

September/October 2015

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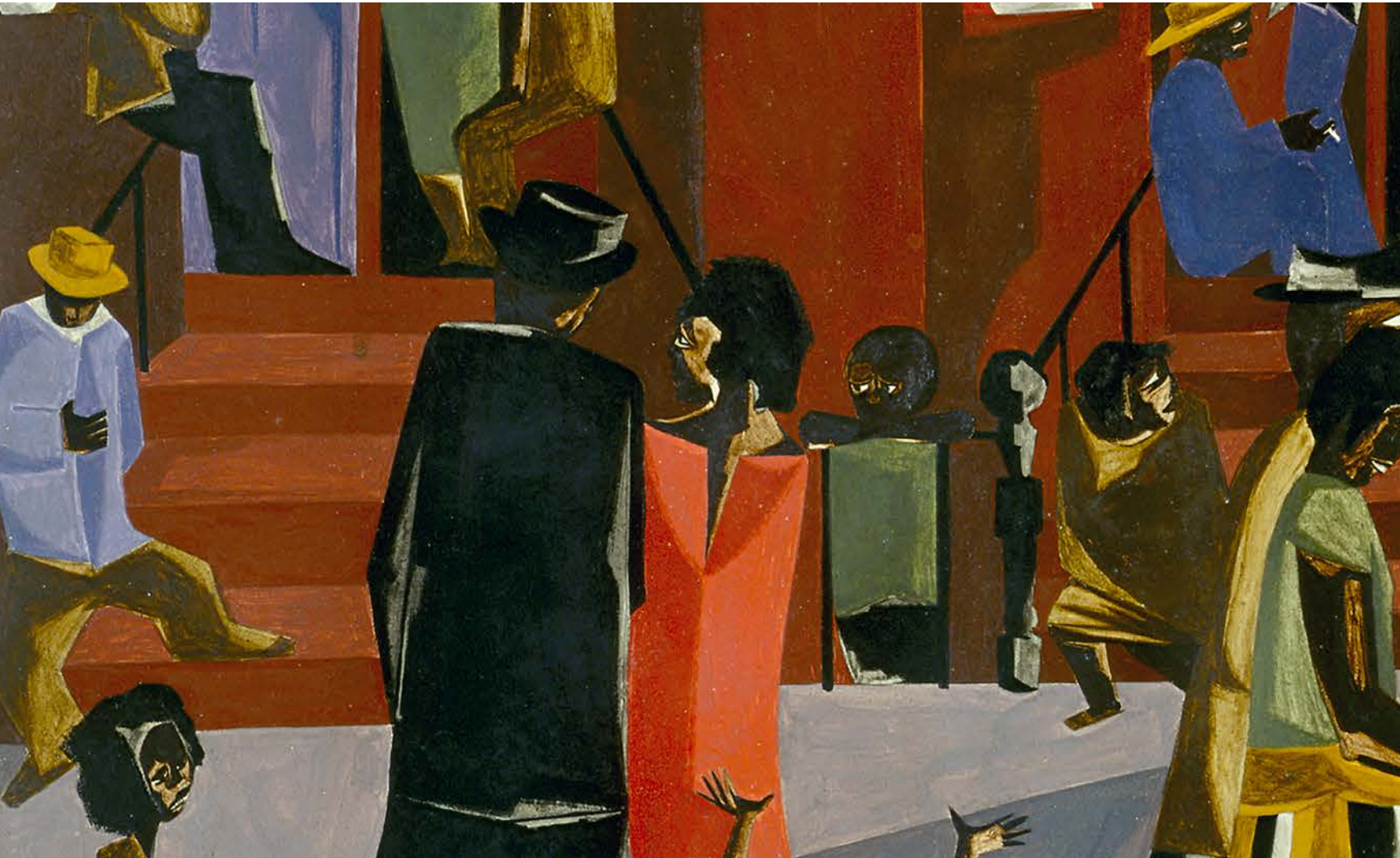


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ON THE COVER

Brownstones, 1958

Jacob Lawrence (1917–2000) is one of the most celebrated African American artists to date. In this image, Lawrence found inspiration in the Harlem community where he was raised. He used what he saw around him every day to document the people, street scenes, movement, color, sounds, and spirit of the community.

Courtesy of Clark Atlanta University Art Collection



FEATURES | IN THE COMMUNITY

28 HEAD OF THE CLASS
How Ohio—the Rust Belt state and center-right presidential bellwether—became the nation’s unlikely green schools leader.

38 GREEN BY DESIGN
Frankel Building Group has cultivated a top-notch reputation for its dedication to designing and building LEED homes.

46 SUSTAINABLE STADIUMS
National sports reach into the community through the arena of sustainable design.



PAINTING BY JACOB LAWRENCE

LEED On

- 7** LETTER FROM OUR LEADERS
Majora Carter
president, MCG Consulting

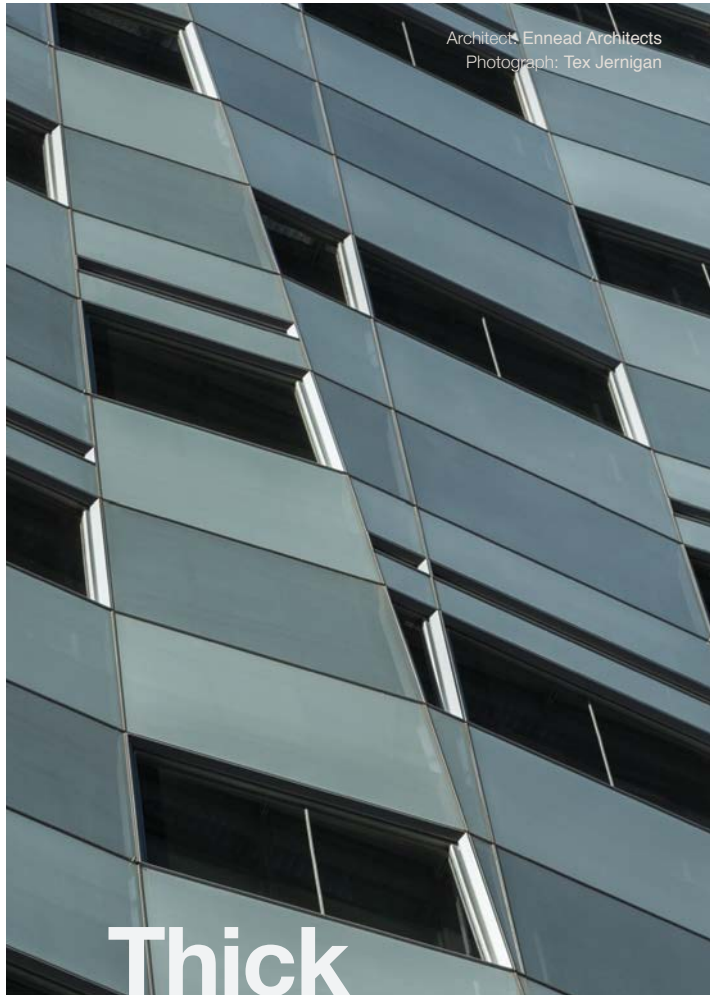
LEED Impact Categories

- 10** community
Pending LEED Gold-certification, the Whitney Museum capitalizes on its new, unique location.
- 14** human health
Raising the living standards in one Denver housing development.
- 18** green economy
Fannie Mae rewards sustainable buildings with lower interest rates.
- 20** ecosystems
Appleton Farms preserves cultural and historical landscapes while practicing sustainability.

Departments

- 54** community
The University of the District of Columbia's new business-incubator kitchen is instrumental to the success of its Urban Food Hub solution.
- 58** advocacy
California green builders find new solutions to scaling LEED with green codes.
- 64** local pulse
Q & A with Pepper Smith, director of residential programs, Davis Energy Group

Architect: Ennead Architects
Photograph: Tex Jernigan



Thick Skinned

Weill Cornell Medical College wants its buildings to last a century, but not feel like they were built last century. So **Ennead Architects** enclosed the **Belfer Research Building** with a double-skin curtain wall to better regulate lab environments—increasing their efficiency and the school's prestige within the research community. Read more about it in **Metals in Construction** online.

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AS OF SEPTEMBER 2015

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CERTIFIED: **29,754**

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*Excludes ND and LEED for Homes

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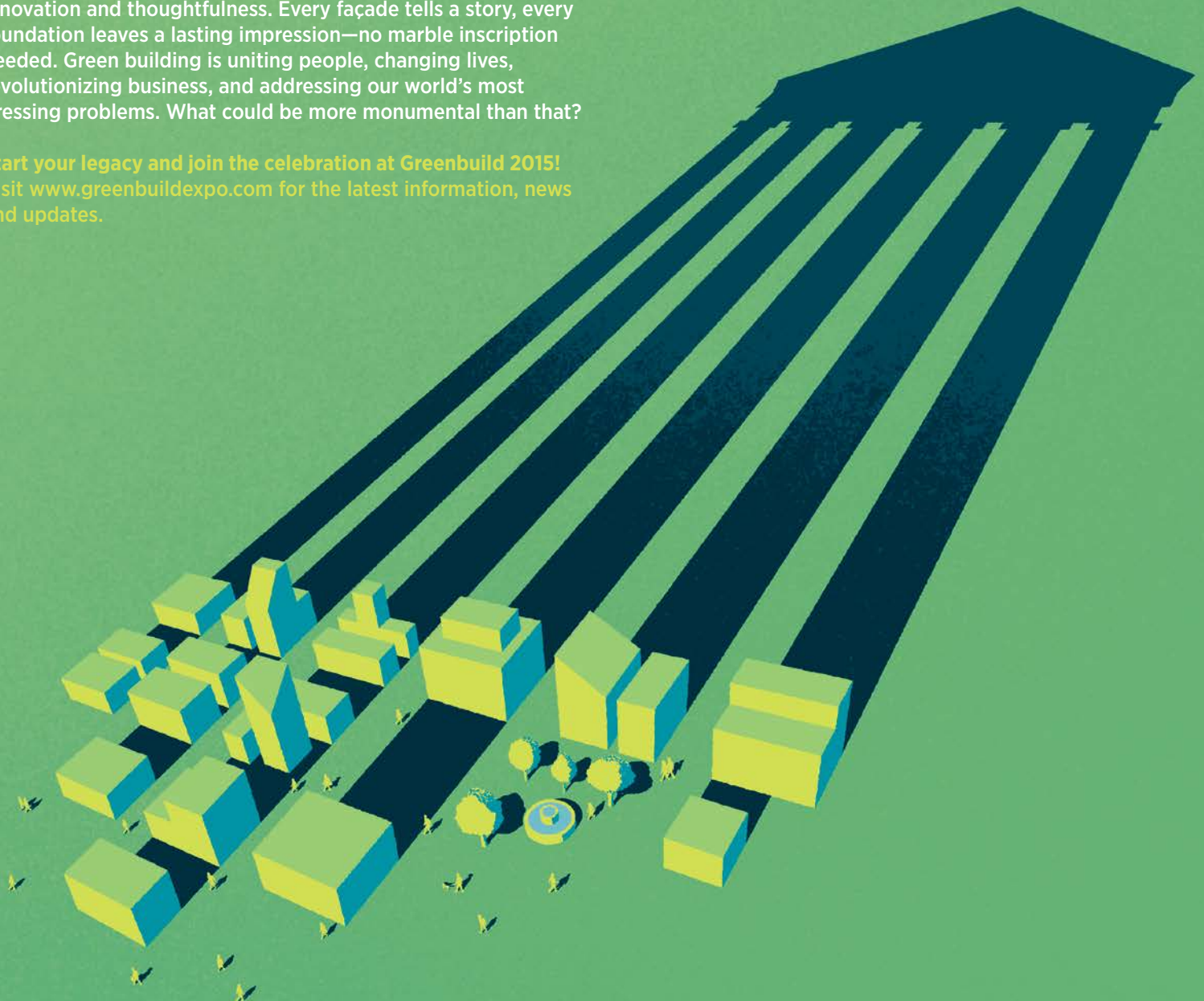
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Environmental Equality



MAJORA CARTER
president, MCG Consulting

No matter how good you believe your product, your idea, your policy, or even how good you think your intentions are, it doesn't matter if nobody is "buying" it. There are tried-and-true ways of getting people to buy things and "educating" folks is far down the list. Relationship building continues to be a leading strategy in the foreseeable future, so let's work with it!

Serving on the Board of USGBC for four years, I was able to see its good products, ideas, policies, and intentions firsthand. But I come from the South Bronx, and my consulting firm works in the "South Bronx" you find in every city around the world: "low-status" communities where good intentions have come and gone for generations, producing less than expected results.

People debate why that is: not enough money, spending on the wrong things, insufficient community education; and all of them are probably correct.

Whatever success my company has achieved is based on principles used in nearly every successful commercial product launch: identifying and developing a market that demands what you have. Otherwise it doesn't make any difference how good that product is. It's that simple.

But nothing simple is ever easy. As U.S. reurbanization gains momentum, increasing pressures on real estate development affect people at all levels of influence and income. How we engage communities with USGBC's gospel of Environmental Equality now—during these pivotal years of geographic transition from sprawl to density—will be a continuing factor in the level of demand for that which USGBC has to offer.

The first step is an initiative we use called Advisory Boards: a collection of local people curated to avoid the usual suspects who often come with preconceptions and motivations based on funders' jargon

and assumptions about what poor people "should" want, or get, or deserve.

Advisory Boards in this context are meant to collect real concerns among the broader community and generate fresh ideas by bringing together disparate voices within a geographic area comprised of business owners, residents, and local influencers.

USGBC is taking a leading role in the development of its long-term market viability by supporting this kind of relationship with amazing communities in Philadelphia, Baltimore, Detroit, Los Angeles, and on the White Earth Reservation in northern Minnesota.

