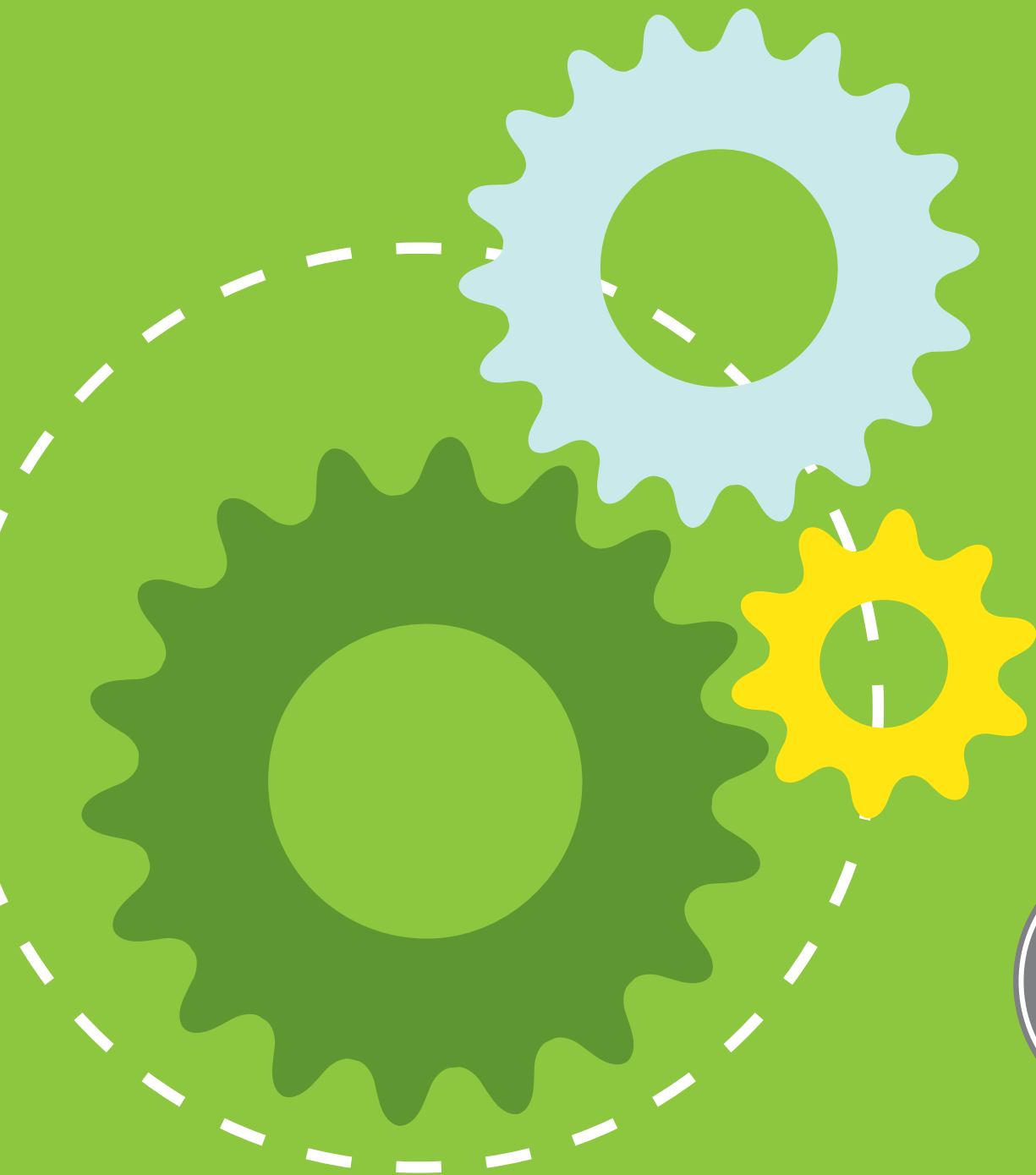


# LEED<sup>®</sup> IN MOTION: IMPACTS AND INNOVATION



The LEED® in Motion report series from the U.S. Green Building Council provides a holistic snapshot of the green building movement, equipping readers with the numbers and insight they need to build a strong case for sustainability.

**LEED in Motion: Impacts and Innovation**

plots a course for the future of the green building movement by examining current and possible positive impacts, from resource to cost savings, and lauding industry innovations.

Be sure to look back at our first and second reports, **People and Progress** and **Places and Policies**.

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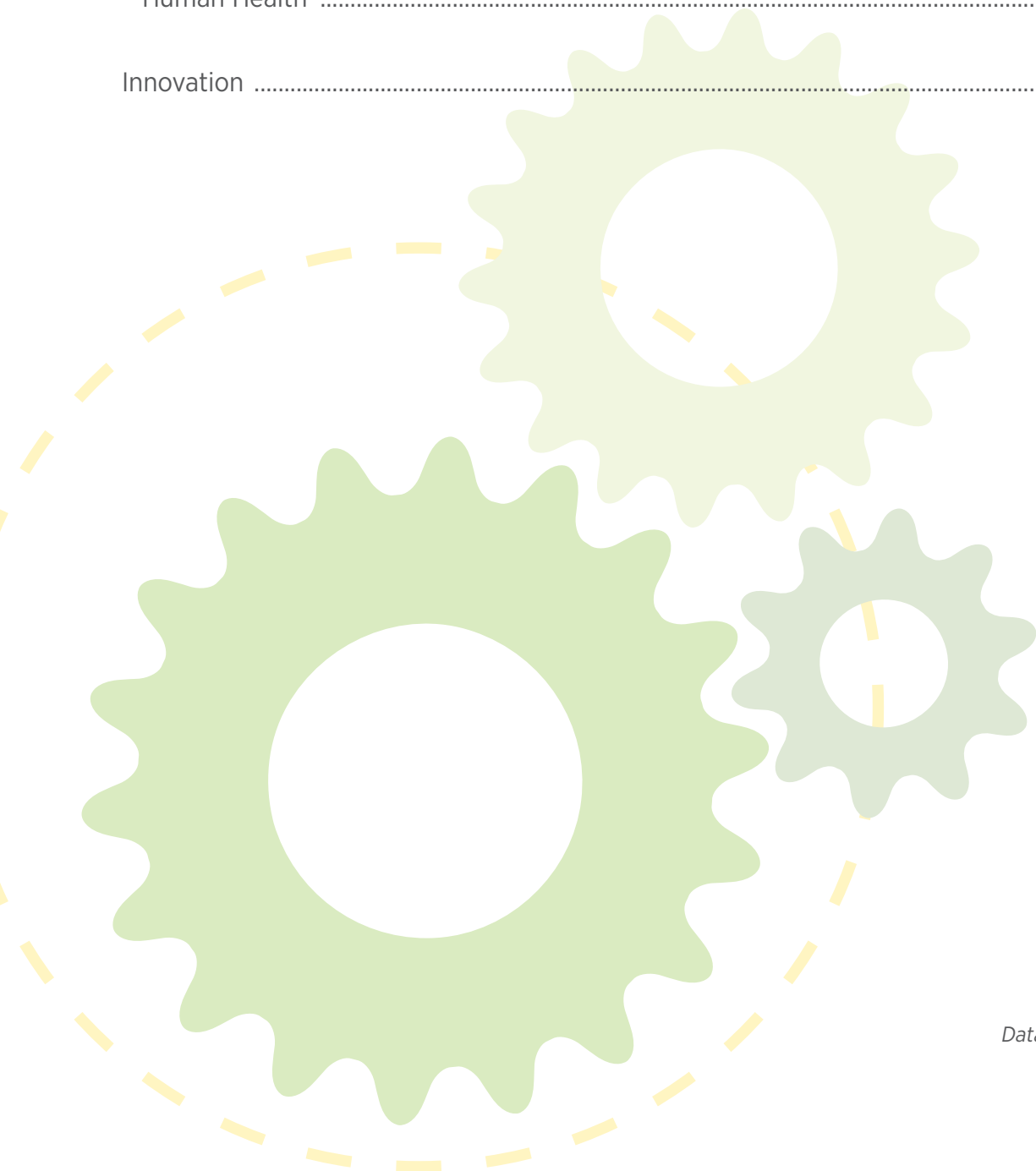
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*Data in this report is current  
as of October 1, 2013*

# INNOVATION IS OUR PAST, PRESENT AND FUTURE

Foreword from Rick Fedrizzi, President, CEO  
and Founding Chair, U.S. Green Building Council

“The greatest artists like Dylan, Picasso and Newton risked failure. And if we want to be great, we’ve got to risk it, too.” - Steve Jobs

Green building is a movement rooted in common sense and shared history. The core tenets of sustainability—the “waste not” mentality and the ethics of saving money and resources—date back to virtually the beginning time. In that sense, green building is nothing “new.” But the innovations we’re seeing from the green building community, from net-positive buildings to smart thermostats—these most certainly *are* new.



