LEED® IN MOTION:
RESIDENTIAL

LEED in Motion is a report series from the U.S. Green Building Council (USGBC) that provides a holistic snapshot of the green building movement and the most widely used green building rating system in the world: USGBC's LEED (Leadership in Energy and Environmental Design). These industry reports are aimed at equipping readers with the numbers and insight they need to build a strong case for sustainability.

LEED in Motion: Residential examines how LEED-certified homes, apartments and condominium buildings are transforming the industry and the lives of dwellers across the country and the globe.

Interested in other industry sectors and aspects of green building? Look back at our first three reports, available in English as well as Spanish, French and Chinese:

- LEED in Motion: People and Progress
- LEED in Motion: Places and Policies
- LEED in Motion: Impacts and Innovation

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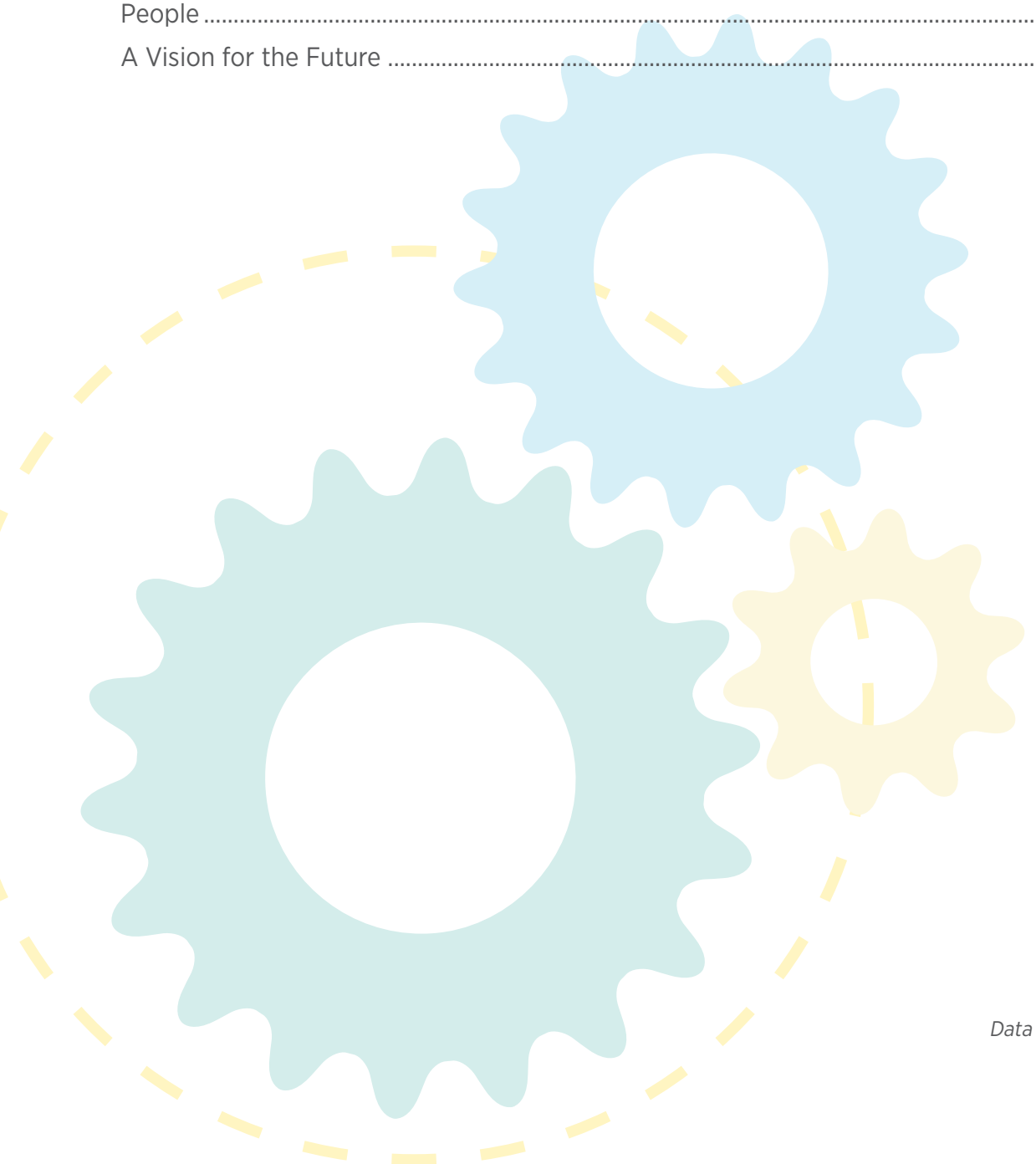


Data in this report is current as of March 19, 2014

THE MOST IMPORTANT BUILDING IN YOUR LIFE

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

"We shape our dwellings, and afterwards our dwellings shape us." - Winston Churchill

At the U.S. Green Building Council, we have one vision and one goal for all buildings: every building should be a green building. Every space we find ourselves—from workplaces to grocery stores to airport terminals—should complement our health and our environment.

But of all these space, our homes play the biggest roles in our lives. They bookend our days. They provide shelter as well as sanctuary, safety and sinew for anchoring our families and communities. Imagine if all people started their days from a sustainable home, with a native awareness of efficiency and efficacy; of better health and resiliency. Imagine if we used our homes as the base camp for healthy living, in every aspect of our lives—how we engage with others, the foods we eat, our study and work habits, and so much more. They could be the touchstone for being mindful of sustainability for our present and future.

That's the revolution that USGBC and its community of LEED (Leadership in Energy and Environmental Design) residential professionals are striving to catalyze. LEED, the rating system that USGBC developed to guide green buildings for all sectors and stages of development, has been successful in transforming commercial buildings over the past two decades. But our collective green building success will reach astronomical proportions when we revolutionize homes everywhere...because the global sustainability revolution starts at home, where our habits are formed and, from there, can ripple outward, impacting everyone with whom we are connected.

Through LEED for Homes, we are revolutionizing all types of homes, from single family residences to urban condominiums. We've reached important milestones, and we are excited about the ongoing opportunity to make a larger impact. Through our experience and engagement with you, we've made important innovations. We're moving toward a green homes revolution in a way that's faster and simpler.

- We continue to invest in the affordable housing sector, ensuring that LEED Platinum, the highest tier of LEED certification, is inclusive and available to everyone. We know that half of LEED for Homes projects are in the affordable housing sector—and we see trailblazers like Tom Darden and his team at Make It Right and the team behind Step Up on Vine, both featured in this report, bringing LEED Platinum homes to people in need, in New Orleans, Hollywood and beyond.
- We celebrate the incredible innovations that have made greening our homes faster, simpler and more enjoyable: like the Nest thermostat, featured on the following page.
- We anticipate even more rapid growth, and are prepared and equipped to help shepherd and support more and more residential projects through the leadership of our LEED for Homes Provider Organizations and our mutual support of some of the great regional programs like EarthCraft and many others.

We are excited to continue rallying around the green homes movement with the countless members of the residential and green building communities who have dedicated themselves to this stock of buildings. Please continue to do your part in driving the green homes movement: start a project or share this report. Our homes—and the homes of others—may just be the most important buildings we work on.

With gratitude,
Rick Fedrizzi

FOREWORD

From Tony Fadell, CEO and Founder, Nest

The process of building a home can be both exhilarating and daunting for homeowners. There are countless decisions to make and each one carries substantial weight because of the emotional attachment we have to our homes. And then there are the competing priorities, including budget, aesthetic, technology, materials and environmental considerations.

As people strive to be more environmentally conscious, there are a number of options to consider, from solar power to sustainable materials to lighting and more. USGBC and the LEED rating system have done a great job of raising awareness of sustainable buildings, and green residential professionals—from consultants to contractors—are invaluable in helping homeowners understand a few key principles that make "greening" a home easily attainable. Here are a few that I kept in mind while building our family home:

It's okay to start small. Being environmentally conscious doesn't have to break the bank and doesn't always require new construction. You can achieve many meaningful improvements through remodeling or even simple DIY projects like LED lighting.

It doesn't have to be hard. For people who have aspirations to green their homes, or even just save some money on operational costs, there are more options than ever. The renaissance of products and practices within the green homes industry is driving costs down and creating smarter solutions. Case in point: solar panels are more accessible than ever, with generous government rebates and comprehensive installation packages.

Isolated actions add up. Heating and cooling accounts for approximately half the energy use in the home. That's why we created the Nest Learning Thermostat, which learns your schedule and temperature preferences to keep you comfortable and help you save money. You may think a one-off thermostat purchase is a drop in the bucket, but consider that approximately 10 million thermostats are sold each year for homes in the U.S. alone. Can you imagine 10 million thermostats learning a schedule and the energy savings that would create? That's the definition of strength in numbers and why we're thrilled that the LEED v4 rating system for existing buildings incorporates a pilot credit called Learning Controls for Thermal Comfort. It rewards project teams for installing automated, learning, heating and cooling systems—like Nest—and then tracking the impact of the technology.

