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FIGURE/GROUND

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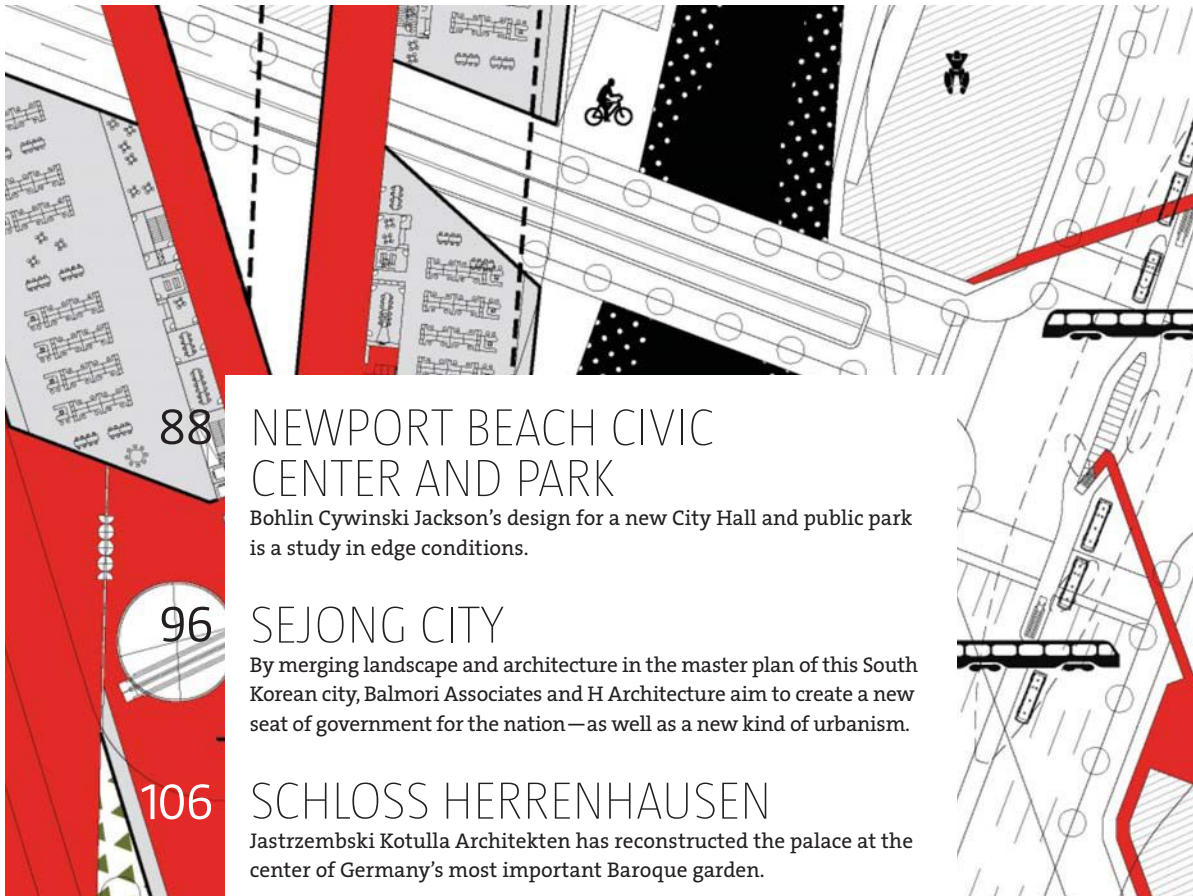
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Jastrzembki Kotulla Architekten has reconstructed the palace at the center of Germany's most important Baroque garden.

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Richard Meier has designed a relatively modest new beachfront house for long-time clients that marries his signature orthogonals with an exceptional transparency.



This image: Fire Island House; top: Sejong City



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### ON THE COVER

The reconstruction of Schloss Herrenhausen by Jastrzembki Kotulla Architekten. Photo by Hagen Stier.

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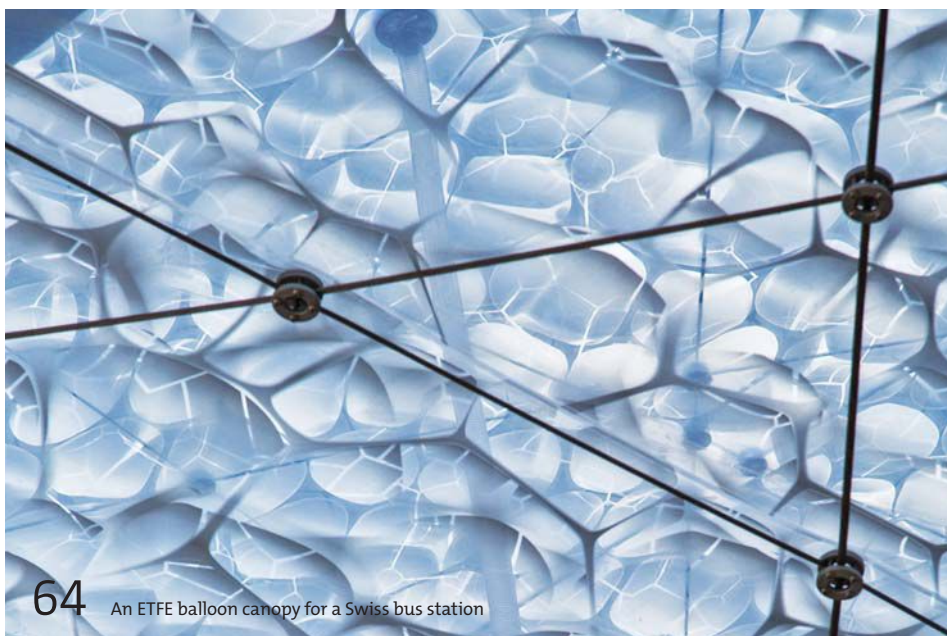
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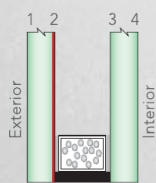


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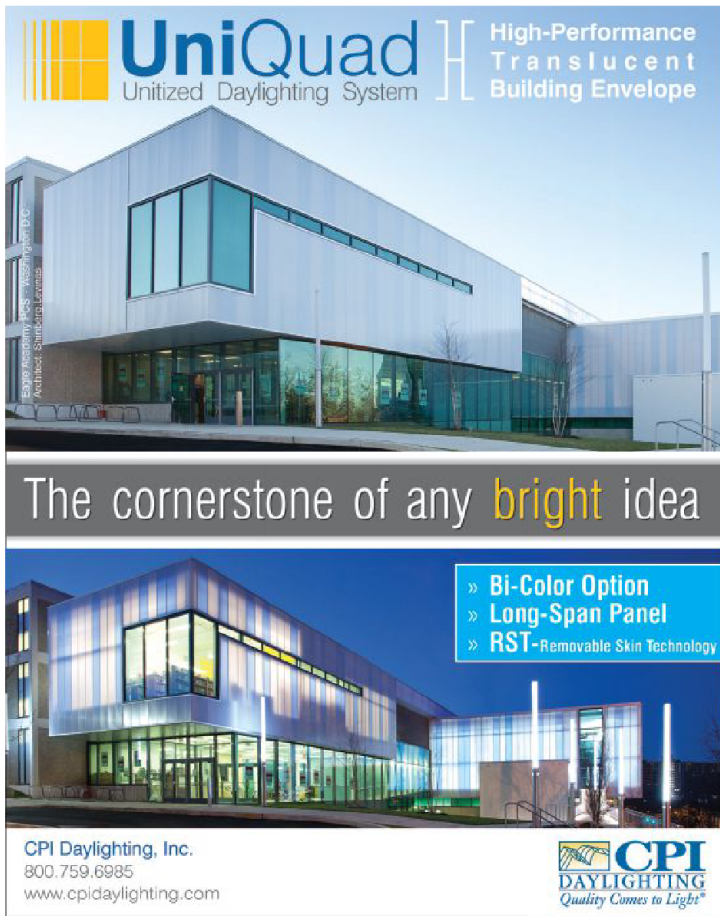
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# INSIDE OUT



Want to know what goes on at the **New School**? Passersby need only glance at the institution's new **University Center** in Greenwich Village to understand that progressive design education happens here. The building by **Skidmore, Owings & Merrill** expresses the school's interdisciplinary approach through a brass-shingled facade crisscrossed by a series of glass-enclosed stairways that highlight a vivid tableau of students circulating within. The unique system encourages collaboration—and a new dialogue between campus and community that is sure to be conversation for decades to come.

## Transforming design into reality

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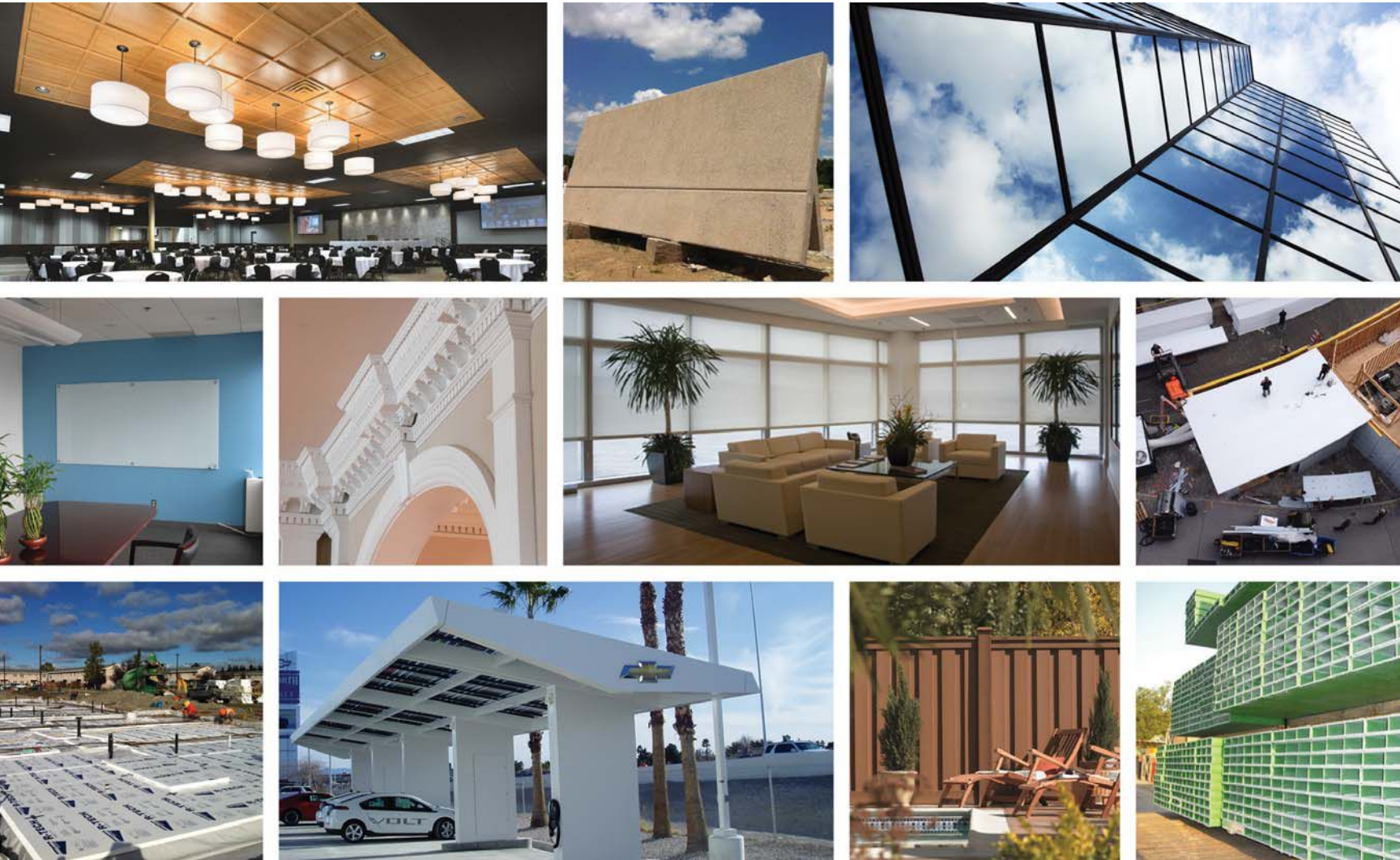
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# NEW

# TWIST



The new ideas that poured into Lower Manhattan's rebuilding resulted in a stronger infrastructure—and some architectural gems. A key piece in the undertaking is **Pelli Clarke Pelli's** new **Pavilion at Brookfield Place**, a public space serving the 35,000 commuters who use the PATH system daily. Because the system's track network runs underneath, the pavilion's soaring roof and hanging glass curtain wall could only be supported at two points. **Thornton Tomasetti** met the challenge with a pair of 54-foot-tall "basket" columns, each gathering its loads in an expressive weave of lightweight, brightly painted twisting steel tubing that spirals down to plaza level in an ever-tightening array. It is innovative design, with a twist.

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A CORE PRINCIPLE OF THE EXCELLENCE PROGRAM IS THAT GOOD DESIGN AND TIGHT SECURITY ARE NOT MUTUALLY EXCLUSIVE.

## CHOCOLATE AND PEANUT BUTTER

CONGRESS IS QUESTIONING THE STATE DEPARTMENT'S EXCELLENCE IN DIPLOMATIC FACILITIES PROGRAM, FEARING THAT IT PRIORITIZES DESIGN OVER SECURITY. WHY NOT HAVE BOTH?

**ARCHITECTS SPEND** a lot of time educating clients about the value of design. Here's one more opportunity: The House Committee on Oversight and Government Reform has begun to scrutinize the State Department's new approach to architecture, the Excellence in Diplomatic Facilities program, starting with a contentious July 10 hearing on Capitol Hill.

This is the committee's latest investigation relating to the 2012 terrorist attack on the U.S. compound in Benghazi, Libya. Certainly, no one blames architecture for the attack. Instead, the concern is that more Benghazis could occur because an emphasis on design for future buildings could lead to cost overruns and delays, leaving workers in outmoded, insecure facilities. Oversight Committee Chairman Darrell Issa, R-Calif., summed up the argument in late June, via Twitter: "Is State Dept Embassy Design Putting Style over Safety?"

Earlier that month, committee member Jason Chaffetz, R-Utah, told CBS News, "These people live in very dangerous parts of the world, we don't have time to make sure that the building and the flowers look more pretty, we have to make sure that these people are safe and secure and can do their jobs."

The 1998 embassy bombings in East Africa led Congress to reinforce security requirements for overseas facilities and earmark billions for new construction. Under Secretary Colin Powell, the State Department nixed its long-standing architectural advisory panel and adopted a scalable prototype solution, Standard Embassy Design, of which dozens have been built. This is what the Excellence program replaces, and some in government would like to restore.

"I know what worked for us, and it worked well—Standard Embassy Design," said Grant S. Green Jr., Powell's Under Secretary of State for Management, in a recent interview with Al Jazeera. "We had the Congress on our side and we built a ton of embassies. If they want to make them prettier, just change the frigging façade and make them prettier."

During the July 10 hearing, Rep. Tammy Duckworth, D-Ill., suggested that the old system

created a serious vulnerability: If terrorists manage to get the plans for one standardized facility, they've got the know-how to assault them all. The new Excellence in Diplomatic Facilities program, by contrast, entails hiring innovative architects to develop individualized schemes for each locale, which should improve security and have the fringe benefit of making the buildings better—more pretty, if you will.

The standard design has been roundly criticized for its less-than-good looks, which is a bona fide issue in the sensitive arena of international affairs. "The last thing a nation beset by the 'ugly American' stereotype needs is ugly American embassies," veteran foreign correspondent Roland Flamini wrote in *The Washington Times* when State announced the Excellence program in 2012.

Embassies are a physical expression of our national character, and they provide the only firsthand experience of the United States many foreigners will ever get. So it is a failing that, as Secretary of State John Kerry observed in 2009, while still a senator, "We're building fortresses around the world. We're separating ourselves from people in these countries. I cringe when I see what we're doing." We can do better.

A core principle of the Excellence program is that good design and tight security are not mutually exclusive. Architects don't spend their days arranging daffodils. Their creativity comes with a sober mandate: to assure human health, safety, and welfare. A whole body of scientific research demonstrates the causal relationships.

It's too early to know for certain whether the new approach to U.S. embassy architecture will prove successful. No projects have been completed yet. But the idea builds on a solid precedent for both safety and aesthetics: the U.S. General Services Administration's widely admired Design Excellence Program. Moreover, the new, individual designs are subject to the same timetables, budgets, and security requirements as the old standard design.

*Reed Crane*





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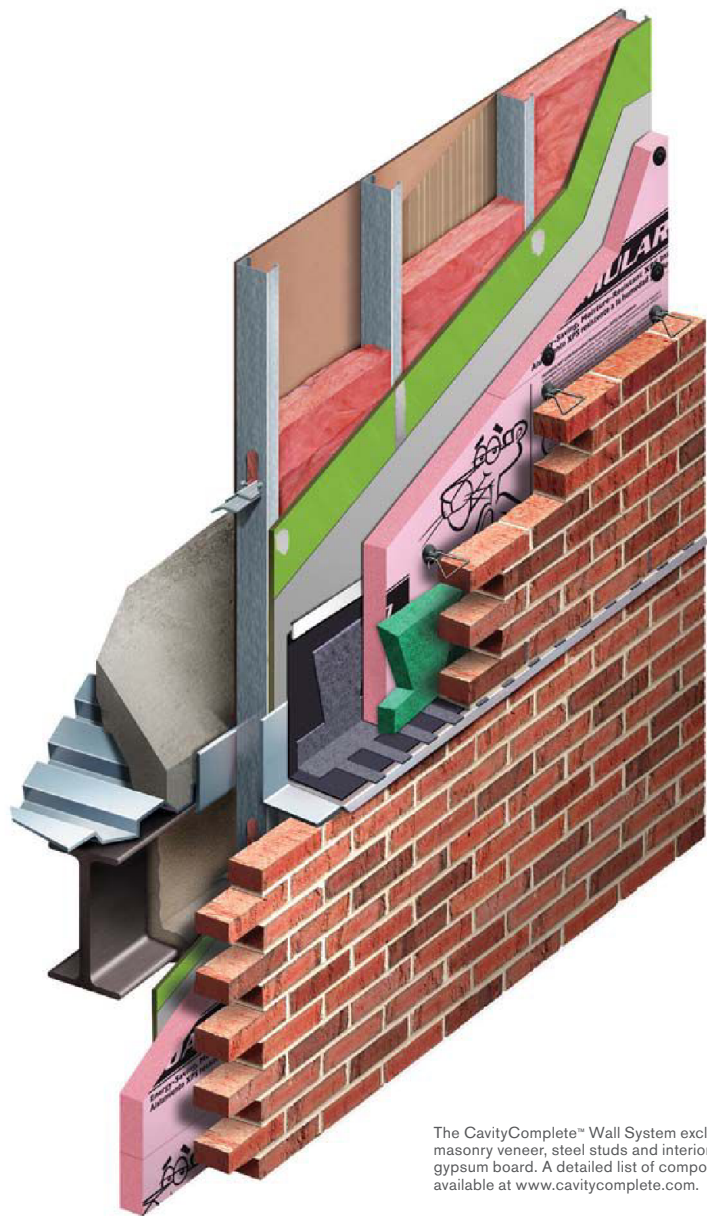
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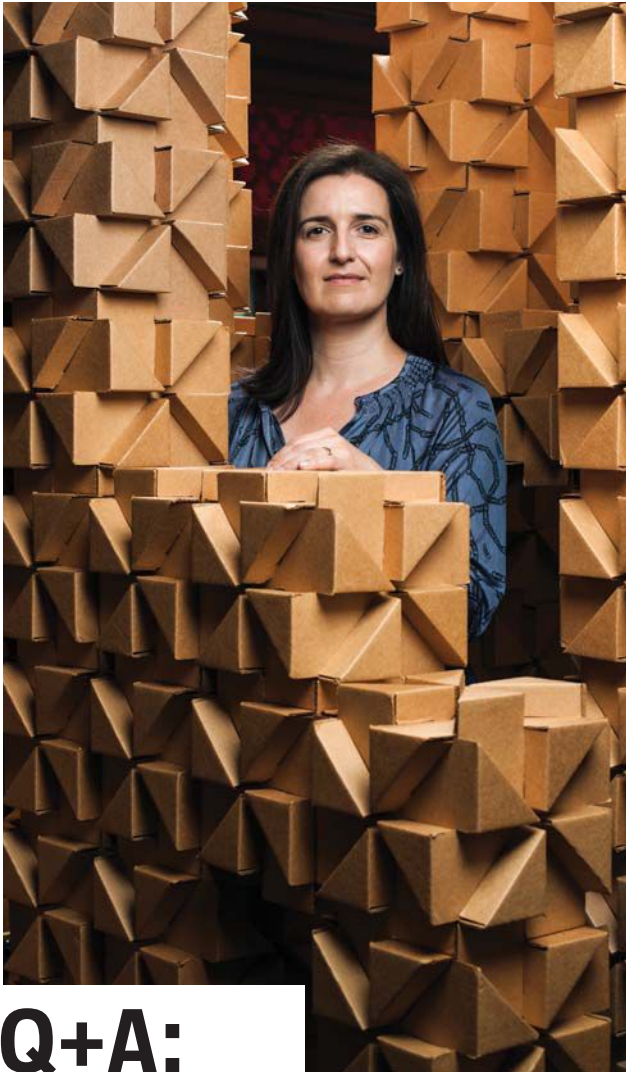
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# FRONT



## THE LEFT-LEANING TOWER

On July 22, the Venezuelan government began removing the more than 2,000 squatters who have lived in the famously unfinished 45-floor Torre David in Caracas since 2007. Photographer Iwan Baan, critic Justin McGuirk, and the firm Urban-Think Tank (see May 2014, page 74) documented the community in a book, film, and Golden Lion–winning exhibition at the 2012 Venice Biennale. The (don't call it an) eviction was agreed upon by the army and tower residents, who are moving to homes built through late President Hugo Chávez's Great Housing Mission, in Cúa, a town south of the capital. What will happen to the now-empty tower? At press time, the government had not said, but speculation points to it being purchased by Chinese banks.



## Q+A: SARAH HERDA

THE CHICAGO ARCHITECTURE BIENNIAL'S CO-ARTISTIC DIRECTOR EXPLAINS WHY THE CITY IS THE PERFECT SETTING FOR A WORLDWIDE CONVERSATION.

**AS ARCHITECTS GATHERED** in Chicago for this year's AIA Convention, Mayor Rahm Emanuel announced that the city would hold the inaugural Chicago Architecture Biennial in October 2015. Sarah Herda, director of the local Graham Foundation, and Joseph Grima, former editor of *Domus*, will curate the first exhibition, with promises to deliver the largest contemporary architecture show in the history of the United States. After the announcement, Herda explained how the three-month event will spark global discussions on the future of architecture. **DEANE MADSEN**

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ALREADY PLEDGED FOR EVENTS RELATED TO THE 2015 CHICAGO ARCHITECTURE BIENNIAL

### How would you describe the underlying philosophy of the Chicago Architecture Biennial?

This is not a Biennial about following one ideological position. It's really going to be working to represent a lot of different modes of thought in the field. We want to capture the energy pushing the field forward, but we imagine that that will be in a lot of different directions, which is also something that's incredibly exciting.

### So there might not be a theme?

The theme will be able to encompass all of these interests of ours. It's not a top-down strategy, it's really bottom-up. We're going to be out into the world, talking to people—as opposed to imposing something on them. We want to hear what's at stake, and start to represent that in the Biennial.

### What goals do you have for the exhibition?

At the core of our interest in building this Biennial is establishing the global network. It's going to be intergenerational. It'll be geographically diverse. We really want to capture the field. We want to make some unexpected relationships and connections between people that are doing work in very different contexts.

### Yet it will still appeal to a broader audience.

While on the one hand, the Biennial really has to matter to the field, but it also has to engage the public. I've found, in my almost 20 years

of working on architectural exhibitions, that experimental and forward-thinking work resonates with the public, so we want to create opportunities for the public to engage this work.

### What kinds of public outreach will you be doing?

We're collaborating with the Chicago Architecture Foundation on the education piece of the Biennial, which will be focused on developing a meaningful learning opportunity for teens. That's also a way to bring new people to the field.

