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FEATURES

46 PERSPECTIVES ON THE ROAD TO REENTRY
After months away from the office due to the coronavirus crisis, employees are slowly making their way back into the workplace. Here’s how businesses are deciding when to return, the steps they’re taking to ensure employee safety, and the likely long-term impacts on office design and real estate strategy.

56 THE GREEN MOVEMENT AND GEN Z
Is the sustainability movement doing enough to engage our youth?

7 LETTER FROM OUR LEADERS
Kate Gordon
Director of the Governor’s Office of Planning and Research
Senior Advisor on Climate to Gov. Gavin Newsom

ON THE COVER
Discovery Elementary School | Arlington, VA
Discovery Elementary school was the first school—and the third project—to earn LEED Zero certification. And it is one of the largest net zero energy buildings in the world.
VMDO Architects
<table>
<thead>
<tr>
<th>16</th>
<th>Community</th>
<th>32</th>
<th>Health &amp; Wellness</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Data Center Maintains Connectivity</td>
<td></td>
<td>MASS Design Group Supports Healing and Happiness</td>
</tr>
<tr>
<td></td>
<td>During a Pandemic</td>
<td></td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>Equity</td>
<td>38</td>
<td>Carbon</td>
</tr>
<tr>
<td></td>
<td>Creating a Culture of Accessibility for All</td>
<td></td>
<td>The First 10 LEED Zero Projects</td>
</tr>
<tr>
<td>26</td>
<td>Materials</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>TRUE Advisors Work Toward a Zero Waste Future</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Advocacy and Policy Update</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>LEED Fellow Spotlight</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Amy Upton, LEED Fellow, is a principal at Grimm + Parker Architects.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>T.E.E.</td>
<td>60</td>
<td>Education Corner</td>
</tr>
<tr>
<td></td>
<td>TRUE Advisors Work Toward a Zero Waste Future</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
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California and Climate Change

The state of California is now the world’s fifth largest economy—so, its climate actions matter. We’ve been busy over the past several decades, setting groundbreaking climate pricing and low-carbon fuel and electricity standards, as well as committing to carbon neutrality by 2045.

However, emissions continue to rise, especially from the transportation sector. Meanwhile, Californians across every region and sector are experiencing increased climate-related wildfires, heat, rising sea levels and mudslides.

True leadership on climate means building resilience to today’s climate impacts while aggressively bringing down tomorrow’s emissions—and managing a just and equitable transition between the two. Here’s what that looks like on Gov. Gavin Newsom’s watch:

This past September, the governor doubled down on California’s vehicle electrification goal with an executive order requiring all new passenger vehicles sold in California to be zero-emission starting in 2035. But transportation emissions aren’t just about what we drive—they’re also about how much we drive. In July, California changed how we measure the environmental impacts of new development, by updating the California Environmental Quality Act (CEQA) to consider additional “vehicle miles traveled” from new land use and transportation projects. Streamlining development processes for walkable projects near jobs, services or transit options is a win-win for the climate, community health and quality of life.

California’s climate and housing crises are tied together. Even as we double down on our best-in-class building codes that prioritize green building—a vital interest to the USGBC community—we can also tie broader land use planning to our climate goals. We can work to harden and protect existing wildland-urban interface communities while increasing affordable housing options at more of a distance from wildfire-prone areas. Gov. Newsom’s dual focus on compact infill development and on protecting valuable natural and working lands will help California meet its climate goals while protecting public health and safety in the face of increased wildfire. In October, the governor directed the state to conserve 30% of its land and coastal waters by 2030 to protect biodiversity, increase climate resilience and naturally store carbon. With this landmark decision, California joins 38 nations in the recognition that land is a core part of any climate strategy.

In September, California released a Climate Investment Framework, which builds on the climate risk strategies of the state’s three largest pension funds (together, more than $700 billion in investments) and recommends a more unified approach to managing near- and long-term climate risks. In addition, California joined the international Coalition for Climate Resilient Investment, a network of private and public sector actors working toward climate risk disclosure.

Transitioning to a carbon-neutral economy will bring big changes, particularly to California’s regions, industries and workers most dependent on today’s hydrocarbon-fueled economy. Gov. Newsom’s administration is committed to putting economic and workforce development policies and programs in place. Equitable climate policy requires lifting up not only sustainable products and processes, but also those industries that prioritize high-quality jobs and training opportunities to protect, support and lift up all Californians—especially those historically left out of the “California Dream.”

Tackling climate change is no small task, as the whole sustainability movement knows. Our entire administration is in it together, working across housing, transportation, economic and labor policy, and natural and working lands on a broad-based approach that recognizes both the daunting risks and the massive opportunities inherent in this transition. Just as USGBC values highest the human impact of sustainable choices, our goal is nothing less than a more sustainable, more resilient, more equitable California for all.

Kate Gordon
Director
Governor’s Office of Planning and Research
Senior Advisor on Climate to Gov. Gavin Newsom
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The Bryant School Redevelopment | LEED Gold

Photo credit: Timothy Hursley | Architect: Croxton Collaborative Architects, PC
Summer in Washington, D.C., has brought the growing realization that the COVID-19 pandemic may last longer than we hoped, along with the increasing tension of an election year. Although Congress passed several coronavirus relief bills in the spring, efforts to pass another stalled in early July over disagreement on the scale of the bill and other elements.

The U.S. House of Representatives has passed several important bills, including its comprehensive energy bill, the Clean Economy Jobs and Innovation Act (H.R. 4447). The bill included several of our priorities:

- **Efficiency upgrades** to public buildings and critical facilities such as hospitals and schools
- **Support for clean energy** workforce development and programs to boost underrepresented groups in clean energy careers
- **Energy codes and weatherization assistance** through Department of Energy programs and support for the Federal Energy Management Program that assists federal agencies in improving building energy and water efficiency
- **Research and development** for building-grid integration

USGBC’s federal advocacy has focused on the need for near-term school facilities funding. Funding in a relief package would focus on school districts and schools serving low-income students to provide funds for repairs and upgrades for safe reopening. Through direct advocacy as well as media, op-eds, presentations and articles, the USGBC Advocacy and Policy team and the Center for Green Schools have helped educate policymakers on the nexus of school buildings and health.

In the lame duck period post-election, Congress will need to address federal appropriations, which are set to expire on Dec. 11. Pundits see some chance at moving bipartisan bills such as tax incentives.

We continue to advocate for stimulus funding in five priority areas: **schools, critical facilities, housing, federal buildings** and **private sector incentives**. We anticipate a focus on economic stimulus early in 2021 as the next Congress takes shape.

The help of our community is vital to USGBC’s success in achieving our shared vision of green buildings for all within this generation. We have created an advocacy working group that will help amplify to policymakers the voices of the most important, most influential people—you, the subject matter experts, constituents and volunteers. Policymakers need your perspective on changing the way we think about what we build, where we build, why we build and how we build.

**Sign up to join the working group at usgbc.org/articles/join-usgbcs-new-advocacy-working-group.**
With most state legislative sessions adjourned, USGBC’s attention shifts toward 2021, when all 50 state legislatures will convene. Forty-three states’ sessions begin in January. While continuing to track the handful of states in session, we invest time in the second half of the year on outreach to state elected officials, strategizing for 2021 and processing prefilled bills.

- **November election outreach**: USGBC is sending letters to all 42 gubernatorial candidates appearing on ballots across 11 states in November. The letters and planned follow-up calls with campaign staff introduce USGBC, LEED and the benefits of green building policy.

- **Governor (re)introduction letters**: USGBC will reach out to all governors and their policy teams to position our organization to assist with green building policy and goals.

- **State legislator outreach**: With 44 states seeing 5,875 state legislators on the ballot Nov. 3—nearly 80% of all the state legislature seats in the U.S.—it’s a challenge to build and maintain relationships. With significant help from our network of volunteers, we will send letters out in January.

USGBC’s work with states has been focused on administrative activities, with some bills where legislatures are active. For example:

- **Wisconsin**: Gov. Tony Evers’ Task Force on Climate Change (established by the October 2019 Executive Order #52) was active this summer as they established policy recommendations for the 2021–2023 budget. USGBC submitted comments, participated in a social media day to draw attendees to the listening session, and shared an advocacy alert to encourage our Wisconsin members to contribute to the comment period and committee hearings. We emphasized the need for an imperative focus on buildings and spaces in meeting the 100% carbon-free energy goal by 2050, and we offered strategies to do so.

- **New Jersey**: In coalition with businesses, faith-based organizations, environmental and community groups, USGBC asked Gov. Phil Murphy to protect the state’s Clean Energy Fund, to advocate for energy efficiency solutions and to support the implementation of New Jersey's statewide energy efficiency program. Through local volunteers, we provided comments, testimony and an initial campaign against an amendment to NJ A-2152, which could weaken state agencies' priority consideration of permit applications for green building projects.

- **Texas**: USGBC has engaged with the Texas State Energy Conservation Office and submitted comments regarding its potential adoption of integrated gasification combined cycle (IgCC) for state buildings, urging that the office also provide a pathway for LEED certification.

As federal stimulus decisions take shape, likely in 2021, states will have additional opportunities to shape progress in green building, and USGBC will work to provide specific recommendations, as well as education on the benefits of green building.

---

**QUALIFIED ALLOCATION PLANS**

In addition to advocating for an update and expansion of the critical federal Low-Income Housing Tax Credit (LIHTC) program, USGBC engages with state programs to encourage use of green building.

This summer, Advocacy released a new brief highlighting how states can green their programs, including best practices for transparency and accountability. State programs develop Qualified Allocation Plans, or QAPs, which are annual or semi-annual plans establishing the conditions and priorities for the program. We’ve continued to provide testimony and submit letters to states to urge inclusion of energy efficiency and green building. This summer, we participated in stakeholder processes for LIHTC programs in Alabama, Connecticut, Georgia, Kentucky, Michigan, Minnesota, Ohio, and Oklahoma. We strive to coordinate with members who are active in a state’s affordable housing development; to get involved, contact us at publicpolicies@usgbc.org.
For architect Amy Upton, AIA, LEED Fellow, LEED AP BD+C, who has had a key role in the design and construction of more than 85 Leadership in Energy and Environmental Design (LEED)-certified projects, sustainability goes beyond the greening of a bricks-and-mortar building.

Upton, director of environmental design and a principal at Grimm + Parker Architects, which has offices in Maryland and Virginia, specializes in community-based public projects.

Whether she’s working on a library, a community center or a K–12 school, she views each sustainable structure as a dynamic “learning lab” that takes on a life of its own, from the planning stage to long after the last solar panel has been installed.

