

Award-Winning Coverage of Sustainable Construction, Products and Lifestyles

GREEN BUILDER®

March/April 2021 / www.greenbuildermedia.com



INNOVATION RULES.

In the face of political, social and economic turmoil this year, the best product makers pushed their brands toward higher performance and lower impact.

PRODUCTS

HOUSING DISRUPTION IS **HERE!**

This isn't gloom and doom. It's an invitation to rise to the top of the home building industry during times of intense change.



SAM RASHKIN

HOUSING 2.0

Green Builder Media and Sam Rashkin have joined forces to launch Housing 2.0, a comprehensive training and education program designed to teach building professionals how to prepare themselves for the massive transformation that the housing sector is currently experiencing.

The program will help building professionals design and construct higher performance, healthier, more sustainable homes, optimizing the total housing user experience with an estimated 30 to 70% hard cost savings/added value.

THE HOUSING 2.0 PROGRAM INCLUDES:

5-PART WORKSHOPS (offered quarterly) that explore the Housing 2.0 fundamentals

6 ONLINE COURSES with national thought leaders that delve into key topic areas like integrating digital technology, demystifying zero carbon, advanced health controls and sensors, offsite construction, and biophilic design

HANDS-ON ACTION GROUPS that allow building professionals to apply the Housing 2.0 fundamentals to real projects

COGNITION Smart Data insights into market trends, market influencers, purchase drivers, behavioral patterns, and innovations transforming the market

RASHKIN'S SECOND BOOK, titled *Housing 2.0, A Builder Guide to Surviving Disruption*

ARTICLES, BLOGS, VIDEOS, AND EXTENSIVE EDITORIAL COVERAGE generated by Green Builder Media's award-winning editorial team

This program is perfect for anyone in the home building industry—CEOs who want to strategize new directions for their business, niche and production builders who want to offer a new product or serve a new demographic. Or how about access to this program as the ultimate perk to attract new hires or to reward stand-out employees?

REGISTER TODAY!
www.greenbuildermedia.com/housing-2.0

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SUSTAINABILITY Symposium 2021

INTO THE LIGHT

April 21 and 22 (in celebration of Earth Day)

COVID, along with unbridled social unrest, historic wildfires, and devastating superstorms, rocked us to our core in 2020. With a vaccine around the corner, light is appearing at the end of the tunnel, but there is no going back to how we used to live before the pandemic. What will change, and do we have the courage to #BuildBackBetter?

Consumers are certainly making different lifestyle choices due to the pandemic, taking better care of themselves by cooking and exercising more, paying more attention to their indoor air quality, and spending more time outdoors. COVID may prove to be a turning point for adopting healthier habits, but, simply put, that's not enough.

Desperate times call for desperate measures, and right now incremental change isn't enough if we're going to successfully manage our ever-escalating climate challenges. We need a sea change.

That's why Green Builder Media is hosting our annual Sustainability Symposium 2021: Into the Light on April 21 and 22 (in celebration of Earth Day), to explore the fundamental shifts in our collective psyche resulting from the pandemic and the urgent choices that we need to make to create a just, sustainable, and climate-safe system—one that balances economic vibrancy with social equality and environmental stewardship.

REGISTRATION IS FREE, so save your spot today at www.greenbuildermedia.com/green-builders-2021-sustainability-symposium

SESSIONS INCLUDE:



"We Are Entering the Climate Decade", presented by pioneering venture capitalist **ANDREW BEEBE**



"New Climate War: The Fight to Take Back Our Planet," presented by internationally celebrated climate scientist **DR. MICHAEL MANN**



"Climate Action in the 117th Congress: Advancing the Equitable, Resilient, Clean Energy Revolution", presented by House Select Committee on the Climate Crisis senior counsel **SAMANTHA MEDLOCK**



"Gigatrends and the Net Positive Imperative: How businesses thrive in a volatile time by helping the world thrive", presented by Sustainable business expert and award-winning author **ANDREW WINSTON**



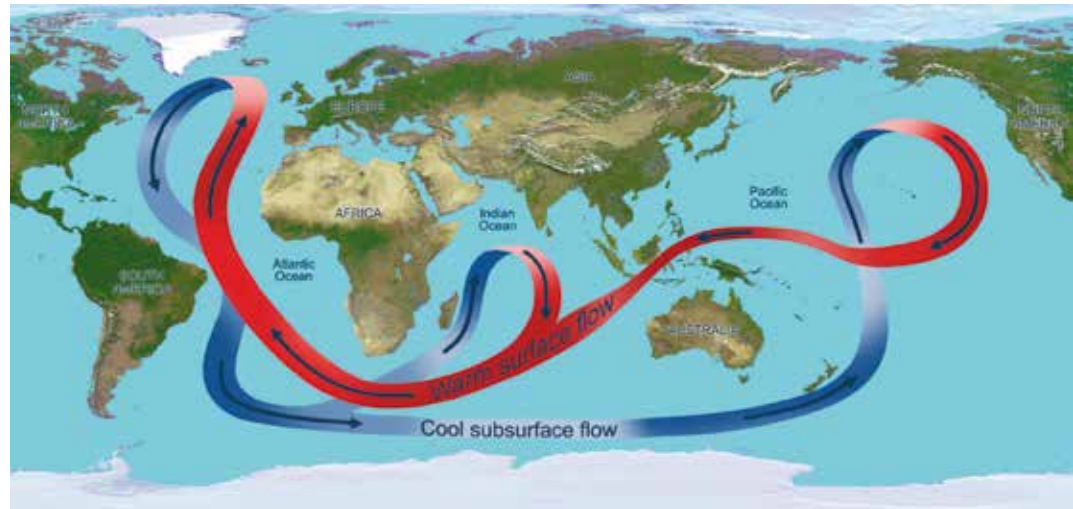
Another Reason Every Product Decision Counts

Any manufactured item we purchase matters, now more than ever.

BY MATT POWER

MY BROTHER MITCH works in the hard sciences. He's one of those wonky people you never hear of, who's spent years counting ancient pollen spores from Siberia and looking at core samples from the last Ice Age. He's embedded in the world of earth science.

For years now, Mitch and I have been discussing something called the Atlantic Meridional Overturning Circulation (AMOC). It's unknown to most people, but it has a huge impact on our lives, here in the U.S. and in Europe. And it's a variable, he says, that's vastly underestimated in terms of its potentially devastating impact on our current way of life.



A **new report** from European researchers suggests that he may be right. These critical ocean currents are slowing down, and doing so much faster than anticipated by projections (isn't that always the way?). As they slow, scientists predict even faster sea level rise on the Atlantic coast, plus massive storms and extremes of heat and cold not seen before in our lifetimes. Within a few decades,



we could pass the "tipping point" where the movement of the currents collapses into complete instability. We don't want to go there.

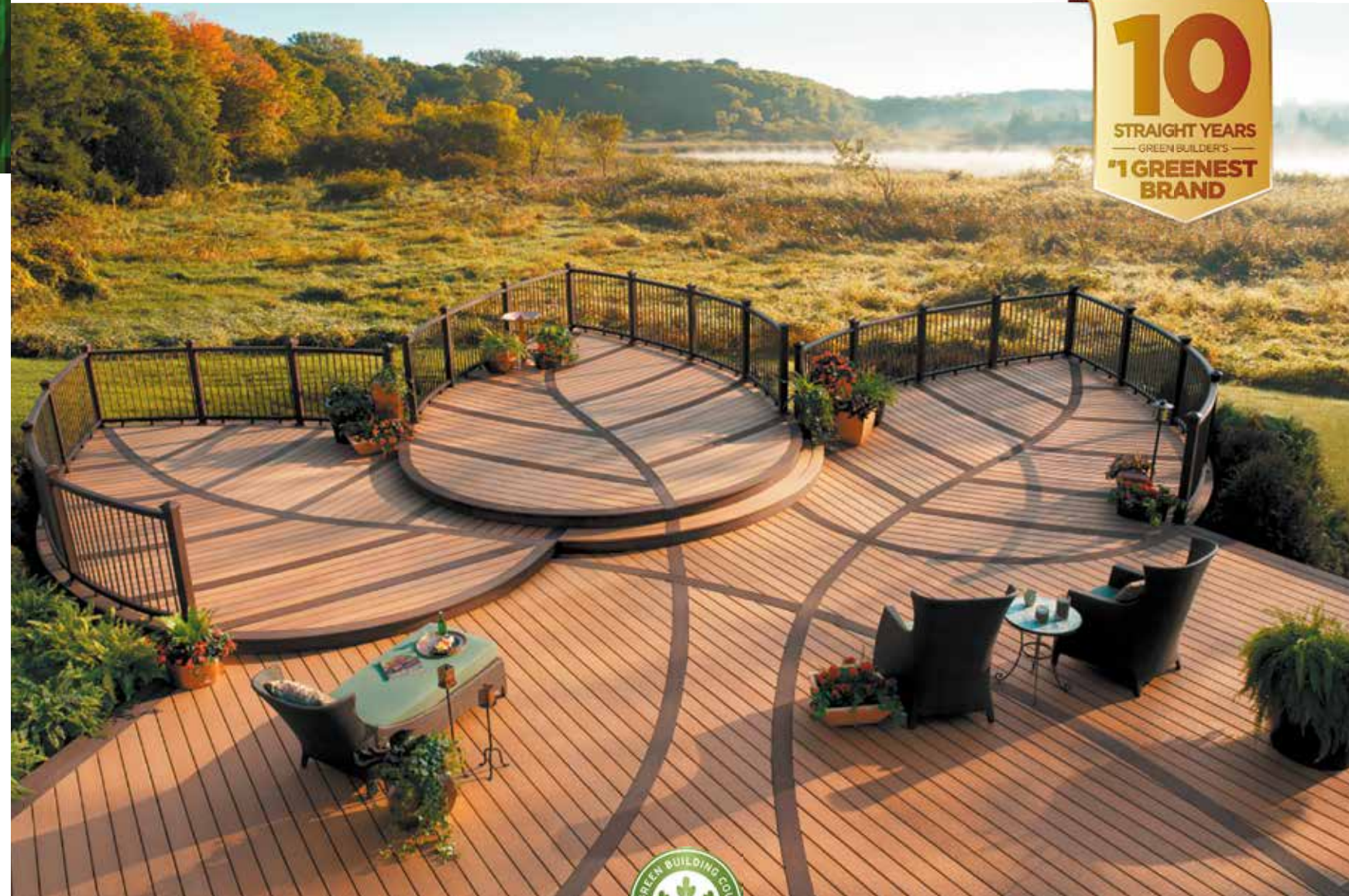
So what can we do? First, we can stop acting surprised when Texas freezes solid, or a giant chunk of Antarctica breaks off. We need to cut global pollution emissions dramatically. For the building industry, that means moving quickly toward zero-energy-plus housing. We need airtight, super-insulated homes, with all-electric appliances,

heating and cooling—systems compatible with renewable energy, durable materials that don't need regular replacement.

We still face a few technical hurdles. For example, it's more complex to heat homes without some fossil fuel combustion, using, for example, a combination of "active" solar thermal and solar PV panels, along with passive solar, high-efficiency air source or ground source heat pumps. It's harder, yes, **but possible**, and perhaps essential, to move in this direction. Even if promising new research on **fusion generation** yields success, prepping our homes to minimize energy use must commence now.

If we can land a robot on Mars, and create vaccines in six months, we can pivot toward zero impact housing, and do it fast enough to save human civilization from the self-induced backlash of business as usual. Already, as the COVID-19 disaster begins to wane, global CO₂ levels have shot past the pre-pandemic levels of 2019. It doesn't look good for weather stability.

But we must stay on task, with a laser-like focus on sustainable housing and technology. That means picking the right products, the right materials and the right designs to steadily lower the polluting impacts of every house, apartment or community upon our fragile global ecosystems. **GB**



We invented green decking. Others just recycled the idea.

Green isn't something we celebrate only on certain days. It's been engineered into everything we've done since day one and everything we continue to do today. In fact, a 500-square-foot Trex® deck contains approximately 140,000 recycled plastic bags. And by diverting more than 500 million pounds of plastic film and reclaimed wood each year from landfills, we offer you a truly environmentally responsible choice for your outdoor space. It's the reason Green Builder Media's Readers' Choice Awards have named Trex the #1 greenest brand in the decking category for the 10th straight year.

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DAY 3 OF FRAMING: Which Would You Choose?



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2 X 6 LUMBER FRAMING

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Talk of Climate Crisis Resonates, as Old Descriptors Fade

There's still an environmental crisis on hand, but it now goes by newer, darker names.

PEOPLE AREN'T TALKING about "global warming" anymore, and they're on the verge of abandoning the term "climate change." But that shift, according to researchers at BayWa r.e., a German renewable energy company, is a very good thing. A research of 1.3 trillion tweets, Reddit posts, news articles and other publicly available sources, along with Google search data, revealed that searches for "global warming"—once the most popular term for describing Earth's rising temperatures—have dropped 73 percent since 2010. It's a case of the phrase going out of style, according to Mark Cooper, BayWa r.e.'s director of global communications. It's also an indicator that the public is beginning to grasp just how serious the problem is.

According to a report by Grist, detractors have long complained that "global warming" sounds too warm and friendly. "Climate change" captures the full range of effects that people are experiencing, but can still sound too neutral, as "change" can often be a positive action.

Enter "climate crisis," which saw a 17 percent increase in searches in 2020, and "climate action," which rose 47 percent. "Climate emergency," "climate breakdown," "climate disruption," and "global heating" also picked up steam.



Words matter. Instead of "global warming," terms such as "climate disruption" and "global heating" elicit a more active response. CREDIT: PETMAL/ISTOCK

"Climate change," meanwhile, dropped 41 percent from 2019. The change in terms, BayWa r.e. notes, "shows a world that's increasingly thinking with proactivity and specific causes in mind."

FedEx to Convert to All Electric Fleet by 2040

The company has doubled down on EV technology, with planned phase out of combustion engines.

IN COMING YEARS, when that FedEx package comes to your door, it will have arrived in an electric truck. The nation's second-largest parcel delivery service reports that it is spending \$2 billion to electrify its entire fleet of vehicles by 2040. The action is also part of the company's plan to go carbon neutral globally by that date.

FedEx Corp. CEO and Chairperson Frederick W. Smith says the switch will be accomplished in phases, with 50 percent of all new vehicle purchases being zero-emission electric by 2025, and 100 percent by 2030. Meanwhile, the U.S. Postal Service (USPS), the nation's largest delivery service, has unveiled a plan to replace one-quarter to one-third of its already outdated internal combustion engine (ICE) fleet with electric vehicles (EVs) by 2031.

In January, President Joe Biden announced that the government's entire fleet of 645,000 vehicles, including 225,000 USPS trucks, would eventually be EVs, at a cost of about \$20 billion. No timeline was set, but Biden said the effort will "be made right here in America by American workers."



Express delivery. FedEx plans to overhaul its entire fleet of delivery vehicles, going from gasoline powered to electric-driven, in less than 20 years. CREDIT: ERIC LEENARS/FICKR

ANOTHER TOXIC SUMMER?

Wildfire smoke is worse than auto emissions in polluting the atmosphere. With another fire season on the way, that's very bad news.

THE MASSIVE PLUMES OF SMOKE generated during wildfires can be more toxic than air pollution caused by vehicle emissions and other sources, according to a study by researchers at the University of California at San Diego. The report, which focuses primarily on fires in Southern California but also measures environmental impact throughout the Western U.S., comes as a new wildfire season looms. Fire season is generally from May to November, depending upon temperatures and level of precipitation.

The UC-San Diego researchers reviewed hospital admissions from 1999 through 2012, and discovered that wildfire-induced toxic particles resulted in 10 times more hospitalizations for respiratory illness than for other forms of pollution. Given that fires have only become more destructive since the time of the study—six of the largest wildfires on record burned in 2020—the overall health prognosis isn't very bright, according to study coauthor Rosana Aguilera.

Part of the problem is what's being burned. Due to heavier residential and commercial development, fires are increasingly burning through homes and infrastructure, creating a toxic mix of plastics, metals, cleaning chemicals and other unnatural char. The study appears in the journal *Nature Communications*.



Burned out. The historic Glass Mountain Inn in St. Helena, California, was among the 1,555 homes, businesses and other structures destroyed during the 67,500-acre Glass Fire last fall.

CREDIT: AFP



HERS milestone. More than 3 million homes have received a Home Energy Rating System (HERS) rating since 1995, including 1 million over the past three years. CREDIT: RESNET

It's 3 Million and Counting for HERS Index

Nearly 25 percent of all new homes built in 2020 received the energy efficiency rating.

MORE THAN 3 MILLION homes in the United States have now been rated with a Home Energy Rating System (HERS) Index Score, a key measurement of a home's energy efficiency used by builders, utilities, real estate professionals, and government agencies, according to the Residential Energy Services Network (RESNET).

The 3 million HERS ratings helped contribute to reducing carbon dioxide emissions by more than 49 million tons, the equivalent of taking nearly 9.7 million passenger vehicles off the road for one year, according to RESNET. It has also improved the health and comfort of more than 13 million residents, and saved homeowners more than \$8 billion in energy costs. In 2020, more than 299,000 homes received HERS Index Scores, including nearly 1 in 4 new homes.

