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July/August 2017 / [www.greenbuildermedia.com](http://www.greenbuildermedia.com)

## LAST STAND?

As America's political elites turn their backs on climate change, a few companies have made the connection between prosperity and sustainability. This year's annual selection of Eco-Leaders demonstrate the power of innovation to reduce our heavy footprint.







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# EDITOR'S NOTE

The Inside Scoop

By Matt Power  
Editor-in-Chief

## Sustaining a Triple Bottom Line

Companies that integrate economics with environmental and social concerns also tend to outperform their less-savvy competitors.

IT'S NOT FOR NOTHING THAT AMAZON bet big on acquiring Whole Foods in June. Sure, the food giant was floundering a bit, as other retailers adopted the same “crunchy” product offerings at lower prices. But in the upscale mental and physical space, Whole Foods still had a towering presence. In other words, Amazon bought more than just a grocery chain. They bought access to a certain kind of buyer, via a company with its “triple bottom line” already established. Amazon paid \$13.4 billion.

According to *Environmental Leader*, “Companies that focus on the so-called triple bottom line—economics, environment and social—are the ones that consistently do well by all standards. Those using such guideposts are outperforming other broader indices, and they are also demonstrating that they are living their missions and ingraining their brands among their customers.”

*EL* goes on to note that even the largest companies, which have traditionally focused on making shareholders happy, have evolved into much more complex organizations. Simple bottom line decisions



are not good enough for many shareholders, and they're leveraging CEOs to act more responsibly.

Fortunately, research shows that “doing good” usually leads to “doing well.” *EL* notes that “A preponderance of the studies performed show a positive correlation between sustainability efforts and shareholder value.” A study by the nonprofit CDP in 2014, for example, found that S&P 500 companies with a clear strategy for addressing climate change earned an 18 percent higher return on investment than companies that did not.

But the numbers in 2017 may be even better: *Fast Company* reports that 93 percent of CEOs

globally now think sustainability is important. The publication notes that a study by the International Finance Corporation revealed that the Dow Jones Sustainability Index “performed an average of 36.1 percent better than the traditional Dow Jones Index over a period of five years.”

The forces driving corporate change are coming from a new generation with new attitudes. Even traditional investment firms such as Goldman Sachs are embracing greener, more socially conscious benchmarks. Why? According to *Fast Company*, “research at both the corporate and university levels suggests that this next generation of employees and consumers have specific needs at work that are dramatically different from previous generations. High among these is a desire to align personal and corporate values.”

There is, of course, a bigger discussion that needs to happen, about whether mega-corporations can ever achieve the necessary level of sustainability. Companies such as Amazon, with their huge shipping footprint, will need to show dramatic changes before they can claim triple bottom line benefits.

Some building companies—notably the Eco-Leaders featured in this annual congratulatory issue, have already made huge leaps forward toward this trifecta of values and profitability. They're demonstrating that taking a leadership position on climate change, for example, can also drive their brand clout and sales. Other less-savvy companies should take note. The future is sustainable. Ignore it and you'll not only lose customers, you'll leave money on the table. **GB**



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Dear Readers,

On behalf of the Panasonic Eco-Solutions Company of North America, I wanted to thank *Green Builder* for recognizing our continued leadership in protecting the environment through superior energy efficient products and long-term sustainability initiatives. Sustainability is at the core of our business model, and we continuously look for ways to exceed standards with virtually every product we introduce. Additionally, we take a great deal of pride in being recognized as an ENERGY STAR® Partner of the Year for Sustained Excellence for the eighth year in a row in 2017, further reflecting on our commitment to energy efficient ventilation and indoor air quality solutions. Working closely with organizations such as ENERGY STAR® and *Green Builder* help us achieve our shared goal of making the world a healthier place to live, one home at a time.

Panasonic is proud to offer high-performance ventilation and Indoor Air Quality solutions. Panasonic ventilation fans are ENERGY STAR® certified, and comply with stringent ventilation codes and green building standards. In fact, since 1999, Panasonic has been one of the few manufacturers to work closely with the United States Environmental Protection Agency (EPA) in developing guidelines for the ventilation category. We are continuously motivated by our builder and remodeler customers, who are exceedingly dedicated to building greener and more energy efficient homes.

Just as in our products, Panasonic manufacturing and training initiatives are developed to limit environmental impact. Panasonic's ambitious Green Plan for 2018 aims to reduce CO<sub>2</sub> emissions even more by achieving zero waste emissions at production facilities, continuing to increase the use of recycled water, and leading local environmental awareness programs such as planting trees with students who attend school in towns where Panasonic manufacturing facilities are located. I am proud to state that Panasonic contributed to the reduction of CO<sub>2</sub> emissions by 34.93 million tons in 2016, a standout environmental achievement by the entire company.

We are honored to be among the 2017 Green Builder Eco-leaders and look forward to continuing our green initiatives in years to come.

Sincerely,

**Jim Shelton**

**Vice President, Panasonic Eco Solutions North America**



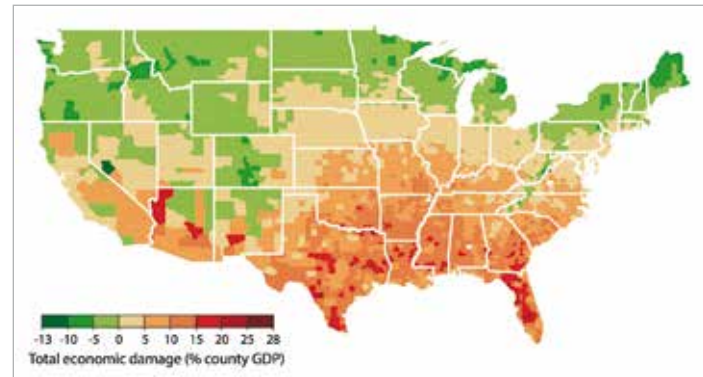
## Climate change could trigger new Great Recession

UCB study predicts that poorer parts of the U.S. will feel it worst, but everyone will suffer.

**C**LIMATE CHANGE MAY WORSEN existing financial inequalities in the U.S. and create an economic loss equal to the Great Recession by 2100, according to a study by researchers at the University of California, Berkeley. Projections also show the brunt of the impact will be felt by the poorest parts of the country, primarily the South, which could lose 20 percent of its income from rising greenhouse gas emissions.

Every 1 °C degree of temperature gain could cost the nation about 1.2 percent of its Gross Domestic Product, with the loss increasing as the heat level rises, the study notes. Much of the decreased GDP will come from damage by storms and heat waves, and failing crops.

That's bad news for regions that are already economically challenged, according to UCB climate researcher and study co-author



**Red alert.** Climate change will cost the nation millions and severely threaten local economies, especially in the South.

Soloman Hsiang. The warmest parts of the U.S. are also some of the poorest, he notes. "If we continue on the current path, our analysis indicates it may result in the largest transfer of wealth from the poor to the rich in the country's history," Hsiang says.

Regions that are projected in other studies to actually benefit from global warming—at least in the short term—will also suffer, but to a lesser extent, according to this report. Much of the northernmost U.S. will initially experience a GDP gain, but begin to see a drop-off as their customer bases decrease.

## Atlanta Sets All-Green Goal for 2035

City is the first in the South and the 27th in U.S. to plan for totally renewable energy sources.

**A**TLANTA IS THE LATEST U.S. CITY to commit to using 100 percent clean and renewable energy with the next two decades. Atlanta's Office of Sustainability has until next January to develop a plan for all city operations to be run on 100 percent renewable energy by 2025, and community-wide by 2035.

According to Atlanta City Council Member Kwanza Hall, the city's goals may seem ambitious. But the benefits of going green are too big to ignore. "We know that moving to clean energy will create good jobs, clean up our air and water and lower our residents' utility bills," he says. "We never thought we'd be away from landline phones or desktop computers, but today we carry our smartphones around, and they're more powerful than anything we used to have. [For this plan to work,] we have to set an ambitious goal, or we're never going to get there."



**Power play.** Atlanta has established a community-wide goal of transitioning completely to renewable energy by 2035.

Atlanta is the first municipality in Georgia and the biggest Southern city to commit to using 100 percent renewable energy, according to the Sierra Club. Twenty-six other U.S. cities have pledged to reach that status, including San Diego, Salt Lake City and Chicago. Some cities, such as Aspen, Colo.; Burlington, Vt.; Greensburg, Kan.; Kodiak Island, Alaska; and Rockport, Mo., have already met their clean energy targets.

## A First: Renewable Energy Surges Ahead of Nuclear

Atomic drops to fourth among the ways people power homes and businesses.

**R**ENEWABLE ENERGY SOURCES are providing more electricity than nuclear power for the first time in the United States since the start of the nuclear era, according to the U.S. Energy Information Administration (USEIA). Natural gas is still the No. 1 provider, followed by coal, and renewable energy sources — a combined total of biomass, geothermal, hydropower, solar and wind — all of which beat out nuclear energy.

Nearly 23 percent of all U.S. energy comes from renewables, compared to 19 percent for nuclear. "In light of their growth rates in recent years, it was inevitable that renewable sources would eventually overtake nuclear power," says Ken Bossong, executive director of the SUN DAY Campaign, which promotes sustainable energy technologies as cost-effective alternatives to nuclear power and fossil fuels. "The only real surprise is how soon that has happened—years before most analysts ever expected."

The two energy types have chugged along as the third and fourth top power sources for years, and were neck and neck at the start of the year, according to USEIA. But the gap between them has grown once renewables moved in front of nuclear. Renewables' current 3.7 percent lead is the largest ever, the association notes.

The faster pace could stem in part from the rapid closure of U.S. nuclear plants in the past few years, with six shutting down permanently from 2013 to 2016. In contrast, only one new facility went online, according to USEIA.

Renewables and nuclear combined are expected to continue to provide about 40 percent of the nation's power for a few more years, but "the trend lines clearly favor a rapidly expanding market share by renewables," Bossong notes.



**No (more) nukes?** Nuclear plants are costly to build, and, unlike solar panels, continue to be costly to maintain and protect for their lifespan—and beyond.

## Canada's Green Building, Business Units Join Forces

New agency will be a key part of the nation's efforts to slow climate change.



**In agreement.** Canada's two major green building organizations are pairing up to promote sustainable construction practices.

**T**HE CANADA GREEN BUILDING COUNCIL (CaGBC) and Green Business Certification Inc. (GBCI) will form Green Business Certification Inc. Canada (GBCI Canada), a joint coalition that will handle current and future GBCI offerings. Those include certification and professional credentialing services for LEED v4, WELL, SITES, PEER, Parksmart, Zero Waste and GRESB in Canada, according to CaGBC President Thomas Mueller.

"The urgency of addressing climate change requires bold and innovative new approaches to doing business," Mueller says. "Forming GBCI Canada is a critical step in CaGBC and GBCI's strategy to scale up green building market transformation and impact. Members of the CaGBC, and the industry at large, will benefit from this new organization dedicated exclusively to the delivery, enhanced service and market support of a broader range of green business solutions."

Meanwhile, CaGBC will continue to offer the Canadian green building industry education and training, advocacy and research, business events and a range of other activities. It will also continue to provide certification reviews and market support for LEED Canada, and deliver and support its new Zero Carbon Building Standard.

GBCI, which recognizes excellence in green business industry performance and practice using rigorous certification and credentialing standards, will also benefit from the pairing, according to GBCI President Mahesh Ramanujam. "This new venture will serve to facilitate the growth of USGBC's LEED program and GBCI rating systems, and provide additional on-the-ground support for [Canada]," he says. **GB**





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by Shelter Dynamics

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## The Flex House: Right-Sized Living

Green Builder® Media and Shelter Dynamics proudly introduce The Flex House, a model for “Right-Sized” living in a small, flexible space that is completely connected, intelligent, resilient and sustainable.

To us, “Right-Sized” living doesn’t just refer to square footage. It also means having the flexibility to adapt your home to your evolving lifestyle and consuming only the natural resources that you need—no more, no less.

The Flex House boasts a fully integrated smart + solar system, using advanced, intelligent technology to streamline energy usage. The house serves as its own microgrid, producing all of its own energy. The Flex House features water conserving products and fixtures, and non-toxic, sustainable materials to ensure healthy indoor spaces.

Visit The Flex House at Solar Power International (September in Las Vegas), and CES (January, 2018 in Las Vegas).

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Artist: Kip Ayers

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# An Elite Eight

There is more than one way to combat climate change.  
Here's how some of the world's business leaders are handling it.



BY BARBARA HORWITZ-BENNETT

**F**ROM AGGRESSIVE GREENHOUSE gas emission reductions to net-zero goals to active community outreach, this year's Eco-Leaders are actively pursuing sustainable initiatives and community leadership roles befitting of their status as manufacturing giants.

Targeting power and water use in its manufacturing plants and beefing up recycling programs, these Eco-Leaders are working hard to give back at least some of the natural resources that they are extracting from the planet.

While some are undergoing serious in-house manufacturing sustainability changes and improvements, others are generously sponsoring eco-friendly industry programs or serving on sustainable committees.

By empowering its employees to get involved as well, these companies are working hard to make a difference.





# Siemens

On its way to carbon neutral, big changes lie ahead over the next decade.

**A**S ONE OF THE largest manufacturers in the world—specializing in electrification, automation and digitalization—Siemens takes its role as an industrial leader quite seriously. The company has an ambitious goal of reducing greenhouse gas emissions by half by 2020, and becoming carbon neutral by 2030.

Well on its way, the company's customers and partners around the world already reduced their carbon dioxide emissions by 521 million tons. Putting things into perspective, that's about 10 times the annual amount of carbon produced in New York City.

## A Giant's Approach to Carbon Neutrality

As part of a four-pronged approach to achieving carbon neutrality, Siemens is:

- Verifiably reducing energy consumption at the company's buildings and manufacturing facilities
- Increasing the use of distributed energy systems to optimize energy costs at campuses and production plants
- Systematically employing low-emission vehicles and e-mobility concepts in its worldwide vehicle fleet
- Moving toward a clean energy mix by increasingly acquiring its electricity from sources that emit little or no CO<sub>2</sub>, such as wind power and hydroelectric power.

## A Smart City Performance Tool

As an example of its efforts, Siemens is currently employing its City Performance Tool (CyPT) in Orlando, Pittsburgh and Washington, D.C. Meanwhile, earlier CyPT results from Charlotte, N.C., have identified technologies with the greatest potential impact on respective growth, infrastructure, sustainability and economic priorities.

Siemens' virtual planning and software platform identified 16 "smart" building and transportation technologies that could help Charlotte reduce greenhouse gas emissions by 20 percent and create close to 100,000 jobs by 2050. Similar results could be seen in other cities, according to the company.

## Intelligent Infrastructure Solutions

In the residential sector, Siemens is currently serving as the technology partner and infrastructure provider for Sterling Ranch, a sustainable, mixed-use, master-planned community in Colorado. When complete, the development will feature 12,050 housing units, 2 million to 3 million square feet of commercial space and more than 1 million square feet of institutional space.

Siemens' Intelligent Infrastructure Solutions (I2S) will combine a comprehensive command control and communication for their buildings' physical infrastructure; data-driven intelligence and advanced facility-related analytics; and regular service of all components throughout the buildings' lifecycles.



CREDIT: SIEMENS

## Siemens

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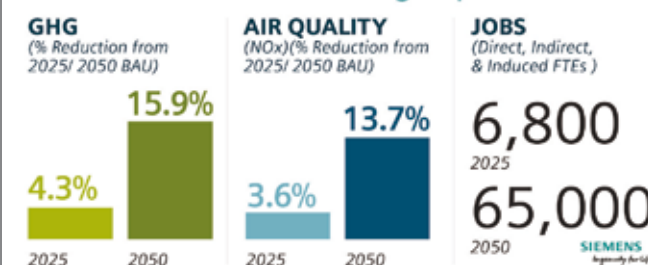
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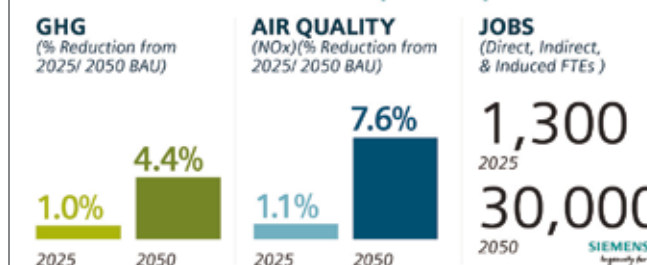
**Knowledge is power.** Siemens will deliver unique customer electronics with energy efficiency data and a home energy rating index to the planned 12,050 housing units at Sterling Ranch, a new sustainable mixed-use development which broke ground in Colorado this summer.