Now, imagine if every household was collecting and reusing rainwater, or practicing recycling. With each individual who makes smart choices at home, our combined impact grows.

That's what this LEED in Motion report is about: measuring the green homes movement and its associated impacts. And demonstrating that each one of us can make a difference. With these principles in our reach, we're headed for a bright future.

Tony Fadell

LEED HOMES

"Live at home." - George Washington Carver

Homes represent a critical piece of the buildings industry: not only are they the structures in which we spend a majority of our time, they're also a sizeable and valuable segment of the industry as a whole. The National Association of Home Builders reports that as of the first quarter of 2014, housing contributed $2.47 trillion to gross domestic product.[1] With a unique set of considerations related to health, comfort, energy use and more, USGBC set out to create a LEED program suited specifically to the homes sector.

Launched in 2000, LEED (Leadership in Energy and Environmental Design), a green building program providing third-party verification of the features and effectiveness of green buildings, was originally created as a green building rating system for commercial projects. LEED, the world's premier green building certification program, is the force by which an unprecedented amount of buildings, leaders, companies and project teams have rallied to have a collectively enormous impact in creating better buildings: those that save energy, resources and money, and that are healthy for our families, friends, coworkers and customers.

Recognizing the market readiness and need for a similar certification program for residential buildings, USGBC launched the LEED for Homes program in 2008. The first LEED-certified home, a 1,644 square foot home in Oklahoma City, O.K., was certified under the pilot program in 2006.

The residential LEED rating system is a specialized program that addresses the specific needs of residential projects built to be efficient and sustainable. Every LEED-certified home is a healthy, resource efficient and cost effective place to live. **usgbc.org/leed**

LEED is the right fit for both multifamily and single family projects, with more than an estimated 150,000 residential units earning certification to date. USGBC is working to make the LEED residential program even more accessible and utilized all over the world. With newly certified projects in China (two single family homes), the Caymans, Turkey (10 single family homes) and Saudi Arabia, global residences are reaping the benefits of the rating system:

Health: LEED-certified homes are designed to maximize fresh air indoors and minimize exposure to airborne toxins and pollutants.

Savings: They're designed to save costly resources—energy and water. On average, LEED-certified homes use 20 to 30% less energy than a home built to code, with some homes reporting up to 60% savings. Using fewer resources means lower utility bills each month.

Trusted: They're third-party inspected, performance-tested, and certified to perform better than a conventional home.

Value: With proper planning, green homes can be built for the same cost as conventional homes, and they're resold for more money in less time than traditional homes. LEED homes can qualify for discounted insurance, tax breaks and other incentives.

Green labeled homes sell at higher prices: A green label adds an average **9% price premium** according to a study that analyzed 1.6 million homes sold in California between 2007 and 2012.[2]

1 National Association of Home Builders, *Housing's Contribution to Gross Domestic Product (GDP)*, http://www.nahb.org/generic.aspx?sectionID=784&genericContentID=66226.

2 Nils Kok and Matthew E. Kahn, *The Value of Green Labels in the California Housing Market* (2012), 1, http://www.usgbc.org/sites/default/files/ValueofGreenHomeLabelsStudy_July2012.pdf

LEED offers a certification pathway for all types of residential projects.

How it Works: Certification

While LEED is inclusive of virtually every kind of building project, providing certification options and pathways for everything from manufacturing facilities to retail stores, homes represent a truly unique project type. They're the places we sleep at night and where we spend a majority of our time. Unlike in a commercial building, single family homes don't have a building facilities staff to manage energy and maintenance on a daily basis. For all of these reasons and many more, residential LEED projects have a verification-based certification process to ensure optimum performance and achievement.

The Verification Team

Each LEED for Homes project works with a Verification Team, the professionals who oversee the LEED certification process and perform on-site verification and performance testing. Learn more about the Verification Team in the "People" section of this report.

On-site visits

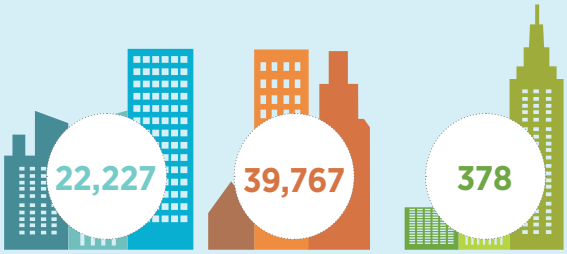
LEED projects pursuing certification under the residential rating system undergo multiple on-site visits to confirm progress and compliance. These visits, to check energy performance and overall rating system compliance, are a key piece of the LEED for Homes experience and should be planned for at the very beginning of the project.

Multifamily vs. Single Family

Multifamily projects represent a significant portion of residential LEED units. Though LEED is designed for both single family and multifamily projects, multifamily projects have different challenges and considerations.

A multifamily project:

- Has to compartmentalize each unit, rather than air sealing the building envelope on the whole. With many units in a single building, multifamily projects require additional considerations for soundproofing, to ensure privacy and acoustic comfort.
- Has to find appropriately sized heating, ventilation and air conditioning (HVAC) systems, and balance their efficiencies against energy savings in low-heating and cooling load situations. This is more challenging than choosing a forced-air system in single family homes.
- Must multiply hard costs across many units, but the project team can also divide soft costs across each unit.
- Faces a bigger challenge in locating ventilation outlets.



Total Commercial LEED Projects Globally
(LEED-registered, LEED-certified, LEED for Neighborhood Development):

62,372

Gross Square Footage of LEED Projects Globally
(LEED-registered, LEED-certified):

11.3 billion

LEED FOR HOMES DATA*

LEED for Homes Units:
140,364

LEED for Homes Certified Units:
53,554

Gross Square Footage of LEED for Homes Projects Globally
(LEED-registered, LEED-certified):

180 million

LEED-Certified Single Family Units:
12,955

LEED-Certified Multifamily Units:
40,599

LEED-Certified Affordable Units:
22,984

LEED-Certified Market Rate Units
30,570

* LEED for Homes numbers do not include residential units certified under the LEED commercial rating systems. As specified in this report, multifamily buildings may certify under the LEED commercial rating systems based on number of floors, if they're pursuing existing building certification, or other considerations.

We estimate there are as many as **150,000** certified units, if you include multifamily buildings under commercial LEED rating systems.

LEED-Certified Homes Projects by Certification Level

LEED CERTIFIED 2013
4,353

LEED SILVER 2013
18,207

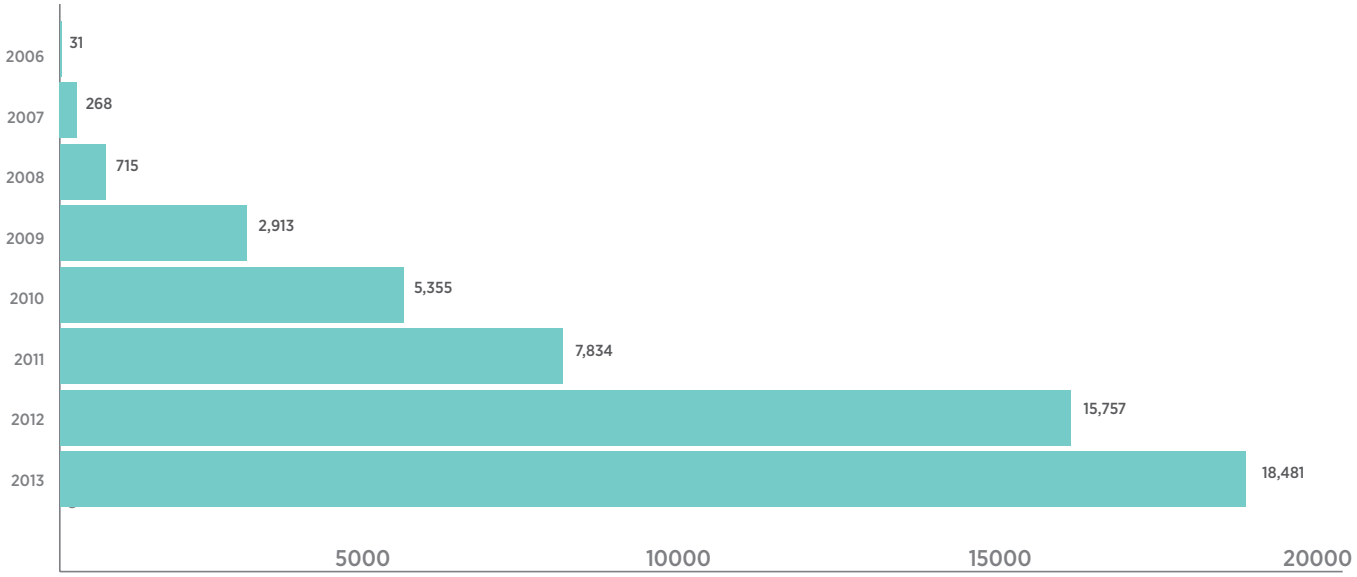
LEED GOLD 2013
16,717

LEED PLATINUM 2013
14,277

McGraw Hill Construction (MHC) estimates the green market share will continue to increase, reaching 26%–33% by 2016—representing an **$83–$105 billion opportunity** based on MHC's overall Dodge residential construction forecast as of January 2014.[3]

