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Gambling on Change

Betting on housing looks risky, yes, until you compare it to the other long odds out there.

I've been thinking lately about impermanence. Looking around my Florida town, I see evidence of disintegration and growth happening simultaneously. Rather than the "normal" ebb and flow of decline and growth, however, this feels out of control—like a drunken binge in a Vegas casino, where you make a fortune, lose it, then start over by putting up your pickup truck and your watch.

On one block are three abandoned homes from the 1960s, blackened shingles on their roofs, and vines growing into broken windows. Not far away, eight luxury duplexes near completion, the developer dreaming of Airbnbs and quick flips. But do these paths to a quick buck still deliver?

Look at the demographics, he would say. This area is up-and-coming. He could show us the sales data, the comps, and the new small businesses opening nearby. Ultimately, however, he's a gambler, not a prophet. And he might be in a less-risky position than the rest of us.

Why? Because, whether we like it or not, we're ALL playing the high-risk economic game now.

As I write this, huge amounts of our private wealth are being dumped into technology we don't fully understand to deliver things we don't necessarily want. AI is leading this "revolution." But don't forget cryptocurrency, autonomous vehicles, digital banking, and other top-down "innovations." We're being told by people who like to spend other people's money that if we just play along, they will build us a better world—one with a life of leisure, untold riches and scientific wizardry.

The "just trust us" meme has worn thin, however. The latest Pew survey finds that 80 percent of us want AI regulated more aggressively. Only 17 percent think it will make their lives better. ([Pushback on data centers is growing](#)).

One estimate suggests that without AI data centers, the nation's total economic growth for 2025 would be just 0.1 percent. That's a deep, deep dive into a technology that's deeply distrusted by most citizens. Could

the whole house of cards collapse?

Which brings me back to that Florida developer, who is confident that his neighborhood upgrade will sell. When you put his gamble in perspective, it seems less risky. A house is a physical asset that's almost certain to retain a lot of value, barring a total economic collapse. Housing is about as safe a bet as you can make in these shifting times, aside from gold and silver.

But we, as an industry, have work to do to make housing more affordable. A new [research paper](#) titled "Giving Up" came out last week. It talks about how younger people who believe that they might NEVER own a home go through a deep psychological shift:

"They consume more relative to their wealth, reduce work effort, and take on riskier investments."

In other words, they're perfectly primed to bet everything on untested and dubious technical promises that will change their quality of life. And they're willing to tear everything down and start over, if that's what it takes. That's why we have the current government that we do. They wanted to disrupt the status quo.

I hope I'm proven wrong. I hope AI makes us all prosperous and peaceful. But if I had to put money down on something tangible, I'd bet on sticks and bricks and land. The performance of housing keeps going up, at least among progressive builders like the ones you'll read about in this issue. A house built with pride of workmanship can hold its value for generations. Let's keep fighting the good fight: creating real value, for real people. **GB**



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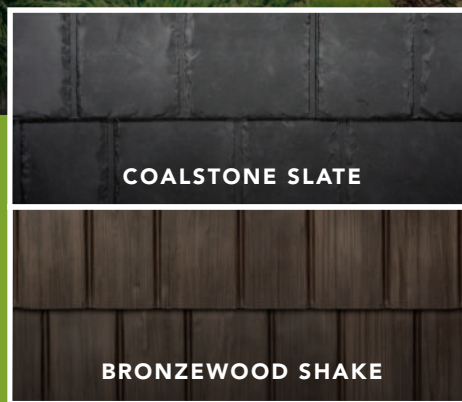
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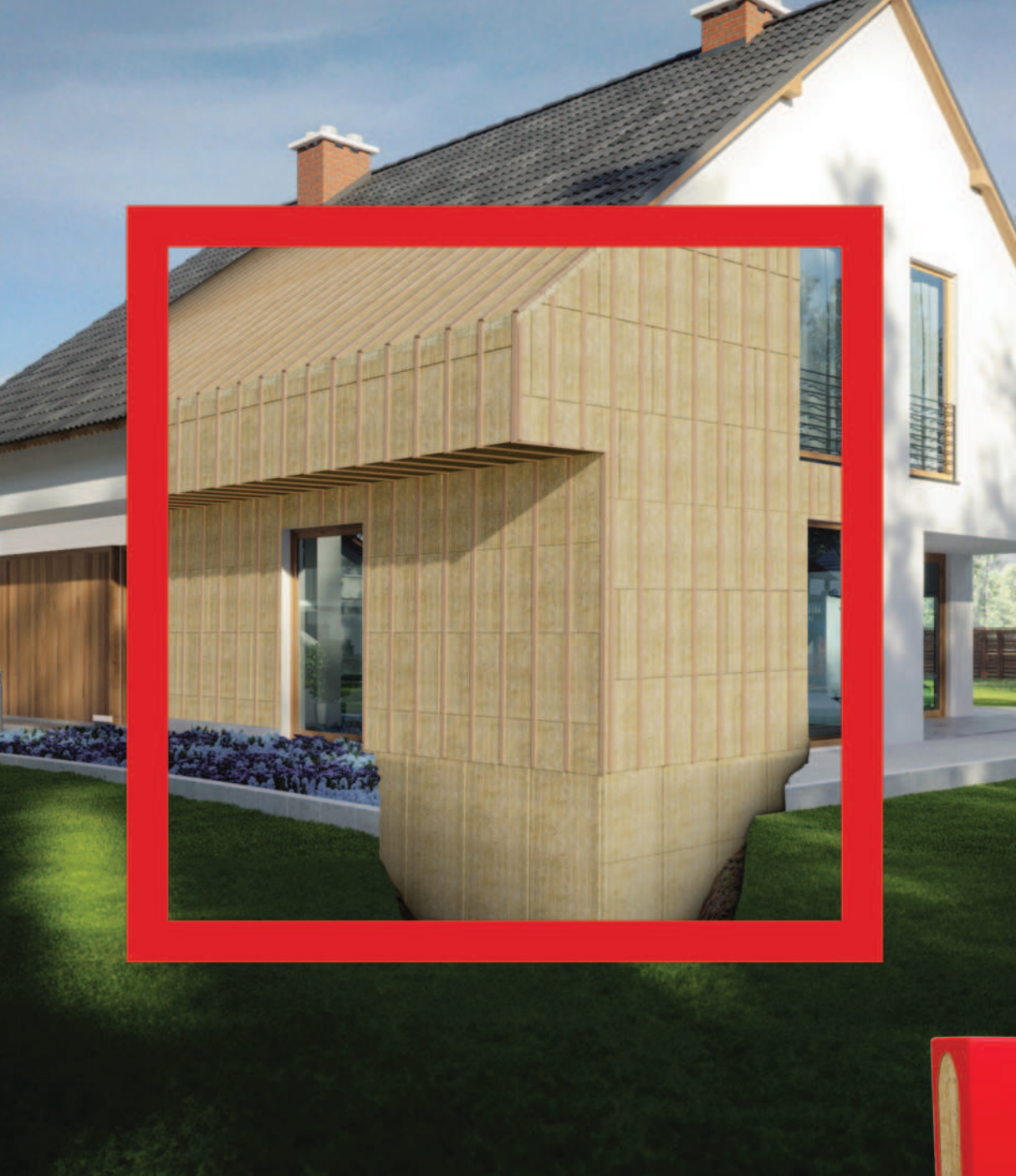
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"The situation will not change on its own. The industry will continue to serve its vested interests by repeating its big lie to anyone who will listen." PAGE 62

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VISION HOUSE HICKORY GROVE

Green Builder Media's latest VISION House project is a 16-unit multifamily, prefab, net zero workforce housing project.



With a **build-to-rent model** and a focus on livability, the VISION House Hickory Grove blends affordability with forward-thinking design. Each home in this community is built for performance and resilience. Using volumetric modular construction, the project reduces waste, controls costs, and shortens build time. High-efficiency systems, solar energy, battery storage, airtight envelopes, and healthy ventilation ensure comfort, durability, and low utility costs. Smart home technology and climate-ready design round out the vision for future-proof housing.

Follow the VISION House Hickory Grove's progress at:

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Green Builder Sustainability Awards 2026

Which people and cities really know the meaning of the term “going green”? Which ones are leading by example when citing the benefits of sustainable building and thinking?

Here is Green Builder’s answer.

This year, we honor Beazer Homes CEO Allan Merrill, who has taken his company on a grand mission: making sure every house built meets net-zero standards. He is our 2026 Sustainability Superhero.

Meanwhile, Buffalo, New York, Kansas City, Missouri, and Piedmont, California, are taking their own steps to place environmental health front and center. They are this year’s Most Sustainable Cities.

Congratulations to our winners!

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SUSTAINABILITY
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MOST
SUSTAINABLE CITIES

MISSION POSSIBLE



SUSTAINABILITY SUPERHERO 2026

Energized outlook. As Green Builder's 2026 Sustainable Superhero, Beazer Homes President and CEO Allan Merrill has committed the company to building every Beazer home to Department of Energy (DOE) Zero Energy Ready standards.

Beazer CEO Allan Merrill demonstrates why high-performance homes and high-performance businesses have the same mandate.

BY SARA GUTTERMAN

In an industry often defined by inertia, quarterly pressures, and an unforgiving race to the bottom, Allan Merrill stands out for running toward something different entirely: a future where performance, resilience, and responsibility are not marketing messages, but operating principles.

As president and CEO of Beazer Homes, one of the nation's largest publicly traded builders, Merrill has led a transformation that many thought impossible at scale: making a commitment to build every Beazer home to Department of Energy (DOE) Zero Energy Ready standards.

This is not incremental progress. It's a hard pivot toward a new definition of value in American housing.

THE MAKING OF A MISSION-DRIVEN LEADER

Merrill's journey into sustainability wasn't born from a boardroom initiative or political pressure. It began with something simpler and more human: a deep conviction about doing right by people.

After growing up with modest means, Merrill graduated from the

Wharton School of the University of Pennsylvania with a degree in economics. He spent decades working in investment banking and online real estate marketing. He was the head of the Global Resources Group at UBS, where he oversaw relationships with construction and building materials companies. He also was the executive vice president of corporate development and strategy at Move, Inc., and the president of Homebuilder.com.

Through those experiences, he learned firsthand that there was something askew in the housing industry. "We were optimizing for selling homes, not for living in them," Merrill recalls. "That had to change." He clearly saw that the industry's assumptions were failing the very people it served, so he began asking a deceptively simple question:

WHAT IS THE PURPOSE OF A HOME?

From the time that he joined Beazer in 2007 as executive vice president and chief financial officer, through his promotion to president and CEO in 2011, and still today, Merrill continuously challenges his team to think

Home coming. Under Merrill's direction, Beazer Homes has implemented strategic measures such as offering discounts and incentives to stimulate sales while managing inventory levels.

CREDIT: COURTESY OF BEAZER HOMES



“You can’t call a home ‘affordable’ if it bleeds money every month. Efficiency and resilience are affordability”

critically about advanced housing solutions. He encourages his colleagues to ponder questions like: What if efficiency and resilience weren’t optional add-ons but universal standards? And what if sustainability by way of energy-efficiency wasn’t a cost burden at all, but a pathway to profitability, customer trust, and long-term value creation?

“If you can build a home that performs better and costs less to own, why wouldn’t you?” Merrill queries. That logic—and moral clarity—has become Beazer’s North Star.

ZERO ENERGY READY AT SCALE: A LINE IN THE SAND

When Beazer announced its transition to building all homes to the DOE Zero Energy Ready Home (ZERH) certification in 2023, the industry reacted with equal admiration and disbelief.

High performance at scale had long been dismissed as too complicated, too costly, or too disruptive.

Merrill saw it differently. “Once you know what better looks like, you can’t un-know it,” he notes. “The real question becomes: Do you have the courage to build it?”

And Beazer did, across every division, in every market. In doing so, they dismantled the last remaining excuse for inaction: If a publicly traded builder with a national footprint can deliver Zero Energy Ready homes at scale, the industry can no longer argue that it’s impossible—only that it’s unwilling.

A VALUES SYSTEM THAT STARTS WITH PEOPLE

When asked about leadership, Merrill rarely talks about market share or cycle times. Instead, he repeatedly returns to values. “A home should protect people. Period.”

He frames sustainability not as a technical requirement but as an ethical one. He speaks openly about the responsibility he carries as a CEO, whose product shapes people’s daily lives, and the long-term consequences of decisions made at the drafting table.

This is why efficiency, resilience, health, and ongoing affordability matter so deeply to him. “You don’t get to take risks with someone else’s wellbeing,” he states. “That’s not leadership.”