She points to the recent opening of two net zero energy K–8 replacement schools in Baltimore, Maryland: Holabird Academy and Graceland Park/O’Donnell Heights Elementary/Middle School.

During their construction, the students watched from their existing classroom windows as the geothermal wellfield was drilled 450 feet into the earth at the new site. With Upton’s encouragement, one of the kindergarten teachers engaged the drilling staff to explain to the children what was happening on the site and how the new schools would save energy.

Later that year, Upton and her team helped the class build a “gingerbread school”—a plastic replica of graham cracker and marshmallow walls and chocolate-bar solar panels, which their teacher produced with a 3-D printer.

“These 5-year-olds were explaining the concepts of solar energy and geothermal back to me with surprising clarity,” says Upton. “In one year, these kids have

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“These 5-year-olds were explaining the concepts of solar energy and geothermal back to me with surprising clarity,” says Upton. “In one year, these kids have
What struck her most, however, was the fact that nearly all of the green features were hidden—"on the roof, in the walls and underground."

"I quickly understood the need to communicate the functions and benefits of these innovations to owners, students, residents, staff and visitors," she says, adding that Grimm + Parker Architects, which won the 2020 USGBC Best of Green Schools Business Leader Award, now greens the specifications for all its projects.

From the start, Upton made it standard practice to explain the what, why and how of these sustainable features with signage and graphics, and she developed tour maps, games and passports. She also uses interactive dashboards to visually represent the ideas.

For the last decade, she and other members of her firm have participated in the Center for Green Schools' Green Apple Day of Service.

“It’s imperative that we get our hands dirty in schoolyard gardens and create demonstration kits for teachers once they occupy these new and renovated green schools..."
“It’s imperative that we get our hands dirty in schoolyard gardens and create demonstration kits for teachers once they occupy these new and renovated green schools to help integrate the green features into their environmental literacy curriculum,” Upton says.

To that end, Upton and her coworkers have led not only school garden projects, but have also helped create outdoor learning areas and have painted playgrounds. In addition, they have set up sustainable scavenger hunts and have given demonstration tours of the firm’s new and past LEED-certified schools.

“We need to create opportunities for visitors to ‘learn by doing,’” she says. “They can touch and smell sedums that are similar to what’s planted on the roofs above, and they can pour water through pervious concrete to see how the rainwater is slowed down on its way to recharge the aquifer.”

To create a further connection with each site, Upton has enlisted representatives from animal rescue and naturalist societies to give lectures on local biodiversity. She has also invited manufacturers, such as the skylight and ventilation company Solatube and the flooring company Tandus, to explain their fabrication processes.

Upton’s also an ardent green volunteer in her own neighborhood, Washington, D.C.’s Capitol Hill, where she lives in a century-old rowhouse with her husband, James, who is also an architect, and 15-year-old daughter, Lucy.

For the most part, the family takes public transportation, and Lucy attends School Without Walls High School, which has a LEED Silver certification.

Upton also has done volunteer work at a number of local schools. At one, she helped transform a science lab into a nutrition lab and worked on designs for natural playgrounds and edible gardens. At another, she helped incorporate sustainable site strategies into master plans for renovation and additions and collaborated on renderings for grants to win a greenhouse, an outdoor classroom, a natural playground and rainwater cisterns.

She also has educated students on the benefits of daylighting, outdoor learning, gardens and recycling programs, something that she says gives her immense satisfaction.

“It’s been a great education for me to make sure everybody sees the value of sustainable design,” she says. “What keeps me excited and motivated is explaining the green features, such as how the sun is being collected on the roof, to the community and the kids.”

The greening of public buildings, Upton says, will always be her primary focus. One of her more recent projects is the Wheaton Library and Community Recreation Center in Wheaton, Maryland, which earned LEED Gold certification.

The 96,000-square-foot building, which co-locates a library, recreation center, secondhand bookstore, senior center, park

Below: A rendering of the solar lab to be included at new net zero energy schools for Baltimore City Public Schools. The labs will offer students a lesson in sustainability. Photo: G+P Architects
and ample underground parking, features green areas for outdoor activities and serves as a community hub, that, according to Upton, “fosters inclusion, equity and diversity.”

She says that it’s important to make public buildings sustainable because of their longevity. “They are built to last at least a half-century,” she says. “We need to be sure that they are improving everyday life.”
Data Center Maintains Connectivity During a Pandemic

Digital Realty Trust’s Data Centers keep us running in a digital environment.

BY NANCY A. RUHLING

When the pandemic forced the entire world to suddenly switch to remote mode, Digital Realty Trust’s data centers swung into action. The company, which has 280 facilities in 22 countries on six continents, including several LEED Gold buildings, implemented its full-fledged pandemic playbook, allowing it to maintain service levels challenged by a saturated internet that featured changing traffic patterns and spikes in demand.

“Data centers are the central nervous system of the digital economy,” says Aaron Binkley, the senior director of sustainability of the company that is renowned for its energy-conserving data center design. “Throughout the pandemic, our number one goal has been to ensure safety while supporting customers.”

That’s exactly what it did when the shelter-in-place mandates went into effect and many people were learning and earning a living via videoconferencing.

It’s no accident that Digital Realty, one of the largest global providers of multi-tenant data center capacity, in terms of the number of data centers and operational square footage, made such a successful transition.

In 2016, Digital Realty held a pandemic exercise for the sites in its global portfolio. And in 2018, several of its centers in the Asia-Pacific region conducted extensive pandemic drills.

“Our business continuity planning includes operating our sites with minimal staff and the ability to institute this plan through remote monitoring of building management systems and security systems,” Binkley says. “As part of our standard protocol, all of our data centers are equipped with supplies to ensure they remain fully operational if remote operation becomes necessary. We also regularly engage our critical suppliers to confirm their pandemic response plans and review their capacity to provide service continuity.”

The advance planning paid off: All of Digital Realty’s data centers remained fully operational and functioned without a hitch.

Binkley shares that, following guidelines from the Centers for Disease Control and Prevention, the company reduced on-site staffing, deferred nonessential travel and gave staffers the option to work from home. In addition, sales teams replaced on-site tours for potential customers with virtual versions.

“The virtual tours have been so well received that we see them continuing for the long term, due to the efficiencies for everyone,” he says.
To support the increased connectivity needs of essential-service customers, Digital Realty worked with its partner Megaport to waive port fees for new ports for six months.

“This allowed government, medical, emergency and education clients to access our connectivity solution, Service Exchange (SX), which lets organizations virtually connect to over 350 service providers and over 160 cloud onramps globally, once connected to SX Fabric,” Binkley says.

It’s clear that the pandemic has merely accelerated a digital transformation that was all but inevitable, he adds.

“Emerging technologies such as AI, blockchain and the Internet of Things were already placing new demands on the IT infrastructure,” he says. “For those who were on the fence about the cloud pre-pandemic, the stay-at-home mandates and the sudden uptick in remote workers became a forcing function to reevaluate and quickly establish their cloud infrastructure.”

He adds that the pandemic has increased the prevalence of hybrid, multicloud architectures, where customers are blending private and public infrastructure.

“This is happening for reasons of control, cost and performance,” he says, noting that “Overall, the crisis will force enterprises to be nimbler, accelerate digital transformation and make them more willing to invest in mission-critical digital infrastructure.”

Evidence suggests that remote working is going well, thanks to the preparedness of companies like Digital Realty, and that companies are rethinking their on-site staffing.

Binkley notes that a recent Gartner survey showed that 74% of CFOs are going to make working at home permanent for some employees. For data center companies like Digital Realty, that means beefing up infrastructure to support an ever-growing hybrid workforce.

It also means, according to Binkley, “that it is critical for our industry to decouple growth in demand from growth in data centers’ carbon footprint.”

Data centers use immense amounts of energy, and sustainability, he adds, will always be a core strategy for Digital Realty, a participant in the Environmental Protection Agency (EPA) Green Power Partnership, whose goal is to source 100% renewable energy.

The company has, indeed, made great strides in the sustainability sector. Not only was it the first data center provider to be an EPA Energy Star Partner of the Year, but it also leads the industry, with 6 million square feet of green building certifications.

In 2019 alone, Digital Realty, which has had a total of 26 Gold LEED certifications since 2007, had four facilities certified LEED Gold. Two are in Ashburn, Virginia, and there’s one in Richardson, Texas, and another in Santa Clara, California.

Digital Realty’s highest-profile data center is at 1 Century Place, in Vaughan, Ontario, Canada’s version of Silicon Valley. The site, the former printing plant for the nearly 300,000-circulation Toronto Star daily newspaper, is not only LEED Silver, but also, at 711,000 square feet, it is the largest data center in the country.
The data center, which has 23 computer rooms that each offer up to 3 megawatts of power, is modular in design; the spaces are built out to suit each client and can be modified to suit the heating, cooling and power requirements of each customer.

The pandemic has not slowed the company’s growth in sustainability. In April, a month after lockdown began for much of the world, Digital Realty joined the Science Based Targets initiative, a collaboration between CDP (Carbon Disclosure Project), the United Nations Global Compact, the World Resources Institute, and the World Wide Fund for Nature, as well as one of the We Mean Business Coalition commitments, where Digital Realty, like other corporations, will have a major role in strategies to decrease global greenhouse gas emissions.

“Under this framework, we’re taking a holistic, businesswide approach to reducing our carbon emissions,” Binkley says. “In August, we announced our latest renewable energy agreement that will support our data centers in the greater Dallas area with locally produced solar energy.”

Regardless of how long the pandemic lasts, data centers, which are drivers of the digital economy, are on the cusp of taking on even more important roles and becoming even more relevant to our daily lives. Binkley notes that “data gravity, the ability for growing bodies of data to pull an ever-increasing swath of applications and services into their orbit” will shape the future and influence the data center industry.

These accumulations of data are difficult to move and bring up a variety of issues, including security. “Forces ranging from urbanization to resurging mergers and acquisitions to data regulations are accelerating the intensity of data gravity,” he says. “We see it as the biggest obstacle to digital transformation.”

Binkley sees sustainability as integral to the growth of data centers. “Future designs will increasingly consider the embodied carbon footprint as well as [a building’s] operational impacts,” he says. “We will see more demand for greater density on a given site. Water use will become more important, and powering data centers with renewable energy will become more common.”

Although the pandemic put some of Digital Realty’s projects on hold, the company’s expansion plans are back on track.

Ground recently was broken for a new data center in South Korea, construction has started on the Interxion Paris Digital Park, another project is under way in Mexico through a joint venture with Ascenty, and a co-location expansion in Toronto has been completed.

In addition, earlier this year, the company completed its merger with Interxion, a leading provider of carrier- and cloud-neutral co-location data centers in Europe. It also has announced several expansions and groundbreakings in Europe, the Asia-Pacific region and North America.