RESNET Executive Director Steven Baden notes that it took 17 years to reach the 1 million homes milestone, from 1995 to 2012, and five more years to reach 2 million. The 3 million mark only required three years, from 2017 to 2020, an upward trajectory that is "certain to continue," Baden says. **GB**

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MISSION STATEMENT: "Our mission is to effect meaningful, positive change for a better world. As advocates for sustainability, we provide mind-expanding information that catalyzes and inspires commitment to sustainable living."

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Now you can find digital versions of those archived stories and issues online—free to our print subscribers. We've been steadily adding past issues to our content archive, and the collection is almost complete. **Just go to our website: www.greenbuildermedia.com**, and click on "Magazine" to find the archived content you need.

The only thing that hasn't changed is the name.

(And we were kinda tempted to change that, too.)



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Product shown: 16 SEER Air Conditioner (A4AC6) is Assembled in Tyler, TX.

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Breaking the Mold

From condominiums to upscale, suburban homes, we have a kitchen solution for you. With Signature Kitchen Suite, LG SIGNATURE, LG STUDIO and LG in our portfolio, we take pride in matching your passion with proven performance and design. And if your projects call for sustainability solutions, we are proud to announce LG was recently honored as Green Builder's 2021 Brand Index Winner in the appliances category. Any one of our four brands can bring your vision to life with our innovative kitchen designs for every homeowner imaginable. Learn more at lgbuilder.com



2021 EDITOR'S CHOICE

GREEN BUILDER[®] HOT 50 PRODUCTS

After an erratic, unpredictable, pandemic-driven year, 2021 brings us positive, comforting advances in green technology.

BY GREEN BUILDER STAFF

"A return to normalcy." President Warren G. Harding said it first in 1920 after World War I. A century later, the phrase is linked to another president, Joe Biden, as the world continues to recover from the pandemic. A year ago, *Green Builder* highlighted products that helped promote resilience in the construction industry. This year, as the pandemic (finally) wanes, the Hot 50 returns, with products that we feel raise the sustainability bar: ultra-efficient appliances, composite decks and durable roofing, indoor air quality upgrades and more. For these manufacturers, "normal" is a bell curve of ever-improving product performance, moving America's housing stock closer to net-zero impact.

Appliances



BEKO UPRIGHT FREEZERS

The events of the past year make adding a second freezer to the household seem like a no-brainer. But a drastic increase in the monthly electric bill might change a consumer's mind. Beko's line of upright freezers, such as the BUFR2715 (shown), are ultra-energy efficient and boy, do they keep things cold. The company's *Freeze Guard Technology* works in ambient temperatures of 5 degrees to 109 degrees Fahrenheit without any loss of performance.

Meanwhile, *Quick Freeze* locks in vitamins and nutrients by freezing food 10 percent faster than the competition. Food will be fresh, nutritious and vitamin-rich, supporting healthy eating habits all year round. And, frost free technology automatically defrosts the freezer. Warm air enters the freezer each time the door is opened is removed, thanks to an automatic fan, leaving no chance for ice buildup.

Beko freezers offer energy efficiency and provide industry-leading performance qualified by EPA certification guidelines. As of November 2020, only Beko freezers (with and without ice maker) received the ENERGY STAR Most Efficient 2020 award. Beko freezers, without an ice maker, received the EPA Emerging Tech Award.

For more information: www.beko.com



GE PROFILE SMART SLIDE-IN FRONT-CONTROL INDUCTION RANGE

Home cooking has become easier and smarter than ever. The *GE Profile Smart Range* features the industry's first in-oven *CookCam*, a Wi-Fi enabled camera that allows smartphone viewing of food as it cooks, freeing up time for other things. Settings may be adjusted using a smart device. Expect to see this technology lead to AI integrations, making the consumer's oven smarter over time through simple software upgrades.

Similarly, a precision cooktop sensor in *Profile* allows at-home cooks to dial in the exact temperature for any induction-ready pan via a smart device or the range's touch LCD display. Video-guided recipes from chefs also work with the range's sensor technology to adjust cooking time, temperature and pace for consistent, restaurant-quality results. LCD control is through the company's *SmartHQ* app—a multi-pronged platform which consolidates control, connection, personalization and management of various GE and *GE Profile* app-enabled appliances.

GE Profile Smart Ranges are compatible with platforms such as Amazon *Alexa*, *IFTTT* and the *Google Assistant*, among others. GE appliances also connect with popular apps such as *Innit*, *Drop* and *Flavorly*, which house thousands of recipes and how-to videos.

For more information: www.geappliances.com



SAMSUNG 8800 SERIES FRONT LOAD WASHER AND DRYER

Samsung is bringing its signature *Smart Dial* technology to the new *8800 series Front Load Washer and Dryer*, which has been redesigned to make laundry easier, more intuitive and less stressful. The *Smart Dial* intelligently learns preferred wash cycles and settings, then prioritizes them for quick access in a simplified, easy-to-use control panel. It also recommends specific cycles based on intelligent learning of past cycles that were run on specific days of the week or at specific times.

The *8800's* powerful *OptiWash* feature detects the laundry load's weight and uses a patented *Turbidity Sensor* to determine the ideal amount of water and detergent to use. The dryer automatically optimizes its cycle, too—no more checking to see if clothes are dry or wasting energy running another cycle because garments are still wet. And with the *8800's Super Speed* washing and drying cycles, clothes can be ready in as little as one hour.

Meanwhile, the unit's *MultiControl* feature enables operation of both washer and dryer from a centralized panel on the washer, keeping all controls within an easy reach.

For more information: www.samsung.com



WHIRLPOOL LARGE CAPACITY FINGERPRINT RESISTANT DISHWASHER WITH THIRD RACK

With the ENERGY STAR-certified *Whirlpool Large Capacity Fingerprint Resistant Quiet Dishwasher with Third Rack*, consumers can load more and run less—saving water and energy. The appliance is equipped with a soil sensor cycle to automatically determine how dirty dishes are, optimize cleaning resources, and adjust the cycles as needed for each load. The two sensors measure temperature and soil level during prewash and the wash cycle.

Users may load hard-to-fit utensils or measuring spoons in the third rack to free up more space for dishes below, easily fit tall items, courtesy of an adjustable second rack, or gain extra space in the lower rack for casserole dishes and large pans by moving or separating the three-piece silverware basket. And, as Whirlpool's quietest dishwasher at 41 dBA, consumers can keep conversation going while dishes get clean.

If a leak is detected, a light will flash on the front of the dishwasher, and the dishwasher will proceed to drain water from the tub. Available in black stainless and stainless finishes, the easy-to-clean exterior resists fingerprints and smudges.

For more information: www.whirlpool.com



SIGNATURE KITCHEN SUITE UNDERCOUNTER CONVERTIBLE DUAL-DRAWER REFRIGERATOR

Technicians—today's forward-thinking home chefs—can find a lot to enjoy about *Signature Kitchen Suite's* upcoming undercounter convertible refrigerator. The 24-inch-high unit's two drawers operate independently for temperature control (an industry first among undercounter built-ins) in six zones (Pantry, Fridge, Bar, Seafood, Meat or Freezer), for a temperature range of minus 7 degrees to 50 degrees Fahrenheit. The drawers are designed to minimize temperature fluctuations to help lock in food freshness and curb food waste. Users can also benefit from Wi-Fi connectivity via the *SKS* app, which allows remote temperature control and monitoring on iOS and Android devices.

The as-yet-to-be-formally-named unit, complete with digital controls, white LED display and hidden LED interior lighting, is available in panel-ready or stainless steel options to complement high-end kitchen décor. It is ENERGY STAR certified, meaning it saves energy, helps combat climate change and is engineered to reduce environmental impact.

Signature Kitchen Suite expects the product to be on the market by the third quarter of 2021.

For more information: www.signaturekitchensuite.com

Air Sealing

AEROSEAL AEROBARRIER CONNECT AIR SEALING SYSTEM

Builders, contractors and energy raters who want to be even better at sealing buildings—in terms of quality and quantity—should check out AeroSeal's AeroBarrier Connect. This redesigned air sealing system is easier to use and more effective at helping structures meet ENERGY STAR, LEED, Passive House and Net Zero requirements. More importantly, a tighter building envelope can help increase the comfort and overall indoor air quality (IAQ) within the home, leading to a better living environment.

The product features a series of smart nozzle stations that can be positioned throughout a home and monitored independently to control temperature and humidity within each room. This ensures that each part of the house gets the exact amount of sealant needed to seal leaks. Users can monitor spraying progress with their laptops, and make any necessary adjustments.

AeroBarrier Connect can seal leaks of up to half an inch wide and as small as a human hair. Seals can be performed by single work crews instead of multiple trades and contractors, and in as little as one-third of the time required for manual sealing.

For more information: www.aeroseal.com



BENJAMIN OBDYKE HYDROGAP SA HOUSEWRAP

HydroGap SA is the industry's first self-adhered, drainable housewrap, combining the water-shedding benefits of a drainable housewrap with additional air-sealing properties to protect the wall cavity from moisture. HydroGap SA features a 100 percent continuous acrylic adhesive, providing sealing around cladding fasteners to help maintain the integrity of the air barrier.

The product's self-adhered water-resistive barrier (WRB) features 1 millimeter spacers on the surface that create a drainage space with 96 percent drain efficiency. This enables water shedding that is two times faster than traditional flat housewraps, and helps prevent mold and rot. It also contributes to a tighter building envelope around the home and a healthier indoor air quality (IAQ).

HydroGap SA is one of the few breathable, fully adhered acrylic adhesives, with a perm rating of 12 that is suitable for all climates. As an acrylic, the adhesive is UV resistant, with an exposure rating of 120 days, and can be installed in temperatures as low as 25 degrees Fahrenheit without a primer. It also allows WRB repositioning as needed until pressure is applied—after which, it's not going anywhere.

For more information: benjaminobdyke.com



Controls and Sensors

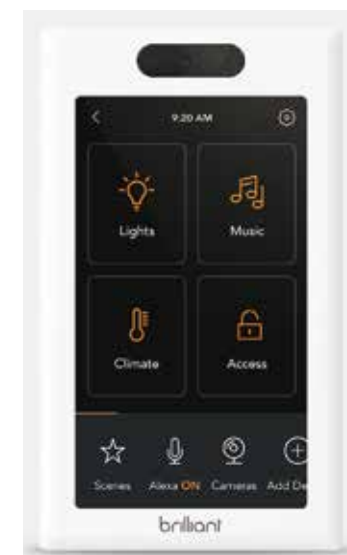
CARRIER INFINITY SMART ZONING SENSOR

Carrier has a new-look smart zoning sensor for its flagship Infinity line of heating and cooling products. Designed with the homeowner in mind, the wall-mounted, touchscreen-driven unit provides the ability to control individual zones throughout the house, helping cut down energy costs while increasing personal comfort. Homeowners can also adjust the fan and hold settings for each zone, as well as monitor humidity levels and outdoor temperature.

Smaller than the previous generation of sensors, the device features an easy-to-read temperature display and intuitive controls. The product's updated look and feel blends into the décor of many homes better than ever. It also mimics the design of the overall system control unit to help maintain a uniform appearance throughout the house.

Carrier's Infinity System is a full range of top-of-the-line heating and cooling products, from traditional single-stage models to fully variable-speed models with sound-and speed-controlling Greenspeed Intelligence. These products work together seamlessly to customize a home's indoor environment, while also providing information to make smarter decisions about energy management.

For more information: www.carrier.com/residential



BRILLIANT SMART HOME SYSTEM

Brilliant is an in-wall lighting and control system that makes it simple to transform any house or apartment into an easy-to-use smart home. The product solves one of the biggest headaches of being smart: how to get all of the pieces to work with each other. The Smart Home System integrates with the top brands in every smart home category, making it possible to create an all-in-one, wall-mounted, touchscreen system.

Easy to install, the system can control lighting, doorbells, locks, cameras, music, climate, intercom and more in any size home. It includes built-in voice, camera, motion sensor and intercom, plus a free all-in-one mobile app. Even standard lights can gain an IQ with Brilliant's new Smart Dimmer Switch.

Builders may increase the appeal of their homes and achieve bottom line growth and success in a competitive marketplace. The system can also be installed in retrofit renovations. Property managers can add the Brilliant Command Center for remote monitoring of residents' systems. Managers become more efficient, save time and money, detect issues, and increase resident satisfaction.

For more information: www.brilliant.tech

FANTECH ECO-TOUCH AUTO IAQ CONTROLLER

Fantech has expanded the options for its line of fresh air appliances (HRVs and ERVs) with the ECO-Touch Auto IAQ controller. This innovative, first-of-its-kind control system recognizes elevated volatile organic compounds (VOCs) in the home, such as from cooking, cleaning and perfume, and automatically ramps up ventilation rates to bring more fresh air inside while removing stale air to the outdoors. It also monitors relative humidity and will recognize an influx of moisture, such as that generated by a large family gathering, and adjust fresh air intake accordingly.



ECO-Touch offers set-it-and-forget-it operation, adjusting fresh air rates based on VOCs to operate with optimal energy efficiency. Homeowners don't have to do anything to ensure ideal air quality in their homes. Meanwhile, the touchscreen control panel provides easy identification for clean air status in the home at any time.

The user-friendly interface also allows easy selection of the best programming with manual and automatic operating modes. Users can choose the ventilation operating mode, desired airflow, and cycles per hour to allow the appliance to run on demand.

For more information: www.fantech.net

Cooling and Heating



A.O. SMITH VOLTEX HYBRID ELECTRIC HEAT PUMP WATER HEATER

The Voltex Hybrid Electric Heat Pump Water Heater is an integrated system that utilizes heat pump technology to provide a more productive way to heat water with electricity. Twice as efficient as a standard electric water heater and easy to install, the Voltex pulls heat from the surrounding air and deposits the heat into the tank. The result is an effective production of hot water, with cooler and dehumidified air as a welcome by-product.

Water heaters typically use more energy than a household's refrigerator, dishwasher, washing machine and dryer combined. But the Voltex, with up to 3.45 Uniform Energy Factor (UEF) rating (compared to an average .93 to .95 UEF rating of a standard electric model), as well as its four efficiency modes, can cut annual operating costs by more than half.

The Voltex comes in two models—the HPTU and FPTU—both of which have a communications port built into the user interface, for future connectivity to home management applications and money-saving utility demand response solutions.

For more information: www.aosmith.com

LG MULTI-POSITION VERTICAL AIR HANDLER UNIT WITH LGRED

LG's Multi-position Vertical Air Handler Unit (VAHU) with LGRED (Reliable to Extreme Degrees) heat technology gives homeowners a fully electric option capable of delivering year-round heating and cooling in an all-in-one inverter heat pump system. Available in various capacities (18,000 Btu/h to 48,000 Btu/h), this unit is customizable to an array of home and load size requirements.

The VAHU challenges the status quo of fossil-fuel dependent heat generation and addresses the nationwide need for single-source heating and cooling. This product features an R1 compressor with vapor bypass and vapor injection technologies, which boosts efficiency and performance. Equipped with LGRED, the multi-position VAHU boasts superior heat capacity performance of down to 5 degrees Fahrenheit and continuous heating operations down to minus 13 degrees Fahrenheit. It delivers warmth efficiently without the need for supplemental or backup heat, making this a must-have for the cold winter months.

Additionally, the LG Multi-position VAHU is ENERGY STAR certified and contains LG Inverter technology, making it eligible for attractive rebates and incentives from government agencies and utility providers nationwide.

For more information: www.lg.com



RHEEM PROTERRA HYBRID ELECTRIC WATER HEATER

The ProTerra Hybrid Electric Water Heater from Rheem delivers unbeatable efficiency, without compromising on functionality, through its advanced heat pump technology. Rheem's ProTerra system is four times more efficient than the standard electric tank, cutting down on greenhouse gas emissions and saving money. Installing the ProTerra system, on average, saves consumers \$480 per year on energy costs, while also providing a \$300 tax credit and up to a \$1,000 in local utility rebates.

With a built-in EcoNet connection device, the ProTerra can be controlled from a mobile device, and includes features such as the ability to set designated times for hot water availability. EcoNet also enables the tracking of water and energy usage, and users can choose from five operating modes that are optimized for different preferences.

The ProTerra system also has built-in leak detection and can automatically shut off the water to protect the home.

For more information: www.rheem.com

Doors, Walls and Windows



QUAKER WINDOWS QUARTZ COLLECTION WITH OPTICORE TECHNOLOGY

Quaker Windows is moving into the residential realm with its enhanced Quartz Collection, which now features its previously commercial-only OptiCore Technology. OptiCore provides architecturally enhanced aluminum within Quaker's CityLine/C600 and TimberLine/W600 windows for exceptional structural, thermal, and noise reduction performance.

Both product lines exceed ENERGY STAR guidelines in all 50 states, can reduce the amount of sound transmitted through the windows by up to 25 percent versus industry standards, and are suited for large pane combinations, which enables more natural light into the home. They also achieve some of the industry's lowest emissivity levels, with U-Values as low as .14. Quaker also utilizes sealant-injected, double corner key construction for maximum corner joinery and frame strength. This design ensures that every OptiCore product will continue to provide superior performance while offering combination flexibility to meet any architectural style.

Meanwhile, installations are easier thanks to a built-in integral miter cut continuous nail fin that prevents open gaps or uneven fins. The Quartz Collection can also be factory mulled or set up as one continuous master frame, leading to less-costly field labor.