### Estimates of Smart Building Impacts



**A vital impact.** Based on home automation, building-performance optimization, building automation and other city infrastructure improvements identified by Siemens' City Performance Tool, significant greenhouse gas reductions and air quality improvement is anticipated for various communities.

### Estimates of Smart Transport Impacts







**New world power.** Earth's largest solar panel maker plans to continue promoting the numerous benefits of sun power used by residences everywhere.



**New world power.** JinkoSolar's photovoltaic program regularly provides PV modules to agencies such as GRID Alternatives, which helps install solar panels for lower-income families.



# JinkoSolar

The 2017 target: proactive global community involvement.

**A**S THE WORLD'S LARGEST solar panel manufacturer by global shipment volume since 2015, the 16th fastest growing company currently according to *Fortune*, and the fastest-growing residential solar provider, JinkoSolar sells its modules in 78 countries worldwide.

In addition to manufacturing sustainable power-generating devices capable of harnessing the sun's free electricity, JinkoSolar is actively targeting energy use and greenhouse gas emission reductions through its manufacturing processes.

Regularly issuing reports to the Montreal Protocol on Substances That Deplete the Ozone Layer, the company reports that no ozone-depleting substances are released during production, except for a limited amount of CO<sub>2</sub>. The company also tracks wastewater discharge, direct energy consumption and water used to create its panels.

Over the last two years, JinkoSolar has achieved a 53.39 percent decline in electricity consumption, a 76.26 percent reduction in water usage, a 76.15 percent decline in wastewater discharge and 53.05 percent decrease in GHG emissions.

## Helping Low-Income Communities

JinkoSolar recently donating 620 kW of solar panels to Oakland, Calif.-headquartered nonprofit solar installer GRID Alternatives. This will enable an estimated 1,600 low-income families and multi-family affordable housing providers nationwide to benefit from free solar systems in 2017, according to JinkoSolar U.S. General Manager Nigel Cockroft. "Ensuring all communities have access to clean energy is extremely important to us," he says.

Recently invited to participate in Berlin's Business 20 (B20) Summit under the theme "Building Resiliency, Improving Sustainability and Assuming Responsibility," JinkoSolar is sharing policy recommendations in line with the B20's belief that a future-oriented, sustainable and competitive world economy can only be guaranteed if businesses keep finding innovative solutions to increase sustainability and decrease resource usage intensity.

As a founding member of U.S. Solar Energy Industries Association's national recycling network, the company also provides convenient options for those seeking to remove end-of-life panels at from their homes or power plants.

## JinkoSolar

**FOUNDED:** 2006, Xiande Li and Kangping Chen

**HEADQUARTERS:** Shanghai, China

**LEADERSHIP:** Xiande Li, Chairman of the Board; Kangping Chen, CEO

**PRODUCTS AND SERVICES:** Solar panels

**EMPLOYEES:** ~15,000

**WEBSITE:** [www.jinkosolar.com](http://www.jinkosolar.com)





# Toyota Motor Corp.

Here's a six-pronged environmental road to net positive.

**A**S THE WORLD'S second largest automotive manufacturer and the first to produce more than 10 million vehicles per year, Toyota has accepted the environmental responsibility befitting of such a manufacturing superpower.

## An Environmental Challenge

Calling it "Environmental Challenge 2050," the company has an aggressive goal of reaching a net-positive impact by that date. The carmaker has laid out six sustainable challenges in the realm of climate change, resource and water recycling.

Starting with the "New Vehicle Zero CO<sub>2</sub> Challenge," Toyota has pledged to reduce vehicle CO<sub>2</sub> emissions by 90 percent by 2050, based on 2010 levels. With the aid of mileage improvement of engine-driven vehicles, the company is actively promoting the development of next-generation vehicles including hybrid, plug-in hybrid, electric and fuel cell vehicles.

Meanwhile, the company's "Lifecycle Zero CO<sub>2</sub> Emissions Challenge," encompasses traveling and manufacturing, processes of materials production, and disposal and recycling of vehicles. Toyota seeks to develop and expand the use of materials

with lower CO<sub>2</sub> emissions during production, and reduce the quantity of materials and number of parts used in a vehicle.

## Taking on Plants, Air and Water

Taking its zero CO<sub>2</sub> emissions goal to the plants, the manufacturer is developing low CO<sub>2</sub> technologies and adopting renewable energy sources and hydrogen energy. By simplifying and shortening the manufacturing process, Toyota seeks to further reduce emissions.

"At the plants, we aim to advance innovative energy-saving measures and limit energy use to less than one-third of current levels," says Toyota Motor Corporation Chairman Takeshi Uchiyamada.

In manufacturing, Toyota is focusing on reducing water use and comprehensive water purification. Along these lines, rainwater collection, filtering and re-use of wastewater through recycling has been implemented.

"Recycling," Environmental Challenge No. 5, involves the utilization of eco-friendly materials, using parts for longer periods of time, improved recycling technology and re-using materials from end-of-life vehicles.

Finally, Toyota's commitment to "enriching lives of communities" involves planting trees and plants, environmental conservation activities and environmental education.

CREDIT: TOYOTA MOTOR CORP.



## Toyota Motor Corp.

**FOUNDED:** 1937, Kiichiro Toyoda  
**HEADQUARTERS:** Tokyo, Japan  
**LEADERSHIP:** Akio Toyoda, President and Representative Director  
**PRODUCTS AND SERVICES:** Motor vehicle production and sales  
**EMPLOYEES:** ~350,000  
**WEBSITE:** [www.toyota-global.com](http://www.toyota-global.com)

**On the road to net positive.** Toyota Motor Corp.'s "Environmental Challenge 2050" has it on the way to all but eliminating gasoline-powered vehicles from highways by mid-century.

**CHALLENGE 1**

New vehicle  
Zero CO<sub>2</sub>  
Emissions Challenge

**CHALLENGE 2**

Life Cycle  
Zero CO<sub>2</sub>  
Emissions Challenge

**CHALLENGE 3**

Plant Zero CO<sub>2</sub>  
Emissions Challenge

**CHALLENGE 4**

Challenge of  
Minimizing and  
Optimizing  
Water Usage

**CHALLENGE 5**

Challenge of  
Establishing a  
Recycling-based  
Society and Symptoms

**CHALLENGE 6**

Challenge of  
Establishing a  
Future Society in  
Harmony with Nature

**Six ways to go green.** Toyota's "Environmental Challenge 2050," targeting a net positive impact, presents six sustainable challenges in the realm of climate change, resource and water recycling.





# Delta Electronics

World sustainability efforts are still a top priority.

**A** GLOBAL PLAYER IN THE switching power supply, telecom power and photovoltaic inverter market, Delta Electronics has been included in the prestigious Dow Jones Sustainability World Index annually since 2011. In 2015, it was ranked first in the Dow Jones Sustainability Emerging Markets Index in the Electronic Equipment, Instrument and Component sector. Also in 2015, the company was included as part of the Climate Disclosure Leadership Index, formerly known as the Carbon Disclosure Project.

Having reduced its electricity intensity at its main manufacturing facilities from 2009 to 2014 by 50 percent, Delta has committed to shaving off an additional 30 percent by 2020.

## Energy-Saving Database

Also part of its sustainability profile, a cross-functional energy management committee screened noteworthy energy-saving projects based upon technology difficulties, payoff times, energy-saving results and applications, and set up a database of the best 373 energy-saving practices last year. The company plans to gradually implement these best practices at all major production sites globally. It is estimated that 16,111 MWh of annual electrical savings and 13,313 tons of CO<sub>2</sub> emissions will be reduced as a result of

these energy-efficient improvements.

Furthermore, a new energy management information system developed in-house, the Delta Energy Online System, provides real-time monitoring and analysis that helps identify more opportunities for energy saving and carbon reduction at the company's main sites.

In 2016, Delta invested nearly \$1.5 billion in energy savings and environmental protection measures in its factories. It continues to target energy-saving and carbon-reducing measures for its air conditioners, ventilation systems, air compressors and injection machines.

## Delta Electronics

**FOUNDED:** 1971, Bruce Cheng, Founder and Honorary Chairman

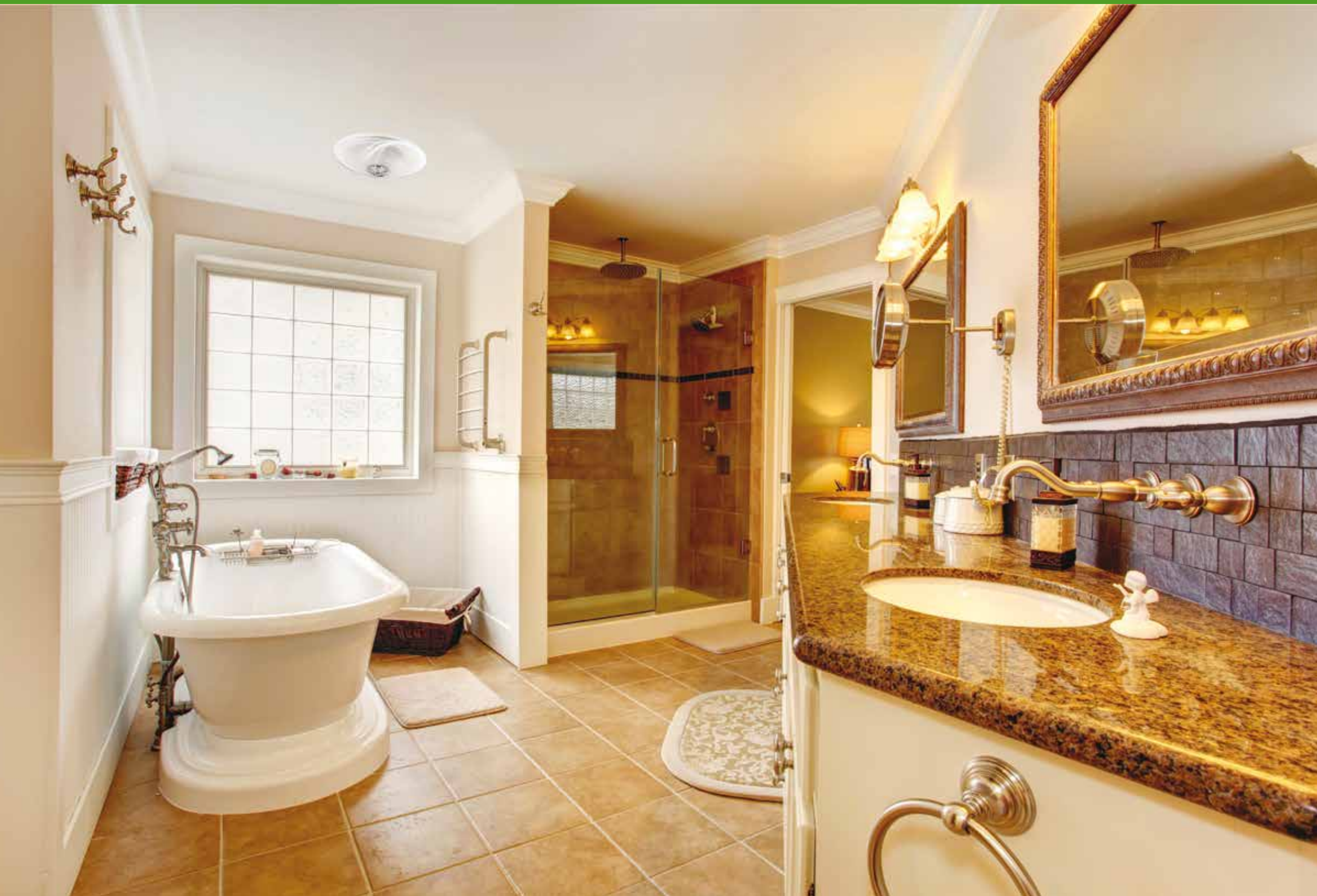
**HEADQUARTERS:** Taipei, Taiwan

**LEADERSHIP:** Ping Cheng, CEO

**PRODUCTS AND SERVICES:** Switching power supplies, telecom power, PV inverters

**EMPLOYEES:** ~65,000

**WEBSITE:** [www.deltaww.com](http://www.deltaww.com)



Green efforts can be anywhere. Delta Electronics' sustainability efforts include systems to identify ways to cut energy use and boost carbon reduction in businesses and residences.

“An enterprise exists and functions in a living environment that is closely connected to each of us. It should serve a higher goal of being responsible to society rather than just making profits.”

—Bruce Cheng, Founder and Honorary Chairman, Delta Group

## By the Numbers

From 2010 to 2016, Delta's high-efficiency products resulted in:

- Electricity consumption savings of 20.8 billion kWh
- Carbon emissions reduction of 11.07 million tons





# LG Electronics USA

Controlling the company's carbon footprint is all part of a lifecycle.

**A**S A U.S. ENVIRONMENTAL PROTECTION AGENCY "Green Team" partner, LG Electronics USA—the North American subsidiary of the Seoul, South Korea-based LG—has achieved the second-largest carbon footprint reduction within 18 months, compared to all other partners over the same period.

Committed to educating the community on sustainable lifestyles, LG is also playing a leading role in promoting the EPA "Flip Your Fridge" Energy Star campaign and is a three-time winner of Energy Star's Climate Communicator award.

## Taking a Lifecycle Approach

In its quest to reduce the environmental impact of products throughout their lifecycles—from home appliances to consumer electronics to air conditioning systems to LED lighting to solar energy solutions—LG quantifies and analyzes environmental impact at every stage of the lifecycle, and implements a strategic framework for products with greener features. The company also utilizes an Eco Index, internally developed indices to quantify environmental performance and establish targets, to support a systematic approach to developing greener features for the company's products. For example, LG's solar modules' "Back Contact" cell design maximizes the surface area for sunlight absorption, even on cloudy days, increasing power output to nearly 400 watts—one of the highest in the industry. Furthermore, LG works with a network of



**Less means more.** In updating its HVAC system with LG's variable refrigerant flow, heat recovery technology, Euclid Chemical in Cleveland slashed its energy use by 70 percent.

third-party certified recyclers as part of an electronic waste take-back program, ensuring that its products are recycled in an environmentally responsible manner at end of life.

## Practicing What They Preach

Pledging to reduce greenhouse gas emissions from its U.S. operations by 50 percent by 2020, LG is also building a new headquarters, tracking LEED Gold. The building at the Englewood Cliffs, N.J., campus will incorporate highly energy-efficient technologies and generate solar energy on site.

## LG Electronics USA

FOUNDED: 1958

HEADQUARTERS:

Englewood Cliffs, N.J.

LEADERSHIP: William Cho, President and CEO, LG Electronics North America

PRODUCTS AND SERVICES:

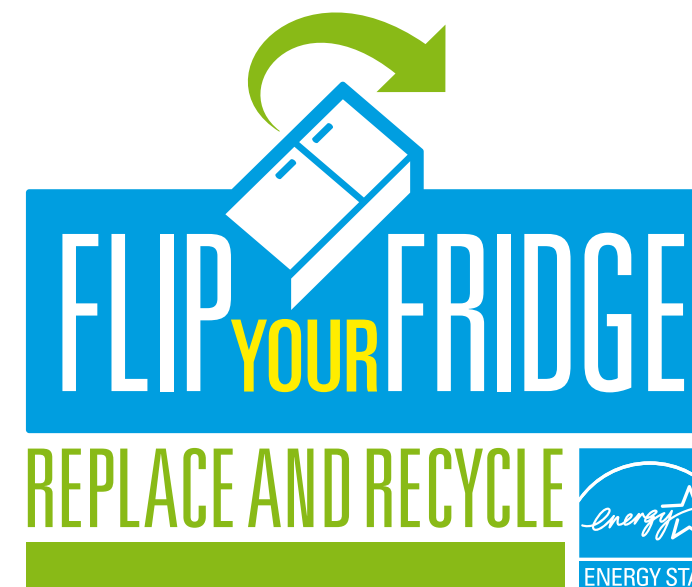
LG comprises four business units: Home Appliance & Air Solutions, Mobile Communications, Home Entertainment and Vehicle Components. The company specializes in flat-panel TVs, mobile devices, air conditioners, washing machines and refrigerators.

EMPLOYEES: 2,200+

WEBSITE: [www.lg.com/us](http://www.lg.com/us)



**Power packed.** With its "Back Contact" cell design maximizing the solar surface area, LG's photovoltaic modules produce an industry-leading power output of close to 400 W.