Once you build real relationships with people who are motivated to improve their communities, the potential demand for your product can be detected in a more accurate way. Then, you launch a beta version of your offerings, learn from how people react, refine, reiterate, and expand.

When you market from a position of mutual self-interests, your chances of effective and ongoing engagement improve dramatically and can leverage any resources that might otherwise meet the typical dead-ends that plague philanthropic sectors in all markets.

I am different than many of my peers in the urban and building design worlds, and I'm also set apart from most of the people in the community where I was raised and continue to live, work, and invest in.

My experiences in both worlds are coming together in ways that give me so much hope for how USGBC and the United States can effectively develop market demand for environmental equality in ways that none of us can predict—but all of us will benefit from.

LEED ON,



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28 LEARN



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38 LIVE



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46 PLAY



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ILLUSTRATIONS BY MELISSA MCGILL

A hand is shown in the foreground, holding a green graphic overlay. The overlay features the text 'GAIN A HEALTHY PERSPECTIVE' in large, white, bold, sans-serif font. The background of the overlay is green and contains various icons: a house, a radiation symbol, a leaf, a water drop, a gear, a person silhouette, and several arrows pointing in different directions. The graphic is positioned over a black and white photograph of a modern building with a glass entrance and a wooden bench in front. The building has a textured facade and a large window on the right side.

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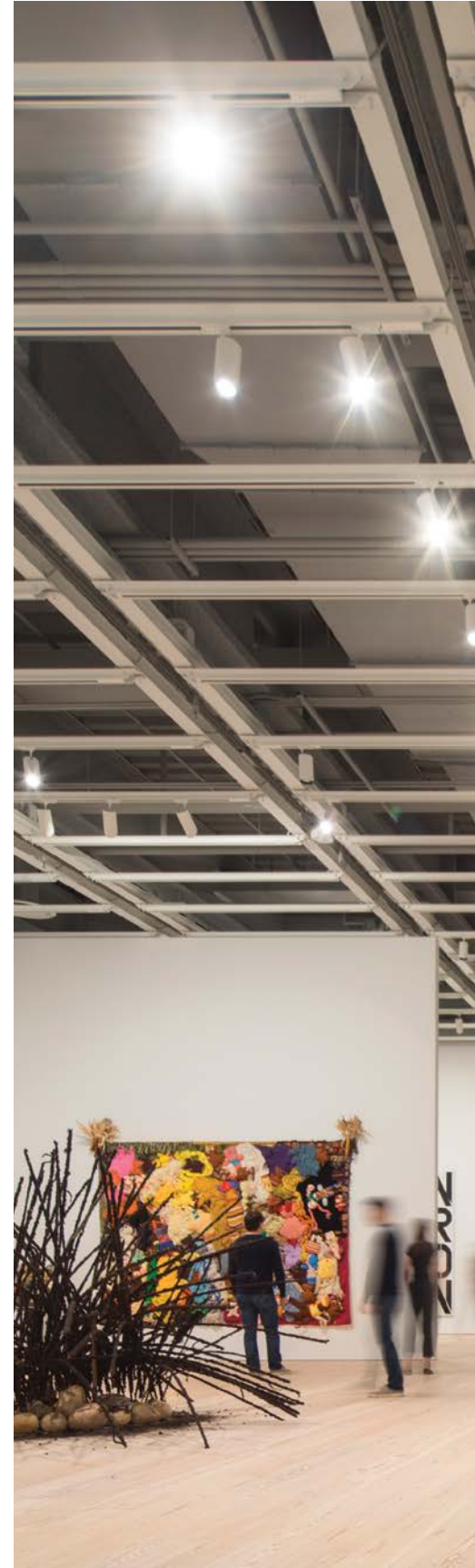
Pending LEED Gold-certification, the Whitney Museum capitalizes on its new, unique location.

BY KILEY JACQUES

“It was clear that the High Line was to be the major point of our attention and the Hudson River, of course. The project needed to relate to both,” says Renzo Piano Building Workshop (RPBW) partner Elisabetta Trezzani, who was involved from the very beginning when New York City’s new Whitney Museum was but a concept being discussed at its former Madison Avenue location.

The museum’s move downtown is a “return to its roots in the Village,” since at its opening in 1931, the Whitney stood on West 8th Street. Its second reincarnation, in 1954, saw it grow to 65,000 square feet on Madison Avenue and 75th Street. Ultimately, however, the Marcel Breuer-designed building could accommodate only 10 percent of the museum’s permanent collection, which led to yet another relocation. Now, situated at the southernmost entrance of the High Line, it is a strong visual and physical tie to the urban landscape.

The new building, completed this past spring, will be the first LEED Gold-certified museum in NYC. Located in the booming Meatpacking District and sandwiched between the Hudson River and the High Line—Manhattan’s recently completed urban park built on an abandoned elevated spur from the 1930s—the Whitney occupies an extraordinary site indeed. “The city was always supporting the idea of a cultural project in this location,” notes Trezzani, who together with her team specifically designed the museum to connect visitors to the downtown community as well as the cityscape.



PHOTOGRAPHY BY NIC LEHOUX





Lighting in a museum is a sensitive issue as the purpose is to display artworks in the best color rendering. Today the museum is lit with LED fixtures as opposed to incandescent lighting to avoid excessive energy consumption.

“One of the main points was to create a place at the ground level that was transparent and calming and connected to the city,” says Trezzani. RPBW wanted to take full advantage of the “fantastic new feature” in the city (the High Line), in a complementary way. Toward that end, the team—in partnership with waterfront design specialists Cooper, Robertson & Partners—decided to mass the building such that it would scale down on the High Line side while the bulk of it would face the river. “The idea was to always have a connection between inside and outside,” says Trezzani. “The gallery needed to have not just a view out but an outside gallery.” Hence the stepping terraces, which serve as “urban stages,” at each level on the east side.

Sheathed in blue-gray enamel steel panels, the eight-story museum is powerfully asymmetrical and appropriately industrial, given its surroundings. The character of neighboring loft buildings and the streetscape, as well as the property lines, setbacks, and city regulations all determined what was to become its signature shape. The team wanted to maximize the ground level space, maintain a view of the High Line and the river, and take optimum advantage of natural light sources as well as opportunities for open areas.

The expansion nearly doubles the museum’s exhibition space, enabling the first comprehensive view of its growing collection, which today comprises more than 19,000 works of modern and contemporary American art. The entrance,

lobby, and ground floor make up a dramatically cantilevered plaza, or “largo,” which serves as a free and open transitional space between the street and the collection. The whole structure contains approximately 50,000 square feet of indoor galleries, 13,000 square feet of outdoor exhibition space, and an 18,000-square-foot gallery for special exhibitions. An education center; a 170-seat multiuse theatre; a black box theatre for film, video, and performance with an adjacent outdoor gallery; and a Works on Paper Study Center, Conservation Lab, and Library Reading room all resulted from this most recent expansion. Additionally, a top-floor studio café offers a sit-down respite, where visitors enjoy natural light from a sawtooth-configured skylight system.

“The building is quite simple,” says Trezzani. “It has this central core where all the vertical elements are aimed.” To “express” what lies beyond this core, RPBW looked to key characteristics of the city itself. They used concrete, they exposed the cooling tower, and they built an exterior stairway with glazed walkways that connect all the terraces. Combined, these elements reference the urban landscape—its primary building material, water towers, and fire escapes, respectively. “We wanted to create a language that was specific to the museum but related always to the city,” explains Trezzani.

In terms of its LEED Gold certification, green measures include glass windows designed to take in diffused natural light from the north, which Trezzani describes as “the best light,” as it allows for more control and results in less energy



The museum's curtain wall is made with insulated glass with a three-tiered shading system.

consumption. Additionally, the whole museum is lit with LED fixtures. "In a museum... lighting is one of the most energy-consuming [features]," notes Trezzani. "In the last five years, the market has really changed... a lot of progress has been made in the quality of LED lights and color control."

Building project manager Larissa Gentile concurs: "Lighting is an especially sensitive issue for museums, whose whole purpose is to display art works in the way they are meant to be seen—in the best light, literally." Traditionally, contemporary museums have gone with incandescent lighting, which is, of course, hugely consumptive. "We were waiting for advances in LED lighting to come up to where we wanted them to be, specifically for color rendering," notes Gentile.

Other energy saving efforts included the installation of a 75-kilowatt co-generation engine and a ventilation system that makes use of outside air. "Most of what we were trying to achieve related to energy savings," notes Gentile. That's no small feat for a museum that needs to strictly regulate its climate 24 hours a day, 365 days a year. "Looking at ways to reduce consumption was key to the design," she says, noting that the original goal was LEED Silver certification, but she adds, "We found with a little extra hard work and a little extra commitment, we could go over and above and get LEED Gold."

Low-flow, automated faucets and toilets, a stormwater retention tank—which retains all runoff from roofs for irrigation and for the cooling towers—a green roof, and plaza-level planters that help reduce runoff to the sewage system

are all at work in the new location. Of special note are the gallery floors, which are made of reclaimed heart pine wood beams from defunct area mills. "We love them," says Gentile. "You could only find them here. It's a very Whitney thing."

Additionally, the museum's curtain wall is devised of specially insulated glass and a three-tiered shading system. "Our envelope was quite robust already," notes Gentile, "meaning [we have] a highly insulated sandwich between the interior and exterior spaces for controlling glare and diffusing light to protect the art works."

Affiliates discuss their green initiatives whenever possible, especially during tours. "From the museum standpoint, it is something we absolutely highlight whenever we are talking about the building," says Gentile, adding it was never an option to not make the building sustainable: "It was very important to Renzo that our new building be designed as a sustainable building. He said not thinking of that is just wrong. You have to go forward and build with that mindset. The museum was very much on board. We wanted to do whatever we could."

So, how has the new museum fared since its opening? "In the last three months, it has had the same number of visitors it normally has in one year," says Trezzani. "In general, we have heard very, very good feedback." That reaction comes not only from visitors, but also from insiders like Gentile who inhabit the building daily. "To create a new museum—the only art museum in New York City to be LEED Gold—is phenomenal, and to have a hand in that is even better." ●

Vibrant Community

Raising the living standards in one Denver housing development.

BY MARY GRAUERHOLZ

For more than 50 years, the South Lincoln Homes development, operated by the Denver Housing Authority (DHA), had the lifeless look that was so rampant in mid-20th century public housing: nondescript low-slung red brick buildings with cookie-cutter windows and thin strips of parched-looking grass in front, intersected by concrete sidewalks.

The units served a vital purpose—housing the city’s low-income residents. But the buildings did very little to inspire residents or anyone else who walked down the West 10th Avenue area. In those times, designing safe, healthy, beautiful community spaces was as absent from planners’ minds as renewable energy, low-water living, or sustainable architecture.

Around 2010, the light switched on and everything changed. Today the drab buildings have been replaced by vibrant structures with eye-catching architecture and thoughtful lighting. The reconstructed development, with renewable energy systems and facilities that draw residents together in community, is winning awards for innovation and forward-thinking leadership, and earning LEED Gold and Platinum certifications.

Called Mariposa—Spanish for “butterfly”—the 15-acre transit-oriented development invites the mixed-income residents to thrive. They tend community gardens, play and exercise in a park, enjoy art, and engage in special features, such as a stairwell with an art installation that uses LED lighting to tell a Mayan story, which also encourages residents to use the stairs. Better access to the light rail stop adjacent to Mariposa gives the neighborhood another dynamic aspect and easier, more environmental commuting.



A community garden and bike sharing stations are just two ways that the Denver Housing Authority is changing the face of low-income housing.





The Tapiz apartment was part of phase one of the Mariposa revitalization project (master plan is shown opposite).

It took a trio of innovators to lead Mariposa and its residents—projected ultimately to number more than 1,000—to bring Mariposa to fruition: the DHA, which decided early on to take a risk, pushing the envelope on sustainability and inspiring its residents to transition to new living quarters; Mithun, a sustainable design firm in Seattle that integrated health aspects into the project and led the master plan design; and YR&G, a sustainability consulting firm headquartered in Denver, which headed the sustainable aspect. Mithun worked with 10 subconsultants, including Perspective3 in Denver.

When the DHA began planning the project, the aim was to improve the quality of life of residents. So when Mithun—including Erin Christensen Ishizaki, a Mithun partner who led the project's redevelopment master plan—responded to the RFP for Mariposa, they began to look at residents' health. Ishizaki and her colleagues found several areas in

which health conditions were much poorer than for other Denver residents. For example, 51 percent of the children living in the DHA complex were living below the poverty line, compared to 21 percent in Denver overall. The crime rate was 248 out of 1,000, compared to an average of 69 out of 1,000 in Denver overall. "From an equity standpoint, it was hard to ignore," Ishizaki says.

After Mithun got involved in the master plan, the firm used a Health Impact Assessment (HIA), which laid out community health indicators in a framework of sustainability performance. "That gave us an understanding of key health issues," Ishizaki says. At that time, 2009, there were a few HIAs being used countrywide, but most looked at policy issues instead of design issues. In 2012, with one of Mariposa's buildings completed, Mithun spearheaded the Mariposa Healthy Living Initiative, to integrate health into every aspect of the community's design, construction, and

operation. The Mariposa Healthy Living Toolkit, developed in 2012, continues to serve as a guide as health measures are folded into Mariposa's design and construction.

Mithun was an inspiration for the DHA throughout the redevelopment project, says Ryan Tobin, the DHA's director of Real Estate Development. By integrating health into smart, sustainable design, Mariposa has racked up some impressive numbers, including a 50 percent reduction in energy consumption compared to 2007, Tobin says. Mariposa has one of the largest solar arrays in housing developments throughout the country, he says, as well as a geothermal system. "Across the board," Tobin adds, "we have low-flow toilets and a graywater reuse system."