Innovation is the backbone of green building. It’s the reason why modern green buildings are able to make such a dramatic impact in energy, resource and cost savings. But it’s not enough to have a vision. Intention will only get us so far. Innovation always happens with collaboration—and creating real change takes hard work. That’s how LEED came to be: through the leadership of volunteer committees, thought leaders and staff who worked tirelessly to scale a simple, influential concept into a global standard. We became leaders because we celebrate leaders.

LEED is an innovation in itself. It is a gateway to so many others.

LEED has ushered in a renaissance for green building product manufacturers. Every single mainstay of the modern green building movement, from solar panels to double-glazed windows, was once a breaking idea or futuristic technology. Compounded with that, we’ve seen project teams accomplish astounding green building feats, applying creativity and resourcefulness to create net-zero and net-positive buildings, rooftop gardens and living walls, geothermal power sources in residential projects, and so much more. We tend to think of innovation as our future. But it is our past and present, too. In the world of LEED, it is our culture—and our legacy.

Is innovation the next “cool” thing or tech gadget? Not at all. Innovation is about collective betterment. It’s about poking a hole in preconceived notions. It’s about challenging the *status quo*. At USGBC, innovation is about inspiring others, and hence, we have been able to create incredible, tangible impacts. That is our purpose and our future.

This final LEED in Motion report is meant to be open-ended. I hope that the analytics and write-ups that you find here will inspire you to discuss our movement’s impact and spirit of innovation with greater breadth and confidence. What will LEED look like in five years? You have the answers, and you will be the game-changer.

Green building is all about legacy. What will yours be?

LEED on.

**Rick Fedrizzi**

# FOREWORD

from Avery Bang, Executive Director, Bridges to Prosperity

The most meaningful work happens at the intersection of impacts and innovation.  
For me, that happens on a bridge.

My organization, Bridges to Prosperity, provides isolated communities with access to essential healthcare, education and economic opportunities by building footbridges over impassable rivers. We employ innovative strategies to build bridges using human power and local materials—and the results can be life-changing for the individuals that gain access to food and water, healthcare and community.

Bridges hold great symbolism: sometimes they refer to an olive branch, an anecdote to stubbornness, and other times human connection. But whether actual or metaphorical, every bridge that links impacts with innovation has the ability to do substantive good. That sweet spot is how we'll change the world through our respective professions and focus areas: it could be the link between business and sustainability. It could be a groundbreaking partnership or the product that bridges the gap for buildings and performance. There are so many bridges yet to be built.

Inevitably, sometimes we fail. Sometimes aspects of the bridges that our organization works on fail—and sometimes your endeavors will fail. I think that's a key tenet of innovation: the willingness to fail and the humility to acknowledge failure. If we're going to address the world's great issues, we must create a culture of openness and support. Instead of criticizing our counterparts, we need to create a culture of transparency and learning where we are grateful to one another for approaching tough issues, and learn together to create more successful results next time.

Green building is a disruptive industry. I encourage all of you to think hard about how we can collectively overcome the barriers and limitations we face, whether it's disparate community needs in rural Ethiopia or an outdated HVAC system in New York City. Thinking innovatively, and proceeding without fear of failure, is key to solving our world's problems. Green building already has a tremendous head start.



## **Avery Bang**

Greenbuild 2013

Master Series Speaker



# IMPACTS

“Whether people are working on generating clean energy or improving transportation or making the Internet work better...small groups of people can have a really huge impact.” - Larry Page

LEED was conceived with the goal of making a tangible impact: on how buildings affect people, interact with the environment and benefit business. “People, planet, profit” has historically been the underlying mantra of sustainability, and LEED, as well.

The rating system is structured to promote energy savings, water efficiency, CO<sub>2</sub> emissions reduction, improved indoor environmental quality and resource stewardship—which is why LEED projects frequently see impressive positive impacts: LEED projects are responsible for diverting over **80 million** tons of waste from landfills,<sup>1</sup> and compared to the average commercial building, LEED Gold buildings in the General Services Administration’s portfolio consume **a quarter less** energy and generate **34%** lower greenhouse gas emissions.<sup>2</sup> (For numbers and facts on the LEED rating system and its environmental benefits, please refer to the second **LEED in Motion report: Places and Policies**)

## LEED Credit Categories

The main credit categories found within LEED provide a basic framework for project achievement, aimed toward ensuring that LEED projects take a holistic and comprehensive approach to making a positive impact on the environment and building occupants.



**SUSTAINABLE SITES** credits encourage strategies that minimize the impact on ecosystems and water resources



**WATER EFFICIENCY** credits promote smarter use of water, inside and out



**ENERGY AND ATMOSPHERE** credits promote better building energy performance



**MATERIALS AND RESOURCES** credits encourage using sustainable building materials and reducing waste



**INDOOR ENVIRONMENTAL QUALITY** credits promote better indoor air quality and access to daylight and views



**LOCATION AND TRANSPORTATION** credits promote connectivity to community resources and sustainable transportation

Additional **neighborhood development** credit categories:

- **SMART LOCATION & LINKAGE** credits promote walkable neighborhoods with efficient transportation options and open space
- **NEIGHBORHOOD PATTERN & DESIGN** credits emphasize compact, walkable, vibrant, mixed-use neighborhoods with good connections to nearby communities
- **GREEN INFRASTRUCTURE & BUILDINGS** credits reduce the environmental consequences of the construction and operation of buildings and infrastructure

Additional **homes** credit categories:

- **LOCATION & LINKAGE** credits encourage construction on previously developed or infill sites and promotes walkable neighborhoods with access to efficient transportation options and open space
- **AWARENESS & EDUCATION** credits encourage home builders and real estate professionals to provide homeowners, tenants and building managers with the education and tools they need to understand and make the most of the green building features of their home

Two additional, optional credit categories:

- **INNOVATION IN DESIGN OR INNOVATION IN OPERATIONS** credits address sustainable building expertise as well as design measures not covered under the five LEED credit categories. Six bonus points are available in this category
- **REGIONAL PRIORITY** credits address regional environmental priorities for buildings in different geographic regions. Four bonus points are available in this category

<sup>1</sup> Watson, Rob. *Green Building and Market Impact Report* – 2011.

<sup>2</sup> U.S. Department of Energy (2011). *Buildings Energy Data Book. Buildings Share of Electricity Consumption/Sales*.

# TOP 3 CREDITS:

Most Frequently Earned LEED Credits Showcase Key Impact Areas

## LEED for New Construction 2009\* (1,875 Certified Projects)

98% of projects optimized energy performance



95% of projects utilized low-emitting materials in paints and coatings



92% of projects implemented a construction indoor air quality management plan



## LEED for Existing Buildings: Operations and Maintenance 2009\* (1,302 Certified Projects)

87% of projects optimized energy efficiency performance



85% of projects created additional indoor plumbing fixture and fitting efficiency



85% of projects instated high performance green cleaning



## LEED for Commercial Interiors 2009\* (2,048 Certified Projects)

94% of projects utilized low-emitting materials in paints and coatings



89% of projects optimized the energy performance of equipment and appliances



87% of projects utilized low-emitting materials in adhesives and sealants



## LEED for Core and Shell 2009\* (341 Certified Projects)

94% of projects optimized energy performance



92% of projects avoided the development of environmentally sensitive lands and reduced the environmental impact from the location the building on its site



88% of projects reduced pollution and land development impacts from automobile use



\*Not including Innovation credits: View Innovation credit numbers on p. 17  
See the "Additional Information" section for more on these numbers.