### How might you take advantage of your surroundings?

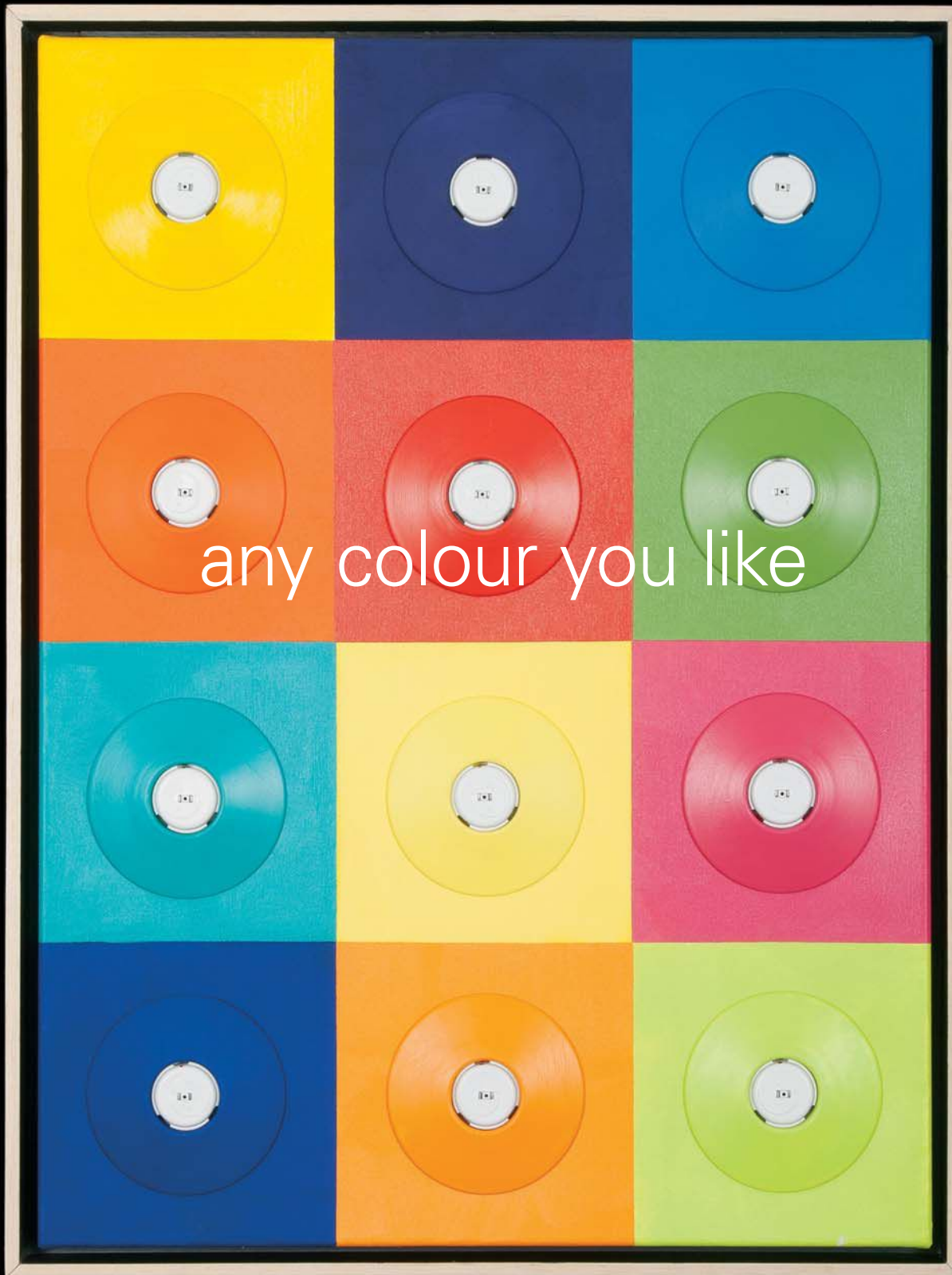
We've been talking about the show with the city as the site, and the Cultural Center [on Michigan Ave.] as the hub: It's all here. A significant history of architecture exists in Chicago, in built form, that you can go and experience.

We want to engage that history very directly. We also want the Biennial to act as a catalyst for new work in the city and new opportunities for architects here.

### What can you tell us about the longer-term future of the Biennial?

The one important and exciting thing about its future is that it will definitely have one. The mayor, in the announcement, proclaimed a commitment of this being something that, as the name implies, happens every two years. It'll be exciting to see how this forum, and the formats, evolve and change over time, because they will.

More interviews at [architectmagazine.com](http://architectmagazine.com)



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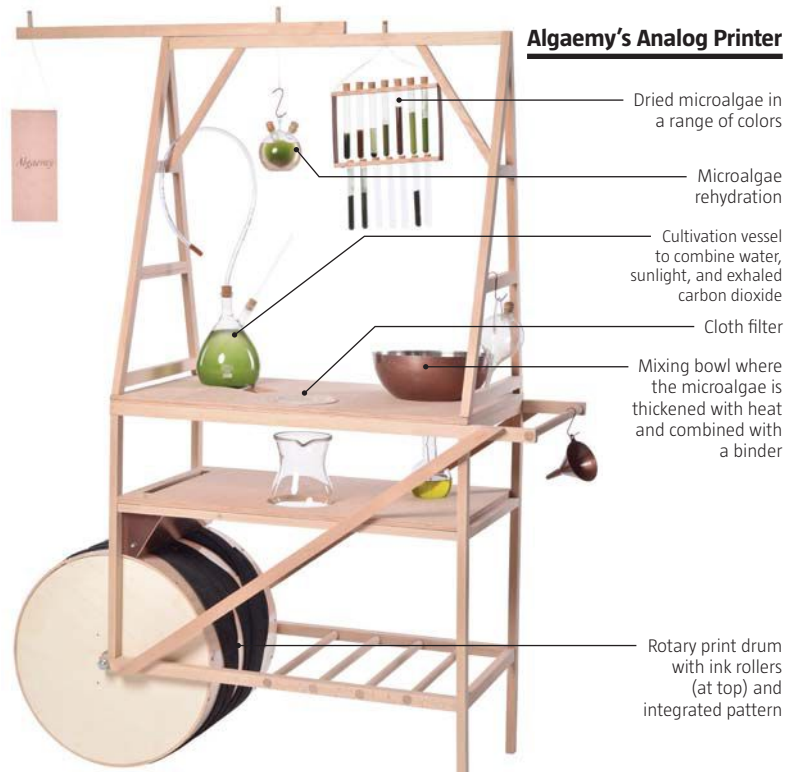
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# NATURALLY SMART TEXTILES

**WEARABLE ELECTRONICS** garner a lot of buzz, but Berlin design studio Blond & Bieber has a low-tech alternative using microalgae printing.

Founders Essi Johanna Glomb and Rasa Weber developed their Algaemy process after encountering freeze-dried algae at the Fraunhofer Institute for Interfacial Engineering and Biotechnology, which maintains the material in the form of a fine powder, similar to a pigment. Intrigued, Glomb and Weber requested samples to screen-print prototype textiles and subsequently developed a mobile textile printer for use on larger fabrics.

The patterns on Algaemy textiles change color over time and when exposed to sunlight. The green algae pigment becomes blue, for example, while the pink pigment changes to red and orange. Different species of microalgae reveal different hues. “The fashion industry is always busy with producing light-stable colors,” said Glomb and Weber in an interview with *Motherboard*. “But products change just like people. If objects are only used for a very short period of time before people get bored by them, why shouldn’t textiles change [their] color after a time, just as well?” **BLAINE BROWNELL, AIA**



## S, M, L, XL

The Art Institute of Chicago is providing a quirky lesson in representational scale shifts this summer, in the form of *Architecture to Scale*: Stanley Tigerman and Zago Architecture. The exhibit unexpectedly pairs intimate models and drawings by the city's postmodern master (including the funky 1983 work pictured here) with *XYT: Detroit Streets*, a monumental 2008 film installation by architects Laura Bouwman and Andrew Zago, AIA. Through Sept. 14. [artic.edu](http://artic.edu)

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## DETAIL: LANDESGARTENSCHAU EXHIBITION HALL

STUTTGART UNIVERSITY EMPLOYS ROBOTS TO FABRICATE THE SHELL OF A PAVILION ABOUT INNOVATIVE CONSTRUCTION METHODS.

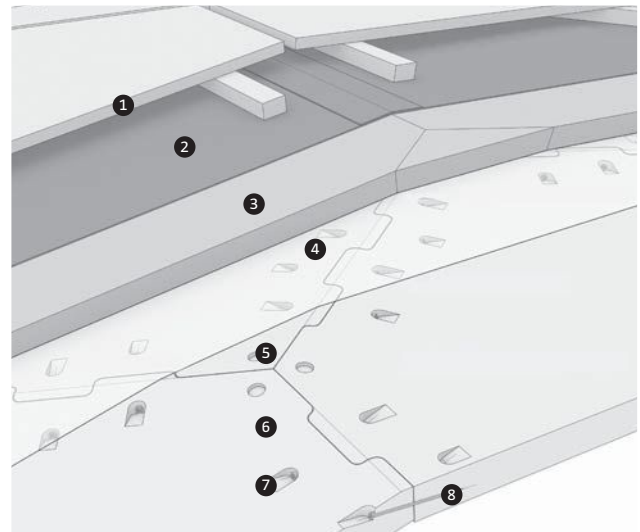
**ROBOTS ARE** gaining traction when it comes to the construction of geometrically complex assemblies. In April, Stuttgart University's Institute for Computational Design completed the Landesgartenschau Exhibition Hall, a 1,345-square-foot, 20-foot-tall pavilion with a prefabricated lightweight timber shell with 2,640 square feet of surface area. It is the world's first structure to be made entirely of robot-fabricated plates, according to the project team.

The researchers selected beech plywood for its lightness, strength, local availability, and alignment with sustainable forestry practices in Central Europe. After studying the microscopic plate joints in sand dollars, they devised a series of 50-millimeter-thick plates with perimeter finger joints for panel-to-panel connections.

The unique shapes of the five-, six-, and seven-sided, 1- to 2-meter-long panels were generated through custom design tools in Rhino and based on biological principles, the planar approximation of freeform surfaces, material properties, stock availability, the robotic fabrication technique, and the physical workspace. "Introducing different-sided polygons is a natural behavior of the design and simulation process," says research associate Oliver David Krieg. Sofistik was used to conduct the structural analysis.

The computational design and robotic fabrication workflow was developed over nine months. Each of the 243 interior panels required about one minute of programming and 20 minutes of fabrication time. Prefabrication and construction of the pavilion took about eight weeks. B.B.

### Timber Shell Diagram



- |                             |                              |
|-----------------------------|------------------------------|
| 1. Three-ply larch cladding | 5. Robot assembly guide      |
| 2. EPDM                     | 6. 50mm beech plywood        |
| 3. 35mm wood-fiber board    | 7. Screw pockets             |
| 4. Vapor barrier            | 8. Crossing-screw connection |

➔ Learn more about the automated fabrication process for the timber shell of Stuttgart University's Landesgartenschau Exhibition Hall at [architectmagazine.com](http://architectmagazine.com). The Detail series of innovative material-assembly solutions is proudly supported by reThink Wood.



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# UP AND RUNNING

## INCORPORATING YOUR PRACTICE

**SO YOU'RE READY** to run your own shop. But how should you incorporate your business? There are numerous options, from partnerships to different types of corporations to nonprofit status, each of which comes with different implications regarding taxes and liability.

"They all have implications that are broader than how many partners you have or how large your firm is," says Rena Klein, FAIA, a principal of Seattle-based RM Klein Consulting who authored *The Architect's Guide to Small Firm Management* and was executive editor of *The Architect's Handbook of Professional Practice* (15th edition). She recommends hiring an attorney to help navigate the decision.

In addition, regardless of which business type you choose, having insurance is vital. "A lot of architects don't want to pay for it or can't afford the policy, because it's expensive," says Mark LePage, AIA, a partner at Fivecat Studio Architecture in Chappaqua, N.Y., and founder of the blog Entrepreneur Architect. **"But the liability [that] architects have just by practicing is pretty big. To go without is pretty risky."** NATE BERG



### GENERAL PARTNERSHIPS

A 2012 AIA survey found that 81 percent of architectural firms have fewer than five members. The simplest option for two or more architects practicing together, and the default mode if no formal legal steps have been taken, is a general partnership. Each partner is liable for the other partner's action, and their combined liability may extend to all partners' personal assets. General partnerships don't pay federal taxes; each partner reports his or her share of income and expenses on their individual returns.



### CORPORATIONS

Closely held subchapter S Corporations, or S Corps, make up about 28 percent of all firms, according to the AIA. For small firms, it's a logical choice, says LePage: "That's because of the tax benefit." Leaders pass revenue through their personal income statements, but, unlike a general partnership, S Corps can have shareholders, usually employees or others actively engaged in the practice. For firms large enough that their stock can be publicly traded on an exchange, the next step is to become a subchapter C Corporation, or C Corp.



### LLPS AND LLCs

Limited liability partnerships (LLPs) and limited liability corporations (LLCs) offer liability protections that general partnerships don't. The personal assets of the partners (in the case of the LLP) or firm members (in the case of the LLC) are protected against liability for business claims, except in the case of fraud or other extreme wrongdoing. LLCs have become an increasingly widespread choice for firms during the past two decades.



### NONPROFIT AND B CORP

Another option is to register your firm as a nonprofit or a benefit corporation (B Corp). "Being a strict nonprofit is really restrictive in terms of how you deal with your income, but it does allow you to fundraise in a different way," Klein says. "With a B Corp you have a little more flexibility. You can distribute profit to a certain extent, but you also have an obligation for benefit. It creates an opportunity to identify a problem and solve it to benefit the greater good as well as the people trying to make it happen. It's a really good thing."

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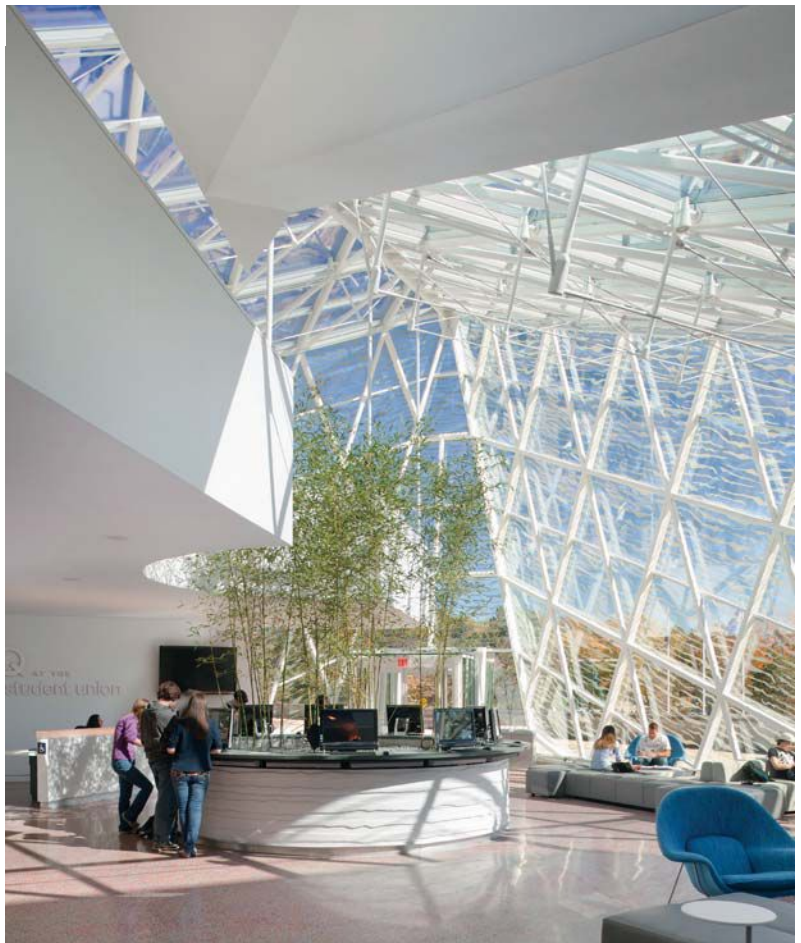
**Founded:** 2003

**Awards:** Ranked fourth in design in the 2013 ARCHITECT 50; seventh overall in the 2011 ARCHITECT 50; AIA state and local honors.

**On The Boards:** Medgar Evers College Library at City University of New York, Brooklyn, N.Y.; Training Recreation Education Center, Newark, N.J.

**Notable Work:** McGee Art Pavilion, School of Art and Design at New York State College of Ceramics, Alfred, N.Y. (top, completed in 2012); Campus Commons at the State University of New York, New Paltz, N.Y. (right, completed in 2010); E. J. Ourso College of Business at Louisiana State University, Baton Rouge, La. (below, completed in 2012).

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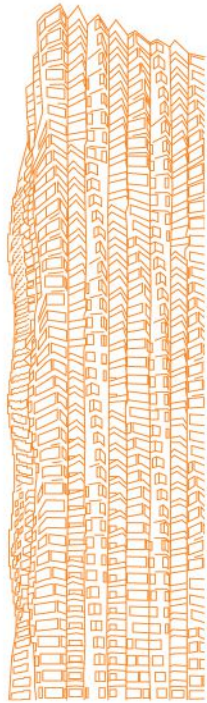
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### AQUA WEST

Studio Gang Architects is taking its talents out West. The Chicago-based firm, led by Jeanne Gang, FAIA, released two renderings of a proposed 400-foot residential tower on San Francisco's Folsom Street. The 390 condominium units will include 139 for low-income tenants. The 40-story tower will be skinned in masonry tiles that frame bay windows rotating in 11-floor increments, and will share a city block with a separate structure that houses the city-mandated affordable housing portion. The proposed design still faces uphill zoning approvals, since the current building limit in the area is 300 feet, but members of the overseeing committee are continuing investigation into both the 400-foot version and a 300-foot alternate version.



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#### METAL ROOFS FOR SOLAR

The basics of metal roofing and photovoltaics. From the Metal Construction Association. [bit.ly/1rAOefb](http://bit.ly/1rAOefb) (1 AIA/HSW, 1 GBCI CE)

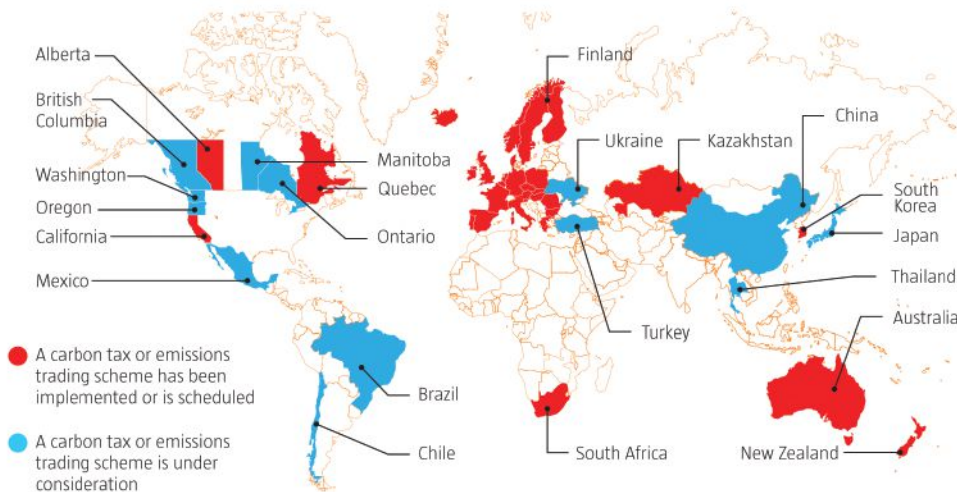
#### UNIVERSAL DESIGN IN THE KITCHEN

Universal design is growing and how it can inform kitchen design. From Electrolux. [bit.ly/1rAOefb](http://bit.ly/1rAOefb) (1 AIA/HSW)

### ADP NATIONAL JOB GROWTH IN THOUSANDS



### Who is fighting climate change?



### June Jobs Report

New construction jobs reported by the U.S. Department of Labor's Bureau of Labor Statistics



## STEP UP

### Martino Stierli

The Philip Johnson chief curator of architecture and design Museum of Modern Art (MoMA)

On July 15, MoMA selected the University of Zurich professor as its next Philip Johnson chief curator of architecture and design. Stierli was a fellow with the Getty Research Institute; has written about various topics relating to architecture, art, and history; and has been awarded a number of prizes for his work. He will take over in March 2015, succeeding Barry Bergdoll, who held the position from 2007 to 2013.

### Mark Jarzombek

Interim dean  
MIT's School of Architecture + Planning (SA+P)

Jarzombek, the school's associate dean since 2007, will serve as the school's interim dean while a committee continues to search for a permanent replacement for Adèle Naudé Santos, FAIA, who announced in January that she had decided to step down as dean and return to the faculty. Jarzombek took over on July 1.

### J. Meejin Yoon, AIA

Head of the Department of Architecture  
MIT

The first woman appointed to the post, Yoon has been a faculty member in the School of Architecture + Planning since 2001, and she is also a co-founder of Höweler + Yoon Architecture and MY Studio. Her tenure as dean began on July 1 and she succeeds Nader Tehrani, who served as department head from 2010 to 2014.

### Julián Castro

Secretary  
U.S. Department of Housing and Urban Development (HUD)

On July 9, Castro was confirmed as HUD's 16th secretary. The now-former mayor of San Antonio replaces Shaun Donovan, who will be the new director of the White House Office of Management and Budget.

### Jane Duncan

President  
Royal Institute of British Architects (RIBA)

Duncan has been elected the next president of RIBA, winning 52 percent of the vote. She will become the organization's 75th president and the third female president. Duncan will succeed Stephen Hodder, Hon. AIA, as president for a two-year term starting on Sept. 1, 2015.

### Nicholas Garrison, AIA

Partner  
FXFowle Architects

### John Long, AIA

Principal  
Perkins+Will



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## AIA VOICES

CATALYZING FORCE | A RESILIENT APPROACH TO THE COAST

*Georgen Theodore, AIA, is a principal at Interboro Partners in New York City, along with Tobias Armbrorst and Daniel D'Oca. Interboro led one of six teams to receive funding through Rebuild by Design, a competition to bolster areas affected by Hurricane Sandy. The Interboro team's project, Living with the Bay, imagines solutions for the southern shore of Long Island that can be replicated in other coastal areas. "Catalytic design that jump-starts change is a complicated process," Theodore says, "but it makes for a more robust solution."*

**SOMETIMES IT'S HARD NOT TO GET TIRED OF THE OVERUSE OF THE** word "resilience." But while it has become a bit of a cliché, it does reflect a positive change in our attitudes towards flood protection, which is no longer seen as a purely technical problem but as a more complex set of ecological, economic, and social questions. Why are some places better able to bounce back after catastrophic events? It's difficult to find answers to questions like this, but they are crucial in planning for future sea-level rise and make multidisciplinary collaboration involving architects, planners, scientists, and the humanities more important than ever.

For Living with the Bay, we assembled a half-Dutch, half-American multidisciplinary team of designers, engineers, financing strategists, and educators. Our approach combined large-scale

systems analysis and close on-the-ground engagement with local conditions.

One component of Living with the Bay that addresses the north-south Mill River tributary in Nassau County—which we call "slow streams"—is about managing stormwater. The communities and ecosystems of the bays and rivers are extremely vulnerable, and this vulnerability is tied to the way stormwater is managed. Stormwater is piped from the streets directly to the rivers, so when the rivers rise during a storm, the pipes get backed up and then flood the streets and homes around the storm drains. Also, whatever pollution and garbage that the stormwater carries ends up in the bays. So stormwater mismanagement contributes to both flooding and major environmental degradation.

Our proposal centers on flood mitigation, sure, but it's also about improving the ecology of the river and the accessibility of public space along the river's banks. The design will protect during the emergency, but also it will enhance the everyday quality of life.

Living with the Bay is more than a design proposal—part of the design challenge has been to organize an unfolding process of interdisciplinary collaboration. We had to identify each other's expertise and learn how to combine talents to tackle this complex challenge. —As told to William Richards **AIA**

**Bernard Jester, Assoc. AIA**  
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# AIANOW

By William Richards  
Art Direction by Jelena Schulz

**1 Bridging the Gap.** The AIA's Regional/Urban Design Assistance Team (RUDAT) helps communities thrive in the face of economic downturns, unfocused suburban growth, environmental concerns, gridlock, and other snarls. The team is in Corpus Christi, Texas, (Aug. 14–18) this time to assess the iconic Harbor Bridge's realignment, which will improve traffic interchanges in the area and also offer new opportunities to create public space, waterfront access, and programming.

➔ Learn more about past AIA RUDATs at [aia.org/liv\\_rudat](http://aia.org/liv_rudat).

**2 Space Is the Place.** Title-creep aside, the report titled "Architecture for Sustained Climate Monitoring from Space," issued by the Global Climate Observing System and the World Meteorological Organization, really is about architecture—in that systematic, collaborative design sort of way. It's the 30,000-foot view (literally) of community resilience that outlines the predictive power of observation, which informs how communities can prepare for the worst while not compromising what makes them livable. The report and other topics will be the subject of the 2014 Climate Symposium in Darmstadt, Germany (Oct. 13–17).

➔ Learn more at [theclimatesymposium2014.com](http://theclimatesymposium2014.com).

**3 Peak Resilience.** Two summits at the 2014 Greenbuild International Conference and Expo in New Orleans (Oct. 22–24) will bring issues centered on community resilience and public health into sharper focus: Affordable Homes and Sustainable Communities, and Materials and Human Health. Their joint goal? Expediting economic, social, and ecological health in design and in the products that we all use.

➔ Learn more at [greenbuildexpo.com](http://greenbuildexpo.com).

**4 Protecting the Polity.** The third annual UNITAR–Yale Conference on Environmental Governance and Democracy, at Yale University (Sept. 5–7), centers on human rights and ecology, and draws together policy and science experts for what organizers are calling "the future climate change regime." Sponsored by the United Nations Institute for Training and Research, the event's proceedings will contribute to the forthcoming report of the U.N. Independent Expert on human rights and the environment, available in 2015.

➔ Learn more at [unitar.org](http://unitar.org).

**5 WHO Says?** The World Health Organization (WHO), which directs and coordinates health issues within the United Nations, has long advocated for community resilience as a platform to improve public health. To that end, its Conference on Health and Climate (Aug. 27–29) in Geneva will focus on combating climate change by identifying health benefits associated with reducing greenhouse gas emissions.

➔ Learn more at [who.int](http://who.int).

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# AIADesign

NEXT STEPS & NEW MODELS | DESIGN/BUILD STANDARDS AT A CROSSROADS

**PUBLISHED BY THE AIA SINCE 1920,** *The Architect's Handbook of Professional Practice* is considered the definitive source for practice information. However, the 1,000-page tome has generally not been seen as incredibly timely, nor relevant, for both small and large firms alike. All that changes with the *Handbook's* 15th edition, published this year.

Two-thirds of the 15th edition's content is completely new, reflecting the current state of practice and looking ahead to emerging trends. Over 90 percent of the 15th edition's authors are new contributors—all of them experts in their topic areas. Many of these authors are seasoned practitioners, sharing insight sourced from personal practice experience. Overall, they represent a diverse group that is reflective of the profession as a whole.