Mariposa's individual buildings are achieving LEED Gold and Platinum certification. More impressive is its LEED Gold certification (Stage 2) for Neighborhood Development. "Very few places in the US, maybe just 150, have this designation," says Karin Miller, sustainability manager at YR&G. Mariposa also won a 2012 Award for Smart Growth Achievement from the Environmental Protection Agency and a 2012 Affordable Green Neighborhoods grant award from USGBC, with support from the Bank of America Foundation. It was named one of the Top 10 US Neighborhoods by the American Planning Association, and received a 2010 HOPE VI grant, a federal grant program administered by HUD.

Earning the LEED Neighborhood Development certification for Mariposa was an especially big moment

for YR&G, says Narada Golden, the current principal of YR&G's New York office and YR&G principal in charge of the Mariposa development. "YR&G engaged the DHA, along with building and master plan design teams, to expand the definition of sustainability beyond energy," Golden says, including factors such as health, wellness, and community empowerment. As Golden says, it adds up to "a sense of place at Mariposa."

Ultimately, much of the success of a development project comes down to people; in this case it is Mariposa residents. "The biggest success is how well the DHA and the team were able to incorporate resident engagement in the process," says Miller of YR&G.

Tobin sees how fully residents' lives have changed, simply by observing daily life at Mariposa. Ridership at the light rail stop continues to increase, and organic community gardens draw enthusiastic residents. Donated space on the first floor hosts daycare centers and the nonprofit group Youth on Record, which creates music and conversation. Tobin sees residents living in community, working, and having fun.

"We're creating places for kids to play, before- and after-school programs, art and literacy, a park with a swimming pool; it's quite the neighborhood, with all the amenities." Tobin looks at photos of the old South Lincoln Homes, and the new Mariposa. "I see vibrancy, safety, security, opportunity," Tobin says. "It's dramatically changed. It's basically changed the way people look at their lives." ●



A Major Leap Forward in **GREEN FINANCING**

Fannie Mae rewards sustainable buildings with lower interest rates.

BY ALEXANDRA DELUCA

The site of an old police station in Maplewood, New Jersey, has been transformed into a shining example of adaptive reuse and the real financial benefits of achieving a green building certification. Built on a once environmentally contaminated site, The Station House is a 50-unit, mid-rise, multifamily rental property that earned the U.S. Green Building Council's (USGBC) Leadership in Energy and Environmental Design (LEED) Certification for its use of recycled materials, efficient water management, and green power.

In April of this year, Prudential Real Estate Investors (PREI) acquired the Station House property using Fannie Mae's new lower interest rate on loans for properties with green building certifications, including LEED, ENERGY STAR®, Enterprise's Green Communities Criteria, and five others. Multifamily owners may receive a reduction in the all-in interest rate of 10 basis points (for example 4.0 percent to 3.9 percent) for refinance, acquisition, or on a supplemental loan if the green building certification is awarded and current at the time of loan close. In the case of the Station House, this reduction will translate to a savings of more than \$100,000 over the life of the nearly \$10.2 million loan originated by Wells Fargo.

"For the first time, Fannie Mae multifamily lenders will be able to reward owners for investing in high-performing properties," explains Chrissa Pagitsas, director of the Fannie

Mae Multifamily Green Initiative. "Our reduced interest rate for properties with a green building certification is the only one of its kind for multifamily properties in the US. It shows Fannie Mae's commitment to making the triple bottom line tangible. The Station House is a great example: It is a financially stable property, provides quality housing that is more affordable, and has a lower impact on the environment. It's a clear win-win-win for Fannie Mae, our lenders, our borrowers, their tenants, and the bond investor market." As of September 2014, Fannie Mae has securitized more than \$140 million in Green MBS backed by Fannie Mae's Green Financing loans.

The Station House property's former use and key location adjacent to the Maplewood train station are an important part of the revitalization of the community. "These types of projects invest in the local community while providing quality housing. These projects make our mission and purpose tangible," adds Pagitsas.

Wells Fargo, one of Fannie Mae's 25 Multifamily lenders, recommended its borrower, PREI, take advantage of the new Green Building Certification Pricing Break. "Our lender network plays an important role in communicating our Green Financing options to the thousands of multifamily borrowers in the United States," says Bob Simpson, vice president of the Fannie Mae Multifamily Affordable, Green and Small Loans Business. "We are thrilled that Wells Fargo recognized the availability of our Green Financing option to benefit PREI!"



Multifamily housing such as the Station House shown here are benefitting from Fannie Mae's Green Initiative program.

In addition to providing loans to multifamily owners with incentives for the owner to reduce the property's energy and water consumption, the Green Initiative delivers analytical tools for multifamily owners, and conducts research centering on the relationship between financial performance and sustainability. "We provide innovative thinking beyond just financing," Pagitsas adds, "to create real long-term value for our borrowers." She cites Fannie Mae's multiyear collaboration with the Environmental Protection Agency (EPA) on something previously missing in the market—an ENERGY STAR® score for existing multifamily properties.

To further the relationship between financial performance and sustainability, Fannie Mae has its multifamily borrowers report their property's ENERGY STAR® score to their lender and Fannie Mae annually if the property is located in a city with an energy benchmarking law or if the property was financed with one of Fannie Mae's Green Financing loans.

"We are looking at how the financial performance of a property relates to its energy performance over time," says Pagitsas. "With this data, tracked over time, we can share with the industry the value of energy efficiency." With this information, Fannie Mae aims to provide both the real estate and green building industries the answers to some key questions about the relationship between financial performance, energy performance, and green building certified properties.

"That is the big picture," she adds. "We provide financing, we hit the triple bottom line, but the end goal is to have the financial and energy metrics that tell the story in a language that finance professionals, green building professionals, and policy professionals understand to make smart business decisions around real estate and green building."

The interest rate reduction for Green Building Certified properties is just one option in Fannie Mae's growing Green Financing offerings. While the pricing break for a Green Building Certification benefits owners who have already made an investment in greening the property—and don't need additional dollars going forward—a new mortgage loan product feature called Green Rewards just launched this spring assists owners wanting to make a green investment. Green Rewards offers the same 10 basis point pricing break, as well as additional loan dollars to finance needed energy- and water-saving property improvements at an existing property.

Since their launch, Fannie Mae's Green Financing pipeline has grown, says Pagitsas. "We are looking forward to announcing the next deal soon."

The growing interest, she adds, is noteworthy for its diversity. There is demand from all types and sizes of borrowers and multifamily property owners located from the coasts to the Midwest. "It tells me that this is a growing market," Pagitsas says. "And the end result is better quality housing for all." ●

Sustainable **HERITAGE**

Appleton Farms preserves cultural and historical landscapes while practicing sustainability.

BY NANCY E. BERRY

Walking down a pristine gravel road past the fields of grazing Jersey cows, meandering stone walls, and historic dairy barns, a pastoral landscape unfolds. Appleton Farms in Hamilton and Ipswich, Massachusetts, is one of the oldest and largest (with more than a thousand acres) continuously operating farms in the United States. Established in 1638 by a land grant to Samuel Appleton, the farm today preserves a bucolic landscape, agricultural traditions, and historic farm buildings that are disappearing in the eastern part of the state.

The working farm is just one of 114 properties located on more than 25,000 acres across the state under the auspices of The Trustees of Reservations, a nonprofit organization in Massachusetts that not only preserves land and historic buildings but also works in ways to support the vitality and sustainability of the communities in which they exist. The Trustees was founded by landscape architect Charles Eliot in 1891. The properties are open to the public with a vision toward creating more healthy, active, and green communities across the Commonwealth.

Acquired by the Trustees in 2000, Appleton Farms has the ambitious goal to become carbon-neutral in its near future. "This is no small feat," says Jim Younger, director of structural resources for the Trustees. Because farming can be incredibly damaging to the environment—fertilizer, livestock production, and food distribution all create greenhouse gases—farming has become a leading contributor to climate change.







Left: Appleton Farms resident cheese maker, Anna Cantelmo, uses the Jersey cows' rich butterfat milk to make divine cheese, which is sold through Appleton Farms' dairy store. Appleton Farms is open to the public and holds educational events during the year on the importance of local, sustainable food production.

Organic Growers

To move toward this goal, The Trustees began to farm the land sustainably. "All the vegetables are grown in an environmentally sustaining manner," says Ryan Wood, Community Supported Agriculture (CSA) program manager on the property. Practices are guided by the National Organic Standards, which means synthetic fertilizers, pesticides, or herbicides are not used. Instead, the farmers employ aged animal manure compost and organic fertilizers. Legume cover crops are planted to regulate nitrogen, build soil organic matter, and prevent erosion. Seeds are organic when available and include heirloom and open pollinated varieties. Wood controls pests through the use of crop rotations, biological insecticides, and cultural practices such as the use of row covers. "Some bugs we'll just tolerate," he notes. "We grow about 200 different vegetable, fruit, and flower crops on the farm."

Appleton has become a dynamic resource for the community. Its CSA program established in 2002 offers shares to CSA members to receive fresh produce, flowers,

and other farm products. The 100 shares available in the first year sold out in two weeks. Today 650 families have shares in the CSA. Once a week, they head to the farm to pick up a bag of up to 15 different varieties of produce. Wood, who turned to organic agriculture in 2008, keeps a weekly blog for CSA members sharing the joys and wows of farming at Appleton.

This Old House

Another sustainable move that The Trustees made was to renovate the original farmhouse at Appleton Farms. In 2010, work began to convert the property's 1794 farmhouse into the Appleton Farms Center for Agriculture and the Environment. Today a net-positive energy building, the farmhouse serves as a demonstration model for sustainable restoration for other Trustees properties. The renovation was made possible by an outpouring of support from donors. Approximately \$1.75 million has gone into the restoration, including endowment funds. The Trustees hired the local firm Allsopp Design in Hamilton for the planning,



The old dairy barn has been restored at Appleton Farms. Today 22 dairy cows live at Appleton and all the milk is processed onsite.

engineering, demolition, structural repairs, and exterior renovation of the house.

“More than 85 percent of the demolition and construction waste was recycled or reused in the process,” notes Younger. Salvaged lumber became shelving to hold educational materials, and unpainted plaster from the house was composted, which was a great lime source for the soil.

“Deep energy retrofits—spray foam insulation, air handlers, dual flush toilets, cisterns to capture rainwater, and solar array panels were placed on the property,” notes Younger. “The facility serves as a home base for all of the farm’s programs,” says Younger.

While the farm is heading toward a carbon neutral goal, having cut its carbon footprint from 380 metric tons to 184 over the course of five years, the house is a net positive energy producer—producing more energy than it uses. Appleton Farms also secured the funding to incorporate a solar water heater for the dairy barn and an electric ATV for getting around on the farm. There was also an ingenious system put in place that collects and reuses heat from the farm’s dairy cows.

Sustainable Farming

Fresh eggs are collected daily from the farm’s hen house and free-range grass-fed beef cows graze in the Great Pasture. During the haying season, the farm produces thousands of bales of hay to feed the livestock, and all farm waste is composted and turned out on the fields. Hundreds of families visit the farm during the growing season to pick their own vegetables as a part of the CSA.

Dairy farmer Scott Rowe makes his way before daybreak each morning to milk the Jersey cows, which have an integral history on the farm. In the 1800s, the Appletons brought Jersey cows to this country for the first time for their high butter fat content. Today 22 Jersey cows roam the property. The milk is processed onsite to make cheese and yogurt. Rowe does not use antibiotics on the cows, which he says have “low stress and are well cared for.” He does not push for the most milk production but rather provides more targeted care.

“The old ways of farming are simply not working. What The Trustees are doing is the future of the New England Farm—creating a local sustainable model is going to be the driver,” he says. ●



Amish
Farmhouse
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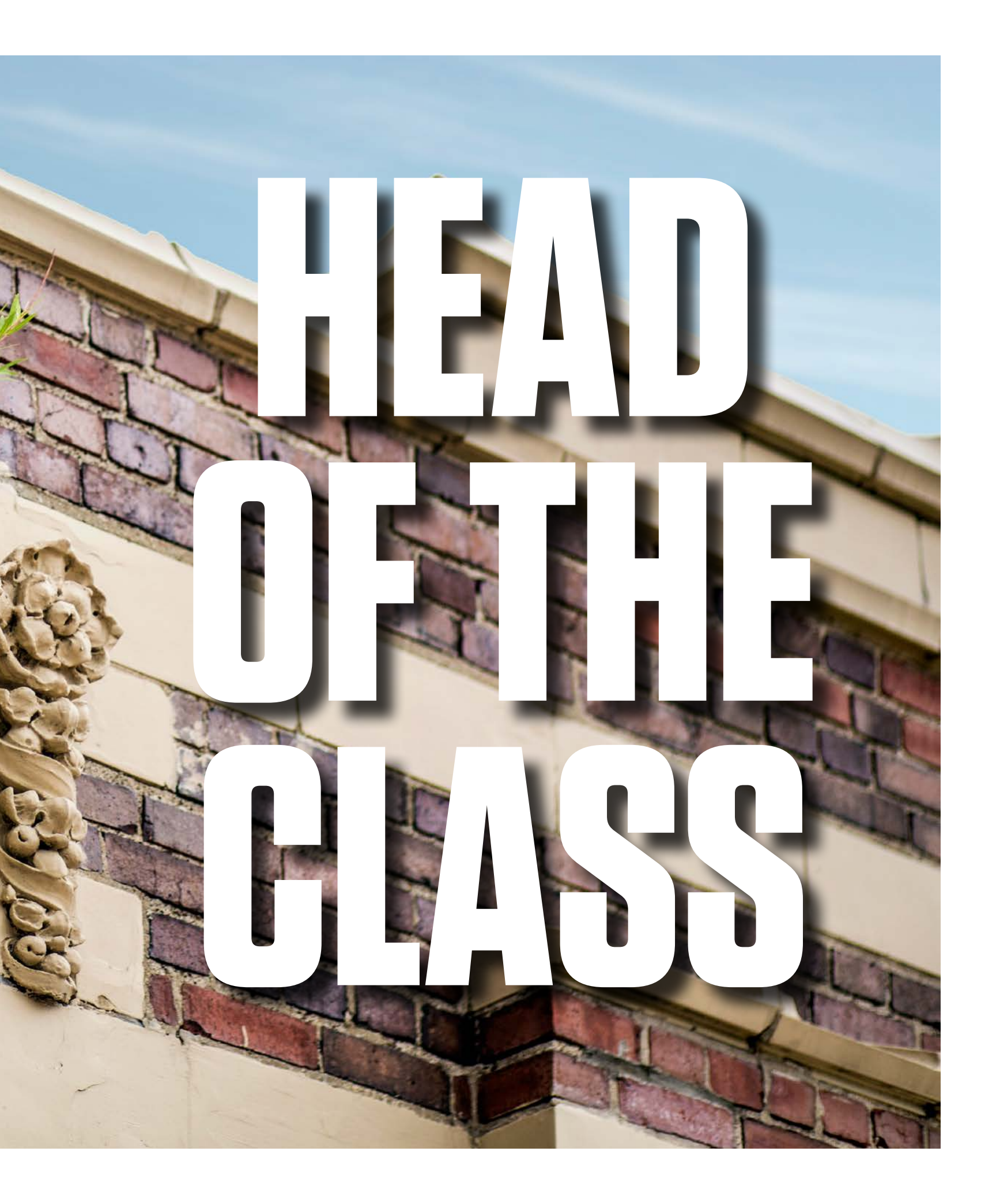
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**HEAD
OF THE
CLASS**

The Rust Belt state and center-right presidential bellwether is the nation's unlikely green schools leader. Here's how it happened.

