TRANSFORMING
The sustainability movement in Monterrey, Mexico, has created a safer, more peaceful city.

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Collegium Civitas is an independent non-profit institution of higher education in Warsaw, Poland. The mural project is the brainchild of the graphic artist, Marta Lewandowska from Collegium Civitas, and was realized by the agency, Good Looking. It incorporates world trends in street art and emphasizes innovative thinking, which is encouraged in Collegium Civitas students.

Photo © Collegium Civitas.

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Starbucks Corporate Architect

LETTER FROM OUR LEADERS
Tony Gale
Starbucks Corporate Architect
While the world watched, One World Trade Center grew in both height and symbolism, its 1,776-foot crystalline form bringing unmatched views back to Lower Manhattan. A redundant structural steel frame, the result of creative collaboration between Skidmore, Owings & Merrill and WSP Cantor Seinuk, ensures that its safety is as substantial as its stature. Read more about it in Metals in Construction online.
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At Starbucks, we’re proud to have been a leader for more than a decade in the development and implementation of a scalable green building program for companies—both retail and beyond. Today we have 1,200 LEED–certified stores in nearly 20 countries and sustainable building has become our standard. I’m proud to have been a founding member of this program and even more proud of the progress we’ve made as an organization.

Prior to joining Starbucks, I was Seattle’s city architect from 1999 to 2004 where I led a 20-person team managing the city’s green building policy. I joined Starbucks 11 years ago as corporate architect and found an organization that was passionate about contributing to the communities it serves. Green building and environmental stewardship provide a natural foundation for this commitment, and we look to invest in our communities.

Back in 2010, when Starbucks looked to initiate our volume LEED program, we took an approach of broad integration of green building design and performance throughout the organization, and one that we believe can be done by companies large and small. We did this by:

• Conducting extensive LEED role-specific training across global organization of design, construction, and facilities partners (employees).
• Resourcing LEED commission internally, among our internal facilities organization, elevating individual and team environmental acumen.
• Sponsoring more than 85 Starbucks partners to achieve LEED accreditation.
• Developing internal awareness campaigns, by hosting “Lunch and Learns,” forming a “Partner Network,” and providing information-sharing forums.

This integrated approach is paying off not only in new stores but also in all existing stores, and the results of this comprehensive approach have gone beyond the obvious.

• In December 2010, the Starbucks Board of Directors approved an aggressive sustainable building policy, committing the brand to building all new company-owned stores to achieve LEED certification.
• Starbucks has partnered with USGBC’s leadership to deliver a solution that could keep pace with the company’s growth globally, which would ultimately form the LEED Volume certification program.
• LEED program requirements are now embedded in drawing and specification standards.
• Significant improvements in energy and water performance have been realized, contributing to conservation targets and financial performance.
• Starbucks has achieved greater levels of LEED certification globally including Silver, Gold, and Platinum.
• Our commitment has fostered a culture of personal accountability and innovation with partners around the world identifying ways of bringing sustainability to life in our stores.

We are continually evolving to deliver more sustainable solutions in our green building design, construction, and operations in an industry that is rapidly evolving. As we look to the future, we remain committed to being on the leading side of this evolution as we play our part in creating a sustainable future for the planet.

LEED ON,
Tony Gale, III
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<td>JEFF HARDER</td>
<td>is a journalist who has written for Triathlete Magazine, the Boston Globe Magazine, Cape Cod Life magazine, New Old House magazine, HowStuffWorks.com, and many other outlets. He lives in Massachusetts.</td>
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Provincetown Art Association and Museum | Machado and Silvetti Associates | LEED Silver
The Human ELEMENT

At a mindfulness retreat in upstate New York, industry and city leaders are rethinking their green building approach.

BY LORNE BELL

Steven Bluestone is not someone you would peg as a tree-hugging, green crusader. Yes, the 58-year-old real estate developer majored in solar energy systems. And yes, since 2008, all of his buildings have incorporated extensive green design, but Bluestone is one of New York City’s most prolific builders, a partner and third-generation leader in the award-winning Bluestone Organization.

Since his grandfather founded the firm in 1927, the company has built more than 10,000 housing units across the city. For Steven Bluestone, building green is part of a healthy bottom line—which is why he accepted an invitation to the 2014 Climate, Buildings and Behavior symposium hosted by the Garrison Institute, a mindfulness retreat and former monastery in rural Garrison, New York. First held in 2009, the three-day event attracts some 70 developers, building owners, property managers, and city leaders from across the country. Instead of focusing on technologies, attendees take a more contemplative approach to their work.

“At one of the other conferences I go to, a renowned building scientist said to 300 energy conservation experts, ‘We’ve figured out how to make a great building, but what we don’t have figured out and really need to work on is the occupants of the building,’” says Bluestone. “The Garrison Institute conference is about changing people’s behaviors and attitudes.”

As part of the Institute’s Climate, Mind and Behavior program, which addresses behavioral obstacles to combatting climate change, the Buildings symposium looks at the human links between design and policy predictions and actual outcomes. Speakers draw on behavioral science to help leaders figure out why their initiatives fall short on energy and cost savings.
“Even the most well-designed building doesn’t necessarily operate at that level when you come back in three or four years,” says John McIlwain, the program’s director and a former senior fellow at the Washington, D.C.–based Urban Land Institute. “How do you get contractors to really commit to making the building sustainable? As an owner, how do you train your management staff to use the systems and operate the building efficiently? And what programs and incentives are most successful in getting residents to use the building in a way that reduces its impact on the environment?”

In 2008, the U.S. Green Building Council (USGBC) released a study of 121 Leadership in Energy and Environmental Design (LEED)–certified new construction buildings. USGBC wanted to identify discrepancies between energy model predictions and actual energy consumption. The results indicated that while average LEED building energy use was 25 to 30 percent better than the national average, 25 percent of projects performed “significantly worse” than design models predicted.

One of the first challenges to improving those numbers is encouraging designers and developers to follow up on their projects. According to architect Z Smith, principal and director of sustainability and building performance at the New Orleans firm Eskew+Dumez+Ripple, that process can be like looking behind the fridge. “As long as no one is suing them,” says Smith, designers have traditionally taken a hands-off approach.

Smith, who is also an adjunct professor of architecture at Tulane University, spoke at the 2013 Climate, Buildings and Behavior symposium. His presentation, “Seek Comfort, Achieve Performance,” examined his firm’s efforts to follow up on green design projects years after their completion. Although many of the buildings’ energy use figures met prediction model numbers, others did not.

The firm’s first LEED project, a National Oceanic and Atmospheric Administration (NOAA) research laboratory in the Florida Keys, was completed in 2006. Initially, the building achieved its predicted energy use intensity (EUI). Two months after it opened, however, the building’s EUI doubled. Shortly thereafter, it doubled again.

What was the problem? Smith and his colleagues had to consider the entire human chain: architects, energy modelers, engineers, contractors, building operation staff, and occupants. In this case, the spike was due to an imperfect software update, a follow-up visit from an untrained technician, and misconfigured electrical wiring.

Similarly, Smith says, prediction models may not anticipate the popularity of a LEED–certified space. As the building’s hours are extended to accommodate more people, energy use goes up. The design is still efficient and the building is a success, but the prediction model is based on old assumptions.

“I’ve seen buildings break at each of those points in that great chain of connection,” Smith told his audience.
“It’s not good enough to find someone to blame. What’s more interesting is to find out what happened and how to change that.”

From a business perspective, identifying and remediying those “breaks in the chain” can bolster a firm’s reputation and improve costs for developers, owners, managers, and tenants. Smith points to a growing list of green design firms that are recognizing the value in gathering postconstruction data.

At the municipal level, that holistic approach can have significant implications for city budgets and the environment. Gregg Thomas, division director of environmental quality at the Denver Department of Environmental Health, attended the 2014 symposium.

“As a city, we tend to budget year to year. But we own these assets for 50 years,” says Thomas. “So when you get beyond tax revenues, [high-performing buildings] save you money in the not-too-distant future.”

Thomas, of course, is not in the business of green building design or development. As a city leader and former meteorologist, his focus is on crafting sound environmental policies that will be embraced by developers and the public. For him, the symposium is a place to gather best practices from other city officials and social scientists—practices that take human behavior into account.

In 2014, Thomas listened to a range of speakers, from real estate professionals to sociology professors to meditation instructors. Topics included “The Power of Conversation: A Human-Centered Approach to Engagement” and “Tracking and Rewarding ‘Positive Impact’ Behaviors.”

After the symposium, Denver received a foundation grant to address energy use in large commercial buildings. According to Thomas, those buildings account for one-third of the Mile-High City’s overall energy use.

In the past, environmental policies that relied on voluntary participation resulted in only a 5 percent participation rate across the city, far short of the numbers needed to have a significant impact. So Thomas and his colleagues used insights from the Garrison Institute to identify stakeholders and include them in the policy-making process. Now, after eight stakeholder meetings, Denver will implement a collaborative plan to reduce commercial buildings’ energy use.

“The intent is to make sure that we have a broad base of support to fall back on,” says Thomas.

The Garrison Institute held its last Climate, Buildings and Behavior symposium in 2014, but several proposals are being considered to bring the event back in 2017. McIlwain says that amid an onslaught of dire climate change news, addressing human behavior is vital.

“Simply telling people how bad it is freezes them,” says McIlwain. “There are a lot of things moving in the right direction, and a sense of hope is an important aspect in getting people to continue to be engaged in the issue.”
Inova Heath System is on the forefront of greening the nation’s hospitals.

**BY MARY GRAUERHOLZ**

When Seema Wadhwa became the assistant vice president of Sustainability and Wellness at Inova Health System, Inova's management team clearly had sustainability on its roadmap, leadership just didn't know the best way to get the organization to the destination. At a time when the healthcare industry was beginning to dip its toes into sustainability, Wadhwa, a Leadership in Energy and Environmental Design (LEED)–accredited professional, embraced the challenge.

“Inova wanted to move toward sustainability, but didn't know what it looked like,” Wadhwa recalls. Today, Inova shows how greening a healthcare setting can reap success. The health network serves more than 2 million people in northern Virginia and the Washington, D.C., metro area with five hospitals and numerous other facilities, including the area's only Level 1 trauma center and Level IV neonatal intensive care unit. Inova hospitals hold 18 Joint Commission accreditations and Gold Seals of Approval. Last summer, *U.S. News & World Report* named Inova Children's Hospital one of the best in the country. Inova Women’s Hospital, in the same complex as the children's hospital, is home to the country’s fifth-most highly sought-after obstetrics program.