Merrill’s perspective is refreshingly pragmatic. He doesn’t romanticize sustainability; he operationalizes it. He views delivering high performance homes as a way to lower customer risk, decrease operating costs, reduce warranty issues, and increase demand.

In his mind, the connection between sustainability and affordability is inextricable. “You can’t call a home ‘affordable’ if it bleeds money every month,” he says. “Efficiency and resilience are affordability.”

A NEW MODEL OF LEADERSHIP

Despite his accomplishments, Merrill carries himself without pretense. There is no bravado or theatrics in his demeanor. Just a calm, unwavering conviction.

He is quick to credit his team, and he describes Beazer’s transformation not as a triumph but as an ongoing responsibility. He sees this work as a continuum, not a finish line. “We’re not going to declare victory,” Merrill says. “We’re going to keep getting better.”

His humility is rare in an industry where bold claims are easy and real accountability is harder. But perhaps what makes Merrill’s leadership so potent is his ability to translate aspiration into execution. His gift is not merely having a vision; it’s operationalizing it at scale.

He has moved sustainability from the margins of the conversation to the center of Beazer’s identity. In doing so, he has elevated the baseline expectations for the entire housing sector.

WHY MERRILL MATTERS NOW

The housing industry is at a crossroads. Climate volatility, rising insurance costs, shifting buyer expectations, and increasing regulatory pressure are exposing the fragility of the status quo. Builders who double down on lowest-cost strategies face a shrinking future. Those who invest in quality, health, durability, and performance will define the next era of housing.

Merrill represents that future. He reminds us that courage and pragmatism can coexist; that profitability and sustainability can reinforce one another; and that leadership is not about rhetoric—it’s about responsibility.

In a sector that has too long rewarded “just enough,” Merrill has chosen to lead with “what’s right.”

And for that, he is our 2026 Sustainability Superhero. **GB**

SUPERHERO STATS

Allan Merrill — A Timeline of Leadership and Impact

Early Influences: Foundational Values

Growing up in modest circumstances, Merrill develops an early appreciation for the dignity, safety, and stability a well-built home provides. These formative experiences shape his “people first” philosophy.

Career Foundations

1990s-2000s: Financial and operational expertise

Merrill builds a career spanning finance, strategy, and risk management, giving him a rare, panoramic understanding of how housing systems influence real human outcomes. He later reflects, “You see differently when you understand both the math and the people.”

2007: Joins Beazer Homes

Merrill takes a senior leadership role, bringing a steady hand through one of the most turbulent eras in U.S. housing. His focus: integrity, transparency, and long-term value creation.

2011: Named CEO of Beazer Homes

Taking the helm amid a post-recession landscape, Merrill begins questioning the assumptions baked into American homebuilding.

2015-2020: Quiet foundations for big change

Merrill pushes internal teams to study building science, energy modeling, resiliency strategies, and customer cost of ownership. Behind the scenes, Beazer begins piloting deeper upgrades, efficiency packages, and performance testing. Merrill is appointed to the Board of Directors of Freddie Mac, where he serves from 2020-2025.

2021-2022: First market-wide energy efficiency commitments

Beazer launches division-wide initiatives to raise minimum performance standards—early steps on the path to Zero Energy Ready. Merrill serves a term as chairman for the Leading Builders of America.

2023: 100 percent DOE Zero Energy Ready Homes

Merrill shocks the industry by announcing Beazer will transition nationwide to Department of Energy (DOE) Zero Energy Ready Home (ZERH) standards by the end of 2025. Many say it’s impossible at scale. The Beazer team gets started proving them wrong.

2024-2025: Execution on the national stage

Beazer operationalizes ZERH across every community, integrating advanced envelopes, electrification-ready systems, indoor air quality packages, and renewable-ready designs. Warranty claims drop. Customer satisfaction rises. The business case for high-performance homes becomes undeniable. Beazer is now considered America’s #1 Energy Efficient Builder.

2025: A powerful leader

In Fiscal Year 25, Beazer homes averages a HERS 32 (38 if excluding solar). By comparison, the average 2023 new home had a HERS 57 (RESNET 2024 HERS Trends Report). Based on publicly reported data for the top 30 U.S. homebuilders by volume (Builder Magazine, October 2025), Beazer is the No. 1 energy-efficient homebuilder in the country.

A GREEN TRIFECTA



Sustainable cities come in three forms: the beginners, the ongoing, and the examples of success.

BY ALAN NADITZ

When should a city establish a sustainability policy? Should it be as the first municipality out of the gate, setting an example for others to follow? Or should a city wait until it sees that example? And what can a city do to not appear to be late to the game?

The winners of Green Builder's 2026 Most Sustainable Cities category fall into one or more of these scenarios. The three recipients represent different-sized locales: Large (Buffalo, New York), Medium (Kansas City, Missouri), and Small (Piedmont, California). But they're all tackling the question of how they can best become a leader by demonstrating—and promoting—environmental correctness.

Whether it's because of a desire to reveal a new technique, or the need to adjust to the needs of a changing demographic, or to simply find a way to refresh a tried-and-true method, our winners have their answers. **Will they be yours?**



LARGE-SIZED MUNICIPALITY (250,000+ POPULATION):

Buffalo, New York

Up to standards. The West Side Homes project, dedicated to providing affordable, high-performance green housing to lower-income Buffalo residents, was completed in late 2025. Units were built to standards such as Passive House, ENERGY STAR, U.S. Department of Energy (DOE) Zero Energy Ready Home (ZERH), and EPA Indoor AirPlus. CREDIT: SUSTAINABLE COMFORT

Experiencing heavy interest from out-of-state residents due to a perceived immunity to climate change, Buffalo is out to prove there's even more to love.

In 2019, Buffalo Mayor Byron Brown made an offhand comment in his annual State of the City Address, saying that Buffalo would soon become “a Climate Refuge City.” Seven years later, the municipality has made major strides toward achieving that goal.

Buffalo, which at roughly 280,000 residents is the second-most populated city in New York, has reversed decades of decline with help from Mother Nature and city sustainability efforts. The local population has increased by about 20,000 since 2020, the first gain since 1950, according to U.S. Census data.

Over the past 8 years, the city has received thousands of migrants from areas regularly stricken by natural disasters such as hurricanes, floods, tornadoes, wildfires and inclement weather, according to a report in Yale Climate Connections. This, despite being among the coldest cities in the nation—Buffalo sees an average of 100 inches of snowfall per year, according to a study from Harvard University. But Buffalo is also the only city of more than 100,000 population in the continental U.S. to have never experienced

a 100-degree (Fahrenheit) day. Weather experts attribute this to Buffalo's climate-contained location on the Northeast edge of Lake Erie.

As with elsewhere in the U.S., climate change effects are being experienced in Buffalo, but at a much slower rate, according to Stephen Vermette, a professor of geography at Buffalo State University. For people coming from harsh weather-hit locales such as Florida, Texas or California, moving to a place with a seemingly stable—and predictable—climate seems like a no-brainer. As a result, Buffalo and several other Great Lakes Region cities have been given a nickname of “climate refuge.”

It's a term that economic development organizations are using to attract new business. For example, Invest Buffalo Niagara's “Be in Buffalo” talent attraction program stresses beneficial factors such as exceptional air quality, the city's near-zero high ozone days per year, and even the lack of risk from global sea level increase due to climate change.

Green business growth abounds. There's the big: In 2020, the city succeeded in attracting fuel cell company Plug Power, which planned to



Great goals. Buffalo, known by many people outside of New York as simply “a city on Lake Erie,” is becoming a leader in how to transition into a green metropolis. CREDIT: ISTOCK/SEAN PAVONE

280,000
Population

49
Housing project units built to
Passive House standards

0
Pounds of waste generated by
some retail stores

build a \$290 million green hydrogen power plant. The facility would have been the largest in North America and was expected to generate 45 metric tons of clean electricity per year in the Buffalo-Rochester, N.Y. area. The project was cancelled in 2025 after federal funding was cut.

And then there's the small: In recent years, “zero waste” stores such as Little Salmon, and Clean Collective, both of which offer essential products made from ethical and renewable sources, and services such as Green Buffalo Lawn Care, which provides low-cost eco-friendly lawn treatment, have opened or expanded to Buffalo.

In 2022, Buffalo was designated one of New York's Climate Smart Communities, which is granted to cities that take steps to cut carbon pollution and prepare for extreme weather. The city's actions include installing LED streetlights, placing solar panels on city buildings, upgrading the sewer system to better guard against flooding, and adding porous pavement and parks that can soak up rain.

Buffalo is also continuing to increase and improve affordable housing through sustainable methods. In 2025, nonprofit community sustainability organization PUSH Buffalo completed its \$23 million West Side Homes project, a 49-unit affordable housing development that was built to net-zero or Passive House standards. The effort, which included using ground source heat pump systems, energy recovery ventilation, and rooftop solar panels, lowered heating and cooling expenses for residents and helped reduce the region's carbon footprint, according to PUSH Buffalo Executive Director Dawn Wells-Clyburn.

Even real estate is getting on board. For the second consecutive year, market analyst Zillow has named Buffalo as the nation's hottest housing market, largely because competition for homes hasn't cooled, according to economic analyst Anushna Prakash. The migration of out-of-state homebuyers to the city, continued housing affordability, the region's growing economy, and ongoing emphasis on sustainability are “proving to be attractive draws,” Zillow notes. **68**



**GREEN BUILDER
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CITIES**

MEDIUM-SIZED MUNICIPALITY (100,000-249,999 POPULATION):

Kansas City, Missouri

Already a 'how to' example for other cities, Kansas City is also a lesson in how to regulate yet profit from AI data centers.

Kansas City's recent efforts to promote and implement sustainability among its residents have garnered a lot of attention from the public, including efforts to more aggressively manage the sudden boom in AI data centers.

There are more than 30 data centers either completed or in development in the Kansas City area. Some of these, such as Google's \$1 billion proposed center, leverage renewable energy to power their operations. This would reduce burden on the city's power grid by about 20 percent, according to Google officials.

However, most data centers run on electricity generated from fossil fuels. These all release significant amounts of carbon dioxide (CO₂) and other greenhouse gases (GHGs), contributing to climate change. Even the Google site, still under development and possibly not online until 2027, will require approximately 450,000 gallons of water per day to operate. This can strain local water resources, especially in areas prone to drought or with limited water supply, Kansas City government officials note.

That's why city officials in January approved an ordinance that limits

where data centers can be built and their maximum sizes for a given construction area. The city's next action will be to examine the impact of data centers on the city's environmental quality, water rates, economic growth and financial incentive process.

Data center management isn't the only way Kansas City has demonstrated its green tendencies. In 2023, the efforts earned LEED for Cities Gold certification from the U.S. Green Building Council (USGBC). The efforts include the Climate Protection and Resiliency Plan (CPRP), designed to help reduce GHGs emissions and achieve climate neutrality for city operations by 2030 and citywide by 2040; converting its fleet of government vehicles to all-electric ones where available; replacing nearly 100,000 streetlights citywide with energy-efficient LEDs; and beginning purchase of renewable energy to help save Kansas City close to \$1.5 million in energy costs since 2020.

In 2024, Kansas City became a Bloomberg American Sustainable City (BASC), an initiative designed to help K.C. and other winning cities access federal funds to support climate action and economic development. Much of that funding is meant for critical projects in disadvantaged communities,

Green updates. The Roy Blunt Luminary Park will reduce street level heat, plus encourage upgrades to retaining walls, drainage, pavement, and more.

CREDIT: QJB



Tighter rules. Now a hotspot for the AI data center boom, Kansas City has quickly developed common sense rules to govern how and where they get built. CREDIT: COURTESY OF HUNT MIDWEST DATA CENTER

516,000
Population

70,000
Houses powered by solar farm

450,000
Gallons of H₂O per day needed by
Google data center

including affordable housing, electric vehicle investments, and clean energy access.

Meanwhile, the city has edged closer toward its goal of reaching citywide climate neutrality within the next 15 years. According to Kansas City Mayor Quinton Lucas, the city is more than 25 percent of the way there. It will continue to “work with community partners to ensure we’re building a more-resilient energy system for the future.”

SOME LOFTY GOALS

Following its own success, Kansas City now requires new city facilities and renovations exceeding 5,000 square feet to achieve LEED Gold certification to lower energy consumption, reduce carbon footprints, and ensure a good long-term environmental impact.

A prime example is the new Kansas City International Airport terminal, which in 2023 became the nation’s second airport to receive LEED Gold certification. It is powered entirely by renewable energy, and is the first airport to offer wireless bus charging. The project also diverted 85 percent

of all construction waste from landfill when dismantling the old terminal building to build the new one, according to a report by USGBC.