WRITTEN BY **CALVIN HENNICK** | PHOTOGRAPHED BY **ARA HOWRANI**

It was air conditioning and cigarettes that brought green schools to Ohio. Before the air conditioning and the cigarettes, in 1995, schools in the Buckeye State were like schools everywhere else in America: heated by inefficient, leaky systems that left some classrooms drafty in the winter and others boiling hot; poorly lit, with stale air that led to asthma flare-ups and afternoon headaches; and totally unequipped to harness the sun, wind, and rainwater that could help reduce utility bills and minimize the environmental impact of the buildings.

Then, in 1997, the state embarked on an ambitious school building program. For the first time, these new schools were required to include air conditioning, and a number of districts struggled with the higher utility costs. Franklin Brown, a since-retired planning director at the Ohio Facilities Construction Commission, began searching for design standards that would help mitigate these costs, and discovered that building to LEED specifications could help schools save an average of \$100,000 a year in operating and maintenance expenses.

Brown began pushing hard for a statewide LEED requirement for new schools, to the point that his then boss called him a “zealot.” A vegetarian of 40 years who is on his fourth Toyota Prius, Brown admits that he’s “kind of a tree hugger,” and he says it would

have been worth getting fired to advocate for green building standards.

“LEED was the best deal that the schools could get,” Brown says.

In 2007, the commission passed a resolution requiring all new schools to be built to LEED Silver standards or higher. At the same time, the state decided to dedicate more than \$4 billion in tobacco settlement funds to school construction, leading to an unprecedented school building boom. The fact that the new schools (funded by the tobacco settlement) came on line under the new LEED regulations (inspired by high air conditioning bills) helped Ohio race to the head of the pack, and earlier this year it became the first state to hit 200 LEED-certified schools.

The tobacco settlement funds ran out in 2011, and so school construction has slowed somewhat, but the state is still going strong, adding green schools in 10 to 20 districts per year (down from 30 to 35 at the peak of the boom). At last count, Ohio had 228 LEED-certified schools—3 Platinum, 81 Gold, 139 Silver, and 5 Certified—more than another 125 LEED-registered projects. Instead of hissing radiators and humming fluorescent lights, many Ohio schools today are outfitted with solar panels, wind turbines, and geothermal heating and cooling systems; with vegetable gardens and rain gardens; with





C. Robin Brandon (left) is the Cincinnati Public Schools manager of Facilities Planning and Construction and has been instrumental to the continued success for sustainability at CPS. Lisa Laney (right) is the sustainability administrator of Ohio Facilities Construction Commission.

low-offgassing paints, coatings, and furnishings; and with LED lights and large windows that let in the sun.

Rachel Gutter, director of the Center for Green Schools at USGBC, says that Ohio can serve as a model for other states, not only because of its track record, but also because many people might consider it one of the “least likely” states to become a hotbed for a sustainable building.

“We’re hoping that Ohio’s story is something we can show other states that are struggling, and say, ‘You can turn this ship around,’” Gutter says. “When we presented green schools in early days, people said, ‘Green is a luxury that we can’t afford.’ They said, ‘It works in California or Portland, Oregon, but not in my state.’ Ohio has debunked that.”

Ohio officials are upfront about which type of green is most important to schools undertaking building projects: cash.

“We put together a study that showed, if while we’re spending this \$4 billion, we did it with LEED, there would be a tremendous savings over time for the state,” Brown says.

“We lead with the money, and the rest comes along,” says Lisa Laney, sustainability administrator

for the state construction commission and chair of USGBC’s Central Ohio chapter. “When we’re talking to the school districts, we’re really just informing them about the different ways an efficient building can save them in operating costs.”

This emphasis on cost savings is perhaps one reason that school districts across the state have largely embraced the LEED requirement. Some of them, in fact, were already pursuing green building strategies before the mandate was handed down, precisely because they wanted a way to control their utility bills.

“First and foremost, operating cost is always a concern,” says Bill Franke, business manager for the Miami Trace Local School District, a 2,600-student district between Columbus and Cincinnati. The district only has three buildings, and two of them are new: an elementary school, which opened in 2008 (but was started before the LEED requirement went into effect), and a LEED Gold middle school that opened in 2011.

Even though the elementary school isn’t LEED certified, its energy performance is comparable to the LEED middle school, Franke says, thanks to systems that include occupancy-sensitive lighting and geothermal heating and cooling. The sustainable

features were incorporated into the design in part to ensure that the addition of air conditioning wouldn't bust the district's annual budget—the same chief factor that led the state to pursue sustainable design standards for all districts.

"That was one of our main concerns," says Franke. "The buildings that were replaced were all 100-year-old buildings. You go from a non-air-conditioned building to an air-conditioned building, and your utility costs are going to go up. In our case, in this district, we're actually paying less in our total energy costs now than what we were paying with the old buildings."

"Our old buildings had a mix of fuel oil, propane, and natural gas," Franke adds. "You would fire the boiler up in the fall and turn it off in the spring, and in between, you basically regulated it by opening and closing windows. It was a pretty bad situation."

In 2008, Miami Trace's total energy costs were \$651,000. Last year—even after the addition of air conditioning in two of the district's three schools—that bill was down to \$490,000. And Franke expects the number to drop even lower when the district builds a new LEED-certified high school.

Allison McKenzie, the director of sustainability for the architecture firm SHP Leading Design (which has its two offices in Columbus and Cincinnati), has worked on dozens of LEED schools in the state. She says some school officials are enthusiastic about LEED certification, while others bring a "checklist" mentality to the process, viewing certification as just another thing on their lengthy to-do lists.

"Some of our districts are extremely excited about it and want to make their buildings as sustainable as possible," McKenzie says. "But then we also get certain districts that think, 'Jeez, this is just one more thing in a complicated building project. This is going to cost us money, this is going to cost us effort.'"

But, McKenzie says, some of those feet-draggers come around after they see how the process adds value to their projects. "Districts are starting to see some great energy savings," she says. "Some are seeing increases in test scores, are attracting new staff, are seeing fewer absentee days. I haven't seen any school district go through the process and then say, 'Oh, we're so upset that we have this LEED-certified sustainable building.'"

In 2007, the Ohio Facilities Construction Commission passed a regulation that all new schools in Ohio had to be built to LEED Silver standards or higher.





Test scores have gone up and there have been fewer absentees in the buildings that have been upgraded.

Brown says there was a “learning curve,” both for district leaders and for those in the architecture and design community. “All of the architects we used had not had experience with LEED. Many of them had the attitude that, we’re architects, we know how to do buildings, we don’t need the state to tell us.” But, he says, the architects eventually bought in, and even began suggesting improvements to the state’s building design manual. Brown credits the sector with not only improving the quality of the state’s schools, but also applying their new green building knowledge to private construction projects.

“The benefit to the citizens of Ohio goes beyond schools,” Brown says. “If an architectural firm is able to design a LEED-compliant high school, it’s going to affect all of the buildings they do. It was kind of a rising tide of knowledge within the architectural community.”

C. Robin Brandon, manager of facilities planning and construction for Cincinnati Public Schools, says reaction to the LEED mandate was “most definitely mixed” at first.

“We had some people on the facilities and maintenance management side that were skeptical,” Brandon recalls. “I think they saw it as putting in systems that maybe they weren’t familiar with, or they didn’t think were going to be ideal for a school situation. There were

cost considerations. Part of it was the unknown, and just general skepticism. But the design professionals were very excited to pursue LEED.”

In the Milton-Union Exempted Village School District outside of Dayton, officials built support for a LEED Gold K-12 building that opened in 2012 by keeping the community informed through frequent meetings, and even a regular project newsletter called “Moving Forward.”

“People always felt they knew what we were doing,” says Virginia Rammel, superintendent of the district. She says officials didn’t view the LEED process as a “hassle,” but rather as a tool that helped them build the best possible school. “We’re a blue-collar community. We wanted quality for our kids and our community, and a building that we could be proud of years later.”

Franke, the Miami Trace business manager, says that school officials must continue to get buy-in from staff even after the building is completed. For example, facilities personnel must make sure that teachers aren’t closing their window blinds and turning on the lights on a sunny day (and thus eliminating the environmental, budgetary, and health benefits of a day-lit building). “We build a lot of these nice, sustainable features into our school, but it takes a lot of time to educate people



The benefits of the sustainable upgrades are numerous: better acoustics, thermal comfort, and daylight.

about what you're doing, and why you did it," he says. "That's ongoing. That's something that will continue."

In addition to lowering operating costs (and reducing environmental impacts), evidence suggests that green schools can boost the health and well-being of occupants through better acoustics, thermal comfort, and daylight. In short, they're simply nicer places in which to teach and learn.

Andrew Plogsted, president of the Cincinnati chapter of the USGBC, says that the city's schools—about half of which were LEED certified after the state mandate went into effect—are pulling people back into the district from private, charter, and suburban schools.

"Definitely, the perception [of the school district] has totally changed," he says. "People are coming back to the public school system. We expect to see enrollment [increase] in the next couple of years."

"It has gotten people interested in coming into our buildings and touring our facilities," says Brandon, the Cincinnati facilities manager. "We feel like if we can get them in the door, maybe we can keep them."

The new schools have also become community hubs, hosting after-hours activities like Boy Scout meetings and church services. "Before, once school was over, they locked the gates," Plogsted says. "That was a big shift. When you're activating a place like that





Green schools have also become a teaching tool in the community.

past the school day, the community recognizes that it's an active, thriving school."

Green schools also become, in many cases, a teaching tool. "I hear the kids talking about the energy efficiencies and the sustainable initiatives, from recycling, to the turn-out-the-lights campaign, and they take it home with them," says Laney. "All of a sudden, they're negotiating with their parents about utility savings, or getting their mom and dad to recycle. They're able to discuss what the benefit is. It's really great."

Ohio's first 200 LEED schools were designed, on average, to use 33 percent less energy and 37 percent less water than those built to normal design standards. But those numbers are merely theoretical. The state hasn't tracked whether the buildings are performing up to those levels, and it's possible that some of the buildings aren't being operated at peak efficiency.

Ian MacGregor, a member of the board for USGBC's Central Ohio chapter, is leading a research study that will determine how closely the actual performance of the new LEED schools aligns with projections. The early data suggests that the schools are performing better than traditional schools, but may be using more energy than predicted by consumption models. MacGregor cautions, however, that it's too early to draw conclusions.

"It seems basic, but it's complex, because there are many different potentially mediating factors," he says. "You can design the building one way, but if you're operating it in a way that's not meeting the design, it might not achieve the desired performance. We need

to do weather normalization. Not every school is in the same climate. You have schools in the northern part of the state and schools in the southern part of the state, and they have different heating needs."

Gutter, the Center for Green Schools director, hopes to push even further with an "epic" multiyear, multivariable study to explore the impact of green schools on metrics like student health and performance, teacher retention, and healthcare costs. (The study would cost around \$1 million, and Gutter hopes to have it funded within the next year.) While many advocates of green schools tout the positive impact the buildings can have on those outcomes, the connections are largely anecdotal, because researchers haven't had access to hundreds of green school buildings within a concentrated geographical area.

Until now, that is.

"For the first time ever," Gutter says, "we have a data set that really lends itself to that [study] in Ohio."

For Brown, the success of the LEED requirement is evident in the quality of the schools that have been built in Ohio during the last few years. They dot the state, standing as monuments vindicating the so-called "zealot" and his view that investments in green building techniques would pay off in the long run.

"Look at what's been accomplished," Brown says. "What I find truly gratifying is that there is a process in place that guarantees that, moving forward, Ohio is going to have good schools," he says. "There are controls, regulations—you can't build a bad school in Ohio." 🌱

LEED and Ohio: Economic Impact

Ohio's requirement that all new schools pursue LEED Silver certification or higher affects the local green building economy in two big ways. First, there's the regional materials LEED credit that gives points to districts using building materials from within a 500-mile radius of the project, which keeps money in the local economy. And second, credits for sustainable systems and materials help boost the market for those products—spurring competition and driving down prices.

“There are so many ways to look at these LEED projects and see how they help the environment, economy, and human health,” says Lisa Laney, sustainability administrator for the state construction commission and chair of USGBC's Central Ohio chapter.

Laney estimates that the LEED regional materials credits alone have brought more than \$890 million to businesses in Ohio and neighboring states.