Much of Inova’s success has been deep green, with several of its facilities achieving LEED certification. The medical/surgical tower of the Inova Fairfax Medical Campus in Falls Church, Virginia, built in 2012 and LEED Silver certified, was Inova's first building project designed and constructed to LEED standards. Last winter, the Inova Women’s Hospital and Inova Children’s Hospital, a 12-story complex also in Falls Church, also achieved LEED Silver.

Sustainability is so thoroughly woven throughout the Inova system that Wadhwa believes the word “healthcare” does not fully describe the nonprofit institution’s mission. “It's more about providing health than ‘healthcare,’” she says. “Today it's more about keeping people healthy rather than addressing their illnesses. We're looking upstream to keep people healthier. That ties very well to sustainability and wellness.”

Not so long ago, sustainability was a side issue in healthcare. Over the past decade, Wadhwa has seen an about-face in the field. “There has been a cultural shift in the way
Seema Wadhwa is assistant vice president of Sustainability and Wellness at Inova Health System.
we look at the environment,” she says. “Historically our focus was on the impact that we humans were having on the environment, such as cutting down trees, polluting our water system, and degraded the air quality. The changing focus is on the impact of the environment on human health, from chemicals in our environment and volatile organic compounds in our carpets, to air pollution and water-quality issues such as those in Flint, Michigan.”

Canadian-born Wadhwa trained as a civil engineer and early on established a career in transportation, land development, and neighborhood design. Her sister began working in sustainability, and soon Wadhwa was drawn to its culture and philosophy. “It was an opportunity to use my skills, to find more of a parallel with my training, my personal values, and my education,” she says.

Since then, the constant in Wadhwa’s work life has been developing and instituting green practices. After her move to Inova, she became the director of the Healthier Hospitals Initiative (HHI), an initiative sponsored by 12 leading health systems and three nonprofits, including Practice Greenhealth. HHI grew to include 1,300 hospitals using their collective power to grow sustainability in healthcare. She also serves on the board of the U.S. Green Building Council’s (USGBC) National Capital Region. Wadhwa and Knox Singleton, Inova’s CEO, coauthored with Carrie R. Rich,
Sustainability for Healthcare Management: A Leadership Imperative, which outlines how sustainability promotes health and wellness.

Besides her work leading the creation and implementation of green practices, Wadhwa also manages the Inova Wellness Program, which helps the institution’s 16,000 employees reach optimum health. Again, she notes that the two fields create a beautiful union. “When you look to engage employees, wellness and sustainability are two elements,” she says. “Staff really enjoy working in a healthy workspace.” The Inova staff, as well as patients and visitors, have access to healthful, sustainably grown food prepared in the company’s cafeteria. Employees are also offered cooking classes that focus on healthy eating.

Inova’s three LEED-certified buildings promote patient experiences. “When you have an ill population, you want to give them the best healing environment possible,” Wadhwa says. “That includes one that is sustainable to support a healthy community.” In the Inova Women’s Hospital & Inova Children’s Hospital complex, for instance, a green roof with a gazebo is accessible from the high-risk pregnancy floor and has become a place that patients enjoy visiting.

The LEED Silver medical/surgical tower, which opened four years ago, was the first phase in a capital improvement project on the Inova Fairfax Medical Campus. Designed by healthcare architects Wilmot Sanz, Inc., and RMF Engineering, and constructed by Turner Construction Company, the complex consciously connects patients to the natural world. A 4,000 sq-ft green roof above the lobby attracts birds and insects while providing a serene view for patients. Low or no volatile organic compounds improve air quality. Materials such as millwork are sourced from nearby manufacturers who support environmental sustainability. A white reflective roof lowers energy costs and reduces heat island effect.

The emphasis is on natural beauty and people’s natural inclination to be close to nature. “It’s not necessarily the environmental features that are being called out; it’s the whole feel of the design,” Wadhwa says. Native plantings outside resist drought and provide a natural habitat; plants in the interior help cleanse the air and provide a pleasant focus. A 600-gallon cistern collects rainwater to sprinkle over the green roof. An impressive 80 percent of the project’s construction waste was diverted from landfills.

As sustainability in the healthcare industry grows, Wadhwa sees Inova on the forefront of the green movement. She credits the success of the movement to forward-thinking leadership. “We’re on a journey with other health systems and organizations like Practice Greenhealth to change the role of health in the environment,” Wadhwa says. “The healthcare industry has an opportunity to lead by example.”
If the name ASSA ABLOY doesn't ring a bell, Amy Vigneux wouldn't be upset. “I always refer to us as the $8 billion company that no one's heard of,” says Vigneux, ASSA ABLOY’s director of Sustainable Building Solutions, with a laugh. And yet plenty of us have made our acquaintance with the company's handiwork: We encounter it whenever we walk through Target’s sliding glass doors, or into the Phoenix Convention Center in Arizona, or the Smilow Cancer Hospital in Connecticut.

Founded in 1994, the ASSA ABLOY Group has 200 brands—including 22 in North America like Securitron, Sargent, and Corbin Russwin—that design and manufacture doors, frames, mechanical locks and exit devices, decorative hardware, electronic access controls, and “basically anything that goes around a door opening,” Vigneux says. And because door openings have a big impact on the built environment, ASSA ABLOY has put a premium on transparency, going to great lengths to minimize its environmental impact throughout the supply chain and put itself at the forefront of sustainability in the building materials industry. “It’s amazing how a small part of a building project like doors and hardware can contribute in far more positive ways than any of us had ever imagined,” Vigneux says.

ASSA ABLOY’s push for greater transparency starts at the top: With headquarters in Stockholm, Sweden—a hub for green buildings and broad consciousness of energy efficiency—the company’s leadership incorporates sustainable principles in every stage from product design and development to manufacturing practices to where it sources materials. Since 2010—the year when it became a USGBC Platinum-level member—the ASSA ABLOY Group has reduced its own energy consumption by 30 percent, reduced carbon emissions by 38 percent, improved water efficiency by 34 percent, reduced hazardous waste by 56 percent, reduced chlorinated organic solvents by 99 percent, and improved health and safety performance by 17 percent. GreenCircle Certified, a third-party organization that verifies companies’ environmental claims, backs up its products’ energy-reduction claims.
But over time, its customers—a constituency primarily operating in universities, government buildings, and commercial and institutional spaces in which doors open and close on unfathomable scales—came to expect even greater degrees of transparency. “We have architects and end users that have demanded we put our products under a microscope,” Vigneux says.

A cornerstone of that push for greater transparency involved seeking environmental product declarations (EPDs) and health product declarations (HPDs)—detailed, third-party-verified documentation of products’ environmental impacts and health hazards across their entire life cycles, effectively serving as ingredient labels for ASSA ABLOY’s door-opening products. In 2013, ASSA ABLOY sought its first EPD for a hollow metal door; within two years, the number of product-specific EPDs ballooned to a hundred, covering a spectrum of products. ASSA ABLOY develops EPDs based on criteria set by the International Organization for Standardization that apply to individual products, rather than industry wide, all-purpose EPDs that might apply to all wood doors. “Declare labels” often accompany ASSA ABLOY’s offerings as well.

“As manufacturers, the benefit is that we understand down to 1,000 parts per million what a product consists of,” Vigneux says. “We have the opportunity and responsibility to go back to our suppliers, our design teams, our engineers, and say, ‘Maybe we can choose an alternative ingredient that will make the product healthier for the building inhabitant.’”

Before reaching the marketplace, each ASSA ABLOY product goes through a five-stage development process, and sustainability remains a concern at every step. “It used to be that we would make a lock and that it would draw whatever power it’s going to draw,” says David Corbin, a senior product manager who oversees ASSA ABLOY’s Securitron brand. “Now, we have active steps that ask, ‘Do we need to draw that much power, or can we make do with a method that reduces our power consumption?’ The development process eschews using red-list chemicals and other unsound materials—no PVC in the wiring, no polystyrene foam in the packaging—while materials suppliers must abide by a code of conduct. Developers also track data about their products’ usage of raw materials and water, the use of recycled material, potential for contributing to global warming, and their potential for reuse, in addition to their cost. “The entire life cycle of the product is considered when it’s being developed so that it’s as sustainable as it can be when it launches,” Vigneux says. “That’s something that’s richly steeped in this culture: bringing it to market the right way, doing it sustainably and ethically.”

This heightened attention to detail enabled through EPDs and HPDs is inextricably linked to the rigor of LEED v4. “While many in our industry are griping about the stringent standards for LEED v4, we are embracing them,” Vigneux says. “The goal of the USGBC is to push us all out of our comfort zone, and push the envelope on what we consider to be a sustainable built environment. We used to consider a product’s impact during its use phase only. Now we know that the entire life cycle is relevant—understanding a product’s impact during extraction, transportation, manufacture, packaging, use and disposal—they are all significant.”

By embracing transparency as well as energy efficiency, ASSA ABLOY has been a boon to LEED credit seekers. Vigneux points to the Pennsylvania headquarters of Saint-Gobain, which used ASSA ABLOY’s products to help achieve LEED Platinum certification. “If you’re on the cusp of a new LEED certification level, look to doors and hardware and you’ll find points there that you might not consider otherwise.”

Beyond making the most of its niche in the world of building materials, ASSA ABLOY’s approach is an earnest effort at making products that truly minimize the impact on the environment across many dimensions. “It’s great if a product is energy efficient or has recycled content, but there’s a more holistic story,” Vigneux says. “We need to consider the entire life-cycle of the product, the people, the planet, all of the elements of sustainability, not just the profit.” It is also an eye-opening reminder of how deeply sustainability is woven into the built environment: Even the doorways you walk through are critically important.

“As manufacturers, the benefit is that we understand down to 1,000 parts per million what a product consists of.”
ASSA ABLOY's commitment to promoting sustainability-related design criteria in product development reduces life-cycle costs and creates value for its customers.
By elevating the value of landscapes to include ecological and social benefits, the SITES Rating System promotes sustainable design and resiliency on the University of Texas at El Paso campus.

**BY KILEY JACQUES**

Uniquely situated at the U.S.–Mexico border, the University of Texas at El Paso (UTEP) serves over 23,000 students per year. It also figures prominently in the greater Paso del Norte community. So when the decision was made to transform the asphalt-laden, car-centric core of the campus into an inviting living landscape, both communities benefitted.

As prime consultant on UTEP’s Campus Transformation Project (CTP), Ten Eyck Landscape Architects Inc. set out to strengthen the connection between the city, the campus, and the land. Project principal Christine Ten Eyck explains the design concept in terms of the school’s location: “The campus sits in a bowl of desert mountains and foothills. The planting was directly influenced by where water would have historically run through the site [via arroyos].”