## Credit Impacts

Credit weightings in early versions of LEED were standardized based on the professional judgments of LEED committee members. LEED v2009 introduced a new innovation: a weighting system that allocated points to credits based on their ability to reduce environmental problems. Credit weightings in LEED v2009 were based on the Environmental Protection Agency's TRACI (Tool for the Reduction and Assessment of Chemical and Other Environmental Impacts) categories and weightings developed by the National Institute of Standards. In order to adapt these existing standards exclusively to the building projects that utilize LEED, USGBC and LEED committees modified them to add in issues of human health and ranked them by their applicability to the built environment. This approach added an analytical framework that was more transparent and robust, focusing attention on performance.

LEED credit weightings offer project teams a clear roadmap as to which credits carry the most importance: the more points a credit is worth, the more incentive for a project to pursue it. The more projects that pursue it, the greater the total impact.

LEED v4 builds on the criteria developed for LEED v2009 and applies a new set of criteria to even better suit the built environment. Points in LEED v4 are allocated based on the following impact categories:

### What Outcomes Should a LEED v4 Project Accomplish?

Enhance human health and well-being

Promote sustainable and regenerative resource cycles

Reverse contribution to climate change

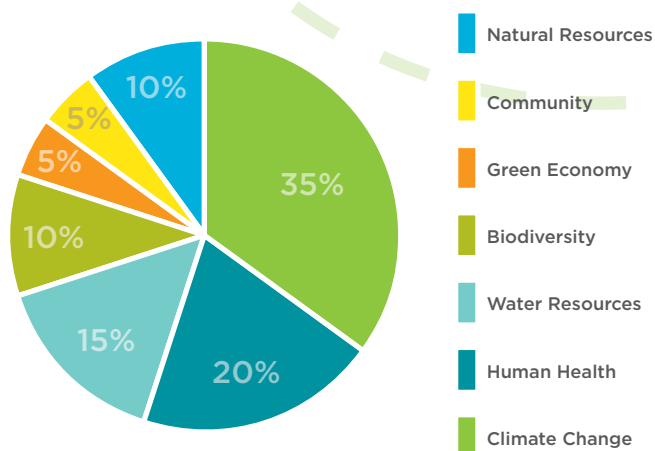
Protect biodiversity and ecosystem services

Enhance community, social equity, environmental justice, and quality of life

Protect and restore water resources

Build a greener economy

LEED credit weightings are ultimately about normalization. How can a project in Minneapolis and a project in Chennai each make a positive environmental impact? How can we assign or measure the level of each building's impact on a common scale? Each impact category has been weighted based on the built environment's ability to drive change in that particular space: buildings are a key global contributor to climate change, and therefore, climate change receives a significant weighting. By weighting the impact categories and LEED credits in this way, all prospective LEED projects, regardless of climate region, location or situation, understand the key priorities of LEED and can drive significant change through their pursuit of LEED credits.



### BY THE NUMBERS

An analysis of LEED projects that reported data over the 12-month period between July 2012 and July 2013 showed the following:

450 LEED projects showed they experienced an Energy Use Intensity (EUI) that was nearly **31% lower** than the national median source EUI.

404 LEED projects indicated an **ENERGY STAR score of 85**, well above the level required for "Top Performers."

LEED buildings report **diverting 57% of their non-construction waste** (on average) from landfill, based on an analysis of waste diversion data for 318 LEED projects.

\*See the "Additional Information" section for more on these numbers.



# THE BUSINESS CASE

“It’s amazing how strong a message is hidden in words like ‘diversity’ or the broad term ‘corporate social responsibility.’ A company needs to have core values of who they are and what they do [which] makes employees feel they have a purpose and guides their action.” - Bill Gates

LEED has sat at the intersection of business and sustainability since its inception – and for a reason: countless LEED projects have proved time and time again that green building practices net impressive wins for business. The best known of these positive impacts are related to cost savings: by performing more efficiently than traditional buildings and using less water and energy, businesses see significant return on investment and savings. LEED-certified buildings cost less to operate and maintain. There are also tax benefits and incentives available for green and LEED buildings (see more in our second report, “**LEED in Motion: Places and Policies**”).

But cost savings from LEED buildings are not solely tied to these avenues. Businesses are seeing financial returns from green buildings based on reduced sick days among employees, higher employee retention rates, as well as higher lease-up rates for green building space. The public relations and marketing value of LEED has become a valuable benefit of its own, providing return on the investment of LEED.

LEED certification makes business sense, which means it makes common sense. As USGBC’s CEO, Rick Fedrizzi, has said: “Who says a businessperson can’t be an environmentalist?”

## **LEED Volume Certification**

LEED works with the business community in a variety of ways, but one of the most impactful approaches for business is LEED Volume Certification. Designed for businesses seeking to certify a large volume of buildings or projects, the Volume Program provides a streamlined certification process and fee structure while still preserving the rigor of LEED. The LEED Volume Program has on-boarded global participants from across the business sphere.

LEED was referenced in

**30% of project specifications** in 2011—

up from 26% in 2009 and 15% in 2007. It is also showing up in more than two thirds of all projects over \$50 million.\*

Corporate America is

**institutionalizing sustainability** into its core

practices, with CEOs reporting that sustainability provides them market differentiation.\*

A survey of sustainability practices occurring in corporate America over time indicate that green buildings in business portfolios increased from 53% in 2009 to 58% in 2012.\*

\* McGraw Hill Construction. 2013 Dodge Construction Green Outlook.

# LEED BUILDINGS...

## Provide a Competitive Differentiator

**61%** of corporate leaders believe that sustainability leads to market differentiation and improved financial performance<sup>3</sup>

## Attract Tenants

Today's tenants understand and are looking for the benefits that LEED-certified spaces have to offer. The new Class A office space is green; lease-up rates for green buildings typically range from average to **20% above average**.<sup>4</sup>

## Are Cost Effective

A study of 562 PNC bank branches showed that compared to non-LEED-certified facilities, LEED-certified facilities annually opened up **458** more consumer deposit accounts and had **\$3,032,000** more in consumer deposit balance per facility per year and increased revenue. "These results clearly show that revenue in LEED-certified facilities is greater than non-LEED facilities." All told, performance increased by **\$461,300** per employee at LEED branches compared to non-rated locations, after controlling for other variables that influence performance (such as consumer net worth, employee demographics, market demographics, branch size and age and advertising spend).<sup>5</sup>

## Increase Rental Rates

A recent study of the San Diego market showed that the overall vacancy rate for green buildings was 4% lower than for non-green properties—**11.7%**, compared to **15.7%**—and that LEED-certified buildings continued to command the highest rents.<sup>6</sup>



## Make for Happier Employees and Occupants

LEED-certified buildings are also demonstrating increased recruitment and retention rates and increased productivity benefits for employers. **2.5 million employees** are currently experiencing better indoor environmental quality in LEED buildings. This group of employees is expected to exceed **21 million** by 2030, resulting in an economic value of **\$90 billion** from increased productivity.<sup>7</sup>

## Save Energy and Resources, Lower Operating Costs

Between 2008 and 2012, there was dramatic growth in the percentage of firms that built green to achieve lower operating costs (increased to **30%** from 17%) and to gain a branding/public relations advantage (increased to **30%** from 22%).<sup>8</sup>

## Provide Public Relations and Community Benefits

Adobe Systems, Inc., announced in 2006 that it had received three LEED Platinum awards for its headquarters towers; not only did it reap great publicity, but the firm showed that it had garnered a net present value return of almost **20 to one** on its initial investment.

<sup>3</sup> McGraw Hill Construction (2010). *Green Outlook 2011: Green Trends Driving Growth*.

<sup>4</sup> Miller, N. (2010). *Does Green Still Pay Off?*

<sup>5</sup> Conlon, E and Glavas, A. (2012). *The Relationships Between Corporate Sustainability and Firm Financial Performance*.

<sup>6</sup> CBRE Global Research and Consulting (2012). *Global Market View - Q2 2012*.

<sup>7</sup> Watson, Rob. *Green Building and Market Impact Report - 2011*.

