LEED IN *MOTION*

RESIDENTIAL

July 2019

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Cover and this photo: Arlington County's first LEED® Platinum multifamily community, Ten at Clarendon reduces its environmental impact via a green roof with usable garden; promoting a car-free lifestyle through 1:1 bike parking, on-site repair shop and wash, and real-time digital transit board; and more.

Hoachlander Davis Photography

The LEED in Motion report series provides a holistic snapshot of the state of green building and LEED, the world's most widely used green building and performance rating system. These industry and topic 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, whether single family or multifamily, owned or rented, are transforming the residential real estate market and the lives of people across the United States and the globe.

This report shows the stories of LEEDers who are leading the way by taking action.

Sustainable living starts at home

Foreword from Mahesh Ramanujam
President and CEO, U.S. Green Building Council
and Green Business Certification Inc.

For more than a quarter century, USGBC has worked to transform the buildings where we live, learn, work, and play through our globally recognized green building program, LEED. Of all of the spaces where we spend our time, day in and day out, our home should be the most important and sacred place in our lives. This is why our homes should be healthy living spaces that make us feel comfortable, happy, safe and productive.

LEED helps create living spaces where people can thrive. LEED-certified homes are designed to provide clean indoor air and ample natural light and to use safe building materials to ensure our comfort and good health. They help us reduce our energy and water consumption, thereby lowering utility bills each month, among other financial benefits. Using the strategies outlined in LEED, homeowners are having a net-positive impact on their communities.

LEED homes are also designed, constructed and operated to be resilient in adverse conditions. They are developed with proactive design planning for potential impacts of catastrophic weather, and LEED takes into account several strategies that can ensure the longevity of homes based on location and environmental issues specific to a particular region.

As you read this LEED in Motion report, I encourage you to think about how your home impacts the environment, your family and the community you live in. To those who are new to the green building community, I hope the pages of this report demonstrate clear ways that LEED can help you to have a positive impact on your family's health and well-being. To those individuals and businesses whose work is captured in this report, thank you for all that you have done to make our homes healthier, safer and more comfortable.

I hope this report conveys useful statistics and stories that underscore the urgency of our mission to make the world a more sustainable place, and that you find it useful as you share your commitment to green building with others.

With gratitude,
Mahesh Ramanujam

Walking the talk: 13 years of sustainability

Foreword from Erin Hatcher
Vice President – Sustainability, AMLI Residential

It's hard to believe I took my LEED AP exam over thirteen years ago. It was my first time using sustainability to push my personal knowledge and career beyond typical college and industry expectations. Coincidentally, 2006 was also the same year that AMLI Residential established a commitment to achieving LEED Silver for any new apartment developments. In these early years, we spent hours hassling manufacturers to provide recycling information, collecting VOC data and introducing industry professionals to sustainability harvested wood, but it laid a great foundation for resetting multifamily developer expectations and preparing for challenges ahead. We knew sustainability would become more and more important over the years, but we did not foresee terms like Environmental, Social, and Governance (ESG) or resilience being regular topics with investors. My sustainability career and AMLI's sustainability commitment have been running parallel paths ever since we officially coordinated in 2012 when I joined the fAMLI. And it all started with LEED.

WHAT HAVE WE LEARNED?

Integrating sustainability into any organization is not easy. Even with senior leadership support, change is hard and the collaborative nature of sustainability often pushes organizations to break down silos between departments and improve goal alignment. Long term, this has benefits beyond sustainability but is not typical practice. Communication and clear metrics are the most important tools to help overcome these barriers.

We continue working to collect and create data sets with hard numbers for energy, water and waste. But we also have to consider elements that are subjective like the health and happiness of our residents. Programs including Arc and many other data platforms are making it easier to report reductions and show progress and ROI on sustainability projects. There is a business case for sustainability, but you have to commit to establishing goals, commit to continued progress and track the real results with quality data. We've also found that surveying residents gives AMLI perspective on less tangible subjects and participating in investor benchmarking, including GRESB, provides us with valuable market insights. Sharing this information within your organization creates conversations that lead to collaboration and impact.

WHAT'S NEXT?

Closing the gap. AMLI is extremely proud to achieve a 50% LEED certified portfolio in 2019. We are using our experience to expand sustainability initiatives across our entire portfolio, certified or not. This "all in" approach involves aggressively tacking any remaining low-hanging fruit at a property level, but also strategizing at a portfolio level and using our certification success as fuel to expand our impact.

Both personally and professionally, I believe residential developers and building managers have a great responsibility to our residents and the greater public. Our industry collectively has a huge impact on the greater environment and our individual buildings have a direct impact on the occupants calling this space home.

Let's reflect on the early year's successes with pride but know that our job is not done after a certification or goal is achieved. Our ongoing commitment to continuous improvement is what makes sustainability like no other industry. Let's keep expanding beyond typical expectations.

LEED Residential

"Live at home."

- George Washington Carver

Homes represent a critical piece of the buildings industry – not only are they the structures where 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 2019, housing contributed $2.78 trillion to gross domestic product.[1]

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

LEED is the right fit for both multifamily and single-family projects, with more than 493,700 residential units achieving certification to date.

HEALTH: LEED homes are designed to maximize indoor fresh air and minimize exposure to airborne toxins and pollutants.

SAVINGS: LEED homes can help save on costly resources—energy and water. On average, certified homes use 20 to 30 percent less energy than a traditional home built to code, with some homes reporting up to 60 percent savings. Using fewer resources means lower utility bills each month.

TRUSTED: LEED homes are third-party verified, performance-tested, and certified to perform better than conventional homes.