Lance Piper, a business development manager for Lexington, Kentucky, fan manufacturer Big Ass Fans, says that when states and other organizations require LEED standards, it leads new customers to consider the company's products. (The use of ceiling fans can help projects attain LEED points for categories like “energy and atmosphere” and “enhanced refrigerant management.”)

“It has opened up doors for us,” Piper says. “The fact that more architects and engineers are designing schools to LEED standards has helped us.”

Bob Schrock, architectural services manager for PPG Industries—a company that makes low-VOC paints and other sustainable building materials—credits LEED standards with helping to create a more robust market for those materials.

“Any time you raise the demand for something, it gets used more, and that lowers costs by virtue of higher production numbers,” Schrock says. “The demand has gone up for those types of products, and it's directly related to the LEED rating system.”

“The [Ohio] school system had such a big impact,” Schrock adds. “They required everyone who was participating to meet the LEED bar. That forced companies to either change their products and become sustainable, or get out of the game.”



Many of the materials used in the buildings have been locally sourced.





Green by Design



Frankel Building Group has cultivated a top-notch reputation for its dedication to designing and building LEED homes.

WRITTEN BY **JUDITH NEMES** | PHOTOGRAPHED BY **MICHAEL STRAVATO**

Previous spread:
**Scott Frankel of the Frankel
 Building Group.**

A pocket of affluent suburban neighborhoods in oil-rich Houston wouldn't likely pop up on most people's radar as a hotbed of construction for LEED-certified homes. Seattle or Portland, Oregon, might come to mind first.

But Frankel Building Group—a family-owned design/build company—has quietly cultivated a top-notch reputation for its steadfast dedication to designing and building homes in the Houston area that achieve LEED just about every time they finish a project. Since shifting their focus to only building Leadership in Energy and Environmental Design (LEED) homes in 2010, Frankel Building has constructed an impressive 100 homes pursuing LEED, with about 90 of them already certified, according to Scott Frankel, 34, the younger of two sons who joined their father Jim in the family business in 2006.

What most people don't know is that the founder, Jim Frankel, and his sons Scott and Kevin, veered onto the path of building only green homes by accident. No one would call them tree-huggers or diehard environmentalists. Sure, they care about the environment, but that was not the driver behind a dramatic shift in the business that Jim Frankel started back in 1967. The impetus to pivot stemmed from a deep concern about designing and building the best high-quality homes that would be both beautiful and sustainable for their clients for decades to come.

Long-term sustainability—or a lack of it—was how Scott Frankel described one of the principal motivators that led to a shift in building practices soon after he and his brother showed up on the scene around 2006. Before joining the family enterprise, Scott spent a few years working for another local builder with no ties to his dad's business. There, he saw less expensive materials used in home construction, but some of them proved more durable than some of the higher-end components his dad was using in his designs back then, recalls Frankel.

"At the time, builders like my dad were using custom products that were expensive and beautiful, but they weren't sensitive to the micro-climate we're in, which is hot and humid," he describes rather bluntly. It was the same story with high-end doors, floors, and other features that just didn't hold up to the Texas heat and humidity over the long haul, says Frankel.

These were among the first motivators for building a more sustainable home that was more durable for the local environment, says Frankel. "It was our 'Eureka!' moment," he says enthusiastically. "My brother and I were in our mid-20s at the time. We said we didn't want to go into homes when we're in our 40s that we built in our 20s and see them falling apart."

When Scott and Kevin joined their dad's firm, they brought a holistic approach to reassessing the company's building and design techniques. They pulled apart every system and product used in their home constructions and looked intensely at how materials or the way systems were deployed (like HVAC, water heaters, faucets, and shower heads) could be improved so they could outlast the younger Frankel brothers, as Scott puts it.

The Frankels began using fiberglass and wood doors in their newer home designs. They turned out to be a good choice for local weather conditions because the hybrid construction mitigates warping and rot. Another gamechanger for the Frankels was the use of clad windows made of aluminum or extruded metal on the outside, while maintaining good-quality wood on the inside. "The goal was to eliminate the need for a builder's warranty because the windows would last so long there wasn't a need for one," Frankel says.

When they looked at their previous homes' standard HVAC systems (heating, ventilation, and air conditioning), they found great potential to reduce energy consumption and lower monthly bills for buyers in the process. The air conditioning systems on the market before that time typically were single-speed—either on or off—and it would cost hundreds, even thousands of dollars a month to keep a 5,000- to 6,000-square-foot home nice and cool as a shelter from the oppressive Texas heat, says Frankel.

Around 2007, Frankel began adopting newer dual-speed AC products that were hitting the market. The goal was to promote energy efficiency and lower the operating cost for homebuyers. Being able to tell potential homebuyers in Texas that their cooling system doesn't have to blast at full force all the time was a great selling point for that market. Still, the Frankels didn't see themselves as particularly green



Using products such as aluminum-clad windows as well as LED lighting are just two ways Frankel Building creates more sustainable homes.





at the time. They really just wanted to get out of the warranty business, Scott emphasizes.

“Right around the time we were going through the process (of evaluating all design features and materials), the green movement started to gain some real steam,” says Frankel. “Our competitors started saying they were green because that’s what people began to get interested in. But we saw some greenwashing going on, where they [competitors] made certain claims about being green—and then we realized what we were doing was more green than the others even though we weren’t initially calling it that.”

Looking at their business from a competitive standpoint, the Frankels decided to seek out certification from a third-party organization that could independently verify how green and sustainable

their new homes are. They quickly learned the best seal of approval for the greenest homes was LEED, established by the U.S. Green Building Council.

The Frankel brothers decided to make green building a new branding strategy that would set their company apart from other designers and builders in the Houston market.

When the Frankel brothers shared the news of their plans to rebrand themselves as a firm in Houston that would focus exclusively on designing and building LEED-certified homes, they were met with a chorus of experts in their local industry who told them it was a bad idea, recalls Scott Frankel.

“Realtors told us not to do it; architects, engineers, and even some of our (friendly) competitors said ‘don’t do it,’” he says, because that kind of



The Frankel Building Group has built more than 100 LEED-certified houses.

single-minded focus might fall out of favor over time or be unappealing to buyers who didn't care about green home construction.

He continued: "But no one else was doing LEED exclusively in the Houston area. There were one-off projects. Maybe there was a pioneer family that had the means to do it and didn't care if it took lots of time or didn't look like any of the homes around them. We chose to build LEED homes as a way to continue our quest to build a better home and to continue to measure ourselves against something that was hard to do."

Indeed, building a LEED home is difficult, admits Scott, adding that he and his brother are spending money and time researching and learning how to construct the best possible product for their clients that will stand the test of time.

"Kevin and I are more motivated by the sustainable impact of building a home than by using recycled bamboo, for example," he says. "We use all non-VOC (volatile organic compounds) paints, but countertops don't have to be made of recycled materials." Their clients can use all sorts of sexy, chic natural stones and deep natural woods that are considered eco-friendly, but their primary emphasis is on resiliency and sustainability, Frankel asserts.

"We just don't want to build it twice. Part of our Eureka LEED moment occurred when we needed to tear down a 5,000-square-foot home that was built only 20 years ago because it just wasn't built well," he recalls. "I thought about how many trees were cut down to build that home and how much waste that represented.

Educating the Homeowner

Jenny and Brian Usner weren't specifically shopping for an eco-friendly house when they decided to purchase a custom-built home from Frankel Building Group. The sustainable features were extra sweeteners that helped seal the deal because they demonstrated the builder's commitment to important high-quality facets of the home that wouldn't need replacing any time soon, recalls Jenny, who moved into a 4,500-square-foot home with her husband and two kids in September 2013. The family settled in The Woodlands, a Houston suburb about 35 miles north of the city, which was only about six miles from their last home.

"We weren't well versed in all that eco stuff, but we had some quality issues with our previous production-built home," says Jenny, 36. "We saw that the Frankels pay a lot of attention to the homes they build. They're specific and custom, but it also made us feel these products are good for our kids and will last a long time."

While there aren't any wind turbines or solar panels installed on the roof of their new place, the more sustainable features focus on energy efficiency and materials that won't have to be replaced—and sent to a landfill—any time soon.

When friends come to visit, the major attraction of the Usners' home tour is a trip to their walk-in attic next to the game room where they like to show off the spray foam insulation that keeps them super comfortable in the punishing Texas summer heat. They boast that the insulation is the reason behind their dramatically lower energy bills.

"Our AC bill in August runs about \$150, compared to our old home that was smaller and used to cost us about \$400 a month in the hottest summer months," explains Jennifer. The couple estimates they're saving about \$3,600 a year on air conditioning and heating bills and there's less energy that has to be generated for their home—a plus for the planet. That energy conservation and many features that won't have to be swapped out for years to come—such as windows, doors, and floors made of wood and sustainable synthetic materials—are among the factors that contributed to the USGBC's certification of LEED to the Usners' home.

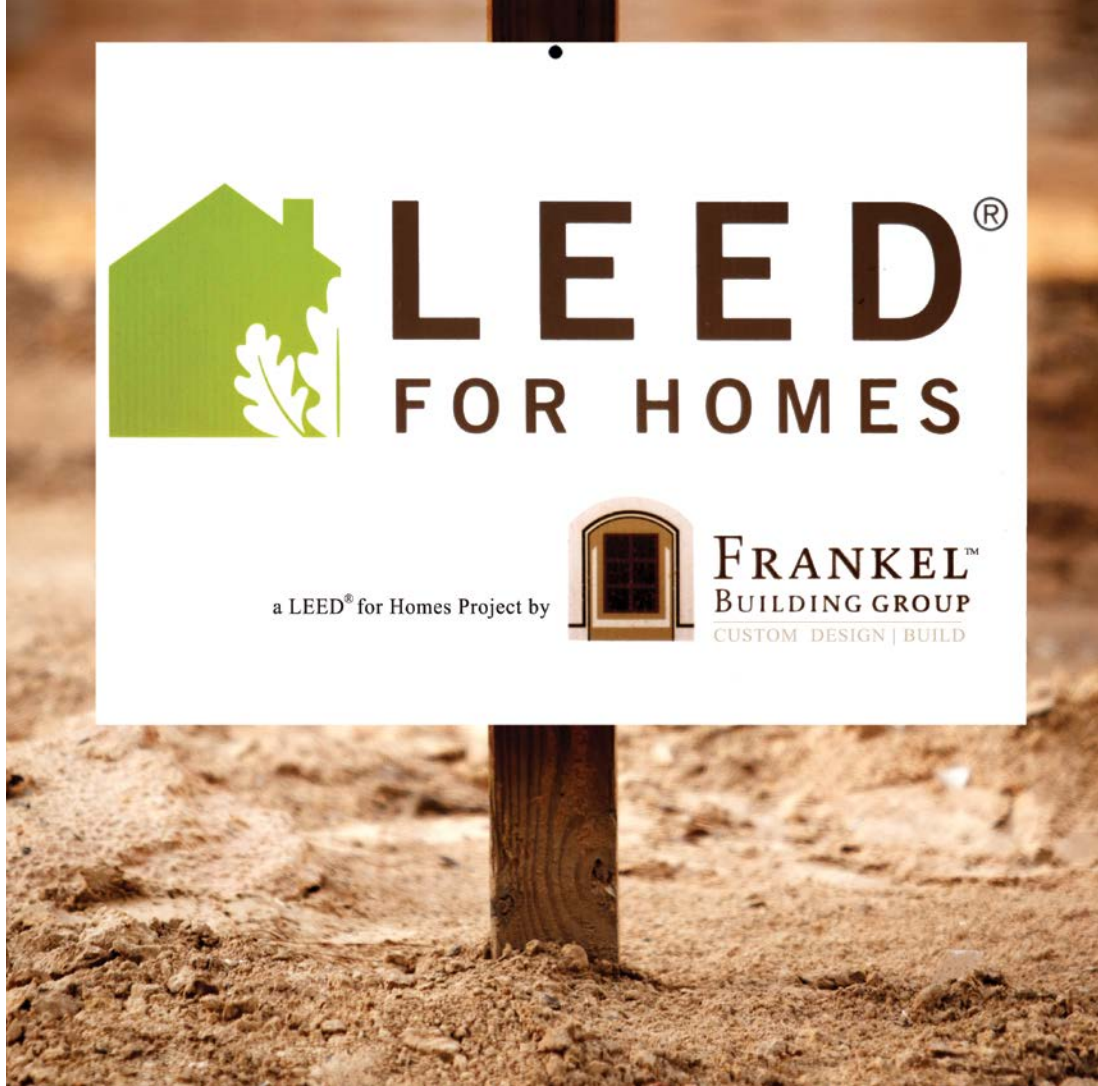
"We've got a really great house," says Jenny enthusiastically. "Custom homes are usually more expensive, but we know we'll get a payback just by living in a home where everything will last a long, long time."



"My brother and I are still young and idealistic. We see LEED as the best way to run a for-profit business [in the design/build sector] because it pushes us to put out a better product and have less impact on the planet and on our city. What we want is to build homes that will last longer than any others out there. My brother's in-laws are living in a 100-year-old house in Wisconsin. That's what I want for the houses we build."

The standards for LEED are constantly improving and to participate and maintain LEED ratings, Frankel Building Group has to keep evolving to retain its status as a trendsetter in its region. So far, that hasn't been a problem. "We're constantly at the forefront and always trying new things based on what we hear and based on the prescriptive advice of independent green raters," Scott explains.

For example, green raters suggested the Frankels begin incorporating tankless water heaters, or at least a hybrid tankless water heater into their building design. They also upgraded their insulation and began using foam insulation throughout the house because they learned that was a guaranteed way to keep a home well sealed so it can produce lower energy bills in the process.



Another difficult element to committing to green building practices and products is the upfront cash commitment. After opening their first model LEED home in July 2010, the Frankels realized they could only pursue that high standard at an affordable price if they got every production company they work with to buy all the same high-quality windows.