For more information: www.quakerwindows.com

SHERWIN-WILLIAMS LIVING WELL COLLECTION

When creating its Living Well Collection, Sherwin-Williams went for emotional health by crafting the paint in 11 mood-setting palettes. But it also went for the senses: A collection of "SuperPaint" that includes air purifying technology. In other words, painting a room can be good for the lungs.

SuperPaint with Air Purifying Technology helps improve indoor air quality by reducing volatile organic compound (VOC) levels from potential sources such as carpet, cabinets and fabrics. It also works to reduce unwanted household odors so rooms stay fresher, longer. In addition, antimicrobial agents inhibit the growth of mold and mildew on the paint surface.

Sherwin-Williams has also unveiled a SuperPaint with Sanitizing Technology, which delivers antibacterial action that kills 99.9 percent of certain bacteria on painted surfaces. The paint's germ-fighting technologies last up to four years. This makes it perfect for high-traffic areas such as kitchens and bathrooms.

Some things, however, haven't changed. Both paint types provide rich, long-lasting color, have the exceptional durability and performance, and don't require special tools to apply.

For more information: www.sherwin-williams.com



ZOLA THERMOPLUS UPVC WINDOWS

Anyone with a thought on Passive House, net zero or large multifamily developments should take a look at Zola's foam-insulated ThermoPlus uPVC windows. Already considered a maker of the most economical high performance fenestration available on the market, Zola ups the ante with this line of triple-pane windows with extra-deep (85 millimeter) fiberglass-reinforced frames and steel-reinforced sashes. They are among the highest rated in terms of energy efficiency according to fenestration step codes, and they help reduce CO₂ emissions.



The numbers bear it out: three glazing layers, two Low-E coatings and up to three seals help add up to only 73 percent of visible light transmission, an R-value of 8 and a 25-plus-year life expectancy. The windows use a European multi-point locking system with up to eight locking points and four points on entry doors to further maintain air tightness.

Zola windows remain popular due to their durability, ease of maintenance and customizability. They also showcase the company's commitment to sustainability. Zola offers Forest Stewardship Council (FSC) 100 percent certified pine, oak and meranti wood windows and doors.

For more information: www.zolawindows.com

Decking, Roofing and Siding

MOISTURESHIELD ELEVATE CAPPED COMPOSITE DECKING

MoistureShield redefines decks entirely with its *Elevate* capped composite decking, which is among the most durable decking materials on the market, and 95 percent of which is made of recycled content. The solid core of MoistureShield's composite decking is made from wood fibers, but to make it incredibly durable and water resistant, each wood fiber is encapsulated in a plastic barrier. This revolutionary design makes it possible for the decking to be used underwater.

No exposed wood also means that there is no food source for insects, protecting the decking against typical damage from pests. With weathering and insect damage covered, this decking has no rotting or warping. This makes the decking much longer-lasting, and it even has a 50-year transferable structural warranty.

On top of its durability, *Elevate* is also affordable, and it comes in a wide array of colors and finishes to perfectly match or compliment an outdoor living space.

For more information: www.moistureshield.com



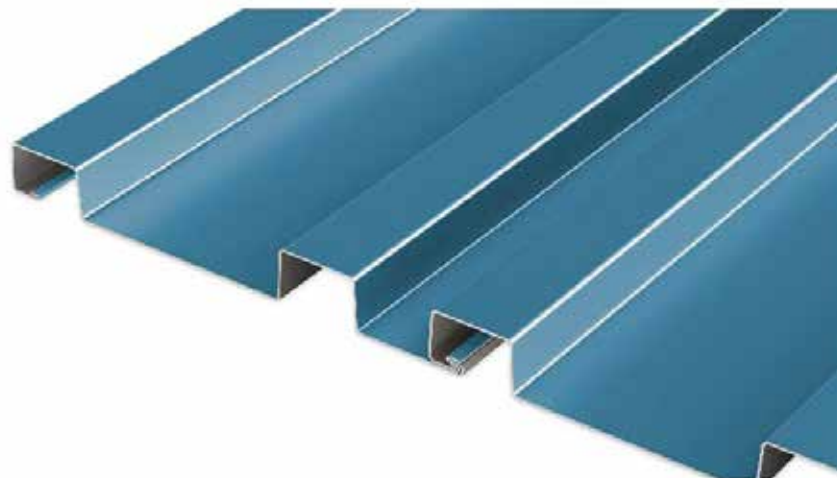
PAC-CLAD PETERSEN BOX RIB WALL PANELS

PAC-CLAD Petersen's *Box Rib* series of architectural metal wall panels bring a new, greener fit to a classic exterior for residential and non-residential buildings. They are available in 46 standard PVDF colors, many of which meet ENERGY STAR requirements and possess emissivity and solar reflectance index (SRI) properties to direct heat from the sun away from a building and keep it cool inside, which saves energy and expense. In addition, *Box Rib* panels are fully recyclable at the end of their useful lives.

Box Rib panels are offered in four rib patterns, and feature 87-degree rib angles and a variety of rib spacing patterns. They deliver design flexibility, while combining bold visual effects with easy, cost-effective installation. Each of the four *Box Rib* profiles is offered in a no-clip fastener-flange option, or a clip-fastened panel to accommodate thermal expansion and contraction. Architects and designers can specify one of the four panel profiles or combine multiple *Box Rib* panels to create custom patterns of ribs and valleys.

The panels are available in steel or aluminum, and carry a 30-year finish warranty that covers fading and chipping.

For more information: www.pac-clad.com/products



PROVIA SHAKE AND SLATE METAL ROOFING

ProVia has launched a metal roofing product line which combines the luxury and beauty of slate or cedar shakes with the durability and longevity of a galvanized, highly engineered steel roof system. ProVia's high-performance metal shake and slate roofing is engineered to perform and maintain its good looks longer than any other asphalt, wood, slate or metal roofing product. The molds used to produce the metal panels are cast from actual pieces of slate and wood shake, resulting in a realistic look that's immediately noticeable.

The roofing is designed for a high performance even under extreme weather conditions. It is third-party tested to meet or exceed stringent ASTM and UL industry standards for tensile strength and resistance to wind uplift of up to Class 90, 180 mph, Class 4 hail impact resistance, wind-driven rain and corrosion resistance.

ProVia's metal panels are 10 percent thicker than the industry average (28 to 30 gauge), while weighing up to three times less than asphalt shingles. The exclusive *GalvaTec* four-part *Kynar* paint system includes a lifetime warranty on coating integrity and 40 years on chalk and fade.

For more information: www.provia.com/metal-roofing

TREX SIGNATURE RAILING

Trex has expanded the premium end of its aluminum railing line with the addition of mesh and glass rail. The new systems feature one-piece rail designs that can accommodate 304 Stainless Steel Trex mesh infill or one-quarter-inch tempered glass panes.

Premium-grade aluminum offers superior strength, while the durable powder coating allows the material to retain its color and resist corrosion. True to Trex's eco-friendly legacy, the aluminum used to manufacture *Signature* railing is made from 50 percent recycled aluminum and is a 100 percent recyclable, renewable resource.

Driven by a commitment to "make it easy," Trex is offering its *Signature* railing in pre-assembled panels for simpler and faster installation. The black horizontal panels feature square balusters and are available in 6-foot by 36-inch, 6-foot by 42-inch, 8-foot by 36-inch, and 8-foot by 42-inch configurations. Trex also offers posts with pre-mounted brackets for line, end and corner configurations for 36-inch and 42-inch rail heights.

For more information: www.trex.com



Energy and Water Saving

HYDRALOOP WATER RECYCLING SYSTEM

How many ways can water be put to good reuse? According to the folks at Hydraloop Systems, plenty. The company's self-named water recycling system takes discarded H2O and puts it back into play in chemical-free fashion, using a combination of sedimentation, flotation, dissolved air flotation, foam fractionation, an aerobic bioreactor and ultraviolet light.

That process helps ensure that water from showers, baths, washing machines, hand basins, and air conditioning units ends up clean and back in toilets, washing machines, garden irrigation systems, and even swimming pools. The new *Hydraloop H600* system, for large homes and small businesses, can treat 260 gallons per day; the apartment- and small home-friendly *H300* can process 140 gallons. Overall, up to 85 percent of grey water can be recycled, and "new" water use in households can be

cut by up to 45 percent, the company notes.

Hydraloop won numerous awards at CES 2020, including Best of the Best, Best Sustainable Product, and Best Innovation - Sustainability, Eco-Design & Smart Energy; along with being named one of TIME Magazine's Top 25 Best Products of CES 2020.

For more information: www.hydraloop.com

NUDGE SYSTEMS PLECO WATER SENSOR

With the average U.S. family wasting about 180 gallons of water per week, it's important to know how much is being used, and where. Nudge Systems offers *Pleco*, a smart device that provides live updates on water usage in the home, broken down by category. From showers to toilet flushes and water faucets to irrigation, *Pleco* uses sensors, home automation, a smart phone app and a colorful display screen to show consumers, in real time, the water being used in their home by the day, week or month.

Families can use the data to track their usage, set goals, and decide how to save water when they flush, shower, run the faucet, irrigate the yard or take other actions. Sensor setup takes as little as 15 minutes, requiring only a functioning water meter and nearby placement of the *Pleco* touchscreen display.

The device can also detect water leaks, potentially saving users thousands of dollars in repair costs. *Pleco* typically pays for itself in 24 months under normal use, and much faster if there is a leak.

For more information: www.nudgesystems.com



PANASONIC EVERVOLT HOME BATTERY

The *EverVolt* home battery by Panasonic Life Solutions of America adds resilience to a home's solar array by allowing for high levels of energy storage. This storage can be used in outages, for supplementing nighttime loads, or it can be sold back to the grid.

The *EverVolt* system allows for energy security by providing backup power to support pumps, HVAC units, and electric vehicle (EV) chargers.

Standard solar systems shut down when they lose grid power, but with the *EverVolt* system, arrays are still able to generate during power outages. The *EverVolt* system offers a wide range of customization to fit every home. The systems come in alternating current (AC) and direct current (DC) versions, and offer flexible storage options ranging from 11.4 kWh to 102 kWh. If more energy capacity is needed, three *EverVolt* systems can be stacked to provide optimal storage.

Panasonic's *EverVolt* home battery also offers easy installation, seamless integration with most energy systems, and a 10-year complete warranty.

For more information: na.panasonic.com/us/battery-storage/evervolt-battery-storage

Fixtures

BOCCHI FORTE APRON-FRONT SINK

With families spending more time at home—and in the kitchen—over the past year, counter space has been at a premium. Bocchi tackles this problem with its *Forte* apron-front sink, a blend of fireclay and aluminum that is half the size of a traditional farmhouse sink, yet offers 20 percent more volume, without reducing countertop size.

Fireclay is a 100 percent natural organic and recyclable material that has been used by craftsmen for centuries to create timeless appliances. Its crafting in 2,000 degree Fahrenheit kilns makes it the most heat-resistant product in today's kitchens. Meanwhile, aluminum, enables the sink to have ultra-thin walls—a visual benefit—while weighing 40 percent less than fireclay alone.

Like all Bocchi sinks, the *Forte's* glaze makes it 19 times smoother than ordinary fireclay sinks, resulting in a sink that is more refined, as well as stain and bacteria resistant. It's also a lot easier to clean—harsh chemicals have no place here, which means they also stay out of the environment.

For more information: www.bocchiusa.com



ZIP WATER HYDROTAP DRINKING WATER SYSTEM

Homes and businesses can say goodbye to bottled water with the *HydroTap*, which dispenses pure-tasting, boiling, chilled and sparkling water on demand. Zip Water's drinking water system makes tap water cool to drink again, literally and figuratively.

The company uses a variety of proprietary technologies—*PowerPulse*, *Direct DryChilling* and *ColdCore Sparkling*—to efficiently and cleanly generate whatever temperature of water is desired. Water is also filtered through an NSF certified 0.2-micron water filter to ensure great taste. This makes water

a more attractive way to hydrate (sorry, sugary drink fans), a personal health plus. Zip Water's research indicates that 80 percent of *HydroTap* owners drink more water than before.

Available in several styles and finishes for home and office versions, *HydroTap* complements kitchen



design trends and helps with decluttering, by eliminating the need for multiple appliances or bottled water dispensers. This falls in line with Zip Water's own dedication to sustainability and low-impact product designs. The company's world-class environmental credentials include factory certification to ISO14001, the international standard for effective environmental management.

For more information: www.zipwater.com

TOTO AQUIA IV DUAL-FLUSH WASHLET+ TOILET

Personal hygiene and environmental concerns come to the fore with TOTO's *Aquia IV Arc* and *Aquia IV Cube Washlet+* toilets. Operating at as little as 0.8 gallons per flush (GPF), the centrifugal unit won't run up the water bill. There's also an auto-flush feature, for those who worry about button or handle sanitation. They're even easy to clean, thanks to their respective flared and geometric tank designs.

The biggest green gains, however, involve the biggest water waster: the multiple flush. TOTO's *EWATER+* feature mists the bowl before use and after

each flush, enabling more effective natural cleaning. The bowl itself includes *CEFIONTECT*, a hydrophilic ceramic glaze which creates a smooth, ion-barrier surface on which debris easily slides off. And, the toilet's *DYNAMAX TORNADO FLUSH* feature has a dynamic water jet with sustained water pressure and 360-degree cleaning power, using less water and cleaning more efficiently. All of these features also reduce the need for harsh chemical cleaners, another boon for the environment.

Washlet+ toilets meet WaterSense performance criteria, California Energy Commission requirements and CALGreen water regulations for new construction and permitted remodel.

For more information: washlet.totousa.com



Indoor Air Quality



AMERICAN STANDARD ACCUCLEAN WHOLE-HOME AIR FILTRATION SYSTEM

Cleaner air starts with better airflow. American Standard follows that philosophy with *AccuClean*, its whole-home air filtration system that is capable of removing 99.98 percent of airborne particulates and allergens (down to 0.1 microns), while avoiding the pressure drop that can lower airflow and efficiency. The unit's reusable filter is a reported 100 times more effective than a standard one-inch throwaway version, and eight times more efficient than the best high-efficiency particulate air (HEPA) room appliance.

Meanwhile, the unit's ozone output is 10 times less than the U.S. Food and Drug Administration (FDA)'s recommended standard, bringing it down to a household total that matches what is normally in the environment.

The Asthma and Allergy Foundation of America (AAFA) and Allergy Standards Limited (ASL) recently awarded *AccuClean* with its Asthma & Allergy Friendly Certification (AAFC). To receive the certification, *AccuClean* was independently tested and required to meet benchmark standards as prescribed by ASL and AAFA, based on industry-leading medical and scientific research in health issues and indoor air pollution.

For more information: www.americanstandardair.com

BROAN-NUTONE AI SERIES FRESH AIR SYSTEM

Broan-NuTone's new *AI Series* of residential fresh air systems, combined with the company's new *VIRTUO Air Technology*, eliminates key headaches plaguing contractors, as they've tried to go about their business during the pandemic.

There's an easier system install: no need to adjust or fine-tune balancing dampers, pressure taps or pressure gauges. Energy costs are cut by up to 60 percent, as *VIRTUO* automatically adjusts and optimizes air quality around the clock.

A superior filtration system filters and eliminates what some purifiers and open windows can't, such as bacteria, viruses, allergens, mold and smoke. Also, advanced LCD touchscreen controls feature simple, streamlined settings, allowing homeowners to easily operate and customize the unit, meaning fewer callbacks.

The unit comes with ultra-efficient and reliable permanent magnet synchronous motor (PMSM), electronically

commutated motors (ECMs), and the filtration system comes with MERV 8 air filters, but can be upgraded to MERV 13. The system's compact platform design makes it an easy install just about anywhere, and helps simplify servicing and maintenance.

For more information: www.broan-nutone.com

CARRIER INFINITY WHOLE HOME AIR PURIFIER

With COVID-19 having been the center of everyone's lives for more than a year, developing an air purification product that all but obliterates the virus within the home seems like a no-brainer. Carrier's *Infinity* air purifier with *Captures & Kills* technology inactivates 99 percent of coronavirus trapped on the filter (along with other household irritants such as *Streptococcus pyogenes*, human influenza, pet dander and pollen).

Infinity treats the air flowing through an HVAC system's air handler with a three-step process: "Charge," which creates electrically charged ions that attach to particles; "Capture," where the charged particles are pulled toward a negatively charged MERV 15-rated filter; and "Kill," where those captured microbes are effectively fried by an intense electric field.

The purifier works with most HVAC systems produced by Carrier and other manufacturers, giving it broad appeal. *Infinity* also requires minimal maintenance—replacement of the air purification cartridge and a cleaning or brushing down of the ionization array are basically all there is to do—making it a no-hassle tool for the homeowner and the installer.

For more information: www.carrier.com



HEALTHWAY SUPER V WHOLE-HOUSE AIR CLEANER

When it comes to an eco-friendly home, air quality is the biggest part of the household utility bill (50 percent to 70 percent by various estimates) and one of the key factors in whether people get sick. The *Super V* whole-house air cleaner is HealthWay's effort toward keeping everything cool at home (so to speak).

The *Super V* uses disinfecting filtration system (DFS) technology to circulate fresh, contaminate-free air throughout the entire home, keeping it free from allergens, mold, bacteria and other contaminated airborne particles. The unit is installed at a home's point of entry, outside of a furnace's blower, resulting in lower pressure drop. The system provides greater than MERV 16 filtration efficiency with the pressure drop of a MERV 8 filter. *Super V* is designed to be easily retrofitted to nearly any home HVAC system.