## More Content for Smaller Firms

All authors in the 15th edition were encouraged to help readers apply general information and recommendations to the context of smaller-sized practices. To supplement information that might apply only to larger firms, authors from small and midsized firms were asked to write about their experiences. As a result, many articles include addenda, called "Backgrounders," which often contain targeted knowledge and best practices directly applicable to architects who practice in small and midsized firms.

For instance, are you wondering whether to transition your firm to using BIM technology? You can find the answers you need in the *Handbook*. The article "Small Firms, Small Projects and Building Information Modeling" provides insight into the pros and cons, transition process, and impact on workflow implicit in using BIM technology.

Interested in knowing how architect-led design/build might apply to your practice? Read "Architect-Led Design-Build and Architect as Construction Manager for Small Projects and Small Firms." It explains how alternative ways to



deliver projects can expand your service model and help you make more money.

You might think that only large firms can have multiple offices. Not true. "Developing and Managing a Mid-sized Multi-office Firm" describes a 40- to 50-person firm with offices in Vancouver, B.C., and Seattle, adding an international component to the challenges and opportunities of a multi-office firm. Providing a case study of their experience, the firm's leaders discuss lessons learned in managing multiple offices.

Other emerging ways to practice in smaller firms are also highlighted. "Research and Small Firm Practice" discusses how design exploration and knowledge creation can invigorate and enhance the capabilities of small firms as well as how research might be funded in a small-firm context. "Small-Firm Collaboration" explores ways that small firms acquire and deliver work, describing best practices and collaborative structures, while highlighting case studies.

For the first time the *Handbook* devotes an entire chapter to technology management and introduces a number of other new chapters: "Diversity and Demographics," "Career Development," "Public Interest Design," and "Research in Practice."

Twenty-first century business realities require entrepreneurial architects to develop skill in business management. The sections on organizational development, marketing, finance, and human resources contain articles that demystify concepts and introduce firm leaders to best practices in each management arena. Articles on topics such as ownership transition, leadership effectiveness, and the legal context of practice provide information and knowledge vital to firms of all sizes.

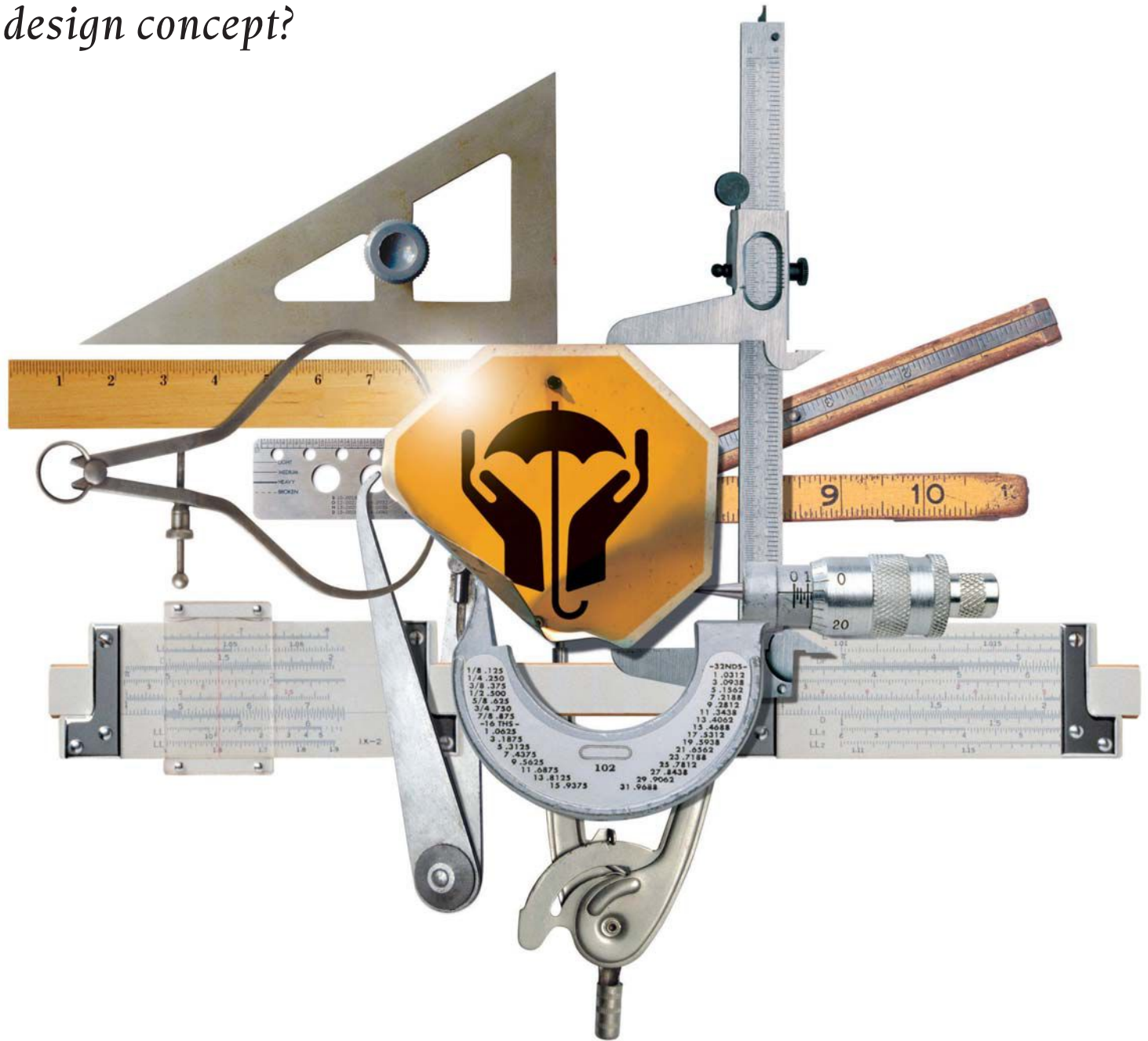
—Rena M. Klein, FAIA **AIA**

➔ Learn more about *The Architect's Handbook of Professional Practice*, 15th ed., at [aia.org/practicing](http://aia.org/practicing).



# The Coming Storm

*Has resilience eclipsed sustainability as a core design concept?*



**FRIEDRICH NIETZSCHE'S LINE FROM TWILIGHT OF THE IDOLS**, "What does, not kill me makes me stronger," is about individual fortitude. But the notion feels just as acute for larger swaths of the global population these days as weather events grow in severity. Disaster mitigation requires a grasp of complex systems and a willingness to jettison assumptions that, say, floodwaters should always be kept at bay rather than accepted as part of an ecosystem's wont. "Nature does not respect political boundaries," says Lance Jay Brown, FAIA, president of AIA New York and co-chair of its Design for Risk and Reconstruction Committee (DfRR). Architects like Brown

working in the area of disaster mitigation have begun to focus less on sustaining a way of life, regardless of nature, and more on what it means to live in a resilient community.

#### **Worst-Case and Better-Case Scenarios**

Hurricane Katrina not only altered the lines of New Orleans but revealed the city's infrastructural, political, and socioeconomic fragility. "The city's response to Katrina was a case of leadership failure up and down the line," says Kristina Ford, former director of city planning for New Orleans. "It should have not been rebuilt with



any expectation of re-creating the city that had bankrupted itself long before Katrina.” Ford, who currently teaches in the School of International and Public Relations at Columbia University, points to Mayor Ray Nagin’s tenure and Katrina’s arrival as the perfect storm of incompetence, ill-preparedness, and an outmoded and unrealistic evacuation plan.

“The New Orleans example is only marginally understood by the rest of this country,” adds David Waggoner, FAIA, a principal at Waggoner & Ball, who led that city’s Dutch Dialogues project and Living with Water plan. “We’ve got a degree of federal support, but it wasn’t support for change. It was support to build [the city] back the way it was, which did not incentivize the smart moves that need to be made to adapt to local soil, hydrologic, and climatic conditions.”

Superstorm Sandy inspired a different set of responses in New York, whose agencies and municipal departments have pursued the change-with-nature ideal that Waggoner endorses. In 2013, New York City’s Department of City Planning produced Designing for Flood Risk guidelines, the Department of Buildings revised its building codes, and the NYC Special Initiative for Rebuilding and Resiliency issued the report “A Stronger, More Resilient New York.” Mirroring those efforts, the AIA Regional Recovery Working Group held a series of workshops in 2013 and 2014 to address coastal resilience, Brown’s DfRR co-sponsored a series of risk seminars in the same period, and in June the multiagency Rebuild By Design competition awarded more than \$1 billion in HUD grants to interdisciplinary design teams to pursue resilient strategies, rather than merely recovery tactics, throughout the region.

Resilience specialists recognize that so-called “100-year storms” now occur more frequently, and that the difference between temporary challenges and systemic collapse depends on detailed impact analysis. There have always been floods, tornadoes, earthquakes, and fires; but events associated with climate change, now amplified in frequency and severity, call for a distinction between resilience in the simpler engineering sense—a material’s ability to reassume its original state after a stress—and a new definition that involves interdependent systems of infrastructure, resources, transportation, security, and culture.

### Design Storms and Solutions

The Dutch polder system combines land reclamation policies, as well as economic agreements between cities and landowners, to be an effective tool for land management. For Waggoner and others who look to the Dutch for guidance, resilience has to address the severity of weather events and the overall impact of infrastructure and buildings past, present, and future.

In South Florida, Waggoner observes, where elevations are low and geological strata include porous limestone, storms involving surge are what he calls “design storms,” noting the futility of building flood defenses where water can rush beneath the foundational level. “Your design storm,” he says, “depends upon the storm itself and on the way the storm is juxtaposed against the land and against the flood systems.”

New York City and Hoboken, N.J., on the other hand, require a different response based on two conditions: Manhattan schist on the east side of the Hudson River and softer soils conducive to structural sinking on the west side. Some New Yorkers have argued that Hurricane Irene in 2011 enlightened citizens and officials about the urgency of storm preparation, enabling them to mitigate some

of Sandy’s more extensive destruction. Resilience, in this view, is defined by a stressor/adaptation cycle. Each disaster proffers lessons, even if the next disaster is different in severity and scope, and lessons lead to strategies that can continue to adjust accordingly. “Given the time required to retrofit our infrastructure, as compared to the increasing frequency of chronic and acute events, communities must undertake both the long process of analyzing these stressors on responsive systems while making short-term accommodations to address immediate needs,” says Janice Barnes, who chairs the Resiliency Task Force at Perkins+Will. “It’s about building muscle memory, in a sense. Communities must be ready to both react to the next hurricane season while simultaneously making long-term capital improvements in their critical facilities.”

Kristina Ford, however, offers a note of caution about the stress-adaptation model. “I don’t think there is such a thing as a wakeup call—except for its literal meaning in hotels,” she says. “In New Orleans, with each passing year in which there isn’t another devastating hurricane, people go back to thinking, ‘Well, it really was a 100-year occurrence so we must now have 94 or so years left before there will be another one.’” That isn’t how probability works, but it’s a common inference from the term “100-year storm,” one that she considers misleading—along with terms like “sustainability” and “resilience” themselves.

“‘Resilience’ has stolen a march on ‘sustainability,’ and before sustainability it was ‘smart growth,’ and before that it was something else,” she says. “Those phrases stop conversation right at the point at which conversation should begin, by establishing what each person thinks the phrase means. My ‘sustainability,’ for example, is undoubtedly different from yours.”

In place of conversation killers, she favors concepts that communicate specific ideas, such as the four land categories outlined by the Urban Land Institute in 2013 as part of a report titled “After Sandy”: coastal transition zones, coastal impact zones, coastal transformation zones, and smart growth receiving zones. In that order, each zone indicates increasing levels of safe habitability. “There was a way to capture redevelopment ideas and figure out which ideas go into which kind of zone, so that we don’t lose them in an effort to come up with an all-encompassing strategy for what we should do in the future,” Ford says.

Another strategy outlined by the Congress of New Urbanism is the so-called transect system, says Douglas Farr, FAIA, principal at Chicago’s Farr Associates. “It’s about applying the right tool in the right place, and the first step is to calibrate your transect,” he says, “which means not just downloading the default approach and assuming that it somehow applies. You need to walk the city.”

“In a downtown, when you have zero-lot-line buildings,” adds Farr, “please don’t require a detention pond. And while solar power is appropriate everywhere, wind turbines should be used chiefly for rural locales, where they are incredibly efficient, rather than trying to strap incredibly itty-bitty, token-contributing wind turbines to the top of the Willis Tower.”

Coming up with a universal definition of recovery is “a copy-and-paste reconstruction approach,” says Henk Ovink, senior adviser to former HUD Secretary Shaun Donovan’s Hurricane Sandy Rebuilding Task Force and the Netherlands’ former director general for spatial planning and water affairs. “The problem with rebuilding,” Ovink told an AIA New York audience in March, “is that you need time to think.” —Bill Millard **AIA**

# AIAPERPECTIVE

THE LONG HAUL | SHAPING A RESILIENT FUTURE



PHOTO: WILLIAM STEWART

**OUR MEDIA-SATURATED SOCIETY GENERATES AND CONSUMES NEWS** in ways that are often more reflexive than thoughtful. Whatever the topic, there is something of a herd mentality that overnight generates a heated, all-consuming buzz. Not surprisingly, this promotes a certain cynicism that questions the true importance of a story beyond the need to grab headlines. Lately, I've been sensing a similar questioning when it comes to the matter of resiliency.

Yes, the word is much in evidence throughout the AIA. But is resiliency, as some have claimed, the profession's equivalent of the newest fad? I would argue the contrary, based on two facts: the accelerating incidence of major natural disasters, not just in this country but globally; and the AIA's long track record in responding to such events and increasingly making a long-term commitment to showing a way forward.

And the way forward is, in part, the task of the AIA Foundation (AIAF). July's issue of *ARCHITECT* featured an interview with AIAF's new executive director, Sherry-Lea Bloodworth Botop. Readers learned that, as the former director of strategic development at Architecture for Humanity, Bloodworth Botop brings the AAF invaluable firsthand experience in the critical area of disaster response and recovery. In the wake of Hurricane Katrina, she saw an opportunity for those displaced not simply to rebuild what was wiped away but rather to build better—in other words, to enlist architects to build communities that would be more resistant to natural disasters.

Although there are those who still question the causes of these disasters, who can dispute that more of us are in harm's way? Accepting the role of architects in meeting the challenge this poses—often to those who are least able to recover—has been an AIA priority ever since Katrina and, indeed, long before, as evidenced by the exemplary track record of the AIA's Disaster Assistance Teams.

What's different today, and what goes beyond the architectural equivalent of triage, is a growing awareness within and outside the profession that the task of preventing these disasters—or at least lessening their harm—is a role for design. This recognition has prompted the partnering with like-minded organizations such as Architecture for Humanity, the St. Bernard Project, the Clinton Global Initiative, and the Rockefeller Foundation's 100 Resilient Cities.

Collaboration is not, however, a synonym for lip service or splashy photo ops. This, I believe, is a possible concern of those who question the profession's commitment to action that truly makes a difference. The relationship with the Rockefeller Foundation is a case in point. The AIA's contribution to the Rockefeller initiative is to leverage the extraordinary advantage AIA components provide to focus efforts of local, state, and federal officials as well as NGOs, universities, community groups, and architects at five Regional Design Studios around the country: New England, Middle Atlantic, Gulf Coast, Midwest, and West. Thanks to anchor sponsor Benjamin Moore, they will be real bricks-and-mortar operations with a three-part mission: education and professional development, engagement and outreach, and design and construction services. All are needed to implement real-world resilience solutions.

Together with our partners, we're in this for the long haul. The AIAF is providing a place where local, regional, and national programs can plug in quickly both before and after disaster while performing demonstration projects and disseminating information and best practices. The day-to-day work may not always grab headlines. But it will make a positive difference—through design!—in people's lives. **AIA**

*Helene Combs Dreiling, FAIA*  
2014 President





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# CENTER

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T38 Studio's Hacienda Don Juan 58 in Tijuana, Mexico, which overlooks another of the firm's projects on the same site: Hacienda Don Juan 86.

## BOOKS

# ENGINEERING A GENERATION

IAN RITCHIE'S NEW MEMOIR NOT ONLY RECALLS HIS CAREER AS THE "GLASS MAN," BUT IT ALSO DOCUMENTS THE RISE OF A MUCH CELEBRATED AND TECHNOLOGICALLY SAVVY GROUP OF BRITISH ARCHITECTS.



Ritchie's Messe-Leipzig  
Glass Hall in Germany

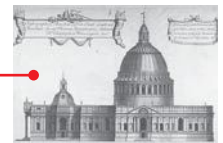
Text by **Witold Rybczynski, Hon. FAIA**

A **THREE-PART BBC** television series, *The Brits Who Built the Modern World*, that aired earlier this year, examines the legacy of Norman Foster, Hon. FAIA, Richard Rogers, Hon. FAIA, Michael Hopkins, Hon. FAIA, Nicholas Grimshaw, and Terry Farrell. The title doesn't feel like hyperbole. This generation of architects—all born in the 1930s—has made British architecture an ascendant force in its design, innovation, and global reach.

How did such an accomplished group of architects surface at the same time in the same place? A partial answer can be found in a new book by a British architect of a succeeding generation, Ian Ritchie, Hon. FAIA. *Being: an Architect* (Royal Academy Publishers, September) is a two-volume memoir of an

architect learning his craft, creating a practice, and discovering himself in the process. The book describes Ritchie's work, built and unbuilt, and compiles a collection of previously published writings, personal essays, poems, and aphorisms. My favorite Ritchieism is "Glass is the answer but what was the question?"

Ritchie is less well-known in the United States than in Europe, where he is sometimes called the "Glass Man." In the 1980s, with engineer Peter Rice and industrial designer Martin Francis, he founded Rice Francis Ritchie, a design engineering firm that was involved in a number of former French president François Mitterand's *grands projets*, notably I. M. Pei's glass pyramid at the Louvre in Paris, the glazed roofs over Pei's three sculpture court at the Louvre, and the façade of French architect Adrien Fainsilber's La Cité des Sciences et



**1675**  
Construction begins on Christopher Wren's St Paul's Cathedral in London



**1851**  
The Great Exhibition held at the Crystal Palace in London

**1788** John Soane named architect to the Bank of England

**1912**  
Edwin Lutyens completes The Salutation in Sandwich, England



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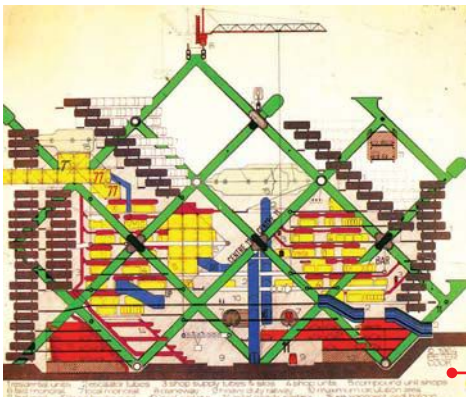
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1928

Pierre Chareau begins construction on La Maison de Verre in Paris



1961

Peter Cook, David Greene, and Michael Webb form Archigram

de l'Industrie at La Villette. His current firm, London-based Ian Ritchie Architects, continues to explore the art of construction in diverse projects: an immense glass-roofed exhibition hall in Leipzig, Germany, that rivals the former Crystal Palace in size; the Spire of Dublin, a monumental stainless-steel spike that soars 400 feet in the air; an urban design project in west London; and a projected pedestrian bridge in Stratford, light as a feather.

Ritchie came of age, professionally speaking, just as British architecture was emerging from the doldrums. The high point of the immediate postwar period had been the South Bank Exhibition of the Festival of Britain in 1951, whose style the critic Reyner Banham once described as "flimsy and effeminate." The 1960s were not much better. British architecture bulked up as modernists copied Le Corbusier's *béton brut*, but without the master's brio. The results were ungainly concrete hulks and Ville Radieuse-style housing projects, such as Thamesmead South in London, whose dystopian bleakness



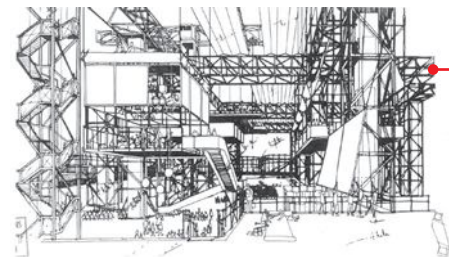
1945-66

Cases Study Houses built (Eames House pictured)



1951

Festival of Britain held at Southbank Centre site in London (Dome of Discovery pictured)



1961-64

Cedric Price designs Fun Palace



1971

Richard Rogers, Renzo Piano, and Ove Arup win the Centre Pompidou commission; Foster wins the Willis Faber & Dumas commission



1914

Bruno Taut builds Glass Pavilion in Germany

1932

Richard Neutra completes VDL Research House I in Los Angeles

1935

Le Corbusier publishes *La Ville Radieuse*; Erich Mendelsohn and Serge Chermayeff build De La Warr Pavilion in Bexhill-on-Sea, England

1946

Ove Arup establishes his engineering business in London

1956

Peter Rice and Edmund Happold join Arup's firm

1961

I. M. Pei completes Government Center master plan for Boston

1962

Anthony Hunt forms his firm in London

1963

Charles Moore designs Sea Ranch; Arup Associates formed with Philip Dowson, becomes Ove Arup & Partners in 1970; English firm Team 4 established by Su Brumwell, Wendy Cheesman, Norman Foster, and Richard Rogers; Paul Rudolph's Yale Art & Architecture Building completed

1965

Nicholas Grimshaw and Terry Farrell form their partnership

1966

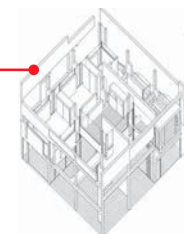
Louis Kahn appointed the architect of the Kimbell Art Museum in Fort Worth, Texas

1967

The firm Team 4 dissolves

1968

First residents move into Thamesmead South



1969

Peter Eisenman builds House II in Hardwick, Vt.



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## CENTER



**1974**  
Foster wins commission for Sainsbury Centre for Visual Arts in Norwich, England

**1979**  
Foster wins commission for Hongkong and Shanghai Bank Headquarters in Hong Kong

**1980**  
Nicholas Grimshaw and Partners is formed

**1983**  
Kenneth Frampton publishes *Towards a Critical Regionalism*



**1986**  
Adrien Fainsilber and Peter Rice's Cité des Sciences et de l'Industrie completed in Paris

made the perfect setting for droog violence in Stanley Kubrick's film adaptation of *A Clockwork Orange*. To an outsider, it appeared that the Brits lacked some essential creative DNA. James Stirling aside—and his eccentric buildings had serious functional shortcomings—there was little to celebrate. The country that had produced Christopher Wren, John Soane, and Edwin Lutyens seemed to have lost its way.

That changed in the 1970s. Foster burst on the scene with two back-to-back masterpieces, the Willis Faber & Dumas Headquarters in Ipswich, and the Sainsbury Centre for Visual Arts in Norwich, and Rogers and Renzo Piano, Hon. FAIA, set the world on its ear with the Centre Georges Pompidou in Paris. In the following decade, Foster topped his earlier successes with the stunning Hongkong and Shanghai Bank Headquarters in Hong Kong, which was equalled by Rogers's Lloyd's building in London. Along the way, London became an architectural petri dish, spawning one creative talent after another.



**1972**  
Robert Venturi, Denise Scott Brown, and Steven Izenour publish *Learning from Las Vegas*

**1976**  
Edmund Hoppold leaves Arup and starts Buro Hoppold

**1977**  
Charles Jencks publishes *The Language of Post-Modern Architecture*



**1986**  
Richard Rogers completes his Lloyd's of London building



**1989**  
Louvre Pyramid finished

**1991**  
Ian Ritchie's Ecology Gallery Natural History Museum opens

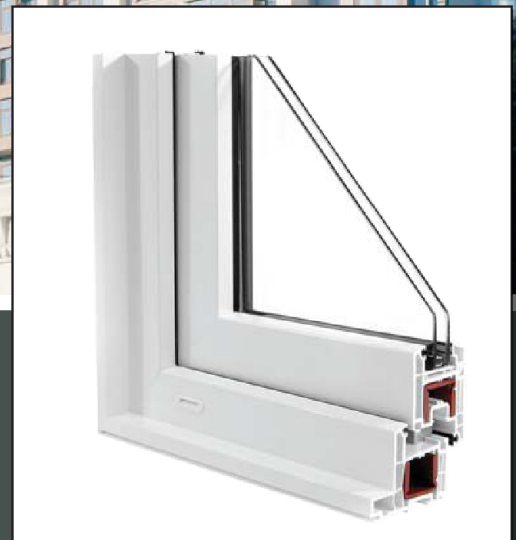
**1992**  
Ritchie begins work on the Messe-Leipzig Glass Hall



**2003**  
Ritchie's Spire of Dublin in Ireland completed



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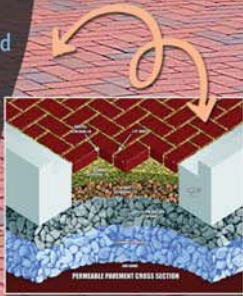
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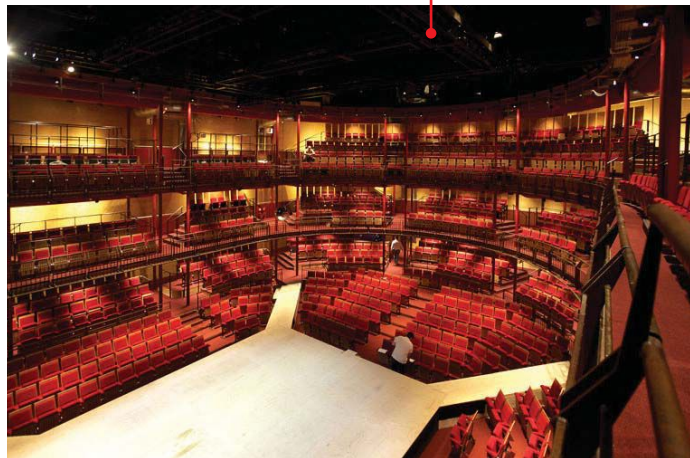
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## CENTER

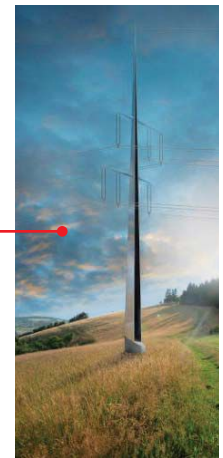


2005

Ritchie begins work on the Royal Shakespeare Company's Courtyard Theatre

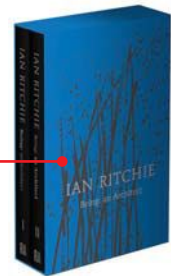
The professional connections resemble a Venn diagram: Rogers and Foster started out as partners in the 1960s; so did Farrell and Grimshaw. Foster and Hopkins were partners in the 1970s. Jan Kaplický and David Chipperfield, Hon. FAIA, both worked for Foster as well as for Rogers; Richard Horden worked for Grimshaw and Foster; and Ritchie worked on both the Willis Faber project and the Sainsbury Centre.

