding rooms. The building was constructed without the use of cranes (because the equipment can damage trees), making for a relatively lengthy and costly process. But by tailoring the building's form to the trees, Nakamura demonstrated that architecture can coexist amiably with nature.

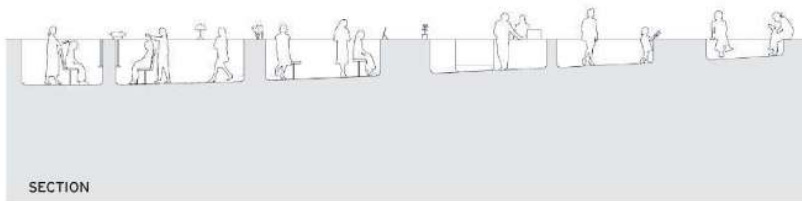


### NAKAMURA'S FIRST RESIDENTIAL

commission, House SH is located amid a dense neighborhood in the center of Tokyo. Designed for a couple in the café business and their young daughter, the house is hemmed in by existing buildings on three sides and faces a narrow street followed by condominiums to the north. Given these tight conditions, the architect realized that windows were basically out of the question. So to bring in daylight without compromising privacy, Nakamura capped the house with a large skylight that floods the four-story interior with soft light, and he fronted the house with a solid wall. To maximize his clients' usable space while providing the off-street parking required of all Tokyo car owners, Nakamura created a bulge in the facade that provides a built-in seating element in the living area.



**COMPOSED OF A SEQUENCE OF CIRCULAR SPACES,** this hair salon in Mie Prefecture centers on the relationship between the stylist and client. As the stylist shears away, he or she moves around the customer's chair in a space carved out for just the two of them. Enclosed by partial walls, these intimate, podlike areas lend a degree of privacy. To provide visual separation within the interior, the floor slopes downward 39 inches from the entrance to the other side of the salon. A band of circulation space connects all the work areas at the upper level. As the floor slopes, walls take on different functional roles, such as a bench in the waiting area or a counter in the reception area. Only beneath the cutting chairs is the floor completely level.



SECTION



PHOTOGRAPHY: COURTESY NAP (ROKU MUSEUM)

**LOCATED IN TOKYO'S FASHIONABLE GINZA SHOPPING DISTRICT, THIS** boutique lights up the street like a diamond-studded party dress. Embedded in its steel-plate facade are 3,000 acrylic cylinders that animate the interior with shimmering dots of daylight and enable passersby to peek inside. To forge a seamless connection between the plugs and the wall openings, Nakamura worked closely with shipbuilders versed in steel-plate construction. Together they devised a system of freezing the acrylic cylinders before inserting them into the lathe-cut openings in the steel. As the tubes thawed, they expanded and filled the holes snugly without any need for sash or sealants. Spanning the double-layered facade's 2.3-inch depth, the cylinders range in diameter from 1.75 to 2.3 inches.



**INSTEAD OF STARTING WITH THE BUILDING, NAKAMURA** began this project by thinking about its garden. To render the site suitable for his vision of a museum, he had to transform the banal, suburban property in Tochigi Prefecture into a richly planted environment. Designed to fill in the gaps between the trees in his man-made forest, the building dips to conform to low-hanging boughs and rises where there is a break in the foliage. As if walking through a grove of trees, gallerygoers stoop to enter the building, then experience art enhanced by views of nature.



An Oregon practice thrives by devising design-driven schemes that meet the needs of its developer clients.

**LOCATION:** Portland, Oregon

**FOUNDED:** 2005

**DESIGN STAFF:** 10

**PRINCIPALS:** William Neburka,  
Carrie Strickland

**EDUCATION:** Neburka – Syracuse University, B.A., 1997; Strickland – University of Cincinnati, B.A., 1999

**WORK HISTORY:** Neburka – Opsis Architecture, 2003-05; Potestio Architect, 2002; Strand/Neburka.Architects, 1999-2002; Kiss + Zwigard Architects, 1996-99; Koetter Kim & Associates, 1989-91. Strickland – DiLoreto Architects, 2002-05; Hub and Weber Architecture, 2000-02; GBBN Architects, 1998-2000; Sienna Architecture Company, 1996-97; Pieper O'Brien Herr Architects, 1994

**KEY COMPLETED PROJECTS:** Prototype A Tract House, Ridgefield, Wash., 2010; Bunk Bar, Portland, Ore., 2010; tandemDUO, Portland, Ore., 2010; bSIDE6, Portland, Ore., 2009; Milepost5 Artist Housing, Portland, Ore., 2008; Olympic Mills Commerce Center, Portland, Ore., 2007; 3808 Williams – The Hub, Portland, Ore., 2006

**KEY CURRENT PROJECTS:** Convention Plaza, Portland, Ore., 2011; grow.PDX, Portland, Ore., 2011; Theatre 300b, Portland, Ore., 2012; Workforce Housing, Portland, Ore., 2012

**WEB SITE:** [www.worksarchitecture.net](http://www.worksarchitecture.net)

# W.PA/WORKS PARTNERSHIP ARCHITECTURE

**WILLIAM NEBURKA DESCRIBES** the founding of W.PA/Works Partnership Architecture, the firm he and Carrie Strickland started five years ago, as “kind of a shotgun marriage. Carrie and I didn’t really know each other when we started the office.” But a developer with a big project in his back pocket had been encouraging Strickland to start her own office so she could take it on, and when she expressed reluctance to go it alone, he introduced her to Neburka. The two aspiring firm owners got together over drinks to discuss the possibility of working together. Strickland adds that their first meeting was “totally like a first date,” with the two of them agreeing on two things, at least: They both wanted to start firms, and the firms they started would most assuredly be design-oriented. “The project was too enticing to pass up,” Neburka continues, and with a large project in hand, they set up shop.

To date the firm’s clientele have been developers in the commercial office and multi- and single-family housing markets. Taking advantage of the fact that Portland has intense competition for office tenants, meaning that developers must use design as a way to attract them, the duo have turned out bSIDE6 (opposite), their first ground-up building, along with the 172,000-square-foot Olympic Mills Commerce Center and several housing projects. To attract housing developers, they have invented manufacturing systems that allow some elements of these buildings to be economically prefabricated.

Developers are pragmatists at heart, far more interested in the bottom line than, say, the niceties of cornice detailing. Yet Strickland and Neburka agree that one key to their success in subtly pushing a design agenda is to use a rational approach to show how good design will help make projects more successful. “People were willing to take a chance on us even though we were new because we never sat down and said, ‘Oh, here is a conceptual idea. Isn’t it cool?’” says Strickland. “We were talking about building design in a way that they could understand it, even if the conversation we were having on our own was a little different.” Neburka adds, “We’re comfortable looking at things very, very objectively. Once you can evaluate ideas and criteria that way, versus ‘We like this so you should like it, and you shouldn’t like this,’ then it really gets down to how functional design is going to improve their prospects for surviving economically and making money. We find that they care about the same things we do, but for different reasons.”

They also agree that being in the City of Roses, whose population is only 580,000, helped too. Neburka says, “You feel like you’re part of the conversation as opposed to just witnessing the conversation. There is nobody you can’t get on the phone, and there’s no construction issue that we can’t solve by talking to someone. Elsewhere, people come to the office with preconceived notions of what they want. The first meeting is where they bring the magazines out. In five years no one has brought a magazine in here and said, ‘This is what we want.’ Here, people are more open to you.”

We might not expect a “shotgun marriage” to be a success, but Neburka says, “Our interests and our abilities are so complementary – it’s serendipity, I guess.” It is a good thing. Olympic Mills, the project the pair went into business to get, went on hold almost immediately after they opened their doors. The project came back eventually, but many young firms wouldn’t have survived the crash business-development effort that saved their fledgling business. *Charles Linn, FAIA*



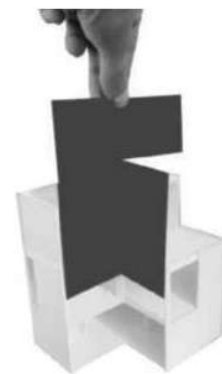
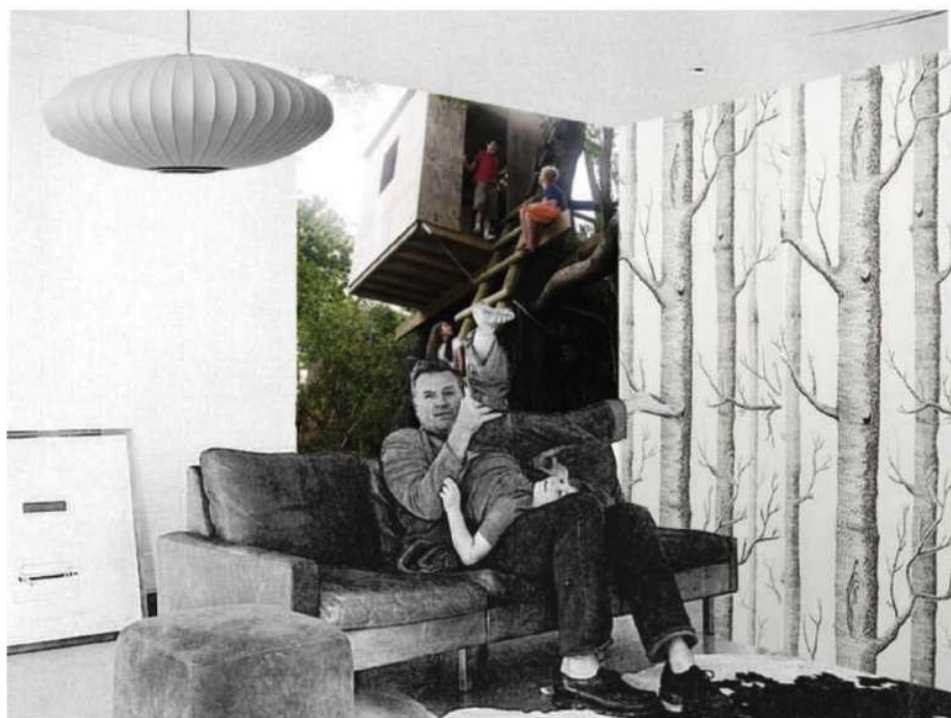
**BSIDE6 IS THE FIRST BUILDING W.PA DESIGNED FROM SCRATCH. THE CLIENT WAS** already working with another architect but asked the firm to look at the project's pro forma analysis. Strickland and Neburka noticed several ways the proposed building could be made more viable, and they won the job. For example, through the use of post-tensioned concrete slabs, offices could be column-free, and with shallower slabs, an extra floor could fit within the neighborhood's zoning height limits. The seven-story office/retail building is located in Portland's historic arcade district, created in the 1920s when East Burnside, a major street, was widened. Back then, the city claimed 12 feet of space for new sidewalks from building owners, forcing them to move storefronts behind the sidewalks but allowing upper stories of the buildings to remain as they were. It is still permissible for the upper floors of new buildings within this district to project into the public right-of-way. The architects took advantage of this to cantilever floors and balconies over the sidewalks in the arcade district tradition. The rest of the building is sheathed in metal panels and inexpensive storefront glazing.

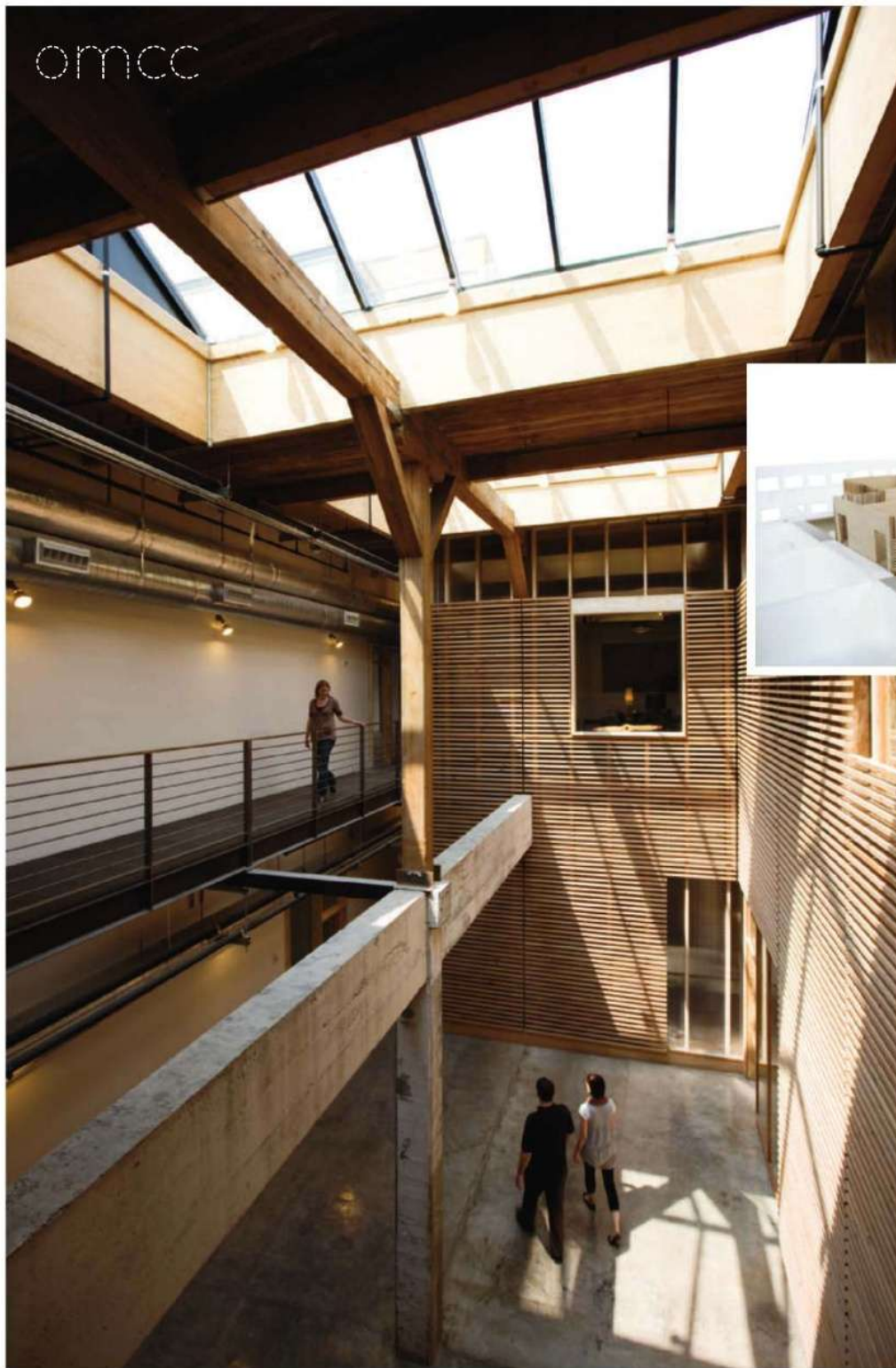


grow.pdx



**THE GROW.PDX PROJECT IS A COMMUNITY-ORIENTED MULTIFAMILY HOUSING COMPLEX.** W.PA conceived the 19-unit development as a starter-home alternative to Portland's typical high- and mid-rise condominiums. The concept is to incorporate all the things that made suburban life popular in a modern, sustainable, urban community. The 850- to 1,100-square-foot units have been arranged around the site to take advantage of the views, and each has access to a shared central courtyard as well as a private exterior garden. The buildings were designed to be built out of metal shipping containers, but a special type was required, and these turned out to be costly and scarce. With many carpenters in the area out of work, it has turned out that conventional stick framing will be less expensive. The developer of the project is currently seeking funding.





#### THE OLYMPIC MILLS COMMERCE

Center began its life as a cereal mill located in Portland's Central Eastside Industrial District, a gritty area that has become a magnet for designers and tech startups. Prior to W.PA's remodel, only a tiny amount of this 1920s-era building, whose two-story base covers an entire city block with an eight-story grain elevator rising at one end, was rentable. Although the building's heavy-timber-and-concrete-frame construction is dense by modern office standards (most of the building's columns are only 12 feet apart), none of the structural system could be removed. So W.PA could make only modest interventions. To open up the building's 200-by-200-foot first- and second-floor plates, the architects dropped in four two-story skylit atria without touching the structure. Although this meant the loss of some floor space, the offices that were created now have access to daylight through windows cut into the atrium shaft walls. These lightwells are lined with floor decking recycled from the building.



**This multidisciplinary design and production studio based in Vancouver integrates architecture, craft, and industrial design with a unique entrepreneurial spin.**

**LOCATION:** Vancouver, Canada

**FOUNDED:** 2003

**DESIGN STAFF:** 20

**PRINCIPALS:** Todd MacAllen,  
Stephanie Forsythe

**EDUCATION:** MacAllen – Dalhousie University, Halifax, M.Arch., 2000; Technical University of Nova Scotia, B.Environmental Design, 1993; University of Victoria, B.F.A., 1991. Forsythe – Dalhousie University, Halifax, M.Arch., 2000; Technical University of Nova Scotia, B.Environmental Design, 1996

**WORK HISTORY:** MacAllen – Forsythe + MacAllen, 1996–2001; Shin Takamatsu Architects and Associates, Berlin, 1992. Forsythe – Bing Thom Architects, Vancouver, 2001–03; Johnston Davidson Architecture + Planning, Vancouver, 2001; James Carpenter Design Associates, New York, 1997–98; Forsythe + MacAllen, 1996–2001; Steven Holl Architects, New York, 1995

**COMPLETED PROJECTS:** Cloud Softlight, 2010; Northern Sky Circle, Anchorage, 2009; Softwall + Softblock System with Integrated LED Lighting, 2009; Kraft paper Softseating, Softwall + Softblock System, Textile Softblocks, Love Letter light, 2006; Textile Softwall, 2005; Float tea lantern and cups, 2004

**CURRENT PROJECTS:** Aomori Nebuta House, Aomori, Japan, 2011

**WEB SITE:** [www.molodesign.com](http://www.molodesign.com)

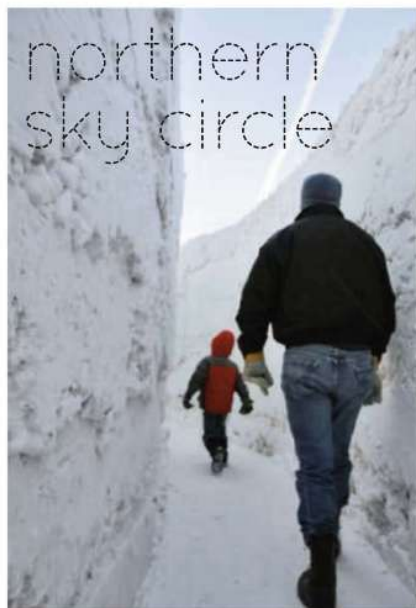
# MOLO

**STEPHANIE FORSYTHE AND TODD MACALLEN** are not paper architects in the traditional sense. Partners in life as well as business, the two founders and design principals of the Vancouver-based firm Molo share an enduring fascination with making things. Their preoccupation with process informs a growing body of work that ranges from an architectonic glass tea service to modular paper walls to a whimsically fluid museum in Japan set to open early next year. Indeed, the name Molo, a playful acronym for “middle ones little ones,” reflects the size and form of this multidisciplinary design and production studio’s output: small (furnishings and products) and medium (interior structures and exhibitions) in addition to large (buildings).

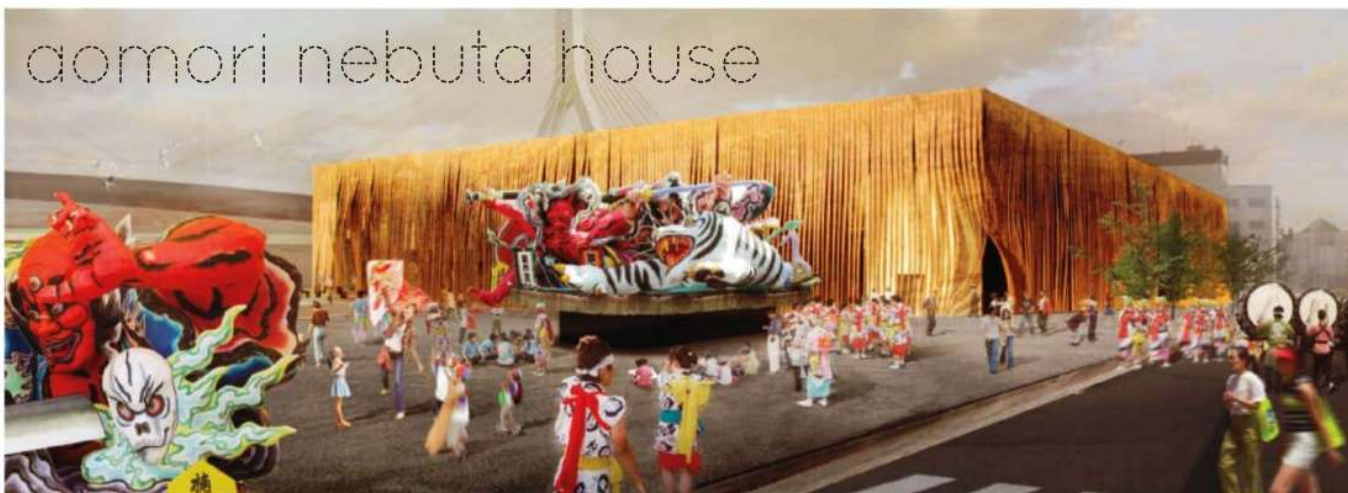
As students, both Forsythe and MacAllen supplemented degrees in environmental studies and architecture with schooling in stonework and fine art (MacAllen has a B.F.A.), printmaking, glass blowing, furniture design, metalwork, woodworking, and ceramics (Forsythe). A stint designing and building houses from the mid-’90s to early ’00s bolstered their hands-on ethic and taught them the value of collaborating with top-notch tradespeople. But the realities of running a small custom firm kept the partners from spreading their creative wings. “We learned that we’re not oriented to working with [private] clients and that we actually just like doing projects that we come up with,” notes MacAllen.

So the architects turned to things they could afford to produce, exploring materials and space-making at a smaller scale. At the same time, they entered select design and architectural competitions. This bold, pragmatic move paid off. Two early projects won competitions in 2001, laying the foundation for a practice that fuses architecture, industrial design, and sales. One winner, a design for a sleek tea set in functional borosilicate glass, led to the couple’s first viable product. The other, a housing complex-turned-museum, will be their first built work since the launch of Molo in 2003 with business partner Robert Pasut.

Today, Molo is self-sustaining and continues to evolve as an entrepreneurial design firm – producing paper and textile modular interior elements, participating in exhibitions, and examining the idea of flexible shelters. “It’s a luxury,” says MacAllen. “We’re trying to find ways we can do more, especially when the business is healthy.” *Linda C. Lentz*



**LOCATED IN ANCHORAGE, THIS INSTALLATION** was part of a January 2009 winter fest throughout the city dubbed FREEZE. Collaborating with a sound artist, the architects created a spaliike outdoor experience in the form of a circular room entered through a tall, narrow opening and mazelike passageway. Made of snow removed from roads and parking lots, the ephemeral structure became a gathering space, warmed by a crackling fire, where visitors could engage with one another in the middle of the city.



## aomori nebuta house

**THIS 65,000-SQUARE-FOOT MUSEUM AND CULTURAL CENTER** in northern Japan evolved from a winning mixed-use development scheme for the Aomori City Northern Style Housing competition, organized to revitalize this aging urban center. The simple steel-framed structure is dedicated to the history, art, and craft of the city's Nebuta Festival, an annual preharvest event known for its parades of luminous floats that evoke traditional stories with supersize creatures made of paper and lights. Fully glazed on three sides, the sculptural building is encircled with twisted, 39-foot-tall ribbons of steel finished in a refined bridge coating that shimmers in an iridescent, lacquerwarelike red, an elegant tribute to this popular celebration.



## softwall

**A WORK IN PROGRESS SINCE ITS INCEPTION IN 2003,** this modular freestanding system is part of Forsythe and MacAllen's ongoing research into the development of flexible interior structures and spatial configurations. Inspired by folding Chinese decorations, the designers use kraft paper or polyethylene nonwoven textile to fabricate compressed pleated elements in sizes up to 9.8 feet tall that expand and connect with magnets to shape innumerable contemporary environments. Most recently, the couple embedded LED lighting within the honeycomb layers to provide a subtle backlighting option.





# STANDARD-ARCHITECTURE

This firm pursues multiple narratives in projects of very different scales, attitudes, and settings.

**LOCATION:** Beijing, China

**FOUNDED:** 2001

**DESIGN STAFF:** 25

**PRINCIPALS:** Zhang Hong (left), Zhang Ke (center), Claudia Taborda (right)

**EDUCATION:** Zhang Hong – Tsinghua, M.Arch., 1999; Southeast University, B.Arch., 1990. Zhang Ke – Harvard, M.Arch., 1998; Tsinghua, M.Arch., 1996; Tsinghua, B.Arch., 1993. Taborda – Harvard, M.L.A., 1999; University of York, M. Conservation Studies, 1991; University of Evora, Portugal, B.L.A., 1990

**WORK HISTORY:** Zhang Hong – Architectural Research & Design Institute of Tsinghua University, Beijing, 1999–2004. Zhang Ke – Zhang Ke Studio, New York, 1998–2001. Taborda – Global Arquitectura Paisagista, Lisbon, 1993–2005; Taba Arquitectos, Oeiras, Portugal, 1991–92

**COMPLETED PROJECTS:** Grand Canyon Museum and Restaurant, Tibet, 2010; Eggs of the City, Shenzhen, 2010; De Cafe, Beijing, 2009; Niyang River Visitor Center, Tibet, 2009; Yalu Tsangpo River Boat Terminal, Tibet, 2008; French-Chinese Art Center, Wuhan, 2005

**CURRENT PROJECTS:** Municipal Meeting Center, Beijing, 2010; Sports Club, Wuxi, 2011; “Ming” tray design for Alessi, 2011; Vanke Twin Towers, Tianjin, 2011; Elementary School, Quanzhou, 2012; Civic and Education Center, Jiading, 2012; Novartis Campus Building, Shanghai, 2014

**WEB SITES:** [www.standardarchitecture.cn](http://www.standardarchitecture.cn)  
[www.star-t.cn](http://www.star-t.cn)

*Aric Chen is a freelance writer and curator based in Beijing and New York.*

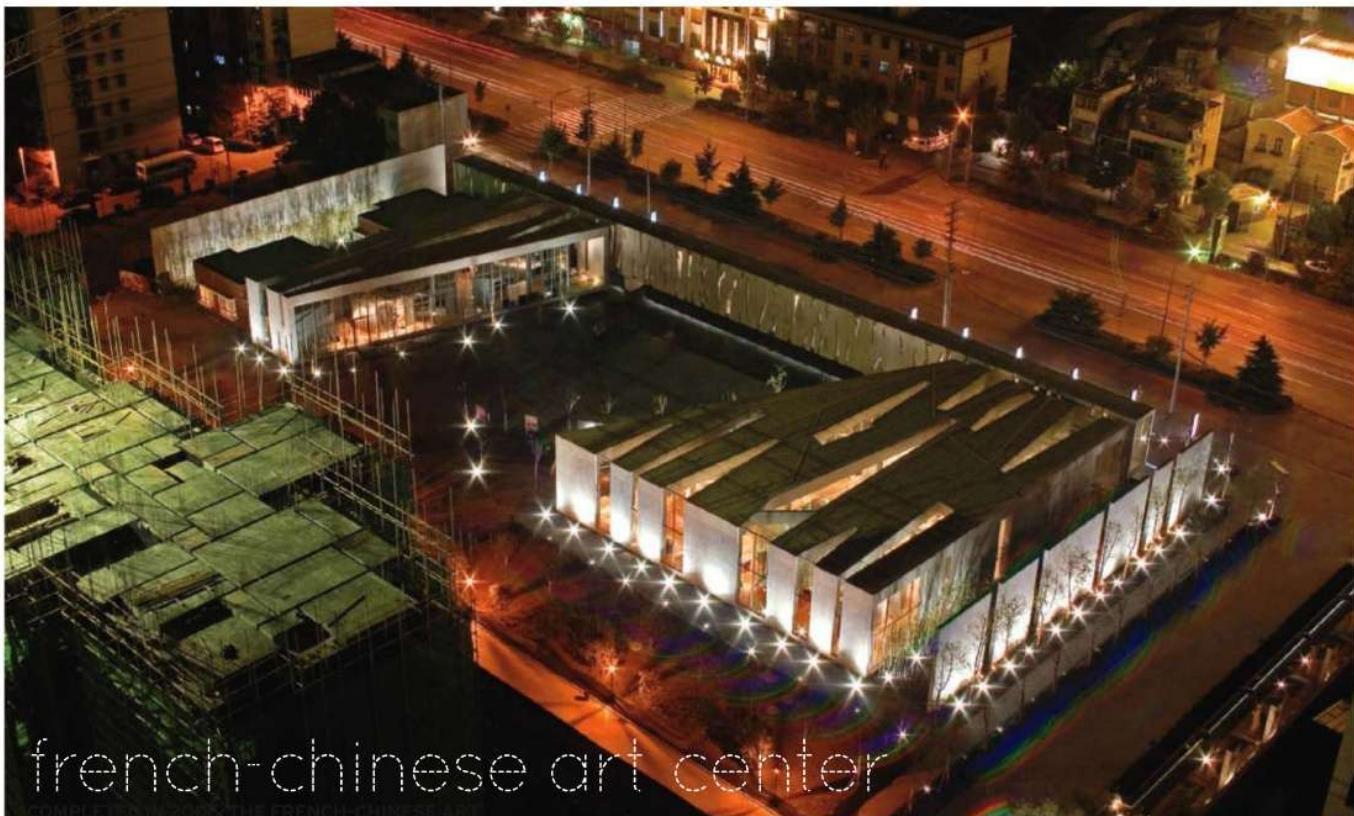
**WHEN ARCHITECT ZHANG KE** set up Standardarchitecture in Beijing, he chose the name because “it sounds neutral. It doesn’t imply any specific form,” he says. But for a studio that’s on a roll, in a country stuck in fast-forward, perhaps it’s equally fitting that the firm recently adopted the shorter alias START (as in Standard Architecture Team). “For every project, we want a completely new start, to throw off all preconceptions – like we’re almost pretending we don’t know anything,” says Zhang Ke. Founded in 2001, and now including partners Zhang Hong and Claudia Taborda (a Lisbon-based landscape architect), Standard is positioned at the forefront of China’s latest generation of emerging architects. It takes each brief as a new point of departure – a series of existing givens – and has shown itself flexible enough to explore projects both massive and small, spectacular and understated.