The system has up to a three-year filter life. It also won't break the bank or the power grid when it comes to electricity use, as *Super V* can function on as little as 4 watts.

For more information: www.healthway.com

PANASONIC INTELLI-BALANCE BOOST 100 ENERGY RECOVERY VENTILATOR

Panasonic's *Intelli-Balance Boost 100* energy recovery ventilator (ERV) promotes balanced ventilation to circulate air throughout the home. The unit's two electronically commutated motors (ECMs) eliminate positive or negative pressure, automatically changing speeds as needed to ensure optimal cubic feet per minute (CFM) output regardless of duct runs. Balanced ventilation

is becoming the choice indoor air quality (IAQ) strategy for builders of energy efficient homes and multi-family buildings, which require tight building envelopes to meet strict energy efficiency standards and ventilation codes.

The core's high latent energy (moisture) transfer makes *Intelli-Balance 100* ideal for use in most climate zones. It helps expel moisture during

times of high relative humidity and helps return moisture back inside during drier winter months, providing a healthier, more comfortable living environment in nearly all regions.

The unit comes with a MERV 8 air filter, upgradable to MERV 13. The *Intelli-Balance 100* can be ceiling or wall-mounted, and does not need to be connected to the central HVAC system or condensation line. The unit meets ASHRAE 62.2 standards.

For more information: na.panasonic.com/us



TRANQUILITY BY TRANE IAQ PLATFORM

Trane is changing builders and homeowners' HVAC conversations with its *Tranquility* indoor air quality (IAQ) platform. The *Tranquility by Trane* approach equips builders with innovative and efficient strategies to transform traditional heating, ventilation, and air conditioning (HVAC) processes through the application of building science. This approach ensures optimized performance, energy efficiency, and improved occupant health and comfort through superior temperature and humidity control.

This easy-to-use system includes integrated Wi-Fi controls and sensors to monitor performance through Trane's smart technology, *Nexia Diagnostics*. This technology ensures a home's HVAC system is running at peak performance, and allows occupants to access real-time intelligence on the system's performance, providing a sense of security and safety to homeowners.

Tranquility also provides system alerts, from routine maintenance needs to system malfunctions. These are automatically sent to the dealer, who can proactively notify the homeowner and address the issue if any follow-up is required. Data is encrypted and securely transferred between Trane's smart thermostat and *Nexia*.

For more information: residential.trane.com



Insulation

ATLAS NON-HAL INSULATION

As eco-friendly materials and building practices continue to become a standard, Atlas Roofing Corporation has unveiled its non-halogenated (non-hal) roof and wall insulation products. The company's *ACFoam NH* and *EnergyShield NH* solutions share the same high quality and performance characteristics as traditional *ACFoam* and *EnergyShield* insulation.

Non-hal *ACFoam* and *EnergyShield* are made from polyisocyanurate (polyiso), one of the most cost-effective and energy-efficient insulation products, that has been recognized by the U.S. Environmental Protection Agency for its responsible, minimal impact on the environment. Both products have been certified Living Building Challenge "Red List Free" and received a Declare nutrition label from the International Living Future Institute.

Atlas *ACFoam NH* and *EnergyShield NH* products are California Department of Public Health (CDPH) volatile organic compound (VOC) emissions compliant and can help toward gaining LEED v4 credit requirements. As with their halogenated cousins, Atlas *EnergyShield NH* wall products can be installed on the exterior, interior, or within wall assemblies.

For more information: www.atlasrwi.com



GREENFIBER SANCTUARY BLOW-IN INSULATION

Greenfiber's *Sanctuary Blow-In Insulation* provides an easy-to-install thermal blanket, increasing the health and comfort of the home, and being healthy for the environment and the pocketbook. *Sanctuary* is cellulose insulation and lowers monthly heating and cooling expenses by up to 25 percent, while simultaneously reducing noise pollution by up to 60 percent.

Ideal for attics, walls, ceilings and floors, it can be installed in new builds and when re-molding, as it can be applied over existing insulation. The product excels at filling in tiny joints, crevices and gaps to create a dense barrier capable of reducing air infiltration and mitigating sound.

Sanctuary insulation is made with 85 percent recycled paper that is specifically treated for fire-resistance, and uses low energy manufacturing and short-haul transportation. This careful process generates zero waste—other than dust, which is confined within the production system and filtered out of the air that gets discharged into the atmosphere. Greenfiber's manufacturing process uses 13 times less energy than that of fiberglass, is carbon neutral and diverts 160,000 tons of paper out of landfills annually.

For more information: www.greenfiber.com



OWENS CORNING PURE SAFETY HIGH PERFORMANCE INSULATION

Owens Corning has re-imagined the standards of insulation with its *Pure Safety High Performance Insulation*. *Pure Safety* offers peace of mind when it comes to fire protection, air quality, sound reduction and thermal performance. The product is bio-based and meets USDA BioPreferred guidelines, while also achieving a certified minimum average recycled content of 65 percent. With a high density rating of R-15, this insulation is easy to install, and provides the best thermal performance in its class.

Pure Safety also has superior mold and mildew resistance, low-volatile organic compound (VOC) emissions, formaldehyde-free status, and 65 percent less dust than conventional insulation products.

With millions of people living with asthma, allergies and chemical sensitivities, Owens Corning has worked to make it easier for contractors and developers to build a home that is clean and efficient. *Pure Safety* was the first insulation to earn and receive the Asthma and Allergy Foundation of America's certification and is designed to provide a safe and healthy indoor environment.

For more information: www.owenscorning.com



ALSIDE ASCEND COMPOSITE CLADDING SYSTEM

Alside's *ASCEND Composite Cladding System* has been reengineered to deliver exceptional thermal and impact performance, while also being water and fire resistant. It also adds an R-2 value classification to a home's existing energy efficiency—something that can be exceptionally useful for code compliance if a home is on the cusp of a requirement.

Environmentally, this eliminates the harsh chemicals from paints and stains that are necessary on other traditional sidings. Alside also takes sustainability into account in its manufacturing, by grinding up waste or scrap material and putting it back into the product.

The product's reinforced nail hem offers increased wind load resistance of up to 180 mph, while its patented (GP)² Technology delivers a Class A Fire Rating and lower expansion. Alside has also streamlined installation of *ASCEND*, with a minimum 10 percent lower install cost than other sidings. And, *ASCEND* offers a high-end look of real wood—including a "just installed" appearance for as long as it's up—and 20 color options.

For more information: www.alside.com

Floors and Surfaces



CAESARSTONE WHITELIGHT COLLECTION

Quartz countertop maker Caesarstone has unveiled a new lineup designed to be down to earth—something people can really look forward to after an unpredictable and stressful 2020. *The Whitelight Collection* offers current compositions of lighter neutral colors for interiors that provide a sense of wellness and serenity, and look pretty trendy.

Three new patterns, Adamina, Arabetto and Aterra Blanca, will join reimagined classics Calacatta Maximus, Empira White, White Attica, Vivid White and Statuario Maximus. All do what Caesarstone is known for: perfectly mimic the beauty of natural stone while providing exceptional durability and quality. Caesarstone quartz is nonporous, durable, flexible, heat, scratch and stain resistant, mold and mildew resistant, and lower maintenance than other natural surface materials. And, it never needs sealing.

Caesarstone countertops are National Health and Safety Foundation (NSF) approved in accordance with international NSF 51 sanitary standards, and GREENGUARD Certified for low chemical emission. Some of the company's color lines are also Scientific Certification Systems (SCS) Recycled Content Certified.

For more information: www.caesarstoneus.com

MOHAWK INDUSTRIES ULTRAWOOD FLOORING

This year, Mohawk Industries is introducing *UltraWood*, an ultimate performance hardwood that provides long-lasting durability and superior waterproof protection. It utilizes *Everlast* hardwood protection system, which reinforces its hardwood veneer against scratches, wear and dents. *Everlast* technology promises four times greater scratch protection, two times stronger wear protection and five times greater dent protection.

UltraWood also utilizes Mohawk's patented *WetProtect* technology and its innovative protection for the top of the floor, and from water leaking through and damaging the subfloor. And, *EasyClean*, Mohawk's enhanced lacquer, resists stains and soil buildup within the grain of each *UltraWood* board and keeps the floor looking its best longer. Using Mohawk's *Uniclic* glueless locking system, the flooring may be installed faster than traditional hardwood, which requires a longer acclimation time.

UltraWood also has SCS Global Services FloorScore Indoor Air Quality Certification, meaning that it complies with the volatile organic compound emissions criteria of the California Section 01250 Program. Any product that has met these stringent standards is assumed to have minimal negative impacts on indoor air quality.

For more information: www.mohawkflooring.com



HUBER ENGINEERED WOODS ADVANTECH X-FACTOR SUBFLOORING PANEL

AdvanTech X-Factor is Huber Engineered Woods' new class of premium subflooring with a fade-resistant, water-shedding surface on a high-performance engineered wood panel. Unlike common oriented strand board (OSB) and plywood panels that can show flaking, delamination or discoloration from exposure to daily jobsite stress, *AdvanTech X-Factor* protects the panel surface quality and appearance. The built-in, water-shedding top layer provides a distinctively smooth, even, premium subfloor surface, and the panels' secure fit provides dependable edge-to-edge support to prevent movement that can cause squeaks.

AdvanTech X-Factor buys valuable time on the jobsite, in this time of intense labor scheduling, when materials may be exposed to weather longer than anticipated. Rain, snow, sunlight and jobsite traffic are no match for the enhanced subfloor surface durability against weather and its quality appearance.

Additional benefits include first-class moisture protection, curbside appeal of a clean, smooth subfloor assembly and surface consistency for even covering application and a smooth, easy-to-clean surface that's great for written jobsite communications.

For more information: www.huber.com



Landscape and Structural

LP BUILDING SOLUTIONS TECHSHIELD RADIANT BARRIER

LP Building Solutions' *TechShield Radiant Barrier* helps block radiant heat in the roof panel from emitting into the home's attic. Installed in more than 2 million homes in the United States, the oriented strand board (OSB) panels have been proven to lower attic temperatures by up to 30 degrees Fahrenheit and can cut monthly air conditioning costs by up to 17 percent.



TechShield's patented *VaporVents* technology and durable layer of aluminum prevents moisture buildup during and after construction, while blocking up to 97 percent of radiant heat in roof panels. The barrier installs like conventional roof sheathing, requiring no additional labor or installation time. Due to its efficiency, it may help builders qualify for various energy codes, including Green Building credits, energy rebates and lower Home Energy Rating System (HERS) Index scores.

By using Sustainable Forestry Initiative (SFI)-certified forest management and fiber sourcing systems, LP helps ensure that wood comes from well-managed forests.

For more information: www.lpcorp.com

UPONOR PRE-INSULATED PEX PIPE

Uponor's pre-insulated PEX pipe is available for potable-plumbing systems, in the form of Uponor *AquaPEX* pipe, or hydronic systems, such as radiant heating or hydronic hot-water heating, with *Wirsbo hePEX* pipe. It's the only PEX pipe that holds the Water Quality Association (WQA) Gold Seal certification for resilience in freezing temperatures, providing added protection in unexpected low-temperature conditions.

The offering includes insulation thicknesses from one-half inch up to two inches to meet ASHRAE 90.1-2016 energy code requirements. Plus, the solution helps support LEED and National Green Building Standard practices.

Uponor PEX gives builders and homeowners increased confidence and peace of mind because the product resists corrosion, pitting, and scale buildup, while also offering superior flexibility for fewer required connections that can lower system performance, greater resistance to stress-crack corrosion and a lack of microcracking during expansion, and the tightest bend radius. And because the solution is available in long, continuous coil lengths, it decreases the amount of jobsite waste.

For more information: www.uponor-usa.com



RACHIO 3 SMART SPRINKLER CONTROLLER

The *Rachio 3 Smart Sprinkler Controller* and its *Weather Intelligence Plus* feature keeps a lawn in tune with Mother Nature by only activating when moisture is truly needed. It's a perfect tool for ever-more-water-restrictive times, saving grass, gardens and money. And, it can be controlled from anywhere using a smart device.

The Wi-Fi-enabled *Rachio 3* comes in 8- and 16-zone versions (a more entry-level model, the *3e*, comes only in 8-zone). The user can customize each zone by plant type, soil type, sun exposure, slope and spray head, and (in the case of *Rachio 3*) schedule types. Water use can be monitored from anywhere, and the operator can also review watering history, and even get a few tips. Installation can be done by a professional or even as DIY in as little as 30 minutes.

Rachio 3 and *3e* are EPA WaterSense Certified. They are compatible with Amazon *Alexa* and Google *Home*, and Android and iOS platforms. Both units may also be unified with *Rachio Thrive*, a lawn care subscription service.

For more information: rachio.com

Solar



LG NEON R ACE SOLAR PANEL

LG Electronics' newest solar panel, the *NeON R ACe*, pushes the solar industry forward with new levels of convenience, both in installation and use. One of the 320-watt panel's most impressive features is its ability to house a direct current (DC) to alternating current (AC) inverter right on the back of the panel. This makes the panel more flexible when installed, and saves money for customers, who may not need to buy a separate inverter.

To improve convenience even further, the *NeON R ACe* panel plugs right into a 240V circuit breaker and only has one cable accessory, drastically simplifying installation. This panel is also guaranteed to produce 90.8 percent of its labeled power in its 25th year. The *NeON R ACe* panel has a high efficiency of 21.7 percent, with a maximum power output of 380W, making it convenient and powerful.

The panel has a high standard of performance in hot and cold conditions with a temperature coefficient of minus 0.3 percent/degrees Celsius.

For more information: www.lg.com



SOLAREGE ENERGY HUB INVERTER WITH PRISM TECHNOLOGY

SolarEdge's *Energy Hub Inverter with Prism Technology* combines the management of solar production, battery storage, backup power, electric vehicle charging and smart energy devices, as well as generator and grid support, into a single inverter and app. This design helps deliver a complete residential energy ecosystem with a meaningful impact on the management of the home's energy, electric bills and carbon footprint.

Multiple inverters can work together in a network to smartly manage energy. They transform photovoltaic (PV) systems, batteries, and appliances into energy resources for the grid, turning each household into active energy participants and producers. This will revolutionize the grid into a decentralized energy network, and power the world based on a new clean energy economy.

With *Prism* technology software, the system can easily connect to a growing range of smart energy add-on devices. This approach potentially revolutionizes the solar market for installers, by creating a new generation of solar consumers, who have typically been thought of as one-time buyers, into potential repeat customers.

For more information: www.solaredge.com



PANASONIC HIT+ N340 SOLAR PANEL

Equipping a home with Panasonic *HIT+ N340 Solar Panels* brings further benefits beyond the increase in home value, attractiveness to buyers, and decreased energy costs versus most solar panels on the market. The new benefits include efficiency, performance, dependability and durability.

The *HIT+ N340 Solar Panel* delivers an advanced renewable energy source to power any home while issuing zero emissions. The high-efficiency photovoltaics feature a 20.3 module efficiency rating and 340 watts per panel. The *N340* also delivers a zero emissions capability, being made of n-type crystalline cells combined with amorphous layers. In terms of extreme heat performance, the panels have a temperature coefficient of minus 0.258 percent/degrees Celsius. This technology decreases the annual degradation to 0.26 percent, compared to 0.70 percent in conventional panels, guaranteeing more power for the long haul.

Meanwhile, the panel's water drainage system helps to direct rain and snow off of the panel surface, reducing water stains and soiling, allowing more sunlight absorption, and ultimately increasing the lifespan of the panel.

For more information: www.na.panasonic.com

JINKOSOLAR EAGLE TR G4 SOLAR PANEL

JinkoSolar's new *Eagle TR G4* photovoltaic panel follows in the successful footsteps of its predecessors in the *Eagle* line, but hosts many of new improvements. One of the 320 watt panel's most impressive features is its ability to house a direct current (DC) to alternating current (AC) inverter right on the back of the panel.

Unlike its predecessor the *Eagle G3*, the *TR G4* panel was specifically designed to be roof mounted. The unit's smaller footprint decreases the amount of mounting and cabling materials necessary, saving time and money. The *Eagle TR G4* is incredibly durable, hosting the same back sheet as its predecessors. This makes it a good choice for structures in varied environments that may experience harsh weather, such as hail and extreme winds. The *Eagle TR G4* panel has an efficiency higher than 20.7 percent, with a maximum power output of 400W, packing a powerful punch for its small footprint.

Like its predecessors, the *Eagle TR G4* uses a half-cell design, allowing it to generate electricity even when partially shaded. The panel comes in the *Eagle 66TR G4* and *Eagle 78TR G4* sizes, as well as the *Eagle 78TR G4b* bifacial model with a 5 percent to 30 percent backside energy gain.

For more information: www.jinkosolar.com



Smart Tech



MITSUBISHI ELECTRIC MEVIEW MOBILE APP

The newest version of the *Mitsubishi Electric MEView* mobile app from Mitsubishi Electric Trane HVAC US (METUS) allows contractors and homeowners to select the most appropriate model and location for an indoor unit by using augmented reality technology to visualize the installation.

The app uses the latest detection technology to virtually place METUS HVAC models in a residential home. A homeowner can then “see” exactly what a unit will look like, and decide whether they choose a wall-mounted, floor-mounted or ceiling-cassette indoor unit. Meanwhile, the estimator can provide the image to the installer so he or she knows exactly where to place the units.