“They’re all designed to let us address the massive demand we’re seeing for data-center services,” Binkley says. “He says that via their high-caliber pandemic performance, data centers have proved their resilience.

“They are the lifeblood of the digital economy,” he says. “Even after the pandemic, a substantial part of the workforce will continue to operate remotely, and that is one of the many factors that will accelerate data gravity. Enterprises need to act now to build the right data infrastructure in a sustainable manner so they can thrive as part of the digital economy.”

Left page: Digital Realty recently announced its newest renewable energy agreement, specifying that its Dallas area data centers will be supported by solar energy.

Above: Interxion Paris Digital Park in Paris, France, will be Digital Reality’s eighth data center in Paris. It is being constructed in three phases, with the first phase scheduled to open in late 2021.
Creating a Culture of Accessibility for All

Mexico City–based Todo Accesible provides sensitivity training workshops with the overarching goal of creating a culture of inclusivity in Mexico.

BY ALISON GREGOR

After Luis Quintana, the founder of Todo Accesible, was severely paralyzed in a car accident in 2005, he went through an arduous rehabilitation, only to make a devastating discovery: His country, Mexico, wasn’t quite ready for him.

“I started wanting to go back to what was my life, trying to get a job and everything,” he says. “Then I started noticing all the different barriers that existed in Mexico that prevented people with a disability from getting around.”

Quintana, who has a degree in business administration, ended up losing his previous job when his multinational employer couldn’t accommodate his wheelchair. The experience could have been a shattering one, but instead Quintana found another path: He began to work toward dismantling the barriers for people living with disabilities in Mexico.

“I’m a business administrator by choice, and an architect by fortune,” he jokes now.

In 2011, Quintana assembled a team of experts, many of them people living with disabilities, and formed Todo Accesible (“accessible for everyone” in English). The Mexico City-based organization includes architects and designers who assess physical spaces and advocates who provide sensitivity training workshops with the overarching goal of creating a culture of inclusivity in Mexico.

“We apply something called universal design,” Quintana says. “That means our projects not only benefit people that live with a disability, but also everyone else, including families with strollers, senior citizens with walkers, people of short stature and others.”

Because Quintana views inclusiveness as an integral part of sustainability, Todo Accesible has a partnership with the global commercial real estate services firm Cushman & Wakefield. Quintana, working with the company’s sustainability services director, Africa Rubio, has developed a label in Mexico called “Distintivo A,” which distinguishes accessible building projects from nonaccessible ones.

Both companies have been working closely with the U.S. Green Building Council to develop LEED pilot credits for different aspects of accessibility, including the newest Inclusive Design pilot credits, for which achievement of the “Distintivo A” label can serve as an alternative compliance path.

There are fewer accessible buildings in Mexico than there are in the United States, and in fact, their construction has only started to take off in Mexico within the past four years, Quintana says.
Part of that has to do with the culture in Mexico and a lack of education about people living with disabilities. Quintana says that it was only as he began experiencing the world as a person with a disability himself that he began to realize that the accessibility challenges in Mexico go far beyond whether or not there is a ramp at a building entrance.

In 2015, the Mexican government stated that over 7 million people with a permanent disability live in Mexico City, but only a handful of the city’s 195 metro stations are fully equipped to accommodate those with disabilities, Quintana says.

Conditions such as these prevent people living with disabilities from participating in any meaningful sense in the social and cultural life of Mexico, he says. Largely unnoticed by the able-bodied population, people with disabilities are an afterthought in many construction projects.

“In the past, many project developers would take the attitude of looking for how accessibility would benefit them—you know, why am I going to do this if I never see people with disabilities out in the street?” Quintana says. “So Mexico was behind, and it had to do with cultural background. People were not building inclusively because they weren’t seeing the population it served.”

Rubio agreed that Mexico has not evolved its accessibility codes, nor developed its accessible spaces, as much as some other countries. “Definitely, we’re behind,” she says. “Just starting with the accessibility regulations, we’re behind. There’s a lot of gray area. I think the cultural barrier to accessibility is stronger here.”

Thus, Todo Accesible’s services run the gamut from building assessments and wayfinding to sensitivity training workshops to educate people about those living with disabilities, as well as digital accessibility options through a tab on their website and apps.

“We’re trying to create inclusive spaces, yes,” Rubio says. “But we’re also trying to do things like encourage companies to hire people with disabilities in any position—not just, for example, in call centers or as receptionists. We’re trying to educate all employees, even the directors, that people with disabilities can be just as good at their jobs, or even better than other employees.”

Rubio sees Mexico’s relative slowness to adopt accessible design as an opportunity. Developers in countries with more stringent accessibility codes, such as the United States and Canada, may believe their buildings are equitable by simply complying with regulations, she says.

“They think that with the regulations, they’re all set, but it’s not really enough,” Rubio says. “Here in Mexico, we’re more conscious that we need the creative solutions that come out of these assessments and a holistic approach for true accessibility.”

She gives the example of visiting a hotel on a business trip with Quintana, where there were several accessible rooms, but they all happened to be occupied by people without a disability. The whole theory behind universal design is creating spaces that work for the entire population by seamlessly integrating accessible features. That way, people with disabilities aren’t relegated to certain spaces or entrances, she says.

“So, it’s not enough that the hotel complies with the regulations, and they have five, or however many, accessible rooms,” Rubio says. “It should be designed so all the rooms and all the spaces can be used by any person, even if they have a disability.”

In another example, the developer of a residential project called Silica II in Monterrey approached Todo Accesible with a proposal to set aside 10 stories in one 20-story tower for accessible apartments. “We told him the whole building needs to be accessible, because otherwise, if I invest in an apartment there, maybe I wouldn’t be able to invite my friend in a wheelchair over,” Rubio says. “Or if I become older or I have a disability in the future, I can’t use the apartment any more.”

Rubio convinced the developer to design the two towers in Silica II to be accessible for everyone, incorporating features such as wider doors, accessible counter heights, signage in Braille, talking elevators, and visual and audible alarm systems. But there were other challenges: The developer didn’t want any grab bars in the bathrooms.

“We had to find creative solutions,” Quintana says. “We designed every apartment with more than the local accessibility codes stipulated, so if I’m visiting Africa, I can get around her apartment completely, and I can even help her wash the dishes. And if I buy an apartment there, the only thing I have to do to make it completely accessible is add a grab bar in the bathroom.”
Rubio notes inclusive design can be integrated harmoniously into a building and doesn’t have to stick out. “Sometimes our clients say, ‘It’s going to look a little bit like a hospital, with all those grab bars and signage on the floor’—but we show them pictures of our projects, and you don’t even notice the strategies that we implement.”

Sílica II includes a relief area for service animals, along with an accessible swimming pool with a crane to assist swimmers. Even outdoor common areas are thoughtfully designed, with different-sized water fountains, niches for wheelchairs and comfortable benches with sciatic support and no arm rests, to make them easily accessible to those in wheelchairs.

Quintana says that cost is rarely an obstacle when it comes to building accessible spaces. “When we talk about projects with the clients, they’re always eager to bring accessibility in,” he said. “They see it’s not going to make any difference regarding cost, because if it’s a new building, accessibility doesn’t involve any extra costs. And in Mexico, if you’re going to remodel a building, everything that has to do with accessibility is 100% tax-deductible.”

Todo Accesible has its offices in the Cushman & Wakefield building in Mexico City, which achieved the “Distintivo A” recognition, though it didn’t include accessibility features until relatively late in the design process. “They said, ‘We want you to make this accessible, but you can’t move a lot of things,’” Quintana says. “So we did many new strategies here that you can’t even see.”

Sliding glass doors can be opened by pushing buttons that are low enough for anyone to reach. Carpets with piles of different heights and in different colors provide cues for the visually impaired. The microwaves all have Braille, and the cafeteria has one large table for dining that is accessible by anyone. “There’s no, ‘Luis, you go to this corner, because that’s where the table is accessible,’” Quintana says. “I can eat anywhere.”

While there are five projects in Mexico that will receive the “Distintivo A” designation this year, there are only three projects so far that have set their sights on obtaining the newer LEED pilot credit, Quintana says.

One of these is Via Magna in Mexico City, which is close to achieving the “Distintivo A” label and the LEED pilot credit for Core and Shell for office buildings, Quintana says. Features of the building include a universal entrance with ramp for everyone, accessible bathrooms with visual alarms, color contrast on stairs, double-height handrails, talking elevators and floor plan maps with Braille.

One feature is especially meaningful for Quintana, who was once left behind in a building during an earthquake when everyone else evacuated. Via Magna will have areas for a wheelchair to be set up in the emergency staircase. “It was a long time ago, and we laugh about it now,” Quintana says. “The building owners were emphasizing the accessibility of their building, which was based on the codes, but the people themselves weren’t ready to help people with disabilities, so it didn’t really matter.”

Buildings aren’t the only spaces that Todo Accesible helps create or modify using the strategies of universal design. One successful project was the intersection of two thoroughfares, the Calle del Roble and the Avenida Ricardo Margain, in Monterrey. Todo Accesible’s team proposed cuts for the sidewalks so that they could run flat alongside the streets, which are hilly. “Someone in a wheelchair or a walker with wheels [now] has an easy, level way—even though the cars are going up and down,” Rubio says.
Todo Accesible also suggested the use of aromatic plantings, specifically rosemary, to alert people who are visually impaired that they’re approaching an intersection. Combined with other accessible elements, such as visual, tactile and audible signaling, everyone can cross the street safely and independently. In a twist, designers noticed that the plantings also alert sighted pedestrians distracted by their cell phones, who look up for the source of the powerful odor, Rubio says.

“We try with all these strategies to catch all the senses of the people, whether they’re more aural or visual,” she said.

The intersection has auditory signals that chirp at different rates to cue pedestrians about changes in traffic patterns. Bus stops along the thoroughfares have benches for sciatic support and extended roofs to protect those in wheelchairs from the elements. The bus stops are raised for easy access to buses. Light poles have two fixtures, one higher for the street and one lower for the path, so pathways are brightly lighted.

Besides streets and intersections, Todo Accesible has also tackled designing other spaces to be universally accessible, Rubio says. “The challenging thing about this job that makes us so passionate is that, actually, everything has to be accessible, not only workplaces and commercial places, but every place you use, even the one you don’t have in mind,” she says.

Innovations have included a children’s swing, designed by Todo Accesible to maneuver an entire wheelchair with its young occupant securely in place, now installed in a Mexico children’s facility. Todo Accesible is currently working on designing a theme park, similar to Disney World but smaller, so that kids with different illnesses and disabilities can visit, swim, play and enjoy themselves with their families.