As Kent Sundberg, project manager, explains: “One of the main goals we had was to [reconstruct] the arroyos—they had been filled in and [asphalted] over as the campus was built up over the last hundred years.” Stormwater infiltration was a major consideration, given the way in which rain events had impacted the campus prior to CTP. “When El Paso does get rain, it comes in torrents,” notes Ten Eyck. Roads used to flood with three to four feet of water, facilities were damaged, and much effort went into getting water offsite. “It was all about catching the water, creating a sponge, and watering the plants,” says Ten Eyck.

With the redesign, stormwater is collected from upper portions of the watershed and moved slowly across the landscape in a series of vegetated arroyo bioswales.
main waterways that gather runoff from the mountain and rooftops), acequia bioswales (smaller bioswales that run along walkways), and detention basins. The arroyos and acequias were designed to traverse the site, making visible the ephemeral flow of water, thereby connecting students, faculty, and visitors with the region’s Chihuahuan Desert habitat. Native and drought-tolerant vegetation has been planted in stone-strewn gardens, which were also designed to absorb and channel stormwater. Today, the total capacity for stormwater retention is in the 95th percentile, and the formally pedestrian-hostile campus has been transformed thanks, in large part, to the way in which water is handled.

For the project, a SITES sustainability consultant worked with the contractor to develop a Waste Management Plan for demolition and construction. Recycled materials included 5,000 tons of concrete and rock, 3,000 tons of asphalt, 500 tons of vegetation, and 4.5 tons of steel. In total, the project diverted 99 percent of demolition materials from the landfill. An example of the ways in which site materials were used: Excavated andesite was repurposed to line the arroyos and to form the retaining walls for terraced campus spaces. Similarly, concrete salvaged from old campus sidewalks was used in the building of Centennial Plaza, a major component of the new landscape.

Centennial Plaza was designed to be an area that promotes community. Flanked by two brimming troughs of water, where students gather to cool their feet, the plaza is a central, drought-tolerant, hybrid Bermuda, oval green space surrounded by a generous crushed gravel paseo shaded by a double row of native mesquite trees. The plaza takes the softer form of the oval out into University Mall with its curved bands of permeable jointed salvaged concrete and cast concrete. A foot bridge—hemmed with fragrant native flowering species that attract pollinators and birds—passes over a water-harvesting arroyo, linking the Geology building’s green to Centennial Plaza; the green itself is nestled into a grove of desert willows and native grasses.

New malls are lined with acequias and formal plantings of desert shade trees—the combination of textured salvaged concrete and stabilized granite gives the sensory experience of walking in the desert. To further that experience, existing terraces were redesigned to hover over salvaged-boulder desert gardens with views to Centennial Plaza below. Stabilized decomposed granite paving, fire pits, and desert trees combine to create a gathering space that overlooks the activity at the heart of the campus. The addition of over 700 xeric shade trees mitigates the hot El Paso sun, while irrigation-fed water features in the form of a seeping seat

The CTP provides 641 quiet outdoor spaces for mental restoration, as well as 1,884 seats for social interaction where students, professors, and staff can connect with peers and experience the benefits of nature.
Formally established in 2006 by the Lady Bird Johnson Wildflower Center, the United States Botanic Garden, and the American Society of Landscape Architects (ASLA), in collaboration with numerous stakeholders and over 70 advisors, the SITES Rating System uses green infrastructure strategies to solve environmental problems, and in so doing creates landscapes with multiple benefits and amenities. “We set out to define the criteria of a sustainable landscape with an emphasis on function, health, and resilience,” notes SITES program director at the Lady Bird Johnson Wildflower Center, Danielle Pieranunzi.

SITES-certified projects optimize landscapes such that they provide a range of benefits. Wildlife habitat restoration, pollution and waste reduction, climate regulation, stormwater management, air quality improvement, and public access are among those benefits. “It’s understanding that our built landscapes, even in urban areas, have the capacity to provide similar benefits that we get from nature, such as cleaning air and water, sequestering carbon, and improving human health, if they are designed with sustainability in mind from the outset,” explains Pieranunzi. “The central message of SITES,” she says, “is that any project—whether the site of a corporate campus, city park, academic institution, or residential yard—has the potential to conserve, restore, and create ecosystem services.”

Ari Novy, PhD, executive director of the United States Botanic Garden, adds: “One of the most exciting aspects of SITES is that it connects people to landscapes. SITES projects create outdoor environments that give back, providing ecosystem services, health benefits, and a sense of place. SITES helps us realize that a wise investment in the landscape is a wise investment in our own future.”

In essence, SITES is the difference between a pleasant rain garden and a fenced-off detention pond. “Like buildings, landscapes can also waste and degrade resources if you don’t design them sustainably,” says Pieranunzi. What we don’t need, she explains, are any more landscapes “on life support.” If the amount of resources and maintenance needed to support a landscape are so great as to be degenerative, it is not a sustainable system. “It’s not just about having green space, it’s about having healthy green space that has been designed and managed to provide a community with multiple benefits for the long run.” And thanks to years of peer-reviewed research conducted by technical committees comprised of landscape architects, designers, planners, engineers, architects, developers, policy makers, and ecologists, adherents to the SITES Rating System will have exactly that.
A Roman-styled aqueduct frames the entrance and is part of the Lady Bird Johnson Wildflower Center’s rainwater harvesting system.

wall, fountain troughs, and stone tinajas “provide physical and psychological cooling.”

Ten Eyck talks about the social value of the new campus, noting that for many of the students this is their first time having daily access to a green space. The regrading resulted in a nice mix of private and active spaces. There are terraces from which to overlook the plaza. Ten Eyck recalls standing in one such spot when a student turned to her to say: “Isn’t this the most peaceful place? I come here all the time for the peace.”

“There really aren’t many places in El Paso like this,” notes Ten Eyck. “It is a treasure for the students and the city. It has given them some pride and sense of place. The social part of it is just as gratifying as the science part of it.”

Greg McNicol, UTEP associate vice president for business affairs and facilities management, adds: “The project’s benefits go beyond sustainable landscapes. Research shows that landscapes can [improve] mental health [and] cognitive function, and [offer] stress reduction benefits, which are especially important in a collegiate setting,” McNicol said. “Through the Campus Transformation project, we hope to not only strengthen our sustainability priorities but create a community gathering space for our students and faculty.”

The team’s commitment to human comfort and connectivity, native ecology, stormwater mitigation, and progressive building practices has resulted in the largest green infrastructure project in the El Paso region. It is one of the first examples in the area where soil, vegetation, and green infrastructure were used to manage stormwater. For its effectiveness, the project recently earned a regional EPA award, in addition to placing first in the People’s Choice Award in the category of Outstanding Green Infrastructure and Low Impact Development. In July 2016, CTP received SITES Silver certification, becoming the first project certified under the new SITES v2 Rating System.

Of the completed project, UTEP President Diana Natalicio says: “All of us at UTEP consider ourselves so very fortunate to have been able to entrust our Centennial Campus Transformation to [Ten Eyck’s] remarkable vision and determination to ‘get it right.’ Having my own set of passions about both UTEP’s campus center and the region’s ecology, I worried that we wouldn’t be able to find an architect who would do justice to our goals for our ‘new’ UTEP campus climate. [They] not only did them justice, but they took them to a far higher level than even we imagined we could . . . protecting and perfecting our beautiful UTEP campus, and preparing it to flourish for the next 100 years.”
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RENAISSANCE & RESURRECTION
The sustainability movement in Monterrey, Mexico, has created a safer, more peaceful city.

WRITTEN BY ALISON GREGOR

Only 60 miles from the U.S. border, the city of Monterrey, Mexico, has been well established as the most important industrial and financial center in northern Mexico and one of the wealthiest cities in the country—and the world. Perhaps inspired by the “Cerro de la Silla,” or Saddle Mountain, the iconic peak that is the city’s symbol, residents took hold of the city’s economic reins after the Mexican War of Independence, focusing on industries benefiting from railway development in the late 1800s, including steel and breweries. Hospitals and universities followed, and today the city is reimagining itself with its embrace of green building and sustainability.

“Monterrey is a city founded by entrepreneurs who built massive industries,” says María de Lourdes Salinas, who returned to Monterrey after years abroad due to her love of the city and is now the director of THREE Consultoría Medioambiental, a consulting firm specializing in design and sustainable engineering in the construction industry.

There’s a local joke with a grain of truth that circulates, Salinas says.

“The joke is they built all the industries that have to do with creating beers, because you have the glass, aluminum, and breweries—and then you have the universities for people to drink the beers,” she says affectionately of her home city, a metropolitan area of about 4.5 million people.

However, the course of evolution toward a city that’s safe, walkable, data-driven, and efficient has not been without bumps. There was a time in 2012 when it was said that Monterrey was in danger of falling to organized crime—an extreme statement regarding a city that had, at least as late as 2005, been called the safest city in Latin America and the sleek entrepreneurial hub of Mexico.

In 2006, as the rest of Mexico engaged in a violent war on drugs, even Monterrey, a city rich in culture as well as wealth and industry, could not avoid being drawn into the lawlessness and violence. A drastic increase in crime was attributed to the widespread presence of a criminal syndicate called the Zetas, known for kidnapping, extortion, and extreme violence.

Regiomontanos, as Monterrey residents call themselves, were witnessing gun battles in the streets, with violence peaking throughout the country in 2012. In 2010, two graduate students at the Tecnológico de Monterrey, a prestigious university dubbed by many of its alumni the “MIT of Latin America,” were killed in the crossfire just outside the university gates.

According to a 2015 report by the Institute for Economics and Peace, between 2003 and 2014, the level of peace in Nuevo León, the Mexican state of which Monterrey is the capital, decreased by 54 percent. This strife began to lead to deterioration and population loss in certain parts of the city.

All this called for a plan that went beyond simply enhancing security measures. When Mexico’s level of crime was highest in 2012, Monterrey officials devised an ambitious urban development initiative in an
María de Lourdes Salinas is the director of THREE Consultoría Ambiental.
attempt to reverse Monterrey’s declining reputation, and in 2014 adopted the Plan de Desarrollo Urbano del Municipio de Monterrey 2013–2025. The plan provides a regulatory framework to support a national plan to promote more sustainable, compact cities; rehabilitate the environment and improve the quality of life of residents; facilitate mass transit and nonmotorized transit; and foster the use and consumption of eco-friendly products along with clean, efficient low-carbon technologies, among other goals.

Yet by then, green buildings were nothing new in Monterrey, playing a small but significant role in its renaissance and resurrection as far back as 2005. Since the first consultants in Mexico began promoting the benefits of eco-friendly building in the late 1990s and early 2000s, the concept has been gradually catching on, says Salinas, who’s been working in the industry for more than a decade.