In Tibet, for example, the firm has built a number of much-praised projects in the Yalu Tsangpo Grand Canyon region, including the Yalu Tsangpo River Boat Terminal (2008), the Niyang River Visitor Center (2009), and the forthcoming Nianguo Wharf. Quietly emerging from a landscape of dramatic mountains and pristine water, these modest projects consist of austere pavilions and meandering ramps constructed from locally gathered stone and timber. “They’re like experiments in how we can make contemporary architecture that feels like it’s actually growing out of the place,” Zhang Ke says.

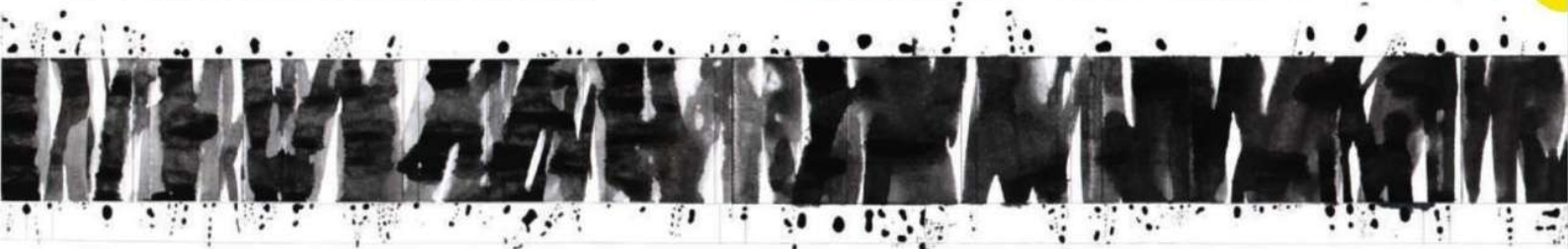
On the other end of the spectrum, Standard has proposed a pair of 525-foot-tall skyscrapers of unevenly stacked floors, called the Dancing Books Towers, and has imagined enormous buildings that double as terraced rice paddies in Hong Kong. For this year’s inaugural Audi Urban Future Award, for which Standard was the only Chinese finalist, Zhang Ke suggested transforming Beijing’s main Ring Road arteries into giant conveyor belts for cars. “We focus a lot on the use of materials, but also urban spaces,” says Zhang Ke, 40, who holds master’s degrees from Harvard and from Beijing’s Tsinghua University. “We’re not bound by what’s already established or what’s known.”

The firm got its big break in 2001, when it won a competition to design a park around the ruins of Beijing’s Ming Dynasty city walls. Since then, Standard has stood out not so much for one thing – radical forms, a consistent methodology, an easily articulated polemic – but rather for its multifarious approaches. Its French-Chinese Art Center, in Wuhan, China, includes two angled cultural buildings connected by a 260-foot-long bridge, their concrete forms suggesting the brushstrokes of a Chinese scholar. Its Eggs of the City project for last year’s Shenzhen & Hong Kong Bi-City Biennale of Urbanism\Architecture proposed mobile living pods for migrant workers, using playful forms that immediately engage all kinds of people.

In many ways, Standardarchitecture tellingly reflects the current Chinese condition: Singular narratives are inadequate here, in a country undergoing enormous flux. There’s a need for subtlety as well as daring, for cultural continuity as well as breakaway change – in short, a neutral stance that offers the flexibility to experiment in divergent ways, plus an open-ended belief that anything is possible. “It’s a process of daydreaming,” Zhang Ke says of the firm’s work, “but at the same time it’s about realization, to bring these seemingly impossible things to life.” *Aric Chen*



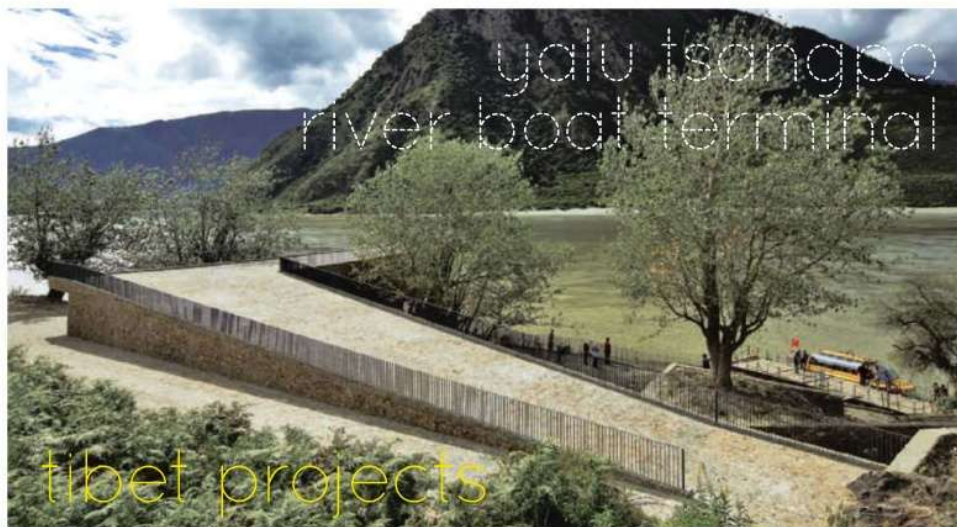
french-chinese art center



**THE FRENCH-CHINESE ART CENTER IN WUHAN WAS**

conceived as an “urban container” that would serve as a cultural facility and public space. Its location across the street from the city’s Tanhualin historic district, where many intellectuals once lived, inspired Standard to look to traditional Chinese artistic practices – in this case, ink drawings, expressed in the brushstroke-like articulation of the buildings’ concrete walls. Just as significant as the cultural context, however, were the physical parameters, which included the unexpected discovery of a flood tunnel bisecting the site. In response, the architects divided the complex into two exhibition halls with a plaza directly above the tunnel. To connect the halls, the firm devised a 260-foot-long bridge – a hollow 18-foot-tall concrete tube whose brushstroke patterns coincide with the structural requirements of the reinforced-concrete span. “One of the most interesting aspects of this project was how urban infrastructure played a role here,” says Zhang Ke. “The discovery of the flood tunnel created a problem, but then the problem generated this floating footbridge, which has become one of the hallmarks.”





**SET IN A SPECTACULAR REGION OF** Tibet, the Yalu Tsangpo River Boat Terminal (2008) is the farthest one can go via boat to the foot of Namcha Barwa mountain, the eastern anchor of the Himalayas. A series of ramps wind from the river's edge around poplar trees, then over and through a structure housing a waiting lounge, ticket office, toilets, and lodgings. The ramp terminates on the roof, where it projects over the water. Standard sought to create a work of contemporary architecture that would blend into the natural landscape, so the structure uses mostly indigenous materials. Walls and roofs were built of rocks gathered nearby by Tibetan masons, who determined the stones' patterns, while cabinetry and floors were made of local timber.

**SITUATED AT THE START OF A SCENIC** drive in Tibet, between a road and a river, the Niyang River Visitor Center (2009) houses a ticket office, a changing room for rafting, and toilets. Like other Standardarchitecture projects in Tibet, it is built of local stone and timber beams, and has thick walls with deep recesses.

The building's angled geometry was a response to the site boundaries, while its four entry points – one on each side – accommodate circulation needs, merging at an open central courtyard carved out from the main volume. In contrast to the exterior walls, this inner void is painted in mineral-derived pigments of bright blue, orange, and red to create a visual effect that shifts as one glimpses it through the building's various openings and at various times of day. Zhang Ke wanted to reference the importance of color in Tibetan culture – though in this case, he stresses, the hues hold no symbolic meaning.

"We want to create an equal standpoint where we're neither ignoring Tibetan culture nor imitating it," says Zhang Ke. "The building had to have an autonomous beauty within itself."







**COMPLETED IN 2007, THIS PROJECT IS A CLUBHOUSE FOR A RESIDENTIAL DEVELOPMENT** near the base of a well-known mountain outside the city of Chengdu. Adding a twist to China's time-honored courtyard-house typology, it is, in fact, a succession of five structures – three tearoom courtyards bracketed by entry and guesthouse courtyards – that appear to be compressed together. Zhang Ke explains, "We wanted not only to play with the traditional courtyard spatial sequence but also to create a place for local craftsmen." Accordingly, carpenters from the area were invited to help design and build the facility's timber roofs using vernacular techniques that, due to the buildings' attenuated forms, produced an elegantly distorted result.



**THE THEME OF THE 2009 SHENZHEN & HONG KONG BI-CITY BIENNALE** of Architecture\Urbanism was "City Mobilization." So Standardarchitecture created Eggs of the City – a pair of mobile living pods designed with China's enormous population of young migrant workers in mind. Made of fiberglass, the playful egg-shaped units stood on the plaza of Shenzhen's civic center; one doubled as a bench with a small sleeping area inside, while the other served as a karaoke room. Both were purely experimental, but a third, more fully outfitted variation was later made of bamboo at Standard's office, by a firm member who, as of press time, had lived there full-time for more than three months.



**A pair of designers working from Spain and Mexico explore the intersections between art and architecture, shelter and clothes, and the human body and space.**

**LOCATION:** Mexico City, Mexico, and Barcelona, Spain

**FOUNDED:** Ex-Studio – 2002. X-Studio – 2009. Studio Patricia Meneses – 2009

**DESIGN STAFF:** Meneses – 3; Juárez – 2;

**PRINCIPALS:** Patricia Meneses, Iván Juárez,

**EDUCATION:** Meneses – ETSA Barcelona, M.

Arch., 2004; UASLP Mexico, B.Arch., 1998.

Juárez – UPC-Barcelona Tech, Ph.D., 2002;

UPC-Barcelona Tech, landscape specialization,

1999; UASLP, Mexico, B.Arch., 1998

**WORK HISTORY:** Meneses – Ex-Studio, 2002-2009. Juárez – Ex-Studio, 2002-2009

**KEY COMPLETED PROJECTS:** Green Tower, Lausanne, Switzerland, 2009; Traveling

Showroom, Portugal; Pathway and Landscape Observatories, Sicily, 2007; Tambabox,

Tambacounda, Senegal, 2005;

Dream House, Huesca, Spain, 2004.

**KEY CURRENT PROJECTS:** Meneses –

Captured Nymph, Taipei, 2010; Light Box,

Vancouver, Canada, 2011;

Nature Poems, Spain and

Mexico, 2011. Juárez –

Multisensory Park, Mexico,

2011; Belvederes in the

Mexican Desert, 2011

**WEB SITES:** [www.x-studio.tv](http://www.x-studio.tv)

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

David Cohn is ARCHITECTURAL RECORD's Madrid-based correspondent.

# IVÁN JUÁREZ & PATRICIA MENESES

**WORKING FIRST TOGETHER** and now separately, Iván Juárez and Patricia Meneses bring two distinct sensibilities to their architecture. Their designs are mainly temporary installations that explore such essential architectural themes as shelter and the relationship of the human body to space and to the landscape. The two settled in Barcelona in 1998 after leaving their native Mexico, and they opened Ex-Studio there in 2002. In 2009, Juárez returned to Mexico to teach and run X-Studio, while Meneses continues to use Barcelona as the base for her own firm Studio Patricia Meneses.

Juárez spent a year painting and making art after finishing his studies. "Upon arriving in Barcelona, this idea arose of finding a point of encounter between art and architecture through space," he explains. Meanwhile, Meneses "invented" clothes "that were actually pieces of sculpture," she says. "I'm interested in the dress conceived as a personal architecture that houses us in the most intimate way." The two began to work without commissions, making spontaneous urban interventions near their studio. Their interest in the intersection of art, body, and space can be seen in their first commissioned projects, both realized for arts festivals. The Dream House in Huesca, Spain, was a fabric cocoon hung from a tree. For the Tambabox in Tambacounda, Senegal, the architects worked with local craftspeople using local materials to create a pavilion covered in traditional fabrics with vivid colors and patterns. Many of the fabric squares have sleeves, so the human figure can occupy and animate the box, converting it into "living architecture."

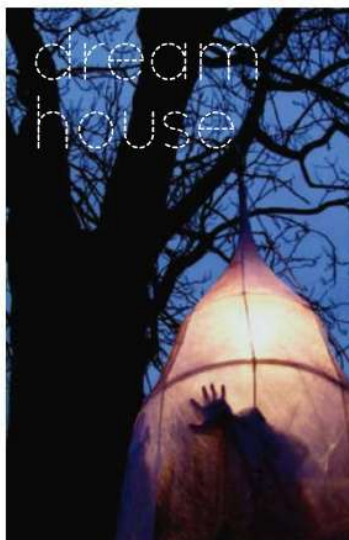
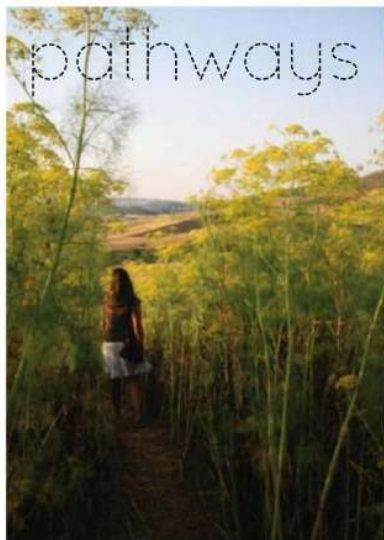
Now that the two architects are working independently, their projects underscore their personal voices. Juárez has designed an annex in the courtyard of the Eco Experimental Museum in Mexico City, in the form of a series of sculptural wooden bays that can be rearranged for different activities. Among other projects, Meneses has explored the theme of light-defined space in an exhibit pavilion in which zigzag methacrylate walls transmit multicolored light along their exposed edges. *David Cohn*

**MENESES AND JUÁREZ JOINED A GROUP OF ARTISTS ORGANIZED BY A SWISS COLLECTIVE TO** carry out interventions in Tambacounda, Senegal. On arriving, they were struck by the contrast between the colorful traditional clothing of local women and the drabness of the buildings and landscape. In response, they built a small pavilion covered with local fabrics. To invite interaction, they sewed sleeves onto many of the fabric panels, so that people could put their arms through them. The result was a "living sculpture," which the people filled with music and dancing during the course of the event.



#### WORKING WITH VOLUNTEERS

for this temporary intervention, Juárez and Meneses immersed visitors in the fragrance, color, and density of hills covered in wild, blooming fennel. The pair cut a narrow path through the fields and created various events along it: a clearing with a bed of straw "to stop and look at the sky," a stair "to see the fields from above," and a platform over an existing pond, open to a wide view. Meneses says, "In this type of project, you discover many things that the landscape is telling you."



#### THE SPANISH CITY OF

Huesca invited artists and architects to intervene in its run-down historic core to draw attention to its potential. From the single tree in the courtyard of an abandoned barracks, Meneses and Juárez hung a cocoon for meditation that is also a symbol of rebirth. Made of a sticky, translucent plastic fabric stretched over a metal frame, it has a slit opening, some lighting, and a removable access stair.

#### FOR THEIR LAST

PROJECT together as Ex-Studio before Juárez returned to Mexico, the two architects participated in an annual event, Lausanne Gardens 09, creating a "vegetal belvedere" that grew, bloomed, and faded through the spring, summer, and fall. The vertical garden continued the massing of an existing block of modest buildings in the old part of the city, fitting in and standing out at the same time. Built of scaffolding, it was accessible to visitors, opening views over the city on its five levels. The architects used local plants and flowers, which they grew in a nursery from seedlings.



#### THE ARCHITECTS SPUN A GOSSAMER

cocoon for a temporary fashion showroom in a Barcelona shopping center atrium, using 3,500 filaments of nylon fishing line that fell like a fine curtain of rain from the 50-foot-high ceiling. Juárez and Meneses dropped the lines with numbered weights from a metal grid and matched them to numbered metal rings screwed into a raised wood platform. Skylights and spotlights made the filaments visible. "The project is immaterial," Meneses observes. "The material is only a conduit for light; the project doesn't exist without it. And by being there, the material permits the light to be reflected, to exist."



**A husband-and-wife team brings design out of the bush and into Australia's suburbs, where the great majority of the nation's population lives.**

**LOCATION:** Sydney, Australia

**FOUNDED:** 2004

**DESIGN STAFF:** 5

**PRINCIPALS:** Stephanie Little,  
Tony Chenchow

**EDUCATION:** Little – University of New South Wales, B.Arch., 1994. Chenchow – University of New South Wales, B.Arch., 1993

**WORK HISTORY:** Little – Partnership with Tony Chenchow, Sydney, 1994–2003; Owen Haviland, Sydney, 1989–90. Chenchow – Partnership with Stephanie Little, Sydney, 1994–2003; Campbell Luscombe, Sydney, 1992–93; Lewin Tzannes, Sydney, 1990–91; Travis Partners, Sydney, 1989–90

**KEY COMPLETED PROJECTS:** Pitched Roof House, Sydney, 2009; Freshwater House, Sydney, 2008; Ang House, Sydney, 2008; Semi-Detached House, Sydney, 2007; Szirtes House, Sydney, 2005

**KEY CURRENT PROJECTS:** Skylight House, Sydney, 2010; Mosman Row Houses, Sydney, 2011; Palm Beach House, Sydney, 2011; Byron Bay House, Byron Bay, Australia, 2012; Coogee House, Sydney, 2012; Dover Heights House, Sydney, 2012; Victoria House, Sydney, 2012

**WEB SITE:** [www.chenchowlittle.com](http://www.chenchowlittle.com)

*Russell Fortmeyer is a Sydney-based journalist and engineer and a former editor at ARCHITECTURAL RECORD.*

# CHENCHOW LITTLE ARCHITECTS

**TONY CHENCHOW AND STEPHANIE LITTLE** belong to a crowded field of husband-and-wife architectural practices in Australia. Like their better-known counterparts Lindsay and Kerry Clare or the infrequent collaborators Glenn Murcutt and Wendy Lewin, the two have distinguished themselves with a collection of residential projects that sensitively respond to the Australian climate and architectural and social traditions. But unlike Murcutt or the Clares, Chenchow and Little have established a critical practice that directly engages the overwhelmingly suburban status of the population.

"I think the perception of Australian residential architecture is that it's all in a bush setting," Chenchow says, using the local term for "rural." "In reality, it's quite different, with more than 75 percent of homes in suburban locations." Chenchow and Little met when they were both studying at the University of New South Wales in Sydney. He's from western Sydney, and she grew up in the country in New South Wales. Once they both had graduated, in 1994, they worked together occasionally but often practiced separately in contract to larger firms before finally establishing their own practice in 2004 in Sydney. "I dislike suburbia, so it's something we try to question, to strategically look at the traditional model and create alternatives," says Chenchow.

Like all architects in Sydney, Chenchow and Little often must contend with councils that wield significant, if uninformed, power over the massing and aesthetics of new buildings. With their Pitched Roof House (2009), the architects viewed this interference as an opportunity, taking the council's desire for sloped roofs at face value. But they inverted the traditional pitch and echoed the forms with a hyperarticulated steel-frame structure. The Pitched Roof House shares much of the same design vocabulary that marks the firm's other work, such as formal gestures dictated by zoning allowances, elegantly precise detailing, a muted palette fixed in materials such as timber, zinc, and glass, a reliance on screens and louvers to modulate solar loads and avoid installing air-conditioning, and, above all, a tendency to orient houses around a central courtyard that dissolves the plan in fluid space. The two architects like to layer space from outside to in – courtyards epitomizing this approach – to create interstitial spaces that can manage the extremes of the Australian climate. "In the Freshwater House, we pulled the line of the glazing back from the louvers along the perimeter of the house," says Little, "ending up with something that works a lot like a traditional Australian veranda." Except it's not traditional.

Little says she and Chenchow would like to expand their practice into commercial buildings but find it difficult to compete in this market given the dominance of large firms and risk-averse developers. Currently, the firm has 10 houses in design or construction. In 2009, the Freshwater House won the prestigious Robin Boyd Award for Residential Architecture from the Australian Institute of Architects, which should propel the two architects into the upper ranks of the country's design-oriented firms. The pair feel emboldened now to start looking overseas to expand their practice. "It would be great to interact with a foreign culture and look at their regulations as a constraint to generate ideas," Chenchow says, laughingly adding that it is Little who does most of the research into planning and zoning requirements. *Russell Fortmeyer*



**"BEFORE WE START ANYTHING, WE BUILD MODELS OF THE NEIGHBORHOOD,"** says Little. "We're a bit anachronistic that way." The couple's design of the three-bedroom Ang House, completed in 2008, responds to the common Sydney dilemma of updating a relatively narrow semidetached house and terrace without disrupting the heritage envelope of the original building. In this case, the architects preserved the sandstone exterior at the conservative local council's request and extended a new structure into the lower rear garden, bringing the landscape into the footprint of the house through use of a cantilevered second story. From the street, the house remains an unassuming cottage, while beyond the front door, a light-filled, open plan emerges. The firm's other houses share this infusion of gardens and outdoor spaces in plan. Two gleaming white steel trusses, rendered in precise detail, express the cantilever, visually and structurally extending the ground-floor living spaces out to a terrace enclosed by white louvers. A new second story contains the master suite. The restrained finishes, quiet structural gestures, and minimal provision of enclosed space set Chenchow Little's approach apart from the countless other versions found throughout Sydney. In 2009, the house won a National Architecture Award for small projects.





freshwater house



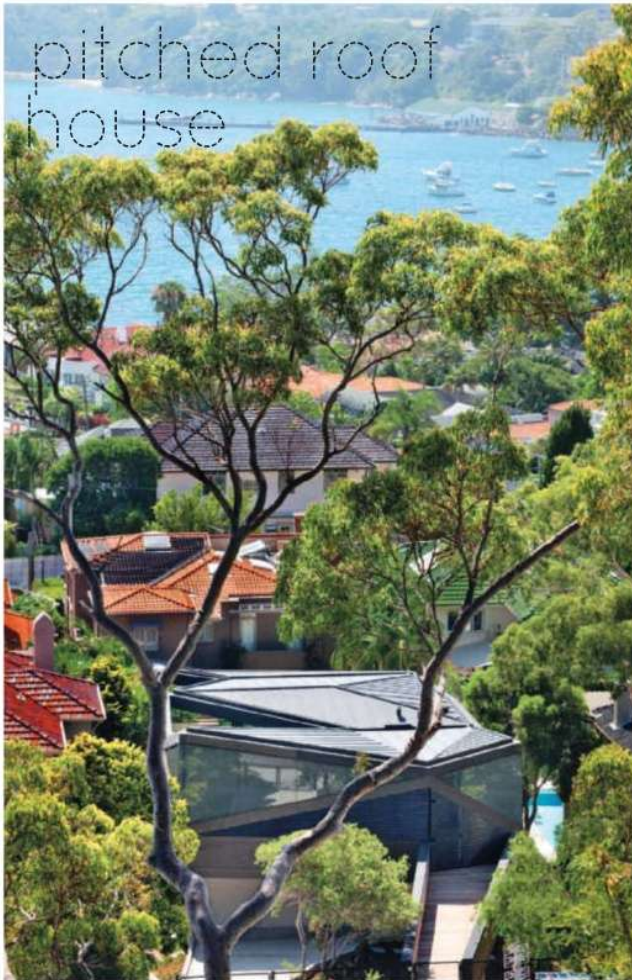
**THE FOUR-BEDROOM FRESHWATER HOUSE, IN A** northern Sydney beach suburb, is one of the firm's most abstract houses. In plan, living and dining spaces are similarly proportioned, allowing the clients to mix up their living style throughout the year. On the basement garage level, the architects responded to the local council's demands for a contextual design by mimicking the color of the adjacent sandstone walls with unfinished timber battens angled to take advantage of views. The staccato spacing of the battens is repeated in the external zinc screen around the glass second story. The architects say these gestures were inspired by a need to balance privacy and the desire to capture exceptional views to the beach and Pacific Ocean beyond. Bucking the recent tendency in Sydney to use white finishes in houses along the coastline, the muted color palette includes a matte black finish to the living room ceiling, done to both reduce sunlight glare off the sparkling ocean and to merge the ceiling with the dark sky at night.

#### THE WEST ELEVATION

of this four-bedroom residence – a renovation of an existing house in one of Sydney's eastern beach suburbs – incorporates a new steel superstructure that enables the once closed-off house to open up to its surroundings with a series of building skins. Starting from the outside, the series includes a zinc louver screen, then an open circulation space, and finally the house's actual envelope. "By creating this verandalike space, we've extended the line of the house out," says Little, adding that the additional space puts a little-used side yard to work as a buffer against harsh western sunlight. The louvers ensure the house remains comfortable, even without air-conditioning.



semi-detached house



**BUILT IN 2009, THIS HOUSE EXEMPLIFIES THE ARCHITECTS' GOAL OF** fusing multiple components into a cohesive whole. They designed an exuberant structure that minimizes the number of columns, maximizes the role of beams in setting the house's primary organization, and shifts traditional readings of perspective. Chenchow views this structure – made of zinc-clad timber – as both the internal and external expression of the house. It also responds directly to the local council's requirements for neutral finishes (zinc, charcoal-colored glass), pitched roofs, and setbacks on all sides as the house steps down three stories from west to east. The architects incorporated a favorite device: a service core (kitchen, stair, bathroom) that serves as a delineator of space. Chenchow says this use of the service core is akin to that of many high-rises and offers immense flexibility for circulation, new ways of using space, and the introduction of courtyards in all but the narrowest of houses. "Traditional suburban homes have a front and back and you're always moving in those directions, with sides as leftover spaces," he says. "We're trying to get rid of that typology."



**THE ARCHITECTS FIRST EXPLORED A** courtyard approach to residential design with their Szirtes House, completed in 2005. Here they faced the challenge of building a new suburban house behind an existing one and wrestling with the resulting lack of views and street frontage. In response, they developed an "abstracted ground plane," in Chenchow's words, of garden, interior, and courtyard, with major functions such as kitchen and bathrooms pulled to one side of the plan. The scheme blurs the boundaries between inside and out. Built on an existing  $\frac{1}{4}$ -acre site, this important early project highlights the firm's desire to increase the density of existing suburbs, providing an open, glassy ground floor surrounded by a garden, and a heavier, screened-off upper story for bedrooms. "We find you can fit two functioning, spacious houses on a standard suburban block and they both work quite well," says Little.





**L.E.F.T distills politics into design at different scales, using utopian experiments to inform real-world projects from beleaguered Beirut to the turf wars in our own homes.**

**LOCATION:** New York City

**FOUNDED:** 2005

**DESIGN STAFF:** 4

**PRINCIPALS:** Makram el Kadi (left), Ziad Jamaledine

**EDUCATION:** El Kadi – Parsons School of Design, M.Arch., 1999; American University of Beirut, B.Arch., 1997. Jamaledine – Harvard, M.Arch., 1999; American University of Beirut, B.Arch., 1995

**WORK HISTORY:** El Kadi – Steven Holl Architects, 2000–05; Fumihiko Maki, 1996. Jamaledine – Steven Holl Architects, 1999–2005

**KEY COMPLETED PROJECTS:** Beirut Exhibition Center (with Steven Holl Architects), Lebanon, 2010; Crosby Apartment, New York, 2009; 20 Peacocks, New York, 2005; Intermix, New York, 2005; Young Architects Forum (exhibition), New York, 2002

**KEY CURRENT PROJECTS:** Beirut Cultural Center, Lebanon, 2011; Baabdat Residence, Lebanon, 2011; Beirut Marina (with Steven Holl Architects, in association with NGAP), Lebanon, 2012; Y.Ghaith Residence, Lebanon, 2012; Loft Barn, New York, 2012

**WEB SITE:** [www.leftish.net](http://www.leftish.net)

## L.E.F.T

**WITH THE NAME OF THEIR** design firm – L.E.F.T – Makram el Kadi and Ziad Jamaledine tip us off to their ideology and offer a partial clue pointing to the location of their first New York City office, on the Lower East Side. L.E.F.T's work also strikes a balance between shouting an agenda and whispering it. "We try to question the role of architecture in contentious geographies," says el Kadi. "Or at least to reflect on it," adds Jamaledine.

The Lebanese partners developed one of their most provocative schemes, Offshore Urbanism, in direct response to the 2006 Israel-Lebanon conflict. The experimental project imagines evacuation barges that could detach from shore and float out into international waters in the event of another conflict. The barges resemble submarine cities, with dwelling units and parking spaces – like a megastructure turned upside down. On the barges, taboo issues that have been put on the back burner because of political conflict, such as marriage between Palestinians and Lebanese, would be addressed, says el Kadi. But L.E.F.T distills politics in everyday designs, too. For example, the partners explored the relationship between husband and wife in the clever placement of the toilet paper holder in their Forsyth Residence in New York. The roll sits in a cutout in the bathroom door and can be refilled from either side.

El Kadi and Jamaledine admired each other's work when they met at the American University of Beirut in the 1990s. After graduate school in the U.S., they reunited at Steven Holl Architects, where they worked for five years. L.E.F.T struck out on its own in 2005 (a third founding partner, Naji Moujaes, is no longer with the firm), gained traction with smaller interior renovations, and now spends a lot of time on elaborate experimental projects that inspire built work.

The firm's design for the Beirut Exhibition Center – its largest building to date, done in collaboration with Steven Holl and completed in 2010 – has served as a catalyst for three more commissions in that city. It has also helped inject renewed energy into the art scene in Beirut, a city where "reconstruction is a political act," says Jamaledine. Both partners are careful with the words they choose to describe their homeland, where war is a preexisting condition. They refuse to associate any romance with destruction, though. "We want to use it to help grow out of it," says el Kadi. *Laura Raskin*



**THE 2006 ISRAEL-** Lebanon conflict was the context for this speculative project. El Kadi and Jamaledine wanted to explore how architecture could enhance the standard of living during the most violent and chaotic of times. Offshore Urbanism is an evacuation plan in case of another conflict. Beirut residents would be able to drive directly from the highway onto barges that would depart for international waters and other countries. The barges would become comforting places for evacuees, with temporary housing and roof gardens.