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

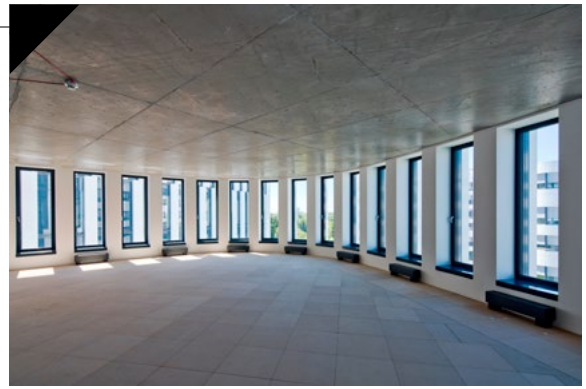
On average, LEED-certified homes use 20-30 percent less energy than a home built to code, with some homes reporting up to 60 percent savings, which lowers utility costs.

1. National Association of Home Builders, Housing's Contribution to Gross Domestic Product (GDP), https://www.nahb.org/research/housing-economics/housings-economic-impact/housings-contribution-to-gross-domestic-product-gdp.aspx

LEED Residential

Multifamily
New construction and major renovation multifamily projects with any number of stories

Multifamily Core and Shell
New construction and major renovation multifamily projects that do not include a complete fit out



Single Family Homes
Single family attached and detached

LEED certification can be applied to all types of residential projects.

A study by Southface Energy Institute and the Virginia Center for Housing Research found that green affordable housing developments spend 12 percent less on energy in common areas per square foot than non-green developments.[2]

How it Works: Certification

LEED certification for residential projects comprises the following steps:

1. Determine your project type (Single Family, Multifamily or Multifamily Core and Shell) and register
2. Select priorities for your project based on outcomes outlined in the LEED rating system (ex. human health, energy efficiency, carbon reduction, etc.)
3. Review the tools and resources available for LEED projects
4. Document achievement of rating system requirements and credits
5. Submit for review

Third-party Verification

To earn LEED certification, all projects submit documentation for review by Green Business Certification Inc. (GBCI), the premier organization that independently recognizes excellence in green industry performance and practice globally. It provides third-party verification services for LEED certification and credentialing through a scientific process to verify that certain criteria for sustainable building are met.

On-site Verification

While LEED is inclusive of virtually every kind of building, homes represent a truly unique project type. It is especially important to ensure health and safety checks are conducted within the actual space. LEED includes on-site testing and verification requirements to check energy performance and overall rating system compliance, including thermal enclosure, compartmentalization and mechanical ventilation testing.

2. Southface Energy Institute and the Virginia Center for Housing Research, The Impact of Green Affordable Housing, https://www.southface.org/wp-content/uploads/2016/07/impact-of-green-affordable-housing-report-1.pdf

Residential LEED Data

LEED-certified Residential Units	493,733
LEED-registered Residential Units	1,162,762
Total LEED Residential Projects Globally	1,656,495
Gross Square Footage of LEED Residential Projects Globally	2,120,135,863
Total LEED Residential Single Family Units	42,490
Total LEED Residential Multifamily Units	1,605,259
Total LEED Residential Affordable Housing Units (LEED for Homes)	78,352
Total LEED Residential Market-rate Units (LEED for Homes)	369,637

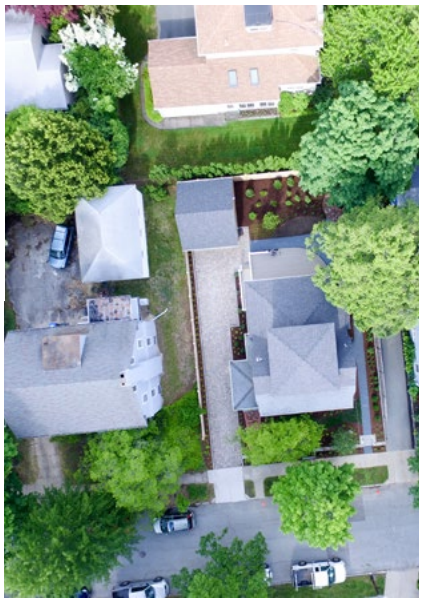
Total includes LEED-certified and LEED-registered

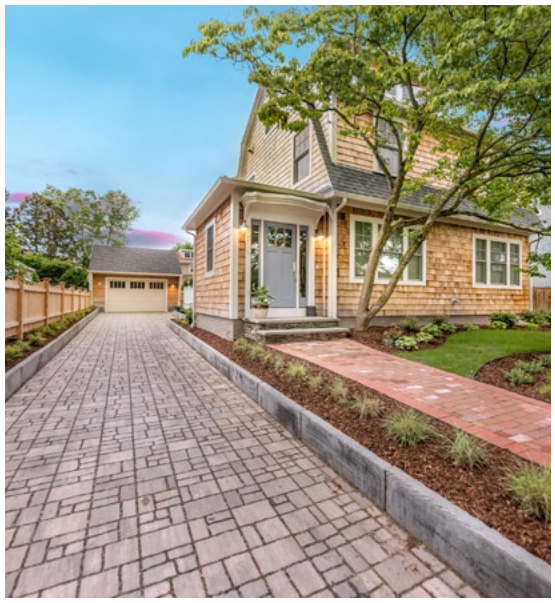
As of June 2019

LEED-certified Residential Projects by Certification Level

- Certified **10,543**
  - Silver **10,513**
    - Gold **7,457**
  - Platinum **5,073**