<sup>8</sup> McGraw Hill Construction (2012). *World Green Buildings Study*.

# LEED PROJECT SPOTLIGHT

## Chanin Building

led by TRANSWESTERN, *USGBC Platinum-level member*  
Washington, D.C.

LEED for Core and Shell—Platinum  
Certified on Sep. 13, 2013

815 Connecticut Avenue is a beacon of innovation and sustainability in Washington, D.C. Originally constructed in 1964, the building completed a major renovation over the past five years that consisted of two phases.

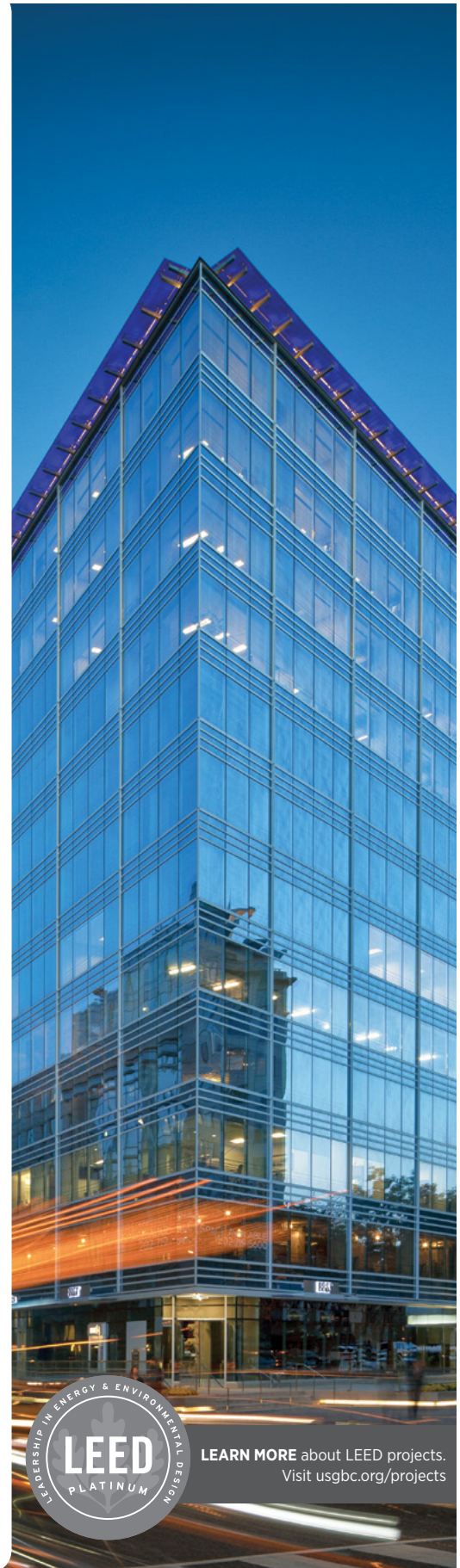
Phase I of the building re-development was the replacement of the central plant equipment with state of the art, energy efficient equipment to provide better control of the ambient temperature within the building and also reduce operating costs via reduced electricity usage. The ability to monitor the power consumption of individual mechanical components was built into the new plant so that future energy savings could be planned and monitored in real time. The ENERGY STAR® rating skyrocketed nearly 50 points to 82 after the first year the new chiller plant was in operation.

Phase II of the re-development plan included the replacement of the exterior façade of the building with a curtain wall system and the addition of a penthouse rooftop terrace. Many of the building amenities were improved, including ADA restroom upgrades, a parking valet office, expanded lobby and plaza upgrades. Additionally, the floor plates were expanded to gain an additional rentable office space. Providing elevated occupant workspace comfort was a priority for the building owner.

The upper floors of the building have magnificent views of the White House front lawn, as the building is located just two blocks away. The goal for the re-development plan was to transform this existing Class A building to a Trophy building, which will complement the Trophy location of 815 Connecticut Avenue.

Other highlights of the project include:

- Approximately **\$350,000** annual savings in utility expenses
- **75%** of wood used in the project is FSC-certified
- **16%** of materials used for construction contain post-consumer recycled materials
- **70%** of energy used is offset by Green-e certified, off-site renewable energy sources
- **90%** building reuse
- **75%** of waste was diverted from landfills and incinerators during the construction process
- Low-flow toilets, urinals and faucets installed







**LEARN MORE** about LEED projects.  
Visit [usgbc.org/projects](http://usgbc.org/projects)

# LEED PROJECT SPOTLIGHT

## **Costanera Lyon I Office**

Santiago, Chile

LEED for Core and Shell — Silver

Certified May 24, 2012

Owner and master developer, Inmobiliaria Almahue, aimed to pursue LEED certification for the 16-story Costanera Lyon I office building with the goal of achieving increased market value and a competitive advantage in a tough market: the global financial crisis.

The team applied a LEED certification strategy at zero additional cost, in part due to a well-executed integrated design process led by sustainability consultants at EA Buildings, through which the entire team worked together from the beginning. Designed by architects Eugenio Simonetti and Renato Stewart, stand-out building features include a sophisticated envelope that works in conjunction with high thermal mass concrete walls, optimized daylighting in all office spaces, and an impressive reduction of potable water consumption.

The building, which was completed on schedule in March 2012, sold all of its 54 units prior to completion. The low operating costs and environmental considerations of LEED certification proved to be an asset in selling units to prospective buyers.

Inspired by the success of Costanera Lyon I, Inmobiliaria Almahue immediately began the design and construction of the development's second building, which will also pursue LEED certification. Fifty percent of the office spaces in Costanera Lyon II were sold prior to reaching ground level construction, again proving the value and market readiness of LEED in Chile.

Costanera Lyon I achieved:

- **\$0/sf** additional investment for a LEED Silver building
- **40%** water savings
- **25%** energy savings

# LEED PROFESSIONAL SPOTLIGHT



## **Lisa Shpritz, LEED AP**

Senior Vice President  
Environmental Operations Executive  
Bank of America, USGBC Platinum-level member

Lisa brings business operations and sustainability together through her work at Bank of America. Read her story.

### **Can you describe how your professional path led you to a career in green building & sustainability?**

For more than 20 years, I've done many types of environmental work, from environmental health and safety to implementation of ISO 14001-registered environmental management systems. Through this work, I became intrigued by the prospect of improving business performance through advanced environmental practices. After graduation from business school, I joined Bank of America where I was able to put these ideas into practice. I found that through environmental programs such as LEED certification, energy and water conservation, integrated pest management, green cleaning, and recycling and composting, we are able to reduce operational costs through our workplaces, while driving a competitive advantage for the bank. I believe that highly developed environmental compliance and management programs are essential for a financially sustainable company, and I am very proud of the work Bank of America has done in these areas. I have also served on the USGBC Board of Directors since 2006, which has been an invaluable part of my work at Bank of America. I have learned a great deal from my fellow Board members and from USGBC staff; this knowledge, including sustainability best practices, has been essential to my work at Bank of America.

### **How do Bank of America's green building practices benefit its bottom line?**

Our green building practices benefit our company in various ways. Through green building, we are able to reduce the amount of energy and water used in our workspaces – and our healthy, efficient workspaces help us attract and retain top talent. Additionally, since 2004, our energy-efficiency projects have resulted in significant energy cost savings of nearly \$227 million and have reduced our greenhouse gas (GHG) emissions by nearly 30%.

### **What's been the most exciting or impactful green building or sustainability-related initiative that you've worked on?**

During the past eight years I've worked on many environmental sustainability initiatives, but I have to say the most exciting and rewarding was the development of our company's current environmental operational goals. Through these goals, we are using fewer natural resources and decreasing our environmental impacts, while driving savings right to the bottom line.

Following are the goals we've set to achieve by 2015:

- 25% reduction in energy consumption from 2004 – equal to eliminating 1.2 million megawatt hours of annual energy use from our portfolio.
- More than 30% aggregate reduction in global GHG emissions (2004 baseline).
- 20% LEED certification within our corporate workplace portfolio.
- 20% reduction in paper consumption (2010 baseline); paper used will:
  - Contain an average of 20% post-consumer recycled content.
  - Be sourced entirely from certified forests.
- 20% reduction in global water consumption (2010 baseline).
- 70% diversion of global waste from landfill.
  - All electronic waste streams to be disposed of using certified, responsible vendors.