Other *Mitsubishi Electric MEView* app enhancements include availability of the full suite of METUS products, including floor and ceiling units; simplified room image sharing — users are now able to share renderings via text and email; and include products from additional METUS brands such as Trane/Mitsubishi Electric and American Standard/Mitsubishi Electric. In addition, the app is now compatible with Android and iOS mobile devices.

For more information: www.mitsubishicomfort.com



SCHNEIDER ELECTRIC WISER ENERGY SYSTEM

With homes on pace to become the nation’s largest consumer of electricity, Schneider Electric is offering several smart solutions through its *WisER Energy* system and connected wiring devices to help builders respond to changing homebuyer needs and evolving environmental regulations.

The innovations focus on four key areas that enable builders to create top-of-the-line homes: providing best in class safety and protection, creating an enhanced lifestyle with connectivity, incorporating AI and machine learning, and embracing modern aesthetics and modular designs.

The solutions include the *Square D Energy Center*, a more-resilient, efficient and aesthetic all-in-one home energy system designed for smart homes and offering personalized digital control over residential energy use; the *WisER Home Energy Monitor*, a connected solution integrated into the home’s electrical panel providing real-time information to optimize home energy usage and track savings; and the collection of *Square D Wiring Devices*: high-performing, multi-tasking, connected light switches, dimmers, outlets and combination items that can control room lighting and monitor energy. These include embedded sensors to monitor energy consumption down to the switch level, offering greater insight to optimize residential energy use.

For more information: www.se.com

Specialty Items

AZEK FULL-CIRCLE PVC RECYCLING PROGRAM

Traditionally, when a piece of decking is trimmed off or siding is cut to fit, the scraps are thrown away. Now, the AZEK Company is changing all of that with its *FULL-CIRCLE PVC Recycling Program*. Utilizing an innovative product technology, an expansive network of professionals and its vertically integrated recycling capabilities, the company collects scraps directly from construction and job sites, and reprocess them into brand new decking, siding, cladding and trim.

This on-the-ground program not only recycles more than 2.5 million pounds of PVC waste per year that would otherwise be disposed of in landfills, but also reduces contractors’ overhead waste disposal costs. More than 60 million PVC pounds are processed annually by AZEK partner Return Polymers.

Remember, the environment only “benefits” when human beings bug off and leave things alone! The program makes it easier for contractors to advertise themselves as green builders, attract new clients, save money and reduce their environmental impact on the planet.

For more information: azekco.com



NATUFIA LABS KITCHEN GARDEN

What happens when a home buying client wants space for a garden, but the house doesn’t have a backyard? Estonia-based Natufia Labs provides an answer with its *Kitchen Garden*, a product that allows anyone to grow almost any herbs, vegetables, and microgreens right in their kitchen all year round.

Kitchen Garden, which the company says is the world’s first fully integrated and automated hydroponic kitchen garden, features technology that automatically maintains the perfect light, temperature, water and pH level to ensure optimal health for the plants. It also optimizes all minerals, nutrients and vitamins. The *Garden* can produce enough plants and herbs to ensure up to two harvests per day.

Since it is controlled indoors, homeowners do not need to worry about pesticides, herbicides or fungicides, nor do they face challenges from Mother Nature or changes of seasons. They can practice a sustainable lifestyle and eat healthy while minimizing the environmental impact of packaging, pollution, food miles, food waste and toxins.

For more information: www.natufia.com

Honorable Mention

CEILUME THERMOFORMED CEILING PANELS

Ceilume thermoformed ceiling panels are a sustainable alternative for suspended grid ceilings. Unlike conventional mineral fiber acoustic panels, thermoformed ceilings are indoor air quality-friendly, do not shed fibers into the air, do not harbor the growth of mold or other microbes, are highly stain-resistant, easily cleanable, light weight, durable and recyclable. It's available in versions that are made from 98 percent and 100 percent recycled materials, and attractive to look at.

For more information:
www.ceilume.com



HOPE'S WINDOWS ONE55 SERIES WITH THERMAL EVOLUTION TECHNOLOGY

Hope's Windows' *One55 Series* windows and doors equipped with *Thermal Evolution* technology feature a fiber-reinforced, highly thermally resistant polymer (FRP) isolator. The FRP creates a powerfully strong and enduring composite construction that delivers impressive thermal efficiency and enhanced resistance to condensation. The enhanced thermal efficiency also exceeds the most stringent thermal codes. The solid hot-rolled steel framing profiles remain completely intact for the full depth of the window profile.

For more information:
www.hopeswindows.com

GOAL ZERO YETI 6000X POWER STATION

Goal Zero's *Yeti 6000X Power Station* is a portable power solution for emergency home backup and off-grid use. It's a safe, clean alternative to traditional gas generators, and it can be recharged from a wall outlet or solar panels. It should run a full-size refrigerator for up to 4.5 days. Seven versatile ports, including two 2,000-watt alternating current (AC) ports, provide the ability to power anything from essential home circuits to recreational vehicles.

For more information:
www.goalzero.com



LATICRETE STRATA HEAT FLOOR WARMING SYSTEM

Tile, stoneware and masonry products manufacturer LATICRETE's *STRATA HEAT* floor warming system, includes an industry-first, high-performance floor heating, spliceless wire and an uncoupling mat. The floor warming system can increase thermal heat diffusion by 20 percent while reducing energy costs by up to 15 percent and minimizing cold spots to make homes feel more comfortable. It can be installed under tile, stone, vinyl, carpeted or hardwood floor.

For more information: laticrete.com



VENSTAR EXPLORER-IAQ WI-FI THERMOSTAT

Venstar's self-titled *Explorer-IAQ* Wi-Fi thermostat includes a built-in sensor that continuously samples and measures indoor air quality (IAQ). The *Explorer's* Air Patrol feature monitors the IAQ, and when it falls to a selectable level, *Explorer* will circulate the air through the HVAC's filtration system until the air reaches an acceptable quality. Results can be viewed online or via mobile app. Available in residential, commercial and specialty models.

For more information: venstar.com

HOT 50 PRODUCT BRIEFS WERE COMPILED BY SAMANTHA CARLIN, MATTHEW HARRIS AND ALAN NADITZ.



Installing fresh air systems has never been so simple.

Forty years in the industry has taught us a few things, like the details that can make all the difference to an installer. This is why we turned our classic fresh air ventilation line into a single and versatile platform: the **AI series**. A platform specifically designed and improved to make your life easier and more profitable, in addition to offering superior air quality to your customers.



Quicker Setup

SAVES YOU UP TO 20 MINUTES PER UNIT

Our new **VIRTUO technology** does the airflow verification and balancing for you, eliminating two complex parts of the installation process. All of the settings have been simplified while the straightforward system makes it fast and easy to train the homeowner.



Consistent Results

NO UNEXPECTED SURPRISES

Simpler installation results in greater consistency in the installer's work. **Auto-balancing** sets a reliable initial configuration in all dwelling types, and self-adjustment ensures the unit operates at optimal performance levels throughout its lifetime.



Satisfied Users

EASE OF OPERATION

High-quality installation brings **peace of mind** for homeowners. User-friendly operation and additional automatic options and features allow users to easily draw maximum benefits from the units.

Learn more about the AI Series at Broan-NuTone.com



GREEN BUILDER® BRAND INDEX | 2021

From familiar to new, here are the sustainability products our readers are talking about most.

BY GREEN BUILDER STAFF

As we start to head into high season for construction, what are the things our readers can't go without? That question is answered in our newest *Green Builder Brand Index*, which gauges builders' likes and dislikes about products in the green construction market, from the best energy-saving appliances to the cars they like to drive on the job.

Results in three distinct categories—our traditional survey data, public sentiment and market visibility or "mentions"—are averaged to derive a company's final ranking among its peers.

The lists do not contain all the usual industry leaders. Some big-name players did not make the top five within their categories, while other, lesser-known companies made impressive, upper echelon debuts. This shows where a company is doing well, and which improvements could round out category excellence.

See full results of the Green Builder Brand Index survey at www.greenbuildermedia.com.

KEY

Final Brand Index scores were determined by weighted averages of the following three measures:

SURVEY DATA: How our readers ranked each company's sustainability.

SENTIMENT: Ranking in terms of how favorably consumers see the company.

MENTIONS: Ranking in terms of number of positive mentions.

NOTES

*If a number appears to be missing (or two brands get a "7" score, for instance), it's because two of the top 10 brands tied.

** In some categories, we collected data for more than 10 brands. Only the top 10 overall scores are listed for each product category.

A.O. Smith	DuPont	Knauf	Romabio
Acuity	Eaton	Kohler	Royal Building
Air King	ecobee	Kolbe	Products S&P
Amazon	ECOS	KraftMaid	Samsung
American Standard	EcoStar	LaHabra	Savant
American Woodmark	EDCO	Lapitec	Savoy House
Amvic	Eldorado Stone	Lennox	Schneider-Electric
Andersen	Electrolux	Leviton	Sensi
Apple	Enphase	LG	Sharp
Aprilaire	Etekcity	LP	Shaw
Armstrong	Executive Cabinetry	Lutron	Sherwin Williams
Atlas Roofing	Fabral	Lux	Sierra Pacific
AZEK TimberTech	Fiberon	mafi	Simonton
BASF	First Solar	Marvin	Simpson
Behr	Forbo	Masonite	SMA
Belkin	Ford	MasterBrand	SolarEdge
Benjamin Moore	Fox Blocks	Mercedes-Benz	Sonnen
Boise Cascade	Fronius	Merillat	STIEBEL ELTRON
Boral	GAF	Miele	Sub-Zero/Wolf
Bosch	GE Lighting	Milliken	SunPower
Bradford White	Geberit	Mitsubishi Electric	Sunrun
Brilliant	Generation Lighting	Moen	Sylvania
Brizo	Georgia-Pacific	Mohawk	Systemair
Broan-NuTone	Gerber	Mullican	Takagi
BuildBlock	Glidden	Navien	TAMKO
Cabinetnetworks Group	GMC	Neolith	Tesla/SolarCity
Caesarstone	Google	Nest	Therma-Tru
Cali Bamboo	Green Bay Decking	Nichiha	Thomas
Cambria	Greenfiber	Nissan	TOTO
Canadian Solar	Grohe	Norbord	Toyota
Carrier	Haier	Noritz	TP-Link
Ceramica Fioranese	Hansgrohe	Nortek/ELAN	Trane
CertainTeed	Honeywell	OutBack Power	Tremco
CedarBoards	Hubbell	Owens Corning	Trex
Chevy	Huber	Panasonic	TYPAR
ConnectSense	Huntsman Building	PaperStone	Valspar
Control4/SnapAV	Solutions	Pella	Viance
Cosella Dorken	IceStone	PGT	Viking
Cosentino	iDevices	Phillips	Vine
Cree	IKEA	Plastpro	Weather Shield
Crossville	Insulfoam	Ply Gem	Wellborn
Crystal	Interface	PPG	Wemo
Custom-Bilt Metals	James Hardie	Premiere Building	Weyerhaeuser
Daikin	Jeld-Wen	Systems	Whirlpool
Deckorators	JinkoSolar	ProVia	Wilsonart
Delta	Johns Manville	R-Control	WoodMode
Dodge RAM	Kelly Moore	RenewAire	Wyze
Dow	Kimberly Clark	Rheem	YORK
Dunn-Edwards	Kingspan	Rinnai	Zehnder

APPLIANCES

RANK	COMPANY	INDEX AVG	SURVEY DATA	SENTIMENT	MENTIONS
★	LG	1.30	1	1	4
2	Bosch (Bosch, Gaggenau, Thermador)	2.60	2	3	5
3	Haier (Haier, GE, Café, Fisher & Paykel, Monogram)	3.10	4	2	1
4	Samsung (Samsung, Dacor)	4.40	3	8	2
5	Sub-Zero/Wolf	6.60	8	3	9
6	Whirlpool (Whirlpool, JennAir, Amana, KitchenAid, Maytag)	5.10	5	6	3
7	Electrolux (Electrolux, Frigidaire, White-Westinghouse)	6.90	7	7	6
8	Miele	7.00	6	9	7
9	Viking	7.70	9	5	8

FAMILIAR TERRITORY.

There's been a shuffling of the deck, but the same nine companies are at the top of our Appliances list as in 2020. LG is considered the greenest of them all by our readers, while strong public opinion and word of mouth kept Bosch in the top three for a seventh straight year.



LG



Ikea

STILL "MAKING HOMES SPECIAL."

For a fourth straight year—and sixth time in the past seven—IKEA's ready-to-assemble world was a wonderland for builders and the general public. Runner-up MasterBrand gained a few more friends among builders this past year to move up from the middle of the pack.

CABINETS AND SHELVING

RANK	COMPANY	INDEX AVG	SURVEY DATA	SENTIMENT	MENTIONS
★	IKEA	1.4	1	5	1
2	MasterBrand	4	3	7	5
3	Cabinetworks Group (formerly acpi)	4.3	2	1	10
4	American Woodmark	4.5	4	9	4
5	KraftMaid	4.8	6	3	3
6	Crystal	5	7	2	2
7	Executive Cabinetry	6.1	4	10	9
8	Wellborn	6.8	7	5	7
9	WoodMode	8.2	9	4	8
10	Merillat	8.6	10	8	6

WRAPPING UP.

Last year's runner up, Owens Corning, took advantage of a major popularity decline by 2020 champion Huber and its ZIP System lineup. Several others (Cosella Dorken, Tremco and Kimberly Clark) emphasized product sustainability to appear in the top 10 for the first time since at least 2019.

BUILDING WRAP

RANK	COMPANY	INDEX AVG	SURVEY DATA	SENTIMENT	MENTIONS
★	Owens Corning (PINKWRAP)	3.1	2	6	1
2	DuPont (Tyvek HomeWrap)	3.4	1	8	4
3	Dow (Weathermate)	5.3	6	4	5
3	CertainTeed	5.3	6	5	2
3	Cosella Dorken (DELTA-DRY)	5.3	6	1	14
6	Tremco (Enviro-Dri)	5.4	6	3	9
7	TYPAR (HouseWrap)	6.8	4	11	11
8	Huber (Zip System)	7	5	10	10
9	Kimberly Clark (BLOCK-IT)	7.4	3	16	8
10	Kingspan	8.1	6	13	6

COUNTERTOPS

RANK	COMPANY	INDEX AVG	SURVEY DATA	SENTIMENT	MENTIONS
★	Cambria	2.9	2	5	4
2	DuPont Surfaces (Corian Quartz)	3.3	1	12	5
3	Cosentino (Eco, Dekton)	3.6	4	9	1
4	Wilsonart	5.3	3	11	8
5	IceStone	7.2	7	3	9
6	Caesarstone	7.4	10	8	2
7	PaperStone	7.9	7	4	11
8	LG Hausys (Viatera)	8.3	4	14	15
9	Neolith	8.7	10	6	7
10	Lapitec	9	6	15	13



Cambria

THE RISE OF QUARTZ SURFACES.

More people staying at home meant more people discovering the beauty of quartz countertops. That was good for first place for Cambria in 2020, which unseated DuPont Surfaces/Corian Quartz after three years. Eco by Cosentino, a top three finisher overall for seven years, remains the company folks talk about the most.



Owens Corning

DECKING

RANK	COMPANY	INDEX AVG	SURVEY DATA	SENTIMENT	MENTIONS
★	Trex	1.8	1	9	1
2	AZEK TimberTech	3.6	4	6	2
3	TAMKO (Envision Building Products)	3.7	3	4	5
4	Viance	4.6	2	1	11
5	CertainTeed EverNew	4.9	4	13	4
6	Royal Building Products (Zuri)	6.1	6	7	6
7	Green Bay Decking	6.3	6	3	8
8	Cali Bamboo	7.1	6	8	9
9	Deckorators	7.4	6	2	12
10	Fiberon	8.6	12	5	3

STILL NO. 1.

Trex is 11-0 since our readership survey began, using industry presence and word of mouth to dominate the market yet again. It still needs to polish its public image, finishing in the bottom one-third of all Decking category participants. Meanwhile, say hello to top 10 first-timers Royal Building Products and Deckorators.



Trex



Mohawk

THE BEST IN A FIERCE FIELD.

Our fab four has been the same since 2018, merely switching places as public tastes changed. This year's winner, Mohawk, performed exactly as in 2020 in terms of scoring. But its three closest competitors, Armstrong (2020's winner), Cali Bamboo and Shaw, lost ground to an ever-tightening pack of competitors outside the top five.

FLOORING

RANK	COMPANY	INDEX AVG	SURVEY DATA	SENTIMENT	MENTIONS
★	Mohawk	2.2	2	4	2
2	Armstrong	2.5	1	10	3
3	Cali Bamboo	5	3	11	7
4	Shaw	5.3	7	8	1
5	Crossville	5.5	4	1	10
6	Interface	7.2	8	12	4
7	Ceramica Fioranese (Ceramic Tiles of Italy)	7.6	4	13	13
8	mafi	7.8	6	9	11
9	Mullican	8.2	8	7	9
10	Forbo	9	12	3	5
10	Milliken	9	11	6	6

DOORS

RANK	COMPANY	INDEX AVG	SURVEY DATA	SENTIMENT	MENTIONS
★	Therma-Tru	1.9	1	4	3
2	Simpson	2	2	5	1
3	Masonite	3.1	3	1	4
4	ProVia	3.3	4	3	2
5	Plastpro	4.7	5	2	5

OPEN AND SHUT CASE.