**A cold fact.** LG was a leading promoter of the EPA's "Flip Your Fridge" campaign, which encouraged consumers to recycle old refrigerators and upgrade to Energy Star-certified models.





# Panasonic Corp. of North America

The environmental partnership continues in the form of solar, clean air and net zero.

**W**ORKING CLOSELY with the Environmental Protection Agency in developing ventilation product guidelines for Energy Star, the Panasonic Corporation of North America—a subsidiary of the Osaka, Japan-based Panasonic—has also been an Energy Star Sustainable Partner of the Year for the past consecutive eight years and a recipient of the Sustained Excellence Award from 2012 to 2017. Furthermore, Panasonic's *WhisperGreen Select* series of non-light, fan-only models won an Energy Star Most Efficient award this year.

Panasonic Eco Solutions is "committed to developing industry-leading eco-friendly solutions for a cleaner, healthier indoor environment," says Jim Shelton, vice president of Panasonic Eco Solutions North America. Building products such as the *WhisperGreen Select* ventilation fan system or the *Intelli-Balance* ERV are among those that help improve indoor air quality and save energy in a home—resulting in a smaller ecological footprint everywhere they are installed, Shelton notes.

## Involving the Community

Panasonic is well on its way to its goal of distributing 100,000 free solar lanterns to areas in the world that lack electricity. The hope is to provide the devices to homes, schools and hospitals in off-grid places in Africa, Asia and India by 2018, when Panasonic Corp. turns 100. As of May 2017, more than 80,000 had been distributed.

The company also sponsors the "Energy & Environmental Building Alliance for Regional Houses That Work" sessions, and is involved in Zero Energy America, a project to build net-zero homes in the Tampa Bay, Fla., area.

Panasonic actively sponsors architect and green building activist Sam Rashkin's "Retooling the Industry" initiative, which is driving zero-energy residential strategies in new home construction and regional residential energy consumption reduction programs.

Exemplifying the company's commitment to sustainability in ventilation, Panasonic is a founding sponsor of the Residential Energy Services Network's (RESNET) Suppliers Council, which is designed to help manufacturers understand the impact of the Home Energy Rating System (HERS) Index on energy efficiency for customers in the residential building channel.

## Panasonic Corp. of North America

FOUNDED: 1974

HEADQUARTERS: Newark, N.J.

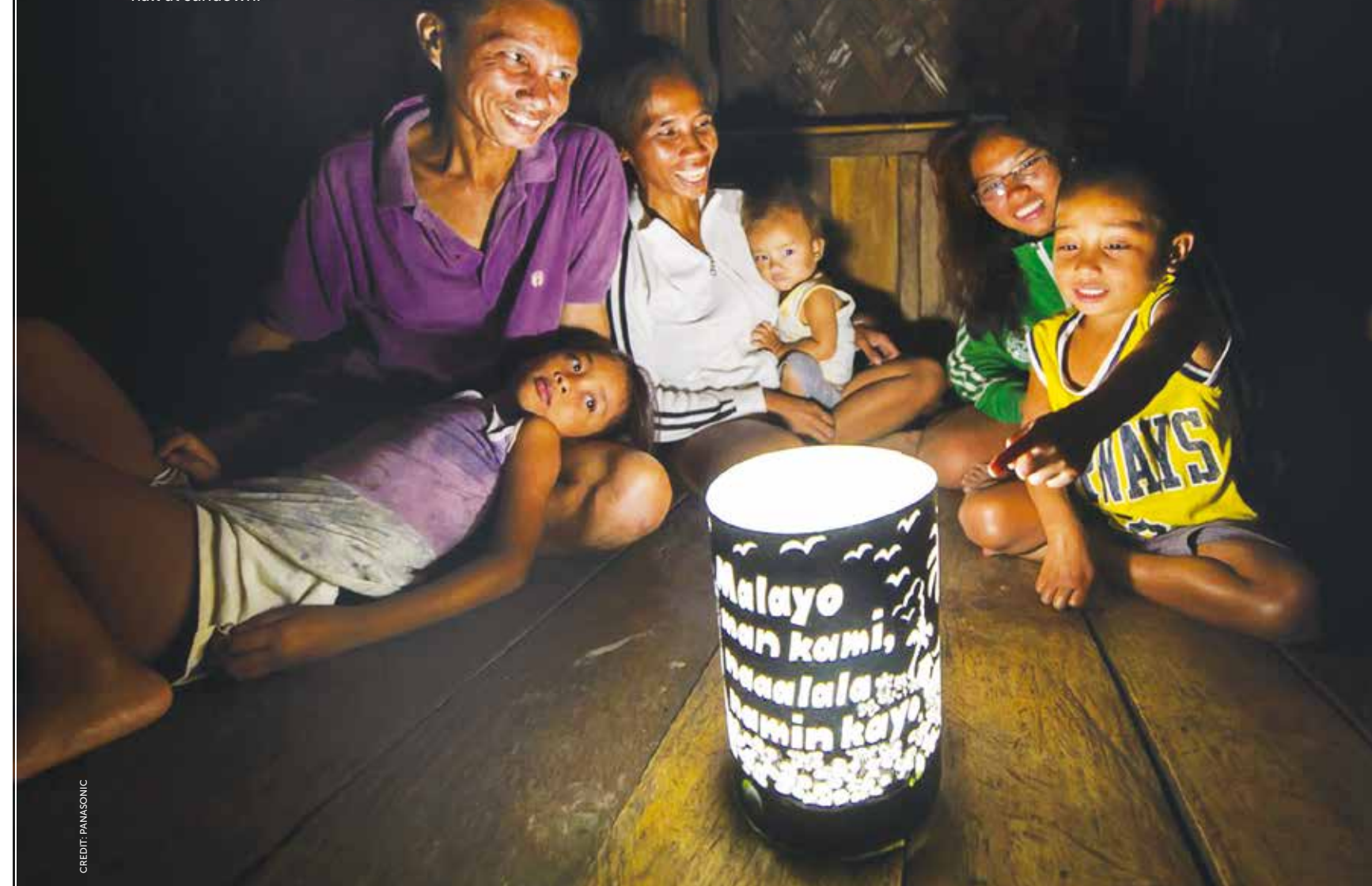
LEADERSHIP: Tom Gebhardt, Chairman and CEO, Panasonic North America

PRODUCTS AND SERVICES: Lighting fixtures, ventilation and air-conditioning equipment, air purifiers, and energy system solutions.

EMPLOYEES: n/a

WEBSITE: [us.panasonic.com/ventfans](http://us.panasonic.com/ventfans)

**Light it up.** Panasonic's "100 Thousand Solar Lanterns Project" is bringing light to parts of the world where nearly everything comes to a halt at sundown.



CREDIT: PANASONIC

## Quick Green Fact

Through energy-saving products, Panasonic reduced CO<sub>2</sub> emissions by 34.93 million tons in fiscal year 2016.

**Quiet as a whisper.** Panasonic's *WhisperGreen Select* series' non-light, fan-only model won an Energy Star Most Efficient award in 2017.



CREDIT: PANASONIC CORP.

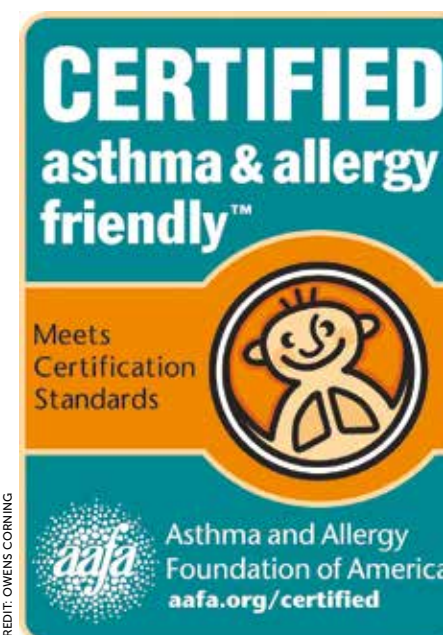


**World housing habitat.**  
Owens Corning partnered with Habitat for Humanity and World Vision to build safe, energy-efficient housing for approximately 1,500 low-income families worldwide.



# Owens Corning

Wind power usage is on the way up for this insulation and green roofing leader.



CREDIT: OWENS CORNING

**A breath of fresh air.** Taking insulation to a new eco-friendly level, Owens Corning has introduced the world's first Asthma and Allergy Foundation of America-certified asthma- and allergy- friendly building product.

**C**ONSIDERED A WORLD leader in fiberglass composites, insulation and roofing, Owens Corning in 2016 introduced the world's first Asthma and Allergy Foundation of America-certified, asthma- and allergy-friendly building product for its new *Pure Safety* high-performance insulation product.

The product is mold and mildew resistant and produces up to 65 percent less dust, according to Julian Francis, president of Owens Corning's insulation business. "Caring about indoor air quality is just one way Owens Corning is committed to leveraging our building science expertise and insulation systems to create better, more sustainable, more comfortable homes," he says.

## Eco-Friendly Products

Along these lines, the company also earned Living Product Imperative Certification for two of its insulation products—also a first in the industry. This rigorous multi-attribute certification boosted product transparency with Declare labels for Owens Corning's *EcoTouch* and unbonded loosefill insulation products, and earning a Cradle to Cradle Material Health Certification for its *Foamular* extruded polystyrene insulation.

On the community front, Owens Corning partnered with Habitat for Humanity and World Vision to donate building materials, financial support and employee volunteerism to build safe, energy-efficient housing for approximately 1,500 low-income families in the U.S., Canada and China.

And as part of the company's Roof De-

ployment Project—matching Owens Corning Roofing Platinum Preferred Contractors with U.S. military and veterans' families around the country—dozens of free roofs are being delivered and installed this year.

## Power Packed—and Ahead of Schedule

Meanwhile, back home, Owens Corning began purchasing power from 250 megawatts of new wind power capacity, the equivalent of electrical generation for more than 65,000 U.S. homes. And with a continued focus on environmental footprint reduction, the company has successfully reduced particulate matter emissions and water use by 23 percent and 37 percent, respectively. This is relative to 2010 levels and has already exceeded the company's 2020 goals, according to Francis.

## Owens Corning

**FOUNDED:** 1938

**HEADQUARTERS:** Toledo, Ohio

**LEADERSHIP:** Michael Thaman, CEO

**PRODUCTS AND SERVICES:** Fiberglass composites, insulation and roofing. Products range from glass fiber used to reinforce composite materials for transportation, electronics, marine, infrastructure, wind energy and other high-performance markets to insulation and roofing for residential, commercial and industrial applications.

**EMPLOYEES:** 17,000+

**WEBSITE:** [www.owenscorning.com](http://www.owenscorning.com)





# Ingersoll Rand

Combating climate change remains #1 on this company's 'To Do' list.

**I**NCLUDED IN *Corporate Responsibility Magazine's* top 100 global corporate citizens for the past four years, Ingersoll Rand has made a significant commitment to greenhouse gas reduction. Those efforts are not slowing down as the company heads into the next decade-plus, according to Scott Tew, executive director of Ingersoll Rand's Center for Energy Efficiency & Sustainability.

## Fading Away Greenhouse Gas Emissions

Ingersoll Rand plans to cut the refrigerant GHG footprint of its products by 50 percent by 2020 and incorporate lower global warming potential alternatives across its portfolio by 2030. "That's a big deal," says Tew. "That means we have to work fast to transition our product lines to new, climate-friendly refrigerants." The company also plans to reduce operations-related GHG emissions by 35 percent by 2020, Tew adds.

## Research on Multiple Levels

The company is actively working with universities, other industries and non-governmental organizations to develop a roadmap for transitioning products which currently have no viable alternative eco-friendly solutions, Tew notes. It also plans to invest \$500 million in product-related research and development over the next five years to fund the long-term reduction of GHG emissions.

## Re-Manufacturing Instead of Buying New

In line with Ingersoll Rand's approach to sustainability, the company has introduced what it calls "re-manufacturing," which involves rebuilding used equipment and putting it back into service.

For example, "We have a special facility with craftsmen that completely refurbish the existing giving compressor," Tew explains. "Then we ship it back and install or re-install it in the system, giving that entire unit another 20-plus years of life." Refurbishing an existing system is much less intrusive than installing a new one, and much more cost effective, he adds.

## Quick Green Fact

In 2016, Ingersoll Rand sent 1.2 million gallons of clean water back to the city of Charlotte, N.C.

## Ingersoll Rand

**FOUNDED:** 1905

**HEADQUARTERS:** Davidson, N.C.

**LEADERSHIP:** Michael W. Lamach, Chairman and CEO

**PRODUCTS AND SERVICES:** Green-centered products include Trane energy-efficient heating, ventilating and air conditioning systems; Club Car small-wheel, zero-emissions electric vehicles; American Standard heating and air conditioning systems; and Ingersoll Rand's own line of compressed air systems, tools and pumps, and material and fluid handling units.

**EMPLOYEES:** ~45,000

**WEBSITE:**

[www.ingersollrandproducts.com](http://www.ingersollrandproducts.com)



**Leading the way.** Green-promoting products—such as the Trane thermal storage ice tanks at Ingersoll Rand's headquarters in Davidson, N.C.—are expected to make an ever-increasing dent in the fight against climate change.



**Second time around.** IR's re-manufacturing effort updates old equipment and makes it usable for another one to two decades—a lot more cost effective and environmentally friendly than using all-new materials.



# Also in the Green

Here are a few other firms that are expanding their commitment to sustainability—and product lines.

BY ALAN NADITZ AND BARBARA HORWITZ-BENNETT

Who says the ultra-big guys are the only ones that can be considered Eco-Leaders? Lots of other companies, public and private, are giving it a go. Here are a few of them.

## Ply Gem

**Recycled content, net-zero waste management and employee suggestions are this company's hidden treasures.**

Sporting a Home Innovation National Green Building Standard Green Certified mark on nearly all of its products, Ply Gem—North America's largest maker of vinyl siding, and vinyl and aluminum windows—includes at least 76 percent recycled content in those products, per the certification. Its aluminum gutter and downspout products contain at least 85 percent recycled content. And, 95 percent or more of all scrap materials in 40 manufacturing plants throughout



**More than meets the eye. Nearly all of Ply Gem's siding products are Home Innovation National Green Building Standard Green Certified and are mostly made of recycled materials.**



**Inside surprise. In its apartments, AMLI Residential stresses common green traits, such as LED lighting and Energy Star appliances. But more distinctive efforts such as non-smoking community status and LEED certification also catch on with renters.**

the U.S. and Canada are recycled.

Similarly, nearly all Ply Gem products are Energy Star certified.

But the company's efforts go beyond how its products are manufactured. It empowers its associates to discover ways to minimize the company's environmental footprint in its manufacturing facilities through "energy treasure hunts." Teams of employees have successfully implemented more than 30 projects contributing to overall energy reduction. These best practices are being shared across the organization and with the company's supplier partners to impact the full supply chain, officials note.

## AMLI Residential

**'Living green' is the mantra of AMLI residents—and the company is happy to oblige.**

With many renters using green amenities as a deciding factor toward where to live, Chicago-based multi-family real estate firm AMLI Residential stresses the sustainable assets among its 63-plus properties and 21,000-plus apartment homes. Green traits include each complex's energy-efficient windows and LED lighting, EPA WaterSense plumbing features, HVAC filtration systems, Energy Star appliances, community recycling programs, and, in many cases, its LEED certification. Close to half of AMLI's properties are LEED certified and



**Strength in numbers. Tile association Ceramics of Italy gets its green word out through its 150 member companies, which stress the product's natural green attributes and genuine Environment Product Declaration status.**

15 are Energy Star certified, the company reports.

Additional enviro-friendly features are tailored to specific apartment complexes. The recently opened AMLI Deerfield site includes bike storage, electric car charging stations, easy public transit access, and AMLI Breatheasy smoke-free community status. There's even a resident garden. Renters are treated to visits by professional gardeners who educate them on how to eat healthier. They also provide bi-weekly harvests for renters to enjoy.

Education is a key to the company's success, according to AMLI Senior Vice President of Development Jennifer Wolf. "Residents feel comfortable knowing that they live in an apartment community that reflects their lifestyle and values of being environmentally conscious," she says. "We're always looking for innovative and engaging ways to educate our residents on the importance of green living."

## Ceramics of Italy

**This tile product is all natural and all green, all the time.**

Don't be fooled by the name. Ceramics of Italy, an association of 150 tile manufacturers and sanitaryware companies, includes an American presence. Each of them also carries Environment Product Declaration status, a tile industry designation that the association



**The writing's on the wall. And the message is green. Miron Construction Co.'s corporate culture on sustainability is clearly spelled out for everyone to see and learn from every day.**

developed to recognize a company's dedication to sustainability.