### **What's one message that you think all business leaders should know about green buildings?**

Green buildings are more efficient, healthier buildings that are integral to successful business operations.

### **How do you envision the future of green buildings & business? What's in the cards and how will we get there?**

I see a future where we won't need to use the qualifier "green" when talking about buildings. I believe that green building practices will be incorporated into the way we all design, build, renovate and operate space. We will have achieved success if green building practices and certification are the way all buildings are built and operated. As businesses continue to seek ways to become more competitive while reducing operating costs, I anticipate even greater collaboration between green building practitioners and business leaders in coming years, and as they look to improve the wellness, happiness and productivity of their employees, green buildings will no longer be viewed as "optional."

# IMPACTS: HUMAN HEALTH

“Make a habit of two things: to help; or at least to do no harm.” - Hippocrates

At USGBC, we believe that healthy buildings are a human right. As humans, we spend 90% of our time indoors<sup>9</sup>—therefore, the built environment has a powerful impact on our collective health. From the air inside of our buildings, to our access to daylight, nature and greenery, to our decision to take the stairs, the way our buildings are designed and operated have implications on the way we feel and how we perform. By using products and practices that are better for the environment, green building is also healthier and more enjoyable for individuals inside the buildings. Nearly every credit in the LEED rating system has a direct or indirect impact on human health, whether it's mitigating climate change or promoting physical activity. For example, using non-toxic building materials with low or no-VOCs (volatile organic compounds) is built in to the LEED rating system, creating healthier, safer indoor environments. The effects of daylighting and access to greenery and natural elements – facets of green buildings – are proven to increase occupant health and well-being.

USGBC is taking a stronger stand on optimizing human health through better buildings. By starting a dialogue among the green building community as well as healthcare professionals, and striving to empower all individuals to examine closely how the built environment impacts personal health, USGBC aims to play a key role in advancing healthy buildings.

During a time when the world faces unprecedented global health issues, in developing nations and in world powers alike, it is more important than ever to question the status quo and examine the meaningful changes that we can make in order to promote better health. USGBC knows that green buildings can make a difference.

- In China, a recent study in 2013 found that the air in Beijing hit a level of toxicity 40 times above what the World Health Organization deems safe.<sup>11</sup>
- The World Health Organization notes that in 2011, lung cancers—along with trachea and bronchus cancers—caused 1.5 million (2.7%) deaths. Diabetes caused 1.4 million (2.6%) deaths. Cardiovascular diseases killed nearly 17 million people that year as well. That is three in every 10 deaths.
- Seven out of 10 deaths among Americans each year are from chronic diseases—heart disease, cancer and stroke account for more than 50% of all deaths each year;<sup>10</sup>
- In 2005, 133 million Americans—almost one out of every two adults—had at least one chronic illness;<sup>12</sup>
- Obesity has become a major health concern. One in every three adults is obese and almost one in five youth between the ages of six and 19 is obese.<sup>12</sup>

## What is Sick Building Syndrome?

Our buildings shouldn't make us sick. It makes sense that the structures that we spend the majority of our time in have a significant impact on our health, for better or for worse. The EPA defines sick building syndrome as “situations in which building occupants experience acute health and comfort effects that appear to be linked to time spent in a building, but no specific illness or cause can be identified.” A World Health Organization Committee report suggested that up to 30% of new and remodeled buildings worldwide may be the subject of excessive complaints related to indoor air quality. The United States Environmental Protection Agency defines the causes of sick building syndrome as inadequate ventilation, chemical contaminants from indoor and outdoor sources and

<sup>9</sup> The Economist (2013). *Can China Clean Up Fast Enough?*

<sup>10</sup> Ogden CL, Carroll MD, McDowell MA, and Flegal KM (2007). *Obesity among adults in the United States – No change since 2003-2004*



biological contaminants.<sup>11</sup> LEED, by design, addresses all of these areas through the rating system, rewarding projects for applying strategies that eliminate sick building syndrome.

### LEED for Healthcare

The needs of healthcare facilities are very unique. Healthcare buildings often have strict regulatory requirements, 24/7 operations, and specific programmatic demands. Therefore, LEED offers a specialized experience for the healthcare sector: LEED for Healthcare. Launched in 2011, this targeted rating system promotes healthful, durable, affordable, and environmentally sound practices among healthcare projects, including inpatient and outpatient care facilities, and licensed long term care facilities. LEED for Healthcare can also be used for medical offices, assisted living facilities and medical education and research centers.

LEED for Healthcare was built over a period of seven years, working closely with the Green Guide for Health Care (GGHC), a joint project of Health Care Without Harm and Center for Maximum Potential Building Systems.

Registered and Certified LEED for Healthcare projects: **213**



Women and Infants Hospital | Providence, RI | LEED Gold

A study that appeared in the American Journal of Public Health found that improvements in perceived productivity could result in an additional **38.98 work hours** per year for each occupant in a green building.\*

There is relatively strong evidence that characteristics of buildings and indoor environments significantly influence the occurrence of communicable respiratory illness, allergy and asthma symptoms, sick building symptoms, and worker productivity.”\*\*\*

A study of 526 PNC branches showed that employees working in the LEED-certified branches of a financial institution were found to be “more productive and engaged in their work.”\*\*\*

<sup>11</sup> Environmental Protection Agency (1991). *Indoor Air Facts No. 4 – Sick Building Syndrome*.

\* Singh, Amanjeet, MS; Syal, Matt, PhD; Grady, Sue C., PhD, MPH; and Korkmaz, Sinem, PhD (2010). *Effects of Green Buildings on Employee Health and Productivity*.

\*\* Fisk, William J. (2000). *Health and Productivity Gains from Better Indoor Environments and Their Implications for the U.S. Department of Energy*.

\*\*\* Conlon, E and Glavas, A. (2012). *The Relationships Between Corporate Sustainability and Firm Financial Performance*.

### Google Grant

In 2012, Google charged USGBC with catalyzing the transformation of the building materials industry and accelerating the creation of healthier indoor environments.

USGBC's work with Google focuses on three areas that will spur the creation of healthier indoor environments and encourage market transformation in the building materials industry: supporting research on building materials and health, developing new transparency tools and engaging stakeholders from across the industry.

"The idea for this project emerged from our own work at Google, where we're committed to creating the healthiest work environments possible that help employees perform at their best," said Anthony Ravitz, Google's Green Team Lead. "USGBC has a deep background in spearheading research, developing a rating system spanning the globe and engaging with the many stakeholders in the building industry, making them the perfect partner to help spur real change on the healthy materials front."

### The Green Buildings and Human Health Summit

On Jan. 30, 2013, USGBC convened a diverse group of experts from the healthcare and green building industries—representing public health, universities, independent organizations, and more—to discuss how people interact with buildings, and how LEED can better address the growing issues of human health facing our society. Human health issues related to green building span the entire lifecycle of a LEED project, beginning with construction worker safety and continuing on an ongoing basis with building occupants—the people who experience the building every day going forward. This summit laid the groundwork for USGBC's future efforts in this space. To learn more, [read the report](#) that captured the ideas from the summit.

### The Future: The Center for Green Building and Human Health at the U.S. Green Building Council

USGBC is launching a new center in 2014 that will focus exclusively on the intersection of green buildings and human health. The Center for Green Building and Human Health at USGBC advocates for buildings and communities that positively impact human health, furthering USGBC's mission of market transformation to bring green buildings to all within a generation. Working to offer education and spur innovation around the intersection of buildings and human health, The Center will represent a cross-section of leaders from the building and healthcare industries. The Center's community of leaders and advocates will focus on incorporating a greater emphasis on human health in existing and new LEED credits, strengthening global communities through social resilience against natural disasters and promoting sustainability in the built environment. We look forward to convening this important global conversation and initiating a stronger focus on green buildings and human health.