If a project can be planned, designed and built, it must be accessible, Quintana says.

Todo Accesible also used universal design principles to make a professional diving boat, the SunRider in La Paz, fully accessible to divers of all abilities.

“We have a crane to go in and out of the water, and we have a larger bathroom for access,” Quintana says. “When the boat pulls up to the dock, I can go right onto it without having to have someone carry me, and there’s a place where the wheelchairs are secured, so they’re not moving all over the boat.”

Now, Quintana is working on designing a wetsuit for people with disabilities that is easier to don—and easier to doff to take a bathroom break. True to the principles of universal design, the wetsuit may end up being a hit with anyone who dives. “It’s wonderful to work in this area, because there’s always something new you can be doing,” Quintana says.

**Going from accessibility to inclusive design**

A new pilot credit for residential inclusive design, along with one for commercial design from 2019, arose in part from the experiences of Kristen McCosh as the disability commissioner and ADA Title II coordinator for the City of Boston.

When McCosh, whose background is in public health and advocacy, was first appointed to her position a decade ago, she quickly learned that disability access was often relegated to a footnote in many project proposals.

“I would read these 200- or 300-page documents that had details from the type of flowers being planted to the type of marketing being done,” she says. “But I wouldn’t find any information on accessibility, other than maybe an asterisk saying, ‘Will meet all ADA and MAAB regulations.’”
MAAB is the Massachusetts Architectural Access Board, the agency that oversees the state building code and has stricter accessibility standards than the federal government in some areas. McCosh found so few details about accessibility in the documents she received that she convinced the city to hire an architect to assist her in 2011. They soon realized that discussions about accessibility didn’t start until the design process was well advanced, making inclusive design almost an afterthought.

“I wanted to see specifics in these plans to judge whether they were equitable or not for people with disabilities,” McCosh says. “I was like, ‘Let’s take a step back and see if I could get involved earlier in the process.’”

McCosh’s team devised the idea of a checklist for accessible design to be filled out at the beginning of the development process. When reviewing that checklist with the development team, McCosh and Patricia Mendez, her current director of architectural access, have the opportunity to ask for accessibility features that go beyond government requirements.

“We do the checklist early, so that people have the opportunity to design in these features, and it’s not so burdensome financially or design-wise,” McCosh says. “The checklist doesn’t create any new mandates, but it gives us a chance to ask for things that would create more ideal access.”

In the past, it was commonplace for developers to apply for a variance for some accessibility requirements, McCosh says. Now, McCosh and her team negotiate with developers to try to avoid variances. “The developer might say, ‘There’s no space for an elevator,’” McCosh says. “We’ll say, ‘Instead, could you do a platform lift or an incline lift? We’ll work with them so their very last option is a variance.’

Mendez, an architect by trade with no professional experience in inclusive design prior to her current job, says her eyes have been opened by her experiences. She remembers the time a young girl in a wheelchair was stuck in her apartment, unable to attend school, when the high-rise building’s only elevator broke.

“Some elevator repairs take weeks or even months because some elevator parts may have to be ordered,” said Mendez. “Our state law requires that the landlord provide accommodation for tenants with disabilities who rely on elevators for their life activities (in this case, attending high school)” McCosh’s team was called and was able to help with coordination. McCosh informed the tenant of her rights to request relocation while the elevator was being repaired, so she would not miss school.

“From that experience, the next time I was at the table with a development team, it was really natural for me to advocate for a redundant elevator,” Mendez said.

The new pilot credit for residential inclusive design was proposed by Mendez and McCosh, who worked with the U.S. Green Building Council to develop the credit. The pilot credit is an alternative compliance path that will be awarded to developers who complete the Boston Planning & Development Agency Article 80 process and follow through on finding ways to create accessibility features that go beyond minimum requirements.

The goal is thoughtful spaces designed to be used by virtually everyone, regardless of their level of ability or disability.

“The redundant elevator is a perfect example of something the LEED credit would do,” McCosh says. “Now, when we have little children who need to go to school, they don’t have to worry if the elevator breaks down.”
TRUE Advisors Work Toward a Zero Waste Future

TRUE certification and its network of TRUE Advisors support forward-thinking businesses’ efforts to clean up their waste streams.

BY KILEY JACQUES

“Individual action is an important part of the solution, but corporate involvement is critical to achieve the change we need.”
— Mahesh Ramanujan, President and CEO of USGBC, GBCI and Arc

In 2017, Green Business Certification Inc. (GBCI), the global certification body for Leadership in Energy and Environmental Design (LEED), began administering complementary rating systems to address key sustainability measures in the green building industry. The Total Resource Use and Efficiency (TRUE) rating system, a zero waste certification program, was among them.

TRUE is the first certification program dedicated to measuring, improving and recognizing zero waste performance. A TRUE project’s goal is to divert all nonhazardous waste from the landfill, incineration and the environment. Facilities achieve certification by meeting 90% or greater waste diversion over a 12-month period, in addition to implementing minimum program requirements and credits. Ultimately, the TRUE program aims to transform the way that business, campuses and communities manage resources and accelerate the transition to a circular economy.

To date, there are nearly 200 certified TRUE projects, totaling more than 81 million square feet of space across 13 countries. Over the past three years, TRUE projects have diverted an estimated 1.5 million tons of waste from the landfill. At an average cost of $55 per ton to landfill for municipal solid waste in the United States, this represents a potential cost avoidance of more than $80 million.

The following projects illustrate what can be achieved when businesses shift to circular thinking and prioritize processes, operations and actions that reduce waste and resource consumption. All have redesigned their facilities—or those belonging to clients—and helped train employees to support the “rethink, redesign, reduce, reuse, recycle” model that TRUE advocates.
On the corporate level

“I’ve been playing in the trash for 27 years,” says Sue Beets-Atkinson, director of sustainability for SBM Management Services, a janitorial company that works with commercial-scale clients. All SBM sustainability senior team members are required to become TRUE Advisors, and they promote the certification program as a way to embed zero waste expertise in their services. To date, the company has diverted over 51.6 million pounds of waste from the landfill last year.

Asked about her role, Beets-Atkinson says, “I work with companies who want to do more, and I try to make a business case for them—to explain what zero waste is, how it can save them money, what TRUE is about, and how to get there. The ultimate goal is to do better—to look at what is purchased and all of the packaging. You want there to be integrity behind what you are buying and distributing.”

She cites Microsoft as a client whose commitment to TRUE certification is unyielding. They recently announced a corporate zero waste commitment—with the goal of achieving zero waste for Microsoft’s direct operations, products and packaging by 2030. “They are always analyzing their actions to determine if they will impede or support their TRUE-certified status,” says Beets-Atkinson. Beyond its facilities, Microsoft has also started making its events zero waste, and it is the second company to receive the TRUE for Events certification two years in a row.

One of TRUE’s imperatives is reducing waste by looking “upstream.” The idea is to get companies thinking about what they are bringing into their facilities—putting the focus there rather than on disposal. “It’s great to recycle, but we want to do more up front,” explains Beets-Atkinson, adding that she encourages clients to stop making unnecessary purchases and to start buying products without redundant packaging. She advises them to stop buying plastics, explaining that paper and aluminum are better options in terms of recyclability. “Eliminating plastics is the next step, and businesses need to use their buying power to do it.”

Beets-Atkinson believes that good communication is a cardinal tactic when it comes to implementing a zero waste program. “We need to make the goals and reasoning clear,” she says, “and we have to find [simple] ways for people to get it and buy in.” She is speaking of employees, who play a crucial role in a company’s move toward zero waste. There’s also the matter of communicating directives for modifying individual behavior. “Beyond bringing in the right products, the next step is proper disposal—communicating where the waste goes,” she explains, noting that simple, easy-to-read signage at eye level is critical.

Beets-Atkinson has worked with a number of companies that started out dealing with only nonhazardous waste and ultimately moved to a zero waste program. She has also helped companies increase their recycling rate by up to 47% by implementing simple changes. “How you start is important,” she says. “Find suppliers who offer boots-on-the-ground support and look at alternative solutions to improve your programs. You might not get to zero waste, and that’s okay. It’s a good starting point. You don’t need to be perfect. You just need to make a gradual change that supports the end result.”
In our national parks

The warehouse that supplies Yellowstone General Stores is the first facility inside a national park to be certified as zero waste through TRUE. The effort began in 2013 with a campaign that called for waste audits, redesigned receptacles, a composting program, the removal of 25 trash bins from the warehouse, and working with vendors and suppliers to create less waste from the start.

Since 2015, on average, the warehouse team has diverted 255,000 pounds annually from the landfill through reduction, reuse, recycling and composting efforts. They have also eliminated all styrofoam from their vendor stream, a major shift in operations to reduce unnecessary packaging. It was so successful that they began issuing an annual statement to vendors outlining what constitutes acceptable packaging.

“I like the TRUE program because it challenges people to think about waste in its whole life cycle—where it’s coming from and where it will go once we are done with it,” says Ali Chipouras, environmental and risk manager at Delaware North at Yellowstone, a global hospitality provider with 15 TRUE Advisors on staff.

Efforts in the warehouse to meet TRUE certification requirements included the addition of centralized sorting stations meant to discourage occupants from throwing everything into trash cans. The team also added soft plastics to the list of recyclables and took measures to support the use of reusable dinnerware in the employee break room. They adopted a “reuse first” approach to their waste, and implemented a series of “dumpster dive” training sessions to educate staff on proper waste disposal. Combined, these efforts resulted in a 90% diversion rate.

“The success of the zero waste program is because of our team at the warehouse—it’s something everybody is on board with,” Chipouras says. “It’s a big part of what we do—we are always looking to reduce waste from all areas of operation.”

Perhaps the most promising aspect of their work in the warehouse is the fact that it is trickling outward into 12 retail, grocery and food service locations throughout the park. All of the products used in those facilities are now compostable, so visitors can throw the waste items generated from a meal—food scraps, utensils, plates and napkins—into a compost receptacle.

Additionally, Delaware North has a number of TRUE projects in the pipeline, including Kalaloch Lodge at Olympic National Park, NASA Kennedy Space Center Visitor Complex and Tenaya Lodge at Yosemite.

Application in agriculture

Nikki Cossio, founder of Measure to Improve (MTI), describes TRUE as “the perfect example of a sustainability effort where all the P’s intersect—people, planet and profit.” MTI, a sustainability consulting firm focused on helping the produce industry collect, report, validate and communicate their sustainability initiatives, helps clients engage with environmentally and socially conscious consumers; the primary objectives are resource consumption reduction and cost savings. To date, MTI has certified six facilities to TRUE; they include farms, offices and packing operations.
Like Sue Beets-Atkinson, Cossio begins by making a business case to her clients. “Zero waste is a great starting point for any company to initiate a formal sustainability program,” she says. “It takes time, training and monitoring, but it doesn’t require a huge capital investment—it’s low-hanging fruit with great opportunity.” She talks with clients about the avoided-cost potential that comes with limiting the volume of materials entering a facility. She also stresses the importance of tracking information in order to demonstrate cost savings, and explains how TRUE is a tool for doing that.