According to the association, each member is required to meet a level of eco-sustainability in all of their products. This can be demonstrated in various ways, from products such as *Ardosolar System* by Ardogres, which converts sunlight to electric power for high-tech ceramic slate roof coverings, to Lea Ceramiche's *Waterfall* tile with near-permanent Microban antimicrobial technology integrated into the product during manufacturing.

"Porcelain tiles have the lowest environmental impact over their entire lifecycle," the association notes. "Therefore, it becomes essential for each tile collection to lead in green technology."

## Miron Construction Co.

**A reminder a day keeps eco-friendly status in play.**

Sustainability is a big deal. The almost century-old Miron Construction Co. likes to remind employees of that fact, and they don't seem to mind. The Neenah, Wisc.-based builder displays "the triple bottom line" of "people, planet and payback" prominently in its offices. It also emphasizes the practice through education, corporate culture and practical construction solutions.

One way is via the company's participation in the national "Cool Choices" program, a fun, social and easy online platform that encourages employees to make choices that embrace sustainability, according to Theresa Lehman, Miron's director of sustainable services.

Miron piloted the program in 2010 and 2011, and created a card game modeled after the LEED rating system. Participants get points for making "cool choices"—actions that save money and help the environment. The game has since become tech-friendly in an easy-to-use app. "The intent is to get people excited and interested in making personal, sustainable choices and experience the triple-bottom-line benefits that enhance their health and well-being, reduce energy use in their home and vehicles, and minimize environmental impacts," Lehman says. The company recently completed another run through the Cool Choices program; this one showcased the connection between personal health and building design. It also encouraged employees to participate in daily sustainable, cost-reducing practices at home and in the workplace. **GB**



# A Healthy Approach

BY GREEN BUILDER STAFF

**G**REEN CONSTRUCTION ALREADY makes up a growing portion of homebuilders’ work orders, and things aren’t expected to slow down. But in the coming decade, the market’s health will be all but married to the welfare of its customers, according to a market study by Dodge Data & Analytics.

According to *Green and Healthier Homes*, an aging but more experienced homeownership generation of baby boomers will help turn health into “the next critical trend” as the green building movement matures. Eighty-three percent of builders surveyed for the study also believe that consumers will pay more for a healthier home versus a green home.

If those results come true, all homebuilding is in for a hectic but profitable ride. Thirty-one percent of homebuilders report that more than 60 percent of their projects are green, and 51 percent expect to be doing that level of green work by 2020. Building homes with a healthy focus won’t hurt. “As the building industry’s attention shifts to the impact of buildings on the health of their occupants, the focus on health has the potential to boost the green residential market even further,” the report states.

Homebuilders are finding that more customers than ever want green houses that promote both their well-being and the environment.

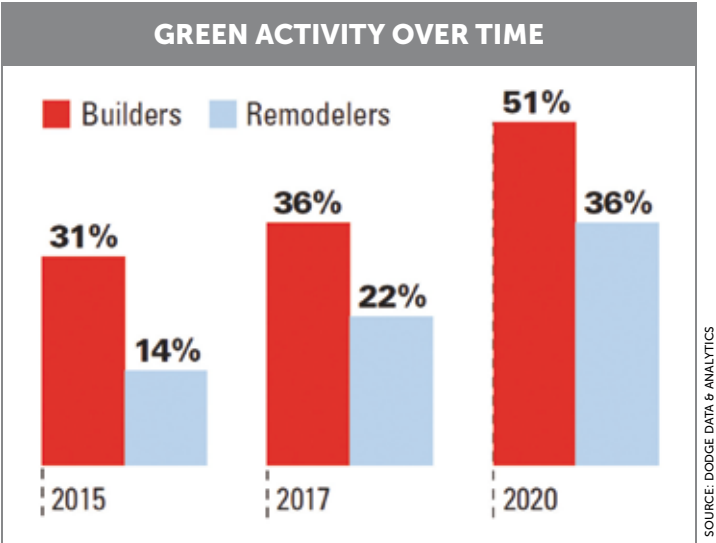
## Buying by Experience

**D**ODGE DATA & ANALYTICS conducted short, confidential interviews with nine homeowners who had purchased a home in the last year to determine the degree to which green and healthier features influenced their current purchase, and how these factors might influence them in the future. DDA notes that while the group interviewed is too small to create a portrait of generational differences, the responses offer insight into the age-based differences reported by builders, in terms of the homebuyer responses to green and healthier homes and features.

Among the findings:

**Green is influential, but not a primary driver of home purchases.** Participants said major factors that influenced the purchase of their homes included condition of the home, location (including the neighborhood), the type of home and the price. But when asked to rate how specific green elements influenced the decision to buy their home, it was a different story:

- Most interviewees reported that durability and energy efficiency were influential in their decisions. But these factors were among the first passed over by first-time buyers who bought older homes. In general, missing green elements could be added after the fact, according to the report.
- While less unanimous, about half of the respondents considered healthier indoor air environment, reduced carbon footprint, water efficiency and lower impact development influential. People who



**On the rise.** Builders and remodelers have seen the amount of their time devoted to green construction grow steadily since 2015. The trend will continue into the next decade.

bought a somewhat recently built home also expected features such as a healthier indoor living, because the house was newly constructed.

- The efficient use of materials in construction was the only factor that was not considered influential by any of the interviewees.

**More experienced homebuyers have different green priorities.** The homebuyers’ experience with other homes, knowledge about

hom building or knowledge about environmental issues is a critical factor in determining how they prioritize features, according to DDA. “Builders expect older buyers (age 55-plus) to generally prioritize most aspects of green homebuilding directly related to performance more than younger buyers,” the report notes. “The older the homebuyer, the more likely they are to have experienced good and bad features in previous homes and to be more cognizant of ways to address the issues they find.”

There are exceptions. One young interviewee (under age 35) with family members in the construction industry knew to consider items such as the R-value of the roof and insulation. By comparison, another first-time homebuyer associated energy performance with merely having efficient appliances, according to DDA.

**There is no clear-cut winner when it comes to healthier homes.** There was no consensus in terms of the valuation of a healthier home, but a few interesting trends emerged, according to the study:

- Those buyers with children or with family members with health concerns place greater emphasis in general on healthier home features.
- A few interviewees voiced concerns about how they could know for certain whether a home was healthier or not.
- Those who did not express concerns about verifying a home’s health impacts generally reported that they would pay more for a home certified to be healthier.
- A few were confused about the attempt to distinguish between green and healthier homes, operating on the assumption that green homes are also healthier by definition.

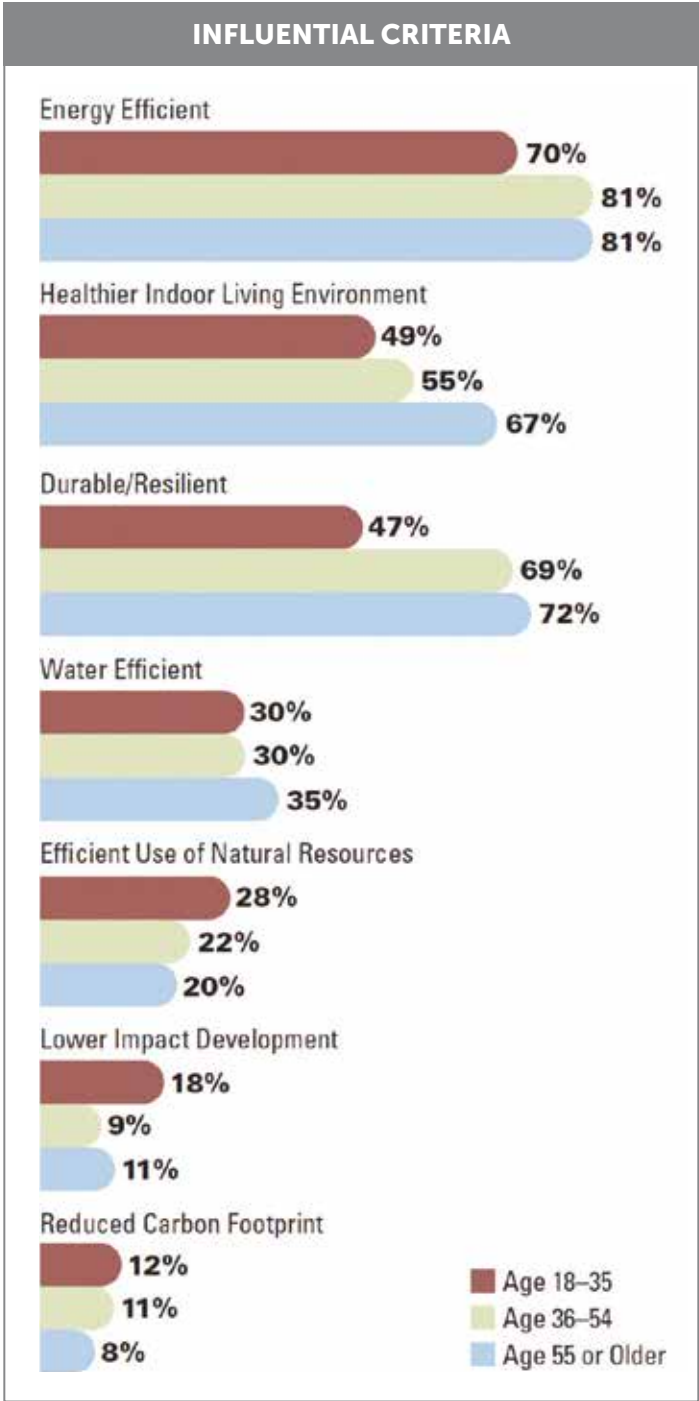
## Generational Green Buying Criteria

**F**OR THE SURVEY, homebuilders were asked the generational makeup of their clients, splitting them into age groups of 18 to 35 (millennial), 36 to 54 (Generation X), and 55 and older (baby boomer).

When it comes to homebuying, the three most influential green criteria—energy efficiency, health impacts and durability—are influential to a much lower percentage of homebuilders’ clients age 35 and under than they are for other groups, especially those 55 and older. DDA cites several possible reasons:

- Homebuyers under age 35, many of whom may be first-time homebuyers, could be strictly limited in terms of their options by budget. This could crowd out factors that they would like to prioritize.
- Greater experience with homeownership in general may make these green criteria more important to buyers age 55 and older.
- There is evidence that millennials feel strongly about a green lifestyle, but are also “more aware of and engaged by a general goal of doing good for the planet than for the immediate, tangible impacts of green building on their lives,” the study notes. The ratings for efficient use of natural resources, lower impact development and reduced carbon footprint may also support the difference in how millennials view green.

While the rankings are relatively low across the board, more builders believe that these general impacts are highly influential for



**Health isn’t everything (yet).** The things homebuyers consider important when shopping for a home varies by age group. But a healthy living environment ranks high with all.

the youngest generation of buyers than those builders who believe that they influence buyers who are 55 and older. This supports the notion that younger buyers are more influenced by the broader impacts of their behavior on the world at large, while older buyers are more focused on the specific financial and physical performance of their homes. “This is an important distinction to keep in mind when attempting to market green or healthier homes to these audiences,” the report notes.



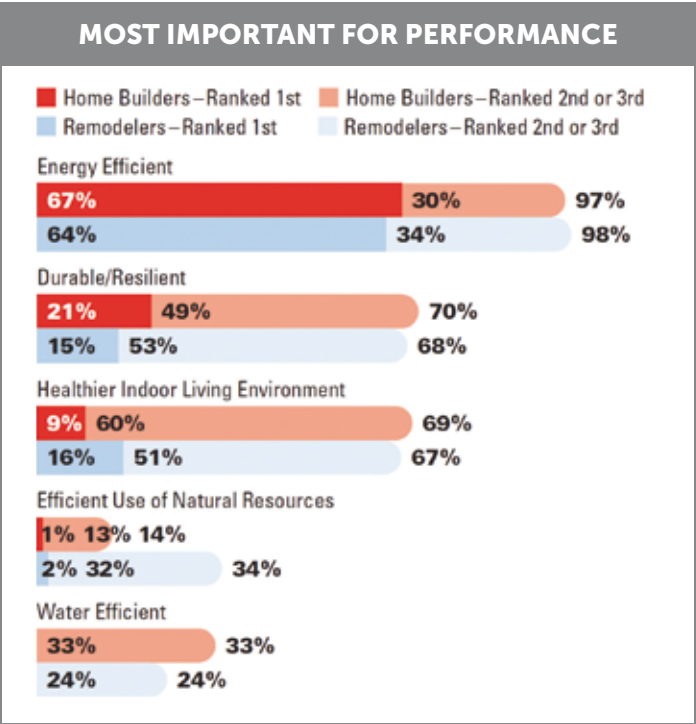
# A Healthier Performance Ahead

HOMEBUILDERS AND REMODELERS were asked to rank the top three most important green practices to improve a home's performance out of a list of seven options. Not surprisingly, energy efficiency tops the list, with nearly all respondents selecting it in their top three. This finding is consistent with previous studies, DDA notes.

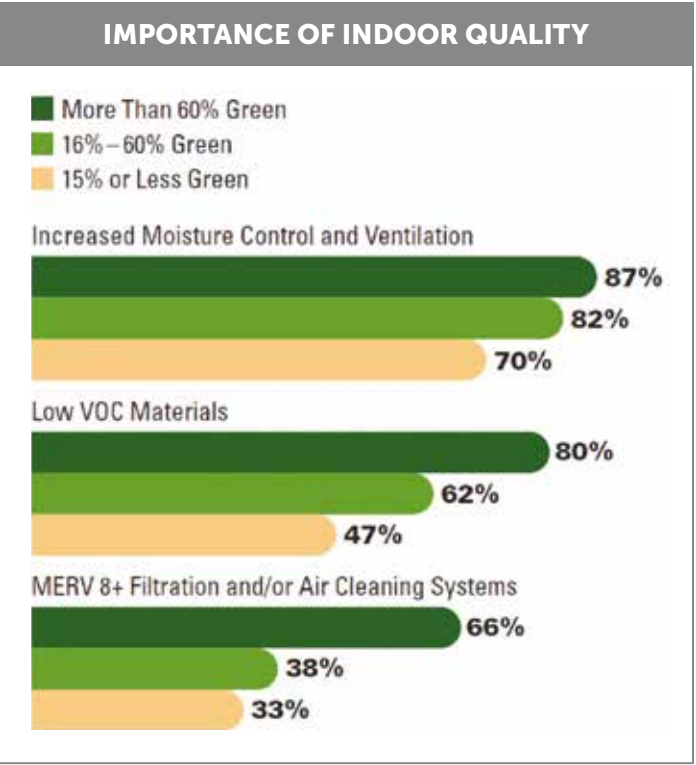
But an up-and-coming practice toward improving a home's green performance for builders and remodelers is the creation of healthier indoor living environments. In the current study, it is not only selected by over two-thirds of builders and remodelers as among the top three most important practices, but it also is selected by 11 percent overall as the most important practice out of the list of seven. This variable may increase in importance if the industry continues to give more attention to healthier buildings, according to DDA.

Homebuilders and remodelers generally agree on the importance of building products and practices that enhance indoor environmental quality, just as they do on most of the other categories of building products and practices. However, the residential sector as a whole is widely split in terms of the importance of specific products and practices, DDA notes.

- Increased moisture control and ventilation is recognized by most respondents (78 percent) as important to improve the performance of a green home. Most people expect a green home to also be healthier, and controlling moisture and maintaining sufficient ventilation are widely recognized as important factors to prevent a home from



**Best practices.** Builders still consider energy efficiency as the best way to improve a home's green performance. But a newcomer practice, indoor health, is ranked third and gaining prominence.



**Clean air matters.** Contractors with more than 60 percent of their projects as green recognize the importance of filtration and air cleaning systems. But even those builders with limited involvement—16 percent to 60 percent—can find such systems favorable for their businesses.

having a negative impact on health. The recognition of its importance ranks with the highest energy efficiency products and practices.

- The use of low-volatile organic compounds (VOC) materials falls in the middle range of importance, with 60 percent rating it at that level. Use of green building certification systems has widely raised industry awareness of the need to avoid VOCs. It is possible that it would rank higher if there were greater awareness among home owners as well, the study notes.

- Less than half consider MERV 8+ filtration and/or air cleaning systems important.

Previous findings suggest that those who use these methods find them very important, but that their use is low, DDA notes. The current study also suggests more industry education is needed on the importance of these strategies.