"A preliminary analysis of three LEED rating systems found from a quarter to almost half of credits can be evaluated using information about occupant experience: in other words, it is possible and in some cases necessary to use information on human experience to determine whether implementation of a strategy fulfills the intent of the credit."\*



"We found substantial reductions in self-reported absenteeism and affected work hours as a result of perceived improvements in health and well-being. The employees also perceived a positive effect of their new work environment on their productivity."\*\*

\* Pyke, Chris; McMahon, Sean and Dietsche, Tom (2010). *Green Building and Human Experience*.

\*\* Singh, Amanjeet, MS; Syal, Matt, PhD; Grady, Sue C., PhD, MPH; and Korkmaz, Sinem, PhD (2010). *Effects of Green Buildings on Employee Health and Productivity*.



# LEED PROJECT SPOTLIGHT

## Dell Children's Hospital

Austin, Texas

LEED for Healthcare - Platinum

Certified on June 13, 2013

Dell Children's Medical Center of Central Texas, a member of the Seton Healthcare Family, is first in the world—twice—for LEED certification achievements. Its Third Bed Tower addition, now named the W.H. and Elaine McCarty South Tower, is the first LEED for Healthcare (LEED-HC) project to achieve Platinum certification. In 2008, the original hospital was the first hospital to achieve any LEED Platinum certification.

The project credits its success to a committed team of leaders who believe in providing better care for their patients through green building practices and integrated, mission-driven design: a powerful one-two punch that results in a healthy, high-performance healing environment.

Dell Children's recognizes that healthy environments have a profound, measurable effect on the healing process. The spirit of the project was captured in the sustainable design mission statement, calling for, "a state-of-the-art healthcare facility dedicated to providing premium care to the children of Central Texas in an environment that promotes human and environmental health ... embraces the principal tenet of medical ethics 'First, do no harm,' and the triple bottom line parameters of social, environmental and economic sustainability."

Dell Children's sustainable design is credited with improving staff recruiting and retention rates. The 76,000-square-foot bed tower increases the hospital's patient capacity by 40 percent with 72 new beds, a state-of-the-art epilepsy monitoring unit, many family-centric features and an expansive outdoor healing garden. The project earned 86 LEED points, including 17 out of 18 Sustainable Sites points, 23 out of 24 Optimize Energy Performance points and six Innovation in Design points, including LEED-HC pilot credits for PBT Source Reduction and Chemical Avoidance in Building Materials (phthalates). Several notable achievements, like 96% construction waste diversion, 73% sustainably sourced products and 100% furniture and medical furnishings compliance, demonstrate the breadth of the team's efforts.



# LEED FELLOW SPOTLIGHT



## **Gail Vittori, LEED Fellow**

Co-Director

Center for Maximum Potential Building Systems

LEED Fellows are highly accomplished green building professionals, nominated by their peers. Gail has been trailblazer in the green building and human health sectors. Read her story.

### **Can you describe how your professional path led you to a career in green buildings and human health?**

I entered the design field with a background in economics and work in political movements. As a result, I came into it with an interest in how design, in the broad sense, can advance the democratization of the “public good” of a healthy environment, and basic human needs of access to water, energy, shelter and food. The built environment—how, what and where we build, and with whom—represents a manifestation of social and civic values. For example, because of economic circumstances, many people lack access to safe and healthy houses; there’s an enormous disparity in the quality of our schools that correlates with the economic prosperity of the neighborhoods where they are located; some construction materials and products are made with materials that compromise human health directly at point of use or at some point through the life cycle. There seemed to be substantial opportunity to more explicitly establish the built environment as being fundamentally connected with health outcomes, economic opportunities and social justice and that establishing human health as an explicit “measure of success” of our collective work is an extraordinarily important endeavor.

### **What led you to co-authoring your book, *Sustainable Healthcare Architecture*?**

I began to explore the intersection of green building and the healthcare sector back in 2000 when my friend Gary Cohen asked me to write a paper on green and healthy buildings for the healthcare industry to present at the Setting Healthcare’s Environmental Agenda conference. The specific context of the healthcare industry was very new to me and, importantly, provided a direct connection to medical and public health practitioners with keen insights into the intersection of buildings and human health. I realized that our worlds were not touching and that we were lacking the benefit of learning from each other. It also connected me to the community of architects and designers primarily working in the healthcare sector, including my now close colleague and friend Robin Guenther. She invited me to collaborate with her on the book, initially published in 2008 and now with the second edition released in July 2013. The book provided an opportunity to trace the historical underpinnings of the relationship between

medicine, public health, and healthcare’s built environment and its evolution. We’ve also been able to capture trends in the U.S. and internationally with an emphasis on “future thinking”—how this new generation of hospitals has reset their fundamental design approach to respond to the challenges of climate change, including drought, and to establish a leadership position regarding healthy materials. Case studies in the book also highlight the importance of connection with the natural environment, as expressed through access to nature, views and daylight, departing from deep floor plate plans and replacing those with “fingers”—interior courtyards—even with the very large facilities. We also note a trend towards smaller scale, community-connected facilities that provide civic functions such as farmers’ markets and recreational facilities to the larger public. There is a decided shift towards community benefit, health promotion and disease prevention that is redefining this next generation of hospitals and healthcare facilities. The second edition introduces an infographic that maps the 55 case studies relative to 21 key sustainability indicators, providing a snapshot of the state of sustainable healthcare architecture globally.

### **What’s been the most exciting or impactful green building project you’ve worked on, with regards to the human health element?**

I would approach this as a part A and part B: part A is convening the Green Guide for Health Care in 2002, and, over 10 years, working with a fabulous group of practitioners with diverse expertise to develop the health care sector’s first voluntary, self-certifying sustainable design toolkit of best practices with an explicit focus on the health consequences of design and operational decisions. The Green Guide became an influential reference document for LEED for Healthcare, launched in 2011. I was honored to be involved with these seminal policy initiatives with the hope that they would inspire health-based design and operational strategies and improved performance. Then, part B: working as the sustainable design/LEED consultant for the Dell Children’s Medical Center of Central Texas and collaborating with Seton Healthcare Family, the owner, and the design teams, all of whom embraced the notion of “high performance healing environments” from the onset.

**What's one message that you think all green building professionals should know about creating healthy buildings?**

As design practitioners, our every day decisions influence environmental and human health; collectively, we can establish health promotion as a fundamental measure of success for the built environment.

**How do you envision the future of green buildings & human health? What's in the cards and how will we get there?**

It's essential to increase awareness and make more explicit the relationship between green building in the broadest sense and human health. The more we connect the dots, and take advantage of tools like the Health Product Declaration to reveal the health consequences of building materials, the better equipped we'll be to make informed decisions that are health promoting. Transparency and disclosure are trends that will support this. In addition, resiliency – the ability of buildings to sustain operations in the wake of calamity – will emerge as an essential attribute of 21st century building. We need to be generous with our knowledge, share this new pattern of best practices and support innovation that will generate ideas that may seem unimaginable now, but will be the necessary solutions in an uncertain future.



# INNOVATION

“Once you have tasted flight, you will walk the Earth with your eyes turned skywards, for there you have been and there you will long to return.” - Leonardo da Vinci

Innovation has been the backbone of LEED. Industry innovations, from new building materials, technologies, and LEED project team strategies have pushed the industry forward and enabled green buildings to achieve greater impacts over time. As the industry surges into the future, LEED has been there every step of the way to reiterate its standards with increased rigor.

## RATING SYSTEM DEVELOPMENT

The hallmark of LEED and its ability to affect market transformation is its continuous improvement cycle that enables the rating system to increase in scope and stringency as market readiness increases and new technologies become widely available. The LEED rating system is not a static standard. Updated about every three years to reflect new industry norms and technologies, LEED has increased in rigor over time. By keeping ahead of the curve, USGBC challenges project teams to make greater achievements in their projects. Driven by a consensus-based process, all changes to LEED undergo a series of public comments and then are voted on and passed by USGBC membership. All changes are researched and evaluated extensively through LEED committees that reflect the best and the brightest of the green building industry. Through this process, LEED seeks to innovate itself and also drive market innovation.

## INNOVATION CREDITS

LEED dedicates an entire credit category to innovation. Innovation credit 2 is a “bonus” credit in LEED that rewards points for “Innovation in Design” or “Innovation in Operations” efforts, depending on the rating system.