**LOCATED ON A FORMER LANDFILL THAT HAD** divided Muslims from Christians, this building helps transform an area where once people could agree only on tossing their trash. Now this exhibition center for contemporary art is, literally, a gleaming example of the urban renewal taking place in the area. A lively art scene had long thrived at the periphery of the city, says Jamaledine, but the exhibition center helps bring it downtown. "It's planting a seed in an empty land but also in a cultural landscape that is growing," he says. This fall, the center housed *Arabicity*, a show that featured nine Arab artists working in various media. Clad partly in anodized reflective aluminum, the building itself is a mirror of the changes happening around it, say el Kadi and Jamaledine, who worked on the project with Steven Holl. The center, which is surrounded by a reflecting pool, is framed to the south by a sculpture garden and to the north by a bamboo grove.

#### L.E.FT'S DESIGN FOR A MARINA IN DOWNTOWN

Beirut (done in collaboration with Steven Holl Architects) is expected to be completed in January 2012. The project expands the renowned four-mile Corniche Beirut – the waterfront promenade – with overlapping platforms to create an "urban beach." The layers mix public and private, indoor and outdoor, and will include apartments, a yacht club, restaurants, space for public art, and five reflecting pools. Such a large, mixed-use project is rewarding for the architects, especially because it will help reverse the growing separation between the public and the private spheres in Beirut, say el Kadi and Jamaledine.



**REINTERPRETING CAVE DWELLINGS, L.E.FT DESIGNED THIS RESIDENCE AND** conference center facility in Holmestrand, Norway, on the Oslofjord, a bay in the country's northeast. This on-the-boards project takes its cues from the Vézère Valley in southwestern France, where a series of prehistoric caves provide a window onto early civilization. Small villages grew around the caves and were connected by a river, a configuration that is also typical in Norway. But in Holmestrand, the cliff separates the suburbs at the top from the urban center at the base. Vertical Landscape Urbanism connects the two. An elevator runs the length of the building, connecting the "caves" – office spaces, apartments, conference facilities, and a restaurant on the top floor – to create one building of glass and Cor-Ten steel.



# HHF ARCHITECTS

**A trio of young architects  
just a few years out  
of school launch  
a practice with work  
around the world.**

**LOCATION:** Basel, Switzerland

**FOUNDED:** 2003

**DESIGN STAFF:** 12

**PRINCIPALS:** Simon Hartmann (left), Simon Frommenwiler (center), Tilo Herlach (right)

**EDUCATION:** Hartmann – dipl.Arch., ETH Lausanne, TU Berlin, and ETH Zurich, 2000. Frommenwiler – dipl.Arch., ETH Zurich, 2000. Herlach – dipl.Arch., ETH Zurich and ETH Lausanne, 1998

**WORK HISTORY:** Hartmann – Rolf Furrer Architekten, Basel, 2000–03. Frommenwiler – Skidmore, Owings & Merrill, New York, 2001–03; ARChos Architektur, Basel, 2000–01; Bearth & Deplazes, Chur, Switzerland, 1997. Herlach – Rolf Furrer Architekten, Basel, 2001–03; d-company, Bern, Switzerland, 1998–2001

**KEY COMPLETED PROJECTS:** Lookout Point for Ruta del Peregrino, Mexico, 2010; Labels 2 Fashion Center, Berlin, 2010; Confiserie Bachmann, Basel, 2009; Artfarm, Salt Point, N.Y., and Tsai Residence, Ancram, N.Y., 2008 (both in collaboration with Ai Weiwei); Kirschgarten cafeteria, Basel, 2008; Infopoints for SBB Swiss Railways, throughout Switzerland, 2007; Restaurant Bar ONO, Basel, 2007; Baby Dragon, Jinhua Architecture Park, Jinhua, China, 2006

**KEY CURRENT PROJECTS:** Dune House, 2010, Ordos, China; Studio Tsai, Ancram, N.Y., 2011 (with Ai Weiwei); Five Houses, Long Island, N.Y., date to be determined (with Ai Weiwei); HHF House, Ordos, Inner Mongolia, China, 2012; Apartment building Byfangweg, Basel, 2013

**WEB SITE:** [www.hhf.ch](http://www.hhf.ch)

**THE SWISS HAVE LONG HELD A REPUTATION** for creating products of impeccable precision. Tilo Herlach, Simon Hartmann, and Simon Frommenwiler, partners in the Basel-based HHF Architects, have found early international success by turning that stereotype on its head. That's not a knock on the firm's work. In the short time since the opening of their studio in 2003, the young trio's focus on simple, straightforward, and buildable design, rather than a fastidious attention to detail on projects whose construction they had very little control over, has helped them swiftly complete eye-catching structures in Europe, Mexico, the United States, and China.

Among the first of these projects was a children's pavilion, Baby Dragon, built in 2006 in Jinhua, China. HHF had been recommended by Jacques Herzog and Pierre de Meuron – those other Basel-based architects – to prominent artist Ai Weiwei, who invited over a dozen young, international designers to create structures for a park in memory of his father, the poet Ai Qing. The Swiss newcomers and the Chinese impresario hit it off and began collaborating on a number of projects. Together they completed the Tsai Residence and Artfarm, a private home and a gallery in upstate New York for two different collectors of contemporary Chinese art. For Ai's Ordos 100 project in Inner Mongolia, HHF is the only firm to design two houses, one of which is finishing up construction.

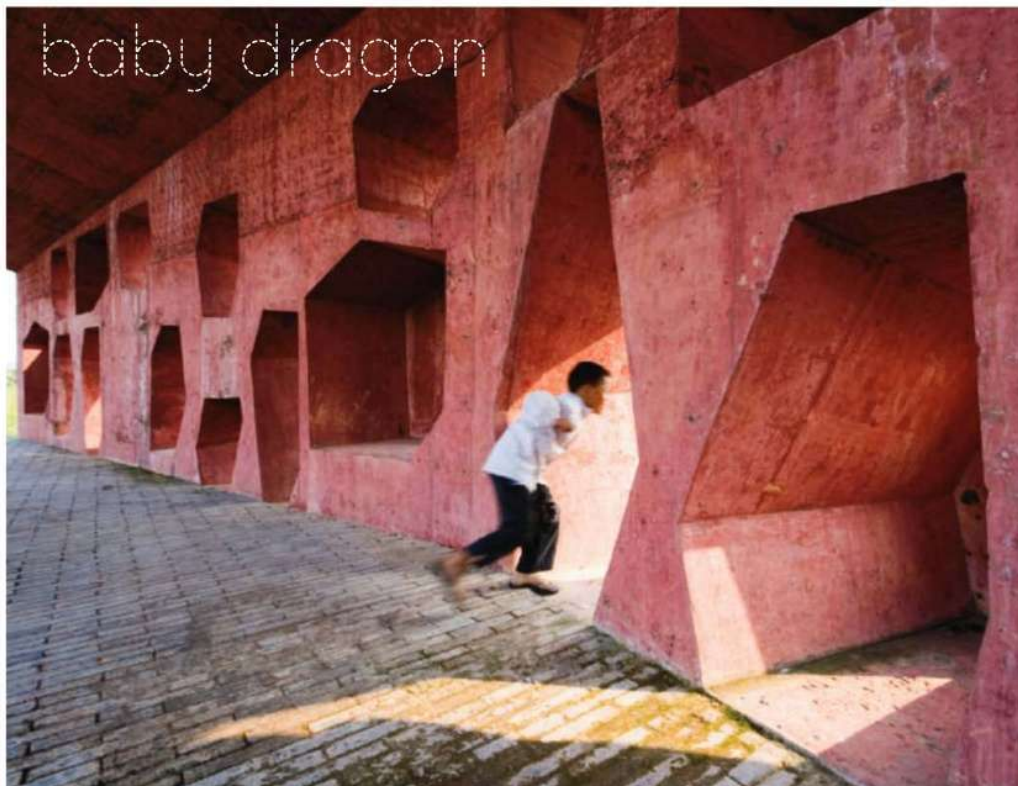
HHF recognizes that collaboration, both with well-known figures and with other young architects, has been a key to its success. Working on the Jinhua and Ordos projects gave HHF the opportunity to meet colleagues from around the world. "For Ordos, there were over 200 architects gathered together in the middle of nowhere," says Frommenwiler. "We did a lot of talking over table tennis." They struck up a friendship with Mexican architect Tatiana Bilbao (Vanguard 2007), which led to a design for a lookout point along Mexico's Ruta del Peregrino pilgrimage route. As with Baby Dragon, HHF combined simple concrete construction with tantalizing geometry to create a stunning pavilion in a far-off land.

A similar approach led to a competition win for the firm's largest project to date, the Labels 2 Fashion Center, completed earlier this year in Berlin. Its striking simplicity and completely fresh form are a large part of its appeal. Though HHF focuses on uncomplicated design, the firm does not shy away from the ornamental. With Labels 2, it reinvented the run-of-the-mill warehouse building with what appear to be permanent, albeit sinuous, drapes cascading over the facades' straightforward windows.

For work that is closer to home, HHF relies on a different strategy. Tackling the renovation of Confiserie Bachmann, a celebrated chocolate shop and café in Basel, HHF oversaw all aspects of the design, including furniture, fixtures, and finishes, to give the historic brand a contemporary look. In a project closer to their hearts, Herlach, Hartmann, and Frommenwiler converted a former factory building into their new offices. Everything, even detailed touch-up work, was carefully carried out in order to maintain the industrial character of the building while providing a bright, open space for the growing studio. *Josephine Minutillo*



**FROM THE OUTSIDE, ARTFARM** does not look all that different from other sheds that dot the landscape surrounding its upstate New York location, 90 miles north of Manhattan. Prefab corrugated steel structures are often used in the area for agricultural purposes. Artfarm's interior, however, reveals an entirely unexpected space, with a very different agenda from that of its neighbors. Its three volumes, set on solid concrete slabs that follow the existing grade of the site – which was already home to a private residence built in the 1980s – contain art storage, offices, and areas for showcasing contemporary Chinese art. The different levels are connected by a continuous cascading ramp along a single axis, which also facilitates the moving of large works of art. North-facing windows, which are located at the end of each hall above the ramp, provide the only daylight. Glossy vinyl-coated batt insulation provides a dramatic counterpoint to the stark white interiors while maintaining a consistent climate for the sensitive artworks housed within, an especially difficult challenge in an area that witnesses extreme fluctuations in temperature. The award-winning building, completed on an extremely tight budget, was designed in collaboration with Chinese artist Ai Weiwei.



**BABY DRAGON WAS THE FIRST** of 17 public structures designed by 17 architects and artists to be built at Jinhua Architecture Park in Jinhua, China. It also represents the first time HHF worked with Ai Weiwei, who designed the park landscape as a tribute to his poet father and selected all the international designers. Considering the distance that separated HHF's office and the site, the firm designed its structure with very few details. The pavilion, which features three shelters, is built completely of colored concrete poured on-site – except for the floor, which is partly covered in the same gray brick used for the park's circulation path. The massive walls are perforated from both sides. The large openings, which are the result of a system of 11 different shapes that can be added together in an endless pattern, have made the pavilion popular among children who enjoy climbing through the walls.



## ruta del peregrino

**FINISHING UP CONSTRUCTION THIS YEAR, HHF'S LOOKOUT POINT** for the Ruta del Peregrino is part of a series of architectural pieces that are meant to heighten the experiences of over two million pilgrims a year from both a symbolic and a practical perspective, punctuating the long journey and improving travel conditions. Located in the Mexican state of Jalisco, the constructions along the 73-mile religious route provide shelter and lookouts. HHF's round concrete and brick structure functions as an additional loop in the pilgrim's path. The asymmetrical arched openings provide access to an open hall. The inner walls are a shifted repetition of the primary facade resulting in four tangential circles, between which are two staircases leading to the platform above.



**HHF WON ITS LARGEST PROJECT TO DATE IN A 2007 competition.** Located along the Spree River in Berlin, the 71,000-square-foot Labels 2 Fashion Center, inaugurated in January 2010, houses two event spaces, a rooftop nightclub, and permanent showrooms for up to 30 international fashion brands in one building. HHF developed its design based on the adjacent Labels 1, a historic warehouse building whose facade is characterized by the repetition of arched windows. HHF's use of two differently cut sine curves generates the specific aesthetic for both the concrete structure and the facade, where a second, ornamental layer of concrete in the form of green, grooved, curtainlike arches partially conceal the windows behind them. The entire concrete structure is permeated with water tubes that both heat and cool the building. The one unique feature of the interior is a monumental, spiraling staircase. The rest of the interiors are kept neutral to allow individual showrooms to develop their own looks.





**A pair of Harvard-educated architects find acceptance in Kentucky while drawing inspiration from the state's tobacco barns and vernacular buildings.**

**LOCATION:** Louisville, Kentucky

**FOUNDED:** 2003

**DESIGN STAFF:** 5

**PRINCIPALS:** Roberto de Leon, Jr. (left), M. Ross Primmer

**EDUCATION:** De Leon – Harvard, M.Arch., 1993; University of California, Berkeley, B.A. Arch., 1989. Primmer – Harvard, M.Arch., 1993, Kent State University, B.S. Arch., 1987

**WORK HISTORY:** De Leon – G.C. Wallace, 1989–99; Schenkel Shultz, 1999–2000; AGA, 2000–02. Primmer – G.C. Wallace, 1989–99; Jenkins Peer, 1999–2000; AGA, 2000–02

**KEY COMPLETED PROJECTS:** Yew Dell Botanical Gardens Visitor Center, Crestwood, Ky., 2010; Mason Lane Farm Operations Facility, Goshen, Ky., 2009; Urban Barn, Louisville, 2008; United Mail Corporate Headquarters, Louisville, 2007

**KEY CURRENT PROJECTS:** Riverview Park (Phase I), Louisville, 2010; Guthrie Transportation Museum, Guthrie, Ky., 2011; Children's Healing Garden, Louisville, 2011; Big Bone Lick State Park Nature Center, Union, Ky., 2012; Filson Historical Society Expansion & Campus Master Plan, Louisville, 2015

**WEB SITE:** [www.deleon-primmer.com](http://www.deleon-primmer.com)

Contributing editor Ingrid Spencer is a former managing editor of ARCHITECTURAL RECORD and now writes from Austin, Texas.

# DE LEON & PRIMMER ARCHITECTURE WORKSHOP

**THERE ARE SOME PEOPLE** who fashion their lives in response to happy accidents. Neither Roberto de Leon, Jr., AIA, nor M. Ross Primmer, AIA, is one of those people. Instead the co-principals of Louisville, Kentucky-based De Leon & Primmer Architecture Workshop carefully research and strategically plan everything, leaving nothing to chance. After obtaining their M. Arch. degrees from Harvard, de Leon and Primmer decided to move somewhere that they could make an impact. Reading economic reports of U.S. cities, they discovered that Louisville was one of the top three cities on the brink of an economic upswing. The two architects, who had done some fieldwork in Las Vegas ("It was poised for growth, with a university nearby – a city trying to establish and nurture a creative class," says de Leon) and Charlotte, North Carolina (same as Vegas), hatched a strategy to set up an architecture firm that would specialize in cultural and nonprofit projects and do so in a city that was gritty but educated enough to appreciate new ideas. They chose Louisville and launched their firm in 2003. "It wasn't random, but we had no ties here at all," says Primmer. "Louisville was a mid-tier city that was changing from an industrial-based economy to a service-based economy. Our strengths are in consensus building, and we have an interest in corralling boards. So we decided to focus on nonprofit and cultural organizations. Louisville seemed like a place where we could have a voice."

Seven years later, their five-person practice is immersed in and sparked by the history and traditions of the region. It is hard at work putting Louisville on the cultural map. De Leon and Primmer have stuck to their original strategy, and the city has embraced their temerity as well as their design prowess. With several institutional and recreational projects moving forward, including the Riverview Park master plan (a \$33 million program with sports fields, trails, event venues, a steamboat landing, and shelters on a 70-acre site on the Ohio River, now in construction) and the Children's Healing Garden (a 6,000-square-foot outdoor interactive environment at Kosair Children's Hospital), the firm is enriching the community in a very public way.

De Leon and Primmer have found inspiration in the vernacular architecture of their adopted region, as seen in several of their completed projects. For example, at the Yew Dell Botanical Gardens, the Urban Barn, and the Mason Lane Farm Operations Facility, the architects reference the primitive and barnlike structures scattered throughout the region and used as tobacco-drying sheds and agricultural buildings. Other projects – such as the Filson Historical Society lecture hall, archives, and museum (currently in schematic design) and the United Mail Corporate Headquarters, a mail services facility – nod to common local materials, craftwork, and fabrication, as well as vernacular forms and scale. Using a contemporary palette that relates to the Kentucky context – a dark bronze anodized aluminum facade that evokes traditional red brick, for example, for the Filson Historical Society, or a conference room tower composed of hand-stacked, painted-wood planks for United Mail – these transplanted designers recall local antecedents while employing a Modernist vocabulary and a dash of whimsy.

"Originally we thought the points of inspiration in Louisville might be limiting," says de Leon. "But that has not been the case. We've found it so rich here. There's a lot to draw on." Primmer agrees. "We find that our clients expect something interesting, super modern, and new," he says, adding that there's a bumper-sticker motto in town that says "Louisville: It's not Kentucky." "It's an educated town hungry for work that's not just good looking but intellectually engaging." *Ingrid Spencer*



mason lane farm



PHOTOGRAPHY: COURTESY DE LEON & PRIMMER ARCHITECTURE WORKSHOP

**LOCATED ON A 2,000-ACRE AGRICULTURAL PROPERTY** that includes two barns, a grain silo, and wildlife conservation areas, this operations facility is used for farm equipment servicing, refueling, and seasonal storage for grain and hay. Submitted for LEED Gold certification, the project respects the client's sense of stewardship of the land and employs simple, primarily passive approaches in its design and construction. The two main buildings frame an outdoor work courtyard. Barn A, a 7,540-square-foot structure with fully enclosed storage and work areas, uses a standard prefabricated wood-truss frame clad with corrugated metal panels. Emphasizing the layering of construction, it reveals building elements that are typically hidden and turns them into design features. A house fan provides ventilation in concert with floor-to-ceiling operable windows. For Barn B, a 9,160-square-foot covered shed used to store hay and equipment, the architects clad the structure with a lattice of locally harvested bamboo. Since Barn B is an open-air structure vulnerable to wind uplift, concrete drainage channels below its eaves also function as counterweights connected via an interlocking detail to the column concrete footings below grade. The architects used recycled and regionally sourced materials throughout the project and ended up landscaping a courtyard and surrounding areas with local limestone, locally sourced decomposed granite, and native or regionally adapted plants that require no irrigation.

**THIS 4,677-SQUARE-FOOT, MIXED-USE BUILDING LOCATED IN A** downtown neighborhood houses De Leon & Primmer's own offices on the ground floor, two apartments on the second floor, a guest suite, and an outdoor courtyard garden. The building's simple barnlike volume uses common pole-barn construction with pressure-treated wood framing arranged on a standard 12-foot column grid with prefinished, corrugated metal siding. To relate contextually with the building's neighbors, pedestrian-scaled elements such as an elongated bench and a storefront window engage the street, while filigree details on large shutters add a touch of elegance and formality.

## urban barn



## riverview park



**THE MASTER PLAN FOR THIS 70-**acre park reconnects the surrounding community with the Ohio River, using four types of landscapes: active, civic, natural, and playful. Located at the convergence of several natural and constructed elements, including a levee and a rail line, the plan engages visitors with interactive nodes and shelters that will help reinforce an experiential, narrative understanding of the site.





**YEW DELL BOTANICAL GARDENS** is a 33-acre historic property that serves as a major center for gardening, research, and education. For the Visitor Center, De Leon & Primmer renovated a 1,842-square-foot tobacco barn near the entrance to the property, turning it into a reception hall with ticket sales, gift shop, group-tour meeting zone, and Internet sales office. Preserving the exterior shell as an independent shade structure, the firm consolidated conditioned spaces to one side of the barn and separated them from the rest of the spaces with frameless glass doors. The architects used tongue-and-groove pine siding, tempered glass, and sealed concrete floors to create a simple but graceful interior. At night, the building glows like a lantern in the gardens, with light filtering through gaps in the outer layer of wood siding.





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# Virginia Museum of Fine Arts Expansion

RICHMOND

Rick Mather Architects + SMBW introduce space, light, and calm into a museum.

By Suzanne Stephens

**MUSEUM EXPANSIONS** designed by prominent architects often result in a new main entrance to the addition's grand (and new) lobby/party hall. In many cases, this reorientation of the circulation gives visitors no visual knowledge of the original museum, while the ultra-spacious lobby offers few clues to the existence of the older structure.

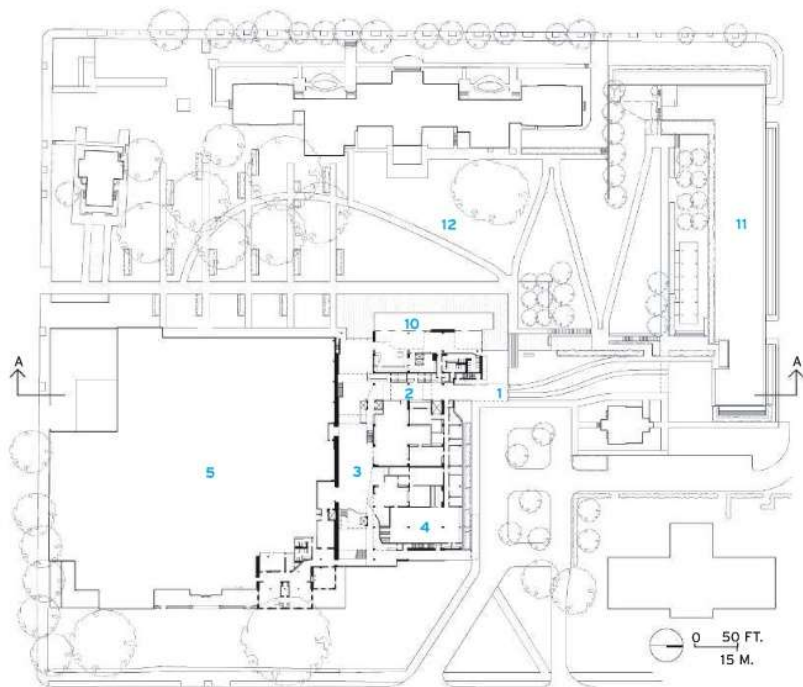
Rick Mather Architects + SMBW's 165,000-square-foot James W. and Frances G. McGlothlin Wing for the Virginia Museum of Fine Arts (VMFA) in Richmond may have the de rigueur entrance and lobby/atrium, but it avoids the typical mistakes. As you arrive, you see the entrance facade on the north, as well as one on the east—which abuts the Georgian-style brick-and-limestone museum designed in 1936 by Peebles and Ferguson. More important, the museum has kept the older entrance open to the public.

On the west, facing the sculpture park, the expansion calmly meets the stalwart, rough-stoned West Wing that Hardy Holzman Pfeiffer (HHPA) added in 1985. Inside the new wing's skylighted lobby/atrium, Mather has created vistas to older parts of the museum, many terminating in views outdoors.

Rick Mather, an American architect who transplanted himself to London

**RIGHT: A limestone rainscreen alternates with glass on the west facade, where the café and restaurant overlook the sculpture garden.**





SITE PLAN

in the 1960s, recently demonstrated his carefully serene approach to integrating old and new in his luminous expansion to the Ashmolean Museum in Oxford, England [RECORD, June 2010, page 140].

#### Program

The museum, which occupies a 13½-acre state-owned enclave of historic buildings and gardens, wanted to add 40,000 square feet of galleries (28,000 square feet for permanent galleries and 12,000 square feet for temporary ones) to the preexisting 380,000-square-foot structure. To do so, it decided to tear down a non-

descript wing, dating to 1976, for the new building, and renovate 45,000 square feet. In addition, the program called for a new restaurant, café, shop, and library, as well as a 9,500-square-foot conservation lab.

#### Solution

Visitors enter a lofty two-story hall that perpendicularly meets a three-story skylighted atrium. Crossed by glass bridges and pierced by a glass elevator, this light-filled vertical and horizontal spatial nexus directs visitors to old and new parts of the museum. New galleries are straightforward, with 14-foot ceilings

and oak floors, although some are given traditional detailing to better frame certain collections for this substantial repository.

The exterior retains the scale and proportion of the older buildings – and on the garden elevation, it seems to play off the rhythms and scale of HHPA's brawny architecture with smooth glass voids and light limestone masses. The Indiana limestone panels of Mather's wing cantilever up and down from the floor plates uninterrupted by perimeter columns; this curtain wall system allows continuous bands of horizontal glazing to extend around corners.



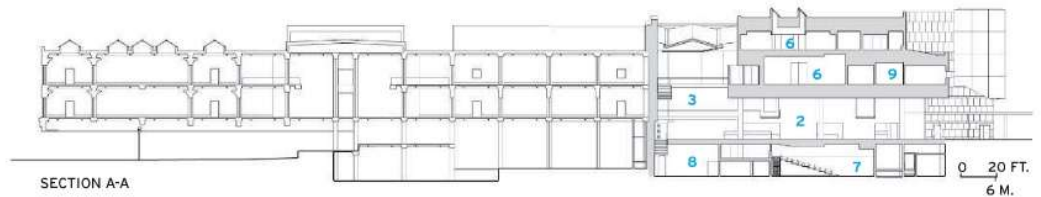
FIRST FLOOR

#### Commentary

The planes and lines of Mather's well-composed Modernism connote an architectural genealogy dating to the International Style. Admittedly the color and texture of the limestone panels are bland, and they lack the heft of the older buildings. Yet inside the entrance hall and lobby/atrium, the combination of skylights, bridges, and stairs successfully integrate the new museum with the old. Here, the effortless spatial deployment of glass, steel, and black granite against the gentle curves of the atrium's north wall creates a compelling centerpiece for the entire complex. ■



- 1 ENTRANCE
- 2 ENTRANCE LOBBY
- 3 ATRIUM
- 4 LIBRARY
- 5 EXISTING MUSEUM
- 6 GALLERY
- 7 LECTURE HALL
- 8 TEMPORARY GALLERY LOBBY
- 9 CONSERVATION
- 10 CAFÉ
- 11 PARKING DECK
- 12 SCULPTURE GARDEN



1. The museum addition's masses and voids energize the east elevation as well as the new entrance elevation facing north.
2. The new 14-foot-high galleries have oak floors.
3. The atrium window, 40 feet high and 70 feet wide, faces a main boulevard.

#### CREDITS

**ARCHITECT:** Rick Mather Architects + SMBW Architects – Rick Mather, principal (Mather); Louis Wolf, AIA, Willard Scribner, AIA, principals (SMBW); Peter Culley, project director (SMBW); Chris Wood, technical director (SMBW)

**CLIENT:** Virginia Museum of Fine Arts

**ENGINEERS:** Dewhurst MacFarlane (structural); Hankins & Anderson Consulting Engineers (structural, m/e/p); Atelier Ten (environmental)

**CONSULTANTS:** Olin Partnership (landscape); L'Observatoire International (lighting); Dewhurst MacFarlane (facade); Wis Janey Elsner (facade)

**SIZE:** 165,000 square feet (new); 45,000 square feet (renovated)

**COST:** \$150 million

**COMPLETION DATE:** May 2010

#### SOURCES

**METAL PANELS:** Centria

**STRUCTURAL GLASS CURTAIN WALL:** Eckelt

**GLASS SEALANTS:** Dow Corning; GE

**LIMESTONE RAINSCREEN:** Bybee Stone

**PRECAST CONCRETE:** Allied Concrete Products

**SKYLIGHTS:** Architectural Skylights

**LIGHTING CONTROLS:** Lutron





## Historisches Museum Bern

BERN, SWITZERLAND

An addition to a history museum by :mlzd Architects contrasts vividly with its historic surroundings. [By Rahel Hartmann Schweizer](#)

**AN EXPANSION DESIGNED** by :mlzd Architects, based in Biel, Switzerland, for the Historisches Museum Bern creates a multileveled dialogue between old and new architecture. Designed by the Swiss architect André Lambert in 1894, the original structure is near the Kirchenfeld Bridge, which crosses the Aare River and connects this area's cluster of museums to the historic section of Bern. Lambert designed the history museum in a Revivalist style to recall architecture (especially castles)

of the 15th and 16th centuries. Over time, the museum – which houses collections devoted to prehistoric material, folk art, ethnographic objects, and various kinds of decorative and applied art – found it urgently needed to expand. Fortunately, a donation of 2 million Swiss francs (approximately \$2,020,000) from the Abegg Foundation enabled the museum to organize an international architectural competition in 2000 for the design of an extension.

### Program

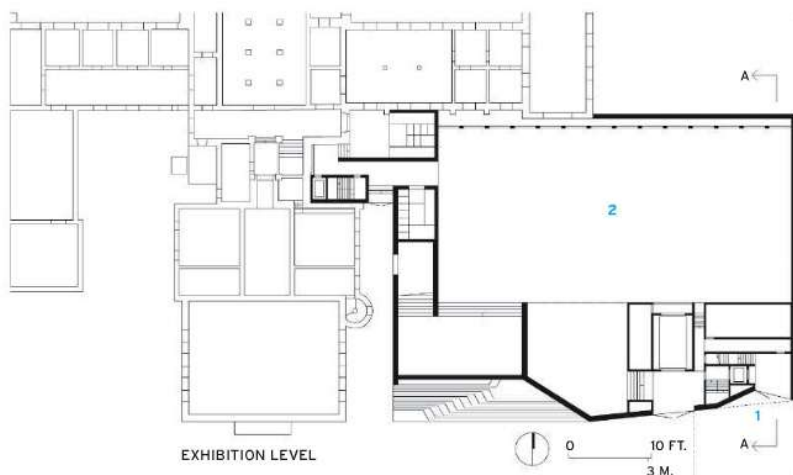
The expansion called for an additional floor area (79,653 square feet) that would include a 22,604-square-foot exhibition hall and accommodations for the city archive, offices, and a library.