"We got every production company to say 'yes,'" says Scott gleefully. "I don't shrink from people who tell me 'no.' I also know that I rode in on the coattails of my dad and he didn't need to work hard any more. He built wonderful houses all those previous years."

Even though Scott and Kevin weren't partners yet in the business (in 2008), their dad agreed to finance the production of spec homes that met LEED certification standards at that time. The first ones were completed in 2010.

A Frankel-built home currently is selling in the \$1 million range, but Scott assures buyers they're getting a product with parts that won't need to be replaced—except for upgrades—any time soon. The company is building homes in affluent suburban areas around Houston, including Tanglewood, Memorial, Bellaire, Briargrove, West University, and The Woodlands.

Back in 2010 after the Frankels built their first spec home according to LEED specifications, there wasn't much of a market for those types of homes in the Houston area. Now on MLS websites in Houston, sellers check a box on the listing that informs potential buyers if the home has a LEED certification. "All these hotels and other big commercial builders wouldn't be building LEED if they didn't see a higher return on their investment," says Frankel. "We believe that will eventually translate to the residential market, too."

Frankel is convinced that builders who commit to following LEED design and building standards will make more money because more and more clients are seeking that out.

"Not enough builders are doing this yet, so get in early in your market and you'll be one of the few who will become known for this kind of design," Frankel advises. "Get your processes down to a science and get buy-in from your entire staff—from your administrative personnel to the guys in the punch-out process at the end. It takes a holistic approach to building green and it takes the knowledge of everyone involved to make sure you meet the qualifications. That will make everyone proud of what they do." 🌱

SUSTAINABLE





STADIUMS

National sports reach into the community through the arena of sustainable design.

WRITTEN BY **JEFF HARDER**

In recent years, sustainability has transformed from a niche concern to a leading consideration in pro sports. Thanks to efforts from individual leagues and inter-league initiatives from groups like the Green Sports Alliance, teams and their ownership increasingly see that facilities that are environmentally sound are also economically efficient. At the same time, green sports venues expose everyday audiences to green building and play a crucial role in building broad support for sustainability.

"It's got to be a cultural shift, and sports can help make it possible," says Scott Jenkins, chairman of the Green Sports Alliance and general manager of the Atlanta Falcons' New Atlanta Stadium.

There are at least 30 LEED-certified sports venues up and running or in the works. And whether the competition plays out on the hardwood, the gridiron, the ice, or the outfield, these LEED-certified facilities give fans, teams, and the communities they call home plenty of reasons to cheer.

Miami Heat/NBA

If you've watched the NBA Finals within the last decade, chances are you've seen the AmericanAirlines Arena. The 19,600-seat venue has been home court for the Miami Heat, a team that's made five trips to the NBA Finals in nine years and walked away with three championships during that stretch. But over that same span, the arena itself earned two titles without anyone stepping to the free-throw line: In

2009, the AmericanAirlines Arena became the first NBA facility to receive LEED for Existing Buildings certification, and earlier this year, the arena received LEED Gold recertification, becoming the first sports and entertainment facility in the world to earn that distinction.

The Heat Group's forays into sustainability began in earnest in summer 2008, when a league-wide partnership with the Natural Resources Defense Council equipped each NBA team with a greening advisor to make sustainability recommendations. To its pleasant surprise, the organization had already been using sustainable practices in pursuit of a better bottom line, like recycling, tracking energy consumption, and using micro-irrigation systems.

"We realized we were doing a lot more than we were even aware of, just by being responsible building owners and building representatives," says Jackie Ventura, operations and sustainability coordinator for The Heat Group. "That led us to pursue LEED certification."

The highlights of the AmericanAirlines Arena start with its location in downtown Miami. Its proximity to public transportation led to about 6,700 alternative transportation trips during the 2013-14 Heat season. During the same season, the arena diverted a total of 330,810 pounds from landfills. More than 63 percent of the arena's cleaning products and more than 85 percent of its purchases meet LEED standards. (The latter earned the arena the Office Depot Leadership in

Green Purchasing Award in 2013.) Efficient plumbing fixtures reduced water consumption by nearly 17 percent. The arena uses almost 27 percent less energy per square foot than comparable facilities, three quarters of its annual electricity is offset by renewable energy certificates, and the organization counters remaining emissions with carbon offsets.

To spread the green gospel, the Heat have been venturing into their community. "A lot of the features that make the arena sustainable aren't things that can be visually represented to our fans—I can't show someone that our air is clean, that we're reducing our electricity—so we've tried to educate them," Ventura says.

The seventh year of the arena's Re-Heat Delivery program supplied more than 33,000 pounds of unused food from Heat home games to area homeless assistance programs. Their How Low Can You Go challenge—an initiative to reduce energy consumption in Broward County Public Schools, the sixth-largest public school district in the country—lowered energy use by more than 1.5 million kilowatt hours and recognized the top three schools on the court. And past and present Heat players James Ennis, Hassan Whiteside, and Alonzo Mourning were in attendance at the most recent Heat Beach Sweep, an effort exposing elementary school students

to sustainability principles through creating edible food and butterfly gardens, building composting boxes and an outdoor classroom, and other hands-on projects. "As a brand and as an organization, we have visibility: People know who we are," says Lorrie-Ann Diaz, the Heat's senior director of business communications. "So when we're pushing this message of responsibility and being stewards of the environment, we have a big reach, and we use the platform we have to push that message out into the community."

Later this year, the AmericanAirlines Arena will see new additions, like car-charging stations in its public parking garage and, most notably, a 24,000-square-foot solar canopy on the arena's East Plaza, the result of a partnership with NRG to showcase the latest in clean-energy technology. It's an inspiring environment for all who enter: While the arena embodies sustainable thinking on a grand scale and serves as a living model for other NBA teams about just how impressive a LEED facility can be, it shows ordinary fans that it's not so hard to make their own lives a little greener. "If we can do it here, in a 1.2 million-square-foot arena, with 1.6 million people through our doors every year," Ventura says, "there's no reason why you can't implement a fraction of what we're doing in your 2,000-square-foot home."

Retired basketball player Alonzo Mourning plants an edible garden.





The Falcons Stadium in Atlanta will pursue LEED Platinum certification.

Atlanta Falcons/NFL

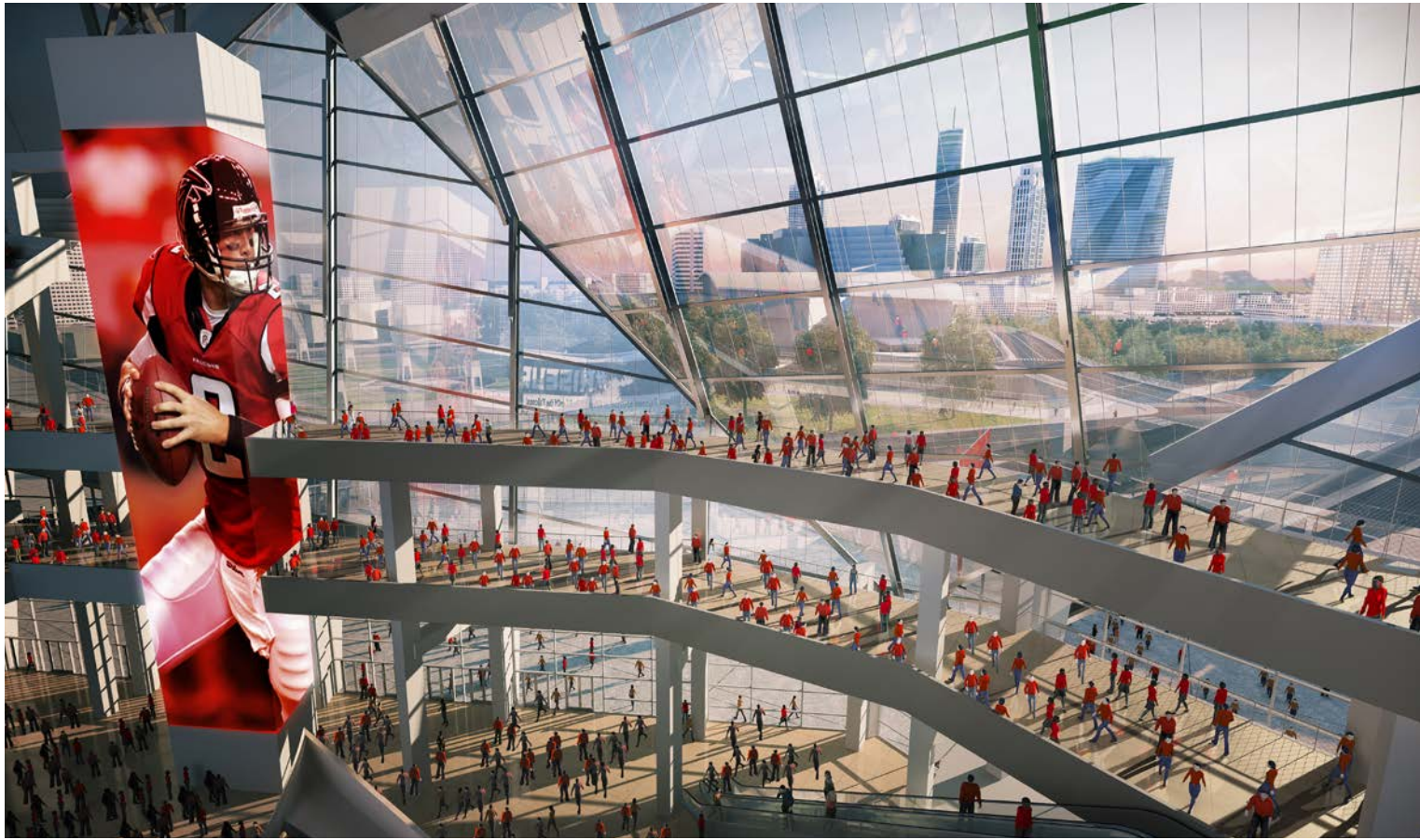
A year and a half ago, when Scott Jenkins became general manager of the stadium that will serve as the future home for the Atlanta Falcons, he followed the precedent set by the team's leadership. "From the beginning, we set an objective: We were going to raise the bar in whatever we do, whether it's the fan experience, community involvement, or sustainability," Jenkins says. "You bring in a talented team of people with the right vision, and you let them work."

When the Falcons take to the field at the start of the 2017 NFL season, that vision will have materialized as the new Atlanta Stadium, a 71,000-seat venue pursuing LEED Platinum in the city's downtown with a largely transparent exterior, a retractable roof, and a sleek, angular design. Not only is the project on track to be the first LEED Platinum NFL stadium, it's also poised to be the first Platinum pro sports stadium in the country. "In many ways, this project is influencing the future of LEED for sports facilities," says Carlie Bullock-Jones, founder and principal of Ecoworks Studio.

Green building was already a priority for Atlanta Falcons owner and chairman Arthur Blank: USGBC issued LEED Gold certification to the office of his

Arthur M. Blank Family Foundation back in 2004, making it the first building in Georgia to receive that designation. But while LEED certification had been in mind since the Falcons proposed building a new venue after more than two decades at the Georgia Dome, a plan aimed at achieving Platinum status was simply the consequence of achieving broader goals that fit their community. For example, in seeking to capture and use as much water on site as possible to help combat the long-standing flooding concerns on the city's west side, the stadium is poised to achieve every LEED water credit. "Every aspect of the strategy had to be authentic," Bullock-Jones says. "If we get to Platinum, that's fantastic, but first it had to make sense for us and for the community."

Construction teams broke ground on the stadium in 2014, and by spring 2017, the result will be a model of sustainability on the gridiron. Located within a quarter-mile of two MARTA rail stops, the stadium and its environs will feature roughly 4,000 photovoltaic panels, electric vehicle charging stations, and high-efficiency water fixtures. Along with recycling programs and other common initiatives, the stadium also has plans for on-site food production: apples, figs, blueberries, and other edible landscaping are available to all patrons,



The Falcons stadium will have a five-story LED board and a retractable roof.

while an urban garden area adjacent to the stadium's administrative offices provides sustenance to a full-time staff of more than 200. Then there's the five-story LED video display board and the retractable roof: By properly timing the opening and closing of eight machine-operated roof petals, ambient air can pre-cool the stadium prior to games and reduce the energy spent on air conditioning.