- **Between 90% and 95.9% of LEED v2009 projects achieved points for Innovation in Design or Innovation in Operations, depending on the rating system** (LEED for New Construction, Existing Buildings: Operations and Maintenance, Commercial Interiors and Core and Shell)
- **1,181 projects** with a total gross square footage of 187,940,909 certified under LEED for Existing Buildings: Operations & Maintenance v2009 achieved a total of 4,051 points for Innovation in Operations credit one.

Here are just a few examples of the types of innovations undertaken by projects that achieved the maximum four points:

- Emissions reduction reporting: reporting energy use and corporate-wide emissions
- Employee wellness program: provides regular sporting events, free access to exercise classes and facilities, educational material, free health screenings and more.
- 100% waste diversion for durable goods waste

## INDUSTRY INNOVATION

*“Our goal is to use...data and information technology to shorten cycles between innovations, market uptake, operational performance, and positive recognition.”*

*- Chris Pyke, Vice President of Research, USGBC*

LEED is directly linked to the incredible advances of technology and innovation within the green building industry: from the growing accessibility of technologies like solar panels and building automation systems to the refinements in low and no-VOC paints. These technologies drive LEED rating system updates and rigor forward, and LEED spurs market transformation and innovation as project teams seek new ways to achieve LEED credits.

A sampling of the innovations, strategies and products that have emerged in the green building space:



Renewable energy innovations: solar panels, geothermal heating and cooling, renewable energy offsets, etc.



Building automation systems (BAS)



Net-zero/net-positive buildings



LED light bulbs





Waterless urinals and dual-flush toilets



Low and no VOC paints



Eco-friendly and rapidly renewable materials, like bamboo



Green and white roofs



Living roofs and walls



Rainwater harvesting



Smart buildings and sensors

### THE LEED DYNAMIC PLAQUE

LEED certification was designed to reward projects for their building performance at the time of certification. But what about after? As LEED has taken hold in markets across the world, a fundamental question has been posed by LEED critics and fans alike: how can LEED buildings measure and maintain the level of building efficiency for which they achieved LEED certification?

Enter the LEED Dynamic Plaque. Announced and demoed by Scot Horst, Senior Vice President of LEED, at Greenbuild 2012, the plaque has since been prototyped, with the first working models in place at USGBC's headquarters in Washington, D.C. The goal of the LEED Dynamic Plaque is to measure building metrics at all times, making live performance metrics available on the dynamic plaque screen for building occupants, facilities staff and visitors to view at any time. The outcome is a live LEED score that reflects current building performance. If a LEED Platinum building is experiencing excessive energy use, its live LEED score may drop to LEED Gold. The LEED Dynamic Plaque is designed to work seamlessly with the LEED rating system: each enhances the other. The rating system advances smarter green building strategies, and the plaque then plots the ensuing impact and performance of those strategies, in real time.

The goals of the dynamic plaque are multi-fold. First, it provides a solution for how to measure ongoing building performance in relation to the LEED certification level awarded. Second, it ignites awareness: it makes tenants, visitors and building staff aware of the building's performance at any given time, enabling them to make changes, if needed, to increase performance. Finally, it provides a common language to compare buildings to one another. Stay tuned for the broader release of the Dynamic Plaque and for information on how to bring one to your project. It's time to recognize that all buildings are existing buildings: that's what the LEED Dynamic Plaque is all about.



### THE GREEN BUILDING INFORMATION GATEWAY (GBIG)

Launched by USGBC in 2012, GBIG is the global innovation platform for exploring and comparing the green dimensions of the built environment. GBIG is the premier search engine for green building data, providing insights that enable better buildings and communities. GBIG provides tools that allow project teams, portfolio managers, investors, product manufacturers, researchers—and the general public—to discover green buildings around the world, generate insights and accelerate market transformation. GBIG is organized around activities (projects at or within a building), buildings, places, strategies and collections. Users can navigate the site through these main areas, browse featured content, or simply enter keywords into the search. GBIG is a first-of-its-kind, transparent green building portal that enables users to access the strategies and statistics used by green building projects across the world, and compare these values across green buildings of a particular region, project type or industry sector. To try it out, visit [gbig.org](http://gbig.org).

### THE FUTURE

Since launching in 2000, LEED has been defined by innovators: the minds behind LEED rating system development, the product manufacturers creating new sustainability technologies, and the project teams on the ground finding fresh, new ways to achieve LEED and exceed expectations for Platinum and beyond.

As USGBC ushers in a new age of healthy buildings, performance and green building metrics, we also look to you, the LEED community, to make the next decade of LEED buildings even more impactful and awe-inspiring than the last. What will be your innovation? What will be your mark on LEED and green building?



**LEARN MORE** about LEED projects.  
Visit [usgbc.org/projects](http://usgbc.org/projects)



# LEED PROJECT SPOTLIGHT

## Facebook's Prineville Data Center

Bend, Ore.

LEED for New Construction - Gold

Certified Oct. 31, 2011

Facebook hoped to create the most energy efficient datacenter eco-system possible by integrating datacenter, server hardware, and application design. LEED certification played an important piece to the holistic sustainability and energy efficiency goals through the LEED for New Construction program.

Facebook realized that developing the datacenter and server, in conjunction, allowed them to significantly rethink how the systems would integrate and deliver efficiencies greater than what would be achieved separately. The result is a data center that is significantly more efficient than the industry-standard, saving energy and reducing its environmental footprint via a 100% outside air direct evaporative cooling/humidification system in addition to a 480VAC distribution system to our servers.

Furthermore, they've open sourced their datacenter and server hardware designs via the Open Compute Project: <http://www.opencompute.org/>

The result is a data center full of vanity free servers which is 38% more efficient and 24% less expensive to build and run than other state-of-the-art data centers.

**PUE** = 1.09 (ttm through Q2 2013)

**WUE** = 0.51 l/kWh (ttm through Q2 2013, Facebook was the first company to report WUE in 8/9/12)

Photo credit: Alan Brandt

# LEED PROFESSIONAL SPOTLIGHT



## Scot Horst

Senior Vice President, LEED  
U.S. Green Building Council

**Which green building innovations over the last decade have been the most impactful?** LEED has inspired people to think about buildings differently. It has helped bring the building industry into the 21st century by redefining what building quality means around the globe. LEED has accomplished this by expanding the use of tools that help create a building as a whole organism, such as energy modeling and building commissioning. Because of LEED, project teams view buildings as holistic systems through the integrative design process, which has been one of the most important green building innovations.

This has led to an enormous green building market that creates and sustains thousands of jobs and alters the economy in a beneficial way. Fortunately, we are getting a lot more sophisticated about how to optimize systems and technology through collaboration, but we still have such a long way to go. This means we need to keep being more innovative about what is next, and how we meet the needs of a new context, which is today. We need to keep asking ourselves how we can lead from the future so we can move beyond just tweaking methods that are accepted. How do we use what we have to leap further?

**What inspires you everyday?** I am inspired by people, music, nature, space, the places where I live and work, caring about the world, and what I do while I'm here. I believe that variety, coupled with hard work and focus, is where innovation comes from. I have done many different things, from singing opera to commercial fishing to furniture design to sustainable materials consulting to running LEED for USGBC. I started in music, and I love music. I see a pure connection between the beauty of music and the beauty of space that we experience in buildings. Beauty is universal through all time and space. Design and beauty are inherent in great music, and are very connected to what we do in green building...and vice versa. I also studied philosophy, which trained me to think. I believe that thinking deeply is one of the best tools we've been given as humans. I also love to design and make things: I have my own furniture studio and built my own shop. You develop different skills and parts of your brain when you are pursuing different avenues and diverse experiences. It's clear to me that every experience

in my life has led to where I am now, and it feels like I have a deep well from which to draw as a resource. I'm grateful for that.

My goal going forward is to create impactful things: to do less managing and more visioning and creating. Outcomes, real results and possibilities are what inspire me the most.

**How can companies build a culture of innovation for their green building initiatives?** Innovation does not necessarily mean flashy: it comes from the word "innovari," which means newness. And newness means more in the context of something that already exists and is understood. Do you recall that feeling that you felt as a child, when you woke up in the morning and smiled? When you have that same feeling as an adult, it is the result of innovation. Build your culture around that feeling.