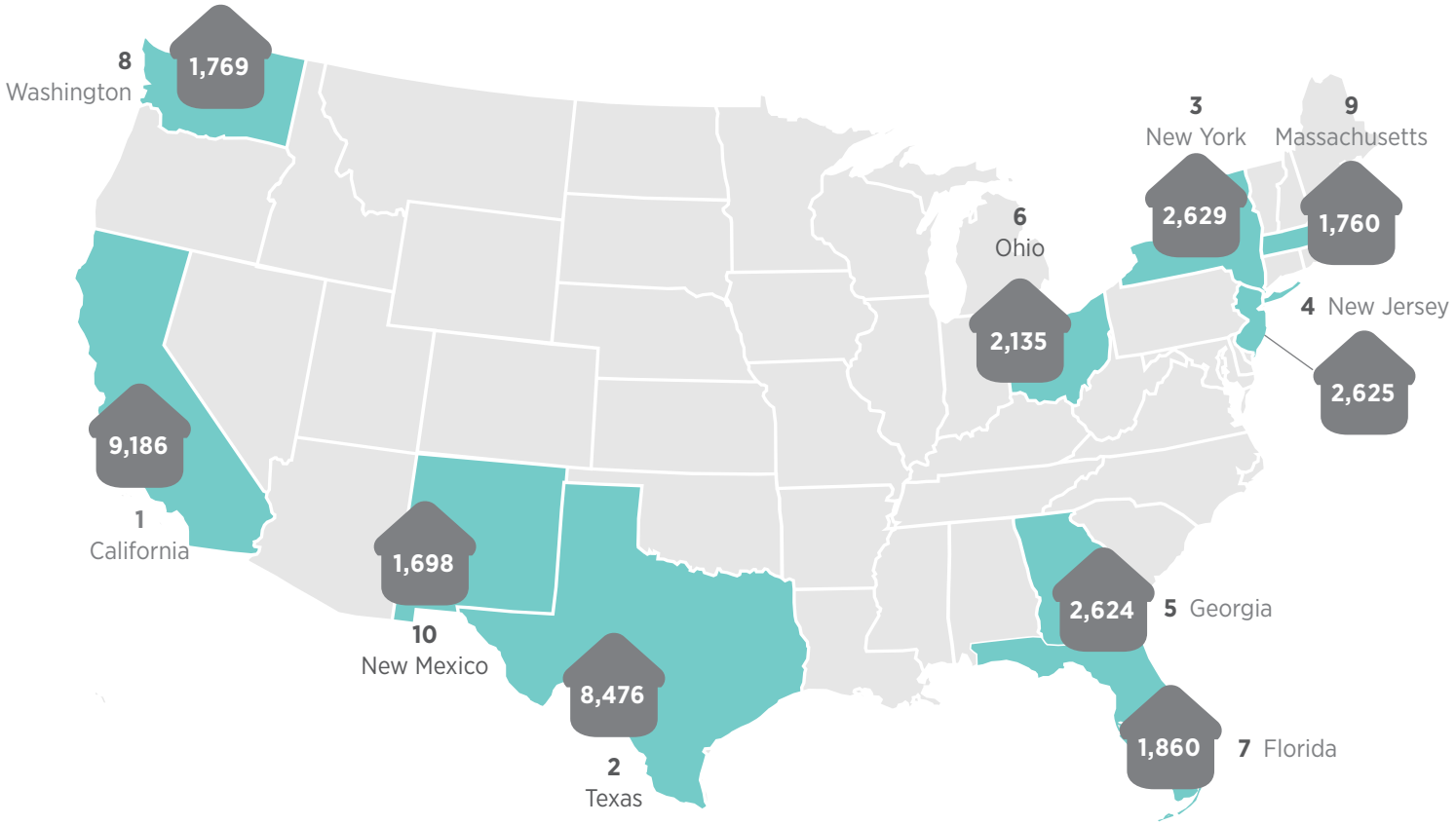
3 McGraw Hill Construction, *2014 Green Residential Study: Key Findings* (2014), https://analyticsstore.construction.com/GreenHomeKeyFindings14.

LEED for Homes Certified Units



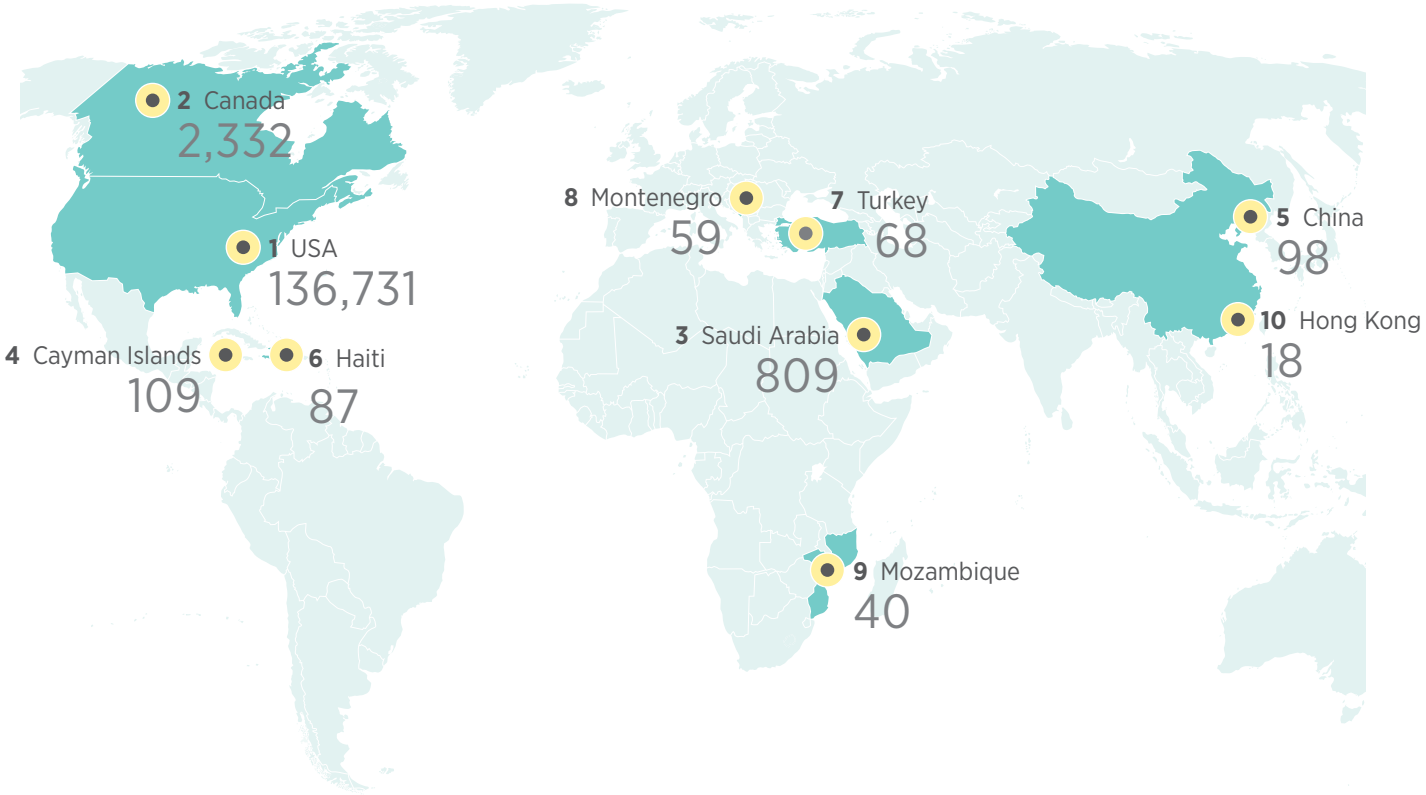
* Annual certified units, not cumulative

Top 10 U.S. States with LEED for Homes Certified Units



*Full list of states can be found in the "Additional Information" section.

Top 10 Countries with LEED for Homes Units (Certified + Registered)



*Full list of countries can be found in the "Additional Information" section.

"Properties certified to meet a voluntary energy efficiency standard (e.g. ENERGY STAR) or "green" standard with an energy element (e.g. LEED) tend to have higher values or rents than properties without such certification."[4]

Energy efficiency in apartments could save $3.4 billion.[5]

"Since 2005, the green share of new single family residential construction has grown dramatically—increasing from 2% in 2005 to 23% in 2013. This 23% market share equates to a $36 billion market opportunity."[6]

4 Jonathan Borck, Robert N. Stavins, and Todd Schatzki, *An Economic Perspective on Building Labeling Policies* (2013), 24, http://www.analysisgroup.com/article.aspx?id=14140.

5 Anne Evans et al., Engaging as Partners in Energy Efficiency: Multifamily Housing and Utilities (2012), 4, http://aceee.org/research-report/a122.

6 McGraw Hill Construction, *2014 Green Residential Study: Key Findings* (2014)

TOP TEN CREDITS

The most frequently earned LEED for Homes credits showcase key impact areas.