“The first ones to get involved here in Monterrey were the multinational companies already showing leadership internationally, who wanted to be green in their headquarters and international offices,” Salinas says.

The first building to be Leadership in Energy and Environmental Design (LEED) certified in Monterrey was built by the international industrial supplier Grainger, which achieved LEED Gold for its 239,701 sq-ft headquarters in February 2010 under the Building Design and Construction (BD+C) rating system for New Construction. Companies like ProLogis, an international company in industrial real estate development and logistics, and Carrier, a U.S. manufacturing company, have followed suit, registering and certifying their buildings.

Since that first certification, almost two dozen more have taken place, according to data from M. en C. Alejandra Cabrera, the executive director of Sustentabilidad de México (SUMe), based in Mexico City, an organization comparable to the U.S. Green Building Council (USGBC). The original Mexico Green Building Council was founded in 2005 in Monterrey and had its headquarters there for several years, when it became SUMe in 2011.

As of early September, there were 23 LEED-certified projects in the state of Nuevo León—four Platinum, four Gold, ten Silver, and five Certified—representing 2,597,013 square feet in total. Of those projects, seven were industrial, seven were office towers, three were warehouses, four were retail, and two were institutional. Another 73 projects were registered in Nuevo León.

“We’ve seen constant growth in the number of projects that are registered and then certified,” Cabrera says, noting that Monterrey boasts the first LEED v4 Platinum projects in the country for both BD+C New Construction and Building Operations and
Maintenance (O+M) for Existing Buildings. “There’s something very interesting happening in the state of Nuevo León,” she adds.

One international company that has pursued LEED extensively is Arca Continental, the second-largest Coca-Cola bottler in Latin America with corporate offices in Monterrey. Under the LEED Campus program, an area of almost 3.5 acres has been registered as a master site and is a renovation of the previous Arca Continental corporate offices, says José Angel Alba, a manager of corporate control processes at Arca Continental. So far, two buildings have achieved LEED Silver, and a third is registered and striving for LEED Gold, he says.

“Obtaining the LEED certification means international recognition for our values toward environmental conservation,” Alba says. “Being that water is one of our most important raw materials, its scarcity commits us to carry out the message to the community and our stakeholders, toward the conservation of the environment. And this commitment is reflected in the actions we have taken in designing, planning, and building spaces with the best worldwide green-construction standards.”

Monterrey is flanked by two universities that have been the primary drivers of its economic and cultural growth. One early academic adopter of LEED was the University of Monterrey (UDEM), a private Roman Catholic institution of higher learning that launched an iconic project for its new art, architecture, and design building around 2008. The university hired the world-renowned, Pritzker-prize-winning architect Tadao Ando of Japan to design a project encompassing 94,000 square feet. The university also decided to go for LEED certification, and the project has become a great source of pride for regiomontanos.

“They combined amazing architecture with all the sustainability features you get with LEED, so they finally certified this building,” Salinas says, “and it took some time, because the design and construction of the building was quite complex.”

It took until June 2014 to obtain LEED Silver certification for the Centro Roberto Garza Sada. Ando’s design was true to the renowned architect’s roots, with a rectangular cement block from which huge triangular cutouts were carved into the sides, leaving an unexpected opening between its underside and the ground. The project focused on improving the sustainability of the 247-acre campus, making it more walkable and bikeable, and shifting design away from vehicular orientation. Indigenous plant materials and natural water retention and filtration for low maintenance landscaping were used.

The success of that building, which has drawn design and architectural students from all over Mexico
and the world to UDEM, put LEED on the map as more than just a design protocol or certification to attract international companies and investors—it has become a signifier of an improved quality of life. Salinas says that the UDEM campus continues to strive for LEED-certified buildings—one example being a 2,045 sq-ft 7-Eleven store within the campus certified in 2013 as LEED Gold for Retail.

Meanwhile, as these projects were taking place, security conditions were beginning to improve for Monterrey. Between 2011 and 2014, homicides dropped dramatically by 76.2 percent in Nuevo León, and between 2011 and 2013, the number of crimes against businesses dropped by 43 percent, according to the Institute for Economics and Peace. In the Institute’s 2016 report, Nuevo León was cited among the five Mexican states with the biggest advances in the levels of peace since 2011. (Nuevo León saw the third-largest improvement between 2011 and 2015 of the five states, and is now returning to the conditions it experienced prior to the drug wars, with the highest level of peace among its peer states.)

Green strategies are working their way into the Plan de Desarrollo Urbano del Municipio de Monterrey 2013–2025—mostly incentives to encourage developers to consider obtaining LEED certification, says Gabriel Eugenio Todd Alanís, the general director of the Instituto Municipal de Planeación Urbana y Convivencia de Monterrey.

In fact, says Todd, there are other municipalities near Monterrey, such as Santiago, that are following these steps.

Under the new municipal code, projects with LEED or other environmental certifications will receive incentives, such as public recognition and promotion through the city’s website, Todd says. On top of that, land use, building, or construction permits will be issued in 15 working days if the project complies with regulations, a process that can typically take closer to 40 days, or even up to six months in certain cases. Eventually, there will be more incentives, and projects pursuing LEED may qualify for special tax rebates in the future. Some of the codes being proposed, such as one to create pocket parks from old parking lots, are “ahead of our culture around here but could [spark] a new approach to a human-scale city,” Todd says.

Monterrey’s ambitious urban development initiative may be yielding results. Many more buildings have achieved certification since knowledge of LEED and arguments for its advantages have spread widely throughout the construction and development world in Monterrey.

Consultants like César Ulises Treviño, one of the first to obtain a LEED AP in Latin America and a tireless proponent of green building since the early 1990s, have been indispensable. Treviño’s consultancy, Bioconstrucción y Energía Alternativa, has worked on a variety of projects, including the first green building in Mexico, the LEED Platinum HSBC Bank tower in Mexico City. Treviño has had a strong hand in penning part of the new development initiative.

“Now the speech and focus in Monterrey is very different,” Treviño says. “We’re shifting into more evolved discussions, on things like real-time...
performance, life-cycle adjustments and life-cycle costs. Even two years ago, there were more theoretical and academic issues, that now are into the words of every major developer, and that’s very gratifying, to know the market has evolved and changed. And that brings new demand for experts, especially in green building.”

One of the highest-profile LEED projects to recently certify is the offices of Bioconstrucción y Energía Alternativa, which was awarded LEED Platinum certification for BD+C New Construction in 2011, and another Platinum certification in June 2015 for O+M under LEED v4.

Treviño says the building is now striving for a WELL building certification from the International WELL Building Institute, but in the interim, the headquarters received the first LEED Dynamic Plaque in Mexico. “We’re proud and honored to reach—together with USGBC—this important milestone for LEED and green building in Latin America,” Treviño says.

Another project to receive a high-profile LEED designation recently is that of Salinas’ THREE Consultoría Medioambiental, an innovative design of colorful stacked Martin containers and wooden decks serving as offices that received LEED v4 Platinum certification, the first in Latin America, in July.
“It’s weird how sustainability has flourished throughout all the insecurity of the past eight years,” Salinas says. “Even in 2012, 2013, it was still a bit rough for some people, and that affected the markets, the economy, and the international companies coming to Mexico to build green projects, but at the same time, green building still flourished and became something feasible and profitable for companies.”

In fact, there are several very high-profile projects being developed that will be striving for LEED certification, most of them in San Pedro Garza García, a city-municipality in the Monterrey Metropolitan area. Some of the more noteworthy projects are engaging in the battle of the tallest tower, a battle in which the winners’ laurels rarely stay fresh for long.

The Koi Sky Residences, a multiple-use tower being designed by Diseño Arquitectónico and master planned by HOK, will be about 917 feet tall and is aiming for LEED Silver. Also in the San Pedro neighborhood, one property development group, GM Capital, has developed a long-term master plan on over 16 acres of land, with a mission of providing cheaper housing for those who work and spend significant amounts of their lives in San Pedro, but can’t afford to live there, says Edmundo Gómez Flores, GM Capital’s development director.

The project, Distrito Armida, has a first phase consisting of an office tower, hotel, event center, and retail shops, all totaling almost 1.2 million square feet of construction. The development group, which has been developing shopping centers for many years, decided to register the office tower under BD+C Core and Shell and attempt to achieve LEED Silver.

“This is the first time we’re looking at certification as a company,” Gómez says. What prompted GM Capital to do so was its aging shopping centers—one of which is 25 years old—which have become inconveniently costly to operate and maintain, he says.

“For us, doing LEED is a matter of being smart about long-term planning and using sustainable systems that would keep our operating costs low,” Gómez says. GM Capital will certainly be considering LEED certification for all its future buildings, though Gómez said that he didn’t yet think LEED-certified buildings were so prevalent in Monterrey that certification is a requisite to capture tenants. Yet he said that he knows that tenants and investors certainly think highly of the certification.
Capital Natural, a management firm for private equity funds, also has big developments going on in the San Pedro area. Its first project, Torre SOFIA, is a 39-story office and residential tower containing 53 residential units and 48 office units, including one occupied by Capital Natural, which obtained the LEED Platinum for ID+C Commercial Interiors v2009 certification last February. Torre SOFIA has sold all the office units, and nearly 96 percent of the residential units, and is pursuing LEED Silver certification for the building, says Adrian Cantú, senior project manager at Capital Natural.

Another ongoing Capital Natural project that will be seeking various certifications under LEED is Arboleda, which will ultimately be about 3 million square feet on almost 25 acres designed by Pelli Clarke Pelli Architects. Arboleda currently has four different housing components under construction, including two towers and two lower-rise condominium projects. There are also commercial and retail components along with plans for a JW Marriott Hotel, rental apartments, and eventually a wellness center.

“We’re a forward-thinking company in terms of sustainability and the balance between human being and...
architecture,” Cantú says. “We feel it’s part of our nature and our vision to pursue these types of certifications.”

Capital Natural is also working with neighbors, schools, property developers, a golf club, and government officials in an urban revitalization project called Distrito Valle del Campestre, which seeks to improve the mobility and quality of life through urban and eco-friendly construction and community-engagement processes.

“We’re working with all these stakeholders to see how we can improve our public spaces and make Distrito Valle del Campestre a better place—friendly for walkers, bikers, and cars,” Cantú says. “We’ve been working three years now and are finishing the design development drawings.”

Capital Natural has also joined forces with Tecnológico de Monterrey in a similar community effort to revitalize Tec’s main campus and an area called “DistritoTec,” a cluster of almost two dozen neighborhoods that surround the campus. After the shooting incident in 2010, the university did some soul-searching, says Eduardo Armando Aguilar Valdez, the urban manager in the DistritoTec program.