Everyone in Cossio’s organization is a TRUE Advisor. “TRUE complements a zero waste initiative,” she says. “It helps us justify the direction our clients want to go in. We recommend they also become TRUE Advisors to give them the foundational understanding of why this is important. About 50 to 60% [of them] go through with it.”

As pleased as she is with TRUE, Cossio envisions its next iteration as being more industry-specific. “TRUE would be more applicable to different sets of requirements or circumstances in different industries and would give more concrete goals,” she notes. Additionally, she’d like to see a clear tie-in with climate change.

“When you talk about reducing greenhouse gas emissions (GHG), most people’s first thought is energy use. But the EPA has estimated that more than 40% of total GHG emissions in the U.S. are associated with materials management,” says Sean McMahon, vice president of product management at USGBC. “Actions taken to better manage materials and reduce waste can significantly decrease the associated GHG emissions up and down a material’s life cycle, including resource extraction, transportation, manufacturing of goods, landfill methane, waste incineration and ocean pollution. Quantifying this impact is crucial in helping businesses understand, track and communicate their impact, and is something GBCI is focused on supporting.”

Cossio believes companies that are adopting zero waste initiatives now will be in a favorable position when regulatory mandates arrive—something she views as inevitable. “By taking a proactive approach for dealing with materials in the waste stream, companies can stay ahead of those mandates,” she concludes.

A new era

The founder of All About Waste, Denise Braun, is responsible for certifying the first commercial high-rise in the world as a TRUE facility. “That project was a challenge,” she says. “What I liked about it was seeing the power of leadership.” Braun has three main objectives when presenting clients with TRUE: (1) demonstrate the potential for cost savings, (2) emphasize carbon emissions reductions in light of their climate action or sustainability plans, and (3) highlight the marketing opportunities. As a result of those efforts, her consultancy has driven TRUE certification for more than 1.5 million square feet of space.

Braun begins each project with a waste audit to determine types and volume of current waste, and delivers an assessment report to give clients a picture of where they stand in relation to the certification mark. She lays out strategies they can adopt to increase their diversion rates and provides cost analyses that demonstrate how operational changes, such as switching from paper coffee cups to reusable mugs, can save money.

Strategies she employs for moving toward zero waste include redesigning the internal and external infrastructure that handles the flow of waste—strategies, she says, that must not interrupt operations. Of course, tenant education and training is key, and Braun makes the point that multitenant buildings are more challenging than those occupied by one tenant, in terms of changing mindsets and behaviors.
Another of Braun’s challenges relates to the coronavirus pandemic. “Pre-COVID-19, it was easier to switch to reusable items; now we are facing more resistance on that front,” she notes, adding that a number of environmentally favorable gains made in the past decade have been lost during the pandemic, as institutions move back to single-use products in the name of hygiene.

Likewise, there’s a substantial increase in cleaning procedures and products, which can result in additional waste. Braun is also seeing new materials, such as personal protective equipment, showing up in her clients’ waste streams, which makes getting companies on board with zero waste management programs imperative.


Notably, All About Waste is the only minority-led zero waste consulting firm in the U.S. “The solid waste management industry is an old industry run by men,” Braun says. “The zero waste management industry and the circular economy are brand-new, so it’s hard to penetrate and have the conversation with people. There is also the issue of being a female-owned company.” But she does have those conversations, and they lead to action, which means Braun is making both environmental and social equity strides with her work.

Currently, there are 987 TRUE Advisors. The takeaway from the work of these professionals and agencies is perhaps best summarized in the words of USGBC president and CEO Mahesh Ramanujan: “Although zero waste is not a new concept, implementing zero waste business practices requires rethinking, retraining, new tools and strong leadership to change current waste systems.” In short, it must become part of corporate culture.
MASS Design Group Supports Healing and Happiness

Greenbuild keynote speaker Michael Murphy believes that architecture can help people heal, and that thoughtful building design can improve people’s lives.

INTERVIEW BY KEVIN STARK

Michael Murphy co-founded the Boston-based MASS Design Group, an interdisciplinary architecture and design collective that has used this principle in working with hospitals in Rwanda and Haiti; schools in the Democratic Republic of Congo; clinics in Malawi; and Montgomery, Alabama’s National Memorial for Peace and Justice, a site for reflection on the history of racial inequality in the United States.

“I believe that architecture is the most potent, profound, nimble and beautiful trade,” Murphy says. “Its richness is its constraints, its real-world applications, and its ability to force us to imagine ourselves as part of something greater than ourselves—its civic role—and allow us to dream for something better for ourselves—its distribution of dignity.”

Murphy—a designer, writer and teacher—delivered the Global Health and Wellness Summit keynote address during Greenbuild 2020.

Q. How can building design affect people’s health?

COVID-19 reveals what many of us have long learned: that buildings shape our health and our ability to access health every day.

We were founded on this idea 12 years ago, when MASS Design Group first formed to design and build the Butaro District Hospital in northern Rwanda. There, it became clear that many health care facilities lacked the necessary precautions to prevent the transmission of disease. Hospitals often had small, poorly ventilated waiting rooms in which a patient with an injury, such as a broken leg, would be waiting in proximity to a patient with tuberculosis. Architecture and spatial care protocols, in this case, were directly putting people at risk.

Our collaboration with our partners on the Butaro Hospital resulted in a facility with architecture that supported healing. Rather than weak infrastructure, poorly lit spaces, and institutional recovery rooms devoid of hope or personality, [we designed] a solid, medically sound facility with natural light, wide hallways, courtyards and spaces for families to gather, oriented to take advantage of the beauty of this mountainous region. Thanks to these and other changes in health infrastructure in Rwanda, average life expectancy has gone from less than 30 years to almost 70 over the last three decades.

Health and safety standards for the design and construction of health care and related facilities are widely accepted throughout the world. However, we still need to push the design field to transform these spaces from a place to treat symptoms to a place of healing. From memorials to schools, we are having similar conversations about the need to go beyond the symptom to a holistic path to success.
Q. Can you explain how buildings can be designed to help people heal?
In our work, form follows facts. Mortality rates in some of the world’s most vulnerable areas are being exacerbated by poor architectural provisions, which allows disease to run rife in health care settings and causes medical professionals to flee. Yet thoughtful design can improve physician retention rates, encourage people to seek medical assistance and improve their health prospects when they do—all at relatively little cost.

Today, there is a new demand for a movement where architecture follows evidence. Medical professionals, governments, clients, developers and communities want evidence and measurement of architecture’s impact—especially as it applies to health—to prove it is worth the investment. Julio Frenk, the former head of the Harvard School of Public Health, has said, “Scientifically derived evidence is the most powerful instrument we have to design enlightened policy and produce a positive social transformation.” Data can help us to design enlightened architecture, too.

Of course, facts only get us so far. Architecture’s intangible qualities, like beauty and dignity, are also necessary for us to rethink and improve the world in which we live. Great architecture is functional and aspirational. Hospital architecture, in particular, provides the opportunity to make environments that improve lives measurably by investing in the dignity of the communities they serve. Architects might be the difference between whether a space offers hope or not.

Architecture can be a transformative engine for change. When looking at many of our first projects, including the GHESKIO Cholera Treatment Center in Haiti, the Ilima Primary School in Congo and the Kasungu Maternity Waiting Village in Malawi, we asked a simple question: “What more can architecture do?” By asking that question, we were forced to consider how we could create jobs, how we could source regionally and how we can invest in the dignity of the communities in which we serve. Architecture can be a transformative engine for change.

Q. You’ve spoken about “lo-fab” building construction. How does this philosophy work in practice?
In practice, Lo-Fab (Locally Fabricated) approaches values in the way a building is made as much as the building itself. We seek to highlight and scale local innovation and ideas, bolster and develop local crafts, hire local labor, and invest in capacity-building and job training. Lo-Fab means supporting the local economy through the use of local contractors and locally fabricated and sourced materials.

Left, top: Butaro Hospital in northern Rwanda is MASS Design Group’s first project—and through its architecture, it promotes healing.
Left, bottom and above: MASS Design group employed local labor, craftspeople and materials to construct the Kasungu Maternity Waiting Village and Ilima Primary School. Photos: Iwan Baan.
Working with these locally sourced materials and labor, we can assess the entire supply chain for environmental impact and ensure that the majority of capital invested in construction flows to the community we are serving. We are implementing lean construction practices, which seek to continually find ways to achieve our partners’ goals, while minimizing wasted effort, time and resources. Lo-Fab engages the community in the building and creation process so they can be a part of the building’s success. It also means we can create a lower carbon footprint.

A good example of our Lo-Fab process in practice is the design of The Rwandan Institute of Conservation Agriculture (RICA) in Bugesera, Rwanda. It is RICA’s mission to train the next generation of leaders in conservation agriculture to attain healthy and sustainable food independence in Rwanda. The campus features innovative methods of power generation, water use and green infrastructure, and is estimated to be carbon-positive by the 2040s. It has begun to achieve this by reducing the embodied carbon of the buildings, sourcing 96% of materials by weight from Rwanda, installing a 100% off-grid solar farm, sourcing and treating all water on-site, and offsetting the remainder carbon by restoring parts of the savannah woodland and reforesting key areas within the campus.

Q. What role can the National Memorial for Peace and Justice play in the racial justice reckoning happening in the U.S. right now?

Our nation is in the middle of a new social awakening. History is often written by the [most powerful], and when that history is challenged, it can cause physical and emotional fissures. The design and lessons of memorials can’t solve our past problems, but they can offer a guide toward progress, healing and reconciliation as long as everyone is willing to go along on the journey.

Our Gun Violence Memorial Project has shown us that successful memorials must oscillate between the infinite and the intimate. In that flicker, a pathway reveals itself. Into the individual life [goes the] the story, their spirit. We surrender to the magnitude of shared loss; we feel each loss is also our loss. If, in this process, we are given the tools to engage, the rituals to enact, the stories to hear and the spaces to
hear them, we may find [that] memorials are living actors in constructing cultural transformation. And in this way, architecture can be healing spatialized.

Our hope is that people can learn from a memorial devoted to truth-telling, reconciliation and healing. We hope that individuals and communities can come to the memorial, engage in this process of acknowledgment and reconciliation, and claim their monuments by placing them as markers in their own communities.