Architectural critics and the media lump these architects together under the rubric "high tech." Although it's always hazardous to pigeon-hole creative people, there are some clear commonalities. Their buildings tend to be lightweight and to favor steel and glass; they push structural limits; and they use advanced industrial materials and building techniques. In the 1980s, these qualities set the high-tech architects apart from their contemporaries elsewhere. At a time when Americans were caught up in the arcane issues raised by Postmodernism, critical regionalism, and semiotics, the Brits were more interested in



2011

Ritchie's Silhouette design shortlisted in the Royal Institute of British Architects' Pylon Design Competition



2014

Ritchie publishes *Being: an Architect*

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FOSTER ET AL. WERE INTERESTED IN ACTUAL BUILDING PERFORMANCE: STRUCTURE, CONSTRUCTION, ENERGY, ADAPTABILITY. THIS REQUIRED ENGINEERING KNOW-HOW. IT TURNED OUT THAT AT THE SAME TIME AS ARCHITECTS WERE INTERESTED IN ENGINEERING, THERE WAS A CADRE OF ENGINEERS WHO WERE INTERESTED IN ARCHITECTURE.

answering the question, “How do you build the bloody thing?”

The curious thing about the British techies is that they were influenced by America. Not by the postmodern America of Robert Venturi, FAIA, Charles Moore, and Peter Eisenman, FAIA, but by an earlier era—specifically, by the seminal work of Charles and Ray Eames in Southern California in the 1940s and '50s (to this day, Rogers and Foster regularly use Eames chairs in their projects). It was Richard Neutra who introduced skinny steel-and-glass Modernism to California. Lightweight Modernism, as it might be called, had been pioneered by architects Bruno Taut, Pierre Chareau, and Erich Mendelsohn (Neutra's one-time employer). Despite the fame of Los Angeles's iconic Eames House and the Case Study Houses of Craig Ellwood and Pierre Koenig, California Modernism never took hold in the United States. It was overshadowed by the heroic—and concrete—Modernism of East Coast architects such as Louis Kahn, Paul Rudolph, and I. M. Pei, FAIA. Heavy trumped light.

The unexpected re-emergence of Lightweight Modernism in Britain was due to several factors. One was the reaction against Brutalism. Another was the spadework done by Archigram, a group of architects whose brash futurism, irreverent gadgetry, and stylish youthful glamor were part of Swinging London. Archigram built almost nothing, but its theoretical projects, which were a combination of American aerospace technology and sci-fi imagery, were undeniably influential. Another intellectual presence was Cedric Price, whose unbuilt Fun Palace project is said to have been a model for the Centre Pompidou.

Although Archigram was mainly about image, Foster et al. were interested in actual building performance: structure, construction, energy, adaptability. This required engineering know-how. It turned out that at the same time as architects were interested in engineering, there was a cadre of creative engineers who were interested in architecture. Britain has a strong engineering tradition—think Joseph Paxton and Isambard Kingdom Brunel. But the two professions are not natural allies; they have different histories, different educations, and different working methods. The two came together thanks to several exceptional postwar British engineers, notably Frank Newby and Ove Arup. Between them, they trained a generation in the field, including Anthony Hunt, Peter Rice, and Ted Happold—engineers who were ready to work with architects, not as consultants, but as active collaborators.

Arup, whose influence on British architecture cannot be overstated, preached—and practiced—teamwork. His firm included

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THE AIM OF THE TEAMWORK WENT BEYOND MERE COLLABORATION AND INSTEAD FOCUSED ON INNOVATION AND, OCCASIONALLY, EVEN EXPERIMENTATION. IAN RITCHIE ONCE DESCRIBED THIS PROCESS AS "A MIXING OF CULTURES TO CREATE THE SOUP OF INVENTIVE CREATIVITY."

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architects as well as mechanical and structural engineers. If there is a single secret to the success of this generation of British architects, I think it lies here. Of course, all large building projects required teamwork, but this was different. The architect took on the responsibility—and sometimes the liability—of coordinating and leading. The team involved many disciplines from the very beginning of the design process, and often included builders, fabricators, and manufacturers. The aim of this teamwork went beyond mere collaboration and instead focused on innovation and, occasionally, even experimentation.

Ritchie, who worked at Arup's Lightweight Structures Group, once described this process as "a mixing of cultures to create the soup of inventive creativity." *Being: an Architect* describes one of his projects that illustrates the point. In 2004, the Royal Shakespeare Company (RSC) was renovating its theater in Stratford-upon-Avon, and required a temporary home for three years. A 600-seat building was estimated to cost £16 million. Ritchie, a governor of the RSC who has designed several theaters, believed that it was possible to build a temporary 1,000-seat theater for £5 to £6 million. Moreover, he claimed that it could be done—design, approvals, and construction—in 18 months.

He accomplished this by streamlining the process: Design time was reduced to six weeks, the Dutch contractor was brought in before planning approvals were complete, and the design of the structurally independent auditorium was only finalized as the exterior enclosure was being built. The enclosure is a soundproof box whose self-supporting skin is constructed out of interlocking, folded Cor-Ten A steel panels, using a technique that somewhat resembles steel-sheet piling. Not only does the oxidizing steel require no external finish, but its warm red color blends well with the mainly brick historic neighborhood, and the material is recyclable when the building is dismantled. The roof design, proposed by the contractor, is a series of portal frames supporting similar steel panels.

The building was completed for £5.68 million and opened in time for the 2006 season. The Courtyard Theatre, as it's now known, proved to be a hit with both actors and audiences. It turned out to be pretty good architecture, too; the building won an Royal Institute of British Architects (RIBA) National Award, and was shortlisted for the RIBA Stirling Prize. Following the move to its new theater, the RSC decided not to demolish the rusty box. Ian Ritchie Architects is currently completing a conversion that will include a 300-seat studio theater, rehearsal halls, and costume and prop storage. This is one creative soup that was so good it was worth reheating.



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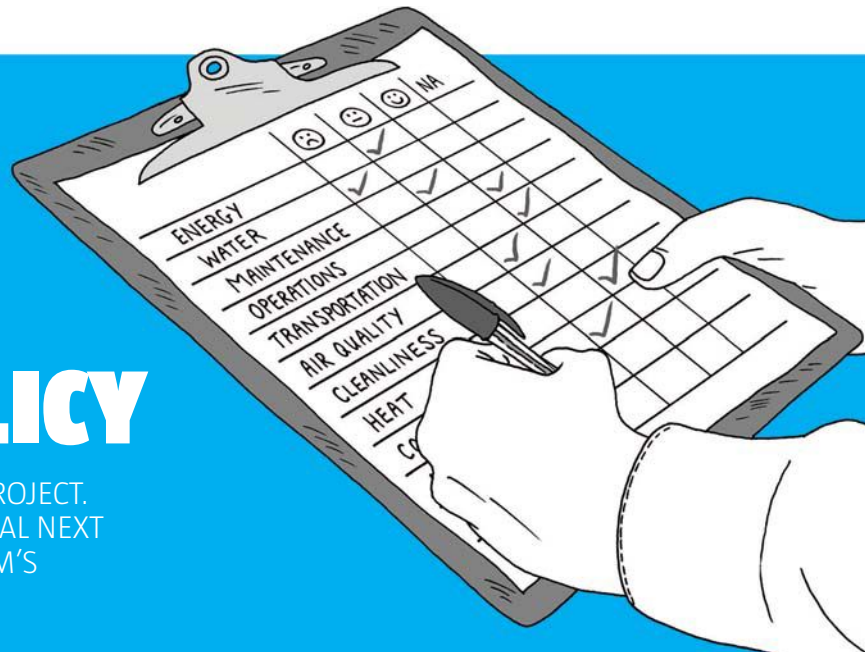
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BEST PRACTICES

# RETURN POLICY

DON'T JUST HAND OVER THE KEYS TO A PROJECT. THE POST-OCCUPANCY REVIEW IS A CRITICAL NEXT STEP THAT SHOULD BE PART OF YOUR FIRM'S OVERALL BUSINESS STRATEGY.



Text by **Elizabeth Evitts Dickinson**  
Illustrations by **Peter Arkle**

**IN AN ERA** of swiftly morphing building technology, when clients want high-performance buildings *and* spaces that foster the performance of users, the post-occupancy evaluation (POE) has re-emerged as a valuable tool. POEs allow firms to ascertain the success of design decisions. And they can also offer clients insights on how best to use their new or renovated space.

The challenges of integrating POEs into business operations, however, keep many firms from pursuing this service. It can be seen as time consuming, expensive, and difficult to defend to a client. As Janice Barnes, AIA, of Perkins+Will says: "How do you help a client realize that this is important without looking vulnerable, like you don't know what you're doing?"

Here, we've gathered tips from experts on making POEs a win for you — and your clients.

**BARNES, WHO HAS** Ph.D.s in both architecture and business, says the key to successful post-occupancy is pre-occupancy research. "In order for the [POE] data that you're collecting to give you valid results, you have to first measure the problem you're solving, then design to solve that problem, and finally see if you have solved it," she says. "It's collecting data pre- and post-occupancy. That's why [at our firm] we call it a PPOE instead of a POE." Barnes suggests a four-step approach:

1. Make sure it's a priority. "Does your firm have a mindset that this is important? Because if not, it will always be pushed to the side," she says.

2. Don't reinvent the wheel every time. Invest once in developing a consistent protocol that includes a diverse set of tools for research and evaluation, such as focus groups, interviews, surveys, and on-site visits.
3. Refine your standard protocol for specific industries. If you work in K-12, for example, consider the issues that consistently arise in that typology (educating staff about systems operations, say) and build necessary research into the process.
4. Get the protocol evaluated. Perkins+Will established its standardized PPOE and then vetted it through a research university. "What you want is something that is rigorous and replicable," she says. "From there, you can scale the service up or down depending on budget, so maybe it's two focus groups instead of 20."

Also, remember to keep your tools varied. "Go beyond a survey, which only gives you a limited snapshot," Barnes says. Perkins+Will employs numerous tactics, including something they've dubbed "the Vinny interview," where they talk to maintenance staff, doormen, etc. "These are the people who always know what's really going on in the building," Barnes says.

**HOUSTON-BASED**, healthcare expert FKP Architects offers no-charge post-occupancy evaluations as a standard service. Indeed, POEs are built into the firm's annual operating budget.

The value, says senior vice president and senior consultant Beverly Dorney, who is a registered nurse, is to assess what's working. "We start by being clear on the building's goals, and the POE tells us how the building actually



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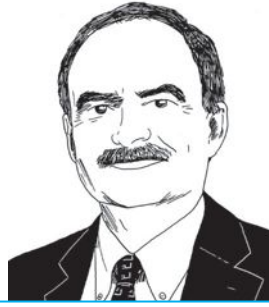
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performs compared to what we expected. This helps us support a client's operational goals."

Dorney recommends POE interviews that solicit a broad range of respondents, from nurses and families to housekeepers. She also suggests shadow interviews. "I call these a 'walk and talk,' where we follow a person for a day and capture work as it's happening. That triggers useful insights."

The evaluations can instruct better design choices, but just as often, they offer the client worthwhile data. "The POE enlightens our

clients on what they said they were going to do and what actually works," says senior principal and senior project designer Gary Owens, AIA.

Owens advises firms to put together a nonpartisan team that was not involved in the day-to-day design of the project and to inform that team's members of the building's original objective. Using a template of POE tools, conduct the evaluation 12 to 24 months out for healthcare facilities (Perkins+Will's Barnes suggests waiting at least three months in other building types, to let the users settle in), and

remember that scheduling takes time. "Patience is required to get into the facility. Clients are busy," Owens says.

**MEASURING HOW BUILDINGS** function is a given at San Francisco's EHDD: The firm focuses on high-performance design, like its net-zero Packard Foundation Headquarters in Los Altos, Calif. EHDD uses the services of the Center for the Built Environment (CBE) in Berkeley, Calif., to help with post-occupancy studies. "We give CBE the basics on the building and they do the rest," says associate and sustainability specialist Janika McFeely, Assoc. AIA.

CBE also helps put post-occupancy feedback into perspective. "They have a database of different projects and you can compare the results with similar buildings," McFeely says.

For example, low scores on acoustic values may be consistent within a certain typology or related to things like the prevalence of open-plan layouts. Or that passive energy systems may make less background noise. "We learned to use white noise machines in certain contexts," McFeely says.

POEs are particularly useful in high-tech buildings where user error can compromise daily comfort. "In one survey, there was bad thermal comfort, and the results showed that staff members didn't know to adjust the underfloor air system at their workstations," she says. "It's rarely the technology and often the operation of it."

Which is why EHDD is developing a service package to help clients use their building over the first year. McFeely suggests that the business model of architecture should adapt to accommodate this.

"The idea that a building is done when it's done is a problem throughout the industry," she says. "We're learning that we can't just turn over the building and say: 'OK you're ready to go!' We have to make sure that everyone is aware of how it operates. It's time to create enhanced commissioning services after construction and create an ongoing relationship."

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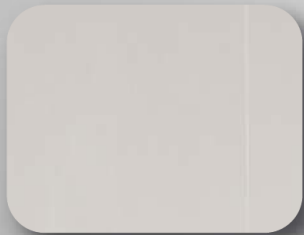
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Text by **Alex Hoyt**  
Portrait by **Daniel Shea**

**WHEN ALFONSO MEDINA**, 31, talks about T38 Studio, the architecture firm and real estate corporation he founded in 2009, he quotes Machiavelli: “I believe the greatest good to be done is that to be done to one’s own city.” It’s an unexpectedly grounded sentiment for such a nomad—Medina was born two hours east of Dallas, Texas; received his bachelor’s in architecture from the Monterrey Institute of Technology and Higher Education, in Mexico’s northeastern-most state, Neuvo León; studied abroad at the Polytechnic University of Catalonia, in Barcelona, Spain; taught as a visiting professor at the École Spéciale d’Architecture, in Paris; and lives with his wife, a jewelry designer, in New York.

Alfonso Medina, founder of T38 Studio, in his home city of New York.

But he’s always returned to Tijuana, Mexico, the embattled bordertown where he spent his youth and where he’s now helping to transform the housing stock. Below, Medina told us how he has grown his unconventional practice.

**On Tijuana:** Tijuana is the border, the land of nobody—you’re not in Mexico, not in the [United] States. Around 2006, it started getting really dangerous. People wouldn’t go to restaurants. Businesses closed. Anyone who could move to San Diego moved. When I went to get my master’s, in 2009, I wanted to see how architecture could shape people’s lives. I changed my practice to figure out how people could live a decent life in a city with no street life. Now, it’s a post-traumatic city. You can feel the creative energy in the restaurants, the art, the graphic design.

# A RENEWED SENSE OF PURPOSE IN SUSTAINABLE BUILDING

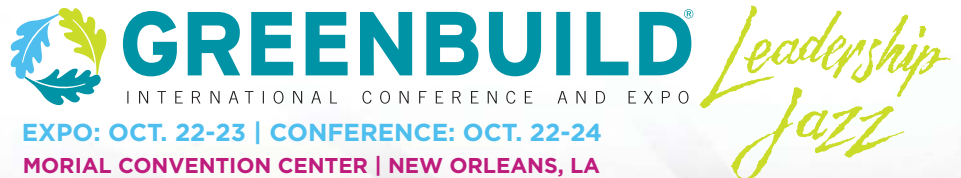


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**On T38 Studio's model:** We find sites, design, build, and sell. Our architecture side only works for our real estate side—we have no other clients. It wasn't a matter of choosing to set the business up that way, that's just how it started.

When I went to do my undergrad in Monterrey, I had the opportunity to build a couple of houses in Tijuana, so I took a year off from school and moved there. My mom owned the plot for the first house I built, so we already had a client. That's the only way I knew how to do it. As long as the house didn't fall I was happy.

Gradually, I learned how to build. I formed a team of craftsmen. After I went back to study in Monterrey, I bought another piece of land and designed two more houses. My office just kept growing in that same way. Now we have almost 80 full-time employees—carpenters, welders, masons, plumbers, electricians, engineers, and architects. I grew up on construction sites—my father was an architect and a builder, and one of his electricians still works with me. These guys are family.

We've already developed over 40 houses in Tijuana—single-family and multifamily units, townhouses. We won a competition last week to design an 86-unit apartment building. For Tijuana, these are upper-middle class houses. People in higher-income areas of Tijuana look at San Diego as the best city in the world. But it's all suburbs, McMansions, bad architecture. I'm interested in bringing good architecture to Tijuana, and it doesn't have to be designed by my team. After graduating, I invited Peter Zellner, Assoc. AIA, to design a house there. We're giving the opportunity to commission real architecture for people who don't know design, who would have bought any house. They start understanding what architecture is.

**On low-income housing:** It's a huge industry in Mexico. Many of the units are built in the middle of nowhere, hours away from city center and any job source. They're built quickly and sold quickly—people are buying houses with \$100 down payments. After six months, they find that transportation is half of their income. Hundreds of thousands throughout Mexico have been abandoned. We've been looking at models for low-income housing, and we're very interested in all housing—that's what cities are made of, that's what saves people's lives.

**On clients:** We're very close. I'm the one handing over the keys. A light switch doesn't work, they call me. Right now, we have an intern in our Tijuana office who grew up in the third house I built. His mom said he studied architecture because of the house. It's his third week at the firm. It's incredible. It's become a way of life. It's all I do.



TOP LEFT: PABLO CASALS-AGUIRRE





**Clockwise, from top left:** Aria, a multifamily housing project that T38 Studio completed in 2012 in Tijuana after having the site rezoned from single-family housing; a rendering of Arboleda, an 86-unit condo building that the studio recently won a competition to design; a sectional drawing of HDJ89, a single-family house in Tijuana; and an exterior image of HDJ89.



DETAIL

# ON CLOUD NINE

A SPRAWLING AIR-FILLED CANOPY BY VEHOVAR & JAUSLIN ARCHITEKTUR PROVIDES SHELTER AND CHARACTER TO A NEW BUS TERMINAL IN SWITZERLAND.



Text by **Jenny Jones**

Photos by **Eduard Hueber/archphoto**

**A CLOUD HANGS OVER** the heads of visitors to the bus station on the bustling Bahnhofstrasse main street in Aarau, Switzerland. But rather than signaling the onset of precipitation, this cloud is a protective, air-filled membrane—and the world's largest, single-chamber ethylene tetrafluoroethylene (ETFE) structure.

Designed by Zürich, Switzerland-based firm Vehovar & Jauslin Architektur (VJA), the translucent canopy maintains an airy feel. Sunlight streaming through a pattern printed on the membrane's colorless bottom ply and blue-tinted top ply create the dappling effect of light filtering through trees. The lower ply's pattern is subtle, revealing the structure's internal framing from below, while the upper pattern is denser to reflect light pollution at night. And at the center of the canopy, the sky is visible through a sinuous oculus, which VJA partner and co-founder Mateja Vehovar says was designed to mimic a clearing in the woods.

The organic shape of the 1,080-square-meter (11,625-square-foot) canopy would have been difficult to achieve with a material other than ETFE, which can be manipulated like cloth when deflated. Vehovar says that a comparable glass roof would be 75 times heavier and require a much stronger support structure. VJA also chose ETFE, supplied by Nowofol in Siegsdorf, Germany, for its durability, weather resistance, and ability to self-clean.

To maintain the membrane's normal working air pressure of 300 pascals (0.044 pounds per square inch), an air-control unit pumps filtered, dehumidified air through a network of tubes under the pavement and into the membrane before it circulates back again.

Sensors on the closed-circuit system monitor and automatically adjust the air pressure, which can increase to 850 pascals (0.12 pounds per square inch) in the case of extreme snow accumulation, says Stefan Jauslin, VJA partner and co-founder. Mechanical ventilation controls the airflow to keep the air within the membrane dry and to

The single-chamber ETFE canopy designed by Vehovar & Jauslin Architektur is the largest of its kind in the world.

# ANNUAL DESIGN REVIEW

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Winners in each category (selected by a jury) will be published in the December 2014 issue of ARCHITECT.

### CATEGORIES

**WORK** Office, Government, and Commercial Mixed-Use

**PLAY** Sports, Hospitality, and Retail

**LIVE** Multifamily Housing, Single-Family Housing, and Residential Mixed-Use

**GROW** Education, Science, and Healthcare

**MOVE** Infrastructure and Transportation

**BOND** Institutional, Cultural, and Religious

### DEADLINES

**September 5, 2014:** regular entry deadline

**September 10, 2014:** late entry deadline  
(additional fee required)

### FEES

**First entry:** \$295

**Additional entries:** \$195 per entry

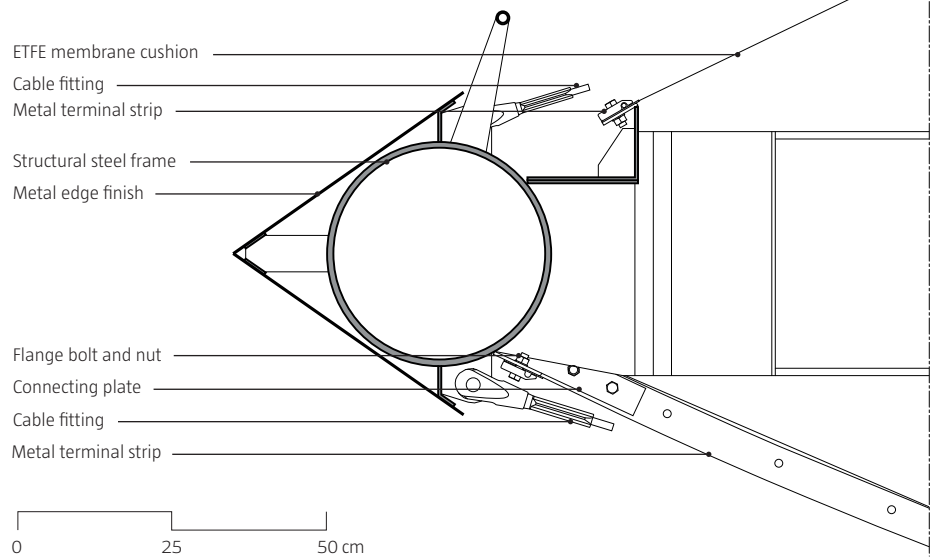
**Late entries:** \$50 additional fee per entry  
submitted after September 5 and by September 10.

### For more information:

**Visit:** [annualdesignreview.com](http://annualdesignreview.com)

**Email:** [adr@architectmagazine.com](mailto:adr@architectmagazine.com)

### Canopy Section



prevent condensation. Under normal weather conditions, the air-filled membrane measures up to 3.6 meters (11.8 feet) thick.

A freeform frame, which combines galvanized steel members of varying shapes and sizes, and an irregular network of steel cables support the canopy. Aluminum clamps connect the 250-micrometer-thick membrane to the frame, which also houses the utility lines for the canopy's drainage, lighting, and air circulation systems.

Creating an airtight frame around the membrane was challenging. Engineering firm FormTL, based in Radolfzell, Germany, used Autodesk Inventor 3D CAD software and other form-finding tools to design the canopy down to the last screw. "In this way, the surprises on the site during construction [were] reduced to almost none, and the construction's precision [was] much better than required by quality norms," Vehovar says.

The structure was mocked up in a factory in Bremen, Germany, and then dismantled and transported to Aarau in the summer of 2012. The frame was erected first, and then the membrane was attached to the frame in three pieces, which were joined together by aluminum clamps with butylene seals before being inflated like a beach ball. The structure was completed in June 2013.

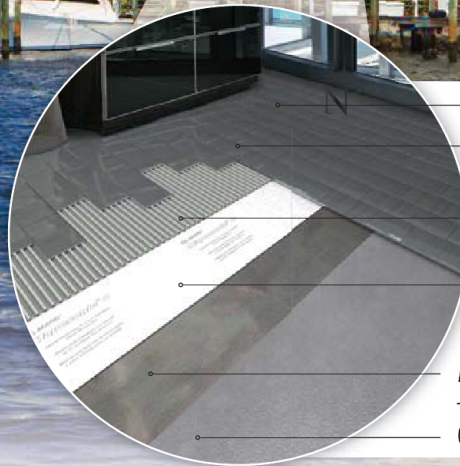
While an air-filled structure may sound temporary, the canopy is actually a permanent fixture of the new bus station. Maintaining it simply requires workers to check the ventilation system and clean the air filters annually.

Besides providing shelter, the canopy is intended to be a landmark and captivating piece of art. "The roof is a signal in the urban fabric," Vehovar says.



Workers erected the bus station's structural frame on site and then attached the ETFE membrane to the frame in three pieces.