As of June 2019

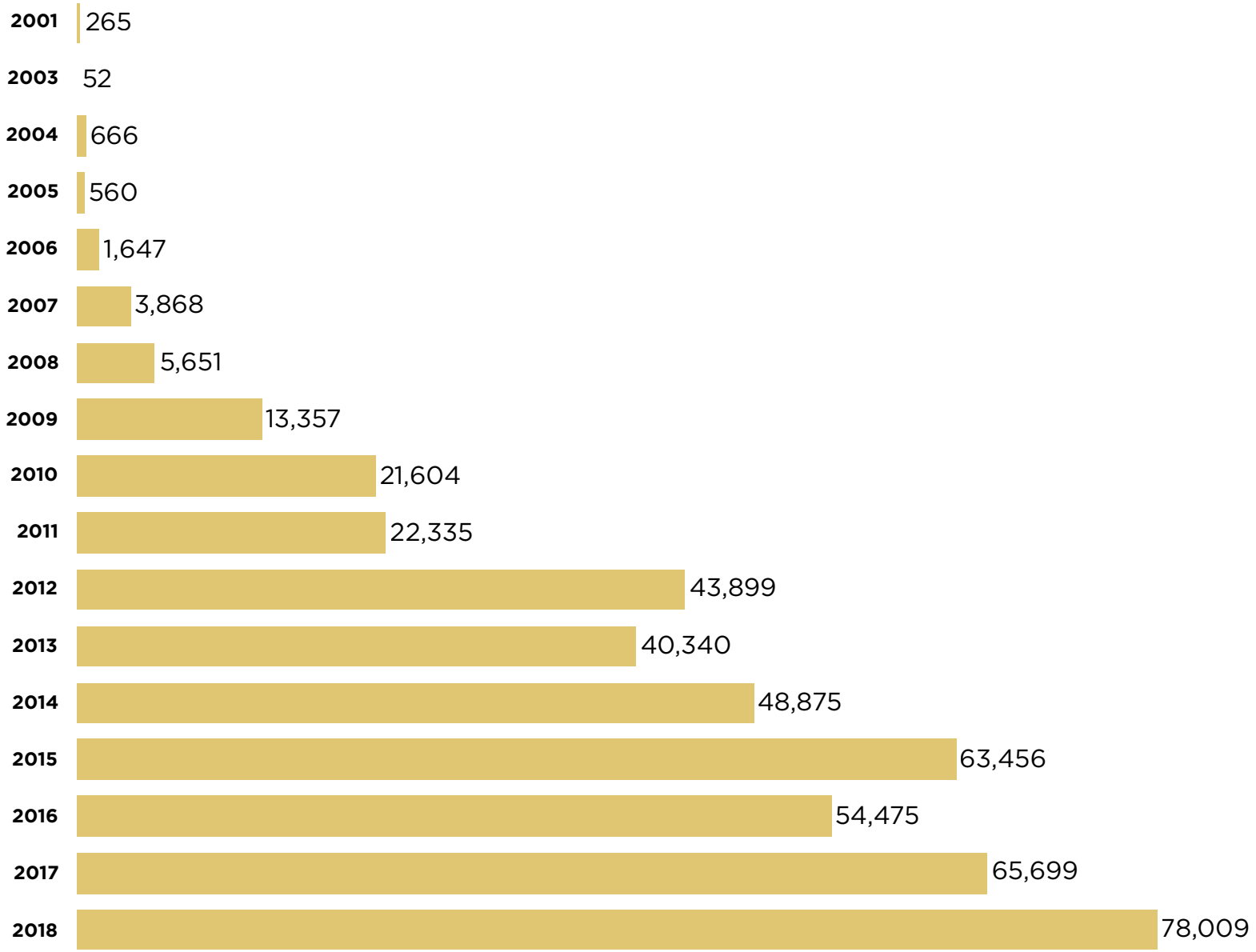




Learn more about LEED residential projects. Visit **usgbc.org/projects**

As of June 2019

LEED-certified Residential Units on the Rise



Top 10 Countries and Territories

for LEED Residential Units (Certified + Registered)

As of June 2019

Country/Territory	Residential Units	GSF
United States	1,156,841	1,394,155,416
Canada	121,749	165,721,871
United Arab Emirates	107,815	149,321,567
Mainland China	55,549	75,885,003
Turkey	47,261	65,502,424
Republic of Korea	40,869	65,536,584
India	25,055	38,273,259
China, Taiwan	10,655	15,287,413
Brazil	8,257	11,878,703
Mexico	7,427	14,392,318

*Full list of countries and territories 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.[3] Energy efficiency in apartments could save $3.4 billion.[4]