Meanwhile, the difference between homebuilders heavily involved in green and those less involved is more distinct on all three indoor environmental quality products/practices than they are for any other category.

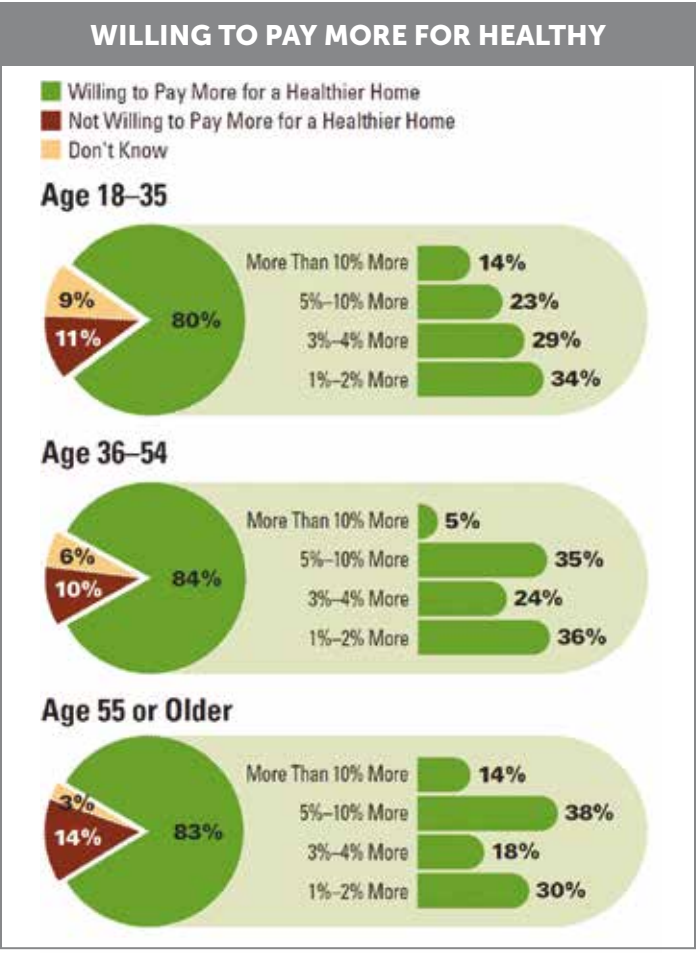
- Even a moderate level of green building work (16 percent or more green projects) increases the likelihood that builders will consider increased moisture control and ventilation important.
- As involvement in green increases, the recognition of the importance of using low-VOC materials increases consistently. Only builders with a relatively high level of green involvement (more than 60 percent of their projects are green) widely recognize the importance of MERV 8+ filtration and/or air cleaning systems.

# Is a Healthy Indoor Environment Worth More?

BUILDERS AND REMODELERS generally believe baby boomers, Generation Xers and millennials are all willing to pay more for a healthier home. According to the survey results, at least 80 percent of each age group will pay a higher price, a finding that confirms that the concept of healthier homes resonates with consumers. It also demonstrates that green builders and remodelers can benefit from capitalizing on the impact of green building approaches on home owner health, DDA notes.

However, there are differences by age of consumers in how much more builders and remodelers believe they will pay for a healthier home:

- Fifty-two percent believe that consumers who are 55 or older will pay at least 5 percent more for a healthier home. Builders believe that the value of a healthier home is not limited to those raising a family but is of wider interest. It suggests that marketing in this area is likely to be quite successful, DDA notes.
- The lowest percentage (37 percent) believe that those in the youngest age group (age 35 and under) will pay more than 5 percent.



**Easy upsell.** Builders' belief that all ages of homebuyers will pay more for healthy housing appears well founded. More than 80 percent of survey respondents gave the idea a thumbs-up.

This result is consistent with the findings about influential factors for purchasing decisions, in which health was ranked low for buyers and owners 35 and under.

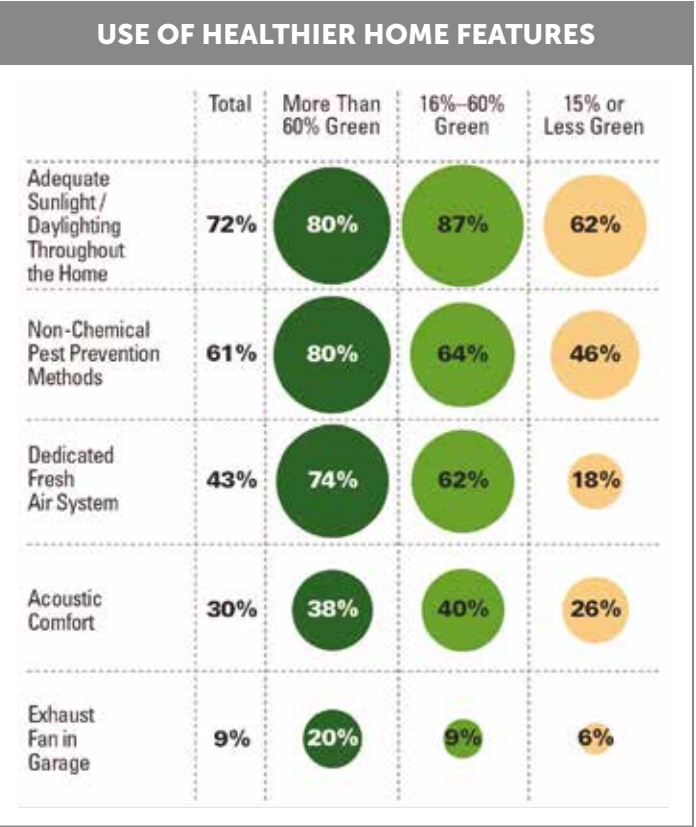
- The findings for those in the middle-age group (age 36 to 54) vary. The highest percentage (36 percent) say these clients will pay only 1 percent to 2 percent more, and the lowest (5 percent) say they will pay at least 10 percent more. This suggests that for many, these clients will pay less for health. However, a relatively high percentage (35 percent) believe that they will pay between 5 percent and 10 percent more, which suggests that for some, health is a high priority.

# What Goes into a Healthy Home

ALTHOUGH SEVERAL FEATURES in homes have been demonstrated to positively impact occupants' health, their use by builders and remodelers varies widely, according to the study.

For the most part, a similar percentage of homebuilders and remodelers report use of these features during construction. The level of green involvement, on the other hand, is influential in determining the degree of use of many healthier home features.

- The most widely used healthier home feature is the use of adequate sunlight or daylighting throughout the home. This is a critical health strategy in the home, since access to sunlight positively impacts the mental health of the occupants, DDA notes. This popular



**Key green features.** The inclusion of health-promoting features such as sunlight management, chemical-free pest prevention and dedicated fresh air are high priorities for heavily and moderately involved green builders.



practice among green builders can also make the home more visually enticing for buyers, which contributes to its wide level of use, even among those who do a moderate level of green building (16 percent to 60 percent of their projects green). Daylighting needs to be managed carefully, however, to avoid glare and to avoid increased energy use to keep spaces cool.

- Eighty percent of homebuilders and remodelers who are dedicated green builders (more than 60 percent of their projects green) use non-chemical pest prevention, a much higher percentage than builders doing less green work. Non-chemical pest prevention consists of using sealing, caulking and screening rather than chemicals to keep out pests, which can have an important impact on the air quality within the home.

Sixty-four percent of those who do a moderate level of green building also report using this feature, much higher than those who do little green building (46 percent).

**The No. 1 healthy home feature: Daylight.**

**The up-and-comer: The garage exhaust fan.**

- The degree of green involvement is very influential in whether a builder or remodeler is likely to use a dedicated fresh air system. Nearly three quarters (74 percent) of dedicated green builders make this investment in their homes, compared with just 18 percent of those doing little green building. Since this is part of the mechanical system, it is used by a significantly higher percentage of builders (48 percent) than remodelers (27 percent). It is more likely to increase the cost of the mechanical system, but it can also have a big impact on the air quality in a home, according to the study.

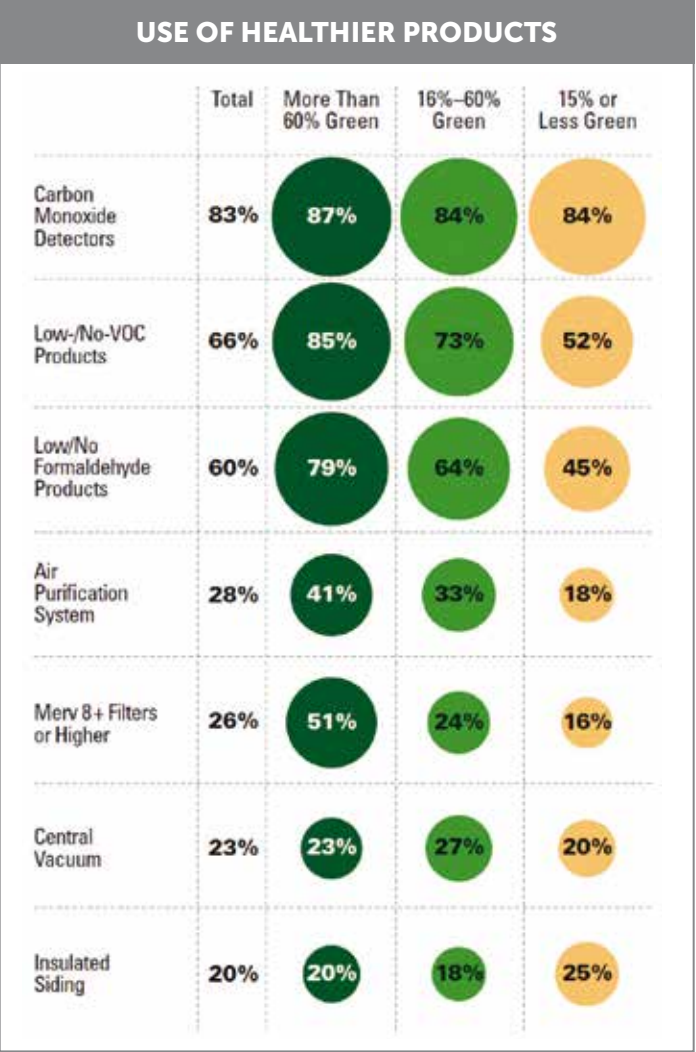
- Acoustic comfort has not been included as a credit on many green home rating systems, and this may account for the fact that there is less difference in its use across the three levels of green involvement than for any other healthier home feature, DDA notes. It may also explain why it is not more widely used in general, even though it is an important factor for comfort, and for health factors such as sleep quality.

- The use of exhaust fans in garages is still an emerging feature for those doing a lot of green building and those doing very little, although it is more likely to be used by dedicated green builders, the study notes.

## Air Quality Products by Degree of Use

GREEN AND HEALTHIER HOMES identifies several types of air quality products considered important to builders and remodelers in their sustainable housing projects, depending upon their amount of green involvement:

- Carbon monoxide detectors are the most widely used of all building products that impact indoor air quality. This is largely due to the number of states (29) with varying mandates for their use. In addition, public awareness of the risks posed by the accumulation of carbon monoxide in the home, including illness and death, has increased significantly in the last decade, creating consumer demand



**Product priorities.** State-mandated carbon monoxide detectors and no- or low-VOC products are the top air quality devices on builders' lists. Central vacs and insulated siding, on the other hand, have yet to make their presences known.

for these products in homes, according to DDA.

- Low-/no-VOC products and low-/no-formaldehyde products are each used by 60 percent to 66 percent of survey respondents. However, these are far more widely used by dedicated green builders and remodelers (those doing more than 60 percent of their projects green) than by those doing less green building. The study attributes the high usage rates to builder awareness of requirements and points given to their avoidance by green building rating systems.

- A relatively high percentage of dedicated green builders and remodelers use air purification systems (41 percent) and MERV 8+filters or higher (51 percent) compared with those doing less green building. The study deems this an indicator that green building experience impacts the willingness of builders and remodelers to invest in these systems.

- Level of green building involvement has no impact on the use of a central vacuum system and insulated siding, according to DDA. The study notes that greater industry awareness of the benefits of these products on improving indoor air quality is necessary. **GB**

SOURCE: DODGE DATA & ANALYTICS

# LEED-ing the Way to a Healthy Home

One of the nation's first certified green homes set the standard for the wave of eco-friendly homes to come.

WHEN LAURA AND RUTHERFORD SEYDEL built their green home "EcoManor" in Atlanta in 2007, they decided not only to certify that the home was green through the fledgling LEED for Homes program, but also to use it to "provide a blueprint for others as they wanted to build their own LEED-certified homes that [would provide] some good ideas about what they could do," according to Laura Seydel. That commitment to energy, water and materials conservation, as well as their use of renewables, helped them earn LEED Gold certification—the first in the Southeastern U.S. and first home of more than 5,000 square feet anywhere in the nation to accomplish that feat.



CREDIT: DAVID LACHAPELLE

**Pioneer trail.** Attention to indoor airflow and use of natural lighting helped make EcoManor one of the first LEED-certified green homes.

However, the Seydels' commitment to a sustainable home exceeded the LEED parameters at that time. Shortly before they began building their home, Laura Seydel, along with her father and son, participated in one of the nation's first intergenerational toxic body burden studies in the U.S. The results revealed that each of them had unacceptably high levels of different toxins, including high levels of flame retardant and Teflon-type chemicals in her son. It led Seydel to "make a commitment that we would do everything in our power, not only to achieve an environmentally friendly home, but a healthy home as well."

An important partner in that effort was Jillian Pritchard Cooke, president of DES-SYN, the firm responsible for interior design on the project and part of Seydel's "Dream Green Team." Expertise in this area was needed because the understanding of the need for healthier building products for homes was still limited and highly specialized, according to Seydel.

Even finding low-VOC paints was a challenge when the home was built. The paint expert at their local big-box home improvement retailer told them, "That doesn't exist; there is no such thing," and they had to examine the paints on the shelves themselves to demonstrate that it did," Seydel says.

### INDOOR HOME HEALTH STRATEGIES

The health impact of products [applied to] all the materials they selected for the home, not just the paints. "From stains to varnishes, obviously paint, the air filtration systems, all the fabrics that we used and the vegetable-dyed carpets—we really tried to get that right," Seydel says. "We even bought wool over synthetic carpets because of off-gassing issues."

While some options involved investing in more expensive materials, the Seydels also employed strategies that could be adopted inexpensively by any builder. All materials used in the EcoManor were selected with conscious attention to their impact on the home's indoor air quality. In addition, the Seydels regularly tested the air quality to help identify any issues they might have missed.

Another key health strategy employed was the use of large windows, which promoted airflow throughout the house and let in natural light. Also, light tubes were used in the master bathroom and closet to provide natural light in spaces that would typically lack it.

Seydel was ultimately pleased with the aesthetics and comfort of all the materials involved. "I love the fact that we got all these beautiful elements that Jillian and her team put together for us, such as all-natural fabrics and aged hardwood floors that came from downed trees in Florida, aged beams and natural surfaces," she says. "I think the home feels just great. And it looks great."

### A TOXIC CHALLENGE

However, the Seydels' efforts also demonstrated that even the best-planned attempts cannot completely eliminate the possibility of toxins in a home. There were mistakes during construction: A bad mix of insulation in the roof caused it to off-gas more than it should have; a flooring adhesive that also off-gassed was used without approval when the floors were installed.

One of the most striking examples, though, came from the kitchen cabinets. After learning that cabinets with formaldehyde can off-gas for 15 years, Seydel was particularly careful to order cabinets marketed to people with upper respiratory diseases as formaldehyde-free. However, when they had the air tested after they moved in, Seydel says she was, "shocked to find out that our kitchen cabinets—not the doors, but the boxes—were loaded with formaldehyde."

Cooke is careful to observe that these are not just examples of atypical errors: "The thing that most people don't realize is that every home is toxic," she says. Even homeowners who do everything right like the Seydels, Cooke points out, cannot eliminate the presence of toxins. In fact, she asserts that outside influences, once the home is occupied—anything from packages arriving in the mail to a dog interacting with toxins in a neighbor's yard—will inevitably introduce some toxins into an environment.

She believes that highly efficient homes should be designed with this factor in mind. "The best thing [Seydel] did was [to choose] big, huge windows; lots of patterns for air to flow."

Cooke notes there is also a need to balance efficiency and health and avoid "tight box syndrome." Attention needs to be given, even in a highly efficient home, to ways to allow toxins to escape. "To be off of net zero and not have such a tight box, and to be able to have a home that breathes really creates a much healthier environment," she says.