99%	of projects implemented nontoxic pest control alternatives by achieving Sustainable Sites credit 5
98%	of projects utilized environmentally preferable products by achieving Materials and Resources credit 2.2
95%	of projects implemented exceptional energy performance by achieving Energy and Atmosphere credit 1.2
94%	of projects utilized appropriate HVAC refrigerants by achieving Energy and Atmosphere credit 11.2
94%	of projects installed very high efficiency fixtures and fittings by achieving Water Efficiency credit 3.2
94%	of projects are served by or are near existing infrastructure by achieving Location and Linkages credit 4
90%	of projects implemented enhanced combustion venting measures by achieving Indoor Environmental Quality credit 2.2
86%	of projects avoided development on environmentally sensitive sites by achieving Location and Linkages credit 2
84%	of projects promoted durability and high performance of the building enclosure and its components and systems through third-party verification by achieving Innovation in Design credit 2.3
83%	of projects selected a location to encourage walking, physical activity and time spent outdoors by achieving Location and Linkages credit 6

Based on 12,211 certified projects under LEED for Homes 2008 (single family and lowrise). See the "Additional Information" section for more on these numbers.

LEED PROJECT SPOTLIGHT

Arbor House

Bronx, N.Y.
LEED for Homes Platinum
Certified February 2013

Arbor House is the fourth consecutive LEED for Homes Platinum affordable multifamily midrise project for New York City affordable housing developer Blue Sea Development Company. This latest standout aims to save energy and create healthier living space for occupants. Mimicking past successes, Arbor House utilizes panelized precast concrete walls, fiberglass windows, continuous cavity insulation, condensing gas boilers and four five-kilowatt micro combined heat and power turbines. New innovations include a Nest thermostat in every room and an energy feedback monitor in every apartment. Two of the building's most noteworthy quality-of-life features are an 11,000 square foot rooftop hydroponic greenhouse operated by a commercial grower and active design elements, including stairwell art and music as well as indoor and outdoor workout circuits for adults and kids. Fresh air strategies, low-emitting finishes, anti-microbial products and policies against indoor pollutants aim to reduce asthma rates in the highly afflicted South Bronx, and round out the Arbor House as a national model for healthy affordable housing.

LEED PROJECT SPOTLIGHT

AMLI at the Ballpark

Frisco, Texas
LEED for Homes Gold
Certified August 2013

AMLI Residential's sustainability goals for this vibrant 335 apartment community focused on enabling residents to live a green, healthy lifestyle while also saving on personal utilities. The community's LEED Gold certification was a great tool to ensure these goals were met.

AMLI residents live in a home that sharply focuses on indoor air quality by actively reducing the amount of indoor air contaminants through low and no VOC emitting paints, adhesives, carpet, flooring and insulation. Additionally, fresh air ventilation, MERV 8 filters, and exhaust directed to the outdoors ensure contaminants generated from occupant activity are also addressed. Residents also take advantage of energy and water saving features like ENERGY STAR appliances and WaterSense fixtures. The entire community is designed to achieve an energy efficiency improvement of 27 percent and a water use reduction of over 23 percent.

AMLI is a stand out company that sees the value in the green building efforts set forth during construction, and continues to meet these standards during building operations. Onsite and corporate employees are educated on green building practices and understand what it takes to maintain the upgraded features. AMLI also takes time to make sure residents understand the green features in place and how they can take advantage of them.

GREEN HOMES PROFESSIONAL SPOTLIGHT

Tom Darden

Executive Director, Make It Right

Make it Right believes everyone has the right to live in a high-quality, healthy home that enhances the natural environment. Tom leads efforts to rebuild safe, sustainable homes in New Orleans' Lower 9th Ward—and beyond.

What led you to the field of green buildings and specifically, green homes? I was building homes in North Carolina when Hurricane Katrina hit the Gulf Coast and devastated communities like the Lower 9th Ward in New Orleans. Like so many people from all over the country and around the world, I wanted to do whatever I could to help out. So, with some friends, I offered to do a feasibility analysis on some ideas Brad Pitt had for rebuilding. I met Brad through Bill McDonough, an architect and co-author of the book *Cradle to Cradle*, which Brad had read. Brad wanted to build the greenest houses in the world and so he asked amazing architects like Bill, Frank Gehry, David Adjaye and others to donate their time to help families who lost everything in the storm to build back better and more sustainably. I thought I would volunteer for a few weeks and now I've been working with Make It Right for over seven years!

What has enabled you and Make It Right to be so successful in making green, LEED Platinum homes affordable for everyone? What advice do you have for those looking to do the same? When we started Make It Right to help families in need, our goal was to build the best homes possible and to figure out how to make them affordable. In other words, we set the bar high and challenged ourselves and our partners to find ways to achieve the goal of affordability while refusing to compromise on quality. That approach led to lots of little innovations and strategies; we've posted many of these on our website to share lessons learned with anyone interested in affordable green homes. Generally, I would encourage others not to ask, "How much will it cost me to build green?" Instead, figure out how green you want to be and then get creative about how to get there affordably.

Why is it important to rebuild New Orleans with sustainability in mind? When we started the design process, we learned a lot by looking at traditional New Orleans designs that were inherently sustainable. Very old homes in New Orleans that have survived hurricane after hurricane were elevated when they were first built in the late 1800s and early 1900s. Sustainability is not a new idea—people used to think about designing for the climate where they were building. But unfortunately, too often in affordable housing, low cost trumped safety and durability. We wanted to get back to the approach of assessing and understanding the risks in any particular location, and then designing and building homes that mitigate that risk to the greatest extent possible. In any environment where there's an opportunity to rebuild, whether it's turning an abandoned building into a community asset like we've done in Kansas City, or working in New Orleans' Lower 9th Ward, the goal is to build better and more sustainably.

What's been the most exciting or impactful green home project that you've worked on? We've built over 200 LEED Platinum units ourselves and helped others with many more, so that's a tough question! One of my favorite recent projects was a design competition, in collaboration with AIA, Clinton Global Initiative and other non-profits. The goal was to design and build affordable, sustainable housing templates for communities rebounding from disasters—like Joplin, New York/New Jersey and New Orleans. Make It Right provided the base design guidelines for the competition. The first home is under construction now in Rockaway, Queens. I like this collaboration because it builds on what we've learned over the years instead of reinventing the wheel. I think it's critical that we continue to share what we've learned with the industry—mistakes as well as successes—so that collectively, we can make safe, healthy, sustainable homes affordable and available for everyone.

How do you envision the future of the green homes movement? What's in the cards and how will we get there? My hope would be that those of us working to make green homes and buildings ubiquitous work ourselves out of a job. In other words, every home needs be a green home. To me, that means a home that operates in harmony with people and the environment—providing beautiful shelter that is durable, safe, made of Cradle to Cradle materials, produces clean water, generates more energy than it consumes and contributes positively to the health and well-being of its occupants. At Make It Right, that's our goal.

To get there, we need tools like LEED that evolve and continually improve. We can't sit back and be satisfied just because we achieved LEED Platinum. We need to continue to push ourselves to the next level.

LEED PROFESSIONAL SPOTLIGHT

Steve Saunders

CEO, TexEnergy Solutions
(LEED for Homes Provider)

Steve is a longtime green homes professional doing extensive work to expand the LEED for Homes program and driving energy and environmental improvement across the industry. Read about his experience.

What led you to the field of green buildings and specifically, green homes? I can remember the precise conversation that launched our company's green home journey. The year was 2005 and we were in a meeting with our most advanced production homebuilder client. Collectively, we were struggling with how to transition their product from ENERGY STAR v1 to the v2 platform. At the time, it was a very challenging conversation. One of the two clients (both division presidents) said, "Steve, have you got anything (program, he meant) that is 'green?'"

The fact that he asked the question was the "inflection point." Up to then, we had watched the growth of green building from afar but were completely unsure how it would relate to us/our clients. My immediate reaction was to slap all the pockets in my clothes that instant and reply, "I must have left the green program in my other suit."

I hated to say "no," but in that instant, I understood that green was the future of home building.

As a close to that story, the two division presidents in that meeting later became the first two production builders in the country to deliver LEED as standard for all the product in their divisions. They continue to deliver 100% LEED for everything they build and have delivered more than 1,800 LEED-certified homes.

What's been the most exciting or impactful green residential project that you've worked on? Our most *impactful* "project" is not actually a project…but developing a process and a business model that can make green building worthwhile for production homebuilders and market rate multifamily developers. LEED certification of market rate multifamily projects has skyrocketed in the last three years, and every year we see a steady and solid increase in the number of LEED certifications delivered by our production homebuilder clients.

The most *exciting* project was the 188 LEED Gold certified homes at the King Abdullah Petroleum Studies and Research Center (KAPSARC) in Riyadh, Saudi Arabia. At its peak, that project had 10,000 workers speaking more than 20 languages. The average HERS Index across the whole project was 35. The KAPSARC project was/is a fascinating and very challenging endeavor. The success on this project has proven that the LEED for Homes protocol can be adapted for international markets. LEED for Homes now effectively serves as the worldwide sustainability standard for building a green home.