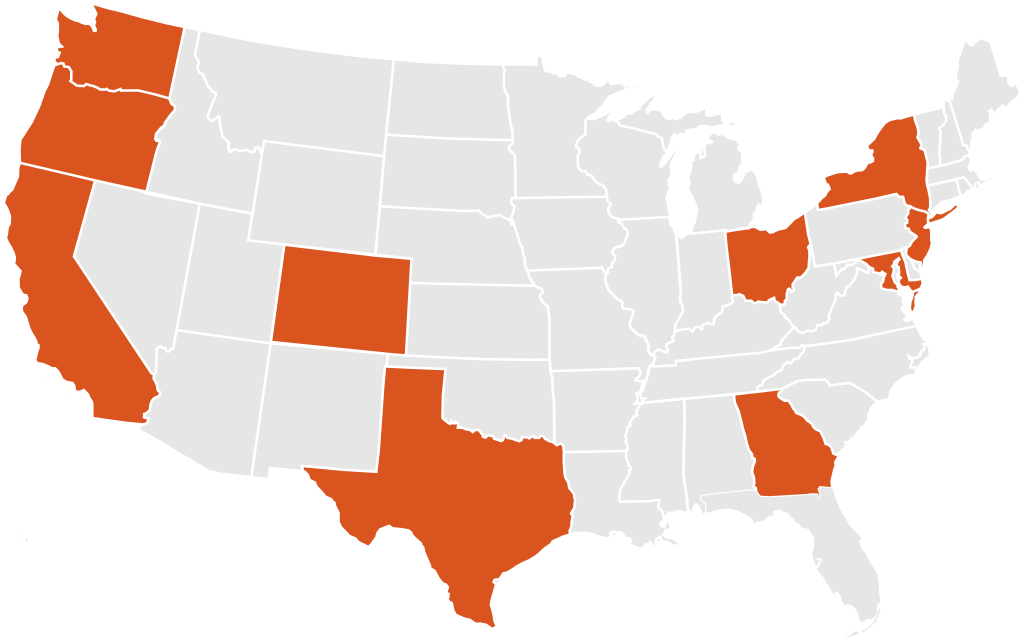
3. Jonathan Borck, Robert N. Stavins, and Todd Schatzki, An Economic Perspective on Building Labeling Policies (2013), 24, http://www.analysisgroup.com/article.aspx?id=14140.

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

Top 10 U.S. States

for LEED-certified Residential Units

As of June 2019



Top 10 States	Residential Units	GSF
California	39,296	46,252,746
Texas	24,598	41,425,633
New York	10,876	12,700,343
Washington	10,521	11,856,316
Colorado	8,091	9,870,268
New Jersey	7,646	8,790,645
Ohio	7,402	9,755,348
Oregon	6,729	7,961,683
Maryland	5,966	9,019,059
Georgia	5,891	7,299,589

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

A study from The University of Texas at Austin and USGBC reported that new homes in the Austin metropolitan area that are built to green building standards like LEED are worth, on average, $25,000 more in resale value than conventional homes. Additionally, between 2008 and 2016, LEED-certified homes showed an 8 percent boost in value, while homes built to a wider range of green standards saw a 6 percent increase in value.[5]

5. The University of Texas at Austin and the U.S. Green Building Council, The Value Of LEED Homes In The Texas Real Estate Market: A Statistical Analysis Of Resale Premiums For Green Certification, http://vca-green.com/wp-content/uploads/2017/07/Study-shows-resale-premium-for-LEED-certified-Texas-homes.pdf

Strategies and Outcomes

“Those who dwell, as scientists or laymen, among the beauties and mysteries of the earth, are never alone or weary of life.”

- Rachel Carson

LEED multifamily and single-family homes reap the benefits of energy and resource efficiency, which is good for homeowners’ and building owners’ pocketbooks as well as the environment. Certified homes are also valued higher than traditional homes built to code.

And, since each LEED home undergoes detailed documentation review and as-built performance testing, all of these measures are verified.

HUMAN HEALTH AND COMFORT

Building a home that supports the health and comfort of your family requires specific design considerations for indoor air quality, as well as thermal, visual and acoustic comfort.

Ventilation and Enhanced Ventilation support proper air flow throughout a home, bringing fresh air in while flushing exhaust and contaminated air out, making indoor air cleaner and healthier for occupants.

Garage Pollutant Protection/Enhanced Garage Pollutant Protection keep vehicle exhaust and other pollutants originating from adjacent garages in single family homes and multifamily buildings separate of the living space.

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

Compartmentalization/Enhanced Compartmentalization is key for multifamily projects, as it helps prevent air, odor and smoke transfer between units.

Low-emitting Products encourages the installation of products that emit fewer volatile organic compounds (VOCs), ensuring a healthier indoor environment.

ENERGY

Energy efficient residences burn fewer fossil fuels, decreasing air pollution associated with buildings. Saving energy in your home from a holistic perspective means addressing energy use reduction, using energy-efficient design strategies and renewable energy sources.

Education of Homeowner, Tenant, or Building Manager helps sustain performance of the home by training its occupants in the operation and maintenance of LEED features and equipment. Homeowners, renters and managers who have clear and complete information about how to operate their dwellings can save energy, create a more healthful and comfortable environment, reduce maintenance, and extend building life.

Annual Energy Use provides strategies to improve the home’s overall energy performance and reduce its greenhouse gas emissions.

Reducing energy consumption is fundamental to green building. Improved performance reduces both energy bills and energy-generated pollution that contributes to climate change.

Efficient Hot Water Distribution System examines the systems used to deliver hot water throughout the home. It helps reduce energy consumption and lowers the burden on water supply and wastewater systems by increasing the efficiency of hot water distribution.

WATER EFFICIENCY

Saving water in the home necessitates a holistic approach that considers indoor use, outdoor use, specialized uses, and metering. LEED emphasizes an "efficiency first" approach to water conservation at home.

Water Metering supports water efficiency by monitoring and benchmarking water use over time. Studies have shown that building occupants who pay their own water bills use less water. Installing individual meters or submeters on each home or unit promotes individual water conservation.

Water Use, Total Water Use, Indoor Water Use and Outdoor Water Use help homes save water through high-efficiency fixtures and efficient landscaping practices. These strategies include a minimum baseline requirement for reducing consumption and additional strategies for further water savings.

LOCATION

Homes located near community resources and public transit lines enable people to drive less and walk, bike and use public transportation more. This empowers tenants or homeowners to be more physically active, while emitting fewer pollutants from their cars, thereby making the entire community healthier.