*This article originally appeared in Dodge Data & Analytics' Green and Healthier Homes market report.*



NEOLITH, SINTERED STONE.



Ventilated Facade: BASALT BLACK Satin  
Linda Schmidt Residential Project, Miami, (USA)  
Designed by Marc Michaels Interior Design  
Photography: Damián Pérez, Fototec

Interior and exterior applications: Facades, Cladding, Flooring, Countertops and Furniture.  
Resistant to UV rays, bending and extreme temperatures. Lightweight, recyclable and 100% natural.  
Maximum format, minimum thickness, different finishes. More than 50 selections available.  
Design, Durability, Versatility, Sustainability.

NEOLITH<sup>®</sup>  
SINTERED STONE



# GOING GREEN by Growing Green

Want to attract private investment to energy-efficient buildings? Just follow **THE FIVE S's**.

BY ERIC MACKRES, DEBBIE WEYL AND DANIEL MELLING



**T**he recent 2017 Sustainable Energy for All Forum in Brooklyn, N.Y., kicked off with a stark warning: The world is not on track to reach its 2030 energy goals, including those on efficiency. To speed action, leaders in government and finance will need to better coordinate policy and investment to move more money toward clean energy. More than ever before, investors see opportunities to make money in energy infrastructure upgrades like efficient buildings, clean transportation and renewable energy generation. But to create healthy investment markets, financiers say that governments need to adopt regulation and foster voluntary programs. Good public policies can complement and drive private investment to building efficiency. How? In the buildings sector, we hear at least five ways.





CREDIT: THE NAMA FACILITY

**Stable conditions.** Cities that adopt and enforce energy codes can stimulate demand for energy-efficient homes and apartments—and lure lenders into green financing.

## 1. Stability

**INVESTORS SEEK PREDICTABLE OUTCOMES.** Without clear policy or guaranteed returns, private investors are unlikely to lend to building efficiency projects.

Governments can establish policies that set expectations for the building sector. Cities that adopt and enforce building energy codes, for example, can quickly increase local demand for energy efficiency technology. Stable demand means a stable market for finance. Mexico City's Secretary of Environment Tanya Müller García said at the forum that the city's new construction regulation, which includes energy efficiency standards for the first time, is beginning to create more demand for voluntary energy efficiency.

Private investors also want evidence that the money they lend will be repaid. In new markets where a record of repayment does not yet exist, governments that guarantee repayment can better attract investment. Risk-sharing agreements, such as one between the Government of India and the World Bank, designate who will take financial losses and by how much, taking some burden off of financial institutions.

## 2. Scale

**HIGH TRANSACTION COSTS CAN UNDERCUT INVESTOR PROFITS.** To reduce these costs within their portfolios, investors look for markets with high demand and large transaction sizes. Financiers typically aren't interested in an investment until it reaches a scale of around \$10 million, as Bruce Schlein, a sustainability and finance leader at Citi, noted in a forum panel.

To create the scale needed for [business] investments, government action can aggregate demand for finance from multiple projects. The Berlin Energy Agency, for example, creates pools of public and private building efficiency projects to make them attractive to energy service companies that provide technical assistance and funding. To date, the program has reduced energy bills by more than \$199 million.

## 3. Standardization

**INVESTORS NEED A WAY TO ASSESS BUNDLES OF PROJECTS, RATHER THAN LOOKING ONE BY ONE.**

In established markets like auto sales or student loans, lenders have common standards for categorizing financial products and risks. The financial sector is only beginning to use these for buildings.

Existing market standards, including green building certifications like EDGE, LEED and others are often familiar to investors. Investors may, therefore, better understand projects that use these certifications, which can increase the likelihood of investment. Governments can use policies such as financial incentives to encourage broader adoption of these existing market standards, which can help increase the demand for building efficiency technologies to meet those certifications.

Project documentation standards, like the Investor Confidence Project protocols, make projects comparable by standardizing the data points provided to and assessed by financiers. Standard data also allows investors to assess multiple projects quickly, categorize them by risk and sell them in groups to a secondary market, as is beginning to happen in initiatives like the Warehouse for Energy Efficiency Loans (WHEEL) in the United States. Secondary markets in turn enable larger-scale investments and greater confidence in returns.

## 4. Segmentation

**THE BUILDING MARKET'S FRAGMENTED NATURE PRESENTS CHALLENGES FOR INVESTORS LOOKING FOR PROFIT.**

Even in a single city or district, investments in building efficiency could involve a wide variety of technologies (air conditioning, boilers, lighting), property types (homes, offices, schools) and decision makers (building managers, homeowners).



CREDIT: DENVER HOUSING AUTHORITY

**'S' sense of green.** The various 'S' elements can lead cities into programs like the Department of Energy's Building Efficiency Accelerator, which helps make green projects more attractive to investors.



CREDIT: GREEN HOME INSTITUTE

**A standard market.** Green building certifications such as LEED Platinum—awarded to this single-family home constructed by Meadowlark Builders—can help investors better understand such projects and increase the likelihood of investment.

To complicate matters, each market segment involves different barriers and motivations for investments in efficiency. For example, homeowners are often motivated by a desire for a comfortable temperature in their house, but any costly or inconvenient upgrades discourage action. Businesses tend to be more concerned about productivity and their reputation, and will therefore be more likely to consider the lifecycle costs of their investment.

Governments and NGOs need to design mechanisms that appeal to the varying motivations of building decision-makers in different market segments. For institutional real estate investors, for example, Carbon Trust demonstrated why greener buildings are attractive investments: They rent at a premium, have lower vacancy rates, and make employees happier and more productive.

## 5. Sequencing

**CITIES THAT ONLY OFFER SHORT-TERM OR ONE-OFF BUILDING EFFICIENCY POLICIES ARE UNLIKELY TO DEVELOP THE SCALE OR STABILITY** needed to transform their real estate market toward demanding efficiency. But governments that develop a long-term vision with a sequenced package of policies create a healthy market for building investment.

The government of Jakarta, for example, adopted both a new energy code for all buildings and a tax rebate for buildings that exceeded standards, encouraging investment by those that simply want to comply with the law and more investment by those who see efficiency as an opportunity to reduce costs or improve their business. As of May 2016, the program was saving around \$68 million every year.

The pathway to green financing may also follow a sequence. Bruce Schlein of Citi observed that the company's investments in energy efficiency often stemmed from an early combination of philanthropy

and government support. To replicate this elsewhere, government, finance and civil society groups in local markets should cooperate closely on stepping stones to success.

## Building Efficiency Accelerator: Putting Principles into Action

**E**ACH OF THESE METHODS align with actions cities are taking in the Building Efficiency Accelerator (BEA). Cities that join the BEA partnership commit to implementing a building efficiency policy and a demonstration project, which often then mature into a project or program investment pipeline.

As the 28 Building Efficiency Accelerator cities move to implement their actions in 2017 and fund the implementation of future efforts, their commitments are complementary and reinforcing. Clear policies encourage investments, and investor interest encourages government action—getting us back on track to deliver against our 2030 Sustainable Energy for All goals. The combination leads to strong markets for building efficiency that attracts more private investment at less public cost: an efficient solution for clean, affordable energy. **GB**

*The World Resources Institute ([www.wri.org](http://www.wri.org)) is a global research organization with offices in the United States, China, India, Brazil, Indonesia and 45 other nations. The organization's goal is to sustain the planet's natural resources by focusing on six critical issues in environment and development: climate, energy, food, forests, water, and cities and transport. Eric Mackres and Debbie Weyl are building efficiency managers at the WRI Ross Center for Sustainable Cities, and Daniel Melling is the communications specialist for WRI's Global Energy Program.*



# THE GREEN GAP

Pressure from investors and stockholders may force companies to act on Climate Change.

BY ALAN NADITZ

**Is it worthwhile for a company to invest in sustainability? A growing number of larger U.S. businesses think so. Those that don't may severely impede their company's success, according to a new market report.**

*Corporate Sustainability Reaches Middle Age: A Review of Key Trends and Insights from 9 Years of Research*, by Siemens and Dodge Data & Analytics (DDA), notes that the percentage of companies interested in green investments has nearly tripled, from 15 percent in 2006 to 41 percent in 2015. But the number that would rather stick to familiar fields also increased during that period, rising from 17 percent to 21 percent in just under a decade.

Study coordinators evaluated each responding firm and identified them as being in one of five stages of interest in sustainability. A stage 1 ranking means the company does not consider green strategies as important to operations other than in meeting government operations. A stage 5 ranks the company as one that believes sustainability is crucial to its business operations and its place as a green leader in society.

The study notes that there is a widening "green gap" between the forward thinkers and those that can't see the value of eco-friendly business—and that's not a good thing. "Those companies that invest in sustainability see clear value coming from those investments," says DDA Senior Director of Industry Insights Stephen A. Jones. "Companies that ignore these benefits may eventually find themselves at a competitive disadvantage."

But even companies that don't believe sustainability matters may be forced to face facts and take action...or risk going under (for more, see story at Greenbuilder Media.com).

#### Key findings include:

- Eighty percent or more of companies at the higher end of the scale (stages 4 and 5) believe that their sustainability stance provides a stronger competitive advantage and helps them retain or attract employees and customers. Sixty percent or fewer of those at the low end (stages 1 to 3) believe the same.
- Sixty percent of the companies at stages 4 or 5 believe their green buildings have higher asset values, compared to 30 percent of those

Stages of Corporate Sustainability	
STAGE	DESCRIPTION
Stage 1	Sustainability is not part of the company mission. The company views sustainability as complying with government regulations.
Stage 2	Company has started to engage in sustainability, but sustainability is viewed as a cost.
Stage 3	Company considers the proactive application of sustainability to be consistent with the profit mission. However, it has not built sustainability into its technologies, policies, and operations on an institution-wide basis.
Stage 4	Company is a green organization. Sustainability is viewed more as an opportunity than a cost and integrates sustainability with key strategies.
Stage 5	Company views sustainability as a transformational driver and is driven by a passionate, values-based commitment to improving the well-being of the company, society, and the environment. The company approaches business as a holistic, restorative company.

at stages 1 to 3.

- Most stage 4 and 5 companies (58 percent) expect higher corporate valuation and better financial performance (61 percent) from green investments. Among companies in stages 1 to 3, 39 percent and 29 percent, respectively, have the same expectations.

Siemens Director of Energy and Sustainability Ari Kobb says green investment trends over the past decade revealed that many of the nation's largest corporations are "firmly committed to sustainability and recognize the impact on the bottom line, brand equity, and both customer and employee

connection." But he also notes that if the "green gap" continues to expand, "what will ultimately drive those organizations that are less engaged in sustainability to do more?" **GB**

*Siemens/Dodge Data & Analytics, "Corporate Sustainability Reaches Middle Age: A Review of Key Trends and Insights from 9 Years of Research."* <http://bit.ly/2u0gKyC>

*Schroeders Investment, "Investment Firms Warn That Backing the Wrong Industries Will Yield Disastrous Global Heating."* <http://bit.ly/2uQgz9e>

SOURCE: SIEMENS/DODGE DATA & ANALYTICS



## R&D IS NOT JUST ABOUT BEING FIRST TO MARKET.



## IT'S ALSO ABOUT MAKING SURE YOUR SYSTEM REMAINS PROBLEM FREE.



Green  
Builder®  
Media presents  
**FLEX** HOUSE  
by Shelter Dynamics

# SHOW STEALER

At PCBC in San Diego, The Flex House became the toast of the show floor, winning high praise from both exhibitors and attendees.

BY MATT POWER, EDITOR-IN-CHIEF

**R**EACTION TO THE GREAT UNVEILING of The Flex House in June surprised even the Shelter Dynamics team that built it. As the follow-up to the previous year's "The Arc House," this design proved even more seductive. Even as we finished installing the last pieces of furniture and patching minor drywall dings, we had other exhibitors and exhibition workers asking for an early tour.

By personally being on hand to answer questions and listen to comments from visitors, we learned a lot about which buyers this type of project attracts, both on the pro and homeowner sides. The article on the following pages will get into more detail about design choices for The Flex House, but quickly, here are five things that really resonated with our first several hundred visitors.

**1. Big Impression.** Almost universally, visitors would ask about the square footage of the house at the end of the tour. When we told them 760 square feet, the response was almost always "Wow. It seems a lot bigger than that." The high ceilings, radiused corners and U-shaped flow of the floorplan definitely contributed.

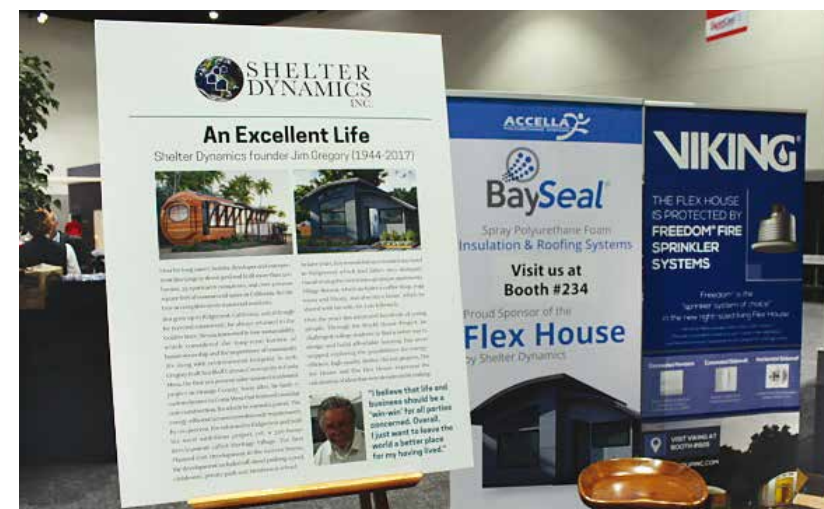
**2. R-40 Walls.** For pros especially, who walk into The Flex House assuming it's a built-to-code manufactured home, the Bayseal closed-cell spray-foamed wall performance is an instant impression changer. This home is far more energy efficient than a typical factory-built project.

**3. Power and Water.** The presence of a Jinko solar array and complete Nexus graywater system also took visitors by surprise. Add in the water savings potential from the Rachio smart irrigation system, and you have a truly "flexible" turnkey house with low impact on local infrastructure, with the potential for off-grid living as well.

**4. Hard Cost.** At an estimated \$85,000 off the factory floor, trimmed, finished and ready for occupancy, the house immediately caught the imagination of several California builder-developers. "How long to deliver 100?" one builder asked. Many other would-be buyers made serious inquiries into purchasing a unit. This is the prototype, however. Factory ramp up isn't likely to happen for a year or so.

**5. Affordable Luxury.** Trimless windows, composite Mohawk floors and the *Neolith* "sintered stone" countertops in the home were carefully selected for their clean modern look, but they're budget busters. The ultra-modern cabinets in the kitchen were off-the-shelf purchases. The overall feeling is custom and luxury, but without the price tag.

Of course, it is the sum of The Flex House, not its individual parts, that that compelled many visitors to tell us "This is the best thing at the show!" And the story doesn't end here. We intend to keep improving and tweaking the house for its upcoming exhibition at both Solar Power International and the Consumer Electronics Show. **GB**







# A WINNING DESIGN

Innovative products and systems may be what ultimately sell The Flex House to a client, but it's the design that gets them in the front door.

BY JULIET GRABLE

**T**HE FLEX HOUSE was conceived as a modular housing design that can meet the needs of a broad range of homeowners. The prototype consists of two modules that come together at a central axis. On one side of this “spine” are the living room, office and bedroom; on the other, the entry, dining room, bathroom and kitchen.

Like The Arc House, The Flex House is defined by curves. In each module, a high ceiling arcs away from the center, while arched doorways and rounded corners add customized touches to the factory-built modules. A row of clerestory windows brings in plenty of natural daylighting to the bedroom and office module, and the public parts of the home are largely open, adding to the feeling of spaciousness.

This floorplan, ideal though it may be for a couple or single person,

can be customized for each client, even while the home is under construction in the factory. Because the floors are installed first, the configuration of walls can be tweaked to enlarge certain rooms and shrink others, or a wall may be even left out to create a larger living room space.

## MODELING MODERN

While The Flex House can be adapted to any number of styles, Green Builder® Media and Shelter Dynamics have chosen to present the prototype in a clean, contemporary style. Hence, walls are finished with sheetrock and paint. Casework is painted. Finishes were chosen for their warmth, durability and simple elegance.