“The university was very concerned about this, and they were even considering moving the campus to another area and creating a bunker where the students would be safe and nobody would get in,” he says. “But then they also realized that that was not the solution.”

Instead, three years ago, the university envisioned a $500 million campus and urban redevelopment project. The old football and soccer stadium, formerly home to the Rayados de Monterrey professional team, will be demolished and replaced by research, cultural, and sports facilities, and a new park open to the public. Those new constructions are currently registered for LEED certification, says Treviño, whose firm
Bioconstrucción y Energía Alternativa has hosted LEED learning programs to educate Tec students since 2011. Aguilar and coordinators of the initiative have held more than 100 community meetings with stakeholders in DistritoTec, including neighbors, government officials, property developers, businesses, and others to determine what infrastructure improvements are needed in the area and what services must be provided to retain and expand the vitality of the district, which has grown older on average and lost 22 percent of its population in the past decade.

While Capital Natural may focus on building research and development infrastructure to help spur a research cluster on campus, along with student housing, and commercial and retail space, the Tec de Monterrey will most likely construct the academic buildings. What goes on outside the campus in the district itself will be the work of people like Aguilar, who will educate stakeholders on the importance of building responsibly and in an eco-friendly fashion.

That involves promoting environmental certification systems like LEED to private developers and educating investors and homeseekers of their importance. A big component is education, Aguilar says.

“We’re talking about creating a community that’s attractive, safe, and accessible for people who’d like to live here, who will stay and have possibilities and amenities,” he says. “We want to create the environment that talented and creative people are looking for.”

Salinas agrees: “Ten years ago, nobody knew anything about sustainability in Monterrey. It would just be Ulises [Treviño] and myself, knocking on doors and people just didn’t care. But now everybody is just so attached to the understanding that green building is profitable, and it’s good for the community and the quality of life.”
Green Beer

Brewers big and small are turning to sustainable solutions to help save money and conserve resources.

Written by Calvin Hennick
No one would ever confuse Guinness with Sierra Nevada. Guinness, of course, is famous for its dark ruby red (verging on black) stout and cheeky, vintage “My Goodness My Guinness” posters, while Sierra Nevada Brewing Co. is likely best known for its pale ale. Guinness has been brewing in Dublin for more than 250 years, while Sierra Nevada set up shop in Chico, California, in 1980. Guinness is now owned by the multinational beverage company Diageo. Sierra Nevada, meanwhile, is independently owned and is the third-largest craft beer producer in the United States.

The two companies have something in common, however: Both want to brew the highest-quality beer, and they want to do it while using as few resources as possible.

Brewing is a resource-intensive process for obvious reasons, creating mammoth demands for water usage, wastewater treatment, power and cooling, and transportation. Like companies across many industries, brewers—including both small craft brewers and large multinational producers—are looking to cut costs, boost their reputations, and simply create positive change by reducing the environmental impact of their operations.

Guinness and Sierra Nevada have been particularly active in this arena, not only tweaking their operations to conserve resources, but also pursuing Leadership in Energy and Environmental Design (LEED) certification on recent major building projects. Guinness’s Brewhouse No. 4 at the company’s iconic St. James’s Gate location in Dublin, Ireland, opened in 2014 and was certified LEED Platinum in 2015. Sierra Nevada’s new brewery in Mills River, North Carolina, also opened in 2014 and achieved LEED Platinum certification in early 2016. The facilities are, respectively, the first major brewery in the world, and the first in the United States, to receive the highest LEED designation.

“This is the fourth [Guinness] brewhouse since 1759,” says Michael Wilson, global environmental sustainability director for Diageo. “As a brewing business, a lot of our facilities were built in the last century, or even the 1800s. This was an opportunity, with a new build, to implement new practices, rather than trying to retrofit an older building. It’s not easy to retrofit with modern technology and design techniques.” This new build from a brownfield site was an opportunity for Diageo to incorporate some of those best sustainable practices.

“[Sierra Nevada’s headquarters facility in] Chico has been under construction pretty much continuously since the mid-1980s,” says Cheri Chastain, sustainability manager for the craft brewer. “There’s always an expansion happening here. With Mills River, we were coming into a new community. Chico knows us, and they know how we do things. We wanted to set the stage to show [that] this is how Sierra Nevada does business. We made the decision that we’re going to do this, and we’re going to do it right, and we’re going to get that third-party validation that tells us that we did it right.”
Sierra Nevada’s Sustainable Beginnings

In 1980, when Ken Grossman founded Sierra Nevada Brewing Co., there were only around 40 commercial beer brewers in the entire United States (compared to more than several thousand today). Although “sustainability” was in its infancy as a conscious business practice, Grossman largely found himself following sustainable practices out of sheer necessity. The equipment he needed to brew beer on a small scale simply didn’t exist, and Grossman was forced to scrape together and repurpose used materials, rather than buying new. Also, as a small brewer struggling to compete with large corporations, he could hardly afford to waste resources.

“He didn’t have boatloads of capital to waste,” says Chastain. “He would sell bottles, and then go out and collect those bottles and refill them. Electricity and water were closely monitored, because those were expenses. It was partly being a small business and being careful with your resources, but also, the equipment didn’t exist, so he had to be creative and inventive with it.”

That ethic of sustainability, Chastain says, continues to be central to the company’s identity even as it has grown over time. “It’s been a core value for Sierra Nevada for as long as we’ve had core values,” she says.

Chastain, hired in 2006, was the first Sierra Nevada employee with an official sustainability role. The brewer now employs four people on its sustainability team, but Chastain says that the company’s goal is for everybody, in some sense, to be working in a sustainability role.

“The idea of sustainability has morphed into environmentalism, but they’re not the same thing,” Chastain says. “Sustainability is the ability to sustain something, whether it’s a lifestyle or a business. That’s where Sierra Nevada excels. Every project that we decide to do or every change in operations has an economic, environmental, and social benefit. We’re trying to get people to shift away from thinking that sustainability is synonymous with environmentalism. Really, it’s everything that impacts our business and the resources that we’re using.”
The Goodness of Guinness

While the taste of the beer undoubtedly stands alone as the first, second, and third factors contributing to the enjoyment of a glass of Guinness, the venerable brand of the company also has a role to play. In fact, when visitors tour the Guinness Storehouse and take a class on how to pour the perfect pint, they are instructed to serve it with the Guinness logo facing outward “because we eat and drink with our eyes, not only our mouths.”

The Guinness brand, Wilson says, is synonymous in the minds of consumers with “quality, provenance, and tradition.” When people in the future see the company’s famous golden harp set against a black backdrop, he hopes they will think of another word, too: “sustainability.”

Diageo first adopted sustainability goals in 2008 and has continued to revise them over time. “Climate change was becoming more and more of a prevalent issue, and there was more media attention, and I think that was a driving force,” says Wilson. “Other large-scale multinational companies were beginning to play their part as well.”

“It’s not a short-term agenda,” he adds. “This is something that we see continuing for an extended period. We’re not immune to climate change. We believe that we actually have a role to play in obviating the risks around climate change.” This commitment led USGBC to award Diageo the 2016 Ray Anderson Radical Industrialism Award at Greenbuild in Los Angeles.

Wilson says there’s not much strong evidence to suggest that consumers are currently choosing beers or changing buying habits based on brewers’ sustainability track records. However, he thinks that is likely to change with social media and other sources giving consumers easy access to information about what companies are doing to preserve the planet.

“Looking forward, the consumer of the future will be much more in tune with brands and products that demonstrate responsibility toward the environment,” Wilson says. “It makes good business sense [to pursue a sustainability strategy], as well as us playing our role as good corporate citizens.”
A Changing Industry
Craft brewers and large producers compete for market share, and as a consequence, they don’t always have nice things to say about each other’s practices or products. In a 2015 Super Bowl ad, Budweiser showed the words “It’s not brewed to be fussed over” on top of a shot of a mustachioed hipster sniffing at his glass, which spurred backlash from craft brewers and hobbyists who were all too happy to respond with withering critiques of the taste and quality of the “King of Beers.” But sustainability is one area where large and small companies have found common ground.

“Sustainability is something that has been ingrained in the thought processes of a lot of craft brewers for a long time,” says Paul Gatza, director of the Brewers Association, a craft beer industry group based in Boulder, Colorado. “I think the primary driver is it’s the right thing to do. I think there is a belief that when you operate in a sustainable manner, it’s actually cheaper in the long run—if not for your own company, then for society.”

At the same time, Gatza says, it is also in the best interests of larger producers to conserve resources. “They’re really focused on water, trying to reduce the amount of water it takes to make a certain amount of beer,” he says. “From their standpoint, everything they do has an impact on the bottom line, and their corporate structure is such that they are beholden to deliver returns for stockholders. By reducing the amount of water or figuring out how to conserve energy, that helps deliver profits.”

“It’s an area where I have a lot of respect for the big brewers,” says Chastain. “As a craft brewer, we can’t impact the supply chain to the level that a large brewer can. Craft beer is only 15 percent of beer market. Four or five companies own 85 percent of market. That buying power and that influence on the supply chain is starting to be used for a lot of good. Also, when you’re brewing at that size, you can be incredibly efficient with energy and water use.”

“Sustainability is not just this hippy thing,” she adds. “These big brewers are recognizing that, by being more efficient with energy or water, they’re reducing their operating expenses.”
In an illustration of just how much things have changed over the past few decades, it’s now possible for students at at least one college to major in sustainable brewing. Western Michigan University launched a sustainable brewing program in 2015, and while “majoring in beer” may sound like the giddy fantasy of a freshman, the school started the program specifically because local craft beer producers were having trouble filling jobs and told the school that sustainability would be a major focus in the immediate future.

“These companies are hiring,” says Ed Martini, an associate dean at Western Michigan, who helped to create the sustainable brewing program. “Our advisory board [of craft brewers]—they’re telling us, if students come out and can do these kinds of things, they’ll absolutely snatch them up.”

The program includes courses like “Holy Waters: Spirits and Spirituality,” and has convinced at least one student to switch his major from chemical engineering to focus on brewing. The school expects to have around 40 students enrolled in the program this fall.

“You’ve got people talking about beer as the new automobile industry,” Martini says. “Right now, it’s an easy case to make, because there’s so much opportunity and so much continued growth in the industry.”

Diageo’s Wilson says that he doesn’t necessarily see a link between the size of brewers and their emphasis on sustainability, although he notes that

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**Sierra Nevada: Sustainability Highlights**

Sierra Nevada Brewing Co.’s sustainability efforts extend far beyond the company’s new LEED Platinum facility. Other programs include:

**Waste Reduction**
Through reuse, recycling, and composting, the company diverts 99.8 percent of its solid waste from landfills.