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Text by **Hallie Busta**



## IPNOS, FLOS

Milan-based lighting studio Rossi Bianchi pared down the conventional form of a lantern to a simple, slender metal frame. For use indoors and outdoors, Ipnos is shaped by extruded and anodized aluminum profiles. Dimmable LEDs integrated in the 15W fixture's upper edge provide 2700K light with a color rendering index of 85. An optional transparent, methacrylate top can turn the 2-lb. luminaire into a table. Black, bronze, and natural finishes are offered. [usa.flos.com](http://usa.flos.com)  
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#### KETTAL MESH, PATRICIA URQUIOLA FOR KETTAL

Designer Patricia Urquiola taps the light-filtering qualities of an open architectural façade for her collection of aluminum mesh furniture for Kettal. Used on two tables and a sofa, the mesh provides visual simplicity and structural support. Offered in an array of colors. [kettal.com](http://kettal.com) Circle 101



#### SOCIAL CIRCLE, STICKS + STONES FURNITURE

This elegant indoor–outdoor fire pit from Squamish, British Columbia–based Sticks + Stones Furniture features smooth concrete forms with western red cedar slabs to demarcate seating. Built to accommodate six people comfortably, the units' concentric geometries tie the installation together. [sticks-and-stones.ca](http://sticks-and-stones.ca) Circle 102





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#### CORDULA, MISSONIHOME

Multicolored polyester cords are hand-woven onto stainless-steel frames to create the latest collection of semicircular (shown) and trapezoidal armchairs, lounges, and occasional tables from the Italian design label MissoniHome's homewares division. The plaited chevrons of the supportive cords add detail. [missonihome.com](http://missonihome.com) Circle 103



#### GARDEN, CROSSVILLE

Porcelain tile takes on the look of natural stone in Crossville's Garden series, which features the company's Hydrotect UV light-activated, nontoxic titanium-dioxide coating to help resist dirt and bacteria and reduce airborne toxins. The three colorways emulate the look of materials such as volcanic stone and cobbled limestone. Intended for exterior walls and floors, as well as for interior transition areas such as entryways. [crossvilleinc.com](http://crossvilleinc.com) Circle 104

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#### ALL IN CHECK, ROBERT ALLEN CONTRACT

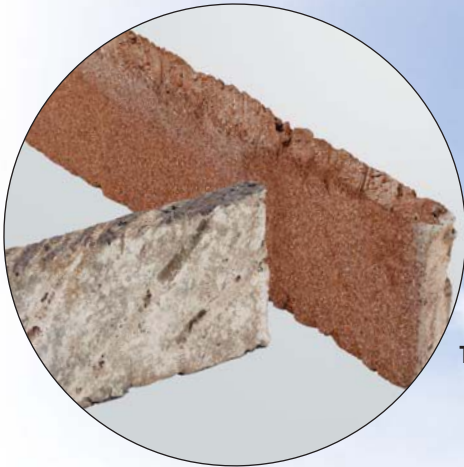
As part of the One Ten West textile collection created in collaboration with hospitality designer Kirk Nix of Los Angeles-based KNA Design, this checkerboard upholstery makes a bold statement with a classic design. Woven from Sunbrella's acrylic and polyester threads, the material is designed to resist color fading from sunlight. All in Check is Greenguard certified for children and schools. It comes in obsidian, azzura, crimson, papaya, and passion colorways. [robertalendesign.com](http://robertalendesign.com) Circle 105



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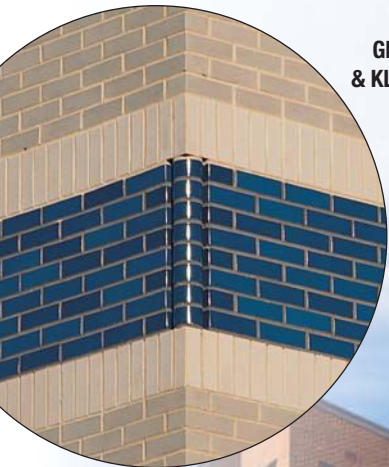
**PAVERS**



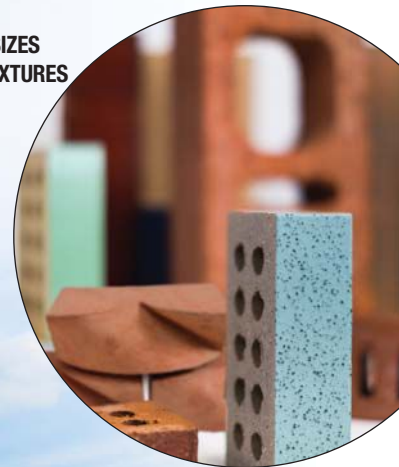
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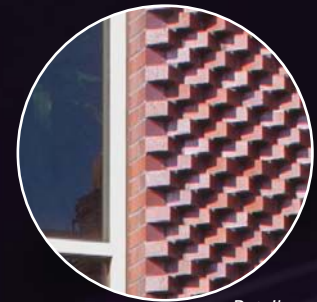


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# HIGH PERFORMANCE COATINGS AND COLORS DELIVER COMPETITIVE ADVANTAGE IN RETAIL AND RESTAURANTS

AS BUSINESS BEGINS TO PICK UP FOR RETAIL STORES AND RESTAURANTS ACROSS THE COUNTY, COMPETITION IS ALSO HEATING UP. THE RIGHT COATINGS AND COLORS CAN HELP CREATE A POSITIVE IMPRESSION THAT WILL BUILD FOOT TRAFFIC AND KEEP CUSTOMERS COMING BACK FOR MORE.

Presented by:



Optimism about the improving economy spells good news for two major markets: restaurants and retail stores

By Cathy Brugett in collaboration with Joe Kujawski, Director of Wholesale Marketing, Sherwin-Williams

Experts have begun to express optimism about economic growth in the second half of 2014, and surveys confirm that public confidence is generally on the upswing. More Americans are finding jobs, and that puts more money in consumers' pockets. It all spells good news for architects and designers whose work involves two high-profile markets: retail stores and restaurants. In fact, a recent report by the U.S. Census Bureau forecasts retail sales growing by as much as 5 percent this year, and points to the stronger economy and improvement in the labor market as key reasons for the positive trend, while the National Restaurant Association expects restaurant sales to grow for the fifth consecutive year, and to hit a record high of \$683.4 billion in 2014. Understanding the

drivers behind the growth in these two sectors is useful to specifying the coatings and colors that contribute to an attractive, profitable business environment for your clients.

In the restaurant industry, staying ahead of culinary trends will always be critical to the success of any new enterprise, while some demographic trends are also worth noting. According to an NPD Group analysis, baby boomers are making the biggest impact on the recovery of the restaurant business. Because many seniors were less impacted by the recession than their younger peers, spending among this group has typically increased while those younger than 50 years of age are spending less.

## LEARNING OBJECTIVES

After reading this article, you should be able to:

1. Identify the basic features of latex, acrylic, and epoxy coatings.
2. Describe the advantages of a pre-catalyzed water based epoxy coating.
3. Name a type of high performance coating suitable for a restaurant kitchen.
4. Define metamerism.
5. Know how to calculate the life cycle cost of a coating.
6. List factors that contribute to a coating's sustainability.

## CONTINUING EDUCATION

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Understanding the needs of target customer groups is essential to designing an environment that encourages their repeat business.

That's important because successful restaurants depend on repeat business, and clients who want to build a loyal customer base must cultivate an environment that conforms to the preferences of their regular patrons, whether they're seniors, 'tweeners, or families with young children. Ultimately, the coatings and the colors you specify—from the dining room to the kitchen and storage areas—will have a lasting influence on the comfort, cleanliness, and overall appeal of the space you design.

There's also good news when it comes to retail. Pent up demand after the brutal winter suffered in many parts of the country is expected to boost second half spending. The challenge is to create a space that will encourage customers to do their spending in your client's store. That's becoming increasingly difficult as e-commerce continues to accelerate. In fact, the U.S. Department of Commerce reports that in the first quarter of 2014, e-commerce grew by 2.8 percent over the fourth quarter of 2013, while retail increased by just .02 percent in the same period. That's causing bricks-and-mortar retailers to adapt their competitive selling strategies. Dave Weinberger, Vice President at CBX, a Brand Agency with offices in New York and Minnesota, states that "In 2014, we'll see more retailers devoting space to things that don't sell: Art-like exhibits, entertainment, and lounges will all find their way into retail spaces in order to draw people in and connect." In short, smart retailers are selling an experience, not just products. Specifying the right coatings, in the right color and finish for the application, will help create an atmosphere that keeps customers coming through the door.



To compete with growing e-commerce and catalog sales, many bricks-and-mortar stores are striving to make the shopping experience more enjoyable.

### HIGH QUALITY COATINGS FOR HIGHER QUALITY PERFORMANCE

While restaurants and retail stores serve very different purposes, they have a few things in

common when it comes to specifying coatings. Both include public spaces that must present an attractive, inviting appearance to customers, and both have "back of the house" areas that need hard-wearing, washable coatings that can handle a lot of abuse. When specifying textiles, wallcoverings, or coatings for restaurant and retail spaces, Terri Ianni, ASID, IIDA, Board Certified Contract Interior Designer, always specifies materials with attributes that suit specific areas of the establishment.

"I know there's going to be heavy traffic in areas designated for the public, so I look for products that are durable enough to perform well in those environments, along with washability, Class A flame resistance, and reduced environmental impact," she says. "For wet environments, like the dishwashing area, I need hard surface wall coatings that also inhibit the growth of mildew, mold, and bacteria."

Although standard architectural coatings found in MasterFormat section 099123 for Interior Paint offer a full range of colors and sheens, they may lack the durability desirable for kitchens, dressing rooms, and areas that experience higher traffic or are subject to constant cleaning. That can lead to frequent repaints, adding maintenance costs for your client, not to mention costly downtime.

Conversely, coatings found in section 099600 for High Performance Coatings include coatings that are typically formulated for extreme industrial environments such as manufacturing or processing facilities. While these types of products will certainly stand up to years of heavy traffic and frequent cleaning, they may have limited options in terms of color or finish quality. That shiny, orange-peel finish that's perfectly fine for a manufacturing plant wall would be totally unacceptable in a dining room or fashionable boutique.

**"In 2014, we'll see more retailers devoting space to things that don't sell: Art-like exhibits, entertainment, and lounges will all find their way into retail spaces in order to draw people in and connect."**

—Dave Weinberger,  
Vice President, CBX



High quality coatings offer a beautiful range of colors and sheens to satisfy aesthetic considerations without compromising performance.

Fortunately, today's technologically advanced coatings are engineered with a range of qualities to satisfy your performance requirements, without compromising color and finish options. Many of these high quality coatings also comply with strict environmental standards and many offer benefits that help to support the growing focus on improving indoor air quality. Because they can be applied by any professional painting contractor using standard equipment, construction budgets aren't burdened with unnecessary labor expenses.

With so many types of coatings to choose from, understanding their basic features can help you write effective coating specifications for each area of the project.

### Versatile Latex Paints

Latex paints offer many benefits and in many cases are lower in VOCs and odor compared to solvent based coatings, but all latex paints are not created equal.

An important factor when selecting a latex coating is its ratio of volume solids to liquids, which can be found on the label, or on Product Data Sheets. In many cases, a higher ratio of volume solids to liquids in a coating can result in better hide, reducing the number of coats required to achieve good coverage, which also minimizes labor costs. Lower ratios of volume solids may result in a formula that's prone to drips, spatters, or poor coverage. However, this is just a general rule of thumb, as all solids are not equal. Higher quality solids can enhance the coating's durability, while other solids, such as clay, are merely filler solids. For this reason, it pays to specify coatings from an established and reputable paint manufacturer.

Although all latex paints provide relatively easy application and clean up, the best quality latex coatings also provide enhanced stain

and scuff resistance. A durable paint that's resilient enough to tolerate the unavoidable scuffs and burnish marks that are common in a busy dining room or showroom floor can pay for itself in a relatively short period of time by minimizing the necessity for frequent repaints. Moisture is also a potential problem in kitchens and restrooms. Consider latex coatings that are formulated with anti-microbial agents to inhibit the formation of mold and mildew on the paint surface. The most advanced latex paints are also engineered with cross linking technology that delivers exceptional stain resistance, allowing maintenance crews to simply wipe away stains that would permanently discolor standard coatings. This technology has the added benefit of resisting unsightly water spotting, so the finish retains its clean, uniform appearance despite accidental spills or splashed water in guest dining rooms or rest rooms.



These paint test panels have been exposed to common stain agents found in restaurants and retail stores. Panel A was painted with a high quality latex formulated with excellent stain resistance and washability, while Panel B was painted with a standard latex. Panel A wipes clean with water and mild detergent, while Panel B is permanently stained.

While latex coatings have long been available in formulas that have lower odor than solvent-based coatings, some state-of-the-art coatings actually reduce ambient odors of

organic origin in the environment. Their effectiveness is based on the concentration of odors, frequency of exposure, and the size of the surface area that has been painted. This has significant value where kitchen odors can potentially infiltrate dining areas and impact guests' dining experience.

Of course, latex coatings make it easy to achieve the aesthetic goals of your overall design because they're available in virtually limitless colors and a full range of sheens. When specifying sheen, keep in mind that glossy coatings are usually more stain resistant and washable than flat finishes, but they tend to magnify drywall imperfections and create unpleasant reflections.

Flat sheens are the easiest to touch up and they minimize surface imperfections, but they're typically the least washable finish. If a flat finish is preferred for aesthetic reasons, some advanced latex coatings have good resistance to stains and scuffs, even in a flat sheen. Eg-shel, however, is often a popular choice for commercial walls, thanks to dependable durability and a smooth, attractive finish that offers good touch up.

For wood trim around doors and windows or for chair rails and baseboards, the washability of a high quality, semi-gloss latex is superior to a flat or eg-shel sheen, making it a preferred choice for these applications.

In high-traffic stores, fast food restaurants, or crowded establishments that attract families and young customers, a more robust coating may be needed to withstand the increased level of activity. In these situations, the elevated durability of a high performance water-based acrylic may be preferred over an architectural latex.

#### High Performance Water-Based Acrylics for Added Durability

High performance water-based acrylics are popular for many reasons. They're easy to apply and dry fast. That's great news to clients who are eager to resume business as usual. Fewer odors compared to solvent based coatings is another attribute of many acrylics, especially in areas where a fresh paint smell might be objectionable to customers and employees. Their smooth, appealing finish also makes high performance water-based acrylics a smart choice in restaurants or department stores where high volume foot traffic or task-specific areas demand greater durability than a conventional latex paint can deliver.



The dressing room is where many customers make their purchasing decision. A coating that maintains a fresh appearance despite daily scuffs and burnishing contributes to a positive atmosphere.

Dressing rooms, for example, usually experience higher levels of abrasion than a showroom floor, yet they have a major impact on clothing purchasing decisions. To encourage a positive attitude, these areas must be clean, fresh, and free of burnish marks. A high performance acrylic is definitely up to the task, while offering colors and finishes that contribute to an attractive ambiance.

For busy restroom doors or kitchen entryways that suffer a lot of scuffs, abrasion, and general abuse, a high performance acrylic also delivers more rugged protection than a latex formula.

Because acrylics are water-based, they typically have lower VOC levels than most solvent-based alkyd or epoxy coatings, which is an advantage to projects that are subject to strict environmental regulations.

To provide the best adhesion and performance, however, acrylics require thorough surface preparation. Therefore, they may not be the best choice for food storage areas or retail back rooms where it's not possible to achieve a totally clean, sound substrate prior to painting.

Exterior substrates vary widely and require extensive knowledge to specify the best coating for the job, but there are common attributes to consider when your client's curb appeal is at stake. UV rays, wind-driven rain, and freeze/thaw cycles can all wreak havoc when inferior coatings are specified, causing premature fading, chalking, or peeling. Thanks to its excellent color and gloss retention and flexibility, a high performance, water-based acrylic is also a good choice for many exterior surfaces.

#### Hard Working Water-Based Epoxies

Advanced formula water-based epoxies are hardworking coatings that deliver higher degrees of protection from stains, chemicals, moisture, and detergents compared to latex or acrylic coatings.





Active restaurant kitchens and busy showrooms require high performance coatings durable enough to resist scuffs and stains that are inevitable in high traffic spaces.

A restaurant kitchen, for example, is a much harsher environment than a dining room or retail shopping space. Steam and heat contribute to the formation of mold or mildew on the paint surface and may cause adhesion problems when so much moisture is present in the environment. This is also an area where constant cleaning, often involving degreasers or other harsh chemicals, can shorten the life cycle of less resistant coatings. Therefore, the product you choose needs to be very durable and USDA acceptable for use in facilities that may have incidental contact with food.



Visit <http://go.hw.net/AR814Course1> to read more and complete the quiz for credit.

## SPONSOR INFORMATION



For more than 147 years, Sherwin-Williams has provided award-winning coatings, colors, and professional tools to builders, designers, specifiers, property managers and contractors. Sherwin-Williams provides fast, flexible, responsive local service and personalized, expert advice. More than 3900 stores and 2200 sales representatives make Sherwin-Williams North America's largest single source supplier of high quality paints, stains, masonry coatings, and brand name wall and floor coverings. To learn more, visit [www.swspecs.com](http://www.swspecs.com) or email [specifications@sherwin.com](mailto:specifications@sherwin.com)

## QUIZ

- For the most durable protection from abrasion, moisture, and stains, and chemicals, which of the following coatings would make the best choice?
  - A high performance water-based acrylic
  - A durable water-based epoxy
  - A premium latex coating
  - A clear-coated specialty finish
- Which of the following best describes a key advantage of a pre-catalyzed epoxy coating?
  - It has zero VOCs
  - It meets GREENGUARD® standards
  - It requires no on-site mixing
  - It requires no priming
- A thin-film intumescent coating operates according to what principle?
  - When exposed to heat, it swells to reduce the rate of heat transfer to the steel it coats
  - When exposed to heat, it forms an impervious barrier to flames
  - It contains reflective particles that deflect heat back into the surrounding area
  - It is a sacrificial coating that protects the substrate by absorbing the heat
- Labor costs typically represent what percentage of a paint job's total cost?
  - 50 percent
  - 30 percent
  - 15 percent
  - 85 percent
- What is metamerism?
  - It is a measurement of how well a light renders true color
  - It represents the color temperature of a light bulb
  - It is an indication of how light impacts our perception of color
  - It is a measurement of how efficiently a lamp uses energy
- Revolutionary technology gives some premium latex coatings which of the following exceptional benefits?
  - They can reduce ambient odors in the area being painted
  - They can reduce ambient VOCs in the area being painted
  - They resist the formation of mold and mildew on the surface of the paint film
  - All of the above
- Which of the following light technologies represents the best combination of energy efficiency, color rendering, and versatile size?
  - Compact fluorescents
  - LEDs
  - Halogens
  - High pressure sodium
- Why is the ratio of volume solids to liquids in a paint formula important?
  - It contributes to the hiding qualities of the paint
  - It determines the VOC content of the coating
  - A low ratio of volume solids reduces the odor of the paint
  - A high ratio of volume solids causes the paint to dry faster
- A new generation of specialty finishes offers what advantages?
  - They can achieve a wider range of faux finish effects than traditional methods
  - They can achieve beautiful, predictable effects without requiring artisan skills
  - They are far more durable than traditional specialty finishes
  - They are waterproof
- As a general rule, how do you calculate the life cycle cost of a coating?
  - Add the cost of the labor, paint, and materials, and multiply by the number of years the coating may be expected to last
  - Divide the cost of the paint and materials by the number of years the coating may be expected to last
  - Add the cost of the labor, paint, and materials, and divide by the number of years the coating may be expected to last
  - Subtract the cost of the labor from the material and paint costs, and divide by the number of years the coating may be expected to last

# SPECIFYING SUSTAINABLE INSULATION FOR THERMAL AND ACOUSTIC CONTROL



By: Kathy Price-Robinson

## INTRODUCTION

When an architect specifies “sustainable insulation,” words like modern and progressive come to mind to describe this strategy for creating energy efficient, durable, and comfortable buildings that are healthy for occupants and for the planet.

Surely, this green scheme perches on the cutting-edge of building science.

However, archeological research reveals that insulating our homes (be they caves, castles, or cabins), using natural, renewable materials like fiber, wool, straw, and cork, is actually as old as human history.

And with good reason. Insulation is perhaps the most cost-effective, straightforward path to peak functionality in the design and construction of buildings.

And while many petroleum- and chemical-based insulation strategies have risen up over the decades, we may be circling back around in a post-petroleum world to prefer insulation made from renewable, recycled, and recyclable materials. This course describes the specification and use of these insulation materials.

While considering the principles of building insulation in the ancient world, one may think first of cold, northern climates where keeping

Presented by:



## LEARNING OBJECTIVES

After you complete this learning unit, you will be able to:

1. Define the important role that building insulation plays in overall sustainable design.
2. Discuss the value of emerging sustainable insulating options vs. their traditional counterparts.
3. Identify a truly sustainable product by highlighting lesser-known product attributes.
4. Describe the importance of sound control when specifying insulation.

## CONTINUING EDUCATION

CREDIT: 1 LU/HSW

COURSE NUMBER: ARAug2014.2

Use the learning objectives above to focus your study as you read this article.

Visit <http://go.hw.net/AR814Course2> to read more and complete the quiz for credit.



Cotton batt insulation, made from recycled denim, is one of the choices an architect can specify for a sustainable project. Credit: Photo courtesy of Bonded Logic Inc.

the frigid air outside the building envelope meant not just comfort, but survival.

But that scenario also played out in ancient Egypt where residents used the insulating factor of thick bricks and stones to protect homes from the deadly summer heat. The ancient Greeks used cavity walls to trap air and moderate interior temperatures in cold and hot months alike.

Northern Europeans used a mix of straw, dung, and mud to block air exchange in log or timber buildings. In the Middle Ages, the wealthy used large tapestries hung across stone walls to create insulating comfort for inhabitants.

In the New World, as stick-framed buildings became the norm, a variety of materials from asbestos to rock wool to fiberglass inside wall cavities provided the thermal break between the temperature outside and the desired temperature inside.

With human population on the planet approaching eight billion, and the planet warming from the burning of fossil fuels, calculations that indicate buildings are responsible for some 40 percent of carbon emission have made the building industry, and architects in particular, determined to reduce the carbon emissions created by the building, use, and destruction of buildings.

The 2030 Challenge, created by architect Edward Masria and adopted by the 80,000-member American Institute of Architects, the U.S. Green Building Council, the U.S. Conference of Mayors, among others, states the problem (the building sector) and the solution (the building sector). The goal is that all new and majorly renovated buildings are carbon neutral, using no fossil fuel, greenhouse gas-emitting energy to operate by 2030.

Building insulation, preferably sustainable, is key to those goals.

### HOW INSULATION WORKS



According to the laws of nature, heat flows from hot to cold. When attempting to create the comfortable interior temperatures that modern humans want, we need to interrupt that natural flow. The more effective the insulation, the more thoroughly that flow ebbs. Credit: Photo courtesy of Bonded Logic Inc.

According to the U.S. Dept. of Energy fact sheet,<sup>i</sup> heating and cooling account for 50 percent to 70 percent of the energy used in the average American home. It further states: “Inadequate insulation and air leakage are leading causes of energy waste in most homes.” With added insulation and air sealing, the typical American home uses 20 percent less energy for heating and cooling.<sup>ii</sup>

Beyond the money saving and carbon-reducing implications of energy efficient buildings, a major driver toward a robust insulation program is increasing expectations of inhabitants for comfort, both thermally and acoustically.

Whereas the earlier version of humans may have tolerated heat, cold, humid, and unpleasant conditions inside homes and offices, that is no longer the case. The disappearance of front porches over the past half century tells the tale of a newfound freedom to stay indoors during hot weather because, we can, thanks to air conditioning and evermore effective insulation and air sealing.

The same could be said for sound transmission and our high expectations—and need—for superior sound absorption. Interior noise originates within rooms by numerous televisions, computers (usually at least one per each member of the family) as well as the refrigerator, washer and dryer, whole-house or window air conditioner, the furnace, water pipes, water heating, and so on. For better or worse, our ancestors did not deal with those inside noises. From outside the home or building come sounds of activities on shared walls, automobile traffic, fire and police sirens, jet traffic, and other sound sounds of civilization.

Rather than adjusting ourselves to these conditions, we demand protection from them.

Heat and sound travel in similar manners, seeking equilibrium from high density to low density, according to the laws of nature. We will learn more about sound transmission later in the course.

For the purposes of specifying insulation, architects and specifiers should understand the fundamentals of heat energy transmission. The three main ways that heat moves are conduction, convection, and radiation.

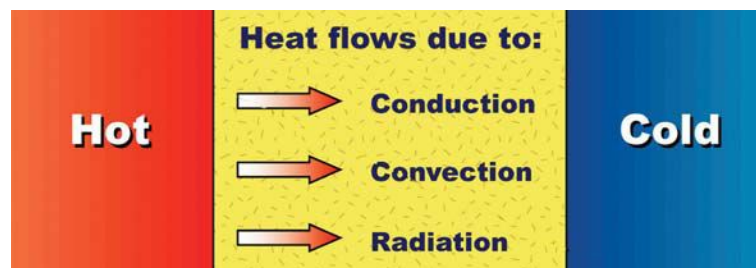
**Conduction:** This is the way heat energy moves through materials. When the hot coffee inside a ceramic cup creates warmth on the outside of the cup, the heat energy conducted through the cup. In an exterior wall assembly, heat moves from warm to cold, according to the laws of nature, as it seeks equilibrium. It’s a misnomer to state on a frigid day that “cold is coming in” when the walls are poorly insulated. In fact, the heat is moving out, via conduction, from the conditioned interior to the cold exterior. Anyone standing near a cold wall in a warm room can almost feel this phenomenon.

**Convection:** This is the way heat circulates through liquids and gases. This transfer of heat is why lighter, warmer air rises, and cooler, denser air sinks in a building. Convection is often used to advantage by allowing an opening at the top of a building to allow the hot air to escape, when that is desired, with cooler exterior air pulled in to replace it. This is known as the chimney or stack effect.