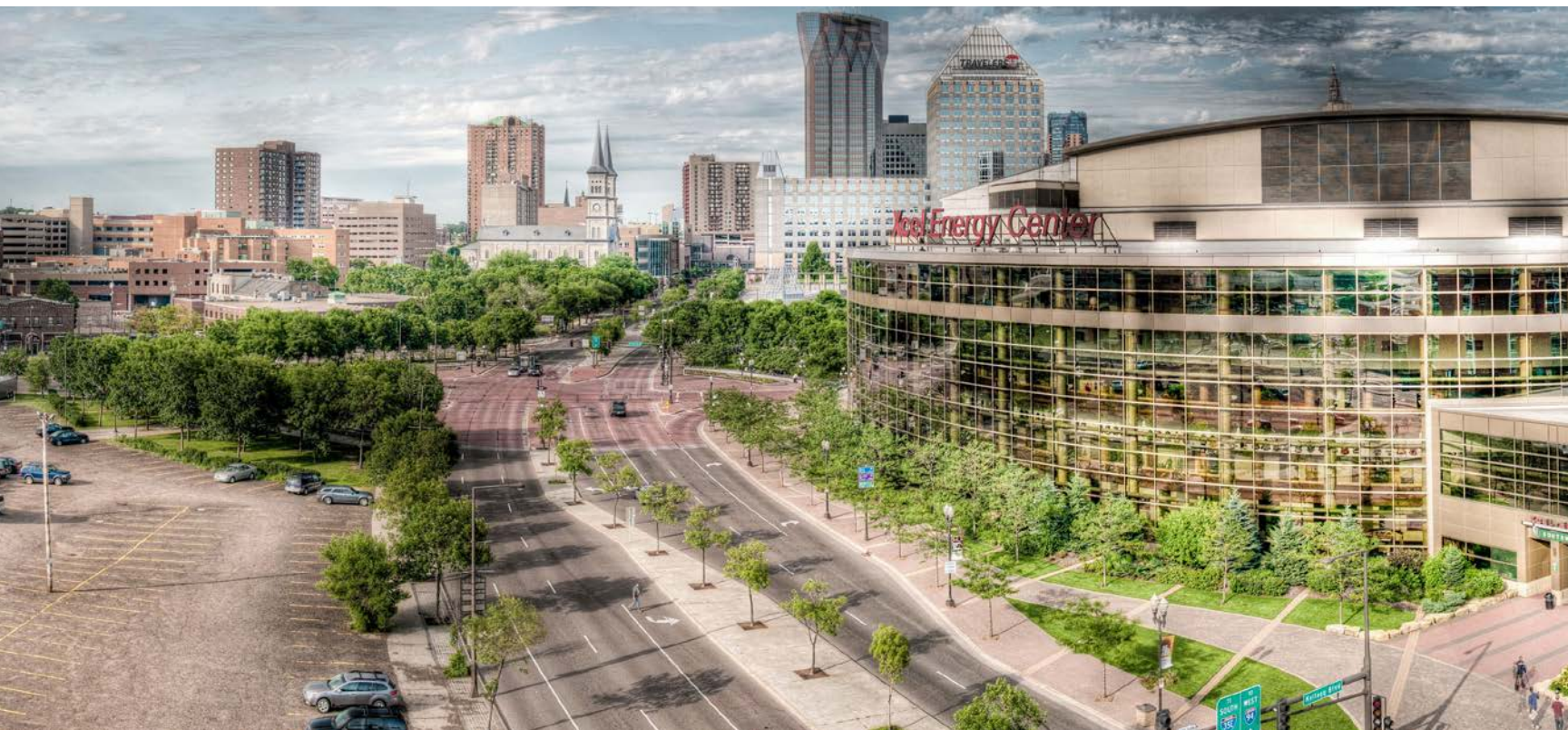
Though the onset of the 2017 season is two years away, once the new Atlanta Stadium opens, it will draw attention from far beyond the Peach State. The Falcons' leadership already has big plans for their new venue. Along with Falcons games, the stadium will host Major League Soccer's Atlanta United FC, along with sporting events currently held in the Georgia Dome. There are concrete plans to host the NCAA Men's Final Four in 2020, and Jenkins says they're hoping to host the College Football Playoff National Championship Game in 2018 and a Super Bowl in 2019. "This stadium will take [green building] to a national and international level of exposure because of the significance of the events we host," Jenkins says. "We're planning to have some of the biggest events in North America, in a place with iconic architecture that's also LEED Platinum."

Minnesota Wild and Edmonton Oilers/Hockey

The Xcel Energy Center's path to becoming the first NHL arena in the country to earn LEED for Existing Buildings certification started with its next-door neighbor: the Saint Paul RiverCentre, a convention center on the same Minnesota campus, operated by the same management that oversees the St. Paul-based Minnesota Wild NHL team. After benchmarking energy use and waste production at the convention center, the team behind the scenes realized more than geography linked the two properties.

"We quickly realized that any programs we implemented had to be campus-wide: All the trash from the Xcel Energy Center and the convention center ends up in the same place," says Kathy Ross, senior director of strategic communications for the Minnesota Wild. "From there, we looked for the best place to start." That included reducing the arena's waste by half and increasing recycling by the same amount within two years. "It was simple to understand, but it was challenging in that it involved changing all of our behind-the-scenes processes," Ross says.

Now, the Wild's commitment to sustainability is visible to its more than 3 million annual visitors as soon



as they set eyes on the solar photovoltaic array on the outside of the parking garage. A solar thermal array on the roof of the RiverCentre feeds clean energy into downtown St. Paul's electric grid. The center offsets its energy usage with wind energy purchased from its parent Xcel Energy.

Elsewhere, along with boosting its annual recycling rate to 60 percent and engaging in a slew of sustainability-minded community outreach programs, the Wild's organization-wide embrace of sustainability has resulted in more than 40 percent of employees taking some alternative form of transportation to work every day, while Wild players purchase their own offsets for the energy used at home games. "For us, it's changed the culture of our organization," Ross says of the effects of LEED pursuit. "It's had a real, positive financial impact on our business, and it's having a positive impact in our community. Those are the things that every sports organization strives to do."

North of the border, the Edmonton Oilers are eyeing their first season on the ice at Rogers Place, their forthcoming LEED Silver-certified arena. Slated to open in time for the 2016-17 NHL season, the arena is a natural next step for a team that's embraced sustainability as a practical key to success.

After winding down their tenure at Rexall Place, the Oilers looked to site Rogers Place within a vibrant entertainment district in downtown Edmonton, with retail, commercial, and residential spaces sprouting from what was once a largely derelict area of the

city. So far, more than 3,400 tons of waste—about 90 percent of the total—has been diverted from landfill during construction.

When the arena is finished, Rogers Place will be plugged into the city's pedestrian corridor and walking distance to seven light rail stops. At every turn, the arena optimizes energy performance: Design of the arena allows in the natural light, while heat recovery ventilation and a highly insulated building envelope keep occupants comfortable on the coldest winter nights.

"The beauty of green building, in my mind, is its simplicity of design and operation," says Tim Shipton, vice president of communications for the Oilers Entertainment Group. In the lead-up to 2016, the Oilers are also figuring out ways to further green their food and beverage operations. "We're not going to do a lot of things that are way out there, things that would cause our business to do things we otherwise might not do. Instead, it's just about being smart with our business practices."

Edmonton is an especially progressive city when it comes to sustainability, Shipton says. And in a sense, the Oilers' adoption of green building principles just comes with the territory. "Focusing on sustainability doesn't just make sense from a business perspective: I think there are expectations in the city and amongst our fans that we do it," Shipton says. "And when the building opens up, I believe we'll have exceeded their expectations."



The Xcel Energy Center, the first NHL arena in the country to earn LEED for Existing Buildings, directly impacts 3 million visitors per year.

Minnesota Twins/MLB

After the sustainability conversation caught the ear of the leadership of the Minnesota Twins, even though the baseball franchise was interested in going green, there wasn't much they could do beyond some small-scale recycling in the front office. That's because someone else owned and operated the Metrodome, the team's home base for the more than a quarter century during which they won a pair of World Series titles. "We didn't run the facility operations, so our hands were tied on what we could do over there," says Gary Glawe, the Minnesota Twins' Senior Director of Ballpark Systems. "As soon as we made the decision to own and operate our own facility, we wanted to do everything we could to come out of the gate with some sustainability goals, then improve from there."

That new facility is Target Field, the downtown Minneapolis venue that earned LEED Silver for New Construction in 2010—the first Major League Baseball facility to earn the label—and LEED Silver for Existing Buildings: Operation & Maintenance the year after that. Essentially, Glawe says, diving wholeheartedly into sustainability was a matter of setting an example for the 40,000 visitors that take a seat in the stands every game. "Professional sports, and sports in general, has so much influence on the general public," Glawe says. "Even when times are tough, people still invest their money in it. Being in the public eye and showing leadership in sustainability is just the right thing to do."

Target Field's green endeavors have already had a quantifiable impact. Along with donating more than 10 tons of food to local charities every year, Target Field has diverted 5,419 tons of waste from landfills so far thanks to initiatives like switching cups and other concession packaging from plastic to compostable materials, and ensuring trash cans are side by side with bins for recyclables and compostables throughout the stadium. Staff continue to retrofit Target Field's existing lighting with state-of-the-art LED systems. Along with using efficient water fixtures, the stadium has a cistern that stretches between the foul poles underneath the warning track to collect rainwater, which has purified and repurposed more than 4 million gallons of rainwater for use by the stadium's housekeeping staff. The field is also just a short walk from downtown and near commuter rail and light rail stations.

To hear Glawe tell it, just about any sports teams would benefit from embracing LEED the way that the Minnesota Twins have. Furthermore, the industry is uniquely equipped to deal with the expense of scaling sustainability for a venue's tens of thousands of visitors. "Especially in sports, if you run into a situation where you can't fund it financially, there's a lot of opportunities for partnerships with different companies that can help you achieve your goal—maybe you trade for advertising rights." And whatever those investments might cost up front to align a sports venue with green building standards, the payoff is well worth it. For the franchise, for the community, and for the environment, going green is a home run. 🍀

Food Factor

The University of the District of Columbia's new business-incubator kitchen is instrumental to the success of its Urban Food Hub solution.

By Kiley Jacques



Located in the nation's capital, the University of the District of Columbia's (UDC) new business-incubator kitchen will soon be a highly visible model for changing the way people think about food security in urban areas. The result of a \$280,000 award from the second annual Sustainable DC Innovation Challenge, the new kitchen—intended as a space for food and nutrition education as well as job-skills and entrepreneurship training—is projected to be fully operational in November 2015.

As one component of a larger Urban Food Hub model, the kitchen will serve lower-income residents looking for a leasable space from which to launch their own businesses. William Hare, UDC's Associate Dean of Land Grant Programs, lists the Food Hub's four components: food production, which includes field crops, hydroponic systems, and aquaponic systems; food preparation, which he describes as "taking the product and adding value to it"; food distribution; and food waste management. All are integral to UDC's holistic vision for a food-secure city. The ultimate goal being to "integrate research and community education to enhance quality of life and develop economic opportunities for district residents," says Hare.

"There is a paradigm shift in agriculture," he adds. "It's not going to change traditional production in terms of rural farming, but as more and more people migrate to cities and as more people become more health conscious and are more educated about nutrient-dense food that can be produced in

PHOTOGRAPHY BY RYAN SMITH



Left: Dr. Dwane Jones of the Center for Sustainable Development College of Agriculture, Urban Sustainability and Environmental Sciences. Above: The incubator kitchen is slated to open November 2015.

a local community...more people will start to demand local foods and make healthier choices.”

In part, that shift is what led to UDC’s conjunction with the National Institute of Food and Agriculture. Together they have identified five areas of priority to enhance food systems and production: Global Food Security, Food Safety, Sustainable Energy, Climate Change, and Childhood Obesity/ Nutrition. The business-incubator kitchen will be a space in which to address some of these issues while also helping DC residents take steps toward self-employment. “We will use it also as a means for...training those who maybe have mom-and-pop recipes and want to become caterers or want to have their own line of food products,” explains Hare. “We have this opportunity to get them certified

to work, standardize their recipes [for use] in a commercial kitchen, and [help] them start up and minimize liability.”

As a university-based endeavor, education will be the kitchen’s core. In addition to a brick and mortar facility, nutrition education and business training will be inherent in the program. Educators, like Hare and Dr. Dwane Jones, director of the Center for Sustainable Development College of Agriculture, Urban Sustainability and Environmental Sciences (CAUSES) will provide the training. “It’s special because, to my knowledge, we are the only university that is doing this. It’s more prevalent in the commercial industry,” notes Dr. Jones.

The college comprises five land-grant centers, three of which will play a major role in the project—the Center for Sustainable Development; the Center

for Nutrition, Diet, and Health; and the Center for Urban Agriculture, the last of which is the starting point for the food production and harvesting component of the model. “We are unique in that we are a land-grant university,” says Dr. Jones, “which means we have the task of taking education out from the main campus into the community—relevant research-based education.” UDC is also the only land-grant institution in the nation with an exclusively urban emphasis. They receive funding from the U.S. Department of Agriculture to offer agriculture-based programming. Every other land-grant university in the nation has a rural component. UDC does not. Their territories are strictly urban, which means they focus on micro- and small-scale urban farming. They work with community gardens and the DC Housing Authority, with



The university looks to rooftop gardening to produce food locally.

whom they are developing a modern urban farm on three acres of vacant land; it is adjacent to a metro stop and easily accessed. They are also currently mapping underutilized and vacant lots as well as potential green roofs for future acquisition and use. Additionally, the university owns and operates a 143-acre research farm in nearby Beltsville, Maryland, that serves as an agricultural experiment station, where they test innovative ideas and technologies in order to replicate those ideas for application in the District. The university is also home to one of the largest, if not the largest, food production green roofs in the District.