Q. Has the worst pandemic in a century changed the way you think about urban design?

The pandemic has brought to light a much larger, existential moment in [buildings and spaces]. We have seen a growing spatial awareness of the built spaces around us, and how these spaces can protect us, or potentially injure us.

We created a COVID-19 Design Response team to share strategies when retrofitting spaces for infection control. We’re engaging with design and health care thought leaders to guide our work. Early on, research explored how the coronavirus was transmitted in the air. As we adopted social distancing, we saw a need to investigate the design of our built spaces, where such distancing did not come easily.

Prisons, in particular, were especially vulnerable. These are environments where social distancing is very difficult, and the guards and people who have been incarcerated are in tight, poorly ventilated spaces for large periods of time. We looked at homeless shelters, hospitals, schools and senior housing spaces, as well as restaurants and hotels. These materials were made public to the community as they became available at massdesigngroup.org/covidresponse.

Q. What design lessons should we take away from the coronavirus crisis?

The primary design lesson is that COVID-19 reveals a fact we in the profession have overlooked or forgotten: that the buildings around us manage our right to breathe. Breathing air free of environmental contaminants, airborne diseases, forest fire smoke—and more symbolically, toxic injustices—is determined by which building one might be in or have access to be in. To acknowledge this is to radically change our profession towards the distribution of rights, not the provision of services. It is to accept the power [that buildings and spaces have] on people’s daily lives, and to begin to wrestle with and work within that great responsibility.
The First 10 LEED Zero Projects

These projects earned LEED Zero in all four categories—Carbon, Energy, Water and Waste.

BY SELINA HOLMES

LEED Zero certification was created to recognize the achievement of net zero goals. Projects can earn certification in LEED Zero Carbon, LEED Zero Energy, LEED Zero Water and LEED Zero Waste.

In the first year, not only did we see certifications in every category, but one project even earned certification in all four categories. These projects move beyond lessening the impact of buildings on the environment to take green building to the next level.

Petinelli—Curitiba | Curitiba, Brazil

LEED ZERO ENERGY

The Curitiba headquarters of Brazilian engineering and green building consulting firm Petinelli was the world’s first project to earn LEED Zero certification in any category. The 440-square-meter office building in Curitiba was initially certified under LEED v4 for Operations and Maintenance in September 2018 and went on to earn LEED Zero Energy certification in December 2018.

At this 25-person office, all energy is produced on-site, with an energy use intensity for the site of only 25 kilowatt hours per square meter per year. Roughly 125% of the energy needed to run the office is provided by a 15-kilowatt photovoltaic array.

Photo credit: Petinelli
Entegrity Headquarters | Little Rock, Arkansas
LEED ZERO ENERGY

Entegrity Partners, a sustainability and energy services company specializing in the implementation of energy conservation and renewable energy projects, was the second project in the world and the first in the United States to earn LEED Zero Energy certification.

The Entegrity headquarters achieved a source energy use balance of zero over a period of 12 months by pairing the building’s energy-efficient design with a 50-kilowatt rooftop solar array, effectively producing more energy than the building uses over a year.

Photo credit: Entegrity Partners

Discovery Elementary School | Alexandria, Virginia
LEED ZERO ENERGY

The design of Discovery Elementary, the first school to earn LEED Zero Energy certification, has resulted in an annual utility cost savings of $117,000 compared to a typical elementary school of the same size in the same school district.

The building is also operating more efficiently than designed, at an actual energy use intensity (EUI) of 15.8 kBtus per square foot per year. Since 2017, Discovery Elementary has produced more energy than it has used—sending a surplus of 100,000 kWh annually back to the grid, which is enough to power 7.5 average Virginia homes for an entire year.

Photo Credit: Alan Karchmer
**LADWP John Ferraro Building | Los Angeles, California**

**LEED ZERO ENERGY**

The Los Angeles Department of Water and Power (LADWP) John Ferraro Building is the headquarters for a third of LADWP’s 11,000 employees and houses the departments for customer service and other major operations. The 17-story, all-electric building was initially constructed in 1965. In 2013, a suite of energy efficiency measures was considered, giving rise to an aggressive energy-efficiency effort that included lighting retrofits, chiller upgrade and fan system upgrades and earned the building’s initial LEED certification in 2015. The following year, the building was recertified and achieved Gold-level certification.

*Photo credit: Jann On*

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**Hanergy Renewable Energy Center | Beijing, Mainland China**

**LEED ZERO CARBON**

The Hanergy Clean Energy Exhibition Center in Beijing Olympic Forest Park is the world’s first professional exhibition hall with “the sun as the main line and the theme of clean energy.”

The building exterior uses building-integrated photovoltaics design, integrating thin-film solar power generation modules into building curtain walls and roofs. The exhibition center includes an intelligent microgrid management system (independently developed by Hanergy) to manage and operate its own power generation, consumption, storage and sales, while at the same time supporting energy interconnection and sharing with the Hanergy headquarters.

*Photo credit: Hanergy Holding Group Ltd.*
People Against Dirty | Chicago, Illinois

**LEED ZERO WASTE**

By earning TRUE (Total Resource Use and Efficiency) Zero Waste Platinum certification in addition to their LEED Platinum certification, the People Against Dirty factory in Chicago became the first LEED Zero Waste project in the world.

When built, a goal of the factory was to send zero material to landfill, which meant that everything entering the factory would be used in products, recycled or composted.

Photo credit: Method–People Against Dirty

Condominio Comercial Eurobusiness | Curitiba, Brazil

**LEED ZERO WATER**

Like the world’s first LEED Zero Energy project, the world’s first LEED Zero Water project is also located in Curitiba, Brazil. The Eurobusiness office tower is a 14-story building that treats 100% of its wastewater (both gray and black) on-site through a constructed wetland on its roof. A pool of water now covers the entire surface of the roof deck. A raised floor system designed for exterior use was topped with fine gravel and planted with macrophytes, aquatic plants that thrive in or near water.

Alternative water sources played a large role as well, contributing to an 82% reduction in potable water use.

Photo credit: Petinelli
Plasmetal | Paraná, Brazil

**LEED ZERO ENERGY**

Plasmetal is an industrial complex in Londrina, Brazil. The solutions implemented allow the factory to generate 100% of the energy it needs for its operation. Every 15 minutes, direct frequency inverter measurement controls the energy generated and consumed. Additionally, data is made available on the internet for remote monitoring, predicting possible failures. The plant, certified LEED Platinum, also has water savings of 64%.

*Photo credit: Petinelli*

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MODEL Hunters Point
Pearl Homes & Marina | Palmetto, Florida

**LEED ZERO ENERGY**

The Hunters Point Model Home is the first residential project to earn LEED Zero certification in any category. It is equipped with smart home and high-efficiency technologies, including Google Home Smart Speaker and Home Assistant®, rooftop solar arrays paired with an intelligent residential energy management system, Energy Star appliances, and WaterSense high-efficiency fixtures and smart irrigation. The energy management system allows for efficient management of energy for the backup power of the home’s connected devices both before and during a grid outage.

*Photo credit: Marc Everett*
Colgate-Palmolive Burlington Site | Burlington, New Jersey

**LEED ZERO CARBON | LEED ZERO ENERGY | LEED ZERO WATER | LEED ZERO WASTE**

The Colgate-Palmolive facility in Burlington, New Jersey, is the first project in the world to receive LEED Zero certification in all four categories: carbon, energy, water and waste.

To accomplish this, they demonstrated net zero carbon emissions from energy consumption and occupant transportation either avoided or offset, a source energy use balance of zero and a potable water use balance of zero, all over a period of 12 months. Additionally, they had to earn TRUE Zero Waste certification at the Platinum level. All of this is in addition to their LEED Silver certification.

Photo credit: Marc Everett

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**LEED Zero Carbon**

In recent years, the focus on carbon emissions and a deeper understanding of their contribution to climate change have prompted accelerated efforts to achieve a low-carbon future. Organizations, cities and countries around the globe are now monitoring their outputs and committing to carbon emissions reductions—and, in some cases, neutrality.

Globally, the building operations sector accounts for about 28% of emissions annually, the largest percentage of the world’s CO2 emissions (greater even than the transportation sector, at 23%). In addition, existing building stock is expected to double by 2060, adding 2.48 trillion square feet of new floor area.

USGBC is dedicated to supporting decarbonizing buildings, grids and communities; investing resources; and leveraging tools and technology toward a positive vision. That means setting our sights on zero and beyond.

The suite of LEED Zero certifications verify and celebrate the work of buildings that have met net zero goals in one or more of four categories: carbon, energy, water and waste.

LEED Zero Carbon certification recognizes buildings operating with net zero carbon emissions over the course of the past year. This certification provides a transparent accounting of the balance of carbon caused from energy consumption and occupant transportation to carbon emissions. It will expand in the future to incorporate into the balance carbon caused from water consumption, waste generation and the embodied carbon of materials used.

The Beijing Hanergy Clean Energy Exhibition Center in Beijing, China, obtained the world’s first LEED Zero Carbon certification on Oct. 1, 2019, and is currently operating at a level that generates more energy than it uses and removes more carbon than it produces. This unique showroom and exhibit space covers over 1,900 square meters of space and provides a platform to tell the story of both the history and future of energy production.

Projected annual savings include 104 tons of standard coal and a reduction in carbon dioxide emissions of 314 tons, which is equivalent to planting 13,745 trees.

A regenerative future is one where buildings go beyond lessening their impact to achieving a space where they are contributing to healing efforts. LEED Zero certification and the projects around the globe that have achieved it prove that this can be done. Currently certified projects include a school, manufacturing facilities, a model home, offices and even an exhibition center—and of those, several have gone further to attain net positive results.

In this new decade, USGBC aims to help everyone understand how buildings can have a direct impact on their quality of life. After all, green building is all about people. And when we have better buildings, we live better lives.
LEED v4.1 is here. LEED v4.1 features additional pathways, updated credit achievement thresholds and a greater emphasis on carbon reductions, making every step towards transforming the market count.

DELIVER ON: MATERIALS • PERFORMANCE • ENERGY • HEALTH & HUMAN EXPERIENCE • INTERIORS • SIMPLICITY • CARBON

LEED v4.1 is here to help you meet your goals. Try it on a new project or apply your choice of credits to a project already in progress.

usgbc.org/LEEDv41
Perspectives on the Road to Reentry

After months away from the office due to the coronavirus crisis, employees are slowly making their way back into the workplace. Here’s how businesses are deciding when to return, the steps they’re taking to ensure employee safety, and the likely long-term impacts on office design and real estate strategy.