Next to the airport is another high-profile sustainable project: a proposed 2,000-acre solar farm. It would produce sufficient electricity to power 70,000 houses, making it one of the nation’s largest solar farms. Originally proposed in 2021 and expected to be under construction starting in 2023, city officials hoped to have the farm completed before this summer, when the FIFA World Cup comes to town. But various setbacks may push the start date to early 2027, the city notes.

Kansas City also has several projects underway that demonstrate a commitment to sustainable development. Nearly complete is the Roy Blunt Luminary Park, a \$217 million, 5.5-acre urban park that is meant to improve walkability between the city’s business district and its arts district, as well as offer a way to reduce the “urban heat island effect” through use of shade trees and natural foliage. The project also involves critical upgrades to aging infrastructure, including retaining walls, drainage, pavement, and a nearby bridge. **GB**



GREEN BUILDER
MOST
SUSTAINABLE
CITIES

SMALL-SIZED MUNICIPALITY (LESS THAN 100,000 POPULATION):

Piedmont, California

There's more than one type of wealth for residents of this upscale city.

History teacher. Once known as “The City of Millionaires,” Piedmont, California is now a leading example of how to implement a carbon emissions reduction plan.

CREDIT: CITY OF PIEDMONT

Back in the 1920s, Piedmont, California was known as “The City of Millionaires” because it had the largest number of ultra-wealthy per square mile in the United States. One-hundred years later, the tiny San Francisco Bay Area city of 11,200 residents may have earned another nickname: “Climate Action City.”

The city adopted its first Climate Action Plan—a strategy to reduce greenhouse gas (GHG) emissions and develop climate adaptation measures—in 2010. This plan focused on energy efficiency and set modest 20-year GHG reduction goals. A more-ambitious CAP was adopted in 2018; this one emphasized decarbonization and called for cutting greenhouse gas emissions by 40 percent by 2030 and by 80 percent by 2050.

Most homes in Piedmont are “vintage,” with 90 percent at 60 years old or more, and 65 percent approaching 100. All of these were primarily powered by natural gas and were poorly insulated, making electrification and remodeling top priorities.

Under CAP 2.0, Piedmont’s municipal and residential utility accounts were enrolled into a 100 percent renewable energy service plan in 2018 to reduce the GHG production. Utility bills also dropped, which “certainly no one was unhappy about,” the City notes.

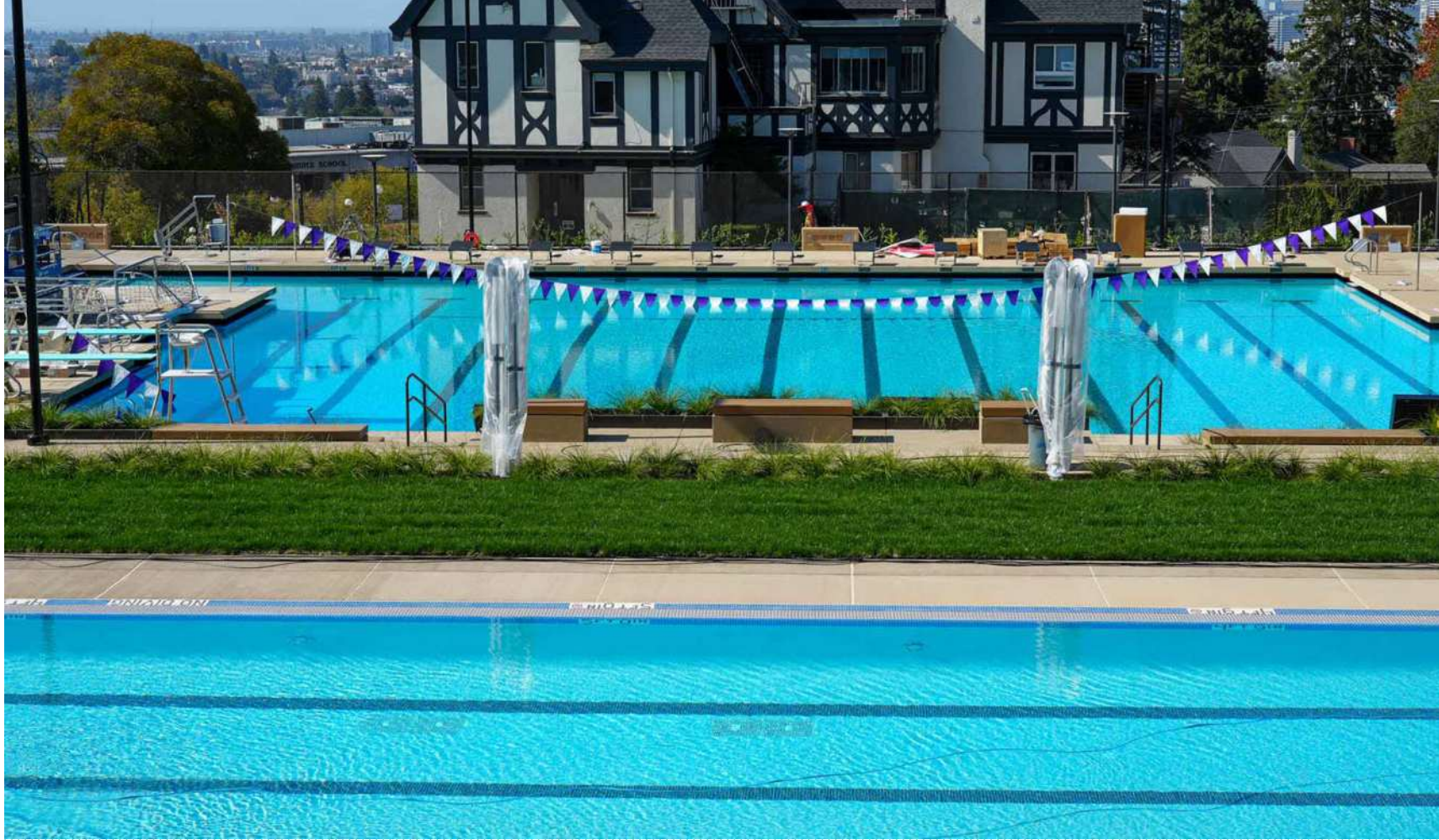
MANDATORY RETROFITS

Meanwhile, extensive residential retrofits became a fact of life. Suggestions and feedback from residents, business owners, contractors and other stakeholders were collected at workshops and town halls, and via public surveys. “We were committed to capturing a comprehensive reflection of perspectives from the community and were gratified at the strong support, consistently ranging around two-thirds of survey participants,” the City notes.

By 2021, an approved list of requirements, or “reach codes,” went to builders of new structures and renovators of older ones. These surpassed requirements by the State of California.

Newly constructed low-rise residential buildings, including new detached accessory dwelling units (ADUs), must use all-electric building appliances. Projects proposing an entire new upper level on a low-rise residential building, or that increase a low-rise residential building’s total roof area by 30 percent or more, are required to install solar panels on the roof.

In terms of existing home retrofits, electrical panel upgrades must include capacity to accommodate future electrification of all appliances in the residence. LED lamps and vacancy sensors must be installed. A gas furnace must be replaced with an electric heat pump system, and a gas



Gold on hold? The city awaits completion of an all-electric community pool, approved in 2022. When open, UCGBC will resume an evaluation for LEED certification, which, if successful, will be Piedmont's first.

11,200
Population

100
Percent of city households on
renewable energy

2045
Target year for city's carbon
neutrality

water heater must give way to an electric heat pump water heater. Insulation of at least R-3 (hot water piping), R-19 (raised floor assemblies), and R-38 (attics and air ducts) must be used. Electric vehicle (EV) charging circuits must be installed.

If the home was ever sold, a report from a home energy audit must be provided to potential buyers and submitted to the city, unless the residential building was constructed in the past 10 years.

FRINGE BENEFITS

The "Piedmont Climate Challenge" platform was launched, to help residents measure and reduce their carbon footprints. Occupants can also use the platform to have a friendly competition: Which residents can reduce their carbon footprint the most?

In 2021, the City Council adopted an update to the Pedestrian and Bicycle Master Plan, with an additional focus on general traffic safety. The City also emphasizes community education through information sessions and resource sharing across sustainability topics, including EV funding, green building,

home electrification, eco-friendly landscaping, and more.

The City Council also unveiled plans for an all-electric community pool in 2022, making Piedmont one of the first cities in California to do so. Officials estimated completion by early 2024, but various delays have left the project in limbo. The accompanying pool facility is also being evaluated for U.S. Green Building Council (USGBC) LEED certification, another first for the city.

WHAT NEXT?

An amended version of CAP 2.0 was released in 2023, setting new goals of 50 percent GHG reduction by 2030 and achievement of carbon neutrality no later than 2045. City officials are confident the goals will be met.

"Climate change is a human-induced global crisis that is currently causing environmental, economic, and social misfortune and inequity," the City notes. "The residents of Piedmont recognize that we must all take action to reduce greenhouse gas (GHG) emissions through electrifying homes, driving gasoline cars less, and purchasing goods and services more responsibly. By acting locally, our small city can make a contribution to a worldwide effort." **GB**



Dream worlds. This year's Green Home of the Year winners, such as Sweet Fern, showcase innovative ways that homeowners incorporate sustainability into their lives.

CREDIT: RYAN THEEDE PHOTOGRAPHY/RYAN THEEDE

GREEN HOME OF THE YEAR AWARDS 2026

BY J.V. ROBERTSON

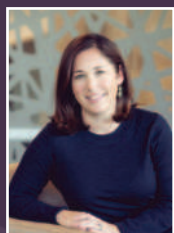
As we celebrate some of the best high-performance new homes built in the United States, we need to acknowledge that not everyone can afford a home today—be it new or existing. The reason, as Green Builder President Ron Jones points out at the end of this issue, lies partially in the way we value homes. The metric of affordability, too often, is based solely on up-front square foot cost, not the lifelong costs of operating and maintaining a house.

This isn't speculation. It's math. For example, if you look at the operating costs of a well insulated, energy-smart home versus a conventional build, the monthly savings to the homeowner add up quickly. We're not saying don't need to come down—they do—but

for minimal added cost (5-10% in most cases), buyers can easily knock 25 percent off their monthly utility costs, replace roofing less often, repaint less frequently, and live in greater comfort. Add in renewable energy and you escalate the value advantage or sustainable practices even more.

You'll find many different pathways to performance in **Green Builder's 2026 Green Home of the Year**. Our expert panel of judges evaluated projects in terms of overall sustainability, resilience, synergy with the environment, affordability, creativity and the depth of science employed. Here are their choices for the most exemplary and imaginative green homes of 2026.

THE JUDGES



MELISSA FOLEY is a seasoned commercial and supply chain executive with extensive experience across building systems, residential products, and access solutions. She currently serves as vice

president of purchasing at **Century Communities**, in Greenwood Village, Colorado, where she leads strategic sourcing, vendor relationships, and procurement operations to support large-scale homebuilding initiatives.

Previously, Foley held leadership roles at Trane, managing strategic relationships and channel partnerships across North America, and at Schlage, working on security hardware integration and builder solutions. She also contributed to business development and strategic alliances at Windsor Door and served as principal of strategic relationships at LiftMaster, where she helped elevate smart home and access-control innovations in the residential construction market.

With a strong record of bridging product technology, supply chains, and partner ecosystems, Foley is passionate about delivering value through innovation, operational excellence, and trusted partnerships across the building sector.



BILL ROTH CEO of **Modern Design+Construction** in Santa Fe, N.M., has been a small-scale, award-winning general contractor for 30 years, specializing in green homes concentrating

on water and energy efficiency. He is a former Past President of the Santa Fe Area Home Builders Association and spent the last 8 years as a member of the Santa Fe water conservation committee.

More than 10 years ago, Roth helped create the Water Efficiency Rating Score (WERS) protocol, a third-party verified tool used to predict water use for new and existing properties. "It's an idea that came to me one night in the shower," Roth says. "It was based on the thought that if there's a [Home Energy Rating System] HERS rating for energy, why not a WERS for water?"

Roth notes that he also "tends to have a rather irreverent sense of humor." And his "happy places are with my family, and on a bicycle."



TODD USHER is founder and president of Greenville, S.C.-based **Addison Homes**, one of the nation's most respected builders of healthy, high-performance, above-code homes. Drawing on his early

career in chemical manufacturing and a deep passion for building science, Usher developed a precision-driven quality system that ensures every Addison home delivers exceptional comfort, superior indoor air quality, outstanding energy efficiency, and increased resilience to natural disasters. Addison Homes is among the few U.S. builders that construct every home to rigorous national standards.