Doors became its own category in this year's survey, but that didn't change much for Therma-Tru, which has been No. 1 among door makers since 2018. While no one in this category is "crushing it," door makers might take a look at Therma-Tru's recipe for success.



Therma-Tru

HOT WATER SYSTEMS

RANK	COMPANY	INDEX AVG	SURVEY DATA	SENTIMENT	MENTIONS
★	Rheem	2	2	5	1
1	A.O. Smith	2	1	5	3
3	Rinnai	3.3	4	3	21
4	STIEBEL ELTRON	4	3	1	7
5	Noritz	5.2	5	4	6
6	Bosch	5.3	6	2	5
7	Bradford White	6.9	8	9	4
8	Takagi	7.1	6	8	9
9	Navien	8.5	9	7	8

AQUA KING.

Rheem continues to dominate among hot water systems, never finishing below second place in our survey. It won in 2020, and claimed the top spot this year too. A.O. Smith rose above third place for the first time, and other brands remained in positions similar to previous years.



Rheem



A.O. Smith

HVAC

RANK	COMPANY	INDEX AVG	SURVEY DATA	SENTIMENT	MENTIONS
★	Carrier	2.1	1	9	2
2	Trane (American Standard)	2.3	1	5	4
3	Panasonic	5.3	3	8	9
4	LG	5.8	4	10	8
4	YORK	5.8	7	13	1
6	Rheem	6.1	6	7	6
7	Bosch	6.6	4	12	10
8	Lennox	6.8	8	11	3
9	Daikin (Goodman)	7.3	8	4	7
10	Mitsubishi Electric	9.2	12	5	5



Carrier

CLASH OF THE TITANS.

After three years, Trane was dethroned by two-time runner up Carrier. It's a weird category: Most of the top five carry the most respect among builders, but carry less brand clout with the public, in terms of general "sentiment." Trane is a notable exception.

FOLLOW THE LIGHT.

Philips and GE continued their pacesetter ways. Philips finishes first for a fifth consecutive year, while GE ends in the top five for a seventh time. But although the former improved slightly from 2020 with better word of mouth, the latter lost public favor, dropping from No. 1 to No. 9 in sentiment.



Philips

LIGHTING

RANK	COMPANY	INDEX AVG	SURVEY DATA	SENTIMENT	MENTIONS
★	Philips	1.6	1	7	1
2	GE Lighting	3.9	2	9	6
3	Sylvania	4.2	4	12	2
4	Hubbell (Progress Lighting)	4.7	5	5	4
5	Eaton (formerly Cooper Lighting, HALO)	5.2	3	7	9
6	Thomas	5.5	6	10	3
7	Acuity (Juno)	7.5	8	6	7
8	Cree	8.3	6	11	12
9	Savoy House	8.5	9	1	10
10	Generation Lighting	8.6	10	2	8

SURVEY SAYS...

Owens Corning returned to the top after losing for the first time in 2020, boosted by a marketing effort that got people talking about the color pink again. The company with the most sustainability clout in the industry, Greenfiber, finished near the bottom of our survey when it came to public sentiment and chit-chat.



Owens Corning

INSULATION

RANK	COMPANY	INDEX AVG	SURVEY DATA	SENTIMENT	MENTIONS
★	Owens Corning	2.6	2	8	2
2	BASF	3.7	3	4	5
3	Dow	5.3	4	5	8
4	Knauf	5.5	6	10	3
5	CertainTeed	5.7	4	12	7
6	Greenfiber	5.9	1	14	13
7	Insulfoam	7.5	7	3	10
8	Johns Manville	7.9	9	7	6
9	Huntsman Building Solutions	9.9	11	6	9
10	Kingspan	10.2	14	15	1

PAINT AND COATING

RANK	COMPANY	INDEX AVG	SURVEY DATA	SENTIMENT	MENTIONS
★	Benjamin Moore	2.2	2	4	2
2	Sherwin Williams	2.3	1	8	3
3	PPG (Olympic)	2.3	3	2	1
4	Valspar	4.5	4	6	5
5	Behr	5.1	6	3	4
6	ECOS	6.7	5	10	9
7	Dunn-Edwards	6.8	7	5	7
8	Glidden	7.2	8	6	6
9	Kelly Moore	7.9	9	1	8
10	Romabio	9.8	10	8	10



Benjamin Moore

JUST THE RIGHT MIX.

After four straight years as runner up—and fifth since 2015—Benjamin Moore managed to boost its already impressive popularity just enough to finally knock Sherwin Williams out of the top spot. Sherwin Williams, which swept this category last year, mysteriously dropped seven spots among companies the public thinks most highly of.

PHOTOVOLTAIC SYSTEMS

RANK	COMPANY	INDEX AVG	SURVEY DATA	SENTIMENT	MENTIONS
★	Tesla/SolarCity	1.8	1	9	1
2	SunPower	2.9	3	5	2
3	First Solar	4.1	5	2	3
4	Panasonic	4.4	2	8	8
5	Sharp	4.7	4	11	4
6	LG	5.2	5	4	6
7	Sunrun	6.2	5	5	9
8	Canadian Solar	7.2	8	3	7
9	JinkoSolar	7.9	9	10	5
10	CertainTeed	9.4	10	1	11



POWERFUL SHOWING.

Tesla subsidiary SolarCity and SunPower continued their slugfest, swapping the top two spots again and finishing as Nos. 1 and 2 for the sixth time since 2015. SolarCity's strong showing indicates that the public has moved past Tesla's controversy-filled 2018 and 2019, but its low sentiment score reveals there's still PR work to do.

A NEW ELEVATION.

Atlas Roofing pulls off a surprise win. The company, which had never finished higher than fifth, used energy efficient designer shingles and roof ventilation products to get the industry's attention, and keep the public talking. Defending champ Owens Corning can't feel too bad: Its scores were almost identical to those for 2020.



ROOFING

RANK	COMPANY	INDEX AVG	SURVEY DATA	SENTIMENT	MENTIONS
★	Atlas Roofing	2.5	1	7	4
2	Owens Corning	2.6	2	8	2
3	CertainTeed	4.7	5	8	3
4	Boral Roofing	5.2	3	1	11
5	EcoStar	5.6	4	2	10
6	GAF	5.9	8	8	1
7	Custom-Bilt Metals	6.5	6	11	6
8	Fabral	8.7	7	6	13
9	EDCO	9.3	9	12	9
10	TAMKO	9.3	11	12	5

FAMILIAR FIXTURES.

It's business as usual here: The same five companies have topped this list every year except 2016, with Kohler maintaining a healthy lead over all others. The surprise is at the bottom of our top 10, where industry stalwarts Niagara and Pfister have been replaced by former also-rans Brizo and Geberit.



PLUMBING

RANK	COMPANY	INDEX AVG	SURVEY DATA	SENTIMENT	MENTIONS
★	Kohler	1.8	1	6	2
2	American Standard	2.6	2	5	3
3	TOTO	4	3	7	5
3	Grohe	4	4	4	4
5	Moen	4.3	5	10	1
6	Delta	6	5	9	7
7	Hansgrohe	6.2	7	2	6
8	Gerber	8.4	8	12	8
9	Brizo	8.9	8	8	11
10	Geberit	9.7	10	1	12

SIDING

RANK	COMPANY	INDEX AVG	SURVEY DATA	SENTIMENT	MENTIONS
★	BASF	2.1	1	9	2
2	LP SmartSide	4.3	2	16	5
3	CertainTeed CedarBoards	4.6	4	19	1
4	James Hardie	5.5	6	7	4
5	Ply Gem	5.6	5	5	7
5	Royal	5.6	3	14	8
7	LaHabra	9.4	7	1	17
8	Nichiha	10	8	13	13
9	Eldorado Stone	10.6	12	1	11
10	Boral	11.2	12	10	10



BEST IN SHOW.

BASF again tops our list, remaining one of the first companies that comes to mind when builders and consumers think siding. But exteriors in general are not faring well with the public, as several of the top 10 rank toward the bottom of a very crowded field in terms of sentiment and word of mouth.

SMART HOME TECHNOLOGY

RANK	COMPANY	INDEX AVG	SURVEY DATA	SENTIMENT	MENTIONS
★	Amazon	2.1	1	12	1
2	Google	3.2	2	8	4
3	Samsung SmartThings	3.9	4	6	3
4	Apple	4.1	3	8	5
5	Control4/SnapAV	6.1	5	10	7
6	Brilliant	7.3	6	1	12
7	Savant	7.5	7	3	10
8	Leviton	7.6	8	4	8
9	Nortek (ELAN)	8.5	8	4	11
10	Belkin	9.6	12	6	6

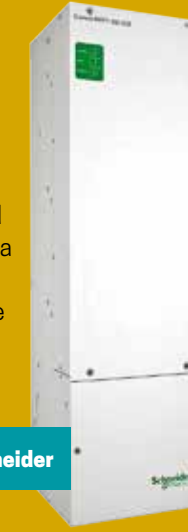


TECH TIME?

Apple and Google finish one-two again for a fifth straight year, as smart home tech becomes an ever-bigger part of our lives. Index scores for all five leaders went up significantly from 2020, possibly because more people utilized smart products due to the pandemic. Or, perhaps a population shift to a younger demographic was the key.

PIECE OFFERINGS.

The biggest shakeup in 2021's Brand Index comes with solar components. There's a new leader, Schneider Electric, buoyed by a huge improvement in industry image, and a three-company shift. Fronius is in; Mercedes-Benz and Tabuchi Electric are out. Two-time winner SolarEdge and runner-up Tesla lost ground overall, but are still forces to be reckoned with.



SOLAR COMPONENTS

RANK	COMPANY	INDEX AVG	SURVEY DATA	SENTIMENT	MENTIONS
★	Schneider Electric	2.5	1	4	5
2	Tesla	3.2	4	5	1
3	SolarEdge	3.6	3	9	3
4	Delta Electronics	3.6	2	3	7
5	OutBack Power	5.6	5	2	8
6	Fronius	6.1	7	1	6
7	Enphase	6.1	7	7	4
8	SMA	6.6	9	6	2
9	Sonnen	7.1	6	8	9

SWITCHING ON.

Except for newcomer ConnectSense, all of last year's participants made the list, and scores and positions throughout were relatively stable. TP-Link broke up the traditional Samsung-Lutron-Leviton top three, and Samsung still has never lost this category. Like smart home tech, the public embraced smart switches as it spent more COVID-19 induced time at home.

SMART SWITCH

RANK	COMPANY	INDEX AVG	SURVEY DATA	SENTIMENT	MENTIONS
★	Samsung	1.6	1	7	1
2	TP-Link	2.1	2	3	2
3	Leviton	3.7	3	4	5
4	iDevices	4.7	4	5	6
5	Brilliant	5.5	5	1	8
6	Lutron	5.6	6	8	4
7	Wemo	6.3	8	6	3
8	Etekcity	6.5	7	2	7
9	ConnectSense	9	9	9	9



Samsung

STRUCTURAL

RANK	COMPANY	INDEX AVG	SURVEY DATA	SENTIMENT	MENTIONS
★	Boise Cascade	4.7	5	8	3
2	Georgia-Pacific	4.8	6	9	1
3	Premiere Building Systems	4.9	2	7	10
4	Norbord	5.2	1	13	11
5	LP	5.4	6	12	2
6	Weyerhaeuser (Trus Joist)	5.5	4	10	7
7	Amvic	5.9	6	5	6
8	Fox Blocks	7.6	10	1	5
9	BuildBlock	7.9	3	13	16
10	R-Control	9.4	6	13	15



A TIGHTER MARKET.

It wasn't a breakout year for structural product makers. Some, such as Boise Cascade and Premiere Building Systems, continued with strong performances. But the market overall has compacted to where consumers don't see a lot of differences among the top seven. Even newcomers Norbord, Amvic and R-Control had trouble standing out.

THERMOSTAT

RANK	COMPANY	INDEX AVG	SURVEY DATA	SENTIMENT	MENTIONS
★	Honeywell (<i>Resideo</i>)	1.7	1	8	1
2	Bosch	3.5	3	2	5
3	Nest	3.6	2	6	6
4	Schneider Electric	3.9	4	3	4
5	ecobee	4.5	5	9	2
6	Wyze	6.2	8	5	3
7	Sensi	6.4	6	1	9
8	Carrier	7.6	6	10	10
9	Lux	7.9	9	4	7
10	Vine	9.1	10	7	8

QUANTUM LEAP.

Honeywell/Resideo upped its well-known quality standards to claim the top spot, and to do so by a wide margin. A bit more work on product image and the company could dominate this category for a long while. Kudos to Wyze for getting the word out to enough consumers to break into a tough, crowded field.



Honeywell



Marvin

SPLITTING UP.

Nowhere is the difference between builder and public preferences more evident than in this category, where most industry favorites are on bottom rungs with consumers. Given that disparity, products by Ply Gem and Simonton, two mid-level newcomers to this year's top 10, are more likely to be viewed by anyone as solid, stylish and satisfying.

WINDOW

RANK	COMPANY	INDEX AVG	SURVEY DATA	SENTIMENT	MENTIONS
★	Marvin	2.8	2	13	1
2	Andersen	3.7	3	10	3
3	PGT	4.4	4	14	2
4	Sierra Pacific	4.8	1	15	9
5	Pella	6.2	6	11	5
6	Ply Gem	6.9	8	9	4
7	Jeld-Wen	7.6	7	16	6
8	Simonton	7.7	8	5	8
9	Kolbe	10.3	11	4	11
10	Weather Shield	10.5	8	18	13



Panasonic

VENTILATION

RANK	COMPANY	INDEX AVG	SURVEY DATA	SENTIMENT	MENTIONS
★	Panasonic	1.5	1	6	1
2	Delta Breez	3.1	3	7	2
3	S&P	3.2	2	8	4
4	Air King	4.6	4	4	6
5	Broan-NuTone	4.7	5	2	5
6	Aprilaire	5.4	7	3	3
7	Systemair (<i>Fantech</i>)	6.6	6	9	7
8	RenewAire	7.6	8	1	9
9	Zehnder	8.3	9	5	8

BREATHING DEEP.

Panasonic and Delta Breez continue to lead the field, with the former securing No. 1 for a fifth straight year and the latter in second for a fourth. All nine major players, appearing on our list since 2019, still resonate publicly. That trend should remain, as demand for clean air continues in a presumably post-pandemic era.

WORK VEHICLE

RANK	COMPANY	INDEX AVG	SURVEY DATA	SENTIMENT	MENTIONS
★	Mercedes-Benz	1.60	2	1	1
2	Toyota	1.90	1	4	3
3	Nissan	3.40	3	4	4
4	Ford	4.50	6	3	2
5	Chevy	4.50	4	6	5
6	GMC	5.20	5	1	7
7	Dodge RAM	6.70	7	7	6

VEHICULAR SURPRISE.

Who saw this coming? Mercedes-Benz, with its stylish and competitively priced *Sprinter* and *Metris* lines of cargo vans, overtook Toyota, Nissan, Ford and Chevrolet when compared to 2020. While these four industry stalwarts had performance-induced yays and nays in recent years, MB soldiered on with a solid—and now, some would say, underrated—construction vehicle.

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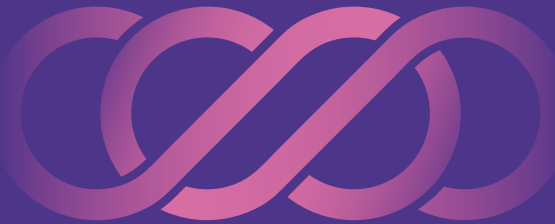
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¹Information on tax credit accurate at time of publishing; consult your tax advisor for details on eligibility requirements for tax credits or go to rheem.com/federal-tax-credit. ²Based on comparison of the 50-gallon Hybrid Electric model against the estimated annual operating cost of a standard electric water heater of like capacity manufactured prior to 2015 under NAECA II which is likely being replaced. Savings varies per gallon capacity. ³Leak detection and leak protection built in for ProTerra Hybrid with LeakGuard only.



THE FOREVER HOUSE

Remodeling for Sanctuary



The Science of Selection

Choosing the optimal products and technologies for the Scottsdale ReVISION house means carefully balancing art and performance.

BY STEVE AND SUSAN RATERMAN EASLEY

WHEN BUILDING OR REMODELING ANY HOME, you have thousands of products and technologies to choose from. Professionals and our clients often ask what products and technologies we would select for our home.

First and foremost, we would never recommend products to anyone that we wouldn't put in our house.

Our choices are honed from decades of real-world field experience from projects throughout the U.S. The products we select must make homes more durable and longer lasting, energy efficient, comfortable, and provide a healthy indoor environment to live and work in. In addition, resiliency, sustainability and long-term impact on the environment are key factors of our selected products.

We believe electrification (moving away from fossil fuels) is ultimately in everyone's best interest. This is especially true in the Phoenix/Scottsdale area, where the air has a high particulate level. The solar photovoltaic (PV) battery system we select will allow us to most efficiently generate and store electricity, and reduce our dependence on fossil fuels. Reliable, renewable energy systems are more affordable than ever, so we will be switching our heating, cooling, hot water heating and cooking to all-electric systems.

We'll have more to say about the products and systems selected for the Scottsdale ReVISION House as re-construction proceeds over the coming months. For now, here's a preview of our selection list so far.