**Energy Conservation**
In 2014, Sierra Nevada generated more than 10 million kWh of electricity on site—nearly enough to power 1,000 American households for an entire year.

**Water Efficiency**
Since 2007, the company has reduced the amount of water required to produce a barrel of beer by 25 percent.

**Packaging**
In 2012, Sierra Nevada introduced a new twelve-pack that eliminated the need for cardboard dividers, resulting in a weight loss of 243 pounds per truckload.

changes in practices can have a greater impact when adopted by larger companies. “I think it comes down to the specific commitment of the company,” he says. “There is more opportunity and a substantially bigger impact on obviating climate change when larger breweries switch to sustainable practices.”

The Push to Platinum
Initially, Chastain says, Sierra Nevada planned to build its Mills River facility to achieve LEED Silver certification at a minimum. “As the project started moving forward,” she recalls, “it was looking like a pretty solid Gold. Ken Grossman saw that opportunity to be better, and he wanted to go for it. He pushed everybody to get there. We flirted with Platinum, and he pushed the whole team, and there was a lot of work that went into it, a lot of stress. You need 80 points to achieve Platinum, and we were awarded [exactly] 80 points.”

The Mills River brewery includes nearly 2,200 photovoltaic solar panels and uses microturbine technology to convert methane biogas captured from an onsite wastewater treatment plant into electricity. The site was also designed to collect rainwater runoff, which is used for irrigation and other purposes, and parking areas at the facility were constructed with permeable surfaces to allow rainwater to be absorbed by the ground, rather than carrying sediment into a

Diageo: Sustainability Highlights
Diageo’s sustainability and corporate responsibility efforts extend across the company’s brands—which include Guinness, Johnnie Walker, Baileys, and Smirnoff—and encompass not just environmental practices, but also things like alcohol in society, governance and ethics, and reporting and transparency. The company’s efforts include:

- **Energy Reduction**
  Diageo’s direct consumption of energy from nonrenewable sources has decreased by around 25 percent since 2007.

- **Sustainable Packaging**
  In 2015, 39 percent of the input materials for Diageo packaging came from recycled content.

- **Water Stewardship**
  By 2020, Diageo wants to return 100 percent of wastewater to the environment safely, and replenish the water used in its products made in water-stressed areas.

- **Emissions Management**
  Diageo aims to cut its carbon dioxide emissions in half (from a 2007 baseline) by 2020.

nearby waterway. During construction, 81 percent of waste was diverted from landfills, and the facility’s walls, insulation, and windows were designed to keep temperatures stable and maximize natural light.

Guinness’s LEED Platinum Brewhouse No. 4 facility in Dublin features an energy recovery system that reduces the need for steam heating, and a hybrid refrigeration system that operates at 32 degrees Fahrenheit (up from the previous system’s temperature of 25 degrees Fahrenheit). Low-flow water fixtures were installed throughout the building, along with a rainwater capture system on site. The facility also includes a combined heat and power plant (CHP), a low-energy heating, ventilation, and air conditioning (HVAC) system, and ample parking for bicycles and fuel-efficient vehicles. As a result of the changes, the new facility has cut thermal energy needs by 33 percent and water needs by 14 percent. Although some of the changes—particularly the water conservation efforts—have a longer financial payback period, Diageo decided, “it makes sense to take that longer term view,” Wilson says.

“From the conception phase, it was determined that environmental concerns would be considered in the design and build, and in the ultimate operation,” Wilson says. “With an old facility, they’re much more susceptible to leaks, and overuse of water in certain areas of the brewhouse. That will drive up your water consumption. There was a clear benefit to implementing the best [sustainable] practices.”

Head of the Glass
Both Diageo and Sierra Nevada Brewing Co. are members of the U.S. Glass Recycling Coalition, an industry partnership launched in the spring of 2016 with the aim of improving the glass recycling process and increasing the frequency of glass recycling.

The coalition, which was organized by the Glass Packaging Institute (GPI) and also includes brewers like Allagash Brewing Company, Heineken USA, and New Belgium Brewing, seeks to “help build a foundation to make glass recycling a successful industry, and an efficient, high-quality, and convenient service consumers want and expect,” according to a GPI statement.

The GPI notes that, while glass containers for food and beverages are 100 percent recyclable, economic forces have led many of these containers to end up in landfills. Glass recycling, the group says, can create challenges for recycling infrastructure if not planned for and executed correctly, and some communities have removed glass from their curbside recycling programs entirely. As a result, large brewers often have difficulty procuring enough recycled glass to meet their manufacturing needs.

The coalition met for the first time in Washington, D.C., in April of 2016, and members hope to develop strategies to assist cities and towns with glass recycling decisions, as well as to establish a network of “glass recycling resources and champions.”

In a sense, sustainable practices have always been a part of brewing beer; it’s always been in the best interests of beer producers to use less water and energy to create their product if they could do it. What’s changed is the environment in which beer producers are operating. While the language of sustainability wasn’t widely spoken in decades past, today brewers can swap stories with one another at conferences about stormwater reclamation and zero-waste efforts. And the incentives for implementing green practices are only becoming stronger, with heightened attention paid to how companies utilize their resources.

While Guinness and Sierra Nevada can boast two of the first LEED Platinum breweries in the world, they surely won’t be the last.
LEED: A LEGACY
Leaders across the globe have made LEED the most widely used green building program in the world. Leave your legacy today.
#LEEDlegacy
PLANS
OF PROMISE
Three cities blaze a path for sustainable planning and green building.

New York City; Oakland, California; and Knoxville, Tennessee, have made local strides in sustainability and resiliency that set an example for the globe. With LEED v4, they are now able to take even bigger steps. Whether building skyscrapers, developing waterfronts, or designing affordable housing, city leaders are demonstrating the ingenuity inherent in LEED strategies. The application of LEED v4 to such varied projects demonstrates its capacity for supporting city plans with sustainability built into their promise.

**New York, New York**

Among the U.S. cities taking proactive steps toward meeting global prerequisites for green building design, New York is a forerunner. Mayor de Blasio’s desire to see the city emerge as “the global leader in sustainability and resiliency” has resulted in the “One City, Built to Last” plan developed by the Mayor’s Office of Long-Term Planning and Sustainability. It calls for measures to improve the energy efficiency of the city’s buildings and to adapt to more renewable energy sources.

“One City, Built to Last, by Mayor de Blasio, builds off Mayor Bloomberg’s PlaNYC from 2007, New York’s first comprehensive plan for sustainable growth,” explains Laurie Kerr, director of policy at Urban Green. PlaNYC set the goal of reducing the city’s carbon emissions by 30 percent by 2030. It launched the first major efforts by any jurisdiction to address energy use in existing buildings: the Greener, Greater Building Plan; the Mayor’s Carbon Challenges; and the Green Codes Task Force.

“PlaNYC grew out of the realization that marrying planning with sustainable strategies was the best way for the city to grow and maintain quality of life,” says Kerr, adding that the realization that 75 percent of the city’s carbon emissions come from energy used in buildings helped concentrate efforts on the building sector. “Then Hurricane Sandy happened, which made the urgency for sustainability and resilience even more clear to New York’s policy makers.”

One City, Built to Last is a move from PlaNYC’s “interim goal” of 30 percent carbon reduction by 2030 to the long-term goal of an 80 percent reduction by 2050 (“80 x 50”). Achieving 80 x 50 will require three significant changes: New buildings will need to use roughly one-third the energy of traditional buildings; existing buildings must cut their energy use in half; and the majority of fuel used in buildings and cars needs to be electrified. “These are extremely demanding requirements,” notes Kerr.

In March of 2016, the New York City Council approved two important amendments to Local Law 86; they require all new city projects—starting in 2018—to achieve Leadership in Energy and Environmental Design (LEED) v4 Gold certification, and to use less than half the energy of current code or of the average energy use of existing buildings as measured by benchmarking. “This is meant to create a knowledge...
Cornell Technion Campus will be designed according to LEED, Net Zero, and Passive House principles; the campus promises to be one of the most environmentally friendly and energy-efficient campuses in the world.
base that can transform NYC’s design and construction industry,” explains Kerr.

Included in the new framework is the application of Passive House strategies. The term Passive House refers to a rigorous, voluntary standard for energy efficiency in a building to reduce its ecological footprint. “Passive House has had a slow movement in the United States, but is now picking up speed,” notes Kerr. “[It] has been gaining increasing interest in NYC as a strategy, especially for residential construction.”

A major project is underway on the Cornell Technion Campus, where the first high-rise residential building in the world built to Passive House standards is under construction. Additionally, several multifamily projects are being considered. “It is likely that Passive House or at least Passive House–like strategies will move into the mainstream for most residential work,” says Kerr.

What is clear is New York’s determination to design low-energy intensive buildings—both large and small—that meet LEED v4 certification requirements. By diversifying its strategies to achieve optimal performance in a variety of capacities, it promises to build itself up as a sustainable city—indeed, One City, Built to Last.

Oakland, California

Another city using LEED v4 certification as a tool for green development is Oakland, California. “We do sustainable building in a number of ways,” says sustainability manager of the City of Oakland Daniel L. Hamilton. He notes that, in terms of “active construction,” the Brooklyn Basin project—a new neighborhood on the city’s historic waterfront, surrounded by open space and views of the San Francisco Bay and East Bay hills—is probably the best example of the city’s commitment to sustainable building; it is the first LEED v4-certified Neighborhood Development project in Oakland.

This revolutionary venture will feature 3,100 homes (over 400 of which will constitute affordable housing), 200,000 square feet of retail, 32 acres of waterfront parks, and two marinas. According to Catherine Payne, the project manager overseeing permitting for the city, the city is taking 60 acres of “really dirty land” and cleaning it up to create “a pleasant living environment for a lot of people.” The objective is to both enhance and protect the waterfront. When complete, it will provide housing for up to 6,000 residents and create more than 10,000 jobs. It will also give Oakland residents access to a significant part of the shoreline previously closed to the public.

“How wonderful to take a vacant, underutilized piece of land in an urban center and apply land uses [of value],” remarks Payne, noting the difference between cramming units onto the waterfront and the approach being taken—one that is respectful of its sensitive location.

Payne compares Brooklyn Basin to a small city. “The Phase One Infrastructure is more or less built out,” she says of the project’s current status. Residents had their applications approved in 2009, and the developers are putting in the streets now; there will be four phases of street development. Soon, they will begin building the first 240 residential homes, and an affordable housing developer has begun work on two parcels of land slotted to support 465 units. They are also in the process of getting building permits for the approved Shoreline Park, which will comprise 10 of the 32 acres of park land—all of which will be linked by
a pedestrian and bicycle trail system connecting the recently revitalized area of Jack London Square with Oakland’s eastern waterfront. Entitlements for Phase Two Infrastructure development are now being sought. “We are starting to see a lot of activity among all city staff in terms of building permits,” notes Payne.