Usher pairs his industry leadership with academic expertise as director of Clemson University's Master of Real Estate Development program. He holds four Clemson degrees, including a PhD in Planning, Design & the Built Environment, a Master's in Construction Science, and an MBA.

Dedicated to educating the next generation of real estate development and construction professionals, he is known for his systems-thinking approach and brings a unique blend of scientific rigor, industry insight, and client-centered values to every project.



CREDIT: COURTESY OF MNHDC

Naturally Affordable

Enterprise Builders' newest development is eco-responsible in more ways than one.

As rents and energy costs increase, so too does the demand for sustainable, affordable housing. After all, environmentally friendly housing solutions tend to also be very cost-effective, and when money is tight, that is very welcome indeed. Surprisingly, many affordable housing developments only accomplish the bare minimum in regards to eco-friendly practices. Eagleville Green has taken the opposite approach and risen to the top as a different kind of affordable housing community—one that uses energy- and cost-conscious practices from its construction on up to maximize sustainability and affordability, without sacrificing the comfort of the consumer.

That combination of economic and environmental persuasion has led to the project being named Grand Winner of Green Builder's 2026 Green Home of the Year (GHOTY) competition. Eagleville Green is also the winner of the Mainstream Green category.



Powering up. In an example of helping to control carbon emissions, electric plug-in parking spaces are available to residents who own electric or hybrid vehicles.

CREDIT: DORGAN ARCHITECTURE & PLANNING



Easy breathing. Appliances within each unit are all-electric, while hardwood oak flooring helps sequester indoor carbon emissions, both of which help keep air clean. CREDIT: DORGAN ARCHITECTURE & PLANNING.

Project Stats

NAME: Eagleville Green, Mansfield, Connecticut

BUILDER: [Enterprise Builders](#)

ARCHITECT: [Schadler Selnau Associates, P.C.](#) & [Dorgan Architecture & Planning](#)

DEVELOPER: [Mansfield Housing Authority](#)

PHOTOGRAPHER: Wayne Czarnecki, [Enterprise Builders](#); Kathy Dorgan, [Dorgan Architecture & Planning](#)

From the Judges

"I love it! Efficient homes for the rest of us. This is my idea of a real green, sustainable home. This needs to be recognized, publicized and held up as an example of what housing should look like now and in the future."



Highly honored. Designed for near-zero energy consumption through high-performance building envelopes, efficient HVAC, and heat recovery ventilation, Eagleville Green homes have a HERS Index of 30 to 40. It also achieved Phius ZERO 2021 certification, a high standard for passive, energy-efficient buildings. CREDIT: DORGAN ARCHITECTURE & PLANNING.

LOW COST, HIGH QUALITY

Eagleville Green is in Storrs, Connecticut, a village within the town of Mansfield that is primarily known for being the location of the University of Connecticut. The community's proximity to the state's flagship college was no accident—the university can be cited as the greatest source of Mansfield's demand for affordable housing. To that end, the initiative has so far provided 41 homes and built substantial support for additional development in the area.

What sets Eagleville Green apart, however, are the methods and practices present in those homes' construction. Each one adheres to Passive House U.S. standards, thanks to its fully insulating envelope of Gutex therma-fiber, HeatLok spray foam, Knauf EcoBattin exterior 2-by-6 studs, and 10-mil Exterior Air Barrier poly vapor retarder. Thermal modeling has been done at every unique junction and connection, ensuring consistent temperatures and reducing the risk of condensation.

Every appliance inside is fully electric, and combustion appliances were even disallowed for temporary heating during construction. The community is so energy efficient that it contributes to the energy needs of Mansfield, thanks to the 232,116 kilowatts of power produced by the rooftop solar panels on six of the seven buildings going directly back into the local grid.

That energy will keep flowing for a long time, since Eagleville Green was designed with longevity in mind. Frustrated

SUPER INSULATION.

Walls have 5 inches of Gutex Multitherm insulation with fiberglass insulation in the stud cavity.



GOOD WOOD.

Cabinets are made of responsibly sourced birch, a durable, long-lasting, y wood.





LIGHT LOAD.
Brightening up. All lights in Eagleville Green units are energy-saving LEDs

EAR FRIENDLY.
Triple-pane glass windows minimize street noise, keeping the indoor environment more peaceful.

Key Components

APPLIANCES: Frigidaire refrigerator; GE clothes washer/dryer (heat pump dryer); GE dishwasher; GE range; GE range hood (recirculating ERV exhaust from kitchen area)

BUILDING ENVELOPE: Gutex therma-fiber batts (exterior continuous insulation); Owens Corning blown-in attic insulation; *Intello Plus* vapor retarder (attic floor); HeatLok spray foam; Knauf *EcoBatt* exterior 2-by-6 studs; Pro Clima *Solitex Adhero* air and vapor retarder; HardiePlank exterior siding

CABINETS, SHELVES, MILLWORK: Cabinets—Birch/HDF; Closet shelving—melamine; Interior trim—flat stock

CAULKS AND SEALANTS: ECOSEAL; DAP No Warp Foam Sealant

COUNTERTOPS: Bathroom sink vanities—cultured marble; kitchen counters—bala white granite

DECKS: *MoistureShield Elevate*: Elevate Alpine Gray; composite decking; vinyl railings

DOORS AND HARDWARE: Exterior—Tyrol PH+ Side Hinged Swing Doors by Alpen; Interior—Hollow Core 2 Panel Painted Doors

ELECTRICAL: Eaton panel and breakers

EXTERIOR FINISHES: *Hardie Plank* exterior siding; color varies from building to building

FIRE PROTECTION: Automatic sprinkler system (NFPA 13R)

FLOORING: Marmoleum—Granada (bathrooms, laundry, entries); wood flooring—solid hardwood oak, natural 2.25 inches (Bruce-Waltham)

HOME CONTROLS: Fujitsu Wi-Fi thermostat

HVAC/DUCTS: Fujitsu heat pumps

INSULATION: See Building envelope

LANDSCAPING: Native plants and trees; Acer Rubrum October Glory, Aronia Low Space Mound #3, Azalea Delaware Valley White #3, Azalea Lemondrop #3, Clethra #3, Cornus Racemosa—Gray Dogwood, Llex Glabra Shamrock-Inkberry, Juniper Virginia Eastern Red Cedar, Myrica Pennsylvania Northern Bayberry #3, Panicum Virgatum—Northwind Switchgrass #1, Panicum Virgatum—Ruby Ribbons Switchgrass, Quercus Alba White Oak 2.5-3 inch, Rudbeckia Goldstrum—Black Eyed Susan #1

LIGHTING: Varies; all LED lighting (majority by SunPark)

PAINTS AND STAINS: Benjamin Moore, all zero-VOC

PLUMBING/PLUMBING FIXTURES: Symmons shower heads, lav faucets, kitchen faucets; Kohler toilets; Kohler bathroom sinks; all meet EPA criteria (WaterSense label)

RENEWABLE ENERGY SYSTEMS (SOLAR, WIND, ETC.): PV on all roofs (except one building which is roughed for future solar [Purepoint Energy]); [Q.PEAK DUO XL-G.10.3](#) (by Q Cells, 485 W); solar edge inverter (SEI0000H-US) and optimizers (S500B)

ROOF: Fiberglass roofing shingles; 0.625-inch exterior grade sheathing; 2-by-4 engineered trusses; blown in insulation (see Building envelope)

TELECOMMUNICATION: Auto-dialer system; dialer panel in each building for monitoring the sprinkler systems

VENTILATION: Zehnder ERVs

WATER HEATING: Sanden Eco2 heat pump

WINDOWS, SKYLIGHTS, PATIO DOORS: Alpen Tyrol (triple pane)



Solid state. Fiber cement siding— material made from sand, cement, and cellulose fibers— provides a durable, popular exterior building material that is known for resisting pests, rot, fire, and impact. CREDIT: COURTESY OF MNHDC

with the short lifespans of other temporary housing developments in the area, architect Kathy Dorgan was determined to make a community that broke the mold. “Of great importance to the team was constructing structures that are built to last using high quality materials, tight construction, and sound detailing,” Dorgan explains.

She cites the recent demolition of a development in Norwalk, Connecticut that had only been 64 years of age. Instead of constructing another of that type of property, Dorgan drew inspiration from the historic Fuggerei in Augsburg, Germany, in the hopes of creating a community that, like its inspiration, might last for 500 years.

ONE WITH THE ENVIRONMENT

Indeed, “community” was a central theme of the project from the moment of its conception. Making use of funds secured from the Connecticut Departments of Housing and Economic and Community Development, the town of Mansfield, the public utility

Eversource, the Mansfield Housing Authority, the Housing Ministries of New England, and the architects’ own pockets, the project team was committed to making a socially sustainable development as well as an economically and environmentally stable one.

To meet local housing needs, a community-based nonprofit was created, and shortly partnered with the local housing authority, while community planning was accomplished via participatory consultation and outreach to soon-to-be neighbors. Dorgan recalls being amazed at the level of community support Eagleville Green received and considers it the biggest surprise of the project. “Many neighbors came to public hearings to speak for it,” she says. “There was not any community opposition.”

Still, Eagleville Green was not without its difficulties, especially when it came to realizing ambitious sustainability goals while development proceeded during the COVID pandemic.





Solar savings. Eagleville Green's photovoltaic-claimed power is integrated directly into the buildings for onsite generation, unlike large community solar farms that produce power offsite for subscribers. CREDIT: COURTESY OF MNHDC

Small but mighty. Eagleville Green's apartments are small—a typical one-bedroom, one-story unit is roughly 700 square feet, while a two-bedroom, two-story model is approximately 500 square feet per floor—but the design allows for easier heating, cooling and indoor lighting.

For team member Rebecca Fields, meeting the standards initially set by the initiative proved to be one of the biggest challenges to the project's success. "The biggest lesson was just how tight the envelope had to be to pass the Passive House door blower test," Fields recalls. "It took multiple times, and the subcontractors had to go back and review/correct their work to get the seal required to pass."

Other hurdles included damage to previously installed work that had to be redone, frequent and costly product substitutions due to delays caused by COVID, and communication issues.

When all was said and done, however, Eagleville Green truly speaks for itself. Going beyond simply being cost-conscious and environmentally friendly, the development is comfortable and aesthetically pleasing. There is a high degree of natural light, wide walkways, and clear dedication to the preservation of the surrounding woods and wetlands in the form of a central stormwater basin and native plantings

throughout the community.

The insulated interiors have another surprising benefit for a development in the heart of a college town: noise reduction. "It was very surprising to discover just how quiet it was in the unit where we held some of the construction meetings during the end of the project," Fields says. "It was still a construction site, and the project is located on a busy road, and yet it was very quiet inside the unit."

Overall, Eagleville Green has proven a success for its builders, community managers, and residents. But one GHOTY judge, Modern Design+Construction CEO Bill Roth, feels the project does more than just provide affordable housing.

"Everyone should be aware of these homes," Roth says. "The claim that green building is too expensive can be shown to be a bit of a fallacy when you see these homes for folks with below-mean income, which perform above and beyond what passes for acceptable in production homes these days." **GB**



Eco-siding. LP Smartside siding is verified carbon negative: It stores more carbon than the total greenhouse gas emissions released throughout the siding's life cycle.



Fine-tuned kitchen. A stylish, low-maintenance countertop and energy-saving appliances make the kitchen a sustainability showcase.

Form and Function

European design influences and perfect teamwork combine to bring a family project into eco-friendly excellence.

Clear vision is essential when it comes to complex projects—but it's hard to know how to do something when one isn't even certain of what it is one wants to do. Fortunately, clear vision was hardly an issue for Smitesh and Lopa Bakrania, who knew from the beginning that they wanted a family home that wasn't just comfortable and attractive, but energy-efficient and affordable. With that goal in mind, the Bakranias partnered with Richard Pedranti Architect (RPA) and Under Construction Builders (UCB) to create the Bakrania Passive House, a paragon of sustainable architecture and engineering.

That partnership has resulted in Bakrania Passive House being named Green Builder's 2026 Green Home of the Year (GHOTY) winner in the General Green Home category.

Project Stats

NAME: Bakrania Passive House, Mullica Hill, N.J.

GENERAL CONTRACTOR: [Under Construction Builders](#)

ARCHITECT/DESIGNER: [Richard Pedranti Architect](#)

PHOTOGRAPHER: Jeff Totaro

From the Judges

"There are some extremely well thought-out, rational design decisions. It has a moderate-sized floorplan with good space utilization, and it's extremely energy efficient. The house is a benchmark for what custom homes should be."