LEED for Neighborhood Development rewards homes when they are located within a LEED for Neighborhood Development project. These projects are LEED-certified neighborhoods that emphasize environmentally responsible planning and layout of infrastructure and buildings.

Access to Transit aims to reduce pollution and land development effects from automobile use. Living near transit helps reduce the number and length of daily car trips for commuting, errands and entertainment. A household that uses mass transit may require fewer vehicles, reducing transportation costs. Additionally, using mass transit encourages walking, which can improve health and promote community involvement.

Community Resources encourage daily walking and bicycling, reducing vehicle miles traveled and automobile dependence. Homes that take advantage of this strategy are located within walking distance to amenities such as restaurants, retail, services or civic and community facilities.

MATERIALS

Good design, coupled with smart material selection, can significantly reduce waste, energy and resource depletion associated with homebuilding.

Environmentally Preferable Products ensure homes are made with locally-sourced and environmentally preferable materials for major components of construction, lowering the home's overall environmental footprint. Buying local products not only reduces the carbon footprint associated with transportation, in also saves money.

Durability Management Verification promotes enhanced durability and high performance of the building enclosure through appropriate material selection and construction practices. Independent, third-party inspection ensures that all required measures have been completed and that the home is built properly.

Building Life Cycle Impact Reduction encourages adaptive reuse and optimization of the environmental performance of building products and materials. Over their lifetimes, homes have local, regional and global environmental effects. Conducting a life-cycle analysis can help shrink a home's environmental footprint in the long-term.

RESILIENCE

Whether they are single-family or multi-family projects, LEED-certified residential buildings are designed, constructed and operated to be durable and resilient in the face of extreme weather. This includes the incorporation of strategies like durable materials, thoughtful site selection, high standards for energy efficiency, on-site renewable energy generation, grid islanding and more.

Assessment and Planning for Resilience encourages project teams to determine potential vulnerabilities at the project location. This includes sea level rise, extreme heat and more intense winter storms.

Designing for Enhanced Resilience ensures that risk-related information is gathered and requires project teams to address either one or two of the top hazards identified in the collection process.

Passive Survivability and Back-Up Power During Disruptions centers around the concept that buildings should be able to safely shelter occupants during a power outage, as well as be able to provide back-up power.

Learn more about LEED residential projects. Visit **usgbc.org/projects**

POWER BUILDERS

LEED Homes Power Builder is a distinction awarded to an elite group of developers and builders who have exhibited an outstanding commitment to LEED and the green building community within the residential sector since 2015. In order to be considered a LEED Homes Power Builder, developers and builders must have certified at least 75 percent of their homes/unit portfolio within a calendar year. Homes that have achieved any level of LEED certification are eligible for consideration.

LEED for Homes Power Builders from 2015 to 2018:

SINGLE FAMILY BUILDERS

- ActiveWest Builders (2017)
- Construction Rocket Inc. (2017)
- Cottage Home (2015)
- Fair & Square Builders (2018)
- Frankel Building Group (2015, 2016, 2017, 2018)
- Habitat for Humanity - Charlotte (2015, 2016)
- Habitat for Humanity - Dallas (2015, 2017)
- Habitat for Humanity - Grand Traverse (2016)
- Habitat for Humanity - Kent County (2015, 2016, 2017)
- Habitat for Humanity - Matthews (2015)
- JCB Homes (2015)
- JHM (2017, 2018)
- John Marshall Custom Homes (2015, 2016)
- Maracay Homes (2018)
- McGuyer Homebuilders, Inc. (MHI)–Austin (2015, 2016, 2018)
- McGuyer Homebuilders, Inc. (MHI)–Dallas Fort Worth (2015, 2016, 2017, 2018)
- McGuyer Homebuilders, Inc. (MHI)–San Antonio (2015)
- Natural & Built Environments, LLC (2016)
- Sullivan Brother Builders (2015)
- Thrive Home Builders (2017, 2018)

LEED for Homes Power Builders from 2015 to 2018:

MULTIFAMILY BUILDERS

- Alliance Residential (2017)
- AMLI Residential (2015, 2016, 2017, 2018)
- Bijou Properties (2015)
- Blue Sea Development Company, LLC. (2016)
- Bronx Pro Real Estate Management (2015)
- Brookfield Properties (2018)
- Buckingham Companies (2015)
- CAMBA (2018)
- Carmel Partners (2017)
- C & C Development (2017)
- Fore Property Company (2015)
- Forest City (2015, 2016, 2017)
- Gerding Edlen (2015, 2016, 2017, 2018)
- Housing Visions (2018)
- Ithaca Neighborhood Housing Services (2015, 2016, 2018)
- Jamboree Housing Corporation (2016)
- Koral and Gobuty Development Co, LLC (2016, 2017, 2018)
- Metro West Housing Solutions (2016, 2017)
- Msheireb Properties (2016)
- National Church Residences (2015, 2016)
- National Community Renaissance (2018)
- Native American Connections (2017, 2018)
- ROEM Builders (2016)
- Sotramont (2016)
- The Community Connections (2017)
- The Dinerstein Companies (2015, 2016, 2017, 2018)
- The Hudson Companies, Inc. (2015, 2016)
- Thrive Home Builders (2017, 2018)
- Thomas Development (2018)
- Uptown Rentals (2015, 2016)
- Urban Development Partners (2016)
- RPM Development Group (2015)

GREENHOMEGUIDE

USGBC's Green Home Guide is the go-to resource for homeowners, renters and developers who are interested in greening their residences. It features articles with tips on making homes healthier and more sustainable, as well as professional advice from green building professionals. Green Home Guide also includes a directory of green building professionals who are available to assist homeowners and renters.