Hamilton describes a greenhouse gas emissions inventory for the project that was published this year: “It really is one of the most innovative emission inventories anywhere in the world because we not only look at core emissions, which are emitted within our boundaries, but we also consider consumption-based emissions.” He refers to “upstream emissions” as those that come from all of the activities required to develop a property. “Buildings are a great example of how the traditional focus [of emissions inventories] doesn’t capture the real environmental impact of the buildings,” he explains. For instance, in a standard emissions inventory, buildings and energy use are counted as 35 percent of the emissions. But consumption emissions, things like fuel—extracted, refined, and shipped—are not counted. “In our core analysis,” says Hamilton, “building emissions have gone down 7 percent since 2005, which seems like a good thing, like we are on track. But when you look at a consumption inventory, you see it has actually gone up 4 percent. The reason is the fuels used in those buildings.”

By adding features like electric vehicle infrastructure and enhanced natural-gas appliances under new, more stringent codes, Brooklyn Basin developers are going the full distance to reduce consumption emissions. “We think [it is] critical that [we] do not just focus on what’s coming out of the HVAC systems—but that we look at the whole life cycle of emissions,” concludes Hamilton.

Knoxville, Tennessee

Knoxville, Tennessee’s, commitment to “green homes for all” has expanded as the city takes steps toward sustainability and works to integrate affordable housing into its projects and systems. Nowhere is this commitment more apparent than in the Lonsdale Homes project, built by HomeSource—a nonprofit agency and forerunner in that city’s green building movement.

Since 2007, the city’s Energy and Sustainability Initiative has been in place and at work to reduce greenhouse gas emissions associated with the city and community by 20 percent by 2020. Mayor Madeline Rogero has been instrumental in those efforts, serving at the helm of the city’s Energy and Sustainability Task Force. “One of the things that came out of her leadership, and the feedback the board was getting, was the realization that here we are, as a city, caring very deeply about affordable housing and recognizing high utility bills mean a home is not truly affordable,” explains Erin Gill, director of sustainability for the city of Knoxville. With that realization, in combination with its sustainability initiative, the city decided to provide funds through the Community Development...
Department for affordable housing projects built to meet LEED or ENERGY STAR standards.

“We meet ENERGY STAR on all of our rehabs,” notes Community Development Director Becky Wade. “We would like all of our projects to be LEED certified—some of our Knoxville Community Development Corporation projects are—it is certainly our goal.”

The Lonsdale Homes are the first affordable LEED v4 homes in the world, and were developed with support from the Community Development Department, which provided federal housing funds to HomeSource for the project. These efforts are also being made by the local and regional utility providers as well as the Knoxville–Knox County Community Action Committee, which provides upgrades to low-income homes.

In the last few years, green building development in Knoxville has emphasized energy efficiency as a community priority, “especially for residents who don’t have the resources to make it a priority on their own,” explains Gill, who often hears people expressing the idea that green housing is prohibitively expensive. Knoxville is “breaking down that perception” and demonstrating that high-quality homes can be affordable and certified. “The additional investment that is required is paid back more than in full by the benefits it’s providing for the family that ultimately lives in that home. The Lonsdale Homes are really rooted in this concept of making sure our city is sustainable for those who really need the financial benefits that sustainability offers.”

Beth Eason, principal architect for the project, chair of the Tennessee USGBC advisory board and LEED Fellow, is a long-time leader in residential green housing development. Of HomeSource, she says: “They have continued to push themselves [in terms of] levels of sustainability with each housing project . . . they push for Platinum and they achieve it. When LEED v4 came out, HomeSource jumped right in and went for [that certification].”

Part of what HomeSource offers residents, says its chief operating officer, Chris Osborn, is a two-hour homeowner operation training session “to learn how to navigate their way around the house and manage it and to understand what their house is designed to do.” Some of the technology might be new to them and require explanation. “Feedback from residents has been extremely positive. All of them have seen their energy bills [and housing costs] go down,” notes Osborn.

With respect to Lonsdale Homes, Eason says: “It’s not just about energy efficiency. There are other wonderful features like large windows for natural light, porches, and . . . in some of the multihome projects there are common playgrounds and gardens.” It was important, too, that the homes be healthy. Materials like no-VOC paints and reliance on natural ventilation systems support clean living environments.

“It gets back to that holistic approach to sustainability,” says Gill, noting that these homes go beyond affordability to address the experience of the families living in them.
Nestled at the intersection of four busy neighborhoods in the nation’s capital, the stately 10-story Fairmont Washington, D.C., Georgetown has served both local and global communities since 1985. Movie buffs might recognize the hotel from the spy-thriller *Enemy of the State*, and the hotel has hosted an array of iconic figures, from Muhammad Ali to Arnold Schwarzenegger, in addition to visiting heads of state. From the crisp white marble floors to the light-flooded oasis of a lobby, the four-diamond hotel is nothing short of luxurious. And it might be the last place in town where you would expect to find honeybees.

The bees, which are guests of the hotel’s roof, have become a symbol of the Fairmont’s dedication to the environment and sustainable practices. As part of a 24-month-long renovation, the Fairmont is currently pursuing Leadership for Energy and Environmental Design (LEED) for Building Operations and Maintenance (O+M) certification. It comes on the heels of years, decades really, of work aimed at shrinking the hotel’s environmental footprint, particularly around energy and water use.

“Put it this way, the front-of-the-house colleagues get to see all the glam and glitter,” says Shane Krige, general manager for the Fairmont Washington, D.C., Georgetown. “But in the back of the house, I don’t think a lot of people realize how much energy it takes to run a hotel.”

**A Storied Commitment**

The Fairmont brand’s sustainability journey goes back more than 20 years to when the brand, then known as Canadian Pacific Hotels, authored a book on environmental practices and hotels that became a part of the curriculum at Cornell University’s School of Hotel Administration. Jane Mackie, vice president of the Fairmont brand, notes that the company has a number of historic properties in its portfolio, and has on occasion been consulted by other property owners for their expertise in building restoration. The challenge is making these spaces contemporary and comfortable without compromising guest experience—and in fact, enhancing it—in addition to increasing the efficiency of these buildings.

“While we were blessed with a lot of these older buildings, they were not exactly built for environmental efficiency to begin with, and many of our newer hotels were…so we really wanted to balance [our portfolio] and reduce our overall carbon footprint,” says Mackie.

These efforts go back to 2006–2007, when the Fairmont brand joined the World Wildlife Foundation’s (WWF) Climate Savers Program. The first hotel company to do so, Fairmont committed to cutting its carbon footprint by 20 percent from the 2006 baseline. “When you have hotels in cold climates…and warm climates…and with some of these buildings being heritage and landmarked, it was a difficult task,” Mackie notes. “We engaged our colleagues and we engaged our ownership communities to come up with real efficiencies and have a long-term focus that is now 10 years in the making.”
In addition to commitments at the corporate level, the Fairmont participates in the Green Key Eco-Rating Program and is just one of two hotels in the area (and one of 46 hotels worldwide) that boasts a 5 Key rating—the highest level of recognition. The goals, set at the local and corporate level, fit in nicely with the long-term goals of Fairmont’s parent company, Accor Hotels, which, in April 2016, launched the Planet 21 Program, a series of initiatives to enhance sustainable development and practice around the world. They also align with the vision of the ownership team at MetLife, which acquired the property in December 2014.

“Sustainability is a focus of MetLife Real Estate,” says Jim Landau, Head of Asset Management for MetLife Real Estate in the Washington, D.C., region. “Environmental, social, and governance issues are very important to us on every level.”

Those values are shared among the hotel’s staff, which has over the years fostered a culture of environmental stewardship that is unique and internal to the Fairmont. “They’ve been working for a number of months in every single department to see what they can do to reduce consumption, particularly [for] water and energy,” says Mackie.

The staff-driven Sustainability Committee has developed numerous programs incorporating the mantra “reduce, reuse, and recycle” into daily operating practices. Over the years, the Committee has spearheaded diverse initiatives aimed at greening the hotel’s footprint, including the installation of...
a hydrocarbon-powered dry cleaning machine, which replaced the toxic chemical Perc with an environmentally friendly product, and a partnership with Greener Oil Company to collect and recycle kitchen grease—approximately 325 gallons each quarter—for use in the production of biodiesel fuel.

“We have a lot of committed employees,” says Krige. “If you’re in our cafeteria and you put a plastic bottle in the wrong can, somebody’s going to call you out on it.”

It is no wonder why the Fairmont Washington, D.C., Georgetown was an appealing property to acquire and has become the poster child of luxury hotels for sustainability and community leadership.

“When we acquired the Fairmont we were very pleased that it already had a focus on sustainability,” says Landau. Although the majority of hotels undergo routine upgrades throughout their life cycles, the Fairmont required significant changes in nearly every corner of the property. “The hotel already had many sustainable practices in place, and we were able to basically add on to them and further push the sustainability program here,” he says.

The Fairmont Washington, D.C., Georgetown is considered one of the larger luxury properties located in a highly competitive market for hotel, meeting, and conference space. The District outranks all other states for LEED-certified space per capita. In addition to the high saturation of green buildings in Washington, D.C., one of the main driving forces behind an overall hospitality sector push toward sustainability has been preference. “We have seen in Request for Proposals (RFPs) for meetings and planners a question about ‘What are your sustainability practices?’” says Landau. “So as we’ve renovated the property we’ve looked at [not only upgrading] the common areas and rooms… but also the mechanical plant and sustainable operations.”

Deb Cloutier, principal and co-founder of JDM Associates, which consulted on the project, considers rating systems like LEED a demarcation for investors, clients, and guests. “They see the LEED certification and they may not know everything that went into getting that certification, but there is general awareness that it ties
together sustainability initiatives and differentiates the property,” she says.

**Setting the Bar Higher**

Cloutier notes that the Fairmont was an especially unique project because it involved such deep renovations, and some of the measures implemented also contribute to green-meeting strategies for the hotel. “We looked not only at the potential savings, but also those future revenue streams,” she says.

As it turns out, there were many opportunities that could have brought in huge returns on investment, but it came down to balancing those big-ticket upgrades and prioritizing them to dovetail with LEED certification requirements. Krige points to the hotel’s capital expenditure list—called the capex list—that outlines projects that the hotel has deemed necessary to implement. “We sliced them and diced them, looking at the ones that would give us the most cost savings in addition to LEED as the driving factor, because long-term that’s how our business will be successful.” They then took each project and broke it down by cost, feasibility, and timing, and then compiled it all into an overall renovation plan.