SUSTAINABILITY FROM SCRATCH

Located in southern New Jersey, the Bakrania Passive House was designed from the beginning with PHIUS certification in mind. Smitesh Bakrania, a mechanical engineer and professor of sustainability, was drawn to Passive House design principles due to consistent examples of their cost- and energy-consciousness, especially in the long-term.

The airtight envelope is constructed with LP SmartSide siding, *HydroGap* drainable house wrap, a Siga smart membrane, and ZIP R-12 sheathing, with dense-pack cellulose insulation, while the metal standing seam roof utilizes a pre-engineered truss structure and closed cell spray foam. Heating and cooling are provided using twin Daikin air source heat pump ducted mini split systems and a Rheem electric heat pump water heater. A Zehnder Q350 energy recovery ventilator ties it all together to create a PHIUS-certified Passive House that boasts an impressive minus 6 HERS rating.



Light headed. Triple-pane glass provides energy-saving natural light throughout the house.



TOP OF THE LINE.

A metal standing seam roof utilizes a pre-engineered truss structure and is a key part of the home's airtight envelope.

ENERGY ALTERNATIVE.

Roof-mounted solar panels help power the home and remove dependence on the regular electric energy grid.

COMPOSITE DECKING.

Trex decking provides the home with a product that is stylish and severe weather tolerant.

THREE'S A CHARM.

Triple-glazed windows keep warm air inside the home during the winter, and reduce the amount of solar heat entering rooms during the summer.

The combination of the airtight construction and optimized ventilation has also resulted in a significantly healthier living environment, with the Bakranias noting that the frequency and severity of their son's asthma attacks have significantly decreased within their new, healthy home.

But the Bakrania Passive House's achievements don't end with its air filtration and insulation—it's also a leader in residential energy conservation. Its Lucent Solar-installed, roof-mounted 8kW solar array, sporting 20 400W Hanwa panels, is affixed to the southern side of the home's roof to ensure the maximum possible yield during the day.

Not only does the system power the home, it also charges a pair of Tesla Powerwall 2.0 batteries that can provide backup power in the event of an outage. A Tesla 7.6kW solar inverter ensures that power goes where it needs to, and a suite of energy-efficient appliances from LG and Electro Industries come together to make a home with so much surplus energy that the Bakranias are able to



Daylight sitting. A wide-open design provides the home with exceptional natural lighting—an energy saver, and a vision-friendly element for homeowners.



Water smart. Bath products from manufacturers such as Kohler, Jaclo, Riobel, ID Infinity Drain and Bertch provide style, comfort and water conservation.

charge not just one, but two electric cars from the garage.

CLEAN LINES, CLEAN LIVING

Inspiration for the Bakrania Passive House came from some surprising sources, recalls principal architect Richard Pedranti. “[The Bakrania family]’s travels through Europe and New Zealand inspired a desire for the meticulous attention to detail that they found in international residential design,” he notes, “such as highly efficient, practical layouts, and the use of triple-paned windows.”

Indeed, one of the qualities that drew the Bakranias to RPA was the company’s European-inspired simplicity and modern, minimalist aesthetic, while UCB was selected due to its interest and proactivity in realizing the Passive House U.S. Standard. The partnership proved effective, with UCB continually impressing the others with their professionalism and understanding—they even let the Bakrania family move into the home before the final touches were in place to account for their children’s return to school.

However, the project wasn’t without its hurdles, Pedranti recalls. “One of the primary challenges was navigating budget considerations through thoughtful value engineering,” he

says. “To meet budgetary realities, we had to transition from an initial flat roof design to a more cost-effective gable roof, while also refining room dimensions and adjusting certain exterior details.”

Other issues arose thanks to COVID-19, with the Bakrania House’s construction suffering from significant pandemic-related supply chain delays—the worst of which were associated with the specialized triple-pane windows—and finding a contractor as committed to and experienced with Passive House design principles as the rest of the team.

All of that said, the results of the project more than made up for the obstacles in its development. The Bakrania Passive House is environmentally friendly and aesthetically pleasing, and its low operating costs, quality construction, and easy maintenance options mean that it will stay that way for a long time yet. Pedranti was satisfied with the project, and considered it a valuable lesson on the subject of inter-team communication.

“Designing a Passive House is much like conducting a symphony,” Pedranti says. “The site, the materials, suppliers, and the specialized construction team must all be perfectly synchronized to transform a vision into a reality.” **GB**

Key Components

APPLIANCES: LG dishwasher; Electro Industries *Vent-A-Hood* with make-up air kit; LG induction cooktop; LG combination wall oven; LG refrigerator; LG washer/dryer combo

BUILDING ENVELOPE: Walls (R-40) – *LP Smartside Siding*; *Hydro Gap* drainable house wrap; ZIP R-12 sheathing; 2-by-8 structural wall with dense-pack cellulose insulation in cavity; Siga smart membrane; 0.5-inch painted gypsum board interior finish; Foundation (R-30) – poured concrete stem walls and footings; vertical insulation on stem walls; poured concrete slab; Stego wrap; sub slab insulation

CABINETS, SHELVES, MILLWORK: Kitchen and pantry by Wren

CAULKS AND SEALANTS: Conservation Technologies EPDM gaskets under still plates; Siga tapes for air sealing

COUNTERTOPS: Kitchen and pantry by Wren; spec – 1.125 quartz soapstone metropolis

DECKS: Trex decking; Screen-Eze and retractable screens

DOORS AND HARDWARE: Solid core birch interior doors with Schlage hardware

ELECTRICAL: SPAN smart panel

EXTERIOR FINISHES: Siding – *LP Smartside Nickel Gap*; Trim – *Boral Tru-Exterior*; Roof – Metal standing seam by Englert; Gutters – aluminum K; Porch ceilings – *Boral Tru-Exterior 6-inch nickel gap*

FLOORING: Luxury vinyl plank – Pinnacle, Tarrassa White Oak; Bathroom tile – Kursaal, 15-by-30 inch in slate

GARAGE DOORS: 16-by-7 Lincoln 3138 flush panel

HOME CONTROLS: Lutron *Caseta*

HVAC/DUCTS: Twin Daikin air source heat pump with ducted mini-split systems

INSULATION: Sub slab – Type 9 EPS insulation w/vertical XPS on foundation stem walls; exterior sheathing – ZIP R-12; wall cavity – dense-pack cellulose; roof cavity – closed cell spray foam; window and exterior door undersills – Nyxon blocking supplied by Mavrik European Windows

LANDSCAPING: Bluestone patio; Palm Beach by Stone Castle Pools and Spas, LLC

LIGHTING: Exterior sconce – Silo by Hinkley; interior ambient light tape – LED tape by WAC Lighting; track light – Monorail track by Stone Lighting; kitchen island pendants – Silo track pendant by WAC Lighting; vanity sconces – *Chamberlin by Huxe*

PAINTS AND STAINS: Interior paint – Benjamin Moore

PLUMBING/PLUMBING FIXTURES: Kohler kitchen fixtures; Kohler, Jaclo, Riobel, and ID Infinity Drain bathroom fixtures; Bertch bathroom vanities

RENEWABLE ENERGY SYSTEMS (SOLAR, WIND, ETC.): Roof-mounted solar panels by Lucent Solar, 8 kilowatts (kW); 20-count Hanwha 400 watts, Tesla 7.6 kW solar inverter, twin Tesla *Powerwall 2.0*, twin Tesla car chargers

ROOF: Metal standing seam (R-65); high temperature roof underlayment; 0.625-inch zip sheathing; 2-by-12 pre-engineered truss structure; closed cell spray foam in cavity; 0.5-inch painted gypsum board interior finish

VENTILATION: Zehnder *ERV Q350*

WATER HEATING: Rheem electric hot water heat pump

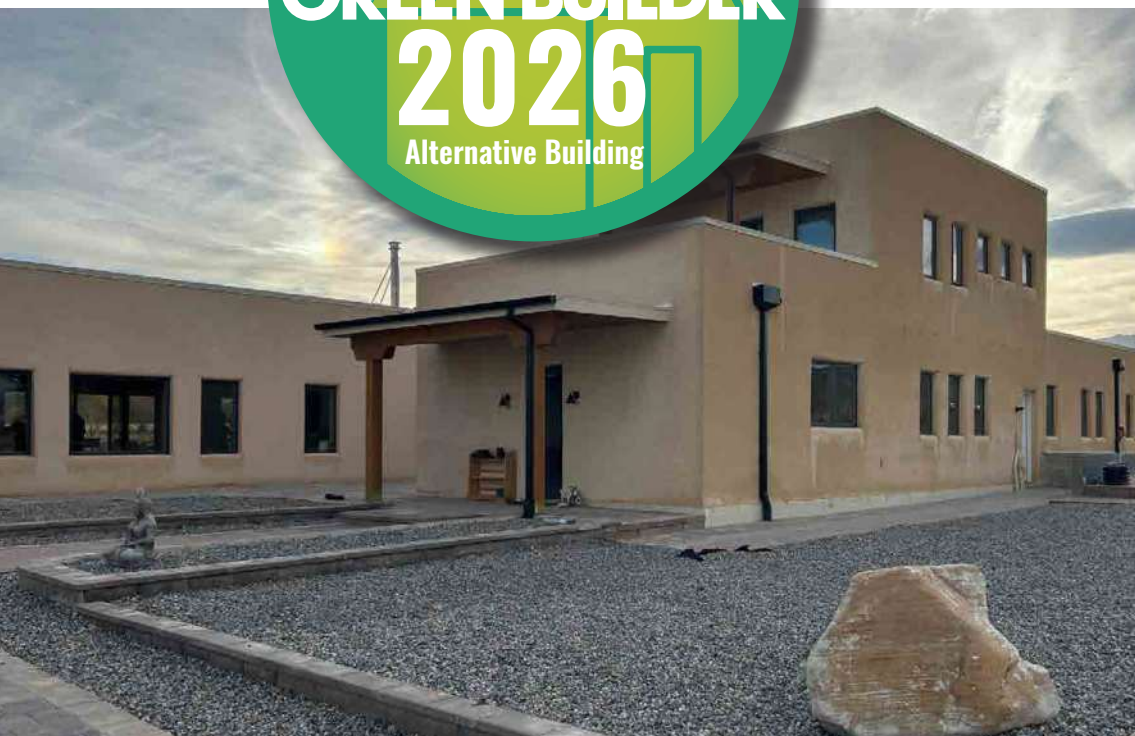
WINDOWS, SKYLIGHTS, PATIO DOORS: Windows – Mavrik European Windows triple-pane uPVC Gealan S8000; sills – Mavrik European Windows Aluron aluminum sills; exterior doors – Mavrik European Windows triple-pane aluminum Aluprof; skylights – Mavrik European Windows triple-pane Oxpul

From the Judges

"The fact that it was owner built is something that another homeowner could look to for inspiration."



CREDIT: JONAS LEUENBERGER, KWEST



Second helping. Pavers in the courtyard are remnants from the original farm and reused for a revamped design.



Natural perks. Made from locally sourced compressed earth, *EcoBlox* are capable of regulating interior temperature and absorbing excess humidity, reduce a home's energy demands by up to 50 percent, and can't grow mold due to their pH value.

Building Blox

Nova Terra's *EcoBlox* helps give an old farm a new lease on life.