Witten by Calvin Hennick

When workers left their offices in early March to hunker down at home and wait out the coronavirus crisis, many assumed they’d be working remotely for a week or two. After all, many of their employers had never encouraged (or even allowed, in some cases) remote work in the past, and it seemed unthinkable that COVID-19 would still be wreaking havoc many months later.

Fast forward to today, and it now seems unthinkable that COVID-19 won’t continue to shape the way we live our lives well into the future—at least until a vaccine or highly effective treatments make their way to patients. Facing this reality requires business leaders to make countless decisions about whom to bring back into the office and when, which safety measures to implement, and how to redesign office spaces for a work world that seems to be changing by the moment.

USGBC+ spoke with workplace design leaders to get their take on what’s happening now and what the future may hold. Here are their most striking observations and predictions.
The Office Will Remain Important

First, let’s dispense with the notion that the COVID-19 crisis will lead to some sort of post-workplace world, where former office employees live out their entire work lives participating in Zoom meetings while wearing pajamas.

It’s true that many business leaders have been surprised by how productive their staff can be from their living rooms. Many have noticed nearly no drop-off in productivity—or have even seen a slight uptick—and that’s one reason most businesses aren’t rushing to bring their knowledge workers back to the office before it’s safe to do so.

Still, industry leaders say there’s no way to replace the collaboration and camaraderie of an in-person workspace over the long run. Even many of the same workers who once fantasized about skipping their commutes have grown tired of working in cramped and chaotic living spaces alongside their spouses and children.

“Some people who are going back early simply need to get out of their homes,” says Brent Capron, principal and interior design director for the New York office of the design firm Perkins + Will. “Some people are saying technology has drawn them back into the office. For those people in New York, and other urban offices, they have small living environments and they may need a change of scenery.”

According to “The Future of the Office” survey by CBRE Research, 79% of respondents say that the physical office will either remain as important as before, or will be nearly as important as before the COVID-19 pandemic. Similarly, in the “U.S. Work From Home Survey” by Gensler, only 12% of U.S. workers say they want to telework full time.

“It really varies by age,” notes Rives Taylor, principal and global resilience research leader for Gensler. “The surprise is, the younger professionals don’t like being home as much. It’s as much about the work as it is the opportunity to socialize, collaborate and learn.”

“If you have a Millennial employee or younger, they’re probably going to be in a smaller apartment, and maybe they have a young child, and it makes it really challenging to work and manage all these other things,” adds Nena Martin, global workplace technology leader and director of workplace for Gensler.

Although a future of “all remote work, all the time” seems unlikely, the experience of the COVID-19 crisis seems destined to make U.S. workplaces much more flexible well into the future. CBRE Research found that 70% of respondents indicate that some portion of their workforce will be allowed to work remotely full time going forward, and 61% say that all employees will be allowed to work outside the office at least part time. Also, according to Gensler, fewer than half (44%) of employees say they want to be in the office five days per week.

“There was a huge shift to remote work quite literally overnight,” notes Julie Whelan, head of occupier research for CBRE. “That caused people to adapt, even if they were unwilling to do so beforehand. The rate of change has probably catapulted us forward five years when it comes to remote work adoption.”
Short-Term Plans Remain in Flux

Despite the U.S. grappling with COVID-19 for more than half a year, there’s no consensus about how or when businesses should bring employees back to work. This is partly due to different regulations in different states, but also because it’s not always 100% clear which steps will actually increase employee safety and which are mere window dressing.

Capron points to the installation of plexiglass dividers as a step that might not be worth the investment. “A lot of places put those up to provide a short-term comfort level,” he says. “But I really question the long-term use. It’s a huge expense, and the air just goes up and over and around. When you start speaking loudly, it goes further. Wearing a mask is more effective because it covers you no matter what position you’re in.”

Whelan says CBRE Research’s findings show that companies in the Asia-Pacific region are much further along the reentry curve than those in the U.S. “The U.S. companies that are coming back are only allowing a very small amount of employees back in,” she says. “The things they said they were going to institute were things like health screening procedures, furniture reconfiguration, closing down of food and beverage areas—all the things you would think.”

However, Whelan notes, most companies aren’t making permanent decisions about things like office layouts until they have more information. “Until you understand who is going to be using your space, you can’t make too many decisions,” she says.

According to Gensler’s research, at least half of workers say they would feel more comfortable coming into the office if their employers enacted stricter policies against coming in sick (55%), increased remote work opportunities (52%), and increased office cleaning (50%). Around one-third of workers would be more comfortable with increased distance between workstations (35%), on-demand hand sanitizer (35%), touchless bathroom doors and fixtures (33%), and the installation of air purification systems (31%).
Companies Opt for Phased Returns

The options for reentry are so varied that Perkins + Will published a 90-page guidebook laying out the choices facing businesses. The firm recommends that companies aim for a “phased” return policy, rather than bringing their entire workforce back all at once.

In a phased return, Perkins + Will says, the decision to return to the office should be voluntary (with exceptions for roles such as facility support). Leaders should analyze the maximum capacity of their office spaces by floor, and they should start with a small percentage of the maximum as a starting point for return. Also, the guidebook advises, companies should reconsider unassigned seating policies during reentry to avoid scenarios where different employees are sharing desks and office equipment during the transition.

One way to begin bringing people back without crowding the office is through alternating occupancy— with different groups of staff coming in to the office on alternating days or weeks. This allows more employees to participate in reentry, eliminates the need to make an all-or-nothing decision, gives people predictable schedules and allows teams to collaborate in person. However, alternating occupancy also leads to a more complex workplace assignment process and limits flexibility. Plus, some key leaders may want or even need to be in the office every day.

It can be frustrating for business leaders to realize that no solution is ideal, but that’s the nature of the current challenge. Capron notes that interior design work requires some face-to-face interaction, simply because clients need to be able to see samples in real-world conditions. One law firm client is on an alternating schedule, and so Perkins + Will had to split up its own client team to correspond with that client’s alternating teams. For another client, Perkins + Will showed off materials in an otherwise empty office space, with only five people coming in at a time to review them.

“There are no perfect solutions,” says Capron. “You’re trying to create connections, and yet connections are how the virus is transferred. There are going to be advantages and disadvantages to everything.”

The Calendar Keeps Stretching

Capron says that his clients in industries such as insurance, media, finance and law are largely pushing back their return dates to at least the beginning of 2021. Some large companies have already announced that the bulk of their staff will continue to work remotely through the first half of the year.

Although employers continue to see the value of the physical office space (and employees, perhaps, appreciate it more than ever), there are a number of reasons many business leaders feel that it doesn’t make sense for their employees to return before January. For one, many have seen surprisingly high productivity with remote work, and bringing workers back to the office can seem like an unnecessary risk if business is otherwise humming along.
“That’s why we see a lot of companies right now that are delaying,” says Whelan. “They’re being more productive with a remote workforce, and there is more uncertainty about the spread of the virus. At first, the return date for many companies was Labor Day, and then it was January, and now more companies are saying next summer.”

He added, “Some of that has to do with the understanding around the virus itself, and some of it has to do with the challenges the workforce is facing with child care.”

Also, says Capron, many business leaders would rather wait until after the U.S. presidential election and holiday seasons are over to make any major changes to the status quo. He notes that the benefits of returning are somewhat limited until a critical mass of the business world has made the move. After all, an employee can’t collaborate in the office if there’s no one else there to collaborate with.

“If the other half of your team or your client isn’t able to be there in person, then you’re still on a Zoom call, but now you have your mask on,” he says. “So, people are saying, ‘Why don’t I just do this at home, so you can at least see my face?’”

Once approximately half of employees are back in the office, Capron predicts, the business world will hit a tipping point, and the rest of the workforce will quickly follow. “The second you have 50% of people going back, professional FOMO [‘fear of missing out’] is going to kick in, and everybody else will go back,” he says.

Reentry Presents Green Opportunities

Understandably, most businesses haven’t been laser-focused on their sustainability efforts during much of 2020. The challenges of responding to a pandemic have simply been too great to allow leaders to pay adequate attention to their goals for renewable energy and highly efficient building systems. However, there’s an opportunity for green solutions to take center stage as businesses seek out the safest ways to bring their employees back.

“One thing that’s important is making decisions that also would have been healthy before COVID-19,” says Whelan. “Healthy building considerations were already really important pre-COVID-19, and now they’re going to be even more important. Now, it’s going to be much more around, ‘What’s the access to outdoor space? What is the HVAC system? What technology do we have?’ Employees are going to be asking about things that they would never have asked about in the past.”

The U.S. Green Building Council (USGBC) has developed six “Safety First” Leadership in Energy and Environmental Design (LEED) pilot credits to help building teams provide healthy spaces and to assist with reentry. The pilot credits, which can be used for LEED projects that are either certified or undergoing certification, outline sustainable best practices that align with public health and industry guidelines.

For instance, the Re-enter Your Workspace credit is a tool to assess and plan for reentry, as well as to measure progress once the office space is occupied. The credit identifies sustainable requirements in building
operations and human behavior that take precautions against the spread of COVID-19. It also aligns with the Re-occupancy Assessment Tool from the American Institute of Architects (AIA). The Pandemic Planning credit, available for LEED for Cities and Communities projects, is intended to help communities control and mitigate the spread of disease. The credit requires a plan that includes a task force responsible for evaluating possible impacts and advising decision makers on short- and long-term challenges of a pandemic.

Additionally, Arc Re-Entry gives owners and facility managers a set of tools to document and benchmark infection control policies and procedures, to collect and analyze related occupant experiences, and to measure and track indoor air quality.

Green Cleaning and Indoor Air Quality Are Especially Important

Even many months after the emergence of the novel coronavirus, scientists are still learning about how the virus is spread. Still, most current mitigation efforts revolve around preventing spread via surfaces (such as recommendations for increased hand-washing) or via the air (such as mask requirements).

“When all of the COVID-19 requirements happened and people went home from work, a lot of our project teams and owners started asking questions about how they were going to handle COVID-19 and some of the LEED credits that have to do with operations and human health,” says Gregory Plavcan, a sustainability specialist with Gensler. “The two pilot credits that I think are really strong are the cleaning and disinfecting credit and the indoor air quality credit. I was really pleased to see that there are advances here in more fully including the operations component of the projects we’re working on, rather than just focusing on materials. These credits focus more on operations, and that gets at how the changes are going to affect human beings.”
The Cleaning and Disinfecting Your Space LEED Safety First pilot credit requires facilities to create a policy and implement procedures that follow green cleaning best practices that support a healthy indoor environment and worker safety. The credit also requires procedures and training for cleaning personnel, occupant education and other services that are within the management team’s control.