Learn more at
greenhomeguide.com

LEED Project Spotlight

Holt Haus | Enkenbach–Alsenborn, Germany | LEED Platinum | Certified December 2018

The three bedroom, 2,228-square-foot single-family home was the first residence in Germany to certify using the LEED residential rating system.

Holt Haus was built using air entrained masonry block (Ytong) which acts not only as the primary structural material, but also the main air and thermal barrier. This unique building material generated only a fraction of the waste of a traditional "stick built" home.

Electricity for the home is generated in part by the 5.9 kW photovoltaic panel array on the roof. Triple-paned windows, R31 mineral wool roof insulation, and the Ytong block insures a thermally efficient building envelope. New and renovated homes in Germany are required to obtain an energy certificate (Energieausweis), similar to an ENERGY STAR rating, and Holt Haus received an A+ -- the most efficient rating possible.

The home also performed well in the Water Efficiency credit category. Built with water conserving fittings and fixtures throughout, as well as a system of gutters and downspouts connected to an on-site cistern to capture rainwater for landscaping, the project reduced overall indoor and outdoor water use by more than 57 percent.

Holt Haus's numbers do not tell the whole story. The project was a success because of the commitment of the people involved. The home was constructed by a small, local builder, using locally sourced materials and labor for a majority of the project needs. Although they were using the LEED rating system for the first time, they quickly adapted to the requirements and challenges.

Learn more about LEED residential projects. Visit **usgbc.org/projects**

LEED Project Spotlight

El Camino Real Apartments | Hatch, New Mexico | LEED Platinum | Certified August 2018

El Camino Real Apartments demonstrates how low-income housing can be affordable while reducing environmental impact and increasing occupant health and well-being. The project team employed an integrated approach, which made it possible for the team to explore many options and pathways to achieve the project goals. Various site design options, as well as different building systems and materials, were considered and reviewed to both meet project goals and receive available funding.

The El Camino Real Apartments had four sustainability goals that informed the project design:

ENERGY: The goal was to have no or very low utility bills, so that residents could save that money and put it toward other needs. The design team was tasked with identifying opportunities to reduce energy use and then offset the energy needed with alternative/renewable energy.

WATER: The high desert is an extremely fragile environment with less than 12 inches of rain a year. The project design aimed to minimize water use and reuse water when possible.

DURABILITY: Strategies were developed to increase the building's durability, reduce maintenance costs, reduce potential health hazards to residents, and enhance the long-term financial viability of the project.

HEALTHY INDOOR AIR QUALITY: The design team was asked to create an environment with good indoor air quality, which promotes better health and can reduce trips to the doctor, which can be costly as many residents are without health insurance.

Learn more about LEED residential projects. Visit **usgbc.org/projects**

LEED Project Spotlight

The Albany Damien Center | Albany, New York | LEED Gold | Certified January 2018

Founded in 1988, the Damien Center is a resource center designed to improve health, reduce stress and increase the quality of life in a supportive atmosphere for individuals and families living with and affected by HIV/AIDS. In 2013, the original Albany Damien Center Residences were lost to a devastating fire – limiting services to members for several years. Thanks to multiple grants from New York State, including $4.3 million from its Homeless Housing and Assistance Program, and from generous community donations, the Damien Center secured enough funding to pursue LEED Gold certification for its $5.6 million housing project to replace the original buildings.

The Residences provide homes for 22 people living with HIV/AIDS in 20 permanent supportive apartments—including 18 studio apartments and two one-bedroom apartments. The Residences also complement the neighborhood and existing historical elements—a major priority for the project.

The Residences achieved an average Home Energy Rating System (HERS) Index score of 44 for its 20 apartment units, which demonstrates that the project uses far less energy than comparable construction. The Albany Damien Center Residences also achieved an ENERGY STAR Homes Certification through the U.S. Environmental Protection Agency and incentives through the New York State Energy Research and Development Authority, (NYSERDA) Low Rise New Construction Program, totaling $51,000.

Learn more about LEED residential projects. Visit **usgbc.org/projects**

LEED Project Spotlight

Holt Residence | Providence, Rhode Island | LEED Platinum | Certified July 2018

The 100-year-old Holt Residence is a Dutch Colonial structure, built in 1907 on a lot known as Freeman Plat. The neighborhood is the oldest in Providence, densely developed and within walking distance of all community services, open spaces and public transportation.

The home achieved an impressive 104 LEED points, using various strategies. These included a rainwater capture system which conveys all roof storm water to a buried, 1000-gallon water cistern; 100 percent LED lighting throughout; diversion of 97 percent of all waste from landfill; and a drain water heat recovery system.

Learn more about LEED residential projects. Visit **usgbc.org/projects**

LEED Project Spotlight

Owen Residence | Little Rock, Arkansas | LEED Platinum | Certified 2018

In the historic Heights neighborhood of Little Rock, this single-family home was built to replace the homeowners' previous home of 12 years. The Owen residence includes the following highlights:

- **SOLAR:** 42 PV panels were installed, producing enough energy to power the 2662 square foot residence and two cars.
- **LANDSCAPING:** To reduce water and chemical usage, permeable surfaces were selected over a lawn. Native plants adorn the property and eight rain barrels are used for irrigation.
- **REUSE:** When deconstructing the existing home, the owners reused salvageable fixtures, appliances, and materials. These materials were then collected by the local Habitat for Humanity. The property's grass was also reallocated to a local preschool playground after de-sodding.
- **SUSTAINABLE APPOINTING:** The interior green features include Energy Star appliances, WaterSense fixtures, recycled glass countertops, LED lighting, locally-sourced glass and mirrors, cast-iron sinks and tubs, vintage and upcycled light fixtures, and no-VOC paint.
- **COMMUNITY:** In addition to working with many local businesses, the owners opened their home to the community after it was finished. Several hundred community members attended open houses hosted by the LEED homeowners to learn more about residential sustainability.