**Radiation:** Radiant heat travels in a straight line and heats anything in its path that will absorb the heat energy. Radiant barriers help control this type of heat energy transfer.

Most insulation systems work to slow conductive heat energy flow by creating a thermal break. If the material between the two areas of differing temperature—either a hotter exterior and cooler interior, or a cooler exterior and hotter interior, depending on the geography and season—is not conducive to conduction, the heat will remain where it should to create the desired effect.

How well an insulating material resists conductive heat flow is measured by its R-value. The higher the R-value, the greater the resistance to heat flow, and the greater the energy efficiency and comfort of a building.



Heat flows from hot to cold in three main ways: conduction, convection, and radiation.<sup>iii</sup> Credit: Photo courtesy of Bonded Logic Inc.

## CASE STUDY: NEW ORLEANS HABITAT MUSICIAN'S VILLAGE



Musicians' Village in New Orleans was conceived and promoted by local musicians Harry Connick Jr. and Branford Marsalis as a way to bring back and support musicians displaced by the flood and levee failures of 2005. The sustainable insulation specified brought needed thermal and acoustic benefits. Credit: Photo courtesy of Bonded Logic Inc.

In New Orleans, the 2005 levee failures that devastated the 300 year-old city are sometimes referred to as "the federal flood" or simply "the storm." In the rest of the world, the event is referred to as Katrina.

Whatever the term, the flooding caused by the largest engineering failure in U.S. history sent New Orleans residents scrambling to temporary homes, apartments, and couches all over the country. As the floodwaters receded and many began to rebuild, community leaders worried that many of those whose make New Orleans the magical place it is—musicians—would not have the means to return to New Orleans, and might resettle in Nashville, Austin, and other music-centered cities, a loss to New Orleans.

To support the struggling musicians who lost everything and wanted to return to New Orleans, two prominent native New Orleans musicians—Harry Connick Jr. and Branford Marsalis—conceived of a Musician's Village to provide homes for musicians, and to become a new center of creativity and collaboration.

Built by New Orleans Area Habitat for Humanity, bolstered by many thousands of volunteers who poured into the city after the flood, the new village is a model for sustainable, energy efficient houses that are affordable to buy, heat, cool and operate. After all,

creole cottages that cost \$400 a month to cool in the long summer months would certainly defeat the goal to attract and keep the talent in the city.

A key component to the sustainable homes would be the quality and veracity of the insulation. Teaming with a company that makes cotton batt insulation from recycled blue jeans seemed like the perfect solution in so many ways. The recycled denim insulation satisfied the project's sustainable goals for material use, and also provides superior insulating properties, due to its density of R-13, R-19, R-21, and R-30.

So not only would the utility bills be lower, the residents' comfort would be higher. The product has no carcinogenic warnings, no formaldehyde, and no chemical irritants. And with the cotton batts' proven acoustical performance, musicians can write music or practice their horns or other instruments with a minimum of sound transmittance throughout the neighborhood.

By creating homes with lower energy bills, high comfort, and low sound transmittance, the case of the cotton batts play a part in helping Connick Jr. and Marsalis achieve their dream of keeping New Orleans musicians in New Orleans.

## EMERGING SUSTAINABLE INSULATING OPTIONS VS. TRADITIONAL COUNTERPARTS.

As we have seen, the use of insulation to maintain comfortable indoor conditions is as old as humankind. And the insulation industry has always had its challenges with the safety and durability of certain insulation materials. Asbestos, which has been proven to be harmful to human, was used as far back as 4,500 years ago in Finland to strengthen earthenware pots.<sup>iv</sup> Ancient Greeks supposedly used it for napkins and funeral dress of kings, and they noted that it caused "lung sickness" in the slaves who wore and worked with it.

When specifying insulation, most architects will want to know how it gets from source to installation and beyond, from the raw materials to the manufacturing process to the wall. Four common types of insulation material include fiberglass, foam, recycled cellulose, and recycled cotton fiber. Let's look at the last two types.

## Recycled Blown Cellulose

While blown-in cellulose insulation became popular in the 1970s after the oil embargo and sudden attention on energy efficiency, cellulose has been used for centuries. Thomas Jefferson's Monticello was insulated with a form of cellulose. During the Dust Bowl of the 1930s, residents stuffed newspapers into cracks around doors and windows to keep the dust at bay.



While a form of cellulose insulation was used in Thomas Jefferson's Monticello, the modern iterations of the material is often made from recycled newspaper and treated with fire retardant chemicals. Credit: Photo courtesy of Bonded Logic Inc.

Since those times, cellulose insulation has become ever more sophisticated and sustainable, made from recycled newspaper and treated with chemicals such as boric acid to retard the spread of fire.

Dry cellulose (loose fill) is often used in retrofitting existing homes by drilling holes in the top of the stud bays and blowing the insulation inside. Spray-applied cellulose is applied to new wall construction.

## Recycled Cotton and Denim Batt

At least one manufacturer makes use of a collection program for recycling cotton textiles into insulation products. The company's recycling division diverts some 300 tons per month of textile waste away from landfills and into



Batt insulation made of recycled cotton and denim creates tiny air pockets that stem the flow of thermal energy. Oversized batts produce a friction fit between studs in wall cavities. Credit: Photo courtesy of Bonded Logic Inc.

the insulation manufacturing process. Various methods, including public textile collection bins, partnerships with Goodwill Industries and The Salvation Army, corporate recycling initiatives, manufacturer waste program, and "certified destruction" programs that deal with counterfeit merchandise. Plus, textiles are gleaned from what are termed "certified destruction" programs for counterfeit merchandise.

At the recycling facility, the textiles are sorted by fiber content. The cotton items are chopped up and metal—such as buttons, zippers and snaps—are weeded out via compressed air blasts, magnets, and metal detectors.

From there, the chopped pieces pass through a series of spiked, spinning cylinders with

thousands of tiny needles, a process which returns the cloth back to what is essentially a raw fiber form. It looks much like cotton candy. That material is then treated with nontoxic additives to achieve a class-A fire rating, as well as a nontoxic mold and mildew inhibitor, then compressed and cut into rolls of insulation with R-values from 13 to 48.

The denim batt insulation creates miniscule pockets of air that prohibit the conduction of thermal energy, creating a strong thermal barrier between the inside and outside temperatures, and thwarting nature's relentless quest to create equilibrium. To create the most effective barrier, slightly oversized batts are installed tightly into wall cavities with a friction fit.

### HOW TO IDENTIFY TRULY SUSTAINABLE PRODUCTS



To specify a truly sustainable product, architects should consider many factors, including its cradle-to-cradle status, raw materials, sourcing, and manufacturing techniques. Credit: Photo courtesy of Bonded Logic Inc.

To identify a truly sustainable product, architects and specifiers should consider less-discussed product attributes such as raw materials, sourcing, and manufacturing techniques.

Perhaps the most powerful indicator of sustainability is a product's cradle-to-cradle status. Can the materials be used over and over again, rising up from manufacturing process to a usable product, then recycled and broken down into a raw material that can rise up again to another usable product, and so on?

Architects are in a singularly pivotal position to bring such products into the building process. By 2050, according to Architecture 2030, 70 percent of buildings will be new or dramatically remodeled. Decisions by decision, specification by specification, these choices will determine the direction of a major part of culture and commerce.



Visit <http://go.hw.net/AR814Course2> to read more and complete the quiz for credit.

Circle no. 89 or <http://architect.hotims.com>

### QUIZ

- According to the 2030 Challenge spearheaded by architect Edward Masria, what describes both the main problem and the main solution to excess greenhouse gas emissions:
  - Government policy
  - Buildings
  - Livestock
  - Diesel engines
- Based on an Environmental Protection Agency fact sheet, heating and cooling account for what percentages of energy used in the average American home?
  - 10 to 20 percent
  - 30 to 50 percent
  - 50 to 70 percent
  - 80 to 90 percent
- Most insulation systems work to slow heat transfer from colder to hotter in which manner?
  - Conduction
  - Convection
  - Radiation
  - Change of state
- True or False: Until 2011, federal and California law required a cancer warning on fiberglass insulation.
  - True
  - False
- For insulation made from recycled blue jeans, how are the metal zippers, snaps and buttons removed and weeded out after the fabric is chopped up?
  - Metal detectors
  - Magnets
  - Compressed air blasts
  - All of the above
- Which green building advocate made this statement about the cradle-to-cradle movement: "Our goal is a delightfully diverse, safe, healthy and just world, with clean air, water, soil, and power—economically, equitably, ecologically, and elegantly enjoyed."
  - William McDonough
  - Edward Masria
  - Sarah Susanka
  - Alex Wilson
- Recycled denim insulation can qualify for LEED credits for Rapidly Renewable Materials, Recycled Materials, and Innovation and Design. How many total prerequisites and credits can be achieved with this product?
  - 6
  - 8
  - 10
  - 12
- Which town launched the first curbside textile recycling program in conjunction with a natural fiber insulation company?
  - San Luis Obispo, Calif.
  - Queen Creek, Ariz.
  - Las Cruces, N.M.
  - Mobile, Ala.
- What is the ASTM test for rating sound blocking properties of insulation?
  - ASTM E413-10
  - ASTM E90
  - ASTM E1111
  - ASTM C423
- A recycled denim insulation system achieves how much more acoustical dampening as compared to conventional insulation?
  - 10 percent
  - 15 percent
  - 20 percent
  - 35 percent

### SPONSOR INFORMATION



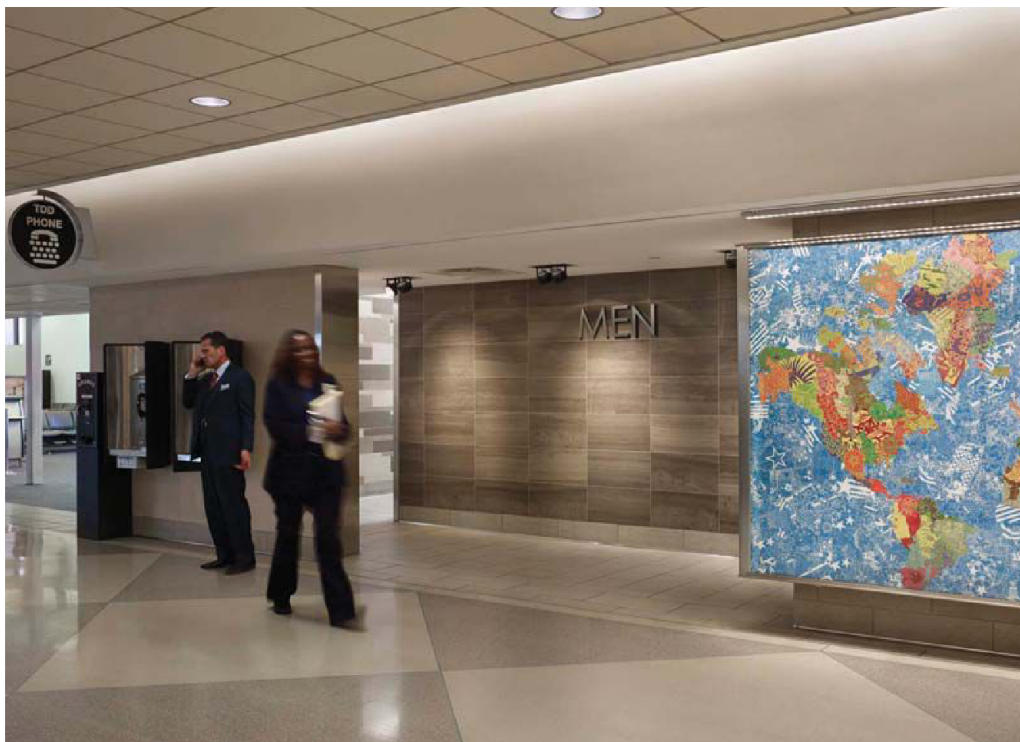
Bonded Logic, Inc. is a manufacturer of thermal and acoustic insulations, sourced from recycled cotton textiles. With the flagship products lines consisting of UltraTouch Denim Insulation and Echo Eliminator Acoustic Panels, Bonded Logic provides thermal and acoustic insulating solutions with a focus on sustainable performance.

Presented by:



# MULTIGENERATIONAL RESTROOMS

## BETTER DESIGNS FOR ONE AND ALL



A new multigenerational restroom and companion care facility in terminal B of Philadelphia International Airport, designed by architect Kelly/Maiello and CDA&I. Photo: Halkin/Mason Photography

By C.C. Sullivan

Multigenerational design, also known as transgenerational design, is an increasingly important aspect of universal design and a major contemporary trend mirroring the dramatic societal and economic changes of the last decades. In particular, public restrooms illustrate these multigenerational trends because they serve such diverse populations. Designing them successfully is a growing challenge for architects and facility owners.

In recent years, the American public has been asking for cleaner, safer and more comfortable multigenerational restrooms. The demand

reflects many factors, starting with a complex user base, including adults, children and individuals with mobility or physical disabilities. "The public facility ranges from offices to buildings, stores, parks, rest stops, theaters and more," according to *Plumbing Engineer*. "The primary design goals are functionality, meeting the appropriate codes, cleanliness, accessibility and water savings." <sup>1</sup>

Yet there is another significant challenge in creating effective design solutions; while traditional restroom spaces are created along gender lines or around a single-occupant model,

### LEARNING OBJECTIVES

After reading this article, you should be able to:

1. Describe the demographic and social trends that contribute to growing interest in multigenerational building and restroom designs.
2. List three examples of public spaces, buildings and/or restroom designs that incorporate multigenerational design features.
3. Discuss the benefits of multigenerational design to various user types, including people with disabilities, with specific examples of building materials, systems and finishes.
4. Explain why products such as baby changing stations, illuminated grab bars, storage and seating are increasingly employed in universal restroom design.

### CONTINUING EDUCATION

AIA CREDITS: 1 LU

COURSE NUMBER: ARAug2014.3



Use the learning objectives above to focus your study as you read this article. To earn credit and obtain a certificate of completion, visit <http://go.hw.net/AR814Course3> and complete the quiz for free as you read this article. If you are new to Hanley Wood University, create a free learner account.

today they are being transformed to meet new expectations and standards. Contemporary restrooms must often accommodate special users: pregnant and nursing mothers, the physically and psychologically impaired, single guardians and so-called "helicopter parents" who prefer to stay near their children at all times, for example. Many buildings also accommodate caregivers with their patients. Special situations also arise for mobility scooters, transgender individuals and obese users.

Practical considerations ground all design, but being sensible doesn't mean multigenerational

## “You need breathing space at restroom entries, slightly wider circulation between stalls and sinks, and places people can gather. That improves the experience.”

Ralph Walker, RA, LEED AP, CSI  
Smith Maran Architecture + Interiors

restrooms are just utilitarian—tremendous opportunities abound for innovation, say many architects. Because bathrooms are integral to the human condition, universal design should be transformative, contends Ralph Walker, RA, LEED AP, CSI, an Architect and Associate with Smith Maran Architecture + Interiors. Multigenerational bathrooms benefit all age groups over an extended period of time, and also affect social goals like gender equity, such as the “potty parity” laws introduced in some states.<sup>2</sup>

They also impact floor plans and equipment layouts, and may require accessible path of travel, including: turning radiuses, reach ranges and mounting heights along with safe egress, eased navigation and alcoves or areas for accommodating additional surfaces. “In the layout of shared restrooms for a high volume of people, it’s critical to allow for appropriate circulation beyond just the code minimums,” says Walker. “You need breathing space at the entry, slightly wider circulation between stalls and sinks, and places people can gather. That improves the experience.”

A range of purpose-built products and building systems designed specifically for the issues raised by multigenerational users have recently entered the market to meet these needs.

“Universal design principles are especially applicable in the bathroom, a space that even the most able-bodied person can find difficult to navigate at times,” according to Katherine R. Adams, CEO of fixture maker MTI. “By giving careful consideration to space planning, accessibility, security and privacy issues, smart designers can create a bathroom environment that promotes independent living.”<sup>3</sup>



Other experts argue that multigenerational restrooms demand thoughtful, high-quality solutions “to symbolize our best civic values, because they offer amenities and accommodations for the 21<sup>st</sup> century,” says Alan Gettelman, Vice President of External Affairs for Bobrick Washroom Equipment, Inc. which specializes in solutions for facilities with multiple user groups. “At its core, multigenerational design must be about innovation and decency because public restrooms merge accessibility, privacy, health and safety and sustainability.”

A number of recent design innovations have become hallmarks of multigenerational restrooms, including integrated baby changing station (BCS) equipment, enhanced trash disposal options and low-maintenance equipment. Multiple-occupant and dual-user designs imply a number of specialized needs and clearances, in addition to higher anticipated loads.

Proper receptacles for diapers, both for infants and adults, may be needed. Lighting fixtures must provide high lumens per watt while limiting glare, and more surfaces and flooring materials must be nonslip even when wet.

A multigenerational user base also dramatically impacts maintenance, repair and operations

(MRO) practices for commercial and public facilities. In order to assist building owners and managers, architects are tracking statistical changes in the user base to design for new and often unexpected scenarios.

### WHAT’S BEHIND THE MULTIGEN TREND?

The United States is currently undergoing a dramatic societal shift: family bonds are strengthening and the concept of home is returning to a previous trend. Rising housing costs, sinking pensions, and the historical number of foreclosures have forced families to share expenses. Recent studies and demographics help clarify this trend. “Living in a multi-generational household appears to be a financial lifeline for many,” according to Pew Research Center, which recently analyzed Census Bureau data to understand transgenerational clustering and behaviors.<sup>4</sup> “Although their adjusted incomes overall are lower, the poverty rate among people in multi-generational households is substantially smaller than for those in other households—11.5% vs. 14.6% in 2009.”

So multigen living is becoming the norm—and for the good. In total, there are more than 51 million Americans in multigenerational households.<sup>5</sup> Contributing factors include recent immigrants, who often follow cultural traditions of living with extended families, and college graduates moving back home.<sup>6</sup> Last December, *The New York Times* pointed out the increased number of domestic units in which someone 60 or older is identified as the parent or the *head of household*—and in many, elderly parents are living with their grown children. Some middle-aged adults find themselves in what demographers call the *sandwich generation*, as they live with and care for both their children and aging parents.<sup>7</sup> Many seniors opt to *retire in place*, residing with family members rather than moving to a retirement community or senior care facility, reports the Legacy Project, a social group that helps generations bond. This also feeds the multigen trend.<sup>8</sup>

## Multigenerational design innovations include more privacy, integrated baby changing stations, child safety seats and enhanced trash disposal options



Baby changing stations are central elements to multigenerational accommodation. When open or in use, they must not prevent access to the restroom's fixtures and dispensers.  
Photos: Brian Mark, courtesy Bobrick / Koala Kare Products

Experts believe that with demographic factors and an aging population, the U.S. multigenerational trend is just beginning. "By 2040, the proportion of people over the age of 65 will top 20 percent, and people under the age of 18 will make up almost 23 percent of the population," according to the World Health Organization. "As a result, the oldest and the youngest populations combined will make up almost half of all U.S. residents."<sup>9</sup> In addition, census data and AARP studies show that multigenerational families will grow as a portion of the total economy<sup>10</sup>, and "multigenerational family travel" has been called the top trend<sup>11</sup> affecting the tourism, hospitality and transportation sectors.

To accommodate these dramatic economic shifts, both residential and non-residential architecture are changing. At home, today's clients want open floor plans and wide doorways and hallways to promote higher visibility and better traffic flow for children, parents and the elderly. Consumers are attuned to accessibility-minded features on the road, such as public

facilities designed for children and wheelchairs. Architects and contractors are finding more work retrofitting public spaces and private houses with multigenerational concepts such as *mother/daughter* designs or for larger groups living and traveling together. As the *Times* also reported recently, most multigenerational families "live outside of apartment-heavy" city centers.<sup>12</sup> More multigenerational groups travel together today, as visitors, citizens, families and customers.

#### **PUBLIC SPACES AND THE MULTIGENERATIONAL TREND**

With these new demographics and dynamics, public places are transforming, too. Multigenerational parks, shopping malls, housing facilities and planned communities are a burgeoning development trend, bringing new projects to experienced architects. In Pennsylvania, for instance, The Buffalo Valley Recreational Authority's 22-acre Lewisburg Recreational Park has been designed for classes, events, and activities for groups of varied ages. A walking path features seven wellness

stations—developed in collaboration with gerontology, kinesiology and recreation experts from Penn State University—to turn a daily walk into a complete fitness program for active older adults. Yet nearby, skateboarders, BMX bikers and inline skaters speed by on low-maintenance surfaces while others practice bouldering.<sup>13</sup>

The economic benefits of such multigen magnets are plain. Pennsylvania is already home to the nation's second largest elderly population, notes the park director Greg A. Weitzel. "The decision on where families and businesses may eventually settle relies heavily upon the quality of life in the surrounding area—in turn, with growth in any community, comes a broader tax base and enhanced values of our land, businesses and homes."<sup>14</sup> This explains the use of multigenerational design principles in the planning and architecture of airports, highway stops, malls, public buildings and more.

Unsurprisingly, many communities are building and touting community amenities for all ages. In Albuquerque, New Mexico, the 37,000-square-foot Manzano Mesa



Multigenerational Center designed by Kells + Craig Architects accommodates participants of all ages. Opened over a decade ago, the center offers meals and educational, recreational, fitness and social programs for a diverse community, with multipurpose classrooms, an arts-and-crafts room, computer laboratory, game room, social hall, fitness center, kitchen and a 10,000-square-foot gymnasium with showers and lockers. Community groups and continuing education programs are hosted daily, as children enjoy a water spray park, after-school programs and a six-week summer youth camp.<sup>15</sup>

Developers have taken notice of the robust usership, updating older shopping centers and creating branded, multigenerational strip malls such as EDENS of Bethesda, Maryland, which offers entertainment for all ages. "You want to create an experience all three generations can share—where you drop off your child for a music lesson or an art class while you get a massage," says Greg Carbone, CCIM, CPM, director of property operations for EDENS.<sup>16</sup> With the economic downturn and the increase in Internet shopping, other owners are trying to stay attractive by coordinating the mix of retailers for maximum appeal to multigenerational consumer groups.

On the macro level, the American Planning Association (APA) promotes *multigenerational planning* for towns and cities to support social trends, "a holistic approach that takes into consideration the needs of all age groups throughout all stages of planning (from needs assessment to visioning, plan making, design, implementation, and evaluation) and how government policies, zoning, and building codes can be changed to ensure generational equality and access."<sup>17</sup> Multigenerational communities counteract many social problems, APA

adds, providing access to public transit, healthy food and safer environments while forging the essential bonds of cross-generational community. Four principle arguments undergird the need for multigenerational design, says APA:

- First, the demographic transition requires new collaboration across the generations.
- Second, civic participation enhances political support and promotes community building.
- Third, using smart growth principles in

multigenerational planning helps all community members remain active, connected, and safe.

- Fourth, raising awareness of universal design principles will accommodate the needs of all community members, not just seniors or people with disabilities.<sup>18</sup>

Visit <http://go.hw.net/AR814Course3> to read more and complete the quiz for credit.

## QUIZ

1. The primary reason that more U.S. households are multi-generational is ...
  - a. cultural.
  - b. legal.
  - c. financial.
  - d. none of the above.
2. According to the APA, multigenerational planning for towns and cities supports the social trends by means of ...
  - a. Planning and design.
  - b. Government policies.
  - c. Zoning.
  - d. All of the above.
3. True or false: While surveys show that many women believe the use of a baby changing station (BCS) should be required by law, the inclusion of a BCS in public restrooms is not federally legislated or required by the International Building Code (IBC).
  - a. True
  - b. False
4. For multigenerational user groups, restrooms are no longer designed for a "typical user" but instead a user group including individuals ...
  - a. who are assisted in the restroom.
  - b. with children.
  - c. who are elderly or disabled, or both.
  - d. all of the above.
5. A standard bariatric bathroom requires which of the following features?
  - a. Toilet seat heights lower than 14 inches.
  - b. Floor-mounted toilets and reinforced grab bars.
  - c. A turning radius of about 52 inches.
  - d. None of the above
6. To improve the usability of baby changing station (BCS) design, ADA standards require that the BCS equipment be mounted at no higher than ...
  - a. 28 inches to 34 inches
  - b. 36 inches to 48 inches.
  - c. There is no ADA requirement for BCS.
  - d. None of the above.
7. Unlike baby changing stations, child protection seats should be located ...
  - a. 2-5 inches above the finished floor.
  - b. inside a toilet compartment.
  - c. adjacent to the restroom entrance door.
  - d. none of the above.
8. Safety and hygiene features for multigenerational restrooms also apply to the design of the baby changing station (BCS). Which of the following is not a typical safety or health feature of BCS applications?
  - a. Straps for securing the infant in place.
  - b. Smoothly contoured, cleanable surfaces.
  - c. Diaper disposal bags or antimicrobial surfaces.
  - d. Location within a toilet compartment.
9. The Illuminating Engineering Society of North America (IESNA) recommends minimum lighting requirements of 10 footcandles (fc) for industrial and shopping mall restrooms, and for hotel and hospital area restrooms, the minimum is ...
  - a. 5 fc.
  - b. 10 fc.
  - c. 30 fc
  - d. 50 fc
10. Touch-free plumbing fixtures and accessories can benefit a multigenerational setting, as well as a mix of left- and right-handed fixtures. Per ADA, touch-free sensors and all fixtures should be operable with just a closed fist or ...
  - a. must be touch-free only.
  - b. 22.2 pounds of pressure.
  - c. 8.0 pounds of pressure.
  - d. 5.0 pounds of pressure.

## SPONSOR INFORMATION



Koala Kare Products, a division of Bobrick Washroom Equipment, Inc., is the world's most recognized brand of Baby Changing Stations and commercial childcare products, helping public establishments accommodate the needs of caregivers and children with safe, innovative solutions. A global leader in product innovation and manufacturing, Bobrick delivers best-in-class washroom accessories and partitions.