The Managing Indoor Air Quality During COVID-19 credit builds on existing LEED indoor air quality requirements and credits. This pilot credit requires building teams to ensure indoor air quality systems are operating as designed and to determine temporary adjustments to ventilation that may minimize the spread of COVID-19 through the air. The credit also covers increased ventilation and air filtration, physical distancing of occupants, and ongoing monitoring and evaluation of air quality.

“Operable windows will help dilute the virus and keep your air clean,” notes Capron. “Natural daylight helps your own vitamin growth. If you’re healthier and happier, you’ll have a stronger immune system. The more you can use healthy practices in the design of your space, the more of an advantage you’re going to have when you go back.”
Play On

Different sports leagues are taking different approaches to resuming play. For all of them, though, it will likely be a while before screaming fans again pack stadiums and arenas.

The National Basketball Association placed its players, coaches and staff in a “bubble” at Walt Disney World to keep COVID-19 out. Major League Baseball eschewed a bubble, and its season appeared in danger early on, when outbreaks forced games to be postponed, but then things seemed to get back on track. The Big Ten was planning to play out the football season, and then it wasn’t—and then it was again.

For sports fans, updates about the coronavirus have become nearly as big a part of following their favorite teams as batting averages and the win/loss column.

“We’re seeing so many different outcomes across sports,” says Brett Blumberg, director of sustainable events and analytics for the Green Sports Alliance. “The short answer is no, we have not seen a consensus across leagues. Each league is opening up at a different pace with a different approach.”

While some stadiums are welcoming back limited numbers of fans, Blumberg notes, the Toronto Blue Jays baseball team wasn’t even allowed to play in its own stadium—and instead played its games across the border, in Buffalo, New York.

To help teams and leagues navigate the crisis, the Green Sports Alliance issued a playbook called “Get Ready to Play.” The resource guide outlines strategies and tactics for cleaning, occupant screening, social distancing and other steps sports venues can take to keep players, coaches and fans safe. As in other sectors, Blumberg says, the COVID-19 crisis presents an opportunity for sports venues to embrace sustainable practices.

“Certainly, green cleaning is a huge opportunity right now,” Blumberg says. “If you have sustainability objectives, and green cleaning is not yet a part of that, getting effective green cleaning products should be a top priority.” There are also opportunities, Blumberg says, to install contactless water fixtures (which can both conserve water and prevent the spread of viruses), and to test more sustainable concessions. “If you have fewer fans in the stadium and fewer products, you can experiment with some more sustainable options,” he says.

Blumberg notes that some stadiums with limited fans are encouraging or mandating digital ordering for concessions. This not only limits physical proximity, but it also lets fans stay in their seats and catch more of the game. As a result, Blumberg predicts, such changes could have a lasting impact on the fan experience, even after the pandemic abates.

Even with fans locked out of some stadiums, Blumberg predicts that they will be eager to once again don their jerseys and paint their faces in support of their teams when it’s safe to do so, rather than staying in their living rooms and watching games on TV.

“These in-person fan experiences, it’s really hard to replicate those online or at home,” he says. “This need for connection, when you’re around a group of like-minded people—even just supporting a sports team—that’s something that’s so visceral that it’s not going to go away.”
The Only Constant Is Change

Unless and until COVID-19 is eradicated completely, workplace reentry seems destined to remain something of a moving target.

According to CBRE’s survey, most respondents think the state of the business environment will improve or stay the same over the next six months, and the vast majority say they’re confident in their ability to formulate a long-term real estate strategy today. However, 72% of respondents say that the COVID-19 era will continue to have a “very significant” or “somewhat significant” impact on long-term real estate strategy five years from now.

“Your vision for the future is one thing,” says Whelan. “But to say, ‘I know how to do that right now,’ or ‘I know who’s going to be remote, or which geographies are going to be most affected,’ that’s where a lot of the discovery is happening right now.

I think it’s going to take longer than five months of a remote work world to really see the effects of not having that in-office interaction.”

While Capron believes remote work will lessen over time, he also expects to see some long-lasting changes as a result of the COVID-19 crisis, especially around green improvements. “I think there will be some long-standing systemic things that we’re going to incorporate into our designs, like the materials you’re using to keep your space clean,” he says.

However, Capron says, businesses will have to monitor and reevaluate their reentry plans in real time. A company might bring its employees back, for instance, only to realize that they’re less efficient in the transition environment than they were at home. “It’s about getting constant feedback to see how things are going,” he says. 😃
The Green Movement and Gen Z

Is the sustainability movement doing enough to engage our youth?

Written by Katharine Logan

Generation Z is the largest cohort in history. Born in the mid-1990s and later (which puts the youngest in elementary school and the eldest at the outset of their careers), Gen Z will constitute the majority of the U.S. workforce in 20 years. The future of the sustainability movement depends on this young group of Americans taking up the torch.

Already known for their progressive social and environmental values, their technical know-how, and their willingness to work for what they believe in, Gen Z seems predisposed to contribute to the sustainability challenge.

“It sounds cliché that our generation wants purpose-driven work,” says Peter Harrison, interior designer at ZGF Architects, based in Portland, Oregon, “but when I think of my classmates and other emerging professionals I’ve met, I honestly feel that it’s true.”

Harrison credits a Leadership in Energy and Environmental Design (LEED)-focused course in his final year of studies with showing him how his new skills could directly serve his social and environmental values, and a LEED Green Associate credential that he earned in college with helping him to distinguish himself as a new graduate in the job market.

Now, as a young professional in Gen Z’s vanguard, he sees three factors as core to his cohort’s ability to further the green agenda. These are community, such as the U.S. Green Building Council’s (USGBC) emerging professionals group offers; information, which expert webinars and other online resources make accessible and abundant; and mentorship: “It’s key that folks in those senior sustainability roles reach out to junior staff with perspective and advice,” he says.
In addition to those essentials for engaging new colleagues, how can the green building movement enlist members of this generation in higher numbers?

“Build a pipeline that starts from elementary school and goes through high school to college,” says Harrison. “And showcase the variety of careers in sustainability,” rather than highlighting only the obvious options of sustainability consultant or LEED reviewer, “so that someone who’s more creative, or more technical, or more managerial can find their niche.”

One initiative doing exactly that is a green building internship program piloted this year in central Texas. Since 2017, USGBC has supported EcoRise, an Austin-based sustainability education nonprofit, in developing and implementing a curriculum to help the region’s high school students graduate with a LEED Green Associate credential and real-world experience.

From that root, the program has grown to offer professional development and mentorship to educators and an internship program to students. “EcoRise’s mission focuses on cultivating the next generation of green leaders,” says Gamal Sherif, green building program manager at the organization. “We want them to be eco-literate; we want them to enjoy [buildings] and natural environments; and we want them to possibly enter careers that promote sustainability.”

The internship program, which EcoRise developed in collaboration with the Austin Independent School District (AISD), local BLGY Architecture, and the University of Texas School of Architecture, involved over a dozen students from six high schools in such experiences as hard-hat tours of a LEED-targeted school under construction, lunch-and-learns with industry professionals, explorations of their city’s architecture and research into a green building topic of their own choosing.

Examples of focus areas at the summer internship placements include urban heat mapping, school landscaping, urban forestry, HVAC and energy monitoring, regenerative design for social justice, communications, and LEED-targeted school architecture. The cost of the placements was paid, so that students from lower-income backgrounds wouldn’t have to forgo the opportunity in order to earn money.

In addition to deepening the students’ understanding of these areas, the program developed their soft skills, such as collaborating with a diverse group of colleagues, conducting a literature review, communicating in writing and face to face (during the pandemic, screen to screen), and presenting themselves and their ideas.

“I loved watching them find their voice,” says Darien Clary, sustainability manager at AISD, whose team in the Facilities and Construction Management Department hosted two interns. “With green building a growing career field, it really makes sense to equip these students to enter it competitively.”

The program especially prioritizes the inclusion of students from groups that are underrepresented in the architecture, engineering and construction (AEC) professions. Of the summer interns, 50% identified as female, and 75% identified as Latino/Hispanic.
The interns speak highly of their experience: “I think we can all say that we got more knowledge and more support than we expected,” says Lesly, one of the students. “It was something I got excited about,” says Jesus, another. For a third student, Sophia, who has subsequently embarked on a university major in construction science and management, “The experience really changed the way I thought about sustainability,” she says. “I’ve always been aware of changes in our environment, but the internship made me think about possible solutions.”

The benefits of the mentor–intern relationship flow in both directions: “The students open your eyes to seeing things in a new way,” says Sita Lakshminarayan, vice president at BLGY Architects. “They walk through a construction project and ask questions that force you to think more rigorously.” Designed for scalability, the Green Building Internship Program will be expanding next year to 10 schools across central Texas, and it has a funding commitment for a pilot in Massachusetts. “We want to share what we’re doing so others can build on it,” says Clary, “and even improve on it—so we can learn from them.”

As for extending the pipeline to Gen Z students who are now in elementary and middle schools, the experience of Aishwarya Balaji, who earned her LEED Green Associate credential in middle school, proves that those kids are not too young. Balaji recognized early that she’s a hands-on learner, and she went hunting for experiential learning opportunities on her own initiative. “Just looking things up,” as she says, she ended up participating in Future City, a competition in which students imagine, research, design and model a solution to a citywide sustainability issue—which is how she first encountered the principles of green building. “It was like a game,” she says, offering a clue as to how a sustainability curriculum could capture middle schoolers’ attention.

Now a high school senior and a student member of North Carolina’s USGBC local community, Balaji has started a grassroots initiative to promote sustainability in education, which she says too often consists of little beyond recycling. “It’s really important to give a glimpse into the vastness of sustainability and environmental science,” she says, echoing Harrison. As part of that effort, she has started a club at her school to voice student perspectives on green issues—in the school newspaper, for example—and to advocate for sustainability in the curriculum. “If you learn about something when you’re younger,” she says, “it sticks with you.”

If these examples are any indication, members of Generation Z demonstrate idealism balanced with pragmatism and a sense of self balanced with a sense of service. For educators, employers, advocates and leaders looking to the future of the sustainability movement, the arrival of Gen Z represents a hopeful opportunity. “We’re stepping up; we’re asking for a seat at the table,” says Harrison. “Invite us in; link arms with us. Let’s accomplish this together.”

Left page, far left: Darien Clary is the sustainability manager at AISD. Left page: EcoRise is an Austin-based sustainability nonprofit that exposes interns to a variety of careers in sustainability. Above, left: Gamal Sherif is a green building program manager at EcoRise. Above: The EcoRise program strives to include students from groups that are underrepresented in the architecture, engineering and construction professions.
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• Measuring School Sustainability lessons introduce students to the Arc platform, to explore how each performance category relates to sustainability, what data can be tracked for each category, and how a high-performing school will differ from an average-performing school.

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