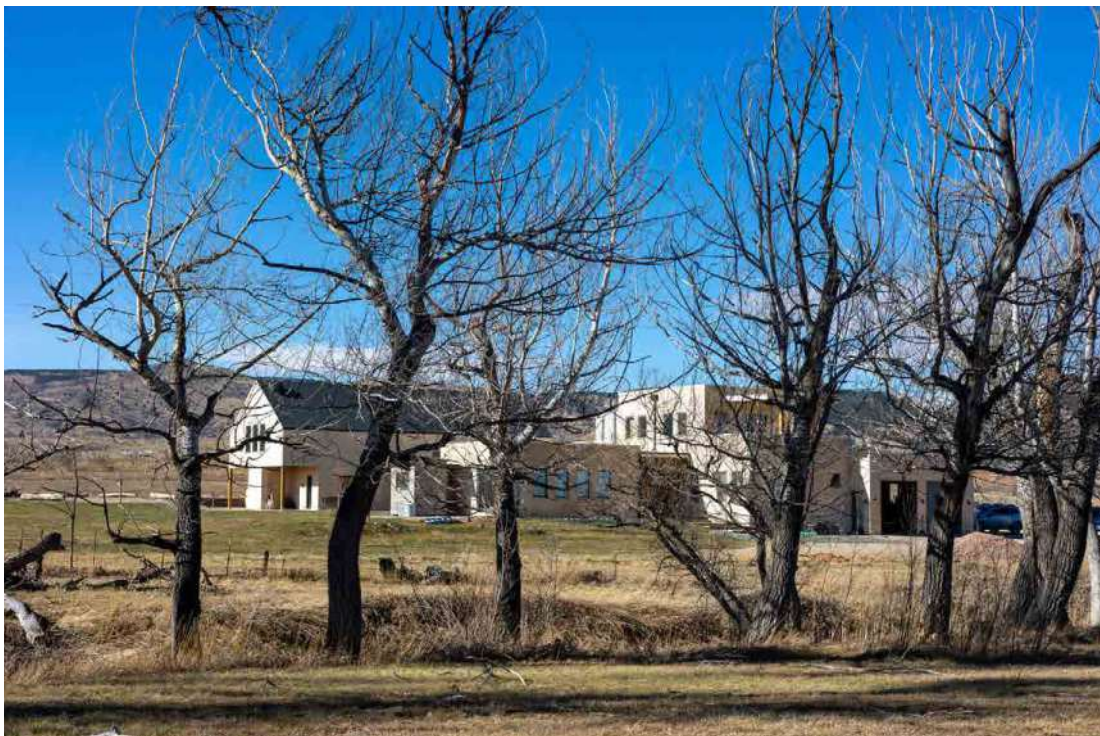
When a devastating fire in 2017 destroyed everything but the main house, the MacKinnon family, owners of the Longmont, Colorado-based home and farm, were faced with a difficult and expensive road to rebuild what they'd lost. However, they chose to go even further: Rather than simply restore what had been, they decided to create something new, something resilient, something sustainable.

After nearly seven years of planning, a new Frog Belly Farm literally rose from the ashes. It was an entirely new kind of farm, constructed from an entirely new material: *EcoBlox*, created by Nova Terra.

Such innovation has resulted in Frog Belly Farm being named Green Builder's 2026 Green Home of the Year (GHOTY) winner in the Alternative Building category.

SUSTAINABILITY FROM THE EARTH ON UP

Made from locally sourced compressed earth, *EcoBlox* exists as an alternative to standard masonry materials like concrete. Capable of regulating interior temperature and absorbing excess humidity, they can reduce a home's energy demands by as much as 50 percent, and they can't grow mold due to their pH value. They're also windproof, soundproof, and perhaps most importantly, fireproof.



Old becomes new. A massive fire in 2017 wiped out the MacKinnons' Longmont, Colorado home. While some of the trees remain as reminders of the blaze, a new life starts behind them in the form of Frog Belly Farm.

Project Stats

NAME: Frog Belly Farm, Longmont, Colorado

BUILDER: HomeWrights

ARCHITECT: Connect Architecture

PHOTOGRAPHER: Lisa Morey, Nova Terra; Jonas Leuenberger, KWEST

"I learned that the depth of skill and knowledge required to build a home from start to finish is vast. I was incredibly grateful that everyone who worked on this project worked so hard and well together."

**—Melanie MacKinnon,
co-owner, Frog Belly Farm**

Key Components

APPLIANCES: GE refrigerator; 2012 Viking 36-inch dual fuel range; Maytag dishwasher; Kraus double 16-gauge sink with Kraus disposal and Kraus faucet

BUILDING ENVELOPE: 15-inch double width *EcoBlox* walls with 3-inch insulation cavity; Colorado structural Douglas fir vigas; 2-by-8 roof framing filled with 8-inch CCSF; 15-inch-wide concrete foundation walls, with 3-inch rigid insulation centered in the wall

CABINETS, SHELVES, MILLWORK: Cabinets purchased from Ben's Recycled Cabinetry

CAULKS AND SEALANTS: Henry *Blueskin Protecto Wrap LVM 200*

COUNTERTOPS: Sparrow Peak Unfinished Natural Wood Maple Wood butcher block countertop sealed with Milk Paint's half-and-half tungsten oil

DECKS: Rooftop decks

DOORS AND HARDWARE: Marvin *Elevate*

ELECTRICAL: 200-amp conduit in wall

EXTERIOR FINISHES: Earthaus *Natural Lime Stucco* coarse finish, chamomile

FIRE PROTECTION: Built of compressed Earth block; landscaped with 20 feet of 0.75-inch granite gravel; NFPA 13D interior sprinkler

FLOORING: Cement slab

GARAGE DOORS: C.H.I. 2147 *Skyline Flush* insulated

HOME CONTROLS: Usonor wireless

HVAC/DUCTS: Radiant heat; Panasonic ERV

INSULATION: Perlite between *EcoBlox* walls; iFOAM spray foam in ceiling

LANDSCAPING: Remnant pavers in courtyard; 0.75-inch granite gravel; grass

LIGHTING: 100 percent LED interior and exterior lighting

PAINTS AND STAINS: Earthaus interior lime plaster sand finish, bone

PLUMBING/PLUMBING FIXTURES: Toilets: American Standard *Cadet* 12-inch; Sink fixtures: Delta; Tubs American Standard, and MAAX

RENEWABLE ENERGY SYSTEMS (SOLAR, WIND, ETC.): 2.58-kilowatt Photovoltaic Solar System

ROOF: Flat roofs TPO; Pitchroof is asphalt shingle

TELECOMMUNICATIONS: Starlink

VENTILATION: Panasonic ERV

WATER HEATING: Triangle Tube *Instinct Boiler*

WINDOWS, SKYLIGHTS, PATIO DOORS: Marvin *Elevate*



Not surprisingly, *EcoBlox* literally became the foundation for the Frog Belly Farm. Drawing from the adobe architecture of the Southwest, the development is reminiscent of ancient pueblos, with a cluster of buildings that surround the central courtyard. The design decision came from co-owner Melanie MacKinnon, who wanted to bring a little more of her childhood home into her new one. "I grew up in Santa Fe, New Mexico, and wanted to rebuild with adobe blocks," she explains. "Then I found Colorado Earth (now Nova Terra) *EcoBlox* and contacted [company founder] Lisa Morey."

The new, adobe-style buildings, which provide a natural buffer from the Front Range winds—which can hit hurricane force during late fall to early spring—all use solar energy for power, courtesy of a 2.8-kilowatt system that produces enough extra energy to charge an electric vehicle.

The site consists of a 2,600-square-foot single-family home, an 1,800-square-foot

farm manager's residence, an 1,800-square-foot barn, and a 600-square-foot casita. All of them stay at a consistent temperature and humidity, thanks to their *EcoBlox* construction and a Panasonic Energy Recovery Ventilator (ERV) that keeps interior air clean and filtered. The airtight building envelope is insulated with perlite in the *EcoBlox* walls' 3-inch insulation cavities, while the ceilings use iFOAM spray foam.

Finally, to keep energy costs as low as possible, the entire farm uses LED lighting, and the living spaces have a suite of low-energy appliances from General Electric, Viking, Maytag and Kraus, creating a true union between the traditional aesthetics of the architectural style, and the sustainability and cost-conscious features of modern living.

MAKING CONNECTIONS

Cost was indeed a big factor in Frog Belly Farm's overhaul. To combat the difficulties associated with a rebuilding project of such scale, the design team and the owners turned



ECO BRICK EDGY.

Walls made with EcoBlox and combined with perlite and iFoam spray foam in the ceiling keep the house well insulated.

LACK OF FOUNDATION.

A cement slab provides a cost-effective, durable, and low-maintenance base for the house. It also offers stability, pest resistance, and simpler, faster construction.

CREDIT: JONAS LEUENBERGER, KWEST

to several unconventional solutions. Many of the materials used throughout the farm's construction were recycled, while the pavers in the courtyard were remnants from the original farm and reused in a new configuration for the revamped design.

To lower contractor fees, the owners of Frog Belly Farm opted into the HomeWrights owner/builder program, with the builders effectively serving as the family's own project managers. This simple change saved the MacKinnons approximately 15 percent on the associated fees. There was an added benefit of deepening their connection to an already deeply special property.

Going from co-owner to co-manager was a big change for the family, MacKinnon recalls. "My husband and I chose to do the general contracting of the build with guidance and an excellent list of subcontractors from the company," she says. "The learning

curve was steep...I learned that the depth of skill and knowledge required to build a home from start to finish is vast. I was incredibly grateful that everyone who worked on this project worked so hard and well together."

For construction purposes, the owners partnered with Connect Architecture, a Boulder-based residential architecture and master planning studio. As its name would imply, Connect Architecture strives to "connect" a property's owners, location, and history. And for a property with as much history as Frog Belly Farm, a connection between the owners and Connect Architecture proved immensely useful, according to MacKinnon.

The entire design and building was worth it in the end, she notes. Thanks to the expertise of Connect Architecture and HomeWrights, the MacKinnons' guidance, and Nova Terra's EcoBlox, "Frog Belly Farm truly is back and better than ever." **GB**



Ghostly goodness. Frog Belly Farms' remote location and a clear atmosphere can turn the home's low-energy LED lights into ultrabright beacons.

CREDIT: LISA MOREY, NOVA TERRA



Man of details. Frog Belly Farm Project Manager Gary Wood helped oversee use of products, systems and technologies which result in energy-efficient homes with lower operating costs, superior comfort, reduced impact on the environment, and the ability to withstand all local climate conditions.



Sun block. Triple-pane aluminum glass windows help control sunlight and external heat. CREDIT: WOLVESTUDIOS/ADAM FITHERS



Loftier goal. Solar panels keep the house fully powered and on its way to Passive House certification. CREDIT: WOLVESTUDIOS/ADAM FITHERS



CREDIT: WOLVESTUDIOS/ADAM FITHERS



Pre-Fab Escape

The Catskill Project mountain development is truly one with its surroundings.

It's often said that the three most important considerations in real estate are "location, location, and location." First impressions are essential when it comes to making the sale, and a home's surroundings factor heavily into a prospective homeowner's interest. Put another way, people want to live in places they like. Through its unique carbon neutrality initiative, the Catskill Project has truly taken this idea to heart to create a community that isn't just cost- and energy-efficient, but aesthetically pleasing to live in.

That community includes Red Hill, one of four Passive House-designed builds on the 90-acre site in the hamlet of Livingston Manor, New York. The three Red Hill homes feature the efficiency and quality control of off-site panelized wall systems, carbon tracking, renewable energy, and master craftsmanship.

The combination of sustainability features, along with the Catskill Project's

Project Stats

NAME: [The Catskill Project](#), Livingston Manor, New York

BUILDER: [Bensonwood](#)

ARCHITECT: [Buck Moorhead Architect](#)

DEVELOPER: Regen Associates, Inc.

LAND PLANNER: Ward Engineering

PHOTOGRAPHER: Adam Fithers, [Wolvestudios](#)

From the Judges

"As far as building and designing an extremely efficient home goes? It's out of the ballpark."



Modern appeal. A kitchen featuring all-electric appliances and sustainably sourced wood fixtures is a sustainability highlight. CREDIT: WOLVESTUDIOS/ADAM FITHERS

Key Components

APPLIANCES: Bosch 300 Series Wall-Mounted Range Hood; JennAir Panel-Ready 30-inch Built-in Bottom-Mount Refrigerator; JennAir 36-inch Noir Induction Professional-Style Range; JennAir 24-inch Noir Integrated Dishwasher with 3rd Level Rack; LG 24-inch Smart Compact Front-Load Washer; LG 24-inch Smart Electric Ventless Dryer with Dual Inverter Heat Pump

BUILDING ENVELOPE: Bensonwood Tektonics prefabricated wall panels - WFB10 wall with continuous insulation and insulated service chase (R-53); Bensonwood Tektonics prefabricated roof panels with 16-inch dense-pack cellulose and insulated service cavity (R-79)

CABINETS, SHELVES, MILLWORK: Custom cabinetry by Mike Scardino d/b/a T&M Custom Furniture, Narrowsburg, N.Y.