Along with quality craftsmanship, The Flex House showcases products and finishes that contribute to good indoor air quality,

“The Flex House is an excellent example of optimized, efficient design. The compact floorplan makes use of every square foot, and the moveable walls allow for multi-function spaces that transform to fit the homeowner’s lifestyle.”

**Sara Gutterman,**  
CEO of Green  
Builder® Media



RENDERING BY ALIGN3D

**Design flexibility.** Because the walls are installed on top of the flooring, the floorplan can be altered in later stages of the factory construction.

starting from the ground up. *The Silver Ivory* laminate wood flooring is part of Mohawk Flooring’s *Classic Artistry* collection. With realistic visuals that emulate subtly distressed, saw-cut planks with a cerused, or limed finish, the flooring adds to The Flex House’s warm but modern aesthetic. The 6.25”-wide planks come with a low-maintenance and scratch-proof finish, and the product is certified by FloorScore, ensuring it will not contribute VOCs or other harmful chemicals to the home.

The *Neolith* countertops provided by Spanish company TheSize are made from clays, feldspar, silica and natural mineral oxides, treated with extreme heat and pressure and compressed into thin

slabs. The resulting surface is durable, stain and scratch resistant and GREENGUARD Gold certified. Part of the *Neolith Fusion* collection, the *Beton* style evokes concrete and natural stone with its warm grey tones and subtle marbling.

Daylighting is supplemented by efficient SYLVANIA LED lighting from LEDVANCE. The four SYLVANIA products featured in The Flex House are RGB LEDs, meaning they can blend red, green and blue to create thousands of colors in addition to a range of whites.

These dimmable and tunable LEDs can “do anything,” says Glen Gracia, head of media relations, Americas, for LEDVANCE. “You can instantly change the mood or atmosphere. Why paint the walls a





**Modern conveniences.** With sleek European-style appliances, adjustable LED lighting and durable, low-maintenance surfaces, The Flex House kitchen makes cooking and entertaining a pleasure.

different color when you can use light to do the same thing?" These connected smart bulbs can be controlled via a smartphone using Wink or other compatible hub or gateway.

The Flex House is also protected by a home fire sprinkler system. Provided by The Viking Corporation, the *Freedom VK494* sprinklers feature a fully recessed design that allows them to blend seamlessly into the ceiling. These sprinklers are also available in both ordinary and intermediate temperature ratings. The intermediate sprinklers allow for greater design flexibility, as they can be placed closer to heat sources and offer the same flow rates as those with the ordinary temperature rating.

Because California requires home fire sprinklers in all new residential construction, even Flex houses destined for locations in other states will still be protected.

#### A COOK'S KITCHEN

The clean modern aesthetic is carried out in every detail of the fully equipped kitchen. The sintered stone *Neolith* countertops are complemented by the *Edgewater* stainless steel sink and "touchless" faucet from American Standard, which can be activated by waving a hand in front of the sensor. Recessed SYLVANIA LED can lights, set into the curve of the ceiling, can be adjusted to provide soft, even lighting, but like the rest of the home's connected lighting, they can also be programmed for any desired color.



**High standards.** The kitchen includes an *Edgewater* stainless steel sink and *Beale* pull-down faucet from American Standard. An integrated sensor in the faucet allows for touchless operation.

## Fire Fighters

AS MORE BUILDERS make fire sprinklers a standard feature in their homes, they're demanding more design flexibility in these systems. In response, the Viking Corporation recently launched the *Freedom VK494*, a new line of concealed pendant fire sprinklers. These fully recessed sprinklers are covered with a flat round plate that can be finished with custom colors, so that they disappear into the ceiling. Square cover plates are also available.

Significantly, the *VK494* sprinklers are offered in both ordinary (155 °F) and intermediate (200 °F) temperature ratings.

"Intermediate-temperature sprinklers can be placed closer to heat sources," says Darren Palmieri, category manager-residential for the Viking Corporation. "This offers greater design flexibility, and potentially lowers the number of sprinklers needed."

The intermediate sprinklers are ideal for projects where the ambient temperature (either in the installed location or on the jobsite, where the sprinklers may be stored before installation) could rise above 101 °F. Both the ordinary and intermediate sprinklers are UL listed and achieve the minimum flow rates for various coverage areas (16' by 16', 18' by 18' and 20' by 20'), making the *VK494* the first concealed residential sprinkler to have the same flow rates for both temperature settings. To learn more, visit: <http://bit.ly/2tS7YT8>



**Water wise.** The Viking Corporation's *Freedom VK494* sprinkler is part of a new line of concealed pendant fire sprinklers that disappear from view when not used.

## Smart Suite

THE FLEX HOUSE is showcasing a range of tunable, dimmable LED products from SYLVANIA-LEDVANCE. All of these products

feature adjustable white light and an RGB color mode that allows the user to choose from thousands of colors to create customized settings:

- **A19 RGBW:** Adjustable LED bulb; installed in table lamps
- **ULTRA RT% RGBW:** Adjustable LED downlight; installed in ceiling (recessed cans)
- **BR30 RGBW (pictured):** Adjustable LED flood light; installed in ceiling (recessed cans)
- **Flex Strips RGBW:** Flexible LED light strip for use under counters or as accent lighting. Adhesive tape attaches to solid surfaces and follows contour around corners.

<http://bit.ly/2ttR0uR>



## Compact Quality

IT'S NO COINCIDENCE that Bosch Home Appliances began marketing its suite of compact appliances to North American customers a few years ago alongside its suite of award-winning, full-size appliances. Several trends are conspiring to increase demand for these small, efficient appliances, says Anja Prescher, director of Brand Marketing for Bosch Home Appliances. High-rise development in urban areas, from Boston and New York to Seattle and San Francisco, is driving some of it.

"Many of these developments are offering smaller apartments [tailored for] urban living," says Prescher. Young professionals moving into cities go out to eat frequently and don't necessarily require full-size kitchens. Similarly, down-sizing empty nesters want simpler lifestyles without sacrificing performance or quality.

"We're also seeing demand for our products in vacation and second homes—spaces where people appreciate the smaller footprint," says Prescher. Customers are also customizing "man-caves," "she-sheds" and other secondary spaces with compact appliances, particularly refrigerators.

As an ENERGY STAR partner since 2007, Bosch Home Appliances is committed to water and energy efficiency. In 2016, Bosch earned the ENERGY STAR Emerging Technology Award for a majority of the 24" refrigerator line, which uses a refrigerant with low global warming potential (GWP).

The compact appliances offer the same performance in a smaller package. For example, the 18" dishwasher includes a third rack that adds 30 percent more loading capacity (compared to a Bosch dishwasher with two racks), and the compact washer and dryer pair can hold up to 18 bath towels per load.

The company's design philosophy is grounded in the Bauhaus movement, and Bosch products are characterized by a clean and intuitive user interface, with special attention to touch and feel. After 130 years, the Bosch name is still synonymous with quality.

"Our dishwashers go through 485 rigorous quality checks before leaving our factory," says Prescher. "This [concept of quality] is something that is really rooted in our brand and something we work really hard to uphold."

<http://www.bosch-home.com/us/>



**Options.** The compact refrigerator line features a glass door offered in tempered white or black, or clear glass on stainless steel (pictured).





The Flex House features a suite of compact European-style appliances from Bosch Home Appliances, all of which are ENERGY STAR certified. These include a 24"-inch refrigerator, cooktop, wall oven and range hood, an 18-inch dishwasher, and a 24-inch washer and dryer pair.

Aside from their compact size, the sleek design of these appliances allows them to seamlessly integrate into small spaces. The counter-depth refrigerator includes a hidden hinge that allows it to be installed nearly flush into the cabinetry. The cooktop is frameless, with sleek, intuitive controls and four burners of varying sizes, and the convection wall oven offers 10 cooking modes. The pull-out range hood installs flush with cabinetry and can be closed and neatly stored when not in use.

Other features make the appliances ideal for small-footprint homes. Sound-dampening technologies ensure that the dishwasher is near silent, and thanks to its brushless *EcoSilence* BLDC motor, the washer is extremely quiet, too. The condensation dryer does not require ducting, reducing its footprint and giving it more installation flexibility, and the washer and dryer are stackable. **GB**

Look for our next article on *The Flex House*, which will focus on the home's intelligent water systems and clean transportation solutions.



**Gold-star performance.** To earn NALFA certification, Mohawk's Silver Ivory flooring had to pass a series of 10 rigorous performance tests. <https://www.mohawkflooring.com/>



## Multiple Applications

THE *NEOLITH* SINTERED stone surface featured in The Flex House comes in several thicknesses (3 mm, 6 mm, 12 mm and 20 mm), three slab formats and three tile formats. A digital design process is used to imprint *Neolith* surfaces with visuals that range from quarried Italian marble to linen. The thin slabs require fewer natural resources, and their light weight makes them easy to transport and install. The material can be used in an array of applications, including flooring, façades and furniture. [www.neolith.com](http://www.neolith.com)

# Experience The Flex House

Shelter Dynamics and Green Builder® Media will exhibit The Flex House at two Las Vegas trade shows over the next several months. Here's where and when to get a first glimpse of this innovative dwelling while it is featured on the showroom floor:

- **Solar Power International:**  
Las Vegas, September 10-13, 2017
- **Consumer Electronics Show:**  
Las Vegas, January 9-12, 2018

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# SMART CITIES

## The Intelligence of 'Smart' Thinking

An introduction to development of smart communities: homes, towns and villages, and cities.

BY TERRY BEAUBOIS

This is the first in a series of articles about the increasing global interest in smart communities and how this relates to green building in the U.S. Some consideration and awareness of related international developments will be included. We will present an overview of a range of buildings: homes (single-family houses and condominiums), towns and villages, and smart cities.

The goal of these articles is to provide good, useful information to the building industry about smart communities: A better planned house, development or entire city is critical to improving the quality of life globally. Recognizing the size and complexity of all factors involved in the total scope of the building industry is important, too.

### "What do you mean by 'smart'?"

Identifying and describing what "smart" is—when it applies to a home, village or a city—is important, because the term is thrown around a lot lately.

The way I use "smart" may be more inclusive than how others do. Some people limit "smart" to technology or Internet of Things (IoT) items and issues. For them, that may be appropriate. My definition of "smart" includes IoT, but is not limited to it. As an architect who approaches things using Architectural Design Thinking, I look at the entire ecosystem of the building or project to consider how we can make the built environment "smart." This includes green, sustainable, resilient, appropriate and other categories that benefit projects seeking to maintain or improve quality for people, all while incorporating advances in technology that contribute to the human health, safety and security in smart communities.

### Emphasizing that "Smart Buildings" Is About "People"

In 2010, during the research phase of our Bozeman, Mont. ecoSMART House Project, my team was exploring the idea of "sustainable products." We were discussing sustainable roofing, sustainable siding and sustainable flooring material, walls and appliances when I remembered a short story I'd heard as a boy. Late one night, while listening to the transistor radio I had snuck under my pillow, the program "X Minus One" had a reading of the short story, "There Will Come Soft Rains" by Ray Bradbury.

In this story, a high-tech house is going through its programmed motions. The people are missing. And what is revealed in the story made me think, "Wait—we should be talking about how to keep humans around—and not just materials." Remembering this was a pivot in our research. *How do we further elevate human sustainability in our consideration of building design?*

### A Design for All

The next pivot on our ecoSMART House Project occurred during a visit to Turku, Finland, where I was speaking at a conference. One evening, a professor I knew there invited me to dinner at his home.

During the course of the delicious Finnish dinner, I asked the professor's wife how her work with Disability Design, a health and welfare research center, was going. She said they had decided to change the name of the program to "Design for All." They wanted to change the thinking about accommodating people with different requirements to thinking about designing spaces for all people.

In our project, we had a young woman—a wheelchair user—for whom we were designing the ecoSMART home. This was an opportunity to implement "Design for All" right away. I hired her to work in our Creative Research Lab at Montana State University and



**Starting point.** The REHAU MONTANA ecoSMART House Project became the opening step in examining smart communities worldwide.

research what she thought the house should have. She also made a short video of her ability to get around the house she currently lived in, pointing out features that worked and didn't work for her. Thanks to her experience, we learned things that we might not have discovered.

During the ecoSMART House Project, it became clearer that my approach to "smart" buildings would truly prioritize the people for whom buildings—of all types—are being designed. While I had been always had an awareness of these needs before, I started to understand them together in a more coherent way: smarter. **GB**

*Terry Beaubois, a designer and architect, is founding director of the Creative Research Lab at Montana State University, and was the MSU Project Director of the REHAU-Montana ecoSMART House Project. The project was awarded the Montana USGBC Honor Award Project of the Year in January 2016, as well as a Green Builder® House of the Year Award. He is currently CEO of the internet startup BKS (Building Knowledge Systems LLC) and is an adjunct lecturer at Stanford University.*



# SUSTAINABILITY SYMPOSIUM

## Future Forecast: Sun, Sun, Sun

Rooftop solar is well on its way to becoming the cleanest, cheapest and most convenient energy source ever.

BY PAUL HAWKEN

**Note:** This article is taken from *Drawdown: The Most Comprehensive Plan Ever Proposed to Reverse Global Warming*, which describes the 100 most substantive solutions to climate change, as well as their financial histories, the carbon impacts they provide, the relative cost and savings and each solution's path to adoption.

THE YEAR WAS 1884, when the first solar array appeared on a rooftop in New York City. Experimentalist Charles Fritts installed it after discovering that a thin layer of selenium on a metal plate could produce a current of electricity when exposed to light. How light could turn on lights, he and his solar-pioneering contemporaries did not know, for the mechanics were not understood until the early 20th century when, among other breakthroughs, Albert Einstein published his revolutionary work on what are now called photons. Though the scientific establishment of Fritts's day believed power generation depended on heat, Fritts was convinced that "photoelectric" modules would wind up competing with coal-fired power plants. The first such plant had been brought online by Thomas Edison just two years earlier, also in New York City.

Today, solar is replacing electricity generated from coal as well as from natural gas. It is replacing kerosene lamps and diesel generators in places where people lack access to the power grid, true for more than a billion people around the world. While society grapples with electricity's pollution in some places and its absence in others, the mysterious waves and particles of the sun's light continuously strike the surface of the planet with an energy more than 10,000 times the world's total use. Small-scale photovoltaic systems, typically sited on rooftops, are playing a significant role in harnessing that light, the most abundant resource on Earth. When photons strike the thin wafers of silicon crystal within a vacuum-sealed solar panel, they knock electrons loose and produce an electrical circuit. These subatomic particles are the only moving parts in a solar panel, which requires no fuel.

While solar photovoltaics (PV) provide less than 2 percent of the world's electricity at present, PV has seen exponential growth over the past decade. In 2015, distributed systems of less than 100 kilowatts accounted for roughly 30 percent of solar PV capacity installed worldwide. In Germany, one of the world's solar leaders, the majority of photovoltaic capacity is on rooftops, which don 1.5 million systems. In Bangladesh, population 157 million, more than

3.6 million home solar systems have been installed. Fully 16 percent of Australian homes have them. Transforming a square meter of rooftop into a miniature power station is proving irresistible.

Roof modules are spreading around the world because of their affordability. Solar PV has benefited from a virtuous cycle of falling costs, driven by incentives to accelerate its development and implementation, economies of scale in manufacturing, advances in panel technology, and innovative approaches for end-user financing—such as the third-party ownership arrangements that have helped mainstream solar in the United States. As demand has grown and production has risen to meet it, prices have dropped; as prices have dropped, demand has grown further. A PV manufacturing boom in China has helped unleash a torrent of inexpensive panels around the world. But hard costs are only one side of the expense equation. The soft costs of financing, acquisition, permitting and installation can be half the cost of a rooftop system and have not seen the same dip as panels, themselves. That is part of the reason rooftop solar is more expensive than its utility-scale kin. Nonetheless, small-scale PV already



**Bright times ahead.** When American inventor Charles Fritts built the world's first solar array—shown here atop a New York City building in 1884—he could only dream of the era he was ushering in.

“The first rule of sustainability is to align with natural forces, or at least not try to defy them.”

—Paul Hawken

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**Solar, so far. The decreasing cost of photovoltaic power has delivered solar energy to everywhere in the world, including poorer nations like Peru.**

generates electricity more cheaply than it can be brought from the grid in some parts of the United States, in many small island states, and in countries including Australia, Denmark, Germany, Italy and Spain.