The link between these two efforts is the outcome. Each helps to make green homes accessible to a vastly larger community of people. Green (and LEED) is and should be a product that adds value to the great mass of deserving people. Both of my favorite efforts are key steps in breaking the barriers to large scale adoption. That is both fun and rewarding.

What's one message that you think all homeowners or property owners should know about energy efficiency? Energy efficiency is one of the most obvious areas where a personal interest in saving money intersects perfectly with society's interest in reducing the impact of electricity generation. Since the long term price of electricity for residential users is going up, the benefits of a highly efficient home that is full of increasingly smart appliances and products will be a win for both our homeowners and our world.

How do you envision the future of the green residential movement? What's in the cards and how will we get there? This is a good news/bad news/good news answer.

First: the good news. The continuation and expansion of green homebuilding as part of the sustainability movement is an inevitable mega trend. The movement is picking up speed and momentum every day. There is no way to turn the clock back or to ignore its growing influence.

The bad news is that this transition is full of pain. Many key participants in the homebuilding industry—especially the trade contractors—are slow to adopt new and more sustainable methods. As buildings get more efficient there will be unintended consequences that offer complex and seemingly insoluble problems. The way forward is difficult. To add insult to injury, there are going to be business opportunities for those who wish to ignore the trend and deny the need. We will watch in dismay as the delayers and deniers of the green home building movement will have periodic victories that they will trumpet from the clouds.

However, the sustainability movement is firmly established and makes more business sense than the alternatives. True, the travelers on this path will experience pain and frustration. But, in truth, pain happens regardless of which fork in the road you choose. The question for leaders is, "How do I capitalize on the green/sustainability megatrend to properly position my organization?"

PEOPLE

"Those who dwell, as scientists or laymen, among the beauties and mysteries of the earth, are never alone or weary of life." - Rachel Carson

Homes should be comfortable. LEED homes and multifamily buildings reap the benefits of energy and resource efficiency, which is beneficial to homeowners' and building owners' pocketbooks as well as the environment—and, as discussed in the last section, LEED-certified homes are also valued higher than traditional homes built to code. But above all, they also should be designed to ensure optimum comfort and health for inhabitants. LEED-certified homes and multifamily buildings require proper ventilation, high efficiency air filters and measures to reduce mold and mildew. They're built to be energy-efficient, ensuring that the home can be comfortably heated and cooled with minimal energy usage. And, since each LEED home undergoes onsite inspections, detailed documentation review, and as-built performance testing, all of these measures are verified.

Health and Well-being

Everyone deserves a comfortable, healthy home that enhances our well-being. LEED is among many programs working to educate both home builders and home owners on creating healthy residential spaces. The growing number of initiatives focused around this crucial issue signifies its importance to society.

U.S. Department of Housing and Urban Development: The Healthy Homes Program
Launched in 1999 in response to a Congressional Directive over concerns about child environmental health, the Healthy Homes Program, launched by the U.S. Department of Housing and Urban Development (HUD), is focused on protecting children and their families from housing-related health and safety hazards. These include: mold, lead, allergens, asthma, carbon monoxide, home safety, pesticides and radon. **hud.gov**

National Center for Healthy Housing
With a mission to secure healthy homes for all, the National Center for Healthy Housing (NCHH) is a non-profit organization working to combat disease and hazards in the home through research, training, outreach and more. NCHH unites leaders in public health, housing and the environmental communities in this critical dialogue. **nchh.org**

A number of LEED credits and credit categories tie directly to the occupant experience, enhancing health and wellbeing.

Energy and Atmosphere Energy efficient residences burn fewer fossil fuels, which decreases the associated air pollution from buildings.

Location and Transportation Homes or multifamily buildings located near community resources and public transit lines enable occupants to drive less and walk/bike/utilize public transportation more. This empowers tenants or homeowners to be more physically active, while emitting fewer pollutants from their cars, making the entire community healthier.

Ventilation and Enhanced Ventilation Proper ventilation brings fresh air into a home while flushing exhaust contaminated air out, making indoor air cleaner and healthier for occupants.

Combustion Venting and Enhanced Combustion Venting This type of venting keeps carbon monoxide and other dangerous combustion byproducts out of the house and out of residents' lungs.

Garage Pollutant Protection/Enhanced Garage Pollutant Protection Due to vehicle exhaust and other aspects, garage air is often unhealthy. These credits keep it out of single family homes and multifamily buildings.

Radon-resistant Construction Radon is a leading cause of lung cancer. This credit focuses on keeping radon out of the building or home.

Air Filtering Proper air filtering removes indoor air contaminants (dust, mold spores, etc.) from the air that occupants breathe.

Environmental Tobacco Smoke/No Environmental Tobacco Smoke These credits prevent second hand smoke transfer.

Compartmentalization/Enhanced Compartmentalization Key for multifamily projects, these credits prevent air, odor, and smoke transfer between units.

Low-emitting Products Installing products in the home that emit fewer volatile organic compounds (VOCs) ensures a healthier experience.

Homeowners

The residential LEED rating system engages consumers more than any other LEED program. Why? Because of homeowners, of course! USGBC has developed a suite of resources geared toward homeowners to aid in the home greening process by applying LEED and other strategies.

USGBC's GreenHomeGuide.com: A resource for pros and homeowners alike, Green Home Guide connects users to ideas, advice, and even green homes professionals who can help homeowners or consumers get the job done. In addition to its wealth of articles and how-tos, the "Ask a Pro" feature connects users with industry leaders who can provide key insights on a variety of home greening topics, and the "Find a Pro" feature allows anyone to search and connect directly with a green building professional who can get started on a project. **greenhomeguide.com**

USGBC is also developing a new, residentially focused, homeowner-driven platform for sustainable home improvement. It utilizes a specific market segmentation system to give homeowners the opportunity to select sustainable strategies to improve their homes. This platform is tailored for the homeowner by utilizing feedback on what they need and value when looking to improve the performance of their home. While the platform currently focuses exclusively on energy efficiency, the platform will be expanded to include strategies for water efficiency, health, waste and occupant experience. Check **greenhomeguide.com** for updates on this effort.

We're continually working to create an integrated online experience for all of your green home needs.

Advocacy

Greening the MLS: As the demand for green homes grows, so does the importance of highlighting a building's green features to real estate agents, appraisers and potential buyers. However, many Multiple Listing Service (MLS) systems used by realtors fail to identify green features and certifications. There are more than 800 individual MLS systems and more than half of recent buyers used MLS resources in their search.[7] USGBC strongly supports the "Greening the MLS" effort across the country. Including green data entry fields in local MLS systems provides a better picture of the presence and value of a home's green features. Since MLS systems are owned and maintained by local associations or groups of realtors, greening the MLS is mostly a local issue. To help move the effort along, the National Association of Realtors in collaboration with USGBC and others maintains a tremendous resource for advocates looking to green their local MLS. The Greening the MLS Toolkit provides step-by-step instructions for both realtors and non-realtors for enacting change in the existing MLS. **usgbc.org/advocacy/campaigns/greening-mls**

The typical household spends about **$2,150 a year** on energy bills.[8]

USGBC estimates that there are **126,627 bedrooms** across the LEED-certified homes projects, meaning about as many people are benefitting from a LEED space at home on a daily basis.*

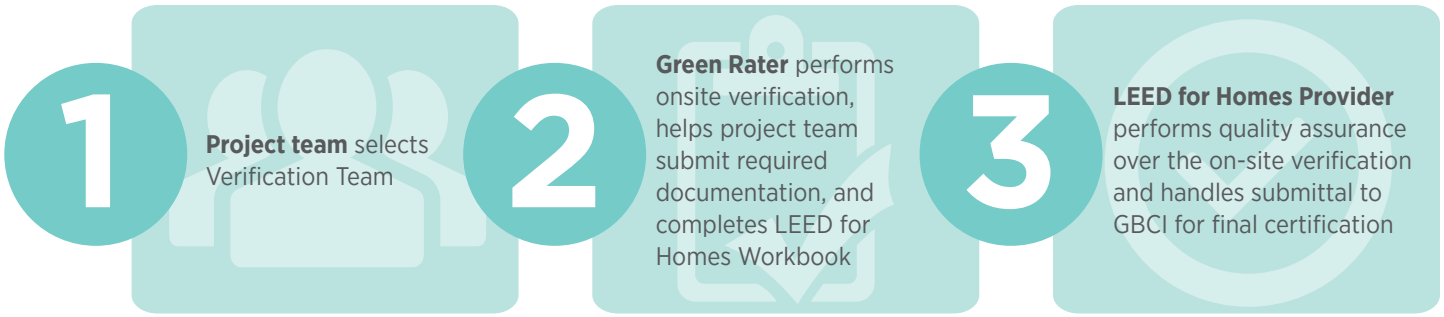
The market is turning around and **there is a general awareness of green home building practices** and products.[9]

7 National Association of Realtors, Multiple Listing Service (MLS): *What Is It*, http://www.realtor.org/topics/nar-doj-settlement/multiple-listing-service-mls-what-is-it

8 U.S. Energy Information Administration, *Short-Term Energy Outlook* (2010), http://205.254.135.7/forecasts/steo/outlook.cfm.