The winning scheme, then called Kubus/Titan (now just Titan), was conceived by the 20-member architectural firm :mlzd, founded in 1997 and known in Switzerland for its Modern houses, office buildings,

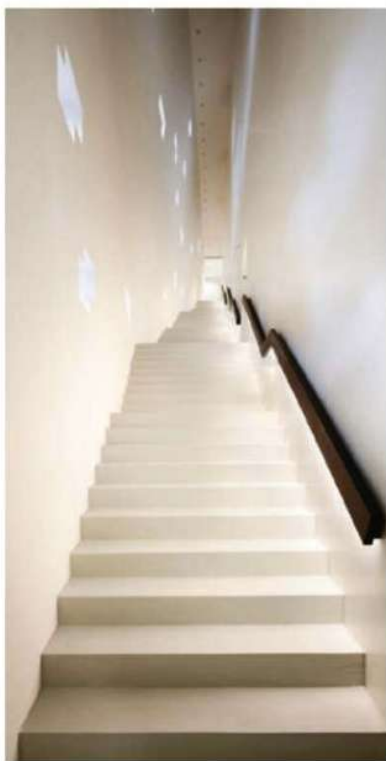
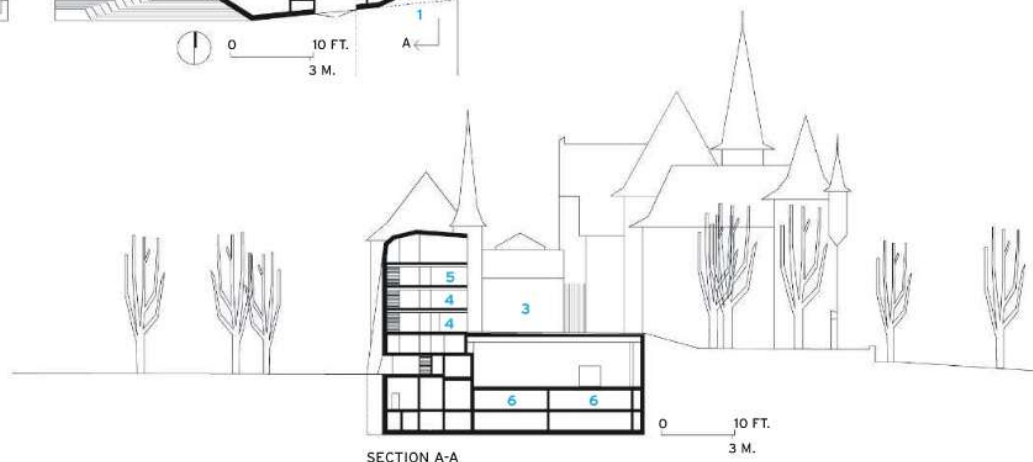
**ABOVE:** The entrance to the museum extension's archives is unassuming.

**RIGHT:** Wide stairs lead to the plaza, where the turreted history museum designed by André Lambert in 1894 provides a richly varied context for the new extension.





- 1 ENTRANCE TO ARCHIVES
- 2 EXHIBITION HALL
- 3 PLAZA
- 4 OFFICES
- 5 LIBRARY
- 6 STORAGE



ABOVE: The column-free structure of the exhibition hall allows flexibility in the installation of exhibitions.

LEFT: A cascading stair in the new building receives daylight through randomly placed apertures.

OPPOSITE: The glass curtain wall on the north facade of the extension edges a plaza atop the exhibition hall and compellingly reflects older buildings.

schools, and museums. Principals include Claude Marbach, Roman Lehmann, Pat Tanner, Daniele Di Giacinto, and Lars Mischkulnig.

#### Solution

The architects designed the new annex to include two main elements: The first is an exhibition hall buried at the southeast corner of the older museum, with 21,528 square feet of storage accommodated on two levels underneath. The other element is a monolithic six-story structure that demarcates the southern edge of the site and contains ancillary services. A cascading interior stair runs along the inclined south elevation to connect the floors.

By burying the exhibition hall, mlz killed two birds with one stone. On one hand, the architects integrated the large volume needed for the museum into a limited space without violating the scale of the setting. On the other, they met the demands of creating an exhibition space that could function as a black box free of natural light.

Moreover, the roof of the submerged exhibition hall provides a public plaza that spans both the old museum and the new monolithic structure.

The massive concrete walls of the new wing give the south, east, and west elevations a fortified appearance in keeping with the older museum. On the north elevation, a flat, fully glazed curtain wall helps frame the public plaza and spectacularly reflect its surroundings.

The structural engineers had to underpin the old building and secure the excavated pit for the new exhibition hall by tying back reinforced concrete walls to anchors in the ground. In addition, the architects and engineers spanned the hall with a prestressed, ribbed concrete ceiling, allowing it to be column-free for flexibility of installations.

For the office block, the team developed a complex load-bearing structure consisting of one-story cast-in-place concrete columns on the north side and a monolithic





structure of 14-inch-thick concrete walls on the other three sides.

### Commentary

In splitting the structure into exhibition hall and office building, :mlzd reinterpreted the typologies of the podium and the tower. Evoking the image of a rock, the polygonal block acts as a visible landmark while relating visually to the mountains (Eiger, Mönch, Jungfrau) in the background and the Lambert-designed museum in front. By adding greenish-white cement pigment to the concrete, the architects harmonized the color of the facades with the sandstone masonry of the existing museum building.

In creating six facades on the south, east, and west elevations –

three of which are inclined by 96.66, 82.69, and 80.11 degrees – :mlzd alluded to the articulation of the older museum's facades. The texture of the walls of the new structure echoes the roughly finished stones that accentuate the corners and arched windows of the original building. By photographing them and then enlarging them as pixels, the architects designed recesses and perforations for the concrete walls that optically soften the surfaces. Some of these perforations turn out to be window openings.

The fully glazed curtain wall wrapping the north elevation seems to reveal the cut surface of the massive rock as if it were a gemstone. On sunny days, it reflects the museum

facade opposite, and from a point of view parallel to the glass panels, it even completes the older building's design by turning it into a symmetrical composition.

In this manner, the glossy facade acts as a referential backdrop that sometimes turns out to be a literal one, for the plaza is planned to be used as a stage for medieval performances. The architects have succeeded in creating an extension that both responds to the late 19th-century museum and competes with it – simply because it does not cozy up to the original. ■

*Rahel Hartmann Schweizer is an art and architecture historian, and an editor of TEC21 magazine.*

### CREDITS

**ARCHITECT:** :mlzd Architects – Claude Marbach, Roman Lehmann, Pat Tanner, Daniele Di Giacinto, Lars Mischkulnig

**CLIENT:** Historisches Museum Bern

**ENGINEERS:** Tschopp (structural); IBMM (m/p); Brücker (electrical)

**CONSULTANTS:** David & von Arx (landscape)

**SIZE:** 79,653 square feet

**COST:** \$26.3 million

**COMPLETION DATE:** September 2009

### SOURCES

**METAL-AND-GLASS CURTAIN WALL:** Dial Norm

**ACOUSTICAL CEILINGS:** Magitherm

**INTERIOR LIGHTING:** Neuco





## Oakland Museum of California Renovation

OAKLAND

Mark Cavagnero Associates subtly renews a 41-year-old museum designed by Kevin Roche and John Dinkeloo. [By Sarah Amelar](#)

**ABOVE:** A new projecting canopy and bold graphics offer shelter and a strong sense of orientation to museum visitors.

**OPPOSITE:** A glass-and-steel enclosure now covers the outdoor stair leading to multilevel galleries and plazas.

**IN 1968, THE YEAR BEFORE** the Oakland Museum opened, *New York Times* architecture critic Ada Louise Huxtable wrote: "In terms of architecture and environment, Oakland may be the most thoughtfully revolutionary museum in the world." Remarkably forward-thinking in its integration of planted and insulating roof terraces, the three-tiered, exposed-concrete structure seemed to grow organically from the park around it. Dedicated to California's art, history, and natural sciences, the building's three main levels were designed to step down a slope,

with a veritable Gardens of Babylon cascading over the roof decks.

Here, in a city with significant poverty, was an admission-free "museum for the people," envisioned as a porous building with multiple casual entrances and exits instead of a grand front portal. Museum and park – the collaboration of architects Kevin Roche John Dinkeloo and Associates with landscape architect Dan Kiley – flowed together as a continuous public space, spanning the equivalent of five city blocks.

Although locals embraced the

institution, and it gained a following among design aficionados, the unassuming rather than iconic architecture – hunkering down and semicamouflaged by design – never transformed downtown Oakland with the tourist-attracting force of a Guggenheim Bilbao. And once the museum began charging admission in 1996, a controlled main entrance became a necessity, undercutting the original premise of free flow and making it tricky for people to figure out exactly where to enter. With admissions lines snaking down

**CREDITS**

**ARCHITECT:** Mark Cavagnero Associates – Mark Cavagnero, FAIA, principal; John Fung, project director; Felicia Dunham, project architect

**CLIENT:** Oakland Museum of California

**ENGINEERS:** Van Maren & Associates (civil); Forell/Elsesser Engineers (structural); Rumsey Engineers (m/p); FW Associates (electrical)

**CONSULTANTS:** Robert LaRocca & Associates (landscape); Skidmore, Owings & Merrill (graphics)

**SIZE:** 94,000 square feet

**COST:** \$17 million

**COMPLETION DATE:** May 2010

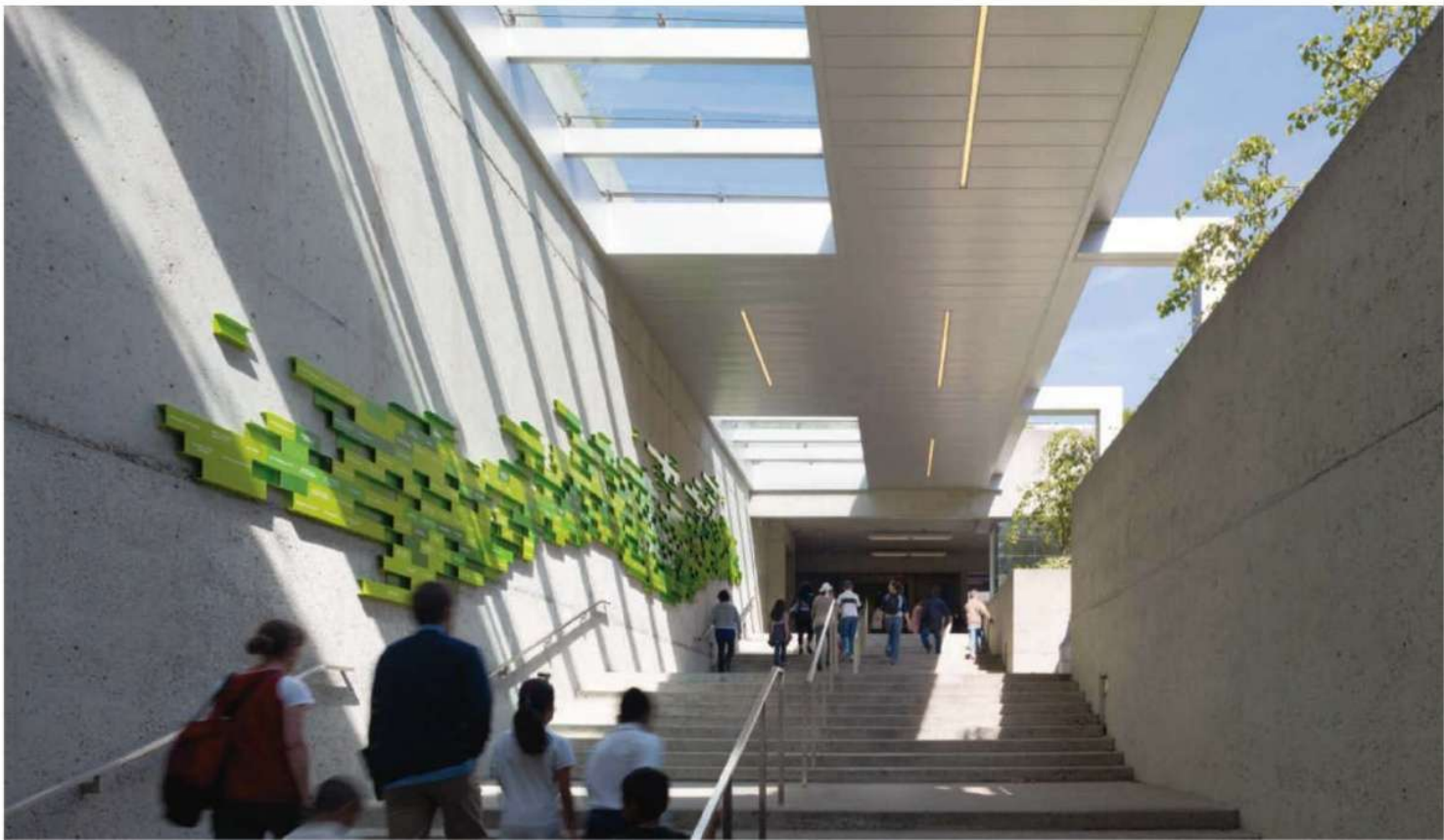
**SOURCES**

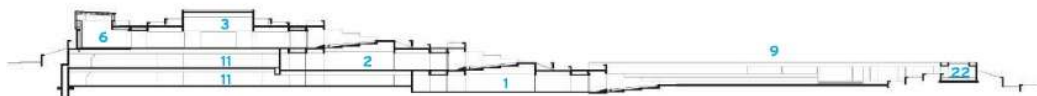
**STAINLESS STEEL:** Contrarian Metal Resources

**STRUCTURAL GLASS:** Innovative Structural Glass

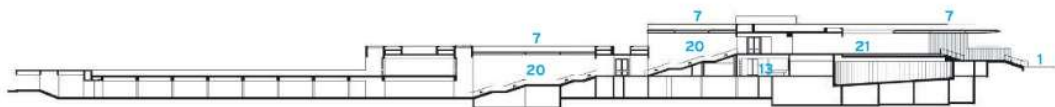
**METAL PANEL ROOF:** Overly Manufacturing Company

**ACOUSTIC PLASTER CEILING:** Baswaphon





SECTION B-B



SECTION A-A



1. The insertion of steel and glass skylights and canopies protects visitors from rain and glare.
2. A current aerial view shows the glass and steel coverings embedded in the planted terraces.
3. An aerial view of the museum's terraced roof gardens circa 1970 reveals the rich landscape design by Dan Kiley.
4. New, light steel canopies, beams, and columns alternate with original poured-concrete walls on various levels.

the building's outdoor passageway came such challenges as protecting visitors from glaring sun or pouring rain. So the museum inserted a stopgap canvas canopy, awkwardly descending the entry-route steps. Meanwhile, inside, consistently low, 11.6-foot ceilings, coupled with the original unrelenting 20-foot bays (expressed as a series of "Brutalist" exposed-concrete walls), were encroaching on curatorial freedom.

#### Program

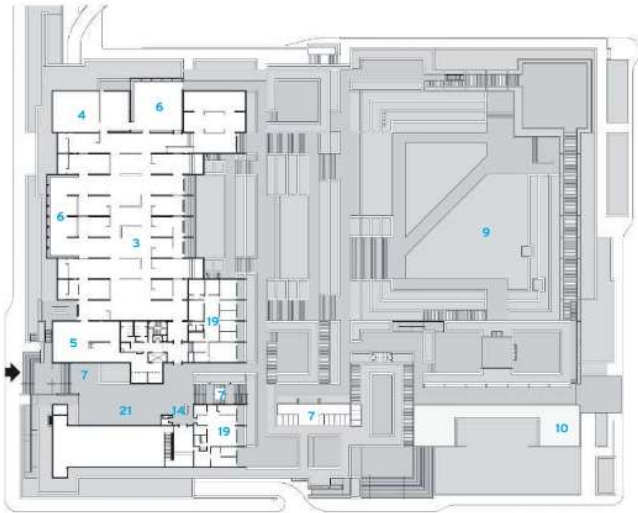
Clarifying the experience of arrival while introducing shelter from the ele-

ments and ADA access was essential. Although the \$62.2 million addition and renovation would increase the 150,000-square-foot museum by only 5,800 square feet, it still needed to render the galleries more flexible and varied, especially in height, proportion, levels of intimacy, quality of light, adjacencies, and overall circulation. The building's aging and inadequate infrastructure also required upgrades.

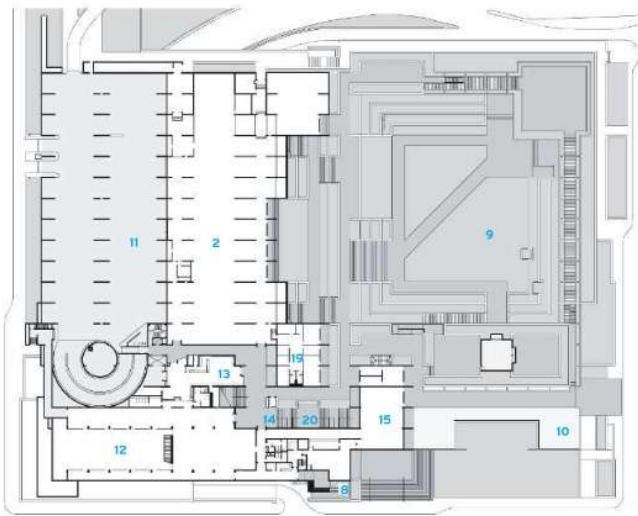
#### Solution

The obvious architect for the expansion might have been Kevin Roche, but after much back and forth, the

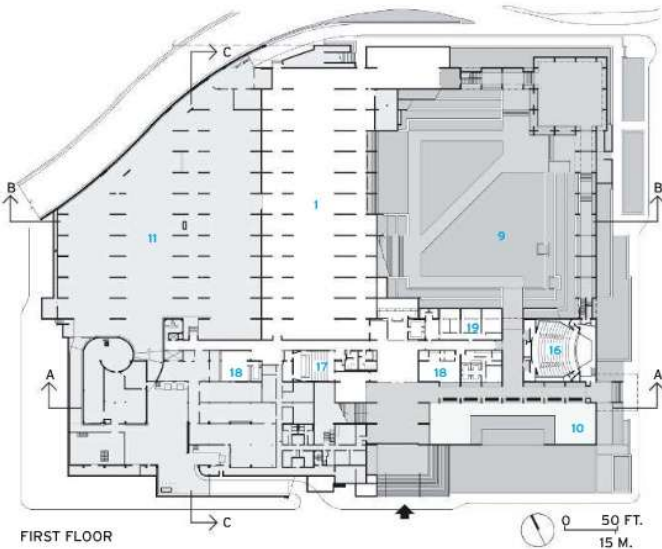




THIRD FLOOR



SECOND FLOOR



FIRST FLOOR



- |                            |                                 |                  |
|----------------------------|---------------------------------|------------------|
| 1 NATURAL SCIENCES GALLERY | 8 NEW ADA RAMP                  | 16 AUDITORIUM    |
| 2 HISTORY GALLERY          | 9 GARDEN                        | 17 LECTURE HALL  |
| 3 ART GALLERY              | 10 KOI POND                     | 18 CLASSROOM     |
| 4 ART LIBRARY              | 11 GARAGE                       | 19 OFFICE        |
| 5 ART STORAGE              | 12 GREAT HALL/ CHANGING GALLERY | 20 CENTRAL STAIR |
| 6 NEW GALLERY ADDITION     | 13 SHOP                         | 21 ENTRY PLAZA   |
| 7 NEW CANOPY               | 14 TICKETING                    | 22 PERGOLA       |
|                            | 15 RESTAURANT/CAFÉ              |                  |





**LEFT:** Cavagnero added new end galleries with clerestories and 20-foot-high ceilings to better display large-scale art.

**BELOW:** Certain galleries retain the existing ceiling heights but now have more colorful interiors to keep them from feeling too dark.

museum hired Mark Cavagnero Associates, which had devised the institution's master plan in 1999. (After working closely with Edward Larrabee Barnes in New York, Mark Cavagnero partnered with Barnes's son in San Francisco before taking over the firm there in 1993.) The challenge here was complicated by the building's landmark status. In the end, Cavagnero's approach emerged

as possibly more Roche than Roche – or, at least, more in keeping with the 1960s design. Where the original architect now proposed encasing his entry sequence of outdoor walkways and courts in glass, Cavagnero looked for quasi-surgical ways of stitching in outdoor shelter.

"I have always loved this building. Along with the Ford Foundation, it's one of Roche's best," says

Cavagnero. He sees his strategy as "a foil to the powerful existing concrete structure," playing lighter planes and frames delicately against the concrete. Most prominent is the canopy he cantilevered over the entry sequence – a continuous 90-foot-long folded plane, clad in softly reflective, almost matte, stainless steel. The silvery metal quietly echoes the gray concrete, rather

than literally mimicking it – while unmistakably defining the entrance.

Inside, L-shaped insertions of white or solid-colored walls provide smooth, bright backdrops for the collections and modulate the 20-foot bays with spaces of varied size and proportion. Two new, clerestory-lit end galleries (accounting for most of the added square footage) invite flow through the exhibition areas, eliminating original cul-de-sac. Cavagnero restored long-lost sectional openings and unblocked original windows, bringing daylight back into galleries without excessive glare or heat gain. The team also reconfigured programmatic adjacencies and lighting, plus integrated modern building systems, which are shoehorned into existing cast-concrete channels. With 20-foot-high end galleries, the museum can finally display all of its Richard Diebenkorn paintings and other tall artworks.

#### Commentary

The conundrum of expanding on significant architecture can prompt extreme strategies: from dramatic counterpoint to stylistic pastiche. Cavagnero's respectful intervention is neither. Though always distinct from the original, the changes are deftly woven in, at times almost imperceptibly. The nature of the original building – more fabric than object – and the addition's relative smallness invited a light hand, and, to a great extent, landmark protection required it (even clipping back the longer, more dynamic canopy Cavagnero proposed). The result is a museum true to its original spirit, with newfound functionality. Yet the intervention is so thoughtfully understated it sometimes makes you hunger for at least a momentary jolt of revolution. ■

*Sarah Amelar is a contributing editor of RECORD.*





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"We estimate that installed Lutron dimmers save over 9 billion kilowatt hours of energy per year, and that prevents 17 billion pounds of CO<sub>2</sub> from entering the atmosphere," says Michael W. Pessina, president of the Office of Product Development at Lutron Electronics, a light control manufacturer. "That's a savings of over \$1 billion in energy costs each year."

"The amazing thing is that this number is just the tip of the iceberg," adds Pessina. "In the commercial sector, dimmers and other controls can reduce lighting electricity use dramatically."

According to the U.S. Department of Energy, lighting is by far the largest user of electricity in commercial buildings. It consumes 38% of the total—more than space

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	25%	50%
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Five-year savings per dimmer	\$393.56	\$787.13
Payback (with productivity gain)	less than 1 year	less than 1 year

Figures are based on using a dimmer on nine fluorescent fixtures with three 32-watt lamps, running 12 hours per day, at an energy cost of \$0.104 per kwh. Savings calculations are compared with energy use of lights that are switched on. Payback based on lighting energy savings, product costs, and a 1% productivity increase.

heating, cooling, ventilation, equipment, and computers *combined*. Lutron light controls can radically reduce that appetite through scalable solutions. Here's how.

Dimmers alone can easily reduce lighting electricity use by 20%. Add Lutron's new Radio Powr Savr wireless occupancy

sensor and you can cut lighting electricity use up to an additional 35%. Larger-scale total light management systems combine dimming, occupancy sensing, and daylight control to produce even more dramatic savings: Lutron systems in The New York Times Building (New York), Bently Reserve (San Francisco), and Georgian College (Ontario, Canada) are each saving more than 65% in lighting electricity use annually.

Dimmed lights also keep the air cooler. Many buildings require cooling year-round, so the energy savings can be significant. As a rule of thumb, cooling usage is reduced by one watt for each three watts of lighting that are cut. In addition, Lutron's electronically controlled window shades automatically raise and lower to maximize efficient use of daylight while minimizing heat gain and glare.

Light control also enhances the visual environment while conserving energy. Commercial spaces are usually over-illuminated, and the ability to dim lights to the appropriate level for the job at hand can improve productivity and reduce eyestrain and computer glare. In fact, research by the Light Right Consortium found that employees are 6% more comfortable when they have individual control over their lighting environment. Another study by lighting expert Peter Boyce showed that "people with dimming control reported higher ratings of lighting quality, overall environmental satisfaction, and self-rated productivity."

"The productivity link is huge," says Pessina. "Human resources cost \$318 per square foot, which is more than six times higher than any other operating cost. If better light control can help people work more effectively for five minutes—which is equal to 1% of the work day—the investment in light controls will pay for itself in less than a year." •



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# product reports

## 2010

**JUDGES** All based in New York City

**1 Andre Kikoski, LEED AP**  
Prior to founding Andre Kikoski Architect, Kikoski trained in the offices of I.M. Pei, Richard Meier, and Peter Eisenman. His firm recently won a 2010 AIA New York State Design Award of Excellence and an Outstanding Restaurant Design Award from the James Beard Foundation.

**2 Randy Sabedra**  
With more than 20 years of interior and exterior architectural lighting design experience, Sabedra currently heads RS Lighting Design. He is the recipient of numerous honors including the IALD Lighting Award.

**3 Ali Tayar**  
A principal of Parallel Design Partnership, Tayar studied architecture at the University of Stuttgart and MIT. His work ranges from objects and furniture to commercial interiors and architectural projects.

**4 Peter Carey, LEED AP**  
Carey has been a resource librarian for the last 15 years. Before founding Streamline Material Resourcing in 2009, he worked at firms such as Pei Cobb Freed and Partners and Butler Rogers Baskettt.

**5 Nelson C. Jenkins, LEED AP**  
A principal of the design consultancy LumenArch, Jenkins is a registered architect and has worked on project types ranging from embassies to laboratories.

**6 Nathaniel Pearson**  
With a background in industrial design, fine arts, and licensing, Pearson is responsible for the product design initiatives at Robert A.M. Stern Architects.

**7 Linda Pollak**  
Pollak is a principal of Marpillero Pollak Architects, whose current projects include the Elmhurst Branch Library and the New Stapleton Waterfront. The firm has been recognized with awards from AIA, ASLA, HUD, and others.

**8 Ernesto Trindade, LEED AP**  
As vice president of Cannon Design, Trindade has led teams on notable health care, residential, and educational facilities including the new Life Sciences Building for Nassau Community College in N.Y.

**9 Renée Cooley**  
Under Cooley's design direction as principal of Cooley Monato Studio, the firm's projects have received numerous awards, including a 2009 IES Illumination Award of Merit for the Virtual Light Loft project, for which she was design principal.

Weather-responsive sunshades, a living facade system, and a solar-powered ceiling fan are just a few of the cutting-edge product introductions that caught the attention of this year's Product Reports jury. Every year, ARCHITECTURAL RECORD invites a group of product experts – including several who have created their own product designs – to help us select the year's best new products. Whether it's a beautifully engineered alternative to other systems on the market or a dual-purpose solution that helps reduce clutter, these products work extra hard to earn a place in your upcoming projects. RITA CATINELLA ORRELL



## product reports > SPECIAL CONSTRUCTION & EXTERIOR IMPROVEMENTS



### Verona

**HessAmerica** [hessamerica.com](http://hessamerica.com)  
Verona is one of six new models in the Hess collection of 100% recycled cast-iron tree grates. The four-piece tree grate is available in a powder-coated matte black finish in three sizes for various scale requirements. The grates offer two ADA-compliant models and come with a steel frame for installation and removable openings to help facilitate tree watering. **CIRCLE 200**

### South Face

**Il Cantiere** [ilcantieresrl.it](http://ilcantieresrl.it)  
Curved elements made from ultrahigh-performance Ductal concrete from Lafarge – which has a lower carbon footprint than standard concrete – combine to form green walls (top) with pockets to support air-purifying vegetation. Ideal for urban-garden applications, the hollow, modular units are also insulated for use as facades, interior walls, or partitions in residential and commercial settings.

**CIRCLE 201**

### Recycled Stone Pavers

**Earth Stone Products** [earthstoneproducts.net](http://earthstoneproducts.net)  
These 1½"-thick permeable pavers are created from 100% preconsumer waste from granite fabricators that are stamped into a variety of patterns – including scallops, waves, and small stepping stones – and then tumbled for a natural look. The pavers have been installed in residential, commercial, historical, and government applications and can be shipped anywhere in the U.S. **CIRCLE 202**

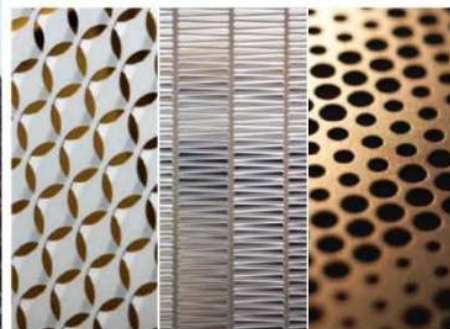
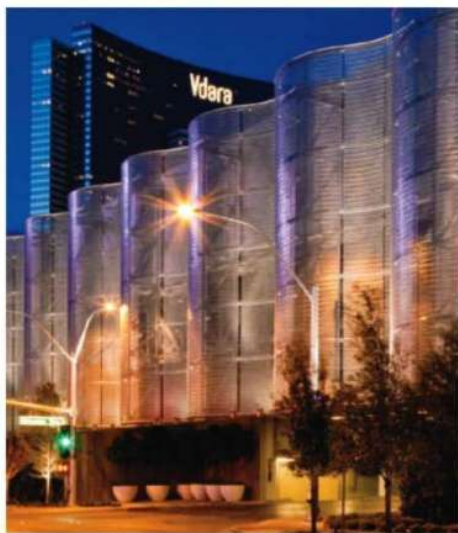
### Bionictile & Lifewall

**Ceracasa (Tile of Spain)** [ceracasa.com](http://ceracasa.com)  
Bionictile air-purifying porcelain tile features a titanium-dioxide glaze that neutralizes nitrogen oxide pollutants. A companion system called Lifewall was developed in conjunction with Spanish architect Emilio Llobat and Azahar Energy. The 3.3'-square metal mesh system supports drip-watered vegetation in a substrate and can be used as part of the facade design.

**CIRCLE 203**

### Bison Pop-Up Park

**Bison Innovative Products** [bisonip.com](http://bisonip.com)  
The Bison Pop-Up Park is an all-inclusive line of products for installing decking and landscaped environments in densely populated urban communities. The modular system, which includes deck supports, wood tiles, custom cubes, railing, and street attachments, can be quickly installed on streets, public parking spaces, and parking lots. It is shown here in New York City's Financial District. **CIRCLE 204**



### Curved Architectural Metal Panels

#### Cambridge Architectural

[cambridgearchitectural.com](http://cambridgearchitectural.com)

Cambridge has recently engineered and executed the designs for two curved architectural mesh-panel systems (top) – one adapts to the manufacturer's Eclipse attachment to precisely match and effectively hold mesh panels, and the other attaches flexible mesh to a custom-designed curved steel framework.