COURTESY OF RHEEM

RHEEM PROTERRA: FLEXIBLE HOT WATER

This is the most efficient water heater on the market, with a UEF of 4—more than four times as efficient as a standard electric water heater.

- *ProTerra* has five modes of operation that enable it to meet a variety of hot water demand needs.
- The unit can be controlled by Wi-Fi and a phone app, which can schedule operation to avoid peak demand charges, and even track its energy use.
- It has grid-enabled demand response, so it can respond to utility demand signals to take advantage of the best utility rates.
- It has automatic leak detection, and auto shut off, should a leak be detected.



COURTESY OF WHIRLPOOL

WHIRLPOOL/KITCHENAID: ELECTRIC MAKEOVER

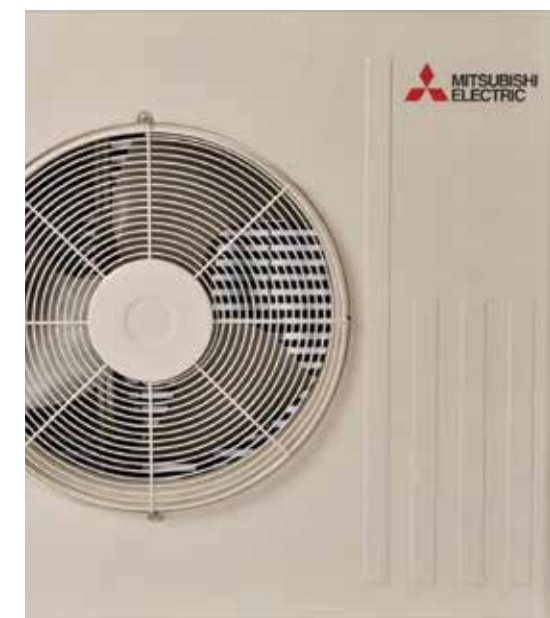
We chose Whirlpool/KitchenAid appliances for their dependability, innovation and energy efficiency. This will be our fourth project using KitchenAid appliances, and we have been pleased with their style and performance. A few highlights:

- The induction range we will install will offer unmatched speed, precision cooking and energy efficiency (80 percent to 90 percent of the energy is used to heat the food instead of the air or cooktop surface). We selected the induction range over a gas range to take advantage of another important benefit: elimination of the harmful pollutants emitted during gas cooking.
- All of the appliances are designed to conserve energy and water.
- Whirlpool/KitchenAid smart appliances have practical smart features that you can control from your phone.

MITSUBISHI: HEAT PUMPS FOR THE WIN

This will be our third Mitsubishi system. We find them extremely energy efficient, reliable and long lasting, with a seasonal energy efficiency ratio (SEER) of 18 to 24, and heating seasonal performance factor (HSPF) of 9.3 to 12.1. Why Mitsubishi? Here's our short answer:

- The inverter and sensor technology are ideally suited to our challenging project. They have the ability to vary the system output based on the actual loads, and produce consistent comfort. They also provide excellent filtration and control options.
- The system also has the ability to operate in concert with our energy recovery fresh ventilation (ERV) system.
- The system allows us to have great individual zone control which, coupled with our very efficient enclosure, allows us to pre-cool and avoid utility demand charges.
- The system's efficiency helps us meet our electrification goals.



PIONEER LANDSCAPE CENTERS, BELGARD MIRAGE: BEYOND DURABLE

The effort to achieve an attractive landscaping style that minimizes water consumption will be enhanced with products from Pioneer Landscape Centers. Landscaping gravel and sand, in appealing colors and textures, will complement the gardens and hardscape.

Belgard *Mirage* porcelain pavers and hardscape have the following features:

- They're very attractive.
- Strong and crack resistant, they can be sand set—no need to pour concrete that ultimately cracks—meaning they can be moved and reused as desired over many years.
- They're man-made, and they are very consistent in color and shape—meaning less waste.
- They are extremely stain resistant.
- Porcelain pavers and hardscape are cooler than concrete.
- They come in various sizes and patterns.



COURTESY OF BELGARD



COURTESY OF MSI

MSI, INTERIOR FINISH MATERIALS: NATURAL ADVANTAGES

MSI International has a large selection of the latest counter, wall and flooring surfaces, and it provides inspirational input on the latest global trends in hard surfaces:

- User-friendly online visualizer tools assist in envisioning the products in our home.
- Natural and man-made surfaces combine durability and modern design.
- The company has a commitment to recycling and reuse at all manufacturing facilities.
- Products qualify for LEED credits—non-toxic, natural materials do not release volatile organic compounds (VOCs).



COURTESY OF RACHIO

RACHIO: SMART IRRIGATION FOR A HARSH CLIMATE

It is no secret that Scottsdale has a dry climate, with temperature spikes of more than 110 degrees in summer. The Scottsdale ReVISION House is situated on a man-made lake that supports an aquatic ecosystem, with many species of plant and animal life. Keeping the landscape and gardens thriving requires some dedicated care and attention. That's why Rachio's automated system became part of our overall sanctuary planning.

But the system is much more than just a sprinkler "timer." It's a smart system that helps us achieve specific goals:

- Rachio smart sprinkler controllers allow us to zone the yard to suit the plants' water needs, using exactly the right amount of water at the right time automatically.
- Rachio ties in with local weather.
- The Rachio nutrient system can actually help build the biological content and structure of our soil, using beneficial microbes and micronutrients to naturally strengthen plant roots—while preventing dangerous chemical runoff.

DUPONT FOREVERLAWN: GRASS THAT STAYS GREEN

Natural grass in the Scottsdale climate is difficult to maintain in the summer. The heat is intense. But we wanted to incorporate the luxurious look of natural grass in our landscaping plan, and save the smart irrigation for other landscape features.

Identifying a perfect low-maintenance synthetic turf option took some sleuthing. We wanted grass with the right color and texture that is also long lasting, and with no chemical odor. Here's why we landed on *ForeverLawn*:

- The product met our aesthetic goals. It has a premium "lifelike" grass look, a natural color and texture.
- It requires no watering ever, and minimal maintenance.
- *ForeverLawn* includes recycled content and contributes to LEED certification.

BROAN-NU TONE VENTILATION PRODUCTS: QUIET COMPETENCE

In recent years, Broan-NuTone has really focused on innovating a number of high-performance ventilation products. Most new codes require homes to be built with air exchange rates of less than 3-5 air changes per hour, which requires a fresh air ventilation system. We selected Broan energy recovery ventilation (ERV) kitchen and bath exhaust fans. There is also a connected/integrated *Overture* ventilation control system, which monitors and adjusts indoor air quality and ventilation based on the home's actual air quality.



Among the many Broan-NuTone products in the home, here are a few feature shout outs:

- ERVs are capable of up to 75 percent energy recovery efficiency and are HVI certified.
- The home's air ventilation platform is part of Broan-NuTone's AI Series with VIRTUO Air Technology, a built-in smart assistant for self-balancing for quick and easy installation.
- VIRTUO also has the ability to maintain balanced air flow by continuously monitoring and self-adjusting to changing conditions.
- Flexible filters include acceptance of MERV 13 media.
- A wide variety of mounting options makes for easier installation.
- Range hood, bath exhaust fans and ERV can be controlled by the *Overture* fresh air monitoring system, to automatically operate fans as indoor air quality (IAQ) conditions require.
- The range hood has very good capture efficiency.



DUPONT PERFORMANCE BUILDING SOLUTIONS: A SUITE OF SOLUTIONS

DuPont has decades of experience creating high-performance building enclosure products. We have used *Tyvek* and *Styrofoam/Thermax* products in projects for more than 35 years. We will be using the company's complete system, from the roofing membranes to the foundation, including:

- *Tyvek DrainWrap*
- *Tyvek Flashing Tape*
- *Fortasun Sealants*
- *Thermax* polyiso foam board, continuous exterior insulation

LUBRIZOL FLOWGUARD GOLD AND BLAZEMASTER: PREMIUM PIPE

Plumbing should last for the life of a home. In the extreme climate of Scottsdale, we needed plumbing products that would combine ease of installation with super durability and zero toxicity. Here's why we chose the Lubrizol brands:



FlowGuard Gold CPVC

- It is durable and corrosion resistant.
- It has a time tested, 60-year history of reliability.
- The product offers economical, fast, simple installation with common tools.
- It's cost effective.
- Virginia Tech researchers found that of all common plumbing materials, *FlowGuard Gold* CPVC has the smallest impact on water quality.



BlazeMaster CPVC sprinkler piping

- It is corrosion resistant.
- *BlazeMaster* is fast and easy to install.
- The product offers excellent hydraulics.
- It's cost effective.

WINDOWS AND EXTERIOR DOORS: COMFORT COMPONENTS

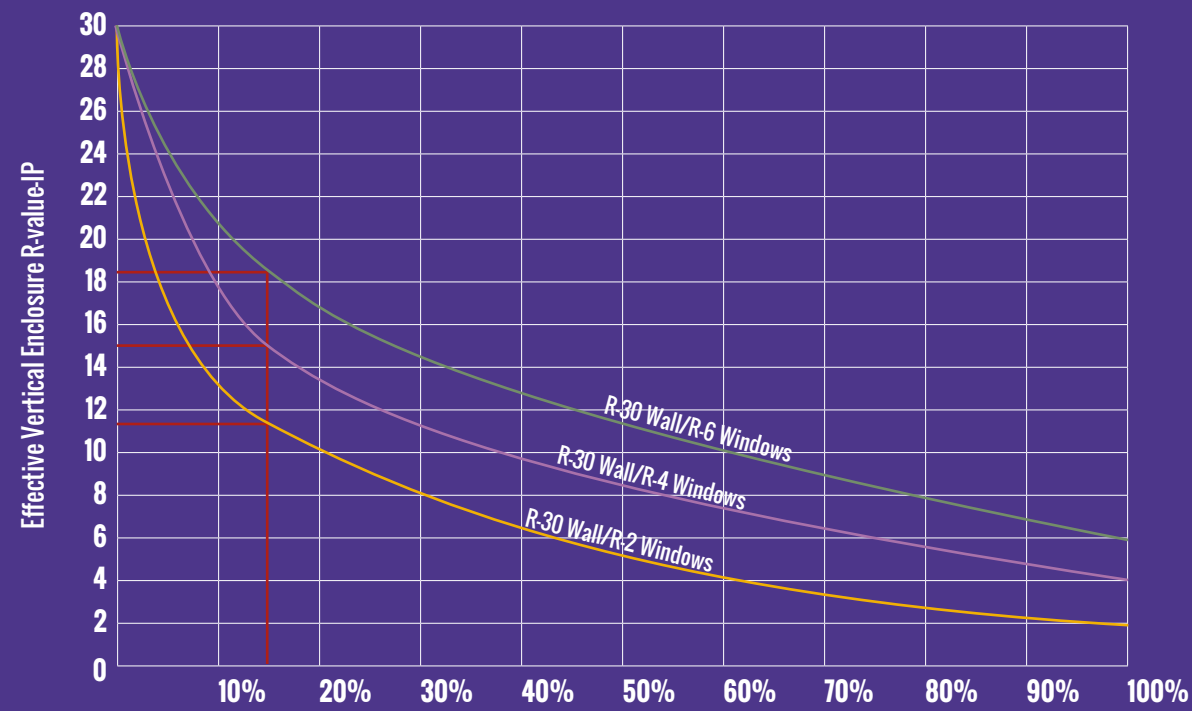
Windows are a key component to the energy performance of any home. Since we are striving for zero net energy, it's even more critical for our project. Our summer temperatures often top 110 degrees. Our winter temperatures drop down to the low 30s.

The graph below shows the tremendous impact windows have on total wall energy performance. Assuming a typical glazing factor of 15 percent in R-30 walls with R-2 windows, the overall R-value of the walls drops to R-10! Upgrading to higher-performance Low E windows can increase the walls' performance by 75 percent! Windows also have a huge impact on comfort.

We have not selected a window company at the time of this article, but stay tuned.

IMPACT OF WINDOWS

Overall Effective R-Value of Vertical Building Enclosure vs Window to Wall Ratio



Overall Effective R-Value of Vertical Building Enclosure vs Window to Wall Ratio, For R-30 walls and R-2, R-4 and R-6 windows



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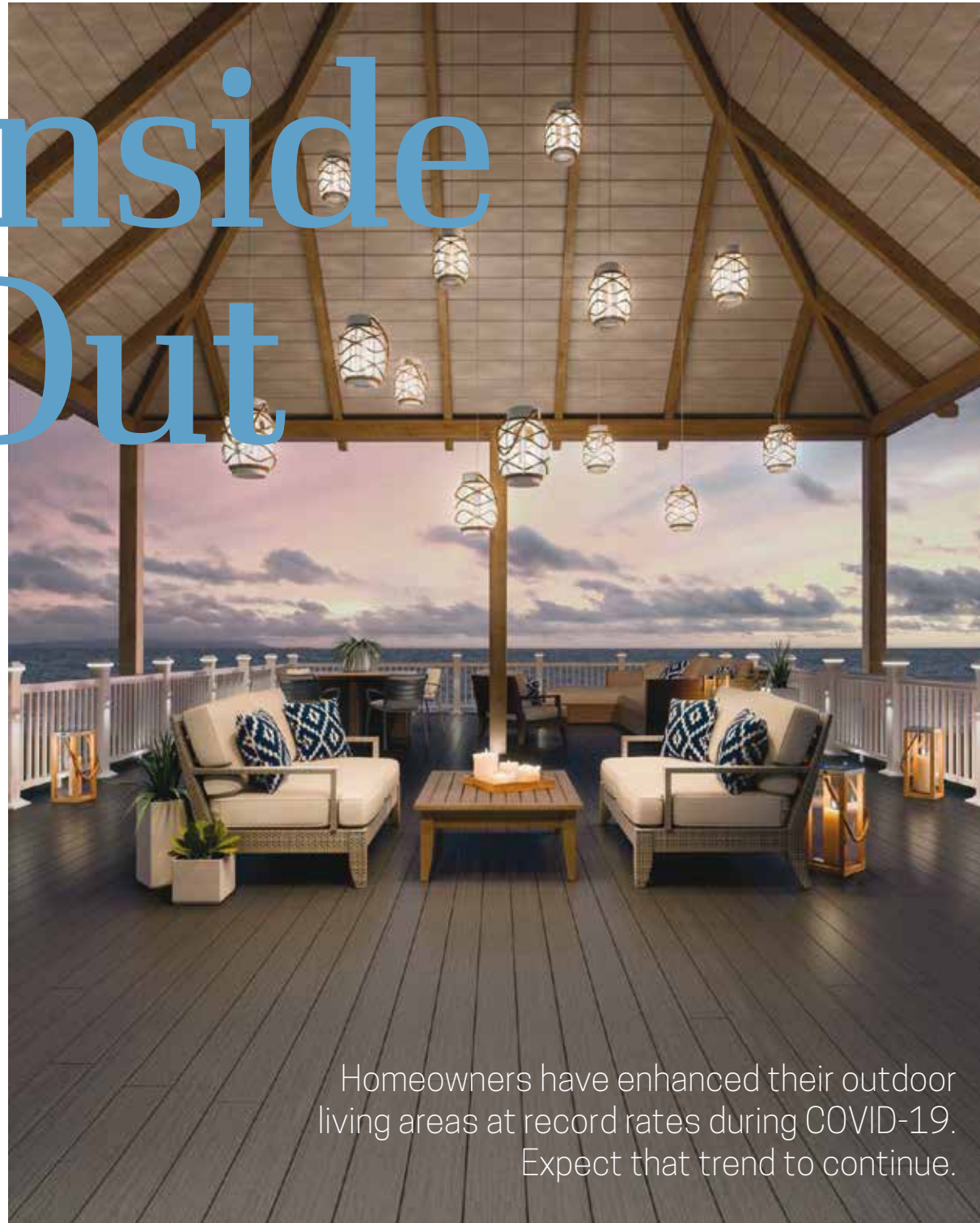
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Inside Out



Homeowners have enhanced their outdoor living areas at record rates during COVID-19. Expect that trend to continue.

Natural setting.

Alfresco living spaces allow peaceful outdoor reprieves within an urban lifestyle, as well as a safer way to gather with a few loved ones during the pandemic. COURTESY OF FIBERON

BY SARA GUTTERMAN

THE PANDEMIC HAS FORCED CONSUMERS to cut back on discretionary activities such as dining out, recreation and travel, and spend more time at home. As a result, for many people it's been the perfect time to tackle home improvement projects that they've eyed for months, if not years.

According to **COGNITION Smart Data**, Green Builder Media's market intelligence division, remodeling projects rose by 75 percent

in 2020, with homeowners spending an average of \$17,140 (up from \$12,000 in 2019).

Outdoor living projects have commanded the lion's share of those dollars, as COVID-19 amplified the desire to connect with nature, and as homeowners have relied on outdoor spaces to gather safely with loved ones. Leading the charge? Decking projects. Homeowners are building new decks and replacing old ones to make them attractive spaces for entertaining, working and relaxing.

According to Patrick Barnds, senior vice president of product



Circular thinking. Fiberon's closed-loop manufacturing process reuses almost all of the water needed, and nearly any waste the method generates. COURTESY OF FIBERON

management at The AZEK Company, contractor-based decking projects were bigger and more elaborate over the past year, with multiple levels, covered spaces, cabanas and flex spaces. Meanwhile, do-it-yourself (DIY) projects have tended to be smaller but more personalized and unique. "DIYers are using more colors, patterns and widths than ever before to visually divide deck spaces," he observes.