In a 24-hour business that values guests over all else, the hardest decision management can make is whether a hotel shuts down completely or remains open for business during extensive work. As established as the Fairmont is, the former option was just not feasible. So the sequence of operations was staged to first identify ways to improve the building’s operations and maintenance within the existing system, allowing building engineers to get the most out of what they had. A strategy was then created to sequence through each of the renovation components in order to reduce consumption by leveraging the new equipment brought in for the project.

“Our favorite part of the project was collaborating with the really talented team here at the Fairmont, particularly the engineering staff,” says Cloutier. “It allowed us to implement some pretty complicated strategies during renovation of a full-service, 24/7-operating hotel.”

Cloutier’s team helped implement the high-efficiency lighting retrofit of LED lights throughout the hotel,
which has made a noticeable
difference both in terms of energy
consumption and cost—the hotel
will enjoy thousands of dollars in
bulb replacement savings—and in
the quality of the work environment.
“It’s amazing how much brighter it
is. For me as a general manager I’m
all excited because the brighter it is
the more you can clean and make
sure that the back-of-your-house
operations are clean,” adds Krige.

The Fairmont is also replacing
its cooling tower and energy
management system, which will allow
for more control over the sequencing,
startup, and use of equipment
throughout the building. Referring
to the new tower, which is projected
to save approximately $53.5 and
509,597-kw hours per year, Krige
notes, “Caesar, our building engineer,
is so excited that he’s got a big
‘Cadillac’ on the roof now.”

Through a phased approach,
guest rooms were upgraded three
floors at a time, working from the
top of the building down. All guest
rooms are now equipped with
digital thermostats and low-flow
showerheads. “That has been the best
approach, definitely, on the room side,”
remarks Krige. “There’s not been a lot
of interruption for the guests because
they don’t even know that [renovations
are] going on and before you know it–
it’s actually pretty amazing—you’ve got
a brand-new hotel.”

Always looking for ways to
improve, the Fairmont has set its sights
on reducing its energy consumption
by 20 percent over a 12-year period.
It may sound like a lot for a typical,
resource-intensive hotel, but not for
this one.

“We thought it was very important
for this project to endeavor to take
advantage of the Energy Jumpstart
credit (EApc67),” says Cloutier.

This LEED pilot credit requires
projects to demonstrate an energy
efficiency improvement of at least 10
percent, and rewards projects that
exhibit additional energy efficiency
improvement. “With all the other
sustainability initiatives here at the
hotel, it was pretty much a ‘slam-dunk’
to go for our certification,” she notes.

Krige is confident that the
hotel will deliver on its 12-year
goal, and if the Fairmont’s recent
accomplishments are any indication,
the odds are in their favor. In 2015,
the brand announced it had achieved
WWF’s program targets, becoming
the first hotel brand to do so. The
Fairmont was also recognized in
MetLife’s most recent Energy and
Sustainability Challenge, winning the
national hotel award and the national
award for overall property types. “This
award recognizes how the hotel has
been operating and the way that
we have been trying to push the
envelope through our renovations,”
says Landau.

For all of the stakeholders involved,
it is clear that sustainable business
is smart business. “You don’t have to
start from scratch to create a LEED-
certified building, you can take an
existing building and make meaningful
changes,” says Mackie, adding that
the recent renovation ensures a
level playing field to keep colleagues
engaged and employed for many years
to come.

With the grace and charm comparable to any of the stately embassies of Washington, D.C., the elegant
10-story Fairmont Washington, D.C., Georgetown hotel was designed by renowned architect Vlastimil Koubeck.
“My family has been in the lumber business for four generations and we’ve been committed to sustainable forest management since 1940. I’ve been a lumber grader, a forester, a management trainee and a project specialist. As a land-based company, we’re committed to the places where we operate. By nurturing the forests and communities that provide our natural and human resources, we intend to serve our customers for generations to come.”

Terry Collins, Forester, Collins Almanor Forest
“It's part of my personality,” explains Gerrit-Jan Teunissen. “If someone tells me something is not possible, I always try to find out why and what I can do to change that.”

For Teunissen, a Dutch energy and sustainability consultant with TRAJECT, this modus operandi has meant dogged work surrounding the advancement and acceptance of the U.S. Green Building Council’s Leadership in Energy and Environmental Design (LEED) certification in the Netherlands—as well as throughout the rest of Europe. In 2014, Teunissen successfully petitioned the government of the Netherlands to recognize LEED as a rating system eligible for green building tax incentives, marking the first time this version of LEED v4 was referenced in public policy in any country.

However, before he was taking on national governments and expanding tax code subsets, Teunissen became involved in operations and maintenance at the headquarters of ABN AMRO, a large Dutch banking corporation. He was asked to consult on green building energy conservation and savings possibilities: “They were challenging themselves to be a more progressive and environmentally friendly corporation,” he says. “This was nearly 10 years ago, and someone mentioned LEED. I started investigating it and what our role could be in integrating LEED into their building maintenance.”

Teunissen traveled to the United States for LEED AP training and a workshop—and then attempted to pass the exam straightaway. “Quite a bit naïve,” he laughs, of failing both the
Building Design and Construction (BD+C) and Building Operations and Maintenance (O+M) exams. “We went back to the Netherlands with quite long faces.”

Unsurprisingly, he was undeterred: “We examined the reasons why we failed the exam,” he says. “We found out that it’s not only about knowing the details of the system but also a large part is understanding process knowledge and how to integrate sustainability into construction and operational processes.”

He supplemented with some web training around integration of sustainability in projects and soon went to London for the exams, passed both, and became the first LEED AP BD+C and LEED AP O+M in the Netherlands.

At the same time, the parties involved in the ABN AMRO project told him to stop with the LEED certification in favor of the UK-based Building Research Establishment Environmental Assessment Method (BREEAM) of certifying green buildings. “I was frustrated,” says Teunissen, but in time he was pursuing both LEED and BREEAM concurrently. “It was a unique position to investigate the differences in the system and share knowledge.” It was also the catalyst for Teunissen to begin lobbying the government for the same tax incentives BREEAM had received since 2011.
“I called them up and asked them why isn’t LEED mentioned in this regulation? They told me LEED is out of date and not applicable to the Netherlands,” he says. So, he provided the government with enough evidence to prove LEED Platinum can be achieved with the same effort of other certifications. “It was clear to them that the systems are quite comparable, which is exactly what we needed to allow LEED within the same law.”

The Dutch government sent Teunissen a concept version of the law, citing some issues with the lack of procedure surrounding a formal design review in LEED, which is presently part of BREEAM certification. “They asked me how to write the procedure down for the certification and—to my own surprise—when the official law text was published, the LEED bill I wrote was part of the official text,” he says (see sidebar).

It was accepted by Dutch law in January of 2014 and was something of a watershed moment for Teunissen. “The funny thing I discovered is that I can do presentation after presentation across the country about LEED, but once it was accepted by the government, people, especially the major tax consultancies, were calling me to ask about the process of LEED.”

“All those tax consultants then tell their clients of the benefits and now the market is also considering LEED as a possible and relevant option for building certification for new construction,” he adds. “Now projects are considering the LEED option from the start of their project and, as a consequence, LEED-related questions by suppliers are decreasing as the knowledge base grows. Growth in LEED-related inquiries in the market and the tax regulations is one of the causes of that.”

And the ABN AMRO headquarters? It was LEED Gold certified in 2013. This, along with the tax incentives, has kept Teunissen busy, and he says there is still work to do. “I discovered that every LEED-enthusiastic person in Europe was struggling with the same issues,” he says. “Specifically, the differences within Europe and national regulations that are derived from the European standards.”

He believes that building a community among LEED APs in the Netherlands and Europe is key to achieving that goal. “LEED APs need to gather by themselves and get connected,” he says. “USGBC is also providing space for projects to demonstrate compliance in alternative ways and that’s very beneficial. But a meeting in Berlin showed that European projects are still struggling with some strictness of the references to the U.S. regulations and directives. It can be a bit tricky.”

Teunissen says his goal this year is to connect all the Dutch APs in some way “to work out those local details because it is all about the certification and how to show reviewers project compliance. LEED APs know how to work around these issues,” he says. “I see a nice role for the LEED APs in the Netherlands and Europe,” he says—and there are few people better placed to envision and realize this future than Teunissen.

Dutch Tax Policy and LEED

As of January 1, 2014, buildings certified under LEED v4 BD+C: New Construction in the Netherlands are eligible to receive two tax deductions under the MIA and Vamil schemes.

The MIA tax deduction allows for LEED Gold projects to claim a 13.5 percent, one-time deduction from up to half of the investment cost of the building in the year of investment, while LEED Platinum projects may claim a 27 percent one-time deduction.

Additional deductions under Vamil are allowed due to the depreciation of 75 percent from 50 percent of the building’s value (common allowed annual depreciation is about 2 percent and under limited conditions). The Vamil provides an ongoing tax benefit, beginning in the year of investment, and allows trade-off over years. The Vamil scheme allows for a more lenient calculation of a building’s depreciation value, resulting in a higher deduction value. Both LEED Gold and Platinum projects receive the same deduction percentage under Vamil.
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George Bandy, Jr.

George Bandy, Jr. serves as vice president of sustainability for Mohawk Group, a leading commercial flooring company. George is responsible for managing the comprehensive concepts and practices of sustainability for Mohawk. He identifies opportunities to position environmental, economic, and socially responsible solutions for both the organization and its customers.

**What is your greatest fear?** Not living up to my full potential

**Which historical figure do you most identify with?** George Washington Carver

**Which living person do you most admire?** My father…George Bandy, Sr.

**What is your greatest extravagance?** Haberdashery

**What is your favorite journey?** To Opelika, Alabama to see my family

**What do you consider the most overrated virtue?** Good looks (LOL)

**Which words or phrases do you most overuse?** Expeditiously

**What is your greatest regret?** That my grandparents are not here to see the things they saw in me “come to pass”

**Which talent would you most like to have?** The ability to sing

**What do you consider your greatest achievement?** The birth of my children

**If you were to die and come back as one person, who do you think it would be?** The President

**If you could choose what to come back as one thing, what would it be?** A tree because it gives to life more than it takes

**What is your most treasured possession?** Humility

**What do you regard as the lowest depth of misery?** I don’t allow myself to think in that space

**What is your favorite occupation?** Teacher

**What is your most marked characteristic?** SMILE

**Who are your heroes in real life?** Grandparents, parents, and kids

**What is it that you most dislike?** Lack of appreciation

**What is your motto?** “Live your creed”

**What will you have them put on your tombstone?** He made a difference…
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