**CIRCLE 205**

### Meteon

**Trespa International** [trespa.com/na](http://trespa.com/na)

Appropriate for rainscreen cladding, facade parts, balconies, fascias, soffits, signage, and other applications, Trespa's Meteon panels are made of thermosetting resins that are homogeneously reinforced with up to 70% wood-based fibers and manufactured under high pressures and temperatures. The panels have earned Greenguard Children & Schools Certification. **CIRCLE 206**

### Graphic Concrete

**Graphic Concrete** [graphicconcrete.com](http://graphicconcrete.com)

This technology involves applying a surface retarder to a special membrane in order to slow the hardening of concrete in certain areas. After the membrane is spread on the mold, the concrete element is lifted to an upright position and the membrane is removed. The unset, softer concrete surface is then high-pressure washed, revealing the fine aggregate finish of the design.

**CIRCLE 207**

### plus plus

**Meld USA** [meldusa.com](http://meldusa.com)

Plus plus pavers (top) allow water to reach soil and plants, which avoids runoff and helps create green space among concrete surfaces. The paver design allows for numerous configurations in gardens, driveways, or patios. All pavers are formed with Meld USA's eco-friendly materials and made of up to 74% recycled content, including 100% recycled glass aggregate. Available in standard and custom colors.

**CIRCLE 208**

### Screens

**Forms+Surfaces** [forms-surfaces.com](http://forms-surfaces.com)

The Screens program enables architects and designers to create a custom look without the associated constraints. Suitable for interior and exterior use, Screens can be incorporated into a building facade, fencing, room dividers, elevator interiors, doors, lighting, railing systems, and more. They can be specified in stainless steel or in the manufacturer's proprietary Fused Metals. **CIRCLE 209**



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CIRCLE 09



## product reports &gt; TOP 10 GREEN PRODUCTS



This year's group includes the most exciting products drawn from recent additions to the *GreenSpec Directory* and coverage in *Environmental Building News*, both published by BuildingGreen.

**FoamGlas**

**Pittsburgh Corning** foamglasinsulation.com  
This cellular glass insulation (top) is 100% glass, made from silica sand, limestone, soda, and trace minerals. Production is free of harmful blowing agents, and the material's high compressive strength and resistance to water and water vapor make it an appropriate substitute for extruded polystyrene. It is non-combustible and termite-resistant.

**CIRCLE 210**

**Xicato Spot Module**

**Xicato, Inc.** xicato.com  
The Xicato Spot Module (top) is an LED module that is coupled with a separate heat sink, reflector, and remote driver. Designed for use in place of MR16 halogen lamps, the Xicato module is available with outputs of 400, 700, and 1,000 lumens in 2700K, 3000K, and 4000K color temperatures. Xicato's coating absorbs the off-color light emitted from the LEDs and reemits a consistent, color-corrected light. **CIRCLE 212**

**Low-Smoke Zero-Halogen EZ-Wiring & EZ-Cabling Systems**

**Electec, Ltd.** electeconline.com  
This cost-effective plug-and-play modular wiring system contains none of the halogens (bromine, chlorine, or fluorine) that are commonly used in cable sheathing, and no heavy metals. Rated as "low-smoke, zero-halogen," these systems are designed for easy reuse and reconfiguration using uniquely keyed connections. **CIRCLE 213**

**FSC Furniture**

**Knoll, Inc.** knoll.com  
All of Knoll's standard furniture lines that incorporate wood now come with Forest Stewardship Council-certified wood. With just a few exceptions, effective December 2009, Knoll began providing FSC-certified wood without asking, at no surcharge, and at standard lead times.

**CIRCLE 211**

**OBPlus Wall System**

**Bensonwood** bensonwood.com  
The OBPlus Wall system is framed using 9.5"-deep I-studs filled with R-35 dense-pack cellulose insulation, then clad with exterior moisture-resistant OSB sheathing. Advanced gasket technology is used for air sealing, detailing minimizes thermal bridging, a drainage plane is installed on the exterior, and integral baseboard raceways on the interior eliminate wall penetrations. **CIRCLE 214**

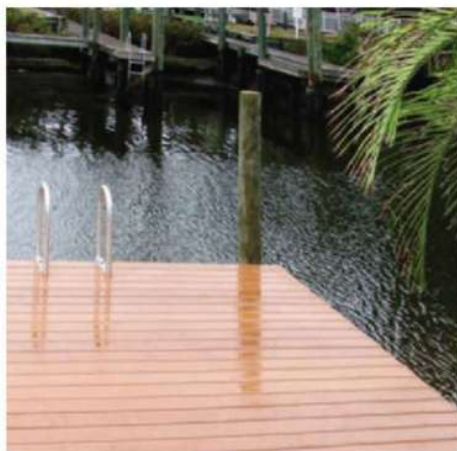


#### Ornilux Bird-Safe Glazing

Arnold Glas [ornilux.de](http://ornilux.de)

100 million birds are killed annually in the United States in collisions with buildings, according to the New York City Audubon Society. This specialty glazing is produced with a pattern that reflects UV light, which is more visible to birds than to humans. The current version of Ornilux has a random pattern of UV-reflective lines and is available in two insulated, argon-filled configurations: one with low-emissivity coating, the other with a heat-rejection coating. Ornilux is also available in a triple-laminated configuration, providing the visible UV pattern when viewed from either side; this uninsulated glass is used on outdoor displays and partitions.

**CIRCLE 215**



#### NyloDeck Composite Decking

Nyloboard, LLC [nyloboard.com](http://nyloboard.com)

NyloDeck is an American-made composite decking produced from recycled carpet fiber and water-blown, VOC-free polyurethane binder. Although it currently uses preconsumer recycled waste carpet, the company plans to convert to 100% postconsumer recycled carpet in early 2011. Impervious to moisture, termites, and mold, the 5½"-wide decking is available in ⅞" and 1⅛" thicknesses. **CIRCLE 216**

#### Stealth Toilet

Niagara Conservation Corp.  
[niagaraconservation.com](http://niagaraconservation.com)

Also a winner in Plumbing (page 112), the Stealth 0.8-gallons-per-flush ultrahigh-efficiency toilet uses vacuum-assist technology to achieve superb flush performance using very little water and producing very little noise. The Stealth is quieter than many standard gravity-flush toilets and evacuates 600 grams, as measured by third-party MaP testing. **CIRCLE 217**



#### ECM "Smart" Pump

Wilo [wilo-usa.com](http://wilo-usa.com)

While pumping can account for as much as a fifth of the electricity use in commercial building, Wilo's commercial Stratos and residential Stratos ECO pumps (top) use integral variable-frequency drives and electronically commutated motors (ECMs) to reduce circulation energy by more than 70%, compared with standard single-speed pumps.

**CIRCLE 218**

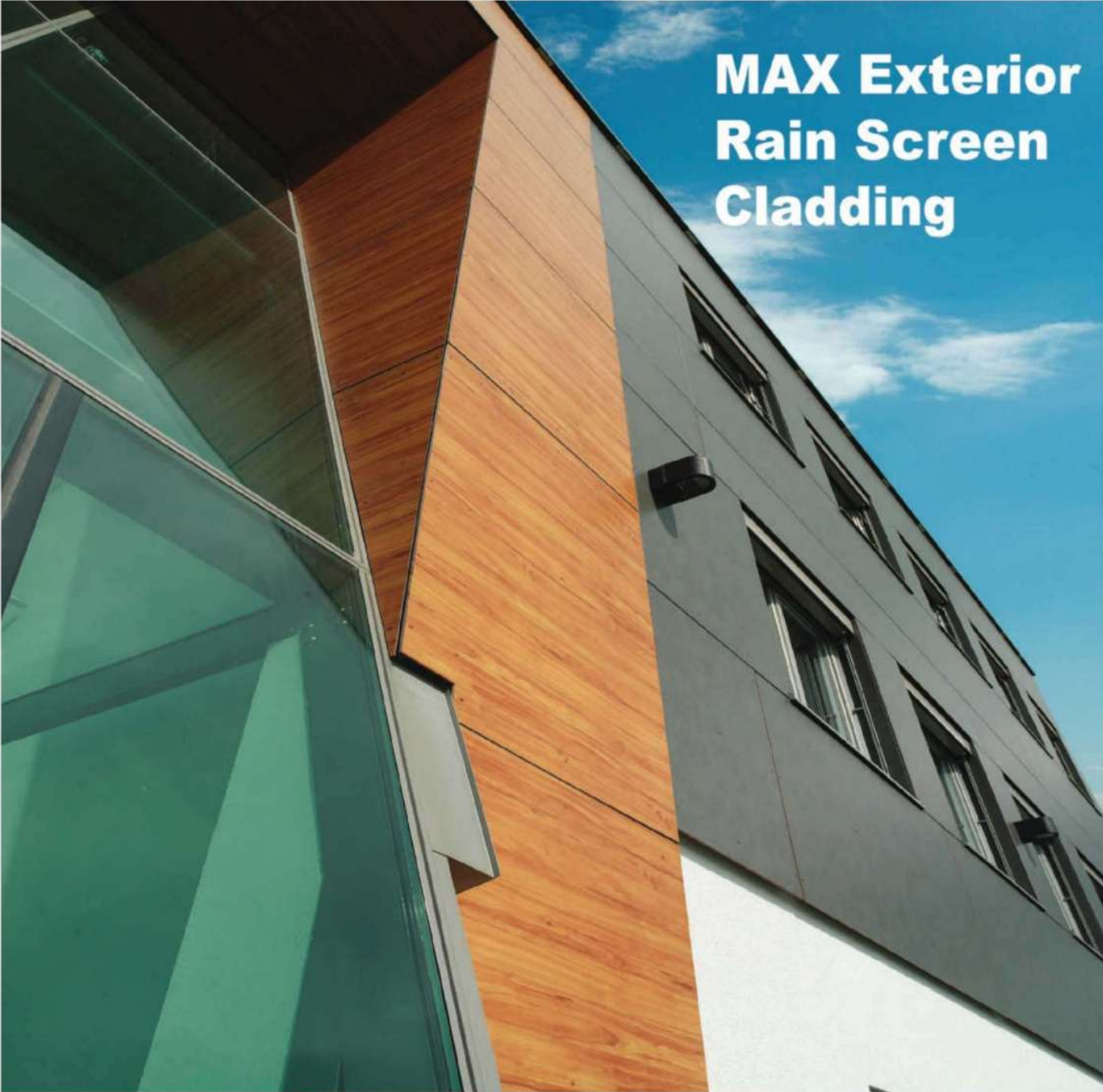
#### Heat Recovery Unit for Commercial Kitchens

Halton Group [haltoncompany.com](http://haltoncompany.com)

The Halton Heat Recovery Unit is a pre-packaged exhaust and make-up-air unit for commercial kitchens that incorporates energy recovery. Energy savings can be dramatic, as commercial kitchen ventilation systems often exhaust 8,000 cubic feet per minute or more at a temperature of 110°F or higher. Payback is typically in the two- to five-year range.

**CIRCLE 219**

# MAX Exterior Rain Screen Cladding



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## product reports > THERMAL & MOISTURE PROTECTION



### Reveal Panel

**James Hardie Commercial**  
jameshardiecommercial.com

The Reveal panel (top) is the first U.S.-made, commercial fiber-cement panelized design that can compete with everything from expensive imported panels to EIFS to vinyl siding. Made from wood pulp, sand, cement, and water, Reveal is 40% thicker than residential fiber-cement panels. Trim options by Fry Reglet come in seven profiles. **CIRCLE 220**

### Tensotherm with Nanogel

**Birdair, Inc.** [tensothermroofing.com](http://tensothermroofing.com)  
Tensotherm with Nanogel offers the same flexibility and translucency of Birdair's tensile roofing fabrics, but with the added benefits of Cabot Corporation's Nanogel aerogel, a featherlight insulation layer that enhances the material's thermal performance while maximizing daylighting. The material also offers maximum moisture control and superior acoustic attenuation capabilities. **CIRCLE 221**

### Prosoco R-Guard Fast Flash

**Prosoco** [prosoco.com](http://prosoco.com)  
Our jury liked the flexibility of R-Guard Fast Flash (top), which can stop water penetration of transition points, door and window assemblies, and paneling joints. It stands up to severe conditions, including high-intensity coastal, Midwestern, and mountain storms, and can be exposed to weather for up to six months in case of construction delays. **CIRCLE 222**

### Ventilated Wall System

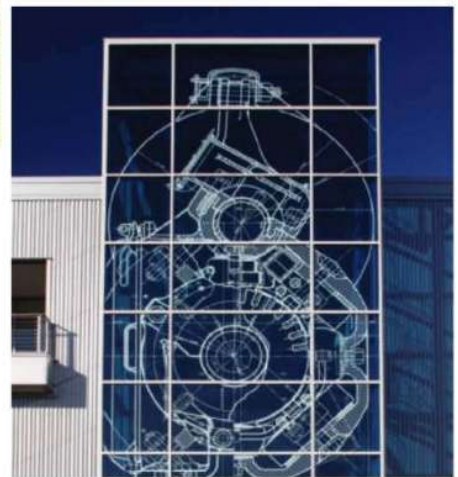
**Marazzi USA** [marazzitile.com](http://marazzitile.com)  
Marazzi's ventilated facades tout numerous performance advantages: lowering a building's energy usage by up to 30%, improving sound insulation over traditional cladding, eliminating condensation, and enhancing thermal stability to encourage better heat dispersal. Facing options include large-format porcelain stoneware in a variety of sizes, colors, and textures. **CIRCLE 223**

### Quiet Batt Acoustic Insulation

**Acoustictrade** [acoustictrade.com](http://acoustictrade.com)  
Quiet Batt (top) soundproofing and thermal insulation is designed for use in interior and exterior walls and ceilings. Acoustically, Quiet Batt is claimed by the maker to outperform standard fiberglass, cellulose, and foam insulations. Our jury liked that it carries a Class-A rating and is made of 80% recycled natural cotton fibers. **CIRCLE 224**

### Tegolasolare

**Area Industrie Ceramiche** [areafranceram.com](http://areafranceram.com)  
Inspired by work of 19th-century Italian architect Corinto Corintini, the Tegolasolare roofing system was developed by Area's in-house team of designers and engineers and combines traditional terra-cotta tiles with photovoltaic (PV) technology. Each 18"-square tile incorporates a four-cell PV panel. About 400 square feet of roof area is required to generate 3 kW of electricity. **CIRCLE 225**

**SL82**

**NanaWall Systems** nanawall.com

This structurally glazed folding-wall system (top) features in-swing operation, thermally broken frames with triple glazing (for a U-value as low as 0.29), and an integrated multipoint locking system. Up to 12 contiguous panels can be specified to create a 39'-wide opening; the maximum panel size is 39" x 98". A coordinating ADA-compliant flush sill is also available. **CIRCLE 226**

**GlassX Glazing System**

**Greenlite Glass Systems** greenliteglass.com

The GlassX glazing system incorporates a salt-hydrate phase-change material (PCM) that stores energy from the exterior temperature and reuses it to either heat or cool the building as needed, putting less pressure on HVAC systems. Achieving U-values up to 0.08, the quadruple-glazed sealed unit is made of three separate IGUs, a prismatic solar filter, two low-E coatings, and a PCM core. **CIRCLE 227**

**Model PG High-Performance Grille**

**Lawrence Doors** lawrencedoors.com

The jury appreciated the open look and operation speed of the first roll-up grille from Lawrence Doors, intended to operate for 300,000 cycles and at operating speeds of up to 24 inches per second. The high-performance design is suited for applications such as parking garages, where traditional high-cycle grilles do not meet the high-frequency or speed operation demands. **CIRCLE 228**

**S1E Eco-Screen**

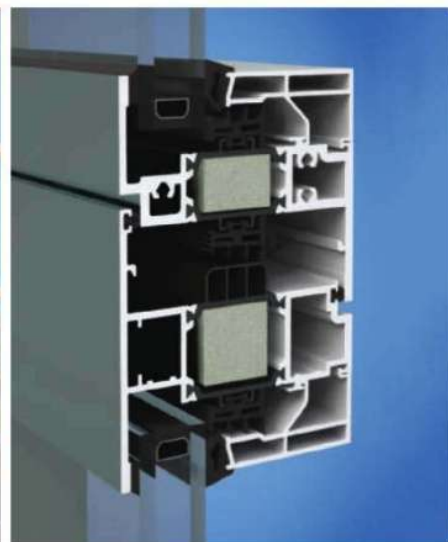
**Centor Architectural** centorarchitectural.com

The S1E Eco-Screen (top) is claimed to be the first large horizontal retractable screen-and-blind system for windows and doors. The screen is available for any architectural opening up to 24' wide and 10' high and comes in two fabric classes: Insect Mesh and Solar (UV) blind control. As an added bonus, the screen can double as a projection screen when combined with the blind option. **CIRCLE 229**

**Pulp Glass Imaging**

**Pulp Studios** pulpstudio.com

Pulp Studio utilizes digital and photographic processes to create an image-based substrate that is laminated between two pieces of glass for interior and exterior installations in curtain walls, storefronts, and partitioning. A drawing of an engine turbine was translated by Pulp Studio into this glass front for San Francisco's Metro East Light Rail Vehicle Maintenance and Operations Facility. **CIRCLE 230**



#### Commercial-Grade Sliding Door Lock

FSB North America [fsbna.com](http://fsbna.com)

According to one juror, the FSB sliding door lock "fills a void in the hardware world for sliding doors." Now offered with FSB's large selection of hardware designs, the SS7005 is the first sliding door lock in North America that meets emergency egress and ADA requirements for commercial applications.

**CIRCLE 231**

#### Pella Aluminum-Clad Wood Window Walls

Pella Commercial [pellacommercial.com](http://pellacommercial.com)

For its new window wall program, Pella Commercial partners with customers in the early stages of a project to develop engineered fenestration solutions that meet performance and load requirements without compromising design vision. Pella helped architecture firm LPA devise an expansive glazing solution for the LEED Platinum Environmental Nature Center in Orange County, California. **CIRCLE 232**

#### SafeZone

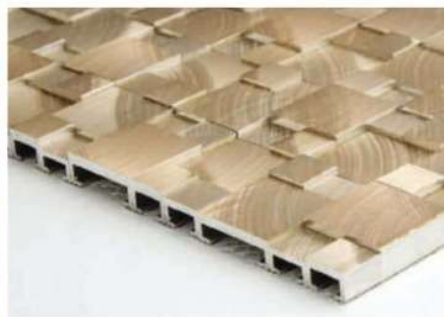
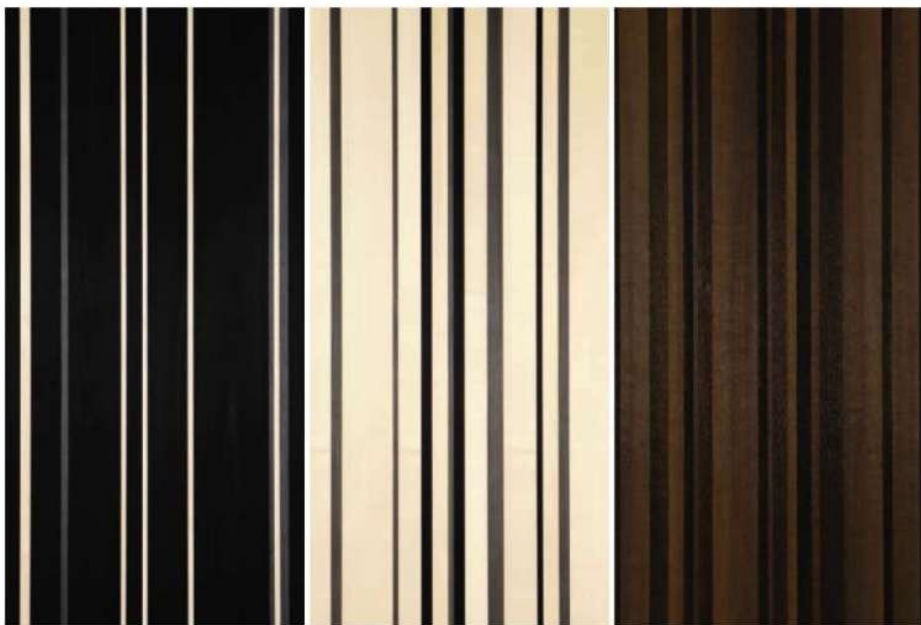
Norton Door Controls [nortondoortcontrols.com](http://nortondoortcontrols.com)

SafeZone uses a multipoint electromechanical closer/holder and a programmable motion sensor to detect movement in the door opening and stop the door from closing. When movement is no longer sensed, the adjustable setting times out and the door closes. Movement can be detected in both directions, making the system ideal for busy theaters, hospitals, and schools. **CIRCLE 233**

#### YOW 350 XT Window

YKK AP America [ykkap.com](http://ykkap.com)

Cited by the jury for its good thermal break, sleek profile, and shallow frames, YKK's YOW 350 XT (cut section shown) is claimed to be up to 30% more efficient than standard thermally broken windows and the first architectural-grade window to achieve an operable U-factor of 0.35 using standard low-E glazing. In addition, it provides balanced sight lines to optimize daylighting. **CIRCLE 234**



### Bayadères Collection

**Marotte** [marotte.fr/sites/fr](http://marotte.fr/sites/fr)

Founded in 1948, Marotte is a French marquetry company specializing in high-quality wood veneers suitable for wall panels, doors, ceilings, and furniture. The Bayadères collection of wall coverings (top) consists of nine panel variations that feature different veneer strip widths and wood types. Panels can be used independently or as a group with the other variants in the collection.

**CIRCLE 235**

### Techstyle Canvas

**Hunter Douglas Contract**  
[hunterdouglascontract.com](http://hunterdouglascontract.com)

This acoustical ceiling tile system offers thousands of solid color options and color matching to any major paint manufacturer, as well as a wide range of textures and surface patterns, including wood grain, plaster, and leather. Attachment options include standard lay-in installation or hidden clips for swing-down access. **CIRCLE 236**

### Kolorshift

**CENTRIA Architectural Systems** [CENTRIA.com](http://CENTRIA.com)

Kolorshift is a series of iridescent paint colors designed to change the appearance of the surface of a metal building depending on the viewing angle or direction of sunlight. The paints are formulated as a polyvinylidene fluoride (PVDF) coating system with 70% Kynar500/Hylar 5000 resins, which provide lasting durability. Available in five colors in an embossed or smooth texture. **CIRCLE 237**

### CWL Series

**Hastings Tile & Bath** [hastingsstilebath.com](http://hastingsstilebath.com)  
Hastings's new and exclusive CWL Series of matte white, glazed-ceramic wall tile includes the Parigi relief pattern (top), which works as either a backdrop or a focus wall, and the Tokio lined and grooved pattern (not shown), which complements many of the company's floor tiles and bath products. Both are available in a 12" x 38" size.

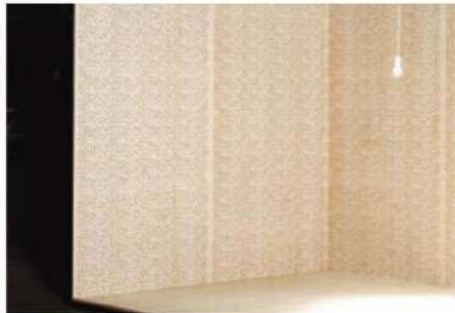
**CIRCLE 238**

### Aluminum Mosaic

**SOLI Architectural Surfaces**  
[soliusa.com](http://soliusa.com)

Aluminum Mosaic is a completely customizable mosaic tile – clients can specify the color, finish, and even the size of the individual squares. SOLI will fabricate the material and mount it to a mesh backing for easy installation. Suitable for interior and exterior vertical surfaces.

**CIRCLE 239**



### Waves & Lines

**Ceramiche Lea** [ceramichelea.it](http://ceramichelea.it)

Lea's Waves & Lines series (top) is developed from the manufacturer's Slimtech collection, measuring only 0.12" in thickness. This laminated porcelain series is made with ink-jet technology that allows for repeating dots, marks, and lines to create a surprisingly natural landscape. Because of its thin profile, Slimtech costs less to ship and can be installed over existing surfaces.

**CIRCLE 240**

### Structurally Integrated Access Floor System

**SIAFS, Inc.** [roenassociates.com/siafs](http://roenassociates.com/siafs)

Designed by architect Roger Roen of Roen Associates, a construction-cost consulting firm, SIAFS is a prefabricated panelized access flooring system that saves weight, increases plenum depth, and speeds construction. Because of the unlimited size of the under-floor cavity, SIAFS makes water, waste, and other utilities accessible in addition to power and data. **CIRCLE 241**

### Obersound 5.5 Designer Collection

**Oberflex** [oberflex.com](http://oberflex.com)

An industrial specialist in wood for more than 80 years, Oberflex manufacturers ready-to-use acoustic panels made of real wood veneer laminate that is bonded onto MDF. The 5.5 Designer collection includes 25 patterns of exquisitely detailed perforation designs, developed by a Paris-based design research and consultation firm of the same name. The collection's veneers include a range of wood species – American walnut, oak, and rosewood, to name a few – that are divided into five collections suggesting vegetation (top), skin (bottom), textiles, climate, and sound waves. Manufactured in France but distributed in the U.S., the scratch-, abrasion-, and UV-resistant panels are Class-B fire-rated.

**CIRCLE 242**

### Ecophon Master Solo S Ceiling Panels

**CertainTeed** [certainteed.com/products/ceilings](http://certainteed.com/products/ceilings)

Made of high-density fiberglass composed of 75% recycled content, these sound-baffling panels suspend from wires for easy installation and seamless integration with lighting systems. Painted edges and clean profiles allow them to be hung at various angles. The Class A fire-rated product features a 0.95 NRE and boasts 85% light reflectivity and 99% light diffusion.

**CIRCLE 243**



### Bios

**Casalgrande Padana** [casalgrandepadana.it](http://casalgrandepadana.it)  
Developed in collaboration with the Department of Microbiology at the University of Modena, Italy, the Bios porcelain tile collection (top) uses the latest nanotechnology to offer an antibacterial surfacing that is claimed to reduce 99.9% of the four main bacteria families, including E.coli and staph. The process can be applied to natural, polished, or glazed versions.  
**CIRCLE 244**

### C/S Floorometry

**Construction Specialties**  
[c-sgroup.com/floorometry](http://c-sgroup.com/floorometry)

Offering a departure from the linear entrance-flooring look dominating the market, C/S Floorometry's slip-resistant 18"-square modules install like tile and are constructed of a removable top surface designed to trap dirt and water, a bond breaker that collects debris, and a permanent mud plate that secures the panel.  
**CIRCLE 245**

### LifeArq Collection

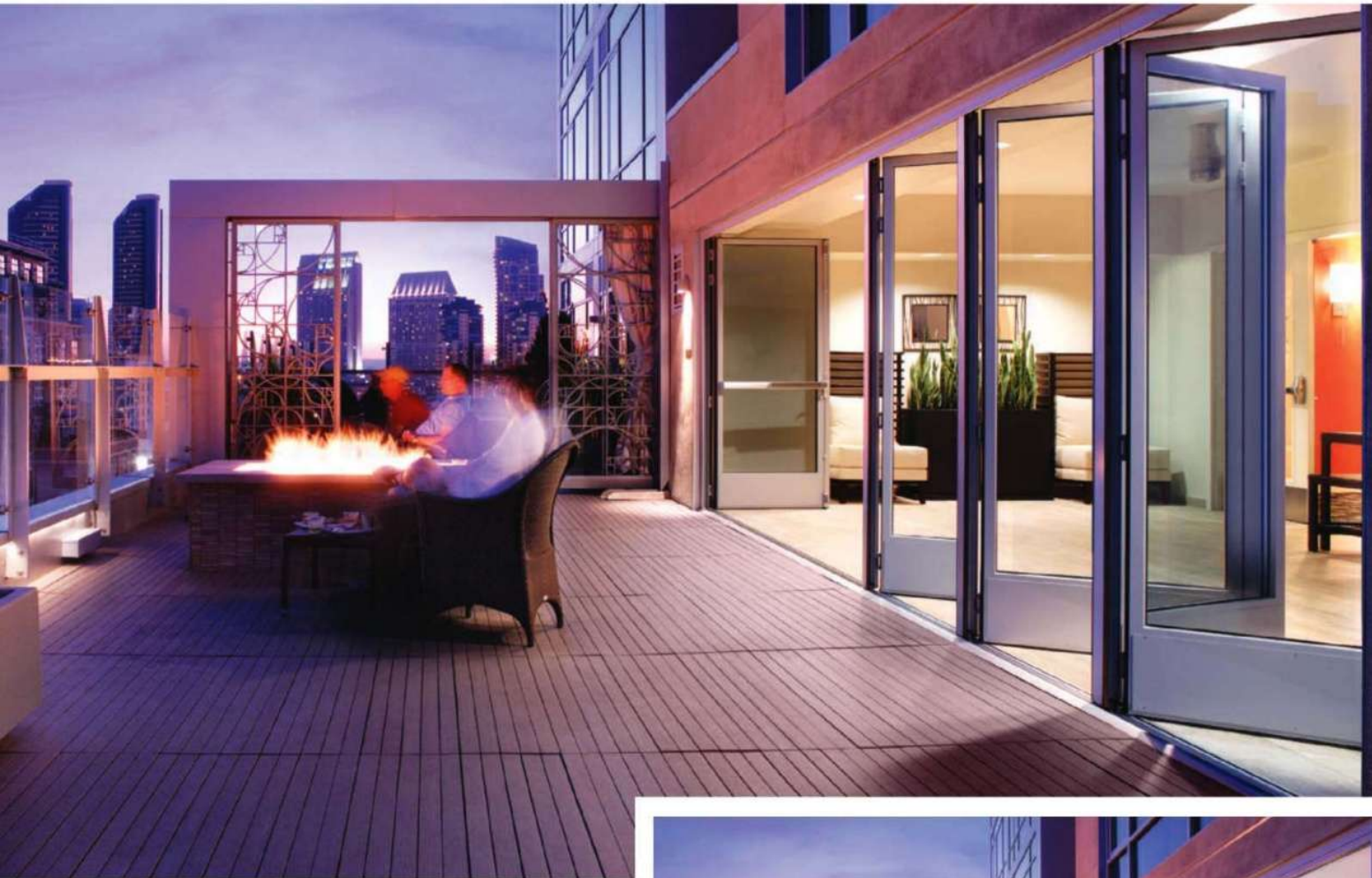
**Natucer (Tile of Spain)** [natucer.es](http://natucer.es)  
Natucer's new LifeArq collection includes ceramic elements including Bamboo (top) and Ivy (bottom). Bamboo is a line of narrow porcelain columns in a variety of colors that when grouped can form a sunshade, space divider, or other architectural solution. They come in 3.1" x 11.5" or 3.1" x 2.8" sizes. Ivy's 2.2" x 7.1" components can be stacked using an internal steel support structure to create partially shaded walls or outdoor enclosures, such as the poolside shower shown here.  
**CIRCLE 246**

### District

**Tandus Flooring** [tandus.com](http://tandus.com)

The Mondrianesque style of District, by Suzanne Tick, features three patterns that incorporate various levels of pile height and ground to create visual depth. Seventeen color choices combine brights and primaries in distinct rectangles to open the floor plane. Available as modular tile and Powerbond, a hybrid resilient sheet flooring claimed to have one of the lowest embodied-energy ratings of any flooring.  
**CIRCLE 247**

# The Leader in Opening Glass Walls



NanaWall Folding System SL70

## Hotel Indigo San Diego's First LEED Certified Hotel

"JWDA used a series of NanaWalls on the most important corner of the Hotel Indigo to blur the line between interior and exterior, guiding San Diego breezes into the space. The NanaWall located at the 9th floor Phi-Terrace Room allows the entire room to open onto the roof deck, promoting views overlooking Petco Park, the bay and all of downtown San Diego."