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# NEWPORT BEACH CIVIC CENTER AND PARK

BOHLIN CYWINSKI JACKSON'S DESIGN FOR A NEW CITY HALL AND PUBLIC PARK IN CALIFORNIA IS A STUDY IN EDGE CONDITIONS, MERGING BUILDING, LANDSCAPE, AND CIVIC PRESENCE IN ONE TRANSPARENT PACKAGE.

Text by **Katie Gerfen**  
Photos by **Nic Lehoux**

**NEWPORT BEACH, CALIF.**, an affluent beachside community of roughly 85,000 people, is known for its Pacific Ocean views, high property values, and idyllic temperate climate. Yet near the center of town, there was a 20-acre eyesore: a plot of land so hampered by height restrictions to maintain views and so covered by degraded man-made wetlands that it was considered commercially undevelopable. Who better, then, than the city itself to turn this eyesore into a civic center and community hub?

With an effort led out of its San Francisco office, Bohlin Cywinski Jackson (BCJ) won the commission to outfit the site with a new 100,000-square-foot City Hall that runs alongside a public green. Anchoring the green at the north end is a late addition to the project brief: a 17,000-square-foot addition to an existing public library that serves as a backdrop for public events. And bordering it on the other side is a parking structure that accommodates 450 cars; pedestrian paths crisscross the green every 60 feet to allow access between the two long structures on either side. But this built context is only a fraction of the site, which also includes a community park with a lookout tower to capitalize on ocean views, a pedestrian bridge to allow safe passage across a nine-lane roadway that bisects the site, Newport Beach's first dog park, and other amenities.

Despite being a civic project in a security-conscious age, the project as a whole is characterized by a sense of transparency—both literal, in terms of its glazed walls, and conceptual. Instead of having a single grand lobby, the City Hall is accessible via a series of entrances, connected by shaded pathways and outdoor circulation. Visitors can walk straight from the green into the council chamber (a volume marked by a curvilinear fabric roof that serves the dual purpose of solar shading and iconic branding to distinguish it from the regularized bays of the main building). "It's a sustainable approach," says BCJ principal Peter Bohlin, FAIA, of the fact that the various entries and porches allow for natural ventilation in the temperate climate, "but it is also very much a democratic way of imagining a City Hall as a place for people."

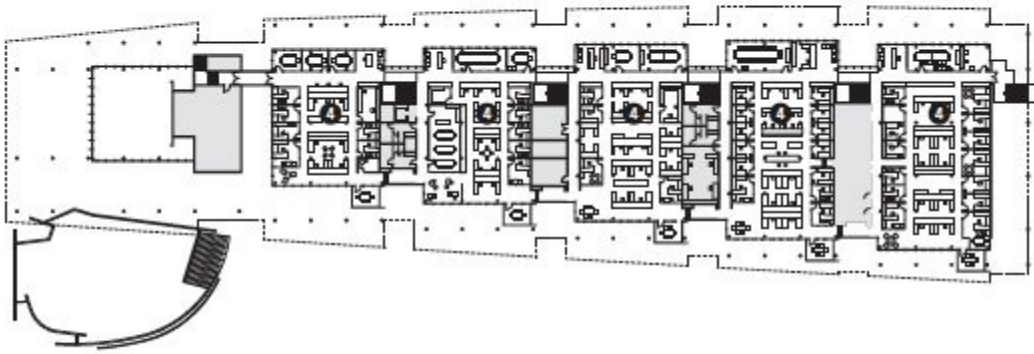




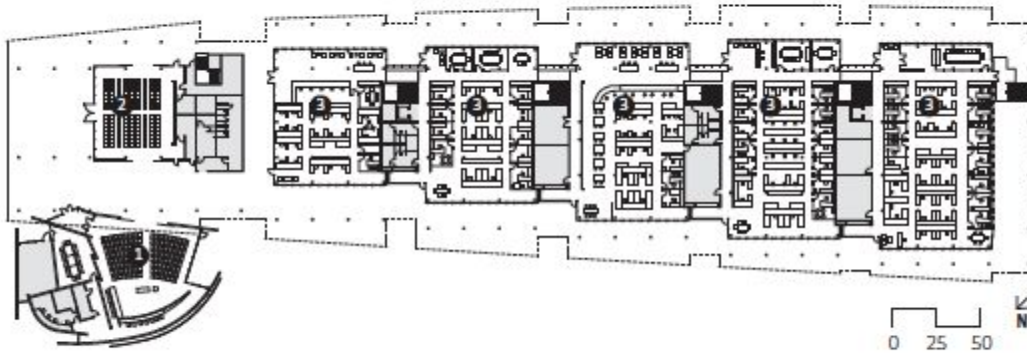
**Previous spread:** The public green of the new Newport Beach Civic Center and Park plays host to festivals and citywide events, and is anchored at the north end by an addition, also designed by Bohlin Cywinski Jackson, to an existing library. **This image:** Each bay of the City Hall building has a different entrance, allowing easier access to the various departments, and for outdoor circulation via shaded paths.



**City Hall Second-Floor Plan**

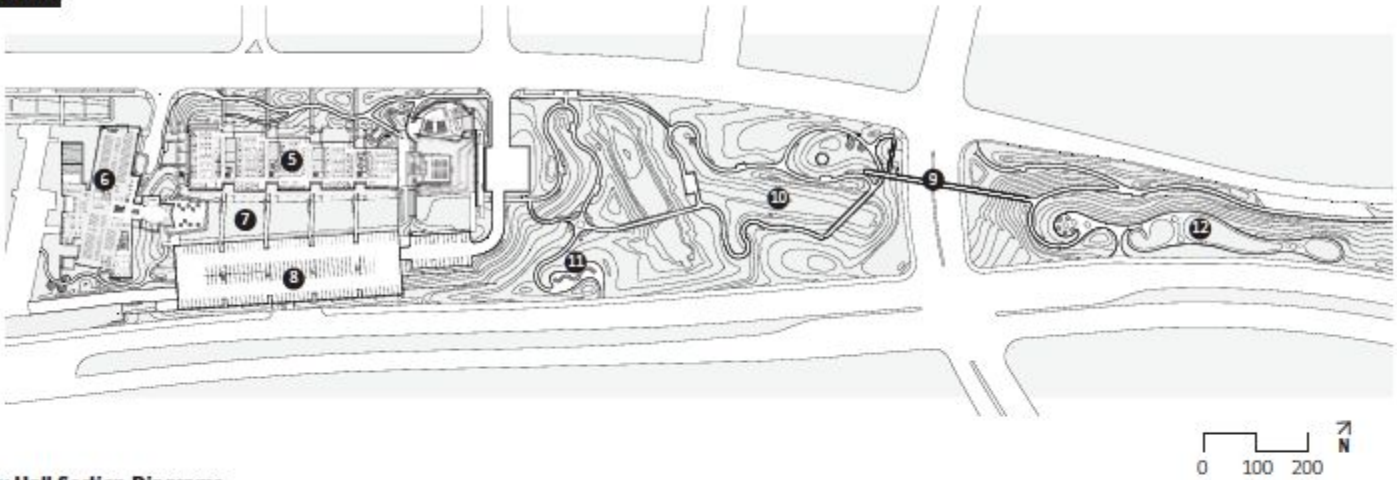


**City Hall First-Floor Plan**

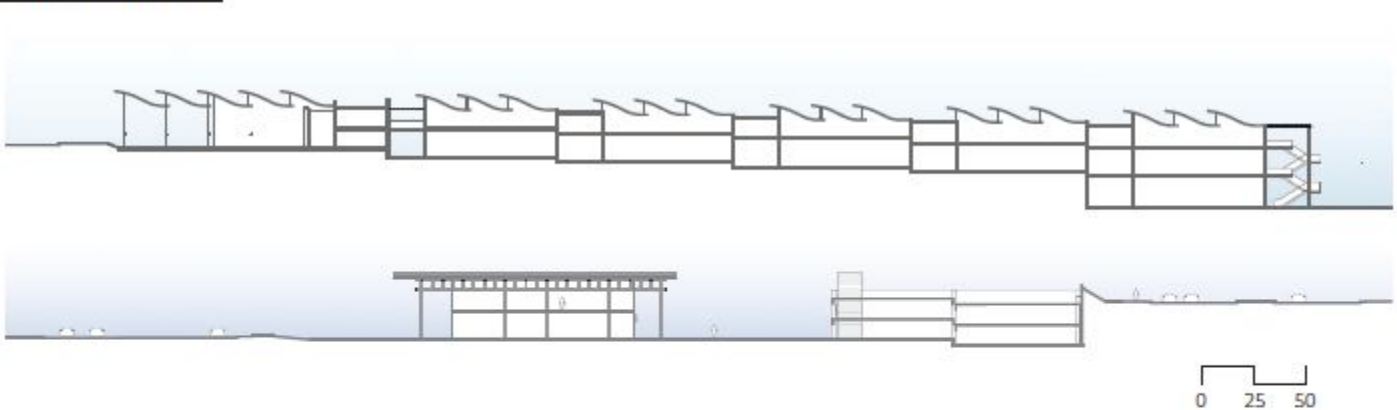


- 1. Council chambers
- 2. Community room
- 3. City departments
- 4. Offices
- 5. City Hall
- 6. Library
- 7. Public green
- 8. Parking
- 9. Pedestrian bridge
- 10. Wetlands
- 11. Ocean lookout
- 12. Dog park

**Site Plan**



**City Hall Section Diagrams**





**Top:** At the north end of the complex are the council chamber (shown left) and community room (right), which are connected by a covered porch. The permeability of the community room reflects the overarching idea “that you can have activities and engage people by not having them funnel through a stuffy formal building,” says Gregory Mottola, AIA, principal-in-charge of the project. “The light bulb really went off for the city about how they could use this space.” **Opposite:** The community room can be opened to the fresh air on two sides, and can be reconfigured to house multiple types of events. **Above:** Inside the City Hall volume, natural light penetrates deep into the floor plate—one of many strategies that were employed to help the complex achieve a LEED Gold rating, exceeding the city’s LEED Silver requirement.



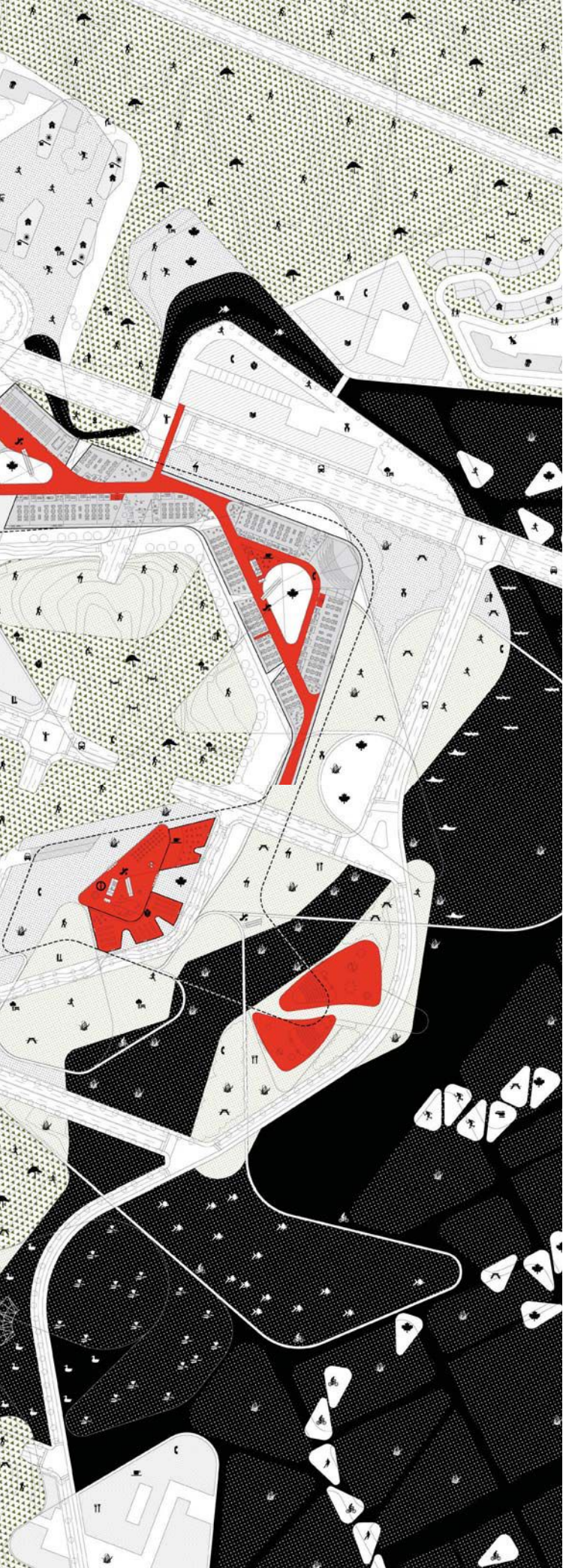






**Opposite top:** The north end of the complex also provides the public entry for visitors arriving by car, which, in Newport Beach, is most of them. The council chamber volume (at right) is enclosed by a curving roof that offers both sunshading and wayfinding. "This civic center happens in a really suburban context," says Steven Chaitow, AIA, principal and project manager for Bohlin Cywinski Jackson. "We needed something that announces the civic center to people driving by at 60 miles per hour." **Opposite bottom:** A pedestrian bridge crosses a protected area that originated as an uncovered storm system and developed into wetlands over time. **Above:** A lookout tower in the park allows pedestrians to see out to the Pacific Ocean, while still conforming to the height restrictions of the site, which were put in place to preserve views for existing developments inland.





# SEJONG CITY

BY MERGING LANDSCAPE AND ARCHITECTURE,  
BALMORI ASSOCIATES AND H ARCHITECTURE AIM  
TO CREATE A NEW SEAT OF GOVERNMENT FOR  
SOUTH KOREA—AND A NEW FORM OF URBANISM.



1. Government complex
2. Town center
3. Government/commercial integrated zone
4. Government central courtyard
5. Public library
6. Elementary school
7. Middle school
8. High school
9. Convention center
10. Hotel
11. Typical residential tower
12. Museum
13. Floating island amenities

Text by **Nate Berg**  
 Photos by **Efrain Mendez**

**FOR MORE THAN** 600 years, Seoul has been the capital and center of South Korea. Roughly half of the country's population lives in and around the city, and almost all government ministries have long been centered there. This concentration begat congestion, and after he was sworn in as president in 2003, the now-deceased Roh Moo-Hyun devised a plan to relocate many of the government's hundreds of offices. The moves would disperse people throughout the country and, not insignificantly, push critical ministries out of Seoul and farther away from the border with North Korea, which is just a 35-mile missile ride away.

And while many ministries are being relocated to locations chosen pragmatically—maritime agencies moved to the port city of Busan, for instance—the Korean government is replicating the benefits of concentrated government by relocating more than 40 of them to a brand new administrative capital 75 miles to the south of Seoul called Sejong City.

Much like the experimental architecture and urban planning of purpose-built capitals like Brasilia, Brazil, or Canberra, Australia, the design of Sejong City is perhaps the largest test of a new approach to citymaking—one that here starts with landscape architecture. The city's competition-winning master plan was designed by Balmori Associates, the New York-based landscape architecture firm run by Diana Balmori, who worked in concert with



**Previous spread:** A diagram of the circulation and transportation infrastructure surrounding the Sejong City government complex. **Top:** Infrastructure at street level is complemented by a parallel system of footpaths and gathering areas on the landscaped roofs of the government complex. **Above:** Far more than your typical green roofs, these have a distinct public role and identity within the new urban environment.



The six-story height limit within the city center allows the structure's green roof to slope down to the ground in a pedestrian-friendly incline.

the Korean firm Haeahn Architecture and its New York subsidiary H Architecture. A grid of streets and transit runs through the center of the city, but amid and over that street-level framework, Balmori's plan weaves a network of green spaces dictated by the contours of the land, once hilly but now flattened to make way for as many as 500,000 future residents.

The centerpiece of the 667-acre plan and of the city itself is the government building. Despite the dozens of ministries and agencies and offices relocated to Sejong City, Balmori's plan—and the logic of the city itself—is built around one large building. Balmori calls it the city's superstructure, and it is more landscape than architecture. Through a series of sloping walkways, wide-open expanses, ramps and corridors, Balmori's superstructure is an interconnected green space winding about two miles in length and rising six stories high in places. It's like a long, wet noodle that slipped out of a bowl and onto a tabletop. It's both smooth and crooked. The government offices are contained beneath it.

"It's a very unusual building in the sense that it has its open space built into it," Balmori says. "The superstructure in itself controls the building." The six-floor height limit was a deliberate choice, but it's something of an anomaly—Balmori notes that most of what's been built in Korea since the 1960s have been towers. On the outskirts of Sejong City, where resi-

dential towns are being built, towers stand like dominoes, proximate but disconnected. "There are no buildings that unify the ground floor, and it all feels as if it's hanging out in space," Balmori says. "[In the town center], we wanted something that was continuous and gave shape to the space, but that also would give the feeling that the city was very accessible."

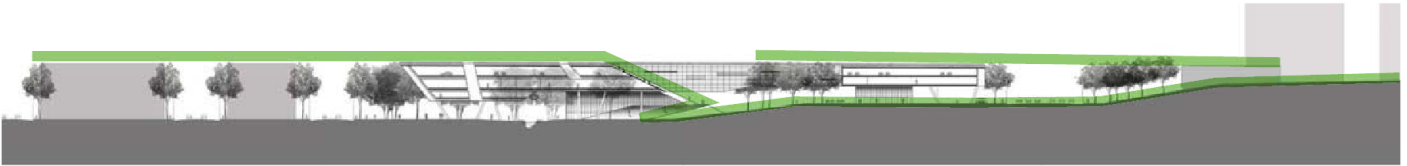
The city has been under construction since 2006, though politics delayed most of the work until 2010. Balmori says the city is currently about 80 percent complete, and should be finished by the end of 2015. Outside of the central governmental complex, the rest of the city's buildings have been designed by other firms. Balmori's plan is guiding that growth to emphasize the role that landscape can play in cleaning water and reducing energy use. Balmori originally intended it to be what she calls a "zero city," where all water would be treated and reused locally and all energy would be created on site. The energy approach wasn't adopted, but Balmori says the plan nonetheless proves landscape can be the basis of an environmentally considerate new city.

"It didn't really take shape until last year. I couldn't see how many of the ideas were going to come through," she says. "And then last year, 'Wow.' I just felt so exhilarated standing on that roof and saying, 'My god, they actually followed the things we said.' It felt so enormous."

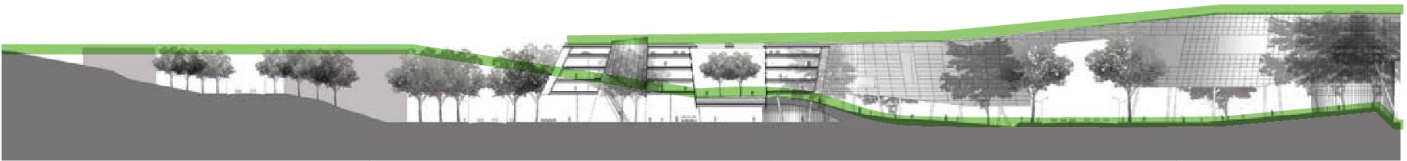
**Governmental Complex Section A-A<sub>1</sub>**



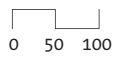
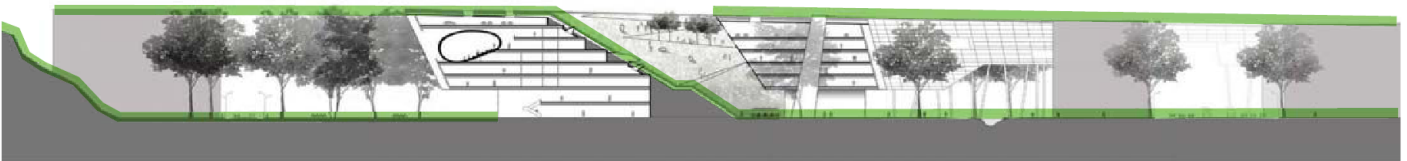
**Governmental Complex Section B-B<sub>1</sub>**



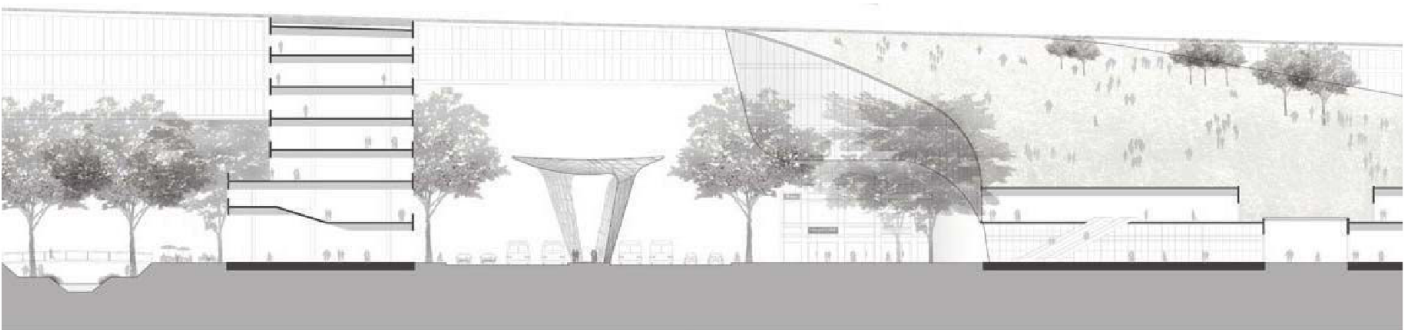
**Governmental Complex Section C-C<sub>1</sub>**



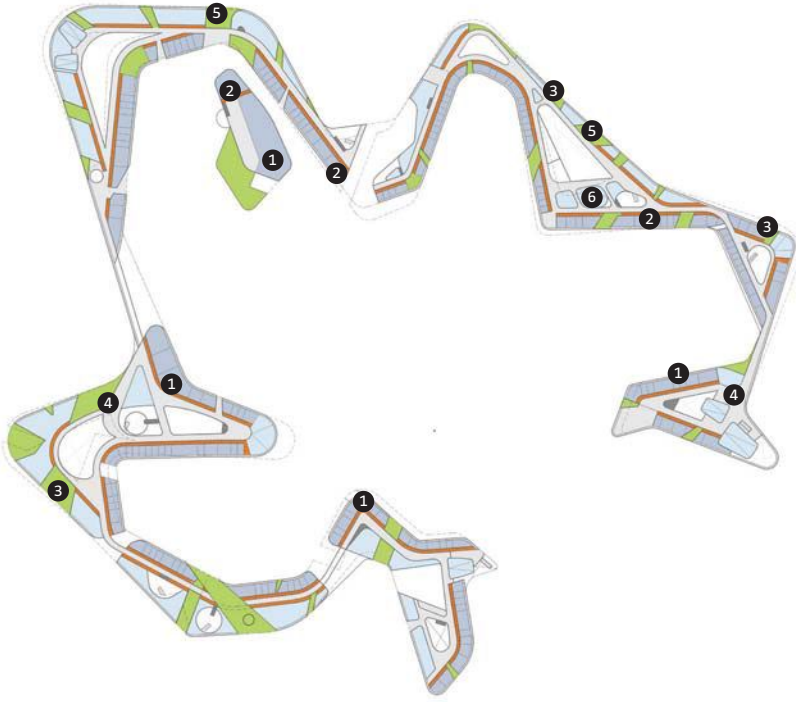
**Governmental Complex Section D-D<sub>1</sub>**



**Section Through a Typical Recreational Street**

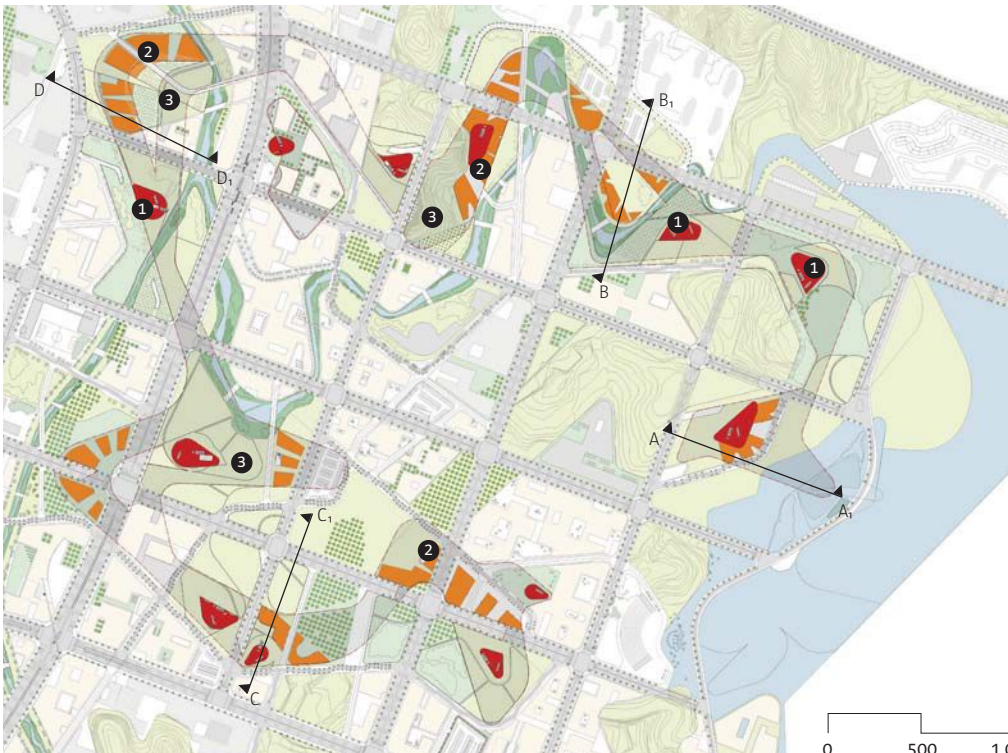


**Government Complex Typical Office-Level Plan**



- 1. Office
- 2. Office support
- 3. Amenity space
- 4. Circulation
- 5. Terrace
- 6. Auditorium

**Government Complex Ground-Floor Plan**



- 1. Public lobby
- 2. Subsidiary facility
- 3. Greenspace





The miles of footpaths are reminiscent of New York's High Line, with additional structures, outcroppings, and viewing platforms interspersed among the pavers and plantings.