9 McGraw Hill Construction, *2014 Green Residential Study: Key Findings* (2014)

* See the "Additional Information" section for more on this statistic.



Verification Team Roles and Professionals

The residential LEED rating system requires onsite verification and performance testing—a Verification Team will provide these services for every project. Verification Team members are a great resource: they have worked on hundreds, if not thousands of LEED projects, and can walk any team through the best way to incorporate the rating system requirements into a project's planning, design and construction. Here's a rundown of who's who:

LEED for Homes Provider Organization: The LEED for Homes Provider organization oversees the certification process. Provider organizations work with a network of Green Raters (below) and provide quality assurance of their verification services.

- 37 active Provider organizations

LEED for Homes Green Rater: Green Raters provide the required on-site verification for LEED for Homes projects.

- 176 Green Raters globally

Energy Rater: The residential LEED rating system requires that the project is performance tested by a qualified energy rater. The Residential Energy Services Network (RESNET) administers credentials and oversees the largest body of energy raters, called Home Energy Raters (HERS Raters). In many cases, the Green Rater may also be a qualified energy rater, or HERS Rater, and can provide both the required onsite verification and performance testing services. The Provider and/or Green Rater can help you select a qualified energy rater.

LEED Professionals: The LEED AP Homes credential is suited for those involved in the design and construction of healthy, durable homes that use fewer resources and produce less waste. The specialty denotes practical knowledge in the LEED for Homes rating system.

- 636 LEED AP Homes

Incentives

A key driver of LEED projects are local, city and state-wide incentives and tax breaks that reward and encourage green home features, including energy efficiency. Residential incentives most often come in the form of tax abatements or credits. Both types of incentives aim to reduce tax liability for participating individuals and encourage them to make choices that create net-positive benefits. Often, the assessment of the value of these incentives, accounted for as forgone revenue to the government, is weighed against the benefit it will provide the community. Examples of this kind of incentive for green homes can be found in New Mexico, Ohio and New York.

LEED POLICY SPOTLIGHT

The City of Cincinnati Community Reinvestment Area (CRA) Residential Property Tax Abatement Program

Original LEED policy passed: 2006
Year LEED incentives put in place: 2007

Policy Intention:

- Stimulate community revitalization
- Retain city residents
- Attract homeowners
- Reduce development costs for homeownership and rental projects

What is it?

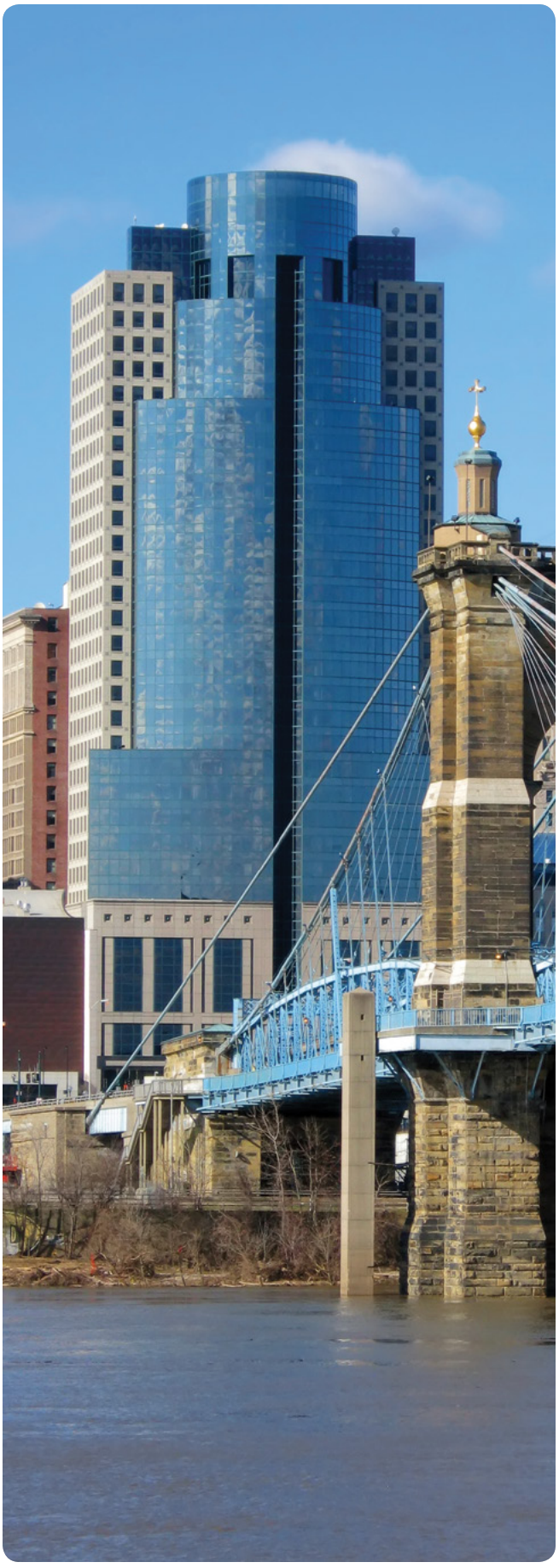
The City of Cincinnati offers a residential property tax abatement for new construction and renovation projects that meet LEED certification within the city limits. Residential properties are designated as those between one and three units. Properties comprised of more than four units are considered commercial properties and can also apply for a LEED-based tax abatement through a corresponding program.

How does it work?

For new construction projects (permitted after Jan. 31, 2013), the maximum abatement ranges from $275,000 for up to 15 years for LEED Certified homes to an unlimited abatement value for up to 15 years for LEED Platinum homes for the improved value of the project. The same abatement values apply for renovations for up to 10 years on the improved value. One- and two-unit structures must spend a minimum of $2,500 ($5,000 for three-unit structures) to be eligible for the abatement. The program is run by the City of Cincinnati Department of Trade and Development and property's abatement amount is determined by the Hamilton County Auditor's Office. Property owners pay taxes on the original value of the property.

Outcomes by the numbers

- Number of single family homes participating: 192
- LEED breakdown
  - Certified: 79
  - Silver: 87
  - Gold: 20
  - Platinum: 6



LEED PROJECT SPOTLIGHT

Step Up on Vine

Hollywood, Calif.
LEED for Homes Platinum
Certified January 2013

Step Up on Vine is the renovation of a historic three-story, 1925 style hotel into 34 units of permanent supportive housing. The project provides member-driven supportive services and permanent living for people experiencing mental health issues and chronic homelessness.

Ways that sustainability is important to Step Up on Vine:

- Energy costs savings can be redirected to supportive services
- Step Up is established as a role model and leader in "going green" in the community
- A beautiful building, designed for healthful living, helps provide tenants a sense of well-being which leads to recovery

A key goal of the project was to improve the building's existing energy efficiency by at least 20 percent. Energy conserving measures include ENERGY STAR rated appliances and fixtures, high-efficiency variable refrigerant flow system for heating and cooling, and the addition of a cool roof. Renewable energy systems include a solar thermal hot water system used to preheat water and significantly reduce the use of natural gas for water heating and a photovoltaic array on the roof. The ground floor features community spaces including a computer lab, restrooms, café and commercial kitchen. The second and third floors consist of apartments and a laundry facility. The roof features an aeroponic garden used for job training for tenants and provides an opportunity for tenants to grow their own herbs and vegetables.

LEED PROJECT SPOTLIGHT

Sterling Alvarado Student Housing at San Diego

San Diego, Calif.
LEED for Homes Gold
Certified October 2012

The Dinerstein Companies, the developers behind the Sterling Alvarado project, strived to create a new, modern student housing project for nursing students at San Diego State University that would be energy efficient, environmentally conscious, and cutting edge for student housing developments in the area. The Dinerstein Companies also completed another LEED project in the same market a year prior to breaking ground on this project that was the first LEED student housing project in the city. It was a great success and was well received by the community, largely due to the commitment to sustainability and LEED certification. Wanting to continue with this positive momentum, The Dinerstein Companies were striving for an even better project with Sterling Alvarado, ultimately reaching LEED For Homes Gold.

The project team focused mainly on energy efficiency and ventilation strategies. Given the orientation of the building and the limited floor space, this became a major variable in design. To meet ventilation requirements, the team went with the continuous exhaust strategy. Given the climate zone of San Diego, the team didn't have to design to address humidity, which saved on construction and operating costs. To get cooling and heating loads down, the project team used a combination of the ultra-efficient tankless water heaters, ductless 26 SEER HVAC units, and 14 SEER HVAC split systems with hydronic heating. They also focused on lighting densities and used high performance ENERGY STAR appliances and windows. This focus early on helped the project reach a building performance improvement of 25.1 percent over California's 2008 Title 24 Energy Code.

San Diego State University's student body and faculty have made a huge commitment to sustainability: so much so that they have adopted sustainability policies as part of their curriculum and made it a requirement that their student center achieve a LEED Platinum designation. This being said, the Sterling Alvarado student housing project's commitment to LEED has had a huge impact on occupants, staff and the community. It is a reminder to neighbors and residents of the importance of sustainability.