Albert Miller, Architect  
JWDA, Inc., Architect



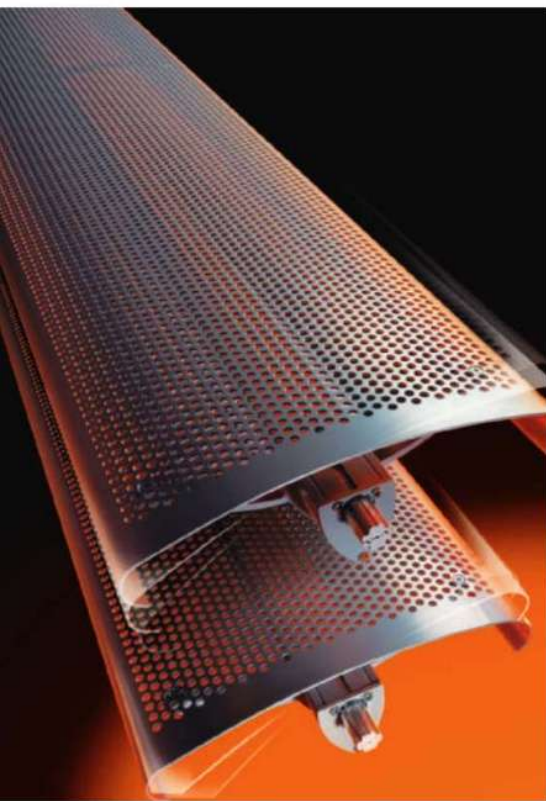
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Grand Transformations

CIRCLE 39



### SolarMotion Controllable Sunshades Construction Specialties

c-sgroup.com/solarmotion

This intelligent sun-shading system tracks the sun and weather and adjusts blades accordingly to help reduce solar heat gain and glare, lower energy consumption, and maximize daylighting in buildings. The shades are available in a variety of mullion styles, blade widths, and finish options, including wood, glass, and recycled aluminum. **CIRCLE 248**

### Koda XT

3form 3-form.com

Stronger than glass and acrylic, Koda XT surfacing (top) can be molded to any form or shape, as seen in the undulating transit shelter canopies (with integrated photovoltaics) developed by Lundberg Design for the San Francisco MTA. Made from 40% preconsumer recycled content, the material is the only architectural polycarbonate available to use toward LEED MR 4.1 and 4.2 for recycled content. **CIRCLE 249**

### Magiglide Bi-Fold Closet & Storage System

Landquist & Son, Inc. magiglide.us

The ADA-compliant Magiglide bi-fold and pivot panel system is customizable to any height up to 10' and can span unlimited widths without requiring partitions between panels. The maker claims Magiglide costs 50% less and uses up to 38% less floor space than other closet options. The solid-core particle board panels are offered with a variety of panel, surface, and hardware upgrade options. **CIRCLE 250**

### Digital PeepHole Viewer

Brinno brinno.com

Ideal for residential or hospitality applications, this digital peephole viewer (top) replaces traditional door peepholes with a vivid digital image to provide added security and privacy. The battery-operated viewer uses a 2½" LCD panel that transforms the regular view into a large, bright, digital image that can help children, the elderly, or the visually impaired to safely view visitors. **CIRCLE 251**

### Enclose Frameless Glass

Haworth haworth.com

Enclose Moveable Walls are now enhanced with a Frameless Glass option that allows for frameless corners, faceted arcs, and plinthless glass slab swing or sliding doors. With the intrinsic translucence of joined glass panes, the moveable glass wall system is ideal for storefronts, conference spaces, and open presentation areas. Available in clear and frosted finishes. **CIRCLE 252**





### Ply Line

C.W. Keller & Associates [cwkeller.com](http://cwkeller.com)

Constructed of laminated plywood sourced from managed forests, this line of undulating furniture, wall panels, and shelving (top), was created using 3-D models and CNC-milled parts and surfaces. The company uses water-based adhesives and low-VOC finishes and carefully optimizes material yield to reduce waste. All products are built in the U.S. at C.W. Keller's facility in New Hampshire. **CIRCLE 253**

### NEA System

Giorgetti [giorgettiusa.com](http://giorgettiusa.com)

Giorgetti's modular NEA system was designed by Hong Kong-born, Athens-based architect Chi Wing Lo. Available as a three- or four-shelf tower, the 31"-wide units group together for use as bookcases, retail displays, and even room dividers. The poplar-plywood frames are veneered in natural or dark-painted walnut; shelf interiors come faced in white-painted fiddleback sycamore for contrast. **CIRCLE 254**

### Compass System

Herman Miller Healthcare

[hermanmiller.com/compass](http://hermanmiller.com/compass)

Designed in collaboration with the evidence-based design consultancy Continuum, this suite of case goods, finishes, and work surfaces addresses the evolving needs of healing spaces such as patient rooms, clinical labs, and waiting rooms. The modular components are easy to disassemble and reconfigure and can accommodate technology upgrades. **CIRCLE 255**

### Bison Cube

Bison Innovative Products [bisonip.com](http://bisonip.com)

Made of ipe wood, stainless steel, or weathered steel, Bison Cubes can be used for arrangements of seating, storage, or planters on rooftop decks. Although the standard size is 2'-square, the cubes are available in special order sizes as well as custom powder-coated finishes. The planter cube shown above is made in red powder-coated steel. **CIRCLE 256**

### Auden

Knoll Luxe [knolluxe.com](http://knolluxe.com)

The Rodarte fashion house teamed up with Knoll Luxe to create a residential textile collection including the Auden drapery fabric. Inspired by Rodarte's classic hand-dyed ombre gowns, Auden was further influenced by the discovery of new mills, new constructions, and new technologies. The fabric's elegant shaded effect is created using digital printing on a woven raffia ground. **CIRCLE 257**



### Vero Black Sink

Duravit USA [duravit.us](http://duravit.us)

The classic rectangular Vero washbasin is now available in high-gloss black. The sink comes in approximately 20"-, 24"-, 31½"-, or 39"-wide sizes. Prepunched tap holes allow for one or two tap fittings. The sink can be combined with the Fogo furniture console or with the matching chrome console on two feet, which is height-adjustable and features a decorative towel rail. **CIRCLE 258**

### Stealth Toilet

Niagara Conservation Corp.  
[niagaraconservation.com](http://niagaraconservation.com)

Boasting an impressively low 0.8 gallons-per-flush (GPF) rate, Stealth (top) requires 37% less water than typical 1.28 GPF high-efficiency toilets. Using a patented air-water vacuum-based flushing system rather than a mechanical assist, the low-maintenance Stealth performs efficiently under a variety of water-pressure conditions. **CIRCLE 259**

### Vola F53 Freestanding Shower System

Hastings Tile & Bath [hastingsstilebath.com](http://hastingsstilebath.com)

The 1968 design of Danish architect Arne Jacobsen's Vola faucet was the inspiration for the manufacturer's new F53 freestanding floor-mounted thermostatic shower system. It includes a handheld spray and is available in high-polished chrome, brushed chrome, or brushed stainless steel finishes.

**CIRCLE 260**

### Simple Flush

Brondell [brondell.com](http://brondell.com)

While the jury commended several toilet water-saving technologies, the Brondell model (top) received the highest marks. Simple Flush fits nearly all flapper-type toilets, requires no electricity or additional plumbing, and upgrades any regular toilet to dual-flush functionality, saving 30% to 50% of water use. The controller is designed to sit on top of the tank or be wall-mounted. **CIRCLE 261**

### CeraLine Linear Shower Drain

California Faucets [calfaucets.com](http://calfaucets.com)

Allowing for a fully accessible shower entry, the CeraLine linear shower drain comes in three sleek, cover-plate trim styles that include matching tile settings to blend in with the floor. The stainless steel construction includes height-adjustment features to ensure a level installation. CeraLine comes in sizes ranging from 32" to 52" and is compatible with all common waterproofing systems. **CIRCLE 262**

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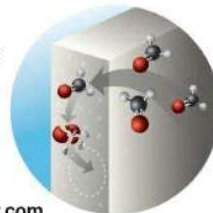


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#### Humidity Sensing Fan/Light & Solar-Powered Attic Ventilator

Broan-NuTone broan.com

Although it looks like a recessed light, this unit conceals a humidity-sensing switch that triggers a quiet, Energy-Star-qualified ventilation fan (top). The fan's SensAire technology helps ensure moisture is automatically and effectively exhausted from the room and costs only \$1 a year to operate. Also from Broan-NuTone is the Solar-Powered Attic Ventilator (bottom), which prevents costly heat buildup in the attic space. Solar powered, it requires no electricity or fuel, emits no pollution, and costs nothing to maintain. In addition, the ventilator qualifies for a federal tax credit of 30% of the total cost of the product and installation.

CIRCLE 263



#### Air Extractor with Wing Slats

Bulthaup bulthaup.com

Bulthaup's residential air extractor (top) features an aerodynamic shape, an energy-efficient recirculation system, and a T5 fluorescent lamp. Suspended from the ceiling from two steel cables, the extractor can be positioned above cooktops, dining tables, and kitchen islands. When the air-recirculation function is activated, the two side slats open up and draw air into the flue above. CIRCLE 264

#### +ARTESIO

Poggenpohl poggenpohl.com

The German architect Hadi Teherani's new +ARTESIO kitchen system includes cabinets, walls, floor, furnishings, and even a ceiling canopy that incorporates lighting, ventilation, and audio. Detailed with a stainless steel ribbon, the cabinetry and wall designs are based on a 5" incremental-height module that unifies fronts and sides for a seamless installation. CIRCLE 265



#### PuraVida Mirror & 2nd Floor Vanity

Duravit USA duravit.us

The PuraVida mirror's (top) back wall is rounded at the corners and tapers so that only a small portion of the edge is visible from any angle. The cabinet features double-sided mirrored doors and a flush-mounted light that provides optimum illumination. Positioned at 90 degrees to the wall, the four-drawer 2nd Floor vanity unit (bottom) can be combined with one or two consoles or built-in washbasins with an illuminated shelf at the back. Outlets are in the wall yet remain hidden on the narrow side of the furniture. Designed by Sieger Designs, 2nd Floor comes in white high gloss with chrome fixtures, or rosewood, ebony, or bleached oak veneers. CIRCLE 266



**Residential Water Heater Family**  
**A.O. Smith** hotwater.com  
 The Effex gas heater's air-intake system reduces energy costs up to 25%, while the Hybrid gas heater blends tankless and traditional heating methods, offering 90% thermal efficiency. The Voltex hybrid electric heater's pump technology makes it twice as efficient as standard models, while the collectors in the Cirrex Solar system are a fraction of the cost of PV panels. **CIRCLE 267**

**AM01 Air Multiplier**  
**Dyson** dyson.com  
 Using an energy-efficient, brushless motor, Dyson's grille- and blade-free fan draws air into the machine's base and then forces it up into the loop amplifier and accelerates it through the annular aperture, creating a jet of air that hugs the airfoil-shaped ramp. As it exits the amplifier, the jet pulls air from the front, back, and sides of the fan into the air stream, amplifying it 15 times. **CIRCLE 269**



**MacroVoltaic Fan**  
**MacroAir Technologies**  
 macro-air.com  
 The MacroVoltaic solar high-volume, low-speed industrial fan is designed to generate a column of air that flows down to the ground and outward 360 degrees. The fan consumes approximately 400 watts of power and can be used in off-the-grid applications that call for a completely solar air-cooling system. **CIRCLE 268**

**Radiant Rollout Mat**  
**Uponor** uponor-usa.com  
 "This method of heating should be used more in the States," said one juror of the Radiant Rollout Mat's custom-designed, prefabricated, prepressurized network of PEX-a tubing. The system allows for faster, more consistent installations for commercial radiant heating and cooling applications, and saves up to 85% in installation time. Safe for burial in slabs. **CIRCLE 270**





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Ian Morrison, PhD, author, consultant, and futurist

For full Summit information, go to [www.ashe.org/pdc](http://www.ashe.org/pdc)








#### NanoLumen & BeveLED

USAI [usaillumination.com](http://usaillumination.com)

NanoLumen (top) is a sophisticated recessed fixture that offers 60% efficiency and what the manufacturer says is the smallest aperture on the market for metal halide lamp sources. Designed around a T4 ceramic metal halide lamp source, NanoLumen's 2.5" aperture fuses seamlessly with interior ceiling planes, allowing for precise yet flexible point-source lighting. Another offering from USAI, the BeveLED (bottom), also caught the jury's attention. The downlight fuses LED technology with the aesthetics and flexible installation attributes of the Bevel family of high-performance recessed downlights. The luminaire is claimed to be the industry's only comprehensive portfolio of LED downlight, adjustable, and wall-wash fixtures.

CIRCLE 271

#### Powercast projectors and floodlights

Erco [erco.com](http://erco.com)

The Powercast line of projectors and floodlights uses LEDs and Spherolite reflectors to illuminate a range of applications, from signage to entire facades. The extremely waterproof power-coated cast-aluminum housing contains all of the lighting components and control gear and comes in two sizes. It can be mounted on a wall, floor, or ceiling with a robust mounting bracket. CIRCLE 272

#### Aculux

Juno Lighting Group by Schneider Electric  
[junolightinggroup.com](http://junolightinggroup.com)

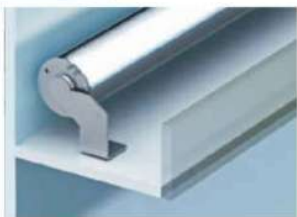
Juno has expanded its Aculux product line of architectural-grade precision recessed luminaires (top) for residential and commercial applications with the introduction of a completely reengineered 3¼" line of round and square apertures. New features include Acu-Aim precision-gear optics and a patent pending Tru-Line Platform. CIRCLE 273

#### Smoothlight

Luxit [leucosusa.com](http://leucosusa.com)

Selected primarily for its sculptural silhouette, this suspended fixture features two long slots that provide indirect light. A sharp blade divides the panels in the center and reflects the light on either side, creating a downward glow. Available with a dimmer switch, the fixture is wired for two or four T5 fluorescent tubes and comes in 36¼", 48", or 59⅝" lengths.

CIRCLE 274



### Fraqtir

**The Lighting Quotient** [thelightingquotient.com](http://thelightingquotient.com)  
The manufacturer of Elliptipar fixtures has introduced its first architectural LED luminaire featuring fraqtir optical technology. The concealed cove luminaire (shown on top with an integral driver and below with a remote driver) throws an even wash of warm white light across broad surfaces from one edge. According to the jury: "a commendable use of optical design with LEDs to make an ideal light distribution." **CIRCLE 275**



### Glow Sconce

**Boyd Lighting** [boydlighting.com](http://boydlighting.com)  
Cited by the jury for its "beauty and simplicity" this modern take on a pillar candle uses an LED lamp source to illuminate a solid block of clear crystal bored out in the center. Hidden in the base, six LEDs provide 70,000 hours of life, a 3100K color temperature, and 45 lumens per watt. The solid metal base is offered in satin nickel or blackened brass. UL-listed for damp locations.

**CIRCLE 276**



### C•L Dimmers

**Lutron** [lutron.com](http://lutron.com)  
These new dimmers, available in a wall-mounted and plug-in lamp version, alleviate the common problems that arise when controlling CFLs and LEDs with a standard dimmer. Lutron's HED Technology features advanced dimming circuitry designed for compatibility with most light bulb types, including dimmable CFLs, LEDs, and incandescent/halogen bulbs.

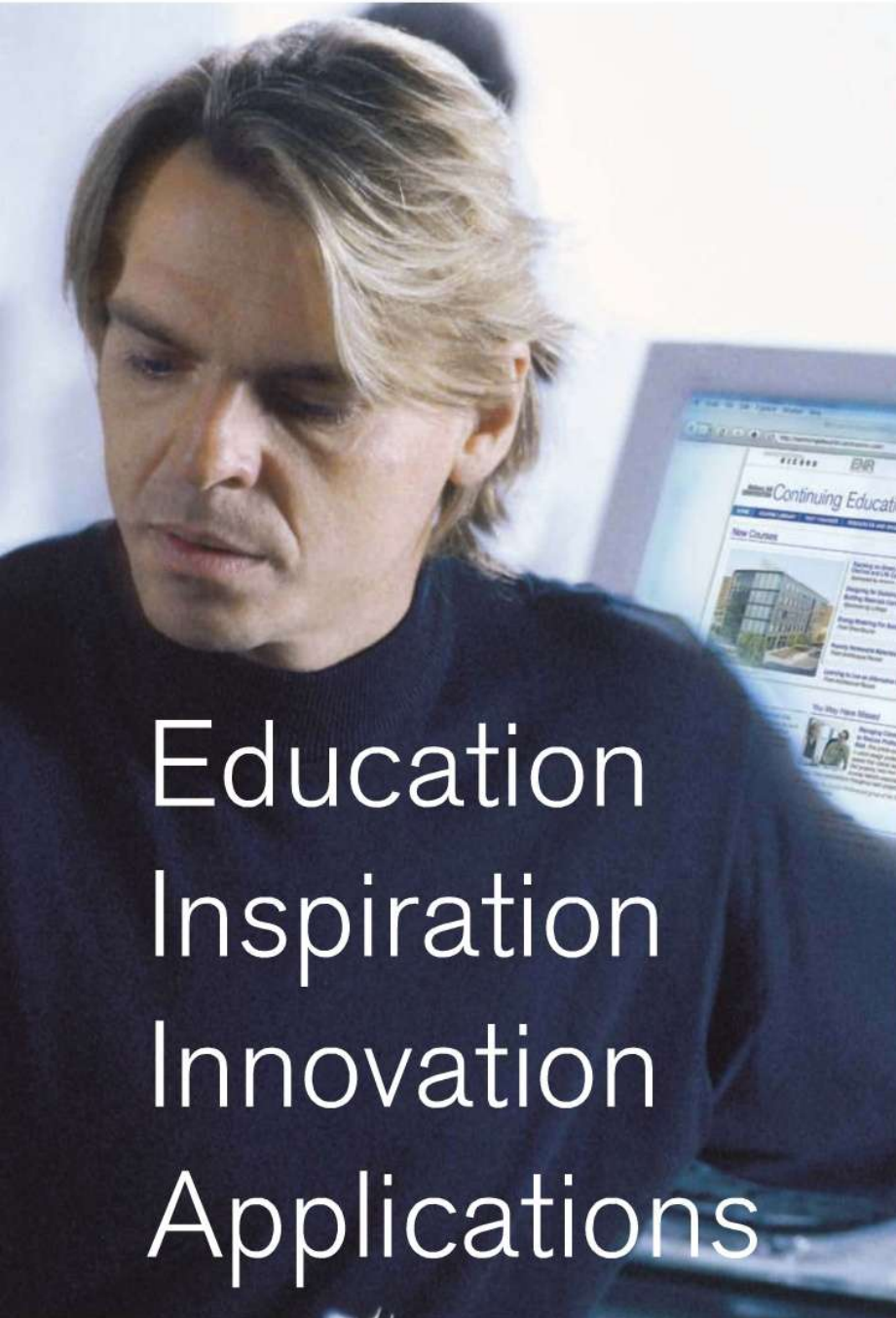
**CIRCLE 277**

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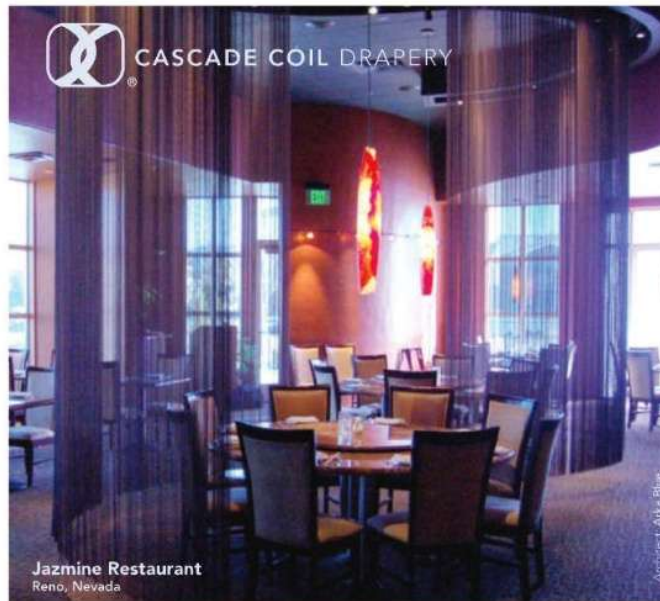
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CIRCLE 12

## Zeroing In on Net-Zero Energy

With an office building for its Colorado campus, a national research lab aims to prove that super-green can be cost effective and replicable.

By Joann Gonchar, AIA

**GIVEN ITS MISSION** of developing renewable energy and energy-efficient technologies, it isn't so surprising that the National Renewable Energy Laboratory (NREL), in Golden, Colorado, would want an ultra-high-performance building for the more than 800 staff members it planned to move from leased office space to its research campus at the base of South Table Mountain. The building, the 220,000-square-foot Research Support Facility, or RSF, which opened in June, is designed to be just that. If it performs as intended, the RSF will consume only 35 kBtu per square foot annually, even taking into account the power requirements for a data center that serves all 2,200 NREL employees. This energy use intensity (a measurement of the amount of energy consumed by a building relative to its size) is about 50 percent less than that for one that complies with the 2004 version of the ASHRAE 90.1 standard. If it operates as expected, the facility should also qualify as the largest net-zero energy building in the U.S.

The RSF isn't only about ambitious energy-efficiency goals, however. NREL, which is part of the U.S. Department of Energy (DOE), hoped that the project would demonstrate that large-scale super-green buildings could be both cost effective and commercially viable. With a construction cost of \$57.4 million, or \$259 a square foot, the RSF's budget is in line with other recently completed office buildings in nearby Denver. "It isn't just a cool building. It is a new class of real estate," says Philip Macey, AIA, director of engineering and sustainability for Haselden Construction, one half of the RSF design-build team.

### Net zero defined

What is a net-zero building? At the most fundamental level, it is a building that annually generates enough energy on site from renewable sources to equal or exceed demand. Like the NREL facility, most zero-energy buildings are grid-connected, drawing power from, and supplying it to, a local utility. In the case of



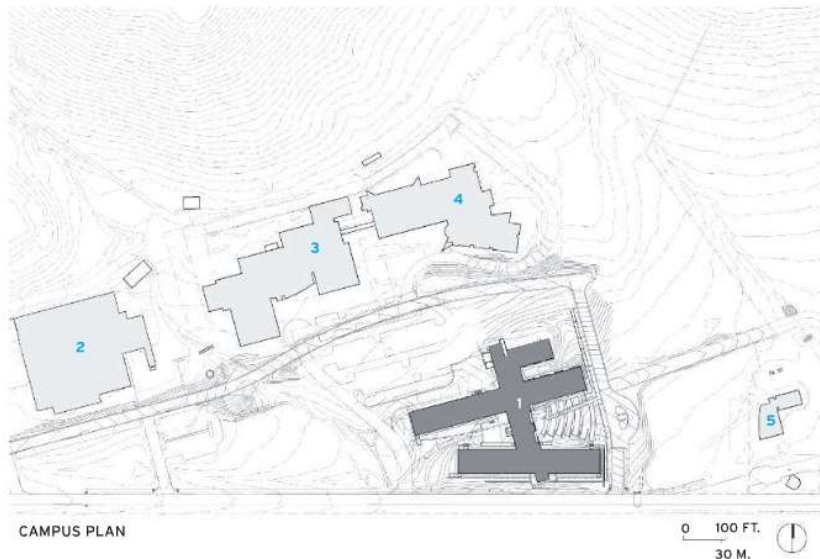
ABOVE: The RSF has a skewed-H-shaped plan defining exterior courtyards. The building's two wings are elongated on the east-west axis to make the most of sunlight for interior illumination.

the RSF, a 450 kW roof-mounted photovoltaic (PV) array, supplied through a power purchase agreement with solar energy provider SunEdison, serves as the renewable source.

Curiously, a net-zero building was not one of the highest-priority elements of the RSF program. A request for proposals released in late 2007 ranked the client's needs into "mission critical," "highly desirable," and "if possible" project goals. The document, part of a procurement process the DOE has dubbed "performance-based design-build," listed the highest level of LEED certification among the top priorities (the RSF is on track for a Platinum rating), but put net zero with those objectives under the "if possible" heading.

By establishing this hierarchy and deviating from the DOE's traditional design-bid-build delivery method, the owners hoped to encourage teams competing for the project to come

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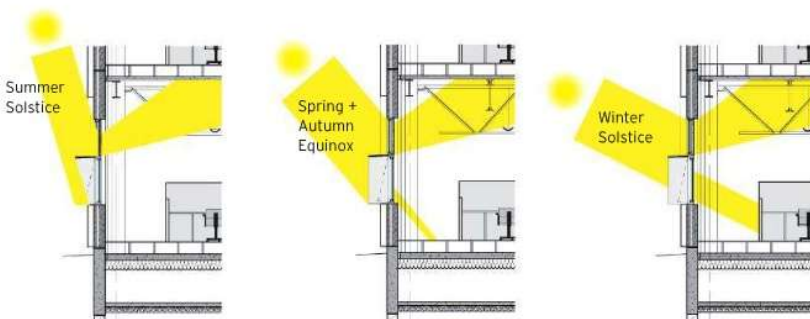
**Learning Objectives**

- 1 Define net-zero energy.
- 2 Discuss the strategies the RSF project team deployed to achieve an ultra-low-energy building.
- 3 Explain the procurement process used to design and build the RSF.
- 4 Describe the challenges encountered by the RSF design and construction team.



CUT-AWAY PERSPECTIVE

- |   |  |                         |
|---|--|-------------------------|
| 1 PERMEABLE LANDSCAPING                     | 5 PHOTOVOLTAICS                                    | 9 RADIANT CEILING SLABS |
| 2 FRESH AIR INTAKE                          | 6 ELECTROCHROMIC WEST-FACING GLAZING (NOT VISIBLE) | 10 THERMAL LABYRINTH    |
| 3 THERMOCHROMIC EAST-FACING GLAZING         | 7 LOW-PROFILE OPEN OFFICES                         | 11 LOUVERED SUNSHADE    |
| 4 TRANSPIRED SOLAR COLLECTORS (NOT VISIBLE) | 8 RAISED FLOOR SYSTEM                              |                         |



DAYLIGHTING

ABOVE: The geometry of the windows and shading devices on the RSF's south-facing windows limits heat gain and glare while allowing for effective daylighting. The windows include operable lower vision panels that aid natural ventilation and night flushing. Fixed upper panels have integrated louvers that reflect light toward the ceiling. Light shelves shade the vision panels and direct sunlight through the louvers.

up with the optimal design solution within tight schedule and budget constraints. The goal was not to build the least expensive building. "The budget was fixed, so there was no incentive to build the RSF for less," explains Paul Torcellini, NREL group manager for commercial buildings research. "Instead we wanted to achieve the best value with the money we had available," he says.

The design-build team eventually selected for the project – architecture and planning firm RNL and Haselden Construction – aimed to satisfy all of the owner's ambitions, even the items on the wish list. "We decided that if we didn't give the clients everything they wanted, we wouldn't win," says Craig Randock, AIA, RNL principal. Of the three short-listed teams invited to submit a detailed conceptual design, the RNL-Haselden group was the only one that offered a net-zero building in its proposal.

#### Risks and rewards

Pursuing the RSF project was in many ways a tremendous gamble for RNL and Haselden, says RNL president Richard von Lurte, FAIA, who estimates that the team spent \$1.2 million on its competition proposal. After its selection, if the design-builder had not been able to satisfactorily demonstrate that the proposed building was feasible within the allotted \$64 million project cost, it would have forfeited 50 percent of its design fee. But there were also potential rewards, including an incentive of up to \$2 million for meeting budget, schedule, and energy performance goals. (To date, the team has earned 97 percent of these funds.)

**NO ONE MOVE WOULD MAKE NET ZERO POSSIBLE. THE RSF WOULD NEED TO RELY ON A HOST OF TIGHTLY COORDINATED STRATEGIES.**

This financial carrot wasn't the only enticement for taking on the RSF, according to von Lührte. "We were committed to the project goals, the mission of the lab, and had a long history of working on its campus," he says. The firm's previous projects include a headquarters designed in the late 1970s, but never built, for NREL's predecessor organization, the Solar Energy Research Institute.

For John Andary, a principal in the San Francisco office of Stantec, which the design-build team chose as its mechanical engineer, the NREL job provided an opportunity to employ concepts it had long been developing on a much smaller scale. Andary's largest net-zero project prior to the RSF was several buildings for the campus of a San Francisco Bay Area private school designed with EHDD Architecture and totaling 40,000 square feet.