I heard the CEO of Airbnb say that when they were setting up the company, they were given some really good advice: if you're going to sell the company, build it and sell it. The culture doesn't matter. But if you want to keep the company as a place where people love working, are productive and innovative, then focus on culture, because once you've established it, it is very difficult to change.

To do so, you need to continually break down the structures that lead to stagnation while at the same time giving people the freedom and security to be creative. Create an environment where individuals and teams can discover more, and come to different conclusions than they might if they're just trying to get stuff done. This may seem costly, but the payoff can be great. There are always risks involved with new approaches, but you can manage risk well and get so much in return.

We have a culture of innovation at USGBC that is built around LEED. Just trying out the different ideas contained in the rating system keeps people thinking how to improve what we have, both in our program and in our space. This tends to change how people relate to each other and how they work together.

**What's been the most innovative green building initiative you've worked on?** Definitely LEED...I feel fortunate to have the unique and special experience of reimagining LEED and how to expand its use everyday. LEED is now an adult and we need to keep it fresh. Global project

teams that use LEED, thought leaders and people who care deeply about the world and the future are the real innovators and that makes them leaders. They strive to do more than what is called for. They push the boundaries of what is possible.

**What's next for LEED?** A worldwide common measurement for building performance is next. We are accomplishing this through a performance score and the LEED Dynamic Plaque. LEED v4 helps project teams prepare for this measurement, but now we are ready to be very serious about a way to compare building performance that is usable and represents the core of how we think a green building should function in its daily life. We anticipate that the market will cautiously approach the LEED Dynamic Plaque but I'm confident that, in the near future, the buildings that are not measuring performance will be left behind.

In addition, the next five years will focus on how we build relationships with one another and with technology. We are approaching a critical juncture in which we're constantly challenged not just to invent anything, but to invent the right things and then integrate them in the right way.

On the building product side, we are going to see a huge shift in how we think about materials. We are going to see the market move toward environmental product declarations so that it can make decisions based on real information. Knowing what ingredients are in building materials and products will become much more important. It is essential to our goals to remember that LEED is not about buildings. It is about the well-being of the planet and most importantly the people who live and work in those buildings. The focus on health and wellness is going to take LEED to a place it has never been before.





# ADDITIONAL INFORMATION:

## Page 4: Top Three Credits / Innovation Credits

LEED for New Construction 2009				
Credit	Name	Count of Projects (Achieving)	Count of Projects (Total)	Percent of Projects (Total-Achieving)
IDc2	LEED Accredited Professional	1,863	1,875	99.40%
<b>EAc1</b>	<b>Optimize energy performance</b>	<b>1,834</b>	<b>1,875</b>	<b>97.80%</b>
<b>EQc4.2</b>	<b>Low-emitting materials - paints and coatings</b>	<b>1,777</b>	<b>1,875</b>	<b>94.80%</b>
IDc1	Innovation in design	1,750	1,875	93.30%
<b>EQc3.1</b>	<b>Construction IAQ management plan - during construction</b>	<b>1,716</b>	<b>1,875</b>	<b>91.50%</b>
MRc2	Construction waste management	1,669	1,875	89.00%
EQc4.1	Low-emitting materials - adhesives and sealants	1,659	1,875	88.50%
WEc1	Water efficient landscaping	1,656	1,875	88.30%
WEc3	Water use reduction	1,609	1,875	85.80%
SSc1	Site selection	1,603	1,875	85.50%

LEED for Existing Buildings: Operations and Maintenance 2009				
Credit	Name	Count of Projects (Achieving)	Count of Projects (Total)	Percent of Projects (Total-Achieving)
IOc2	LEED Accredited Professional	1,173	1,302	90.10%
IOc1	Innovation in operations	1,172	1,302	90.00%
<b>EAc1</b>	<b>Optimize energy efficiency performance</b>	<b>1,133</b>	<b>1,302</b>	<b>87.00%</b>
<b>WEc2</b>	<b>Additional indoor plumbing fixture and fitting efficiency</b>	<b>1,112</b>	<b>1,302</b>	<b>85.40%</b>
<b>EQc3.1</b>	<b>Green cleaning - high performance green cleaning program</b>	<b>1,100</b>	<b>1,302</b>	<b>84.50%</b>
EAc6	Emissions reduction reporting	1,098	1,302	84.30%
EQc3.3	Green cleaning - purchase of sustainable cleaning products and materials	1,068	1,302	82.00%
MRc6	Solid waste management - waste stream audit	1,053	1,302	80.90%
EQc3.2	Green cleaning - custodial effectiveness assessment	1,043	1,302	80.10%
WEc1	Water performance measurement	1,020	1,302	78.30%

LEED For Commercial Interiors 2009				
Credit	Name	Count of Projects (Achieving)	Count of Projects (Total)	Percent of Projects (Total-Achieving)
IDc2	LEED Accredited Professional	2,029	2,048	90.10%
IDc1	Innovation in design	1,938	2,048	90.00%
<b>EQc4.2</b>	<b>Low-emitting materials - paints and coatings</b>	<b>1,921</b>	<b>2,048</b>	<b>87.00%</b>
<b>EAc1.4</b>	<b>Optimize energy performance - equipment and appliances</b>	<b>1,831</b>	<b>2,048</b>	<b>85.40%</b>
<b>EQc4.1</b>	<b>Low-emitting materials - adhesives and sealants</b>	<b>1,772</b>	<b>2,048</b>	<b>84.50%</b>
EQc7.1	Thermal comfort - design	1,754	2,048	84.30%
EAc1.1	Optimize energy performance - lighting power	1,749	2,048	82.00%
EQc3.1	Construction IAQ management plan - during construction	1,749	2,048	80.90%
MRc2	Construction waste management	1,739	2,048	80.10%
SSc3.1	Alternative transportation - public transportation access	1,723	2,048	78.30%

LEED for Core and Shell 2009				
Credit	Name	Count of Projects (Achieving)	Count of Projects (Total)	Percent of Projects (Total-Achieving)
IDc2	LEED Accredited Professional	339	341	99.40%
IDc1	Innovation in design	327	341	95.90%
<b>EAc1</b>	<b>Optimize energy performance</b>	<b>320</b>	<b>341</b>	<b>93.80%</b>
<b>SSc1</b>	<b>Site selection</b>	<b>314</b>	<b>341</b>	<b>92.10%</b>
<b>SSc4.3</b>	<b>Alternative transportation - low-emitting and fuel-efficient vehicles</b>	<b>301</b>	<b>341</b>	<b>88.30%</b>
EQc4.2	Low-emitting materials - paints and coatings	297	341	87.10%
SSc9	Tenant design and construction guidelines	291	341	85.30%
MRc2	Construction waste management	287	341	84.20%
EQc3	Construction IAQ management plan - during construction	286	341	83.90%
WEc3	Water use reduction	286	341	83.90%

## Page 5: Impacts – By the Numbers

\*Of 1,861 LEED Projects (representing MPR6 compliant commercial buildings in various rating systems) we are able to report performance data for:

- 450 buildings reporting energy data that is converted into source energy use intensity by ENERGY STAR.
- 404 buildings reporting energy data that are eligible for an ENERGY STAR score.
- This means that we have 1,411 buildings complying with MPR6, but not all of them are reporting data regularly or are certified yet.

\*There were 318 LEED 2009 for Existing Buildings: O&M certified buildings that had achieved the Waste Stream Audit credit (MRc6) when the data was pulled from LEED Online v3 this summer. The percentage of waste diverted is based on their LEED Online submissions.



## ACKNOWLEDGMENTS

Our thanks to Greenbuild 2013 master speaker Avery Bang for sharing her story of innovation and impacts in this report.

USGBC is excited to lead an industry that is placing a growing emphasis on meaningful outcomes. Green building presents us with a tremendous opportunity to do better by the planet, for our businesses and for ourselves. The intersection of innovation and impacts is truly where that happens. We are proud to share the green building movement with thousands of project teams, product manufacturers, business leaders and so many others who are accomplishing incredible feats of innovation to drive green building farther. Thank you for inspiring us.

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