CAULKS AND SEALANTS: Various

COUNTERTOPS: Natural Granite by Barra & Trumbore, Kehonkson, N.Y.; or Richlite, a high-grade custom FSC-certified paper infused with a hand-laid thermosetting resin

DECKS: Unfinished Red Cedar, Black Locust

DOORS AND HARDWARE: Exterior doors Unilux IsoStar2 PVC triple-pane exterior doors (U-0.16); Interior doors 8-foot solid core slab with EMTEK and Baldwin hardware

ELECTRICAL: 200amp service including 50amp

EXTERIOR FINISHES: Ghent Wood Green Hemlock Rainscreen Siding over Weather-Resistant Barriers; Eaves and fascia: Ghent Wood Products - Green Hemlock; Window trims: Thermory Ignite; Windowsills: UNILUX Aluminum Sill Pan; Building skirt: Black Locust from Locust Lumber or CUPACLAD Natural Slate Cladding; Stucco on exposed FDN wall

FLOORING: First floor polished concrete; stairs and second floor solid white oak; bathroom tiles - Fireclay Natural Press Ceramic Tile, Quick Ship Essentials, and Original Ceramic

HOME CONTROLS: Mitsubishi Minisplit Thermostat, Wi-Fi adapter, and heat pump/AC surge protector; Zehnder ERV Controller and ERV Boost Switch

HVAC/DUCTS: Mitsubishi Hyper-Heat Outdoor Heat Pumps (SUZ-KA12NAHZ), Mitsubishi Multi-Position Ducted Air Handlers

INSULATION: Foundation: Logix ICF frost wall and EPS thermal foams under slab; Exterior wall: Dense pack cellulose with Comfortbatt Rockwool in service cavity; Interior stud wall: Safe 'n' Sound Proof Rockwool

LANDSCAPING: Mountain Top Landscaping, Livingston Manor, N.Y.

LIGHTING: Owner-supplied, must be LED; Stickbulb linear pendant; Slant LED indoor and outdoor wall light (TCP supported)

PAINTS AND STAINS: Benjamin Moore zero-VOC paint; Bona water-based stains

PLUMBING/PLUMBING FIXTURES: Delta; Kohler

RENEWABLE ENERGY SYSTEMS (SOLAR, WIND, ETC.): Owner option for solar, battery backup

ROOF: Metal standing seam

TELECOMMUNICATIONS: Spectrum Broadband

VENTILATION: Zehnder ComfoAir Q350; Electro-Industries EM-MC05 make up air unit; Honeywell HM750A10000 humidifier

WATER HEATING: Eco2 System; Sanco2 heat-pump water heater; external compressor w/ Sanco2 interior 43-gallon water tank

WINDOWS, SKYLIGHTS, PATIO DOORS: UNILUX uPVC IsoStar2 triple-pane aluminum-clad windows and sliding patio door (U-0.16)



Light friendly. All homes within Red Hill incorporate both natural daylighting and energy-saving, long-lasting LED.

CREDIT: WOLVESTUDIOS/ADAM FITHERS



Eco-tops. Red Hill’s bathrooms feature Richlite countertops, which are a combination of recycled and renewable forest products with a thermosetting resin to form a material that’s extraordinarily resilient, machinable, and versatile. CREDIT: WOLVESTUDIOS/ADAM FITHERS

history of forward-thinking design elements, makes it a winner of Green Builder’s 2026 Green Home of the Year in the Offsite Construction category.

GREEN INSIDE AND OUT

The Catskill Project is named after the area’s landmark Catskill Mountains, colloquially known as “the Catskills.” Featuring 11 homes, the project was designed with its location in mind, offering its homeowners gorgeous views of the surrounding countryside.

All of that green has a purpose, however: 42 acres—nearly half of the entire plot of land available to the development—has been left undeveloped so as to leave sufficient woodlands for carbon sequestration. Indeed, the project team prioritizes removing as few trees from the area as possible during the Catskill Project’s continued development, both to further their goals towards carbon neutrality, and to preserve the natural beauty of the region. Thanks to their conservation efforts—and, of course, the carbon removal efforts of the trees themselves—the entire Catskill Project is expected to be fully carbon neutral in approximately seven years.

That’s not to say that the Catskills’ trees pull all of the weight when it comes to the project’s sustainability. Each of the 11 homes—Red Hill chief among them—is a leader in environmentally conscious practices in its own right. With a Bensonwood Tektonics prefabricated envelope (complete with dedicated service cavities for the walls and roof); a combination of dense-packed cellulose, Rockwool, Logix Frost Wall, and EPS ThermalFoam insulation; a Zehnder ComfoAir Q350 Energy Recovery Ventilator (ERV); and a Mitsubishi HyperHeat Outdoor Heat Pump water heater, each Catskill Project property has an energy load approximately 80 percent lower than the coded limit—which in itself is easily taken care of and then some by onsite solar arrays that turn each home all-electric.

Each home meets Passive House U.S. standards, and the development is on track to receive a PHIUS prescriptive path certification. With the additions of low-energy appliances from Bosch, JennAir, and LG, as well as full LED lighting, Catskill Project homes truly are as green as their namesake.

Unsurprisingly, sustainability and carbon



A perfect pair. White oak flooring and fresh air preserving no-VOC paint can be found throughout the upstairs. CREDIT: WOLVESTUDIOS/ADAM FITHERS

neutrality were two of the biggest goals for the Catskill Project’s three leads: co-founders Greg Hale and Peter Malik, and architect Buck Moorhead. “The principals and co-founders of The Catskill Project designed the project in order to demonstrate a low-footprint approach to single-family living,” Malik states. “The Passive House standard not only reduces the energy load by up to 85 percent, but also creates a healthy residential environment with superior indoor air quality. The result is homes which are economically efficient, environmentally friendly, durable with low maintenance, and healthy for the occupants.”

OFFSITE CONSTRUCTION, ONSITE RESULTS

“Low maintenance” didn’t necessarily equate to “low cost” during construction, however, largely thanks to complications associated with COVID-19. Thanks to the resultant supply chain disruptions and increases to material prices, construction costs for the Catskill Project ballooned 30 to 40 percent above the team’s initial projections.

Labor shortages provided the team with another valuable lesson: secure

tradespeople well in advance. “There is a shortage of relevant labor in western Sullivan County, with many booked for many months or even years ahead,” Hale explains. “It is critical to develop durable relationships, thereby ensuring availability and dependability of all necessary trades.”

To help offset these unexpected costs, the team chose to construct the building envelope offsite, and then ship and erect it within the development afterwards. The decision yielded impressive results; the constructed envelopes were delivered with precise dimensions, easily met the criteria for Passive House certification, and only took a few days to erect once they were delivered. These allowed Catskill Project units to almost literally appear overnight. Considering that each envelope represented roughly 40 percent of the value of its associated unit, it’s safe to say that they were worth the wait.

Hale, in particular, has remained consistently impressed with the results of the Catskill Project. “Honestly, I wouldn’t do anything differently,” he says, before joking, “but if I could, I would prevent material cost increases, supply chain disruptions, and labor shortages—none of which is, of course, possible.” **GB**

From the Judges

"Impressive focus on sustainability / affordability / community engagement."



CREDIT: MADDEN STUDIO/BRIAN A. MADDEN

Out With the Old...

Dedication and ingenuity turn a fixer-upper into a paragon of sustainable living.

We've all lived in a home we didn't necessarily like, be it due to bad location, substandard amenities, structural issues, or any number of other faults. Such was the case with Dan Colombini, whose home in Ossining, New York was badly laid out, energy inefficient, in constant need of repair, and so poorly insulated that it would aggravate Colombini's allergy-induced asthma.

But rather than simply move away, Colombini—a mechanical engineer and a principal at the New York City-based consulting engineer firm Goldman Copeland—decided to make lemonade out of his lemon of a house. Working alongside a team of visionaries from Nugent Construction Management, CGA Studio Architects, and Restaino Design Landscape Architecture, Colombini personally engineered the home he wanted to live in. By the

Project Stats

NAME: The Colombini House, Ossining, New York

BUILDER: Ed Nugent, [Nugent Construction Management](#)

ARCHITECT: Christina Griffin, [CGA Studio Architects](#)

DEVELOPER: Dan Colombini

INTERIOR DESIGNER: Christina Griffin, [CGA Studio Architects](#)

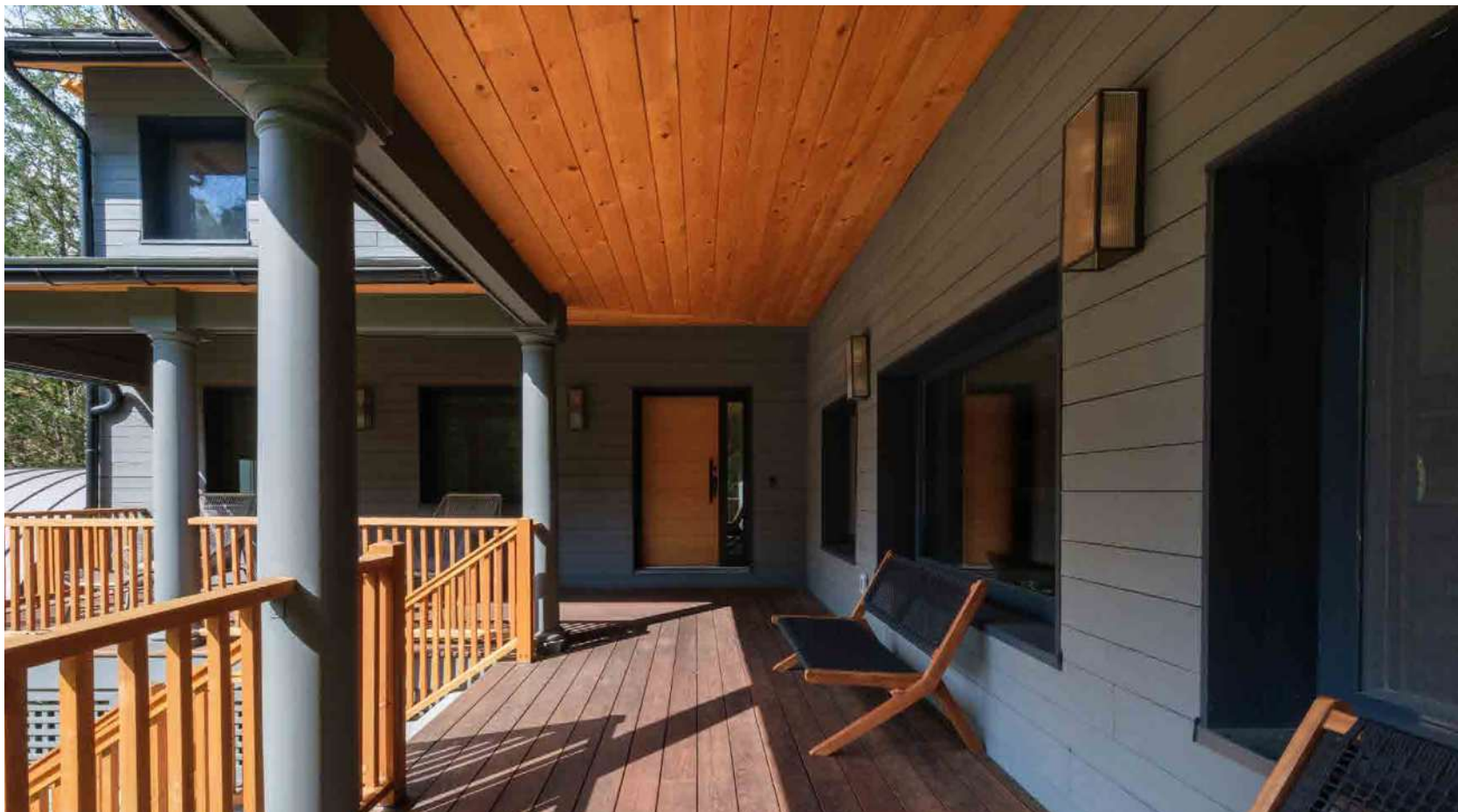
STRUCTURAL ENGINEER: Dan Colombini

LANDSCAPE ARCHITECT: Barbara Z. Restaino, [Restaino Design Landscape Architecture, PC](#)

PHOTOGRAPHER: Brian Madden, [Madden Studio](#)



Sun sense. Utility electric service is supplemented by an 18-kilowatt roof-mounted solar photovoltaic array. CREDIT: MADDEN STUDIO/BRIAN A. MADDEN



Thermally treated. Front porch wood is locally sourced, thermally treated oak. CREDIT: MADDEN STUDIO/BRIAN A. MADDEN



POWER MISERS.
All lights are low-energy
consumption LEDs.

GUARANTEED TO SAVE.
Appliances are all ENERGY
STAR certified.

BLOCKING ABILITIES. VETTA
Windows' glass has an ultra-
low U-Factor of 0.17, resulting
in great insulation from
seasonal heat or cold.

NEW PURPOSE.
Roughly 75 percent of the
materials used in the
Colombini House, including
wood, came from an earlier
residence on the property.