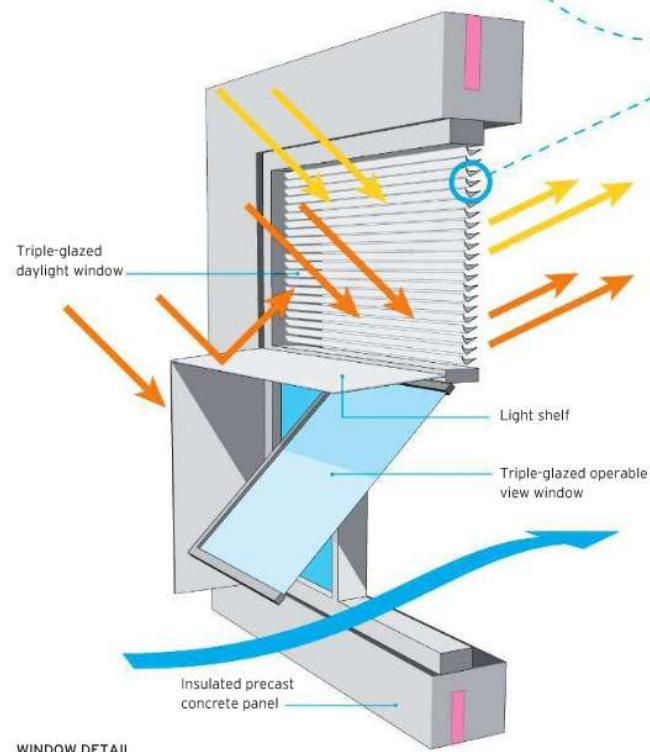
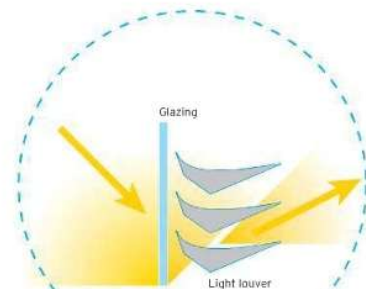
**Synergies and strategies**

Bringing the aggressive performance goals within reach would require a scheme that lowered energy use with little or no addition to first costs. So even before meeting the rest of the team, Andary began working on the project, performing modeling and simulations. These studies produced an initial concept that included a narrow floor plate to assist daylighting and natural ventilation, a radiant system for heating and cooling, and plenty

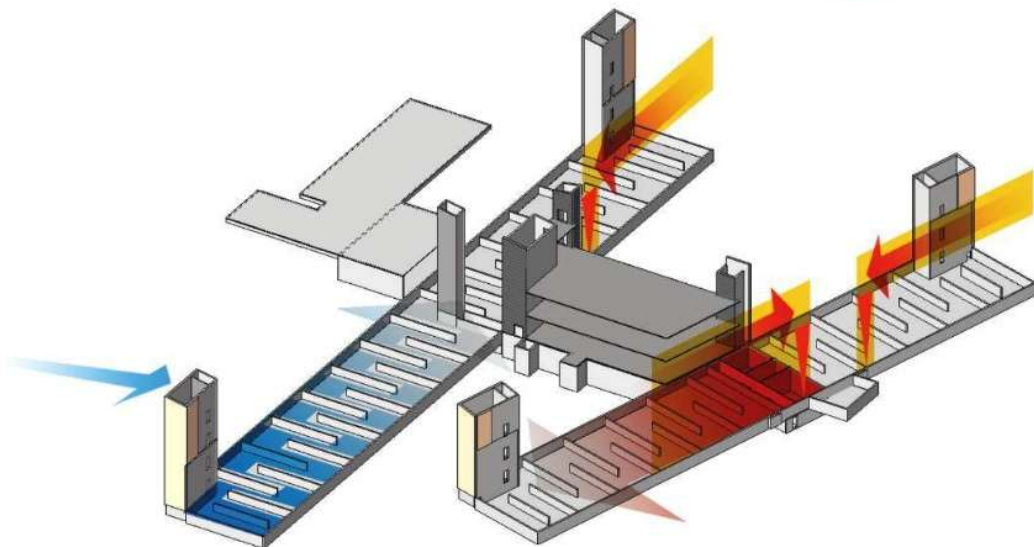


1. Within the RSF's open office wings, columns made from salvaged natural-gas piping, and the trusses spanning them, have been left exposed.

2. The building's south facade incorporates an NREL-developed device called a "transpired solar collector" and an aggressive window shading system.



WINDOW DETAIL



**LEFT:** Below the RSF's footprint is a crawl space containing staggered poured-in-place concrete walls. This "thermal labyrinth" stores heat from air warmed by the transpired solar collectors and heat rejected from the data center. The stored thermal energy is used to preheat ventilation air during the winter. Cool air can be drawn into the crawl space through corner towers to purge heat from the concrete mass.

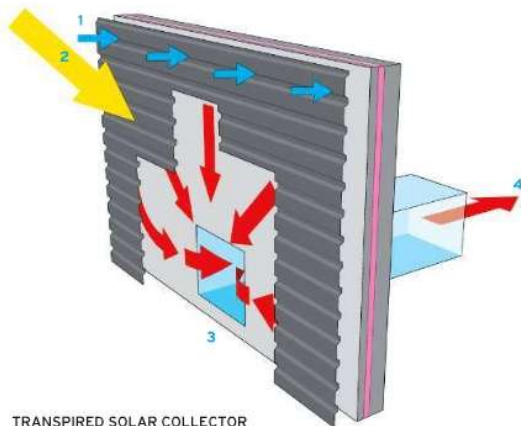
#### THERMAL LABYRINTH

of building mass to help moderate indoor temperatures. "We came to the first face-to-face meeting prepared to offer solutions," he says.

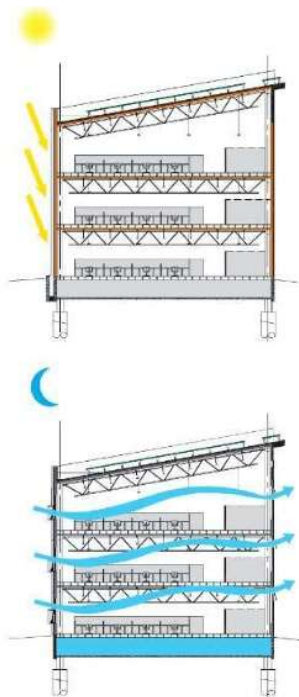
The design-build team quickly understood that no one move would make reaching net zero possible. The building would need to rely on a host of tightly coordinated strategies, each offering an incremental benefit, "but when combined, they create synergies," explains Macey, who recently joined Haselden from RNL, where he served as manager of the RSF project.

The scheme ultimately realized has a steel frame and a plan that resembles an out-of-kilter H, with a 454-foot-long, four-story wing to the north and a 364-foot-long, three-story wing to the south, connected to define a pair of courtyards. The wings, devoted primarily to open office

1. Cold air is drawn into the collector through small perforations.
2. The sun heats up the collector's dark metal surface.
3. The air behind the collector is passively heated and drawn into the labyrinth.
4. The thermal energy stored in the labyrinth's concrete structure is used to preheat ventilation air.



TRANSPIRED SOLAR COLLECTOR



THERMAL MASS

**ABOVE:** The building's precast concrete cladding is exposed on the interior, providing thermal mass. The walls store excess heat over the course of a summer day, reducing the cooling load. When nighttime interior temperatures exceed 70 degrees, operable windows automatically open, allowing the thermal mass to cool.

space, are each 60 feet wide. This depth, along with a system of light shelves and louvers, facilitates penetration of daylight, allowing employees to work with little electric illumination for much of the day.

In addition to reducing the energy consumed by lighting fixtures, this tactic produced a number of additional benefits, including a corresponding reduction in the heat rejected from the lighting, which in turn lessened cooling loads and the portion of the budget that would need to be allocated to mechanical systems and the PV array.

One consequence of the building's configuration, with its elongated, daylight-oriented wings, was more exterior envelope than would have been required by a scheme enclosing the same volume but with deeper floor plates. As a result, the skin was an important focus of the project team's efforts. Designers developed an assembly of insulated precast concrete panels with the required thermal properties. These components had the added benefit of helping speed construction because of their off-site fabrication. Windows, which are triple-glazed, make up only about 25 percent of the long north and south facades. On the much smaller east and west elevations, electrochromic and thermochromic glass, or so-called switchable glazing, helps control heat gain and glare.

The building envelope also incorporates NREL-developed technology – devices called "transpired solar collectors" that consist of perforated corrugated metal mounted on the south facades. These rely on the sun to passively preheat outside air trapped in the cavity between the collectors and the precast panels making up the weatherproof enclosure. The air is then drawn into a crawl space underneath the building. In the winter, the heat from this outside air, along with waste heat from the data center, is stored in the staggered poured-in-place concrete walls making up this "thermal labyrinth." This stored thermal energy is subsequently used to preheat ventilation air delivered to the offices through a raised floor system. In the summer, cool night air flushes the labyrinth and the RSF's occupied spaces. The inertia of the exterior walls, which are left exposed without a drywall interior finish, along with the radiant piping embedded in the ceiling slabs, helps maintain the occupants' thermal comfort throughout the course of the day.

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The RSF's bid for LEED Platinum includes site strategies such as permeable pavement in courtyards and gabion walls made from rock recovered during excavation for the foundations.

### Round two

Many of these same techniques are being deployed in a 138,000-square-foot expansion of the RSF already under way with the same design-build team. But some of the elements have been subtly tweaked. For example, new details for the precast cladding panels allow more continuous insulation, windows and curtain walls incorporate improved thermal breaks, and the mechanical system includes a more efficient heat-recovery device. According to RNL and Haselden, these and other modifications should make the second phase of construction even more economical than the first. They should also improve energy efficiency: The newer portion of the RSF is expected to have an energy-use intensity of less than 29 kBtus per square foot each year.

The performance expectations for both phases of construction are based on exquisitely detailed energy simulations. The studies even take into account RSF features difficult to model with off-the-shelf software, including the radiant slabs, the transpired solar collectors, and the labyrinth. To predict the contribution of these elements to the building's performance, Stantec engineers devised work-arounds that relied on elaborate spreadsheet calculations unique to the project. The result was a model comprehensive enough to convince NREL that the design-build team would be delivering a building matching its proposal.

As a savvy client, NREL recognized that the RSF's success would not entirely be a function of the building's engineering

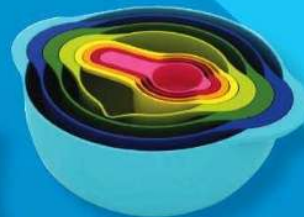
and architecture. Achievement of the ambitious energy conservation targets would also depend on how occupants inhabited the space. So even before issuing its request for proposals, the owner conducted a thorough survey of plug loads (devices that plug into the building's electrical system) in its existing office spaces, including workstation computers, task lights, and refrigerators in break rooms. It also benchmarked process loads, such as elevators and control systems, and then created stringent guidelines for new equipment. "In many ways we already know how to get the architecture and engineering right," says Andary. "We need to focus more attention on the stuff that plugs into the wall."

The completed first phase of the RSF is now almost entirely occupied and undergoing a measurement and verification process, ending in July, that involves monitoring the building's energy consumption. The design-build team is looking forward to these results, as the last bit of its incentive payment is tied to them. But the team members' keen interest is more than a by-product of the remaining award funds. "As a responsible partner," insists Macey, "we want to know how the building is working." ■

*The CEU quiz for "Zeroing In on Net-Zero Energy" is available online at [ce.construction.com](http://ce.construction.com).*

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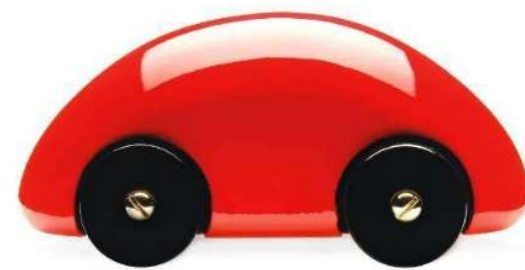


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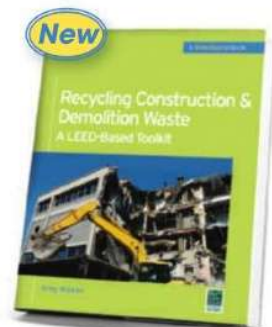
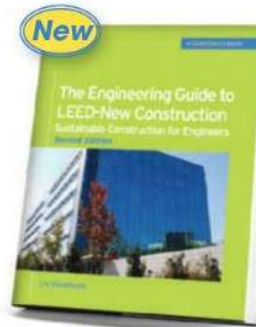
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# Sustainable Buildings on Demand

Originally engineered to solve the problems of relocatable or temporary shelter, tension-membrane structures are now a sustainable choice for permanent, habitable structures—providing fast, energy-efficient and affordable building solutions.



Illuminated, permanent and habitable, this structure is an example of a tension-membrane building at sunrise.

Provided by Sprung Instant Structures, Inc.

By Celeste Allen Novak AIA, LEED AP

Tension-membrane buildings provide an opportunity for a new sustainable design approach for any building program that requires column-free and open-span floor plates. New tension-membrane buildings are sited in deserts as well as snow-covered mountains with segmented grace. These buildings can provide instant, cost-effective alternatives to conventional construction, for facilities that range from dormitories, churches, and offices, to gymnasiums. Tension-membrane structures have been around since the 1960s, often used by the military. When oil and gas companies required shelters for both arctic and desert climates that could be easily transported across the world, engineers developed an energy-efficient portable building system.

Their solution has been refined and developed into a new building type—permanent, habitable tension-membrane structures. These buildings can be erected quickly and cost-effectively, maintaining similar performance and aesthetic values to conventional structures, but with a lower cost basis of thirty-five to fifty percent. Architects who have worked with these forms can attest to the difference and quality of these durable, affordable, flexible and energy-efficient buildings.

This article will review the aesthetics and attributes of tension-membrane buildings and provide information on how they can fit into a sustainable design portfolio in any climate, delivering energy efficiency and durability for clients who need affordable and immediate building solutions with an optional insulation package.

In the introduction to the *Whole Building Design Guide*, a program of the National Institute of Building Sciences, Richard Rush is quoted as defining an integrated building system by only four systems: structure, envelope, mechanical and interior. “The envelope has to respond both to natural forces and human values. The natural forces include rain, snow, wind and sun. Human concerns include safety, security, and task success. The envelope provides protection by enclosure and by balancing internal and external environmental forces. To achieve protection it allows for careful control of penetrations...the envelope...would keep the weather out and the interior climate in.”<sup>1</sup> Tension-membrane structures provide many environmental, as well as aesthetic, advantages in an integrated building system.

## A BIOMORPHIC VOCABULARY—DESIGN PRINCIPLES

Begun as a mid-twentieth century art movement, biomorphic artists focused on organic shapes inspired by biological forms and processes. Abstract and often surrealistic, these forms expressed an alternative

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#### Learning Objectives

After reading this article, you should be able to:

- Identify and design the components of a permanent, habitable tension-membrane structure.
- Review the sustainability engineered into these monolithic structures including energy efficiency, daylighting, and fire safety.
- Integrate components such as windows, doors, lobbies, and interior partitions within a self-supporting framed structure all within a system that is designed for the maximum reduction of construction waste and transportation costs.
- Discuss the flexibility, cost-effectiveness, and durability of these structures.

## Redemption World Outreach Center, Greenville, SC

Architect David Simpson, principal of David M. Simpson Architects in Greenville, South Carolina, continues to be amazed by the aesthetic and massing of the 48,000 square-foot Redemption World Outreach Center, which he designed using a tension-membrane building. The client had seen a similar project that was constructed in Florida and asked Simpson to see if this might be an affordable solution for their fitness facility. They liked how the membrane-covered frame structure looked as well as the promise of an early completion through this fast, modular construction process. They also liked the resulting bright, clear span, daylit and energy-efficient space.

This 120-ft wide by 300-ft long tension-membrane building is currently being used by the entire community as a fitness center, gymnasium and recreation complex. The structure was delivered in mid-February of 2009 and the facility opened in mid-June of that same year. The monolithic enclosure was installed within a nine-week period not including the slab or footing construction, or the interior skeleton or walls. According to the building contractor, Lynn Wiley of Daystar Construction, "The client wanted a 'wow' factor and got it in this unique building. The structure was simple to construct."

Church members shared the excitement of watching this unique facility being constructed and often commented on each stage of the process. Most were astonished at the rate at which the building was completed. They are pleased by this comfortable daylit enclosure that is home to their new fitness facility.

The building houses three full size basketball courts, and each round end of the structure has a 12,000sf mezzanine level with meeting rooms, weight rooms, aerobics rooms, cardiovascular equipment, and locker rooms complete with two separate sauna areas. The perimeter

of the structure has a raised, 1/5th-mile running track that overlooks three basketball courts.

Lighting, fire suppression, sprinklers and the HVAC systems were either suspended in the structural beams by way of attachment brackets. The brackets are held in place by bolts in an extruded bolt chase. The HVAC system was mounted outside the structure on a platform to avoid a conflict with the running track. An entry addition was added to the building, designed by the architect and attached with input from the manufacturer as to flashing and connection details. Doors and windows connections were supplied by the manufacturer and were installed as part of the structural system. The construction team included a manufacturer's representative who made sure that the installation had minimal disruptions or delays. The envelope is filled with R-30 formaldehyde-free insulation. The two-membrane layer combined with an insulation filling creates an airtight envelope that provides lower energy costs.



Photo courtesy of Sprung Instant Structures, Inc.

Open, bright and energy-efficient, the Redemption World Outreach Center is used for recreation by the whole community.

to realism and static, orthogonal objects. One of the most recognized biomorphic artists today is Dale Chihuly, whose glass botanical forms are often inspired by nature as well as inserted in natural landscapes. Biomorphic architecture has taken many directions as a movement. Architects are studying the design of vaguely organic forms as well as creating new buildings that not only replicate shape but also emulate biological processes. There is a new desire to learn from nature in order to design sustainable buildings. A highly engineered, integrated system, a tension-membrane structure has an organic, biomorphic form as well as an efficient, technological response to climate and natural processes. Design professionals have new opportunities to explore alternatives to big box construction, within the framework of a sinuously curved, rounded volume.

As with any engineered system, the designer has a set kit of parts that needs to be adapted to the client's program goals. Tension-membrane buildings can be curved along a two-dimensional spine, or contain the program under a singular, domed shape. The skeletal frames can have either rounded or flat ends. The designer can choose to add windows, doors and external rooms, as shown in the entry canopy and lobby for the Navajo Fire Rock Casino. These structures can also become additions to existing buildings with a sealed connecting corridor systems. These corridors can range in size in width from ten to nineteen feet. The advantages of a tall, vaulted and column-free structure is that the design professional can work within a flexible, open interior volume to insert an independent system of walls, mezzanines, entries, etc.

Membrane buildings are a new place for art. The surfaces of these buildings create a new and expressive design opportunity to develop surface designs, patterns and symbols. In choosing a tensioned-membrane structure for Navajo Fire Rock Casino in New Mexico, the client selected this form for the speed of construction. They soon realized the aesthetics and quality of this building also met their vision for a permanent structure. The tribe chose to imprint Native American symbols on the canvas of their building membrane, an aesthetic reference to the tents that once marked Indian settlements.



Photo courtesy of Sprung Instant Structures, Inc.

This New Mexico tension-membrane casino is designed for the desert and references the art forms of its Native American owners.



Photo courtesy of Sprung Instant Structures, Inc.

Dramatic, interior spaces in this casino are designed to be independent of the structural form.

## SUSTAINABLE BUILDING COMPONENTS

Engineered tension-membrane structures have several components. Modular, vaulted frames are assembled as a system braced by intermediary members. The design professional chooses a shape along a sine curve to determine the placement of the frames developing the spine of the building. The frames can be spaced approximately fifteen feet apart on center, along an unlimited building length. However, the building width is limited and manufacturers may provide the design professional with options from a smaller span, for example a 30-foot frame, up to a large clear span of as much as 200 feet. Aluminum frames extend to a peak and back and are sloped at 26 degrees for the most effective means to prevent snow or ice accumulation. The skeletal frame members are designed with opposing flanges, providing a cavity to receive the finished exterior and interior membrane as well as the insulation filling.

The materials and their environmental benefits that comprise these systems include bolted aluminum frames, architectural coated interior and exterior membranes, optional formaldehyde-free insulation packages and skylights, window and door systems.



Illustration courtesy of Sprung Instant Structures, Inc.

Section cut of an aluminum frame member.

## Aluminum Substructure

Aluminum is durable, long lasting and one of the most recycled metal products in today's market. Aluminum frames used as the skeletal spine are as easy to mount into place as well as they are easily de-mountable to be re-used. Connections are fitted and bolted rather than welded, as would be typical in a steel substructure. The structural system is engineered to withstand high wind loads and to shed snow.

These sub-structures are one hundred percent recyclable with no loss of quality when re-used in another product. According to the aluminum industry, which now has a partnership with the Department of Energy to reduce the energy consumption in the refining of aluminum: "In the last 50 years, the average amount of electricity needed to make a pound of aluminum has been slashed from 12 kilowatt hours to about 7 kilowatt hours...Recycling aluminum saves almost 95 percent of the energy needed to produce aluminum from its original source, bauxite ore."<sup>2</sup>

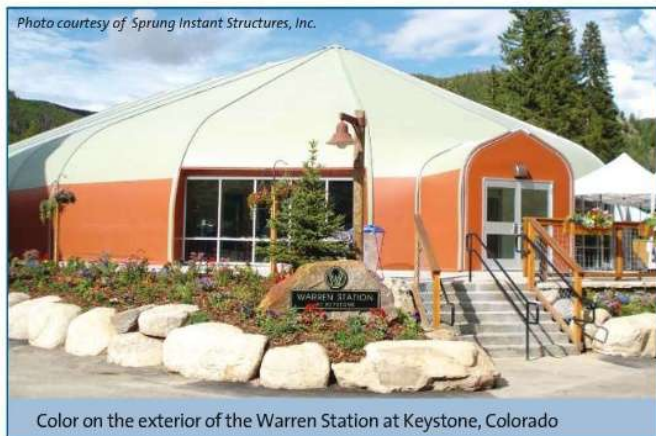
Aluminum is lighter than steel, to transport saving on overall shipping costs. Lighter freight weight, will mean less fuel consumption by the transporting systems and a reduction in carbon-dioxide emissions. Aluminum substructures are durable and long lasting; they won't corrode and can have a long life expectancy in any climate.

## Architectural Membranes: Monolithic, Durable and Long Lasting

The architectural membrane of a tensioned-membrane structure serves as both the walls and the roof of the exterior building system. All-weather outer membranes are delivered on-site in rolls, and winched along the frame from one side to the other using spacer bars, similar to the lofting of a sail. The membrane panels are tensioned across a spreader bar in the frame and insulation is added to the ribs as well as an interior membrane, tensioned into place by hydraulic machinery. Architectural membranes are stretched to a predetermined factor. It takes 1500psf to stretch the membrane using hydraulic rams. Manufacturers supply training and assistance to contractors as to the handling of the unique interior and exterior finish materials that are also part of the structural system.

When additional daylight is desired, a highly translucent skylight section can be chosen as a part of the membrane. The top section of the exterior and interior membranes are designed to insert a skylight along the apex of the spine of the building, providing an abundance of natural light for these high-ceiling structures.

According to the American Society of Civil Engineers (ASCE) Structural Engineering Institute's *Standards on Tensile Membrane Structures*, a fabric is defined as a two-dimensional cloth made up of yarns or slit tapes that may be impregnated with a matrix that binds them together. The yarns may be woven or laid, frequently coated or laminated. Membranes are defined as the flexible, coated, or laminated structural fabric of film that supports imposed loads and transmits them to the supporting structure.<sup>3</sup> The membranes in a tension-membrane structure carry only tension or shear in the plane of the membrane. Although tension-membrane structures are engineered to have some movement in the frames, because the membranes are tensioned across spacer bars, there are no wear-points. When it is time to replace the membrane, sections can be replaced in segments without exposing any interior furnishings or fixtures. The strength or tensile properties of the



Color on the exterior of the Warren Station at Keystone, Colorado

finished coated membrane is controlled by its polyester base cloth. The PVC coatings are provided to protect from UV degradation of the fibers in the base cloth and to provide a weather barrier. An acrylic coating is specified to provide protection against Ultra-violet (UV) rays as well as airborne contaminants and pollution. For additional protection and a longer life cycle to UV and airborne contaminants, additional coatings such as Kynar, a PVDF film, can be added to the membrane which helps reduce the impact of weathering on the surface. An architectural membrane is a fabric but unlike a tent product, that may be expected to have a short-term use, primarily as temporary shelter, engineered materials can be used as habitable buildings for many uses.

The next generation membrane coatings or films are top-finished and coated with Kynar an advanced form of polyvinylidene fluoride or PVDF. Kynar is a finish that architects have used for over forty years, on metal buildings and in high-end paint products. Applied as a film to membrane surfaces, Kynar provides superior resistance to staining, dirt and mildew growth as well as increased color retention, gloss and membrane life expectancies approaching 30 years. Membranes can be a solid color and printed with any logo, or symbol, or decorated with accent lines and patterns. They can be selected in multiple colors. Patterns and wave designs can be created using membranes.



White interior lining is the finish, as well as the interior membrane, at Champions Run.

Architectural membranes weigh from eighteen to thirty-two ounces per square yard, making them one of the lightest building envelope finish materials available to a design professional. The heavier materials can be specified for increased load requirements. Additional savings on fuel and emissions for transportation of this material are gained by using architectural membranes. An engineered membrane is not only the exterior surface of the building; it is also the finished surface of the interior walls and ceiling. Contractors and installers will require jobsite quality standards for handling these membranes to avoid scratches or blemishes on this interior wall and ceiling material.

#### Insulation: Airtight Membranes

Insulation provides comfort in both hot and cold climates. Insulation reduces the cost of climate control as well as absorbing sound for better acoustics. A comprehensive insulation package for a tension-membrane structure includes vapor barriers, thermal breaks and a tensioned, finished interior liner. Additionally, membranes are designed to have low air and vapor permeance.

A structure with a lattice beam frame that is merely filled with insulation can leave unvented dead air spaces, creating the opportunity for the spread of mold, mildew and fire. In any building, holes in the insulation can dramatically reduce its performance and multiple layers of insulation may merely add to dead air spaces between each layer, negating much of the insulation value. Retaining the insulation within a cavity is crucial and in some membrane structures, insulation has been known to slide down the roof and bunch at the base of the wall.

Designed to accept a sandwich of fiberglass batting, insulation in a tension-membrane structure, as in any green building, can be specified with fifty-five percent recycled postconsumer glass. Every day, over 120 tons of recycled glass, normally bound for the landfill, is melted down and utilized in the manufacturing of the insulation. In addition, an acrylic resin is substituted in the manufacturing process to ensure no phenol-formaldehyde or ammonia emissions are created.

According to the EPA, "Formaldehyde, a colorless, pungent-smelling gas, can cause watery eyes, burning sensations in the eyes and throat, nausea, and difficulty in breathing in some humans exposed at elevated levels (above 0.1 parts per million). It has also been shown to cause cancer in animals and may cause cancer in humans."<sup>4</sup> The EPA has been working to reduce the use of formaldehyde in building products as research continues to mount as to the hazards of formaldehyde in insulation products.<sup>5</sup>

Most environmental rating systems, such as Green Globes, USGBC LEED<sup>®</sup>, BREEAM, and the California High Performance Standard, give credit for indoor air quality and materials that prevent volatile organic compounds from being off-gassed into buildings by building products. Formaldehyde-free insulation improves air quality, and adds to the evaluation of a green building.

🔗 [Continues at ce.architecturalrecord.com.](http://ce.architecturalrecord.com)

*Celeste Allen Novak AIA, LEED AP is an architect specializing in sustainable design and planning in Ann Arbor, Michigan.*

See Quiz on the Next Page

or

Take the Quiz Free Online



To receive AIA/CES credit, you are required to read the entire article and pass the test. Go to [ce.architecturalrecord.com](http://ce.architecturalrecord.com) for complete text and to take the test. The quiz questions below include information from this online reading.

Program title: "Sustainable Buildings on Demand" (12/10, page 131). AIA/CES Credit: This article will earn you one AIA/CES LU hour of health, safety, and welfare/sustainable design (HSW/SD) credit. (Valid for credit through December 2012). **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 and avoid handling charge, go to [ce.architecturalrecord.com](http://ce.architecturalrecord.com)

- Tension-membrane structures are a good choice for a sustainable project because they are:
  - a. durable.
  - b. cost-effective.
  - c. energy-efficient.
  - d. all of the above.
- Tension-membrane structures are straight not curved.
  - a. True
  - b. False
- Engineered tension-membrane frames are sloped to:
  - a. reduce sun exposure.
  - b. provide more opportunities for graphics.
  - c. absorb acrylic coatings.
  - d. 26 degrees to shed snow and rain.
- Aluminum:
  - a. is a heavy metal.
  - b. cannot contain recycled content when used as a building frame.
  - c. is costly to transport.
  - d. is recyclable.
- Skylights in a tension-membrane structure are:
  - a. made of glass.
  - b. not allowed as part of a ceiling system.
  - c. heavy and add cost to the structure.
  - d. translucent membranes placed at the apex of the structure.
- A comprehensive insulation package includes:
  - a. thermal breaks.
  - b. vapor barrier.
  - c. rain screen.
  - d. Both a. and b.
- Monolithic structures are energy-efficient because they have minimal air leakage.
  - a. True
  - b. False
- Engineered architectural fabrics can be coated with:
  - a. PVDF.
  - b. aluminum.
  - c. asphalt.
  - d. tar.
- A membrane-covered frame structure is defined in Chapter 31 of the 2009 International Building Code Section 3102 as a "non pressurized building wherein the structure is composed of a rigid framework to support a tensioned membrane which provides the weather barrier." Permanent structures are classified as what construction Type?
  - a. Type IB
  - b. Type IIB
  - c. Type V
  - d. Both b. and c.
- Membrane-covered frame construction:
  - a. is costly to ship.
  - b. can't be constructed to meet green building rating systems.
  - c. costs a third less than a conventional structure with similar aesthetics.
  - d. doesn't meet building codes.

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Material resources used: This article addresses issues concerning health, safety, welfare and sustainable design.