The Center for Nutrition, Diet, and Health does the majority of related outreach and community education around the Food Hub's mission. UDC currently has 483 sites including public schools, faith-based organizations, and nonprofits with which they partner to provide food handling certification training. They also do demonstrations at farmers' markets. "We have the visibility already," notes Hare. What was lacking, prior to the kitchen idea, was a mechanism for getting people properly trained to go into business

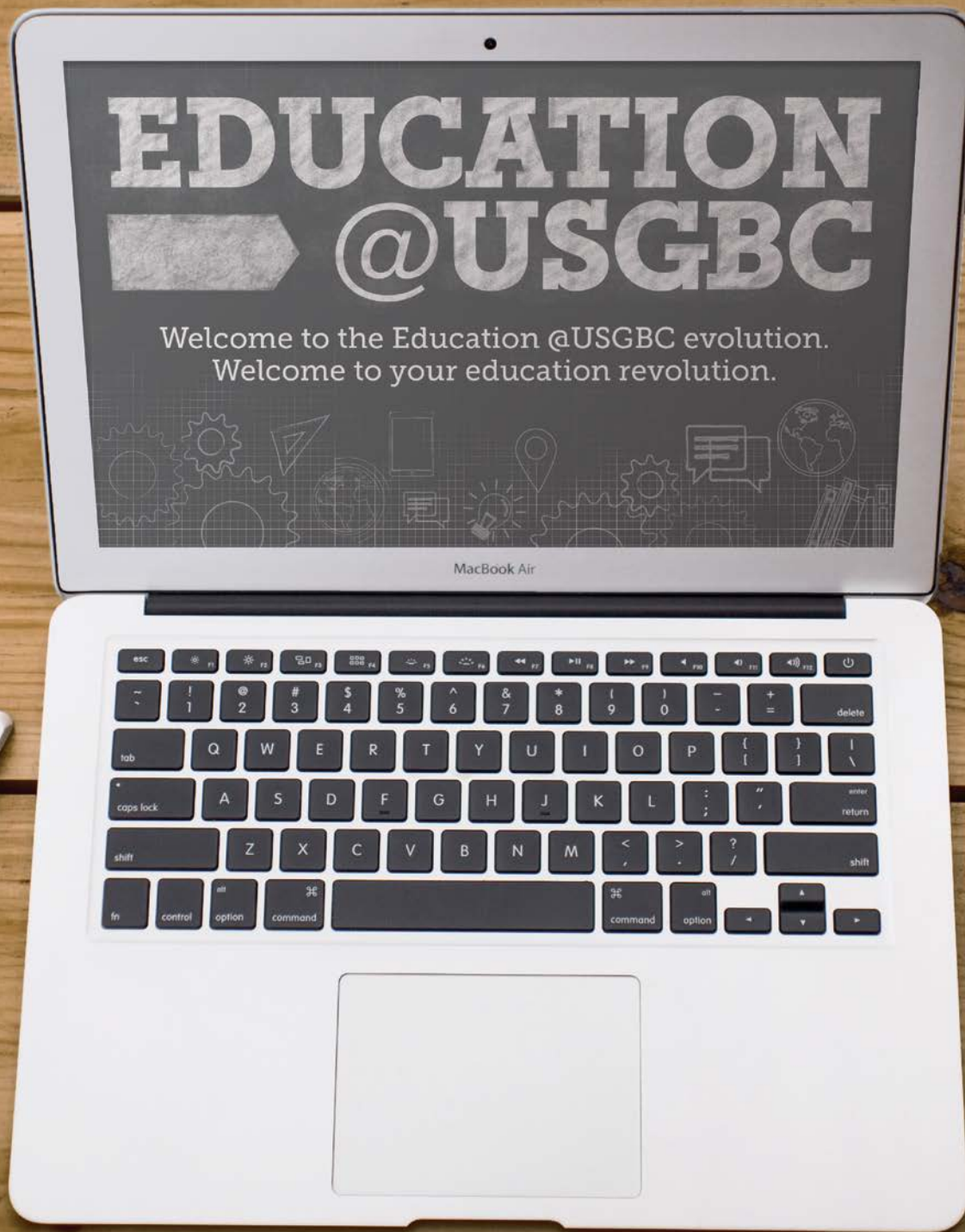
for themselves. "We have had a lot of individuals express interest in this process, so we are hoping the commercial kitchen, in terms of the food preparation, will be able to support this initiative."

Once the kitchen is up and running in November, interested parties can submit an application to be vetted by a panel. "They need to demonstrate their motivation," says Dr. Jones. "Those who are accepted will receive technical support to be successful in the space."

Of course, the program's results will be measured. Faculty members plan to assess the impact of the system in terms of how it is (or is not) creating "healthy people and a healthy city." Those overseeing it will first capture baseline data and then use surveys and interviews to determine behavior modifications of participants and impacts on society at large. "There are many different facets we are pursuing with regard to that," says Dr. Jones. "We call it the 'So What Factor.' We are engaging in all of these activities and projects and initiatives...so what? What does it mean to an individual? What does it mean to the community? What does it mean to the District as a whole?"

And because we are the nation's capital, what does it mean for the nation, as other institutions and entities look to us for leadership?" There will be a full spectrum of analyses to follow. Dr. Jones calls it the "triple bottom line"—the social, environmental, and economic impacts of this project will be the true measure of its success.

In addition to the commercial kitchen space, UDC is launching a food truck—one whose purpose goes beyond straight food distribution. "We are designing and purchasing a nutrition and education vehicle...and using it to build Food Hubs—at least one in each ward of the district," says Dr. Jones. It will be yet another training tool for aspiring entrepreneurs in the culinary industry. "It will be used as a mobile research and education vehicle." According to Hare, the food truck is part of a process that integrates research into the Food Hub equation. "Every one of our centers has a role to play in supporting our Food Hubs in terms of research and community education. That's how we are looking at it. We see it as a mechanism to continuously improve. It's not a static system—it's really dynamic." ●



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Green State

California green builders find new solutions to scaling LEED with green codes.

By Alison Gregor

Building codes in many areas of the country are becoming incrementally greener, with the state of California in the lead after the 2010 adoption of the nation's first and only statewide mandatory green building code, called CALGreen.

CALGreen is considered so eco-friendly that the LEED Steering Committee ruled this spring that a handful of their building measures are aligned enough with LEED credits

for building professionals to use a streamlined documentation path for LEED certification.

As of July, projects in California subject to the mandatory 2013 CALGreen requirements and registered under the 2009 or v4 versions of LEED BC+C or LEED ID+C can use the streamlined path for select credits and prerequisites.

"The streamlining of paperwork has obvious benefits," says Wes

Sullens, green building program manager at StopWaste, a public agency responsible for waste reduction in California's Alameda County. "However, this is also the start of something bigger, which is an overall alignment between LEED and green codes."

Sullens is chair of the LEED and CALGreen Task Group, which worked since the summer of 2014 to investigate LEED and CALGreen



Below: Terminal 3, boarding area E of San Francisco International Airport. Natural updrafts will create a fresh-air feeling, more like being outdoors. Photovoltaic panels, solar water heaters, and radiant ceiling panels are also expected to help SFO achieve LEED Gold certification.

Bottom: Los Angeles International Airport (LAX) incorporates sustainable design features that promote energy efficiency while mitigating adverse environmental impacts.

alignment in technical detail and explore opportunities to reduce the costs of documenting LEED. The group, and ad-hoc group of statewide technical experts coordinated under the USGBC-California banner, found that six LEED measures concerning indoor water use reduction, refrigerant management, the storage and collection of recyclables, construction waste management, and the use of low-emitting paints and adhesives were functionally equivalent to a corresponding CALGreen requirement.

Engineers, architects, and other building professionals in California were inspired to learn about the streamlined documentation path for CALGreen projects.

"When we shared this news around the office, people were pretty happy and thought 'Wow, that is great news,'" says Andrea Traber, a principal with Integral Group, a green engineering firm in Oakland. "It's a removal of confusion that's really helpful. We still all have to design well and pay attention to all the details, but the streamlining is really what's so important."

Joseph Marfi, the director of sustainable design and construction with Turner Construction Company in Anaheim, said it will be easier and less expensive to achieve LEED certification by saving time in the documentation process.

"I suspect this will increase the number of LEED certifications in California in the near future," which has positive ecological implications, Marfi says.



The new LEED documentation path for California projects “is the first stab at actually showing what [a building code] overlay looks like. . . so it’s really the start of something much bigger happening.” –WES SULLENS

“Everyone knows the fragile environment in California is in dire need of help,” he says, “from air pollution and snarled traffic caused by cars to droughts and water shortages caused by old, inefficient infrastructure and outdated buildings that also fuel climate change.”

Sullens says that as California’s building code has become greener, a debate has been ongoing in the state as to whether LEED is still necessary to achieve eco-friendly buildings. Yet, while some other measures are close to alignment between CALGreen and LEED, many are not, he says.

“This clearly shows that there is a lot else that isn’t able to be streamlined so easily, because LEED does it quite differently and exceeds CALGreen in many ways,” Sullens says. “So it helps solidify that codes and LEED are not necessarily equivalent.”

Nevertheless, there are still other parts of LEED and CALGreen that are similar, and work will continue to reduce required documentation, says Ryan McEvoy of Gaia Development, a green building consulting company in Marina Del Rey.

Dan Burgoyne, sustainability manager for the state of California’s Department of General Services, who also sat on the task group, said that, specifically, the energy standards used in LEED (ASHRAE 90.1 - 2013) have similarities to California’s Energy Code (Title 24, Part 6) and may also be a candidate for streamlining. In fact, USGBC issued two LEED addenda on July 1 that do just that (#10419, #10421).

“California continues to make large strides in energy efficiency with each code cycle,” Burgoyne says. “By comparing these two code standards, and determining how they align, this will save California building professionals additional engineering costs to run two energy models and will reward California buildings appropriately for higher efficiency.”

Marfi, also a task group member, notes that California’s building codes and LEED continue to evolve and “codes change usually on a three-year cycle... We will have to restart the analysis when these updates are released.”

One potential stumbling block in California is that, while the CALGreen requirements may be mandatory, they’re not necessarily understood, adhered to, or enforced equally in the state’s hundreds of jurisdictions, says Bill Worthen, a founding principal of Urban Fabrick Inc., a consulting architecture firm.

“How [the new codes are] being implemented is in no way consistent, and that’s a real risk right now,” Worthen says. “There are a lot of things that were in the building codes even before CALGreen that are still never really enforced, so this just adds another layer of complexity.”

Worthen, who sat on a preceding task force effort also chaired by Sullens, contributed to a report released by USGBC and USGBC California in April. The report acknowledges these challenges in code implementation, makes other observations on progress to date, and offers recommendations for how green building codes and rating systems can evolve and harmonize in California.

While California is the only state with a mandatory green building code, a handful of U.S. communities have adopted the International Green Construction Code (IgCC). The so-called “IgCC Powered by 189.1” is also being analyzed for overlap with LEED, says Sullens, who sits on the standards body working on the alignment of LEED, the IgCC, and Standard 189.1.

“The U.S. Green Building Council committed years ago to green codes and seeing their alignment with LEED to help encourage the benefits to the environment that they provide,” he says. The new LEED documentation path for California projects “is the first stab at actually doing that and showing what an overlay looks like... so it’s really the start of something much bigger happening,” Sullens says.

In honor and appreciation for this foundational work, and also for many other exemplary contributions, Sullens was recognized at USGBC’s annual volunteer meeting this summer with the organization’s annual Astounding Advocate award.

Several members of the LEED and CALGreen Task Group agreed that what happens in California often has a way of happening across the country.

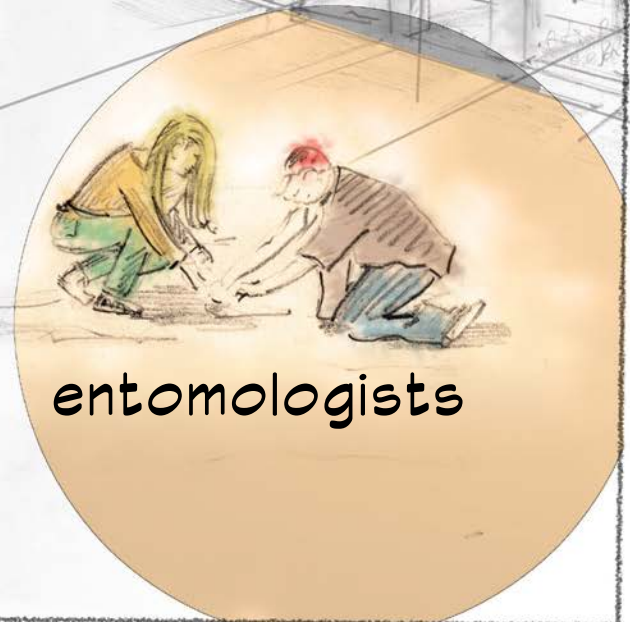
“This is a real message to other states, and I hope it will accelerate the development of green codes nationwide,” Marfi says. “No longer can codemakers turn a blind eye on inefficiencies for which society will have to pay a very high price throughout the life of our new buildings.” ●

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Q&A

Pepper Smith,
director of residential
programs, Davis Energy Group

Pepper Smith joined Davis Energy Group in 2007, managing the residential sustainability consulting and programs group including LEED for Homes, Enterprise Communities, Green Point Rated, and other verification programs. Currently, she is the company's director of sustainability. She is also the current chair of the GreenBuild Program Working Group and has sat on a number of national USGBC committees. Pepper also taught LERN online courses offered at colleges around the world and at UC Berkeley Extension in their Sustainable Building Certificate Program.

Q. How did you get involved in LEED for Homes Provider program?

I started working on LEED for Homes in 2005 as a production builder where we built one of the first LEED Homes in the country. When I came onboard with Davis Energy Group in 2007, they were already a LEED for Homes Provider (one of the original 12), and I manage that providership.

Q. How are you educating homebuilders on the value of LEED?

Every meeting we have with homebuilders, we discuss green building in general as we gauge where they are on the green building programs ladder. This helps us evaluate if the builder is ready for LEED for Homes or would be better served with a more entry level program. In California, we have our CalGreen building code, which makes it much easier for builders to pursue LEED for Homes as they have already met the majority of the prerequisites.

Q. Out of the eight categories, which is the easiest to achieve?

The easiest categories for a multifamily project to achieve are Locations & Linkages and Sustainable Sites. The easiest for single-family projects to achieve is between Energy and Materials & Resources.

Q. How critical is Integrated Design in the housing industry and the success of LEED?

Integrated Design would actually save builders a lot of money if they would just use it. The hurdle that keeps them from utilizing it properly is the upfront cost and time for consultants to get the best building for the budget and working out issues in design as opposed to in the field. When we worked for a production builder, we actually put this practice in play and we do save money on change orders, last-minute decisions that affected build schedules, and we are able to take advantage of the synergies that are available when building homes—which also saves money.

Q. How has your educational background both in marketing and law helped you in your work?

My marketing and business backgrounds have helped me create a profitable business, after a very big initial investment, in becoming a provider while offering great customer service to our clients and our Green Raters. My environmental law degree allowed me to look at land for developments in a much more holistic and environmentally friendly way.

Q. What is the future of the LEED for Homes Provider program?

The LEED for Homes Provider program is strong with 36 providers across the country. I see LEED for Homes growing with the marketing efforts the providers and Green Raters do in conjunction with USGBC.

 For more Q&A, visit plus.usgbc.org.



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