Learn more about LEED residential projects. Visit **usgbc.org/projects**

Developer Spotlight

Marshall Gobuty | Bradenton, Florida

In 2018, Pearl Homes' President Marshall Gobuty certified his 100th LEED Platinum home at Mirabella, one of the nation's most sustainable 55+ communities. Gobuty focuses on providing tenants with lower energy and water bills, improved thermal comfort and reduced humidity.

With Mirabella, Gobuty pioneered a new paradigm: a production-built development of more than 150 single family homes that achieve LEED-certification, as well as ENERGY STAR and Home Energy Rating System certification. From highly insulated walls and roofs, to high-efficiency HVAC and irrigation systems, to excellent indoor air quality, Mirabella offers sustainability and savings that few single family home developments can deliver.

At Mirabella, the process begins with a streamlined home design, one that reduces the construction timeline by keeping floorplans simple and consistent with few modifications. Gobuty then seeks out vendors with experience in green building practices, reducing costly training and potential construction mistakes.

Gobuty and his team have mastered the delivery of LEED Platinum homes on a production builder schedule, each Mirabella home takes just five and a half months to build. What's more, Mirabella homes are priced within $5,000 of a traditionally built new home of comparable size and amenities, accommodating the fixed incomes of the target residents and helping them experience the benefits of lower energy bills, better indoor air quality, and increased long-term resale value.

LEED Professional Spotlight

Steve Saunders | CEO, TexEnergy Solutions | (LEED 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 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?"

LEED Professional Spotlight

Emmanuel B. Cosgrove | Co-founder and General Director, Ecohome | (LEED Homes Provider)
Emmanuel is a co-founder of Écohabitation and Ecohome, and directs multiple initiatives that contribute to reducing the environmental footprint of Canadian homes.

What led you to the field of green buildings and specifically, green homes?

A long family history of building, combined with my academic background in environmental studies naturally led to green building. I started as a green contractor in the 1990s and started educational activities in 2001, and was pleased to see LEED for Homes roll out a few years after.

What's been the most exciting or impactful green residential project that you've worked on?

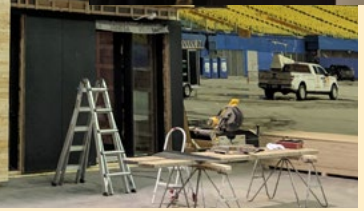
As a LEED for Homes Provider, I would say that the most impactful project is educating builders on how to comply with the program, and make it help the bottom line. We have completed over 500 projects composing over 5000 units in Québec, numbers that are helped by incentives that we have created with municipalities and financial institutions.

What's one message that you think all homeowners or property owners should know about energy efficiency?

In 2019, it makes no sense to not build efficiently. In our latest educational project, we are taking up one of the most discouraging markets for any environmentalist- the suburbs. We have demonstrated that even there, a high-efficiency townhome combined with an electric vehicle can save a family $3000 a year despite higher upfront costs and cut greenhouse gas emissions 12-fold. We have reached the point where efficiency makes sense no matter what.

How do you envision the future of the green residential movement? What's in the cards and how will we get there?

I definitely observe a movement towards extreme durability measures in an effort to have climate-change resilient buildings. I find that many have done the rounds as far as energy efficiency goes, and that once you build to passive standards topped with a little PV, we have seen it all. The future lies in building for a 200-year expected building lifetime and ensuring that those with LEED plaques eventually end up with plaques from local historic building authorities.



LEED Policy Spotlight

Cincinnati's Residential Tax Abatement Program

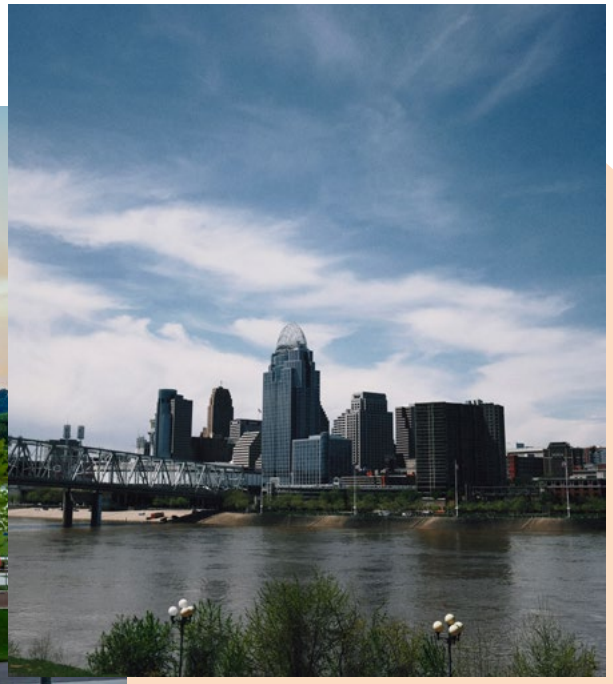
The City of Cincinnati offers a residential property tax abatement for new construction and renovation projects with additional incentive value for green certifications, including LEED. The residential tax abatement program applies to both new construction and renovations of residential buildings of three or fewer units. For new construction and renovation projects, the basic incentive is a 100 percent property tax exemption on the improvement value for 10 years. The available incentives are greater for projects that earn LEED certification, with longer abatement periods awarded to those achieving LEED Silver and higher levels.