Balmori intends the twisting rooftop paths to recall a nearby river, surrounding mountains, and the formerly hilly topography of the site itself, before construction crews leveled it out.



# SCHLOSS HERRENHAUSEN



JASTRZEMBSKI KOTULLA ARCHITEKTEN REBUILDS A PALACE LOST DURING WORLD WAR II, RESTORING THE CENTERPIECE OF GERMANY'S MOST IMPORTANT BAROQUE GARDEN.



**Previous spread:** The *schloss* straddles the central axis of Martin Charbonnier's parterre-filled Baroque garden. **This image:** In the courtyard, parterres have been removed to accommodate light wells for the conference level below. **Opposite, bottom left:** An early rendering of the garden. **Opposite, bottom right:** The gardens before reconstruction of the *schloss*.



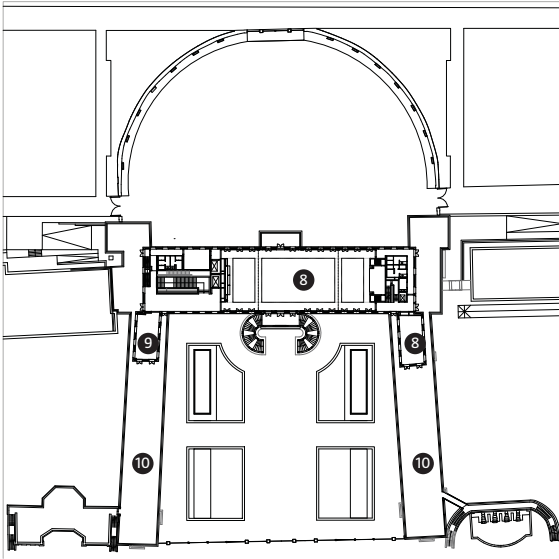
**THE ENSEMBLE WE KNOW** as Herrenhausen got its start in the 17th century as a country estate for the Electors of Hanover. Its notoriety grew with the addition of the Baroque *Grosser Garten* designed by Martin Charbonnier between 1696 and 1714, bringing to bear all the influence that his teacher André Le Nôtre exerted decades earlier at Versailles. At the same time, a residence was built to terminate the central axis of the expanding gardens. It was more than a century later, in 1819, after the territory had been elevated to a kingdom, that architect Georg Ludwig Friedrich Laves recast the structure with its restrained Neoclassical façade.

That legacy came to ruin during World War II, when a 1943 bombing raid leveled the castle, leaving only a crumbling horseshoe staircase. In the 1960s, restoration began on the garden, but the residence wasn't rebuilt until last year, according to the Laves design, by Hamburg-based Jastrzembski Kotulla Architekten. Funded by the city of Hanover and the Volkswagen Foundation, the structure is now a conference center and museum, with contemporary spaces secreted behind the pediments and pilasters of the façade. With the reintroduction of this architectural centerpiece, the balance of the filigreed greenspace has been restored.



TOP: HAGEN STIER; RIGHT: KARLOHAENTES

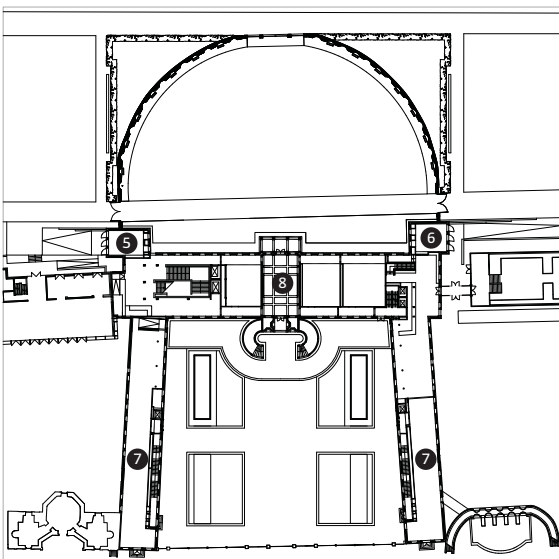
## Second-Floor Plan



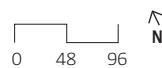
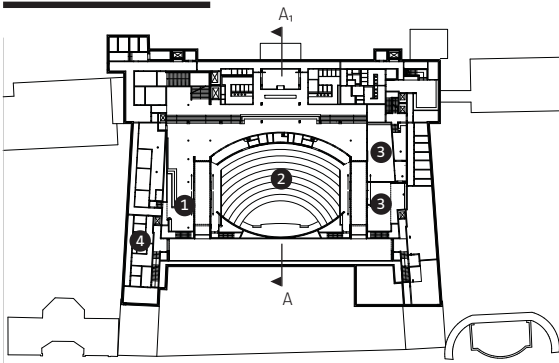
1. Conference center foyer
2. Auditorium
3. Seminar rooms
4. Office
5. Conference center entrance
6. Museum entrance
7. Gallery
8. Meeting rooms
9. Bar
10. Roof terrace

**Opposite Top:** Schloss Herrenhausen is surrounded by many types of gardens, including this arrangement of fig trees and flower beds, which was restored to its original design by landscape architecture firm Hager Partner in time for the Expo 2000 world's fair. **Opposite Middle:** The *Grosser Garten*, which extends south of the palace, includes (left to right) the *Inselgarten*, an octagonal fountain, and a topiary parterre in front of the ancillary Gallery building, which, along with an orangerie, largely survived the bombing. **Opposite Bottom:** There are several pavilions and other structures in the garden, such as this fountain staircase leading to the garden theater on the east side of the *Grosser Garten*.

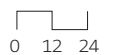
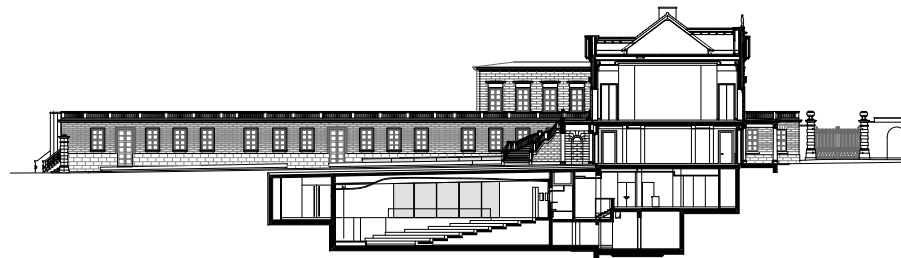
## Ground-Floor Plan



## Lower-Level Plan



## Section A-A1







TOP: HAGEN STIER; MIDDLE [A.U.]: COPPOGRAPH; BOTTOM: CUENTERMANAUS

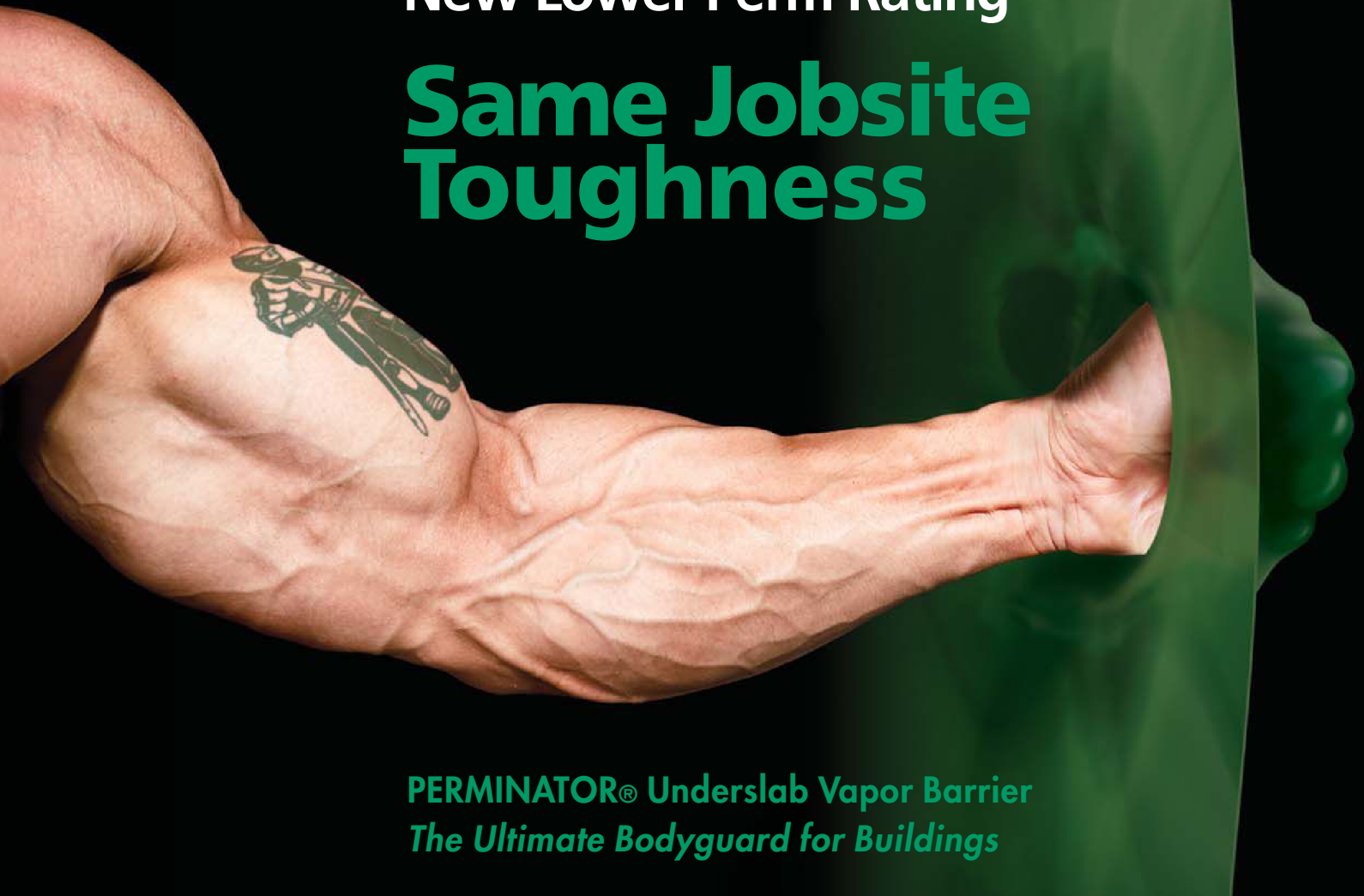


**Top:** Much of the *schloss* has been recast as a conference center, and the interiors combine classical proportions with modern finishes. The old foyer can be subdivided for smaller meetings and seminars; the space is paved in Jura limestone and opens out to the gardens. Conference attendees enter through a different entrance than that of the museum, which occupies the main level in the building's east and west wings. **Above:** An entirely new below-grade level accommodates a large auditorium and additional seminar rooms. More contemporary than the interiors of the *schloss* proper, this level is illuminated and ventilated by two atriums cut into the main palace courtyard. Sliding doors connect these open-air spaces to the interiors. **Opposite:** The smaller-scale bar is on the second level of the palace and opens out onto a new rooftop terrace.



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# RESIDENTIAL

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## **FIRE ISLAND HOUSE**

RICHARD MEIER HAS DESIGNED A RELATIVELY MODEST NEW BEACHFRONT HOUSE FOR LONG-TIME CLIENTS THAT MARRIES HIS SIGNATURE ORTHOGONALS WITH AN EXCEPTIONAL TRANSPARENCY.

**Previous page:** Richard Meier's signature orthogonal white aesthetic makes this new beachfront house stand out among its neighbors. **This image:** The north, east, and west façades are largely formed from double-height glazed walls that maximize daylight and views.



Text by **Ian Volner**  
Photos by **Scott Frances/OTTO**

**SAM WOOD HAS BEEN** in the building trade for 25 years, working as one of the busiest and best-known construction specialists in one of the most unusual housing markets in America: Fire Island, N.Y. Thirty miles long and rarely more than 800 feet wide, this strip of beach is the summer retreat of choice for a diverse blend of New Yorkers who are attracted to either its un-Hamptonian informality or its thriving gay community (or both). Based in the hamlet of Kismet near the island's westernmost point, Wood's eponymous company has been involved in everything from building casual summer cottages to jacking existing structures up above the ever-rising flood planes. But his latest project, he claims, broke the mold: "This was a whole other animal," Wood says.

Wood is standing in the front hall of the new vacation home of Phil and Lucy Suarez, a simple white-steel structure—modestly sized at 2,000 square feet—that is instantly and undeniably recognizable as the work of Richard Meier, FAIA. The architect has known the clients for so long that "I don't remember when we met," Meier says—though it had to have been at some point prior to the late '60s, when the couple approached him to design the interior of their Manhattan apartment. "We really became friends

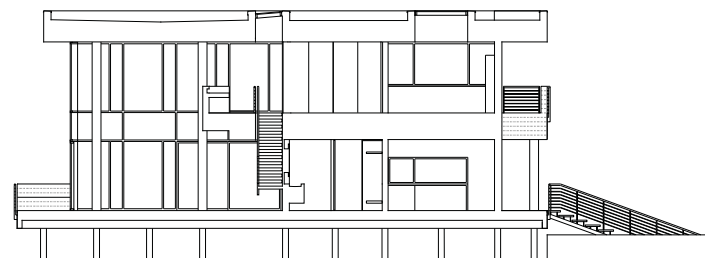
on that project," recalls Mrs. Suarez, and their enduring relationship led to this second commission almost 50 years later. "I just didn't want someone else doing it," Meier says.

The designer offered his services after the Suarez's original Fire Island house burned down three years ago—the conflagration having been extinguished, ironically, by Wood, who, in classic Fire Island fashion, moonlights as a local volunteer fireman. But fighting the flames was nothing compared to the problems of building in steel and glass on an elongated sandbar accessible mainly by boat: Putting together the all-glazed, beach-facing northern wall, the minimal and carefully secluded interior living spaces, and perfectly composed fireplace—complete with projecting chimney—took a full year longer than Wood estimated.

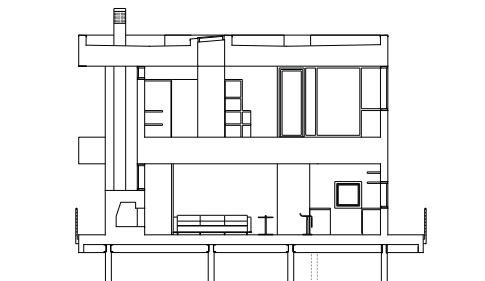
Richard Meier & Partners Architects associate partner Bernhard Karpf, AIA, was charged with the logistics for completing the project, and he credits Wood's team with surmounting hurdles that included the devastation of Hurricane Sandy to realize what is, at bottom, a deeply personal vision shared by architect and client. "This was Richard's thing that he wanted to do himself," Karpf says. "It's just a little glass jewel box on Fire Island."



**Section A-A:**



**Section B-B:**



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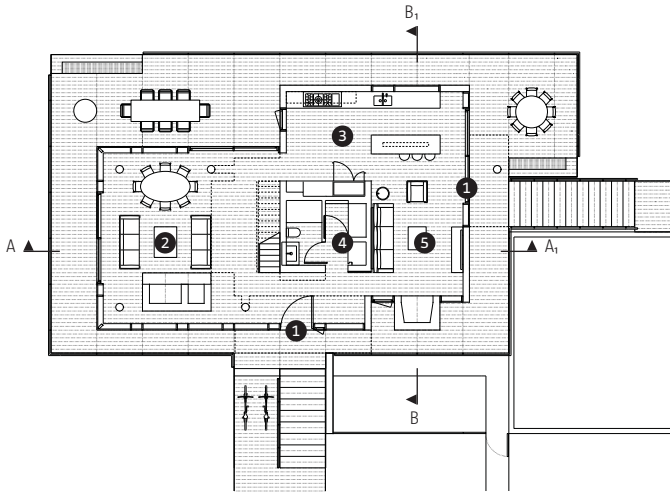


**Above:** The main entry of the house is on the opaque, white-painted-cedar south façade, and is accessed via a wood-plank walkway that offers access to the gardens, pool, and outlying pool and guest houses. **Below left:** The minimal aesthetic is carried into the all-white kitchen, but wood floors throughout reflect the warm-toned daylight. **Below right:** The double-height living room faces the water, and a large built-in fireplace helps ward off winter chill for a year-round experience. **Opposite bottom left:** A galley-style bathroom cuts through the second floor, culminating in a master bedroom and dressing room in the more opaque southern end of the house. **Opposite bottom right:** A deck outside the bedroom is one of many in and around the house—there are 1,700 square feet of decks in all, almost doubling the house's footprint.

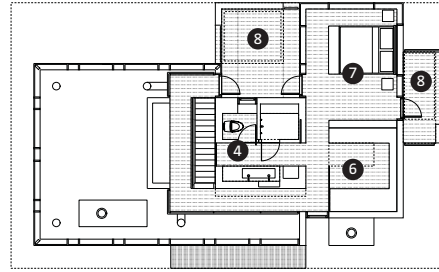




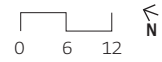
**First-Floor Plan**



**Second-Floor Plan**



- 1. Entrance
- 2. Living room
- 3. Kitchen
- 4. Bathroom
- 5. Den
- 6. Dressing room
- 7. Bedroom
- 8. Deck



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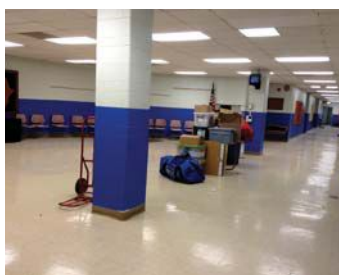


# Thank you.

Thank you to our amazing design team (pictured above) and contributing sponsors. So many from all across our great nation worked tirelessly and gave generously to help AEC Cares make a difference for the children of the South Side of Chicago. Through your philanthropic efforts, we were able to leave behind a legacy of hope. We can't thank you enough.

Design Team pictured above (left to right) - Butch Sarkauskas, David Rizzio, Chey Hsiao, Kaitlin Streyle, Jason Kubichan, Mindy Viamontes, Rik Master, Itzi Valezquez, Katherine Darnstadt, Brandy Koch. Not pictured - Jose Estrada, Linda Chavez, Mark Schwamel and Marta Gazda-Auskalnis

BEFORE



AFTER





## Newport Beach Civic Center and Park, PAGE 88

**Project** Newport Beach Civic Center and Park, Newport Beach, Calif.

**Client** City of Newport Beach

**Architect** Bohlin Cywinski Jackson, San Francisco—Peter Q. Bohlin, FAIA (lead design principal); Gregory R. Mottola, AIA (principal in charge/design principal); Steven Chaitow, AIA (principal/project manager); Joshua Keller, Daniel Lee, AIA (lead project architects); Brigham Keehner, AIA, Yvonne Riggie, Karolina Kaczmarczyk, Ryan Simpson, Christopher Eastman, Jeffrey Lew, AIA, Nicholas Ruiz, Michael Waltner, Lena Shah, Helene Gregoire, Yung Chang, Chris Dobosz, Sandy Lam, Arash Archer Firouzi, Lulu Fang, Ashley Hinton, Dominique Price, AIA, Reggie Stump, Jen Kishi, Erika Miele, Shawn Wood

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**Waterproofing** Allana Buick & Bers

**General Contractor** C.W. Driver

**Photography** Nic Lehoux, David Wakely, and Tim Griffith

**Size** 20 acres; 100,000 square feet (City Hall); 17,000 square feet (library addition)

**Cost** \$105 million

### Material and Sources

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**Wall Finishes** Arcadia (interior storefront) *arcadiainc.com*; Montbleau & Associates (wood wall panels) *montbleau.com*; Vista Paint Corp. (paint) *vistapaint.com*

## Sejong City, PAGE 96

**Project** Master Plan for the Public Administration Town (PAT), Sejong City, Jeonju, South Korea

**Client** Multifunctional Administrative City Construction Agency and Korea Land Corporation

**Architect** Balmori Associates, New York

**Project Team** Balmori Associates, H Architecture, Haeahn Architecture

**Size** 667 acres

## Schloss Herrenhausen, PAGE 106

**Project** Schloss Herrenhausen, Hannover, Germany

**Client** IVA/Volkswagen Foundation

**Architect** Jastrzembski Kotulla Architekten, Hamburg, Germany—Bettina Jastrzembski, Sven Kotulla (principals); Johannes Carl, Christoph Gawlick, Jakob Grelck, Kai Stender (team)

**Construction Management** Friedrich Schulze

**Interior Designer** Ewald Kramer

**Builder** IVA/VolkswagenStiftung

**Project Management** Bilfinger

**Structural Engineering** Wetzel & von Seht

**Building Services** Hetzel, Tor-Westen + Partner

**Electrical Engineering** TGL Planungsgemeinschaft

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**Construction and Reconstruction** Büro für Bauforschung—Dr. Bernd Adam (historian)

**Acoustics** Taubert und Ruhe

**Surveying** Rohardt Evensen

## Fire Island House, PAGE 115

**Project** Fire Island House, Fire Island, N.Y.

**Client** Phil and Lucy Suarez

**Architect** Richard Meier & Partners, New York—Richard Meier, FAIA, Bernhard Karpf, AIA (design team); Amalia Rusconi-Clerici (project architect)

**Collaborator** Alison Macbeth

**Structural Engineer** Robert Silman Associates

**M/E/P Engineer** I.P. Group Consulting Engineers

**General Contractor** Sam Wood

**Lighting Consultant** L'Observatoire International

**AV Consultant** The Honest Audio, Video & Lighting Co.

**Size** 2,000 square feet (floor area);

1,700 square feet (deck)

**Cost** Withheld

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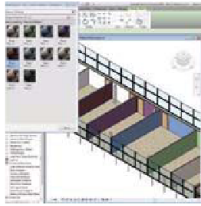
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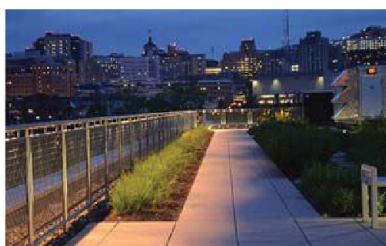
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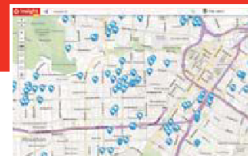
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by Thomas Fisher, Assoc. AIA

**WHEN DESIGNING** this vacation house on Martha's Vineyard, Mass., Steven Holl, FAIA, drew from the part of Herman Melville's *Moby-Dick* in which a sailor tells of how Native Americans on Nantucket used the bones of beached whales as the structures for their houses. Holl interpreted that, brilliantly, in the "inside-out balloon frame" of this beach house for clients Steven Berkowitz and Janet Odgis.

The wood-framed "bones" enclosed a veranda and elevated the 2,800-square-foot, three-bedroom structure above the rolling dunes, with a two-story tower at the back containing an exercise room, master bedroom, and bath. A ladder led from a second-floor deck to a third-floor crow's nest, evoking Melville's nautical influence and providing a commanding view up and down the beach.

Cited in the 1986 P/A Awards and completed in 1988, the house also won an Institute Honor Award for Architecture from the AIA in 1989. None of that recognition, though, could save it from demolition—not after subsequent owners, wanting to expand the house, heard their engineers declare it structurally unsound, with rot throughout. Rather than reconstruct it, the owners tore the house down and put the land up for sale.

This tragic end recalls another aspect of Melville's tale: the illusion of permanence that we ascribe to the structures we construct, be they buildings or boats. The "firm deck" of the Martha's Vineyard House has ended up "all collapsed" before "the great shroud of the sea," like the Pequod, smashed by the muscle and bones of the white whale.

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How do you make a building built in the 1960's century conform to 21st century standards in energy and space efficiency? This was the challenge with the vacant eye-sore in the heart of Towson. After gutting the entire building, it was discovered that each floor had only nine feet of ceiling clearance. A heavily-ducted HVAC system was not an option.

The solution? A Mitsubishi Electric Cooling & Heating VRF zoning system with low-profile indoor unit fan coils to provide individualized zoning.

Because of the modular design of the VRF system, the 15 outdoor units were placed on the roof which freed up 12,000 square

feet on the 13th floor. As a result, a floor that had once been a mechanical room became leasable space. And, 70% of the shaft required by the previous outdated system was filled in, significantly increasing usable space on each floor.

Not only was space saved, but energy needs were dramatically reduced as well. Mitsubishi Electric's VRF zoning system provided 11 LEED® energy points, and resulted in a \$422,000 rebate through Baltimore Gas & Electric's Smart Energy Savers Program.

By saving energy and space, Mitsubishi Electric brought the Towson City Center into the 21st century. And beyond.



## ► **PROJECT SUMMARY**

### **Building Type:**

- 15-story Office with 170,000 sq. ft.

### **Equipment Installed:**

- R2-Series Air-source Outdoor Units
- Wall-mounted and Ceiling-concealed Indoor Units
- LonWorks® Interface
- GB-50 Central Controller
- CITY MULTI® Controls Network (CMCN)

### **System Capacity:**

- 272 Tons of Simultaneous Cooling and Heating

### **Results:**

- LEED Silver with 11 Energy Points from Mitsubishi Electric HVAC
- \$422,000 Energy Rebate
- Fully Leased



Circle no. 289 or <http://architect.hotims.com>

Get more details about Towson City Center and see how Mitsubishi Electric solved other HVAC design challenges at **MitsubishiPro.com**.

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