The biggest difference has been seen in reduced utility bills. The building has had a 30 percent savings in utility expenses and is operating below the allotted water use allocation for a building of its occupancy type. Besides the expense savings, the building has a community activity center and a park that is open to the public to promote health. The student housing building is also conveniently located within walking distance to retail and San Diego's MTS rail system, and residents are encouraged to go green with free MTS passes. To further reduce impact to the area, the building has a rideshare program, free bike rentals and a car charging station for residents with electric vehicles. Sterling Alvarado incorporates a small solar array to cover garage lighting, and residents receive education about sustainability.

LEED PROFESSIONAL AND HOMEOWNER SPOTLIGHT

Todd Ray, FAIA, LEED AP

Principal, Studio 27 Architecture

Todd Ray is a veteran in the green homes space, and worked on his own sustainable, efficient home. This is his story.

What led you to the field of green buildings and specifically, green homes? Sustainable architecture is responsible architecture. Understanding that around 40 percent of all carbon emissions in the Unites States are due to building, you quickly comprehend the fact that if any profession can have a significant impact on our environment, architecture is at the front line. Since inception, our studio has inherently designed with the factors of the environment at the fore. With the advent of LEED, we now have been provided with a metric to measure, monitor and validate the work.

Can you describe the process of applying your expertise to your own LEED-certified home? What features were most important to you? Our studio has been researching sustainable living models for many years, but around six years ago, we explored theoretical approaches to urban dwelling for optimal sustainable dwelling. This research resulted in a project we call the Regenerative Rowhouse. Based on product selection, systems evaluation and energy modeling, we created a net positive row dwelling. When you array this concept, the idea provides a vision for improving the carbon footprint of cities; home by home and block by block.

When we started considering a renovation to a suburban condition, many other factors came into play. The individual structure had to become highly sustainable as well as within an area of public transportation or other means of sustainable transportation. My house was an opportune case study—it is on an extensive array of public bus routes, bicycle trails, and it has a diversity of public amenities within walking distance. So then the challenge became the unit—the house—had to perform exceptionally well. Studying optimal construction and building systems became our focus.

So this house employs a super insulated building envelope that is conditioned with a high performance geothermal system and heat recovery ventilation. The interior illumination is primarily from natural daylighting with supplemental and evening light from energy efficient fixtures. Water consumption is minimized based on fixture flow rates, and rainwater is harvested for non-potable water needs. Houses can actually be fairly straightforward when you consider them—as Le Corbusier once proclaimed—a machine for living. It is all an interwoven high performance, low consumption machine for dwelling.

What's been your experience living in a LEED home? What do you like most about it and how does it compare to a traditional/non-green or LEED home? This is an interesting question. At first I thought it was simply the qualities of a new house, but as we have lived here awhile, I appreciate a broad range of aspects which are truly sustainable items. These include the quality and access to daylighting and views to the exterior; the purity of the air and lower dust and particulates in the house; and lower maintained items at the exterior which speak to durability issues. We have also really enjoyed the exterior site conditions of the walkable community, the indigenous planting and bird and animals we share the site with, and love our cistern which we use throughout the summer for the garden.

What's been the most exciting or impactful green home project that you've worked on? I would say this has been a journey for our studio. The Regenerative Rowhouse research project touched a lot of people and hopefully educated, or at least created questions and interest, as it was on exhibit at the National Building Museum and then was on exhibit for a year through the boroughs of New York.

This particular house has been a remarkable self-awareness exercise, but also public awareness opportunity. The house is Arlington County Virginia's Green Home Choice first Gold Certified project (their highest certification). Since that time, and several Excel spreadsheets and data tracking exercises, it is now one of their first case study houses. Since it has been occupied, +2edison7 is operating over 40 percent more efficiently compared to the 2007 baseline average, but it has actually achieved 60 percent more efficiency than the pre-renovated house from 1944. The Arlington County Community Energy & Sustainability Task Force has reported that, collectively, buildings use three-quarters of all of the county's energy. Twenty four percent of all fuel use and 25 percent of greenhouse gas emissions in the county come from residential buildings. Arlington County aims to hold renovated residential buildings to a new standard. By 2015, Arlington residences that have undergone significant renovation will be expected to operate at least 30 percent more efficiently on average compared to 2007 performance, so this house is helping provide an example of how to achieve these ends.

How do you envision the future of the green homes movement? What's in the cards and how will we get there? I do not particularly see this as a movement but more as a re-enlightenment phase of humankind's thought and awareness evolution. There was a time when humans had homes, food and shelter that were all in tune with natural processes. We lost awareness of what this meant in our race to domesticate and conquer. Now that we have the ability to assess global health, we have become aware of how ill we are making the planet. This consciousness should now lead everything from global environmental summits, buyers for Home Depot, and all product manufacturers. USGBC brought this discussion to the forefront in the design and construction industries which was a remarkable achievement. Several years ago, Bruce Mau had a travelling exhibit titled "Massive Change." The baseline premise is to change the very nature of products and consumption to be more sustainable through design. I think this is our current challenge, and the home is a fundamental unit for this to occur.

A VISION FOR THE FUTURE

"The first step is to establish that something is possible; then probability will occur."

- Elon Musk

The time has come to do more with less. As consumption habits of the developed world begin to overwhelm our planet and impact the entire globe, we have a responsibility to enact solutions and utilize our resources responsibly. That starts on the individual level. It starts at home.

The good news is that LEED homes benefits the triple bottom line: people, planet and profit. While controversies related to climate change will always exist, no one can argue the influx of tsunamis, hurricanes, floods and extreme weather conditions. There is a correlation between our consumption and natural challenges. A rapidly growing global population and our collective consumption is stressing the planet beyond its capacity. We all want to leave a meaningful legacy, and living more sustainably at home is a surefire way to leave a lasting impact. There are other benefits: LEED homes help homeowners and developers save every bit through high efficiency measures. LEED and green homes have an increased overall value resulting in a lifetime of savings. With ubiquitous green homes, homeowners can demand better interest rates and lower insurance premiums. This is money that can and should be saved by all.

Here's a look at the high-impact programs and initiatives that USGBC has in the works:

Existing Homes

Half of the people in the world now live in cities, a trend that is expected to continue. Which means, more than ever, apartments, condominiums and other multifamily residential buildings will be the norm for communities in global urban settings. The LEED rating system presents a tremendous opportunity to green this growing building stock of both buildings new and old, providing the strategies and measurements we need to remain accountable.

Since the greenest building is the one that's never built, greening the globe's existing building portfolio is a key focus area for USGBC and LEED. Among LEED's offerings, LEED for Building Operations and Maintenance: Existing Buildings, a rating system geared toward existing buildings that range from recently built to historical, presents a pathway for multifamily buildings to certify with LEED. For single family homes, the LEED team is working hard to advance options, programs and tools to ensure homeowners do not have to build new to create a sustainable, efficient dwelling.

"By 1990, less than 40% of the global population lived in a city, but as of 2010, more than half of all people live in an urban area. By 2030, 6 out of every 10 people will live in a city, and by 2050, this proportion will increase to 7 out of 10 people."[11]

In the United States, 249,253,271 people (80.7%) live in urban areas (as defined by the Census Bureau) as of 2010.[10]

10 United States Census Bureau, *2010 Census Urban and Rural Classification and Urban Area Criteria* (2010), http://www.census.gov/geo/reference/ua/urban-rural-2010.html.

11 World Health Organization, *Global Health Observatory (GHO) Urban Population Growth*, http://www.who.int/gho/urban_health/situation_trends/urban_population_growth_text/en/.

Performance

Regardless of what type of home in which an individual lives, be it a single family home in an urban, suburban or rural setting, or a multifamily townhouse or apartment high-rise, building and home performance is critical. LEED has a growing focus on performance. That's why USGBC has developed the LEED® Dynamic Plaque™, a real-time building performance monitoring system. By monitoring building performance, building staff or homeowners will be able to benchmark the current state of their home or multifamily building as a whole and actively make changes to spur better performance, cost-savings and efficiency, from adjusting the thermostat to installing energy efficient windows. The LEED Dynamic Plaque will also provide a gateway to compare building performance to homes or residential buildings in the immediate vicinity or in any other geographic area. You'd want to know if your building was a top performer, right? And also if your building could further improve? The LEED Dynamic Plaque will be a key way to remain accountable for our actions and practice continual improvement. **LEEDON.io**

LEED PROJECT SPOTLIGHT

Gülnar Homes

Istanbul, Turkey
LEED for Homes Gold
Certified on March 2013

Gülnar Homes is a boutique project that includes ten duplex villas, located in Istanbul, Turkey. Zekeriyakoy, the region in which the project is built, is famous for its landscape, including diverse habitats. The name "Gülnar" comes from a rare type of cherry native to the Zekeriyakoy region.