The incentive program has helped the city achieve a positive transformation, encouraging reinvestment in previously blighted urban areas and supporting the local economy and residents. By increasing the appeal of green building certification – including LEED – the city can reap additional benefits, including contributing toward a more sustainable and resilient place to live.

USGBC Center for Resilience

USGBC and its extended green building network actively support resilience programs through advocacy, local engagement in community resilience efforts, and aligned technical tools. By guiding project teams to invest in climate adaptation strategies via key credits and integrative design, LEED works to enhance resident-level and, in turn, community-level resilience.

For more on USGBC's work on resilience, please visit our Center for Resilience **new.usgbc.org/center-for-resilience**.



A Vision for the Future

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

Performance

Performance is the future of green building. USGBC has applied the lessons learned from LEED to continue to evolve the rating system. But the work has not stopped with LEED requirements. We have also invested time and resources in the two platforms that support project teams as they earn certification: LEED Online and Arc.

On any given day, hundreds of people interact with these platforms to register projects, document credits, enter data and track certification efforts. LEED Online, specifically, functions as the starting point and ongoing workspace for projects. Arc provides an additional layer, going beyond traditional documentation of credits and looking at performance.

LEED is powered by Arc, meaning that Arc adds functionality that project teams can use to harness the power that only data can provide by tracking, managing and analyzing project information.

Countries and Territories with LEED Residential Units

As of June 2019 (Certified and Registered)

Country/Territory	Residential Units
United States	1,156,841
Canada	121,749
United Arab Emirates	107,815
Mainland China	55,549
Turkey	47,261
Republic of Korea	40,869
India	25,055
China, Taiwan	10,655
Brazil	8,257
Mexico	7,427
Vietnam	6,801
Malaysia	6,325
Qatar	5,998
Thailand	5,334
Russian Federation	4,836
Germany	3,874
Saudi Arabia	3,694
Poland	3,532

Country/Territory	Residential Units
Lebanon	3,448
Sri Lanka	3,009
Chile	2,828
Philippines	2,810
Italy	2,578
China, Hong Kong	2,483
Kazakhstan	1,545
Spain	1,483
Sweden	1,450
Argentina	1,162
Colombia	1,104
Pakistan	953
Israel	949
Singapore	943
Kenya	707
Oman	684
Jordan	599
Ukraine	442

Country/Territory	Residential Units
Dominican Republic	400
Costa Rica	377
Honduras	356
Japan	320
Panama	305
Cambodia	300
Nepal	237
Cayman Islands	235
Nigeria	234
Aruba	211
Ecuador	208
Bangladesh	208
Czech Republic	202
Uruguay	200
Peru	173
China, Macao	142
Finland	135
Malta	121

Countries and Territories with LEED Residential Units

As of June 2019 (Certified and Registered)

Country/Territory	Residential Units
Norway	117
Slovakia	107
Egypt	92
Uzbekistan	90
Haiti	86
Latvia	84
Bahrain	82
Guatemala	74
Guam	74
Montenegro	71
El Salvador	61
Mozambique	40
Bahamas	29
Palestine, State of	24
Switzerland	21
Serbia	13

Country/Territory	Residential Units
Kuwait	7
Venezuela (Bolivarian Republic of)	4
Hungary	3
Bolivia (Plurinational State of)	3
Austria	1
Belize	1
France	1
United Kingdom and Northern Ireland	1
United Republic of Tanzania	1

U.S. States with LEED-certified Residential Units

As of June 2019

State	Residential Units	GSF
California	39,296	46,252,746
Texas	24,598	41,425,633
New York	10,876	12,700,343
Washington	10,521	11,856,316
Colorado	8,091	9,870,268
New Jersey	7,646	8,790,645
Ohio	7,402	9,755,348
Oregon	6,729	7,961,683
Maryland	5,966	9,019,059
Georgia	5,891	7,299,589
Florida	5,859	7,457,611
Massachusetts	4,345	5,353,194
Arizona	3,877	4,937,870
New Mexico	3,687	3,978,635
Pennsylvania	3,336	4,101,013
North Carolina	3,083	4,453,195
Indiana	2,942	3,156,189
Virginia	2,462	3,806,271

State	Residential Units	GSF
Illinois	2,408	3,850,707
Michigan	2,375	3,199,729
Louisiana	1,889	2,053,539
Idaho	1,680	1,719,057
Tennessee	1,667	2,053,125
Arkansas	1,380	1,825,049
Hawaii	1,346	1,736,786
Minnesota	1,328	2,033,054
DC	1,312	1,886,026
Connecticut	971	1,222,227
Mississippi	782	1,527,467
Nevada	737	915,911
South Carolina	632	830,285
Utah	631	429,299
New Hampshire	425	346,583
Missouri	332	604,630
Iowa	325	384,155
Maine	299	296,941

State	Residential Units	GSF
Wisconsin	290	290,348
Kentucky	231	313,865
Vermont	209	310,057
Alabama	194	223,455
South Dakota	193	25,655
Montana	167	251,194
Alaska	131	339,972
Oklahoma	129	242,150
Wyoming	120	184,535
North Dakota	86	94,915
Rhode Island	67	88,801
Guam	60	107,160
Kansas	33	47,535
Puerto Rico	24	13,322
Delaware	16	26,522
Nebraska	12	42, 947
West Virginia	4	5,893
Virgin Islands	1	2,545