The advantages of rooftop solar extend far beyond price. While the production of PV panels, like any manufacturing process, involves emissions, they generate electricity without emitting greenhouse gases or air pollution—with the infinite resource of sunlight as their sole input. When placed on a grid-connected roof, they produce energy at the site of consumption, avoiding the inevitable losses of grid transmission. They can help utilities meet broader demand by feeding unused electricity into the grid, especially in summer, when solar is humming and electricity needs run high. This “net metering” arrangement, selling excess electricity back to the grid, can make solar panels financially feasible for homeowners, offsetting the electricity they buy at night or when the sun is not shining.

Numerous studies show that the financial benefit of rooftop PV runs both ways. By having it as part of an energy-generation portfolio, utilities can avoid the capital costs of additional coal or gas plants, for which their customers would otherwise have to pay, and broader society is spared the environmental and public health impacts. Added PV supply at times of highest electricity demand can also curb the use of expensive and polluting peak generators. Some utilities reject this proposition and posit contradictory claims of rooftop PV being a “free rider,” as they aim to block the rise of distributed solar and its impact on their revenue and profitability. Others accept its inevitability and are trying to shift their business models accordingly. For all involved, the need for a grid “commons” continues, so utilities, regulators and stakeholders of all stripes are evolving approaches to cover that cost.

Off the grid, rooftop panels can bring electricity to rural parts of low-income countries. Just as mobile phones leapfrogged installation of landlines and made communication more democratic, solar systems eliminate the need for large-scale, centralized power grids.

High-income countries dominated investment in distributed solar until 2014, but now countries such as Chile, China, India and South Africa have joined in. It means rooftop PV is accelerating access to affordable, clean electricity and thereby becoming a powerful tool for eliminating poverty. It is also creating jobs and energizing local economies. In Bangladesh alone, those 3.6 million home solar systems have generated 115,000 direct jobs and 50,000 more downstream.

Since the late 19th century, human beings in many places have relied on centralized plants that burn fossil fuels and send electricity out to a system of cables, towers and poles. As households adopt rooftop solar (increasingly accompanied and enabled by distributed energy storage), they transform generation and its ownership, shifting away from utility monopolies and making power production their own. As electric vehicles also spread, “gassing up” can be done at home, supplanting oil companies. With producer and user as one, energy gets democratized. Charles Fritts had this vision in the 1880s, as he looked out over the roofscape of New York City. Today, that vision is increasingly coming to fruition.

**Impact: Our analysis assumes rooftop solar PV can grow from 0.4 percent of electricity generation globally to 7 percent by 2050. That growth can avoid 24.6 gigatons of emissions. We assume an implementation cost of \$1,883 per kilowatt, dropping to \$627 per kilowatt by 2050. Over three decades, the technology could save \$3.4 trillion in home energy costs. GB**

*Paul Hawken is executive director of Project Drawdown, a coalition of researchers, scientists, graduate students, policy makers, business leaders and activists who assemble and present the best available information on climate solutions and their beneficial financial, social and environmental impact over the next 30 years. He is also editor of Drawdown: The Most Comprehensive Plan Ever Proposed to Reverse Global Warming. He may be contacted at paulhawken@drawdown.org.*

# CODE ARENA

The Latest Rules, Regulations and Codes Impacting Sustainable Construction

## Stepping up the HERS Index

A positive aid to the homebuilding industry could be even better with a few upgrades.

BY MIKE COLLIGNON

*Note: The following article is based on a presentation given at the 2017 RESNET Conference by Robby Schwarz, principal and director of Builder Relations at EnergyLogic.*

THE HERS INDEX has been a positive addition to the homebuilding industry, on a number of levels. It enables a builder to baseline the efficiency of their product. It has introduced additional flexibility to the energy code through the Energy Rating Index (ERI) pathway that is largely based on the HERS Index and was originally adopted into the 2015 International Energy Conservation Code (IECC).

From that, builder resistance to energy code adoption has decreased (though to what degree depends on the jurisdiction and the IECC edition that was adopted). It has also increased design and product choice freedom. It has brought the building and energy efficiency communities together to debate the degree of energy efficiency, instead of whether we should incorporate it at all. But perhaps most importantly, it has created a simple metric and corresponding marketing message that the homebuying public can understand, regardless of its ability to comprehend building science.

Yet, like most computer models, it is under constant scrutiny and refinement. This is logical, since the homebuilding industry does not remain static. We want/need innovation in our construction products and techniques. Therefore, our modeling programs need to accommodate those advancements. The following items are aspects of the program that could use some additional refinement:

- **Energy optimization.** Many builders are looking for the HERS/ERI path to help them optimize their specification. “The simple fact is that the system cannot and should not be used to allocate a dollar per Index point,” said Schwarz. The system is not linear because it uses a systems approach and analyzes the synergies between all components used to build the house. One upgrade will not always give you a specific number of Index points.

- **Very high-performing homes.** It’s difficult to get below a HERS 40 with a super-insulated home with a state-of-the-art mechanical system. Although there may be energy benefits, the HERS/ERI path stops allocating Index points due to diminishing returns. This poses a problem for builders and designers of high-performance homes such as passive homes, which are gaining market share. “For example, if you’re designing a passive house, it is important to be able to rely on energy modeling software to guide you to the right solutions,” said Schwarz. “Currently, that’s not something designers can confidently

do using the HERS/ERI path.”

- **Mass walls.** The HERS/ERI does not model thermal mass effectively, especially when combined with insulation, like we see with most insulated concrete wall systems. While it relates to the previous bullet, it can also be problematic for custom home builders who are simply using these high-performing wall systems to more easily provide their clients with code-compliant homes.

- **Ventilation.** Building tight and ventilating right is a basic building science principle. The difference between supply, exhaust and balanced ventilation is not adequately accounted for in the current modeling software.

These are just a few suggestions. However, we appear to be at a crossroads. We want a system that not only quantifies the efficiency of a home, but also develops a true energy model that can answer complex questions about the performance of the entire home as well as the components that built it. The HERS/ERI path is not that system. Going forward, the industry may need to make a decision to either only use the HERS/ERI path as it was intended (to create an Index score) or to significantly enhance the system to be able to adequately answer other in-depth performance questions we have about our homes.

There will always be ways to improve modeling programs, and we should always strive for ways to improve them. The day we stop offering suggestions is the day people stop caring, and that is far worse for our industry. **GB**

*Mike Collignon is the executive director and co-founder of the Green Builder Coalition.*

### COURTESY OF The Green Builder Coalition

The Green Builder Coalition is a not-for-profit association dedicated to amplifying the voice of green builders and professionals, driving advocacy and education for more sustainable homebuilding practices.

For more information, visit **GreenBuilderCoalition.org**

*For more information, contact Executive Director Mike Collignon at mcollignon@greenbuildercoalition.org.*



## Project Drawdown: Here and Now

So what if Trump doesn't believe in climate change? Some of us are going ahead with the fight anyway.

BY MARTIN O'MALLEY

"THE MIND ONCE ENLIGHTENED cannot again become dark." So said American Revolutionary leader and writer Thomas Paine. So say we all.

Just because President Trump chooses not to lead on climate change doesn't mean the rest of us can't.

Just last month, my own State of Maryland gave a unanimous go-ahead for the largest offshore windfarm ever constructed near the U.S. Atlantic Coast. Globally, half of all investment in new energy production is toward development of renewable energy. Green building technology and adoption is rapidly spreading and becoming more commonplace. No temporary occupant of the White House can change all of that.

Humanity has reach a vital inflection point of understanding.

It is possible—with existing technology and science—to reverse and draw down the amount of carbon dioxide we humans pump into the air.

Read that sentence again.

There is no typo.

Project Drawdown—the most comprehensive plan ever proposed to reverse global warming—shows us how.

"Drawdown" has been led, inspired and edited by renowned environmentalist Paul Hawken—a man I am honored to call a friend. Paul is one of the most fearless and inspiring American leaders in the world today on the great challenge of climate change. His magnum opus is a research project of global proportions: *Drawdown: The Most Comprehensive Plan Ever Proposed to Reverse Global Warming*. Drawing from the best science on best practices, this new book—published by Penguin in 12 different languages—is a crowd-sourced healing of the deepest and potentially most far-reaching kind.

Don't let the words "book," "research" or "science" fool you. This is not another exercise in connecting the dots of physics into a straight line that leads us all to hell.

Paul brings to this project the "can-do American pragmatism"—and belief—that created the American Revolution, won the World Wars and landed a man on the moon. It has been my great honor to serve with many others on the advisory board of this critically needed work.

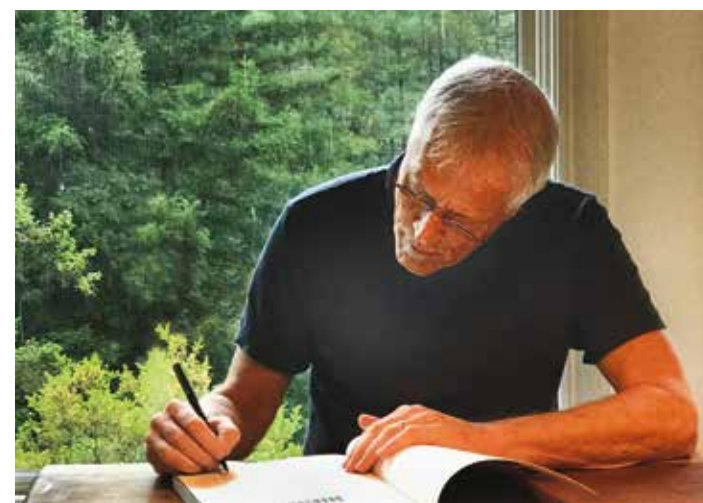
For the record, environmental "drawdown" is that point in time when the concentration of greenhouse gases in the atmosphere begins to decline on a year-to-year basis.

Most people with a basic understanding of the problem understand

that it is not enough to level off emissions. We must actually redesign our human activities on the surface of this Earth so that we draw more carbon and other harmful emissions out of the atmosphere every year than we pump into it. And we can.

As our website says: "Drawdown maps, measures, models and describes the 100 most-substantive solutions to global warming. For each solution, we describe its history, the carbon impact it provides, the relative cost and savings, the path to adoption and how it works. The goal of the research that informs Drawdown is to determine if we can reverse the buildup of atmospheric carbon within 30 years. All solutions modeled are already in place, well understood, analyzed based on peer-reviewed science and are expanding around the world."

Adele Peters, writing for the website MatterofTrust.org, lays out the practical audacity of achieving Drawdown in this way:



CREDIT: ELIJAH ALLAN-BLITZ

"Nothing new needs to be invented. The solutions are in place and in action."

—Paul Hawken

CREDIT: HAROLD PETERSEN/STATOIL/FILCKR



**Lacking wind resistance. Offshore windfarms are gaining popularity—another sign that green building technology is becoming widely accepted.**

"The new book considers two types of solutions that could potentially bring that atmospheric concentration down: technologies and practices that can avoid emissions compared to business as usual, and those—like planting trees, or managed grazing, which uses cattle to bring back native grasses—that can help absorb more CO<sub>2</sub>. Using the best available data, each solution was modeled in three scenarios, each with an increasingly aggressive scale of adoption.

"The 'plausible' scenario looks at an optimistic but somewhat conservative path for adoption of each solution (trips by bike, for example, are assumed to rise from the current global rate of 5.5% of urban trips to 7.5% by 2050). The 'drawdown' scenario scales those solutions up. The final scenario, called 'optimum,' looks at the maximum potential of the solutions, such as the adoption of 100 percent clean, renewable energy. Each scenario ranks the solutions by potential impact."

Wind energy, solar farms, silvopasture, educating girls, green buildings, changes in refrigeration technology—each of these actions, based on current technology, are ranked by scientific criteria from most impactful to least. The cost of creating a more prosperous, healthier and secure future for our kids turns out to be less than the cost of clinging to business as usual. That's right—creating a more sustainable way of living turns out to be more profitable than pumping carbon into our thin atmosphere.

And while there is a preview of upcoming technologies like Hyperloop transportation and other promising innovations on the energy frontier, the real service of this great work is understanding

what is actually possible, here and now.

Reading through *Drawdown*, with its clear, plain-spoken explanations, photos and graphics, one feels lifted up on the wellspring of goodness and humanity that has been brought together in these life-giving pages.

We need not let the darkness of our national politics rob of us of our ability to see, to feel and to act.

Or, as Thomas Paine said it, "We have it in our power to begin the world over again."

Project Drawdown shows us how. **GB**



Martin O'Malley served as Governor of Maryland from 2007 to 2015 and as Mayor of Baltimore from 1999 to 2007. He has led widespread sustainability initiatives, from massive cleanup efforts in the Chesapeake Bay to strong advocacy for a 100 percent national renewable energy mandate by 2030.

### RESOURCES

- *Drawdown: The Most Comprehensive Plan Ever Proposed to Reverse Global Warming.* **www.drawdown.org**
- "Project Drawdown—The 100 Things We Need to Do to Reverse Global Warming." **<http://bit.ly/2umF7Uc>**
- Hyperloop technology overview, Wikipedia. **<https://en.wikipedia.org/wiki/Hyperloop>**



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# Green Builder Wins Best Residential Trade Magazine



## NAREE win continues a five year winning streak for Green Builder magazine.

Green Builder Media is proud to announce that its flagship magazine, *Green Builder*, has once again won Gold in The National Association of Real Estate Editors' 67th Annual Journalism Awards.

"This is an impressive trade magazine in a burgeoning field of green development," the judges noted of the magazine, which is under the leadership of Editor-in-Chief Matt Power. "The magazine offers snappy design, timely reporting, and a host of stories that alert its audience to new technologies."

Green Builder CEO Sara Gutterman accepted the publication's Gold award for Best Residential Trade Magazine during a NAREE-sponsored dinner on June 16.

"We are thrilled to have been selected for this prestigious award," Gutterman said. "We have been covering green building and sustainable development for more than a decade, and while we know we are making a big impact with building professionals as evidenced by their sustainable work, it is always a pleasure to have an organization outside our universe recognize our excellence."

All award winners were selected by a panel of expert judges from the E.W. Scripps School of Journalism at Ohio University. Professor Emeritus Patrick S. Washburn, a former news reporter and editor, chaired the panel.

**Check out Green Builder Media's award-winning website and magazine online at [www.greenbuildermedia.com](http://www.greenbuildermedia.com).**



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# FROM THE TAILGATE

New Offerings for the Sustainable Minded

By Ron Jones

## Want to be a true leader? Look ahead, not back.

OUR ANNUAL ECO-LEADERS EDITION provides a lot of interesting information on what's new and advanced in our industry. But I hope it also serves to stimulate one's thinking about what leadership is and what it represents.

It isn't easy to come up with an original statement describing leadership, at least one that is meaningful. Most attempts to distill the essence of leadership into a sentence, a slogan or a marketing campaign end up sounding cliché and contrived.

This subject has inspired the authoring of countless volumes, going back as far as recorded human history can take us. We've all been treated to the inspirational and motivational efforts of the greatest minds and clearest voices in literature, philosophy, military science, politics and many other disciplines.

One of my favorite quotes on leaders and leadership is attributed to former British Prime Minister Margaret Thatcher, who suggested that if you have to tell people you're a leader, you probably aren't one. Yet, individuals, companies, organizations, even nations, go to great lengths (and expense) to convince others that they lead in their arena, sector or specialty.

Interest in the subject of leadership has also spawned numerous programs and training platforms to teach us how to develop our abilities and refine our skills as leaders. In researching this, I came across one such endeavor that uses the analogy of horses in herds and teams to illustrate different styles of leadership—leading from the front, leading from the side, leading from the rear—suggesting that each category has its advantages and strengths.

In the building industry, and all the individual elements that make up that whole, we are in an endless quest to position ourselves as leaders. We try to set a direction that others will follow in order to reinforce and thus secure our perceived achievements in the hierarchy. But we also hope to advance strategies and goals that will lead to our ultimate success.

This is the point at which we experience self-selection, because there comes a time when each of us must choose one path or another. We decide whether we are comfortable following the herd, working to secure our share of the overall opportunity and provide stability, safety and a measure of predictability for ourselves and those we work with. Or, we determine that ours is the course that presents a different set of challenges and risks: the ones that come from what we commonly call "pushing the envelope."



While some of us are averse to change, preferring to maintain the familiarity of the status quo, others are irresistibly drawn into the roles as champions of change. Regardless which group we reside in, we are all carried on the current and denied the option of remaining static. We are subject to progress whether we desire it or not. And the building industry is certainly as dynamic and diverse as any other.

I believe that leaders look forward, not back; that they seek the light of discovery and move toward it. They couldn't resist even if they tried. They are who they are. **GB**



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# 2:49 PM

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