Being located in such an environmentally attractive place, the Gülnar Project team wanted to design and build their project accordingly, with utmost care to protect and restore habitat. They contacted sustainability management company Altensis, who told them about the LEED for Homes rating system. The program matched their goals of protecting the environment, reducing emissions as well as maintaining the tenant comfort and wellbeing, which is a must for their target customers. Also, LEED for Homes certification was a perfect way to convey all these goals and intentions to the general public under one system. This was a very important project for Altensis in order to show the Turkish real estate sector that LEED certification is not only for high rise commercial buildings: it can achieve great results and benefits in small residential projects, too.

The Gülnar project includes many green features and achievements:

- Protection and restoration of habitat
- Minimum impact on environment during construction
- Energy efficient systems and high performance insulation
- Water savings via high-efficiency fixtures and rainwater reuse
- Low VOC materials
- Selection of regional/recycled materials

Altensis expects the project to result in energy savings of 20 percent and water use savings of 30 percent, compared to similar buildings. LEED certification has allowed the owner to promote the project on a higher platform, and to talk more confidently and openly about expected savings and enhancement in quality of life, since the project is certified with an internationally reliable rating system such as LEED. Additionally, since this is the first LEED for Homes certified project in Turkey and Europe, and the third outside the U.S., the owner gained a strong competitive edge against other similar projects nearby, resulting in sales advantages. The owner will be going for LEED certification again for an upcoming project nearby.

The occupants state that they are especially pleased with the high quality of construction, durability measures and high energy performance of the houses. Promoting LEED for Homes in Turkey, so that the general public is more aware of it, will allow their LEED-certified houses to become even more valuable assets.

LEARN MORE about international residential LEED projects.
Visit usgbc.org/projects

LEED PROFESSIONAL SPOTLIGHT

Chrissa Pagitsas

LEED AP, Director of Green Initiative, Property Conditions & Environmental Risk, Fannie Mae Multifamily, Fannie Mae

In her role at Fannie Mae, Chrissa Pagitsas has been instrumental in developing the ENERGY STAR® Score for Existing Multifamily Housing Properties, set to launch in fall 2014. Read her story, below.

What led you to the green homes industry, working in green multifamily efforts at Fannie Mae? Each phase of my career has been a stepping stone to my current position as the Director of the Green Initiative at Fannie Mae. I first started in the traditional energy sector, developing my knowledge of energy billing and pricing systems in the U.S. and Europe. I learned how traditional electric rates are built and billed but also how renewable energy works, too. That led me to working on renewable energy projects in developing countries, such as analyzing the viability of using animal waste to run methane biodigesters in Morocco, Brazil and China. Getting my MBA from the University of Virginia Darden School of Business hooked me in the area of finance and real estate, serving as two additional stepping stones. Finally, I acquired my LEED AP and consulted to retail, office and multifamily property owners on making their properties more sustainable and energy efficient. These stepping stones led me next to Fannie Mae, where I combine elements from each of my prior positions. I develop financial mortgages and create special underwriting tools to provide capital to multifamily owners to reduce energy and water costs while providing better homes to renters with reduced impact on the environment. It's a unique position and one that I thoroughly enjoy.

Why is resource efficiency critical for the multifamily housing stock? Multifamily property owners must operate in a hybrid world between commercial office properties and single family homes. They must maximize profits, attract tenants, and operate leanly, as do office property owners, but must allow flexibility to tenants to customize their heating and cooling preferences, as can single family home owners. Owners of existing multifamily properties are also competing against newer developments, and must stay competitive. By focusing on energy and water efficiency improvements, such as air sealing, upgraded HVAC systems and ENERGY STAR appliances, the property owner can achieve these multiple goals. A more energy and water efficient property will attract new tenants, retain existing tenants, have lower maintenance costs and therefore lead to greater profitability. For tenants, energy and water efficiency improvements mean warmer apartments in the winter and cooler apartments in the summer accompanied by lower energy and water bills. Owners of small properties of five rental units to large properties of 500+ units can achieve these goals with planning and engaging with their financial partners to access capital needed to make these valuable energy, water and cost saving improvements.

What is one message that you think everyone should know about green multifamily properties? Green multifamily properties are good for all multifamily stakeholders. Lower energy and water costs achieved through better quality materials and efficiency measures mean lower utility costs, more comfortable rental units for tenants, higher cash flows for owners, and lower loan risk for the lender. Finally, there is reduced impact to the environment, which is everyone's stakeholder.

What's been the most exciting or impactful green initiative that you've worked on to deliver to the multifamily industry? When I joined Fannie Mae to lead the Multifamily Green Initiative, it was clear that multifamily owners were missing a key tool to reducing energy consumption: a way to track and measure energy consumption over time. More specifically, the multifamily industry needed a nationally recognized, non-proprietary system accessible to all multifamily owners, large and small and importantly free. The same tool had to generate energy tracking information that a non-energy geek, like a financial lender, could understand. Recognizing this need led me to set-up a partnership with the EPA so that we could develop together an ENERGY STAR 1 to 100 rating for existing multifamily properties. From there, I led my team to design the survey to collect energy and water data from multifamily properties nationally, collect survey responses from over 1,000 multifamily properties, and assist the EPA in interpreting the data. As a result of this work, the EPA will be releasing the ENERGY STAR® Score for Existing Multifamily Housing Properties in the fall of 2014. It's an important step forward for the multifamily industry towards reducing energy costs and consumption, and will lead to more energy efficiency.

How do you envision the future of the green residential and multifamily movement? What's in the cards and how will we get there? The future will be about retrofitting existing single family and multifamily homes to green standards but in more efficient, mass-market ways. Currently there is great variability in the information, assessment and recommendations that a single family or multifamily owner will receive on how to retrofit their properties. To achieve mass market adoption and meet our goals to have a greener planet, the residential and multifamily industries will move to a more standard way of assessing properties, communicating needed property improvements to owners, installing the improvements and thereby achieving the green goals for the property.

ADDITIONAL INFORMATION:

Page 6: Top Ten U.S. States with LEED for Homes Certified Units

STATE	LEED-CERTIFIED UNITS
CA	9,186
TX	8,476
NY	2,629
NJ	2,625
GA	2,624
OH	2,135
FL	1,860
WA	1,769
MA	1,760
NM	1,698
NC	1,487
PA	1,245
OR	1,234
CO	1,138
LA	1,119
AZ	1,082
MD	1,080
VA	937
MI	814
MS	767
MN	745
IN	627
DC	605
SC	591
TN	538
HI	464

STATE	LEED-CERTIFIED UNITS
NH	417
ID	374
ME	238
CT	235
SD	193
IL	190
VT	181
UT	163
NV	162
MT	140
AL	137
AK	129
AR	128
MO	122
OK	122
WY	108
WI	73
RI	66
KY	55
ND	54
KS	29
DE	11
WV	4
IA	3
NE	3
VI	1

Page 7: Top Ten Countries with LEED for Homes Units (Certified + Registered)

COUNTRY	UNITS
US	136,731
CA	2,332
SA	809
KY	109
CN	98
HT	87
TR	68
ME	59
MZ	40
HK	18
PE	3
CO	2
AT	1
BZ	1
FR	1
GB	1
MX	1
OM	1
SE	1
TZ	1
Grand Total	**140,364**

Page 8: Top Ten Credits

LEED for Homes 2008				
Credit	Name	Count of Projects (Achieving)	Count of Projects (Total)	Percent of Projects (Total-Achieving)
SSc5	Nontoxic pest control: pest control alternatives	12,029	12,211	99%
MRc2.2	Environmentally preferable products	12,007	12,211	98%
EAc1.2	Optimize energy performance: exceptional energy performance	11,591	12,211	95%
EAc11.2	Residential refrigerant management: appropriate HVAC refrigerants	11,537	12,211	94%
WEc3.2	Indoor water use: very high efficiency fixtures and fittings	11,463	12,211	94%
LLc4	Existing infrastructure	11,422	12,211	94%
EQc2.2	Combustion venting: enhanced combustion venting measures	10,936	12,211	90%
LLc2	Site selection	10,448	12,211	86%
IDc2.3	Durability management process: third-party durability management verification	10,246	12,211	84%
LLc6	Access to open space	10,133	12,211	83%

Page 15: Number of LEED-certified Bedrooms

Multifamily
- Total number of certified units: 40,599
- Average number of bedrooms per unit: 2.05
- Estimated number of bedrooms: 83,228

Single Family
(This includes both attached & detached. A town home or row home is considered an attached single family home.)

- Number of homes certified: 12,955
- Average bedrooms per single family home: 3.35
- Estimated of bedrooms: 43,399

Total estimated number of bedrooms: 126,627

ACKNOWLEDGMENTS

Who better than lifelong innovator Tony Fadell to provide the introduction to this report? At a time when the green homes movement is rocketing forward with more speed and enthusiasm than ever, we are excited to see the type of innovation and problem-solving that Tony and Nest have employed growing across the entire industry. Thank you!

USGBC is proud to work at the center of the residential green building movement. From the residential LEED rating system to our myriad resources for green building professionals and homeowners alike, we aim to provide the industry and consumers with a full suite of resources to create healthy, efficient dwellings.

Taryn Holowka
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USGBC
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U.S. GREEN BUILDING COUNCIL
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