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120SPONA

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See Endnotes in online version of this course.



Sprung is the world leader in the design and manufacture of engineered frame supported tension membrane structures. Significant advantages over conventional construction include speed to market, energy efficiency, long term flexibility and lower overall project costs.

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

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##### Major Industries, Inc.

▲ Custom-designed Guardian 275<sup>®</sup> translucent panel daylighting systems block damaging UV rays and eliminate hot-spots and glare.

##### Product Application:

- Lightweight and versatile for retrofit applications
- Blast and hurricane protection configurable
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##### Performance Data:

- Insulation options provide superb thermal performance
- Industry-long warranties

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##### Performance Data:

- Mortise and bored configurations
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### DOORS, WINDOWS

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##### NanaWall Systems, Inc.

▲ NanaWall announces the new VSW65 single-track sliding system with center swing doors.

##### Product Application:

- Residential, commercial, educational applications
- Indoor and outdoor systems

##### Performance Data:

- A four-panel single-track sliding wood system with center swing doors
- Pocket option available
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Circle 153

### DOORS, WINDOWS

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##### Avanti Systems USA

▲ Avanti Solare: innovative interior glass wall solutions and glass door systems. Available for high-end applications.

##### Product Application:

- USS Intrepid Sea-Air-Space Museum, New York, NY
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##### Performance Data:

- Single or double glazed available
- Straight or curved applications
- Dry jointed and fully relocatable

www.avantisystemsusa.com  
877.282.6843 | Contact: Stephen Mordaunt



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- Lifetime warranty

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Circle 155

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▲ Wagner Lumenrail<sup>®</sup> ETL-listed luminaires produce brilliant cool or warm white light and come in lengths from 6 to 60 in. They may be wall, ceiling, or under-cabinet mounted and are fully dimmable.

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- Handrail or guardrail
- Accent or practical lighting
- Improve safety and security

##### Performance Data:

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- Warm and cool white light options

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888.243.6914 | Contact: Jay Woggon



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#### DECORATIVE METAL CEILINGS

\$\$ | G

##### The Gage Corporation, Int.

▲ Gage ceilings are visually rich, functional, and versatile as a design medium.

##### Product Application:

- Planet Hollywood, Westgate Resorts
- Destiny New York Cruises, Directions in Design
- Foxwoods Casino, Wilson Associates

##### Performance Data:

- Class A ASTM E-84
- Feature more than 50% recycled aluminum

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Circle 157

## PRODUCT SPOTLIGHTS

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### INTERIOR FINISHES, FURNISHINGS

#### TWO-TONE CAST GLASS

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**Nathan Allan Glass Studios Inc.**

▲ Mix two colors and savor how they mingle. Their deep textures in kiln cast glass allow color finishes to coat the depths on either side of the grooves. Blending in the middle, they create a vibrant combination of Duotones. The entire palette of Lucent Colors are at your disposal. Duotones are most dramatic with deeper textures.

**Product Application:**

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- Cladding, fascia, feature walls, partitions



www.nathanallan.com  
604.277.8533 ext. 225 | **Contact:** Barry Allan

Circle 158

#### METAL COLUMN COVERS

WR | G

**Nelson Architectural**

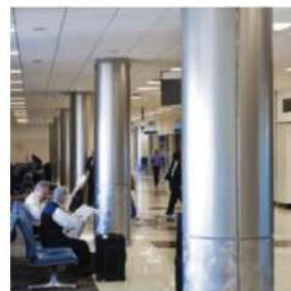
▲ Metal column covers are durable, easy to install, and offered in a multitude of designs and finishes.

**Product Application:**

- Transportation
- Institutional
- Commercial

**Performance Data:**

- Available in up to 3/16-in. material thickness
- 100% recyclable



www.nelsonindust.com  
800.277.6897 | **Contact:** Lars Hermanson

Circle 159

### INTERIOR FINISHES, FURNISHINGS

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\$\$\$ | G

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▲ GageMetal is an innovative collection suitable for walls, elevators, and column covers.

**Product Application:**

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- Atrium, Celebrity Genesis, Atlantic Ocean
- Column covers, Le Meridien Hotel, Delhi, India

**Performance Data:**

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- Durable stainless steel, cost-effective aluminum



www.gagecorp.net  
608.269.7447, 800.786.4243

Circle 160

#### ARCHITECTURAL NATURAL STONE

\$\$\$ | G

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**Product Application:**

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- Unfading Mottled Green & Purple slate wall panels and Heathermoor slate sculptures
- Finegold Alexander + Associates Inc.



www.vermontstructuralslate.com  
800.343.1900 | **Contact:** Craig Markcrow

Circle 161

### MATERIALS

#### CUSTOM PERFORATED/FABRICATED METAL

WR | G

**Accurate Perforating**

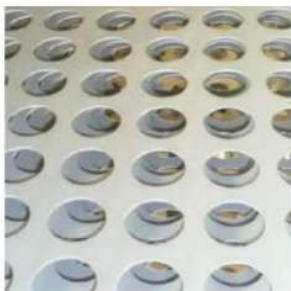
▲ Accurate is a leader in providing custom perforated metal components to the construction industry.

**Product Application:**

- Sunscreens, sunshades, daylighting
- Building facades, wall panels, cladding, etc.
- In-fill panels, railings, ceilings, privacy panels

**Performance Data:**

- Thousands of standard perforating patterns available or design your own
- Go to their web site for downloadable pattern files in pdf, dxf, and dwg



www.accurateperf.com  
800.621.0273 ext. 363 | **Contact:** Damon Henrikson

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#### FIRE-RATED VERSION

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### MATERIALS

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WR

**Universal Wire Cloth Company**

▲ Wire cloth products for architectural, railing, industrial, security, and decorative applications.

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**Performance Data:**

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www.universalwirecloth.com  
800.523.0575 | **Contact:** Al Ferreri

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### ROOFING, SIDING, THERMAL & MOISTURE PROTECTION

#### ARCHITECTURAL TERRA COTTA

\$\$\$ | G

**Boston Valley Terra Cotta**

▲ The TerraClad™ product line is a ceramic material formed into high-performance rainscreen panels, baguettes, and louvers.

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- Univ. of Texas, Student Services Ctr., Dallas, TX
- University of Washington Hall Health Primary Care Center, Seattle, WA

**Performance Data:**

- Miami-Dade NOA No. 08-1014-03; NYC MEA 1220-07M; potential 10 LEED™ credits



www.bostonvalley.com  
888.214.3655 | **Contact:** Patricia Aubrecht

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## PRODUCT SPOTLIGHTS

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Circle 166

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▲ Melton Classics provides the design professional with an extensive palate of architectural columns, balustrades, cornices, and millwork. They invite you to call their experienced product specialists to assist you with the ideal products for your design, application, and budget. Columns are available in fiberglass, synthetic stone, GFRC, and wood. Their 80+ durable maintenance-free balustrades feel substantial yet have reduced weight. Also, ask about their low-maintenance fiberglass and polyurethane cornices and millwork.

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800.963.3060 | Contact: Mike Grimmett



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▲ Ultra-tec® cable railing hardware, manufactured by The Cable Connection and distributed everywhere by The Wagner Companies, sets the standard for beautiful cable railings. Exclusive Invisiware® "hidden hardware" cable connectors are concealed inside the posts, so there is no interference with the view. Suitable for indoor or outdoor, metal railings or wood decks.

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▲ Coreguard™ product lines provide the building industry with an easy-to-install, high-impact, and penetration-resistant wall system.

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- Government facilities, institutions, etc.
- Schools, retail, commercial

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- Specified by the Office of General Services, New York, Army Corps of Engineers

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### SPECIALTY PRODUCTS

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WR | G

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▲ The Kalwall 100™ system can withstand higher live, wind, and snow loads with limited deflection.

##### Performance Data:

- 4 in. thick for increased structural stability
- U-value of 0.08 (R13)
- 8 to 50% light transmission (crystal/crystal face sheets)
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Circle 170

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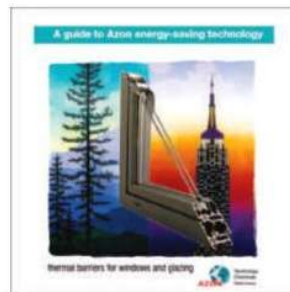
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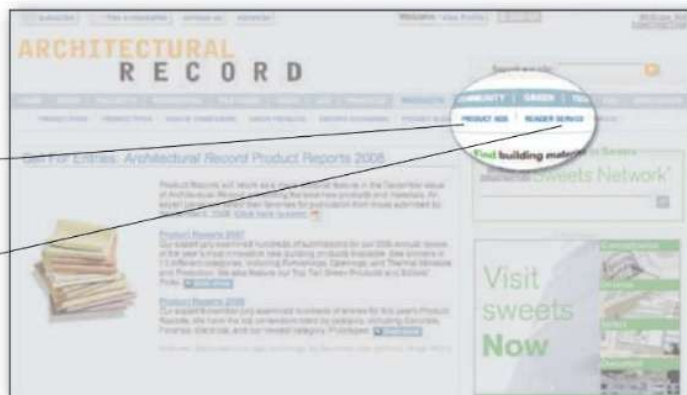
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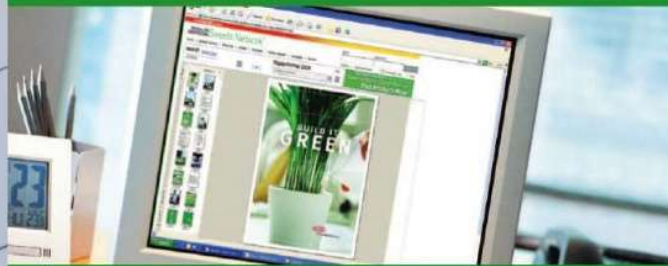
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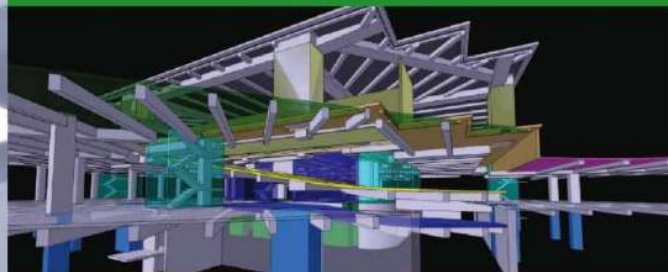
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SUTD, the first university in the world with a focus on design accomplished through an integrated multi-disciplinary curriculum, has a mission to advance knowledge and nurture technically grounded leaders and innovators to serve societal needs. SUTD is characterised by a breadth of intellectual perspectives (the "university"), a focus on engineering foundations ("technology") and an emphasis on innovation and creativity (design). The University's programmes are based on four pillars leading to separate degree programmes in Architecture and Sustainable Design, Engineering Product Development, Engineering Systems and Design, and Information Systems Technology and Design. Design, as an academic discipline, cuts across the curriculum and will be the framework for novel research and educational programmes.

MIT's multi-faceted collaboration with SUTD includes the development of new courses and curricula, assistance with the early deployment of courses in Singapore, assistance with faculty and student recruiting, mentoring, and career development, and collaborating on major joint research projects, through a major new international design centre and student exchanges.

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For the Founding Head of Pillar, our search criterion is nothing short of the best and most reputable in the field. Shortlisted candidates must minimally have an excellent doctoral qualification and be an international award recipient for academic and research contributions to the relevant specialised field, with publications in renowned and reputable journals recognised by the international research community.

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- Your ability to leverage diverse teams and effectively manage people and resources
- Your passion to share SUTD's vision on the "Big D" approach, focusing on the art and science of design within your specialisation
- Your appetite for entrepreneurship and risk taking
- Your ability to innovate and create an environment that promotes creativity and experimentation
- Your ability to inspire and motivate young minds to become leaders and inventors of tomorrow

We invite applications for the above position. Successful candidates can look forward to internationally competitive remuneration, and assistance for relocation to Singapore. If you share SUTD's vision on multi-disciplinary curricula and research with a focus on Design in the broadest sense, please email your profile and queries to: **Ms Jaclyn Lee** at [jaclynlee@sutd.edu.sg](mailto:jaclynlee@sutd.edu.sg)

To learn more about SUTD, please visit [www.sutd.edu.sg](http://www.sutd.edu.sg)



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### Rhode Island School of Design Assistant Professor Department of Interior Architecture

The Department of Interior Architecture in the Division of Architecture + Design is seeking an individual to join our team of full-time faculty members. The Department offers programs leading to Bachelor's and Master's degrees in Interior Studies (with a concentration in Adaptive Reuse) and Interior Architecture.

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**Applications require a letter of interest, current CV, sample syllabi, examples of personal and student work, and the names and contact information for three references.**

Review of applications will begin immediately, and continue until the position is filled. Candidates who submit their materials by January 3, 2011, will be assured full consideration. For more information about RISD and to apply online, please visit [www.risd.edu/jobs](http://www.risd.edu/jobs)

The School wishes this appointment to commence in July 2011. Further information about the Department of Interior Architecture at RISD can be found at [risd.edu](http://risd.edu).

RISD is an equal opportunity employer. We encourage inquiries from candidates who will enrich and contribute to the cultural and ethnic diversity of our College. RISD does not discriminate on the basis of race, color, religion, sex, age, national origin, disability, veteran status, sexual orientation, gender identity/ expression, genetics, or any other protected characteristic as established by law, in employment, or in our education programs.



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##### Overview of the Facilities Management and Commercial Services Division:

The Facilities and Commercial Services Division at New York is headed by a Director who is accountable to the Assistant Secretary-General, Office of Central Support Services in the Department of Management. The Director provides direction and leadership to the Division consisting of two Services, Facilities Management Service and Commercial Activities Service.

The functions of the Facilities Management Service are to provide efficient and effective planning, management, operations and maintenance of all physical facilities and assets of the Organization. The functions of the Commercial Activities Services is to establish and ensure implementation of the Organization's records management policies, ensure effective, timely and efficient support to the travel requirements of Organization, ensure uninterrupted provision of quality catering services as well as timely provision of mail and pouch services.

##### Position:

The United Nations is seeking an experienced Director with a minimum of 15 years of experience in management and administration, business or financial operations in international organizations. Experience in the area of programme and project planning and budgeting is required. Relevant experience in senior officer positions managing large and diverse technical areas of operation is required. Experience in the area of facilities and/or commercial services is highly desirable. Experience in directing and managing several offices in a multicultural environment is also required.

Interested candidates should submit an application for the Job Opening # 15902 at the United Nations Career Portal: <http://careers.un.org>

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## DATES &amp; EVENTS

## New and Upcoming Exhibitions

**DesCours**

New Orleans

*December 3–12, 2010*

This 10-day contemporary architecture and art event explores the latest in design and technology. Fourteen installation teams (comprising 27+ architects from around the world) were chosen to nightly transform hidden spaces across the French Quarter and Central Business District of New Orleans. For more information, visit [www.descours.us](http://www.descours.us).

**The Onassis Cultural Centre**

Athens

*December 11–12, 2010*

The Onassis Foundation's first public facility opens to the public in December, housed in a Minimalist white marble and glass building designed by the French firm Architecture-Studio. The Centre includes a 900-seat theatre for concerts, opera, dance, theatre, film, and conferences; works from the Foundation's art collection, including sculptures by Rodin and Bourdelle; a restaurant and an entrance-level bar; and an outdoor theater, among other amenities. For more information, visit [www.onassis.gr](http://www.onassis.gr).

**Ozark Modern**

Fayetteville, Arkansas

*January 10–February 16, 2011*

This exhibition features midcentury modern furniture designed by Edward Durrell Stone in the University of Arkansas Fine Arts Center Gallery. It will underscore the distinctive characteristics of the furniture and illuminate the particular circumstances of its development. For more information, visit [www.uark.edu](http://www.uark.edu).

## Ongoing Exhibitions

**David Chipperfield Architects – Form Matters – Questioni di forma**

Pisa, Italy

*Through January 16, 2011*

Presented at the Arsenali Medicei, this exhibition of David Chipperfield Architects' work, spanning the past 25 years, includes a large amount of primary material: original sketches, drawings, and working models. It includes the new projects Masterplan for the City (PIUSS) and the Regeneration of the Santa Chiara Area for the City of Pisa. For more information, visit [www.davidchipperfield.co.uk](http://www.davidchipperfield.co.uk).

**Nordic Models + Common Ground: Art and Design Unfolded**

New York City

*Through March 9, 2011*

Nordic Models examines a diverse selection of works, including architecture, product design, fine art, graphic design, fashion, and photography by 35 emerging and established artists and designers. In doing so, it offers a compelling look at contemporary Nordic art and design, highlighting shared practices and ideas and their global impact. All of the Nordic countries – Denmark, Finland, Iceland, Norway, and Sweden – are represented. At Scandinavia House. For more information, visit [www.scandinaviahouse.org](http://www.scandinaviahouse.org).

**Light Frames**

Los Angeles

*Through March 13, 2011*

Light Frames, an installation by Los Angeles architect Gail Peter Borden, will transform the exhibition space with two complementary towering structures. The exhibition was created using component-based structural frames that combine to create complex geometric forms. Borden makes a conscientious effort to emphasize the method of fabrication by truthfully exposing joints and materials. For more information, visit [www.emanate.org](http://www.emanate.org).

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### On Becoming an Artist: Isamu Noguchi and His Contemporaries

Long Island City, New York

Through April 24, 2011

This exhibition explores the relationship between Isamu Noguchi and 40 figures from the worlds of art, architecture, design, and theater. It integrates artworks and documentary materials to examine Noguchi's relationships with figures such as Constantin Brancusi, Frida Kahlo, R. Buckminster Fuller, Gordon Bunshaft, and Louis Kahn. For more information, visit [www.noguchi.org](http://www.noguchi.org).

## Competitions

### Arthur Ross Awards

Deadline: December 15, 2010

The Arthur Ross Awards were created to recognize and celebrate excellence in the classical tradition. From the beginning, the awards have recognized the achievements and contributions of architects, painters, sculptors, artisans, landscape designers, educators, publishers, patrons, and others dedicated to preserving and advancing the classical tradition. For more information, visit [www.classicist.org](http://www.classicist.org).

### PROJECT: Green

Deadline: January 14, 2011

*Environmental Design + Construction* magazine and Coverings, the trade fair and expo showcasing the newest in ceramic tile and natural stone, are calling for tile and stone projects where sustainability is a chief mission. PROJECT: Green is open to both domestic and international projects in one of the following categories: Residential New, Residential Remodel, Commercial New, Commercial Remodel, Institutional New, and Institutional Remodel. Honorees will be showcased at Coverings in March 2011 at The Sands Expo and Convention Center in Las Vegas and will receive a feature in a 2011 issue of *Environmental Design + Construction*. For more information, visit [projectgreen.edcmag.com](http://projectgreen.edcmag.com).

### Next Generation: GET ZERO

Deadline: January 31, 2011

Next Generation: GET ZERO asks entrants to design "fixes" that will transform an existing building, bringing it to the highest possible level of performance in a memorable, beautiful, and original way. Winning entries will present design ideas that could be applied to similar buildings that exist by the hundreds across the country and around the world. For more information, visit [www.metropolismag.com/nextgen](http://www.metropolismag.com/nextgen).

### The AIA Diversity Recognition Program

Deadline: February 9, 2011

The Diversity Recognition Program seeks to

recognize architects for exemplary commitment and contributions to diversifying the profession of architecture. Up to twelve submissions will be selected annually to be recognized as Diversity Best Practices. An award will be presented to each selected recipient, whose diversity efforts will be featured in AIA publications, on the AIA Web site, and in the Architect's Knowledge Resource. For more information, visit [www.aia.org](http://www.aia.org).

### 2011 RIBA Norman Foster Travelling Scholarship

Deadline: March 1, 2011

Students from RIBA-accredited schools of

architecture around the world are invited to participate. A £6,000 grant will be awarded to one student. The scholarship is intended to fund international research on a topic related to the survival of towns and cities, in a location of the student's choice. Proposals for research might include: learning from the past to inform the future; the future of society; the density of settlements; sustainability; the use of resources; the quality of urban life; and transportation.

E-mail information two months in advance to [recordevents@mcgraw-hill.com](mailto:recordevents@mcgraw-hill.com). For more listings, visit [architecturalrecord.com/news/events](http://architecturalrecord.com/news/events).

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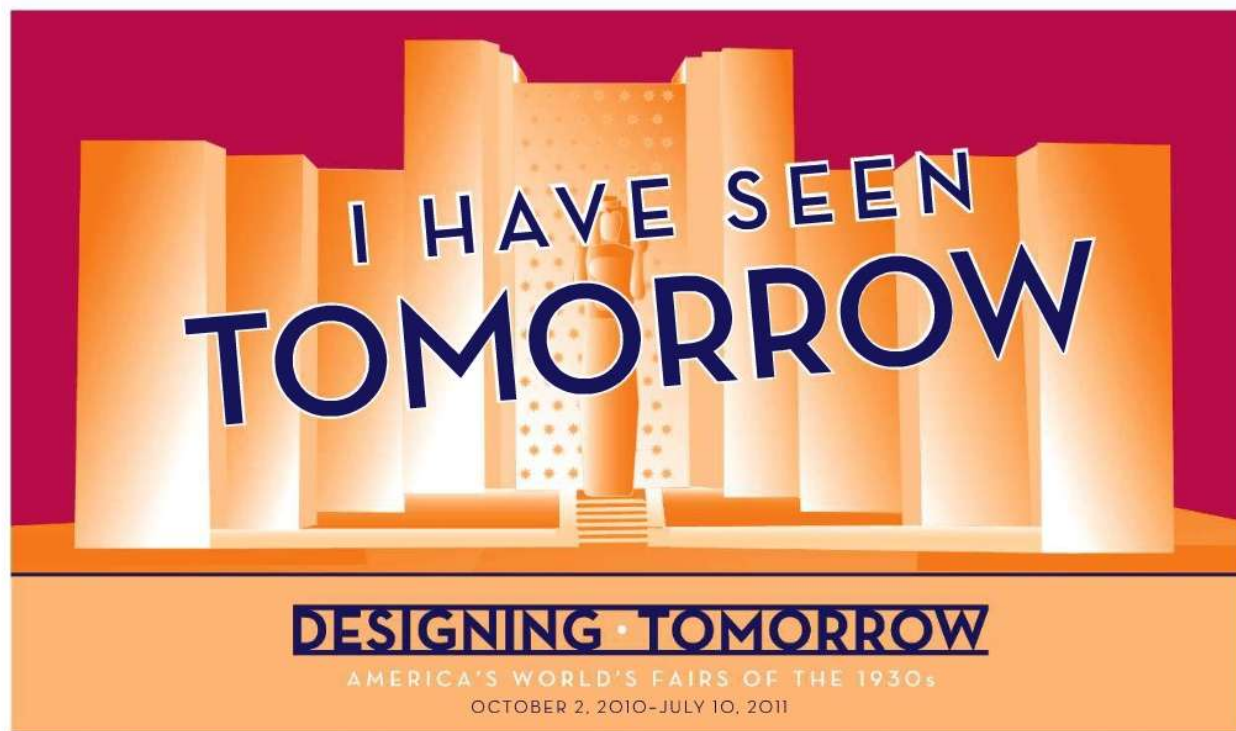
# Good Design is Good Business

## CALL FOR ENTRIES

The editors of ARCHITECTURAL RECORD would like to invite submissions for the **2011 Architectural Record Good Design is Good Business** awards program (formerly the BusinessWeek/Architectural Record Awards).

Good design has become a top priority for leaders of business and industry looking to rebrand, boost productivity, and attract customers. The Good Design is Good Business Awards honors architects and clients who best utilize design to achieve such strategic objectives.

For more information and to download the official entry form at [architecturalrecord.com/call4entries](http://architecturalrecord.com/call4entries). Email questions to [arcallforentries@mcgraw-hill.com](mailto:arcallforentries@mcgraw-hill.com). **SUBMIT YOUR ENTRIES BY 01/15/2011.**



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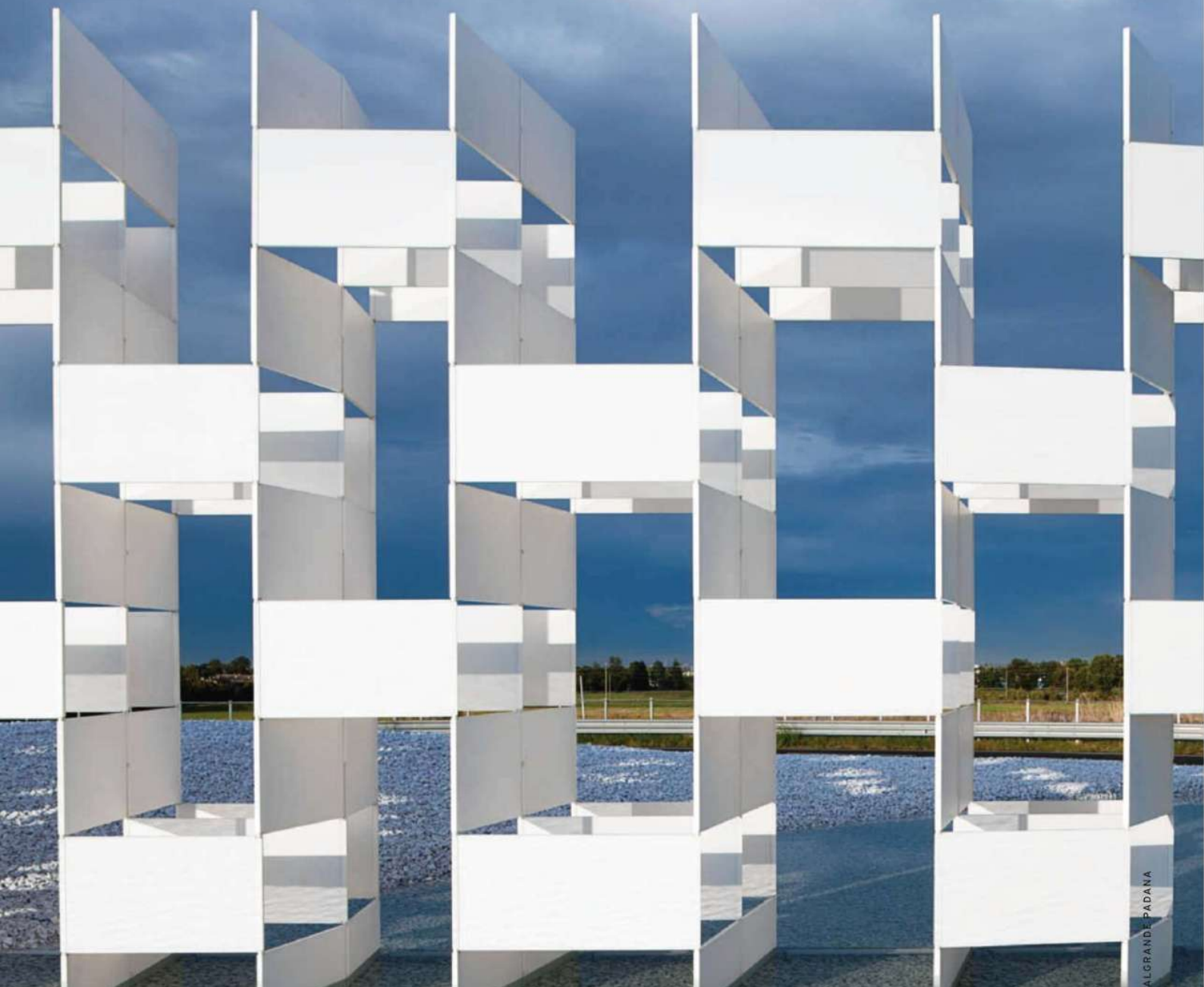


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 LOCATION CASALGRANDE (REGGIO EMILIA), ITALY  
 ARCHITECT KENGO KUMA & ASSOCIATES



**DAZZLING IN THE** capricious Northern Italian sun, Kengo Kuma's first built project in Italy is a salient tribute to an industry and its fluid integration with art, architecture, and community. When Franco Manfredini, CEO of Casalgrande Padana, invited the Japanese architect to create a permanent installation for his Italian tile company's 50th anniversary in 2010, Kuma sought to exploit the structural potential of this Reggio Emilia-based manufacturer's porcelain product, typically used for cladding. Consulting with Manfredini's technical team, as well as Alfonso Acocella and Luigi Alini, professors of architectural technology at the universities of Ferrara and Catania, respectively, Kuma developed a dimensional freestanding wall using layers of stacked 24-by-48-by-1/2-inch

unglazed porcelain slabs, in pure white. These are interconnected by discrete threaded rods fixed into concrete-embedded metal frames and form a 148-foot span, nearly 20 feet tall and up to 6 feet deep. Linear and transparent, the structure appears to float atop a landscaped roundabout facing Casalgrande Padana's facilities at the gateway of Italy's ceramic tile district in the heart of the Emilia-Romagna region. According to Kuma, the work always seems different. "Seeing it grow during construction, we realized how dynamically the subtle reflection of the glazed ceramic was interacting with the site and atmosphere — a soft, light, ever-changing phenomenon like the clouds," the architect says. "That is why we named it Ceramic Cloud." *Linda C. Lentz*



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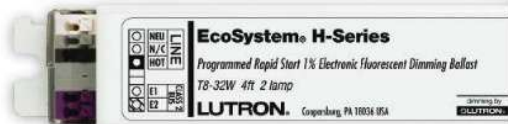
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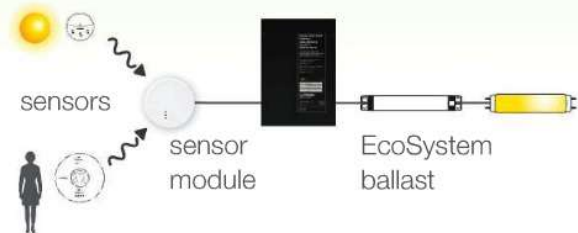
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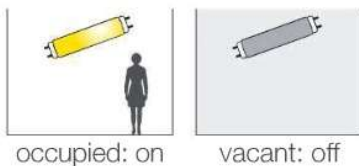
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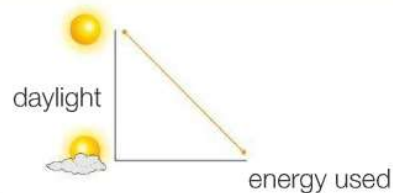
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