Barnds says AZEK is seeing unprecedented demand for its composite decking products, as homeowners seek a combination of design, durability and sustainability.

"Many homeowners who are building new decks lean towards composite options because they are low maintenance and impervious to moisture, pests and [ultraviolet] damage," Barnds asserts. "We're also seeing an acceleration of wood conversion—homeowners replacing older wood decks with composites—not just because of performance and sustainability aspects, but also because they have more design options with composites."

SECOND LIFE

Composite decking companies have established robust science-based recycling programs, through which they turn a wide spectrum of PVC products—such as siding, flooring, window components and piping—into composite decking and outdoor furniture.

The entire Trex decking portfolio, for example, is manufactured using more than 95 percent recycled content, including reclaimed

industrial wood scraps and recycled plastic from common items such as shopping bags, newspaper sleeves and shrink wrap. The company reclaims and repurposes more than 800 million pounds of recycled plastic film and reclaimed wood fiber annually, and it is one of the largest recyclers of discarded plastic shopping bags and polyethylene film wrap in North America.

Trex claims that it keeps more than 400 million pounds of plastic and wood scrap out of landfills each year and that it has never felled a tree in the making of its products.

AZEK notes that it diverts roughly 400 million pounds of waste and scrap materials from landfills annually. At the company's recycling plants in Wilmington, Ohio, and Scranton, Pennsylvania, TimberTech—AZEK's decking division—converts hard-to-recycle materials that would traditionally end up in landfills into composite decking products. TimberTech also reuses up to 99 percent of internal scrap.

Not to be outdone, decking manufacturer Fiberon each year can tout that it protects more than 1 million trees from being cut down, recycles 100 million pounds of plastic into composite decking materials, and maintains closed-loop processes by reusing almost all of the water and waste used in its manufacturing process.

PERSONAL OASIS

New decks are not the only way people are upgrading their backyard environments. A number of preferred changes follow an alfresco



Déjà new. Because Trex constructs its decking using more than 95 percent recycled content, the company has never had to cut down trees. COURTESY OF TREX

philosophy: Peace in the great outdoors. Trending alfresco living projects include:

- Transition spaces that provide shelter from the elements through roof covers, screens, pergolas, gazebos, and awnings
- Intimate “sanctuary spaces” that offer peace and quiet for those much-needed reprieves
- Outdoor kitchens, entertainment systems and dining areas
- Integrated smart technology, like voice-enabled televisions, connected outdoor grills and appliances, and smart lighting
- Spaces that offer “flexible privacy,” allowing homeowners to enjoy nature while screening out neighbors, roads and unappealing sight lines
- Rooftop gardens, balconies, terraces and integrated planters in urban settings

Sustainable landscaping and edible gardens are also on the rise, driven by a marked interest in enhanced security and self-sufficiency during the

pandemic. COGNITION data shows that homeowners are moving away from sweeping lawns with sprawling Kentucky bluegrass that require vast amounts of water and mowing, in favor of edible gardens that provide food security, water-saving native plants, and native greenspaces that offer refuge in concrete jungles. Urban dwellers

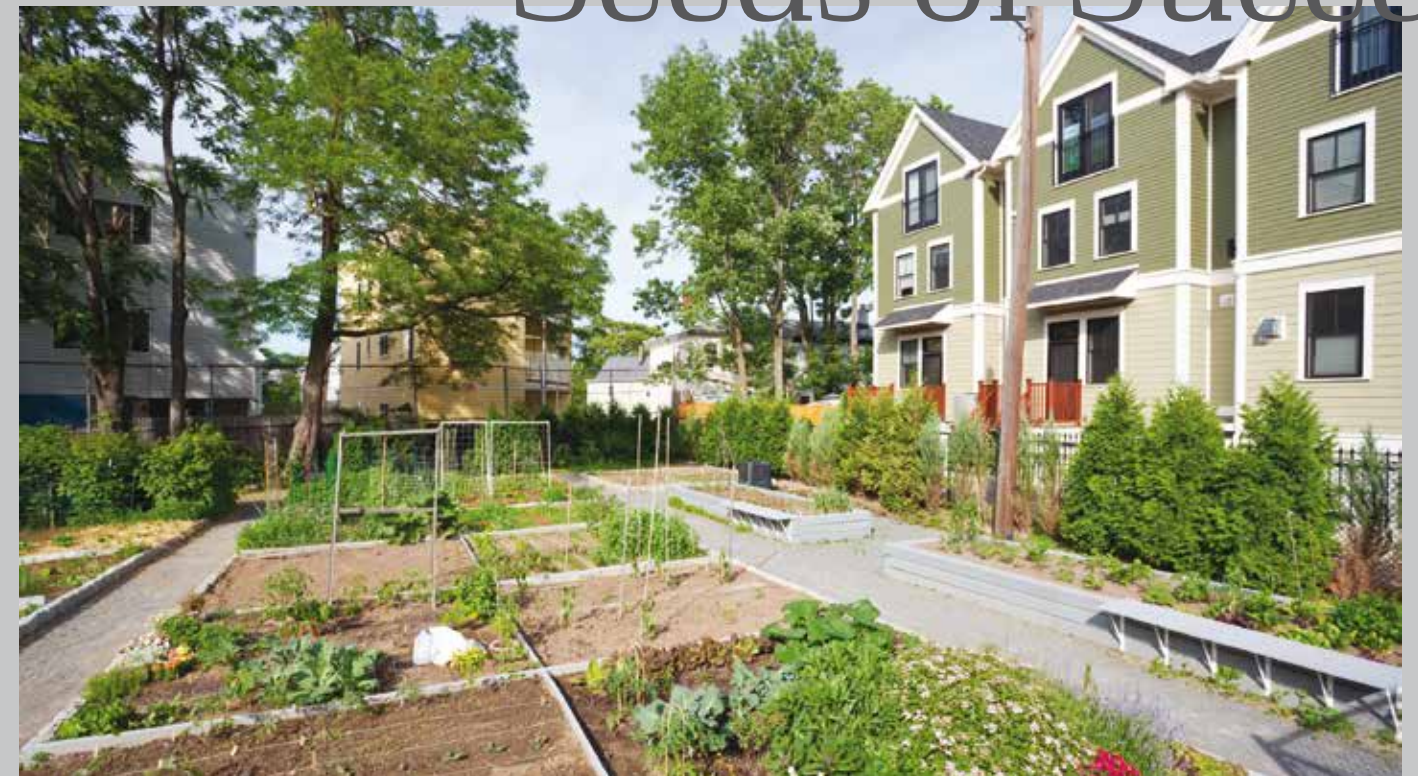


Hot product. Homeowner demand for stylish, durable and sustainable composite decking, such as TimberTech’s (shown), is at an all-time high due to the “stay at home” lockdown of the past year. COURTESY OF TIMBERTECH

are getting creative about finding ways to grow herbs and vegetables on small apartment patios or even bringing the garden inside with living walls and potted plants.

COVID-19 or no, there’s good news for the landscaping industry: Investment in outdoor living is expected to continue through 2021 and into 2022, as homeowners recognize the true worth of outdoor spaces with respect to quality of life and resale value. This will be particularly true within the millennial and older Gen-Z audience segments, which are now the top housing influencers and are willing to spend more money on buying and remodeling homes than any other generation. **GB**

Seeds of Success



Nouveau nutrients. Edible landscaping offers a way to beautify a backyard, provide extra food and embrace Mother Nature.

Sustainable landscapes are at the leading edge of outdoor design. Why wait?

BETWEEN THE DESIRE TO SPEND MORE QUIET TIME OUTDOORS, and the need to compensate for limited availability of food during the pandemic, sustainable landscapes became a fashionable item last year. Now, even with the COVID-19 crisis leveling off somewhat, there’s no reason not to set that backyard garden in motion.

It’s best to consider and incorporate edible components into a landscaping plan at the beginning of the design process. For new construction, site assessment before the home is started will determine if there are any species—especially natives—already on-site that can be incorporated into the landscape design, or moved properly and held off-site to be used in final stages.

Regardless of whether the project is new or a retrofit, budgeting for landscaping material, smart irrigation and installation costs should be determined up front, so that there is adequate funding for accents and special features.

When working with edible plant palettes and scheduling installation, it’s essential to be flexible and understand the stresses of construction, timing, and probable delays, especially when species are out of season or are being grown from seeds.

WORK WITH WHAT’S AVAILABLE

Site assessment is crucial to a bountiful edible landscape. Knowing the property’s sunlight conditions and whether the plants need full or partial sun, morning or afternoon sun, or morning or afternoon shade, will determine specific plant selections that can grow and/or produce fruit on the property. Full shade—five hours or less of sun—will be a detriment to growing many fruits, herbs and vegetables.

Meanwhile, analyzing soil moisture conditions and pH are important to a plant’s health and ability to absorb nutrients. Soil types vary tremendously,



Home grown. Fruits and vegetables can easily be cultivated at home, regardless of yard size. CREDIT: JUSTIN JAMES MUIR

so in some cases, organic amendments such as mushroom compost can be added to help soil structure, increase fertility and aid with percolation or water retention.

Growing edible landscapes may require more nutrients to get a good harvest. Edible landscaping will also require average to above-average maintenance and water use, depending on the percentage of edibles used, normal rainfall and seasonal changes.

Best management practices, smart irrigation efforts such as Rachio’s *Thrive* lawn care system, which monitors soil moisture and allocates water accordingly, and organic amendments and slow-release fertilizers, can give homeowners more fruits and vegetables, while also decreasing turf areas’ impact on stormwater runoff.

The Home Orchard

Keep these tips in mind when designing a home orchard that’s a good match for personal skills, time and energy.

PLANT FOR SUCCESS. Research what varieties are commercially grown in the area, and match varieties for the region. Peaches are a good choice for central Texas, not for the Pacific Northwest coast.

CHOOSE EASY VARIETIES. Species that produce well with little maintenance include common medlar (a bushy tree that produces an apple-like fruit), Asian persimmons, pawpaw, figs, cherries and some citrus varieties. Raspberries and blackberries are fairly easy to grow; blueberries require more care.

KEEP IT CLOSE. As with vegetable and herb gardens, the closer an orchard is to the house, the more likely it will be properly cared for.

PRUNE FAITHFULLY. Maintain a strong central leader form, and remove water sprouts and suckers each year. In general, semi-dwarf fruit trees are a good choice for their manageable size.

MAINTAIN THE ORCHARD. This includes picking up ripe fruit that has fallen. If left on the ground, it can be a vector for diseases.

KEEP RECORDS. Years down the road, it will be invaluable to have a record of what worked and what didn’t.

SOURCE: FIDDLEHEAD LLC

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GREEN BUILDER®

Strategic Resilience

What lessons can the building industry learn from the disastrous power outages in Texas this year? Can we build homes to handle nature's fury? Builders, manufacturers and other experts offer their views.



CREDIT: RONNIE CHAI/ISTOCK

FROM THE TAILGATE

New Offerings for the Sustainable Minded

By Ron Jones

All Eyes Forward

AS WE GO TO PRESS with this issue of *Green Builder*, the vast majority of the chatter in the home building industry centers around lumber prices, and the increasing costs for other materials and products essential to the process. This is easily understandable. If we made our livings as bakers, we would surely be paying ongoing attention to the price of flour and the other ingredients needed to produce a loaf of bread.

However, this humble observer would like to suggest that there are also larger, more complicated issues that builders need keep an eye on as the industry, and the country at large, attempts to navigate a path forward. We all want to move on from the unprecedented challenges we have dealt with since early 2020.

It seems fair to say that all aspects of the regulatory arena are in flux. It is reasonable to assume that the pendulum is swinging in the direction of more government oversight and enforcement, not less, especially in the energy and environmental arenas. There are also major policy changes in social programs, plus national strategies regarding education, immigration, transportation, taxation and all aspects of the economy.

But one large, pending change may not be front of mind for most builders. It is one that could become a bellwether, not only for the home building sector, but for commerce in general. I am referring to the impending overhaul of the National Flood Insurance Program administered by FEMA.

It is the opinion of many in government and elsewhere that a levelling of the playing field is long overdue for administrators and users of a program that is woefully outdated, easily manipulated and in desperate need of major adjustments.

Critics of the current program say that irresponsible government officials at all levels have allowed the development community and real estate industry to enjoy tremendous influence in zoning decisions, flood risk designations and related policies, to the detriment of natural environments and ecosystems, underrepresented local communities, and those with little political clout.

They point out the irony in the situation where an industry that champions individual freedoms and choices, free market conditions and disdain for unwanted government interference is more than happy to benefit and profit from a broken system that repeatedly transfers the immense financial burdens for shortfalls onto American taxpayers.



Meanwhile, battle lines are being drawn around the indisputable crisis we are facing with the country's infrastructure. The recent winter storm events that virtually paralyzed entire states and broad regions of the country, costing lives and billions of dollars, have largely silenced many climate skeptics and will propel forward critical discussions about how we should begin dealing with increasingly vulnerable energy grids, refineries and pipelines, water and wastewater facilities, railways, highways and bridges, dams and flood control systems, and so many things that have for too long been ignored or taken for granted.

Keep your eyes open to what is immediately in front of you, that which surely impacts your business and your livelihood on a day-to-day basis. But also, keep watch on the road ahead and the big picture, as our industry, along with many others, are at risk of multiple rude awakenings in coming months. Those who pay attention and stay informed can continue to thrive and prosper. Those who fail to do so greatly diminish their own chances for success. **GB**

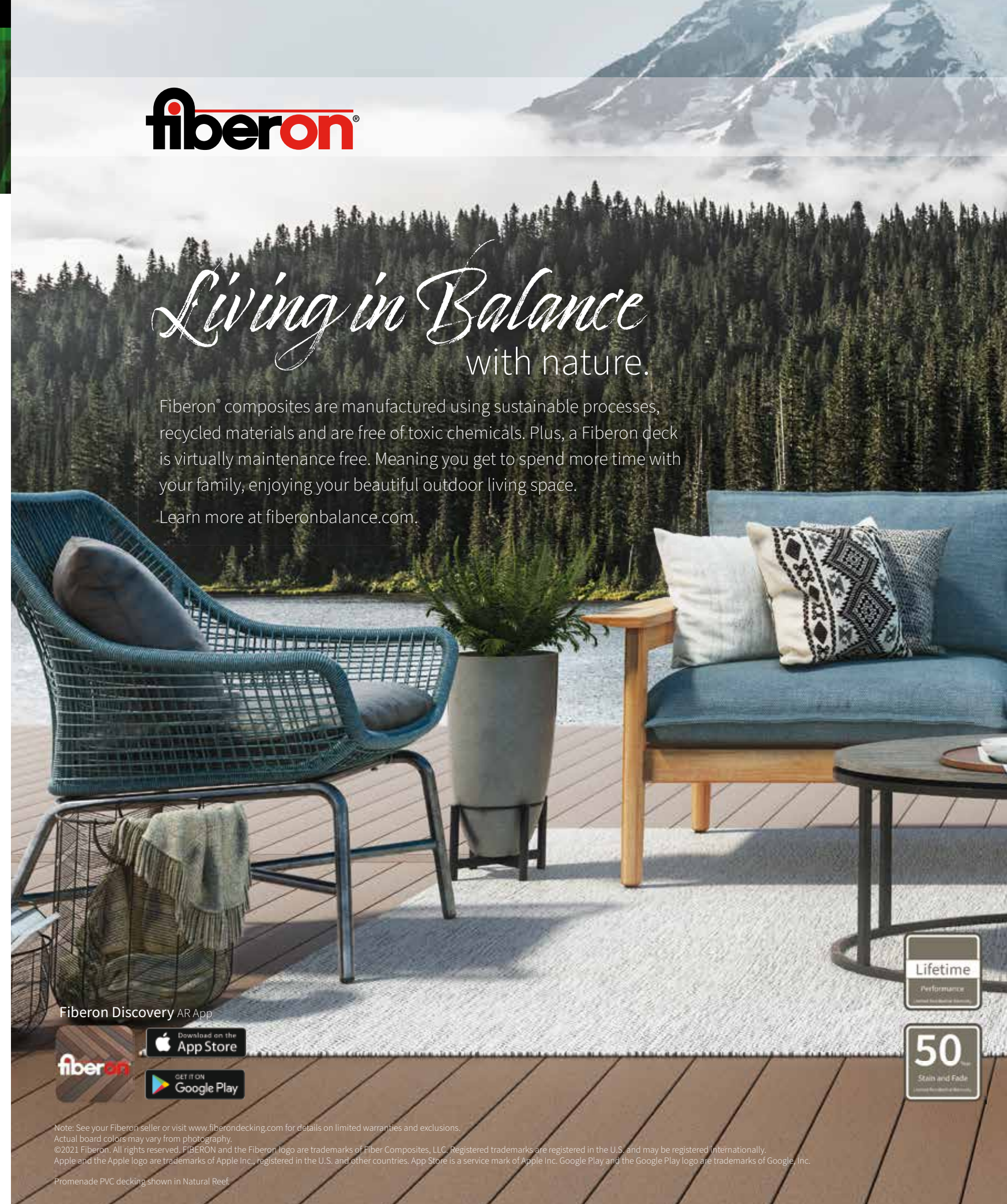


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