CREDIT: MADDEN STUDIO/BRIAN A. MADDEN

time construction was finished, that house had become one of the most energy-efficient and cost-effective houses in the country.

This dedication to energy efficiency makes the Colombini House the winner of Green Builder's 2026 Green Home of the Year in the Net Zero Plus Energy category.

NOTHING IS OUT OF REACH

The Colombini House is an all-electric, net zero, U.S. Green Building Council (USGBC) LEED Platinum-rated "Passive House"—an architectural housing design that requires very little energy for space heating or cooling. Sustainable choices were made from the very moment of construction, with 75 percent of the original house's materials being diverted from the landfill to be reused and repurposed within the new project, and the bulk of the remaining materials being recycled or locally sourced.

Initially, these decisions were made simply to achieve the goal shared by Colombini and his

family of living in a net zero house. However, as the project continued, what initially seemed like faraway milestones rapidly grew more achievable.

"To achieve our net zero goals, research led us to the Passive House design strategy," Colombini says. "During the design process, it became apparent that by following Passive House design criteria, LEED accreditation would also be within reach."

By the end of the project, the home had achieved the LEED Platinum certification. Colombini would later note the team's achievement of USGBC's highest rating to be the most pleasant surprise of the project, considering it to be "icing on the cake" for having a healthy, comfortable, and highly efficient home.

Indeed, the Colombini House is more comfortable than it's ever been. The three-bedroom, 3,500-square-foot home with attached garage is completely electric, thanks to its 18-kilowatt roof-mounted solar array. It

is practically airtight due to its 12-inch-thick (18 inches on the roof) cellulose insulation cavity. Energy efficient appliances add to the comfort while reducing the cost, from its Zehnder Energy Recovery Ventilator (ERV), to its Daikin 3-pump heating and cooling system, to its Rheem heat pump water heater, to its Vetta *Elite92* windows and doors. In the event of a power outage, twin LG electric batteries will keep the fully LED lights on until normal service is restored.

The result is a house that produces far more energy than it uses—hence the net zero status. The difference is so great that Colombini can charge his electric vehicle off of the surplus power alone.

ROLLING WITH THE PUNCHES

The project was not without its difficulties, however, the worst of which were all symptoms of a larger, more omnipresent struggle occurring during the time of building.

"As construction began in 2020, the effects



Tough to beat. Countertops throughout the house are made of easy-to-clean, durable quartz.

CREDIT: MADDEN STUDIO/BRIAN A. MADDEN

of the COVID-19 pandemic were evident throughout,” Colombini recalls. “The project team was presented with hurdles related to material availability and cost, and labor availability.”

Other unwelcome surprises included difficult excavation, and delays resulting from need-to-order specialty products from Europe—most notably the aforementioned high-efficiency windows and doors—during a time when shipping was subject to frequent complications.

To combat these challenges, Colombini and his team tried to be as flexible as they could on material selection, and adjusted their task schedule based on labor availability. Coincidentally, these solutions would overlap with other project goals, including regionally sourcing materials such as wood for siding and flooring.

Colombini considers the build process to have been a valuable experience for all involved. “One of the greatest challenges with Passive House and other high-performance construction is the lack of labor educated on the required methods and materials to be used,” he notes. “By executing this work, all stakeholders learned from the process and can carry these lessons forward to the next project to be completed.”

SUSTAINABLE SAVINGS

On the subject of value, however, there’s certainly a more-direct monetary benefit to the Colombini House as well. The cost of construction proved to be around \$300 per square foot—only 8 percent higher than that of a traditional house. When compared to the energy savings it’s already begun to accrue, Colombini and lead architect Christina Griffin of CGA Studio expect the Colombini House to have paid for its marginally more-expensive construction within 10-15 years.

“The Colombini House is a landmark project,” Griffin says. “Not only does it reach the highest standards of energy efficiency and sustainability, but it demonstrates that they can be attained at an additional cost that can be recouped through energy savings in about a decade—far less than the period of a typical home mortgage.”

Colombini adds that there is little cost impact when it comes to achieving Passive House standards. “There’s a hope that broader education on the applied strategies can permeate throughout the construction industry,” he says. “There are always things that can be improved upon when looking back on any design and construction effort. That being said, we have no substantial regrets, and we appreciate the final product every day.” **GB**

Key Components

APPLIANCES: Bosch and LG appliances, all ENERGY STAR certified.

BUILDING ENVELOPE: Exterior walls: 12-inch exterior Larsen Truss with dense-packed cellulose held by ProClima *Mento 1000*; 2-by-4 interior wall cavity with mineral wool batt. Ceilings have 1.5-inch Gutex continuous wood fiber insulation and 18-inch dense-packed cellulose, held by Intello wrap on the interior framing. Foundations insulated with XPS *Rigid Foam*.

CABINETS, SHELVES, MILLWORK: Custom millwork in the kitchen, bathrooms and mud room.

CAULKS AND SEALANTS: Air sealing completed at OSB layer, with taped seams under the Larsen truss/cellulose layer. The home is within compliance of the Phius 2021 requirement of 0.06 CFM/SF of envelope area.

COUNTERTOPS: Quartz countertops.

DECKS: Front porch wood is locally sourced, thermally treated oak.

DOORS AND HARDWARE: All doors (front entry, garage entry, patio sliding glass) sourced from Vetta Windows; high performance in line with Passive House strategy.

ELECTRICAL: Utility electric service is supplemented by an 18-kilowatt roof-mounted solar PV array. Two LG batteries in the garage provide emergency power during outages.

EXTERIOR FINISHES: Regionally sourced hemlock wood siding is stained.

FIRE PROTECTION: Smoke detection and fire extinguishers are provided per code.

FLOORING: Regionally sourced hickory.

GARAGE DOORS: Insulated garage doors provided by Henry B Whitaker.

HOME CONTROLS: Daikin controls provided for HVAC system, Zehnder controls for ventilation; occupancy sensor lighting controls are provided in closets.

HVAC/DUCTS: 3-ton Daikin heat pump system provides heating and cooling; Zehnder *Energy Recovery Ventilator (ERV)* provides ventilation.

INSULATION: XPS *Rigid Foam* on foundations; 1.5-inch Gutex continuous wood fiber insulation and 18-inch dense-packed cellulose on ceilings.

LANDSCAPING: In accordance with LEED requirements, all native plant species are used in landscaping; rain garden and bioswale with native plants provide a means for storm water management, mitigating runoff and promoting a healthy ecosystem.

LIGHTING: All LED fixtures.

PAINTS AND STAINS: All zero-VOC paints from a variety of manufacturers.

PLUMBING/PLUMBING FIXTURES: Variety of manufacturers.

RENEWABLE ENERGY SYSTEMS (SOLAR, WIND, ETC.): Utility electric service is supplemented by an 18-kilowatt roof-mounted solar photovoltaic array. Two LG batteries located in the garage provide emergency power during outages.

ROOF: Architectural shingled roof for the main home, standing seam metal curved roof for the garage.

TELECOMMUNICATIONS: Verizon carrier service feeds both wired and Wi-Fi service throughout the home.

VENTILATION: Zehnder ERV provides fresh air supply and exhaust, recovering energy from exhaust air stream

WATER HEATING: Rheem heat pump water heater operates at UEF of 3.88, provides cooling to the basement while generating hot water for domestic use.

WINDOWS, SKYLIGHTS, PATIO DOORS: Vetta windows are used, with a predominant NFRC rating of U-Factor 0.17 and SHGC 0.49.

OTHER: Main stair handrail created by a local iron work artisan; EV charging is provided in the garage, supplied by the main electric/solar system.

From the Judges

"Beautiful integration with the local neighborhood."



CREDIT: CLARITY NORTHWEST PHOTOGRAPHY

Urban Eco-Friendliness

The Cottage Company proves the feasibility of sustainable city living.

The idea of living close to a large city has developed something of a negative reputation in recent years, with many a stereotype existing of cramped, noisy, poorly maintained apartments and townhouses. Thornton Creek Commons, a two-and-a-half-acre development in Seattle, is providing an impressive counterexample, with nine units that are environmentally friendly, conveniently located, cost-efficient and aesthetically pleasing.

Located just north of the University of Washington, Thornton Creek Commons was initially the home of the 1959-era St. George Episcopal Church, which closed in 2016 when declining membership prompted its congregation to merge with that of another church nearby. The church structure, while initially something the development team at The Cottage Company expected to have to remove completely, proved to be a blessing in disguise (no pun intended).

Project Stats

NAME: Thornton Creek Commons, Seattle, Washington

BUILDER: [The Cottage Company](#)

ARCHITECT: Charles Wenzlau, [Wenzlau Architects](#)

DEVELOPER: Linda Pruitt, [The Cottage Company](#)

INTERIOR DESIGNER: [The Cottage Company](#)

LANDSCAPE ARCHITECT: Todd Paul, [The Cottage Company](#)

PHOTOGRAPHER: Ryan Slimak, Derrick Louie and Chris Neir, [Clarity Northwest Photography](#)



Need a lift? Each home's garage includes an energy-efficient opener, which when combined with an insulated garage door creates a thermal barrier that reduces a homeowner's utility bill. CREDIT: CLARITY NORTHWEST PHOTOGRAPHY



Tight shell. The inside of the home stays warm, cool, dry and clean when needed, thanks to an exceptional envelope that includes a non-vented roof system; taped and sealed seams and joints on sheathing; liquid membrane weather barrier, and barrier sealant. CREDIT: CLARITY NORTHWEST PHOTOGRAPHY



LANDSCAPE ARTISTRY.

Natural landscaping consists of trees and vegetation that are native to the area.

BEHIND THE WALLS.

Acoustic drywall, gypsum and visco-elastic polymer create a barrier to street noise.

THE RIGHT SITING.

Windows allow arrival of abundant natural light, minimizing the need for artificial lighting and creating a warm, inviting atmosphere.

CREDIT: CLARITY NORTHWEST PHOTOGRAPHY

“Initially, we believed that we would demolish the 8,000-square-foot church structure,” developer Linda Pruitt recalls. “Mitigation prior to demo exposed the extensive old growth, clear wood paneling, subfloors, framing materials, hand-split old growth cedar siding, and large beams—all that could be used in the construction of the new Thornton Creek Commons community.”

With the help of the Sledge Seattle deconstruction firm, The Cottage Company salvaged 90 percent of the original church structure. The recovered cedar siding became siding for each unit’s detached garages; 4,000 square feet of 3.5-inch, double T&G car decking was milled into solid wood flooring, installed and finished in four of the nine units; and pieces of deconstructed lumber were used throughout the homes to provide aesthetic details and supportive improvements.

ENVIRONMENTAL EFFICIENCY

As for the homes themselves, Thornton Creek Commons is a hallmark of sustainable practices and energy efficiency. Each unit is highly insulated, thanks to a combination of mineral wool and cellulose, blown-in cellulose, foam, fiberglass, and the Brown in Blanket System (BIBS) on every north wall, which provides a greater depth of insulating material, a higher R value, and a complete absence of air gaps between pieces of fiberglass.

The homes’ James Hardie siding is fortified with an Aero Barrier sealant and a rain screen underneath, ensuring that the moisture for which the Puget Sound is known never seeps into the homes. A continuously operating Panasonic Energy Recovery Ventilator (ERV) and Rheem heat pump water heater ensure clean and efficient air and water in the home, while Mitsubishi mini-split heat pumps with external compressors and

PEAD interior units keep each unit comfortable and quiet.

The homes’ location was an environmentally conscious decision. Just three blocks from the Lake City urban village core, Thornton Creek Commons is less than a 10-minute walk away from grocery stores, banks, the post office, restaurants, and the local library. The nearby Link light rail station allows residents to get nearly anywhere they need in the city, all without the use of a car.

Thornton Creek Commons also includes recreational space to take advantage of the area’s natural beauty and proximity to the eponymous Thornton Creek, including an off-leash dog park, fire pit, and gardens, as well as dedicated access to northeastern Seattle’s largest flowing watershed.

COMMUNITY OUTREACH

Like any project, construction of Thornton Creek Commons was not without difficulties. While the



Comfort tools. Windows are temperature-controlling, ENERGY STAR rated, dual pane, and argon gas filled, while all paint is zero VOC. CREDIT: CLARITY NORTHWEST PHOTOGRAPHY

Diocese of Olympia, the owners of the original property, was regularly supportive of The Cottage Company's efforts (and had approached the company with the project to begin with), the city of Seattle itself was less than helpful.

The property was surrounded by existing, already-built single-family homes, Pruitt notes. But it was completely undeserved by sufficient public infrastructure. This necessitated the installation of new public water supply connections and public system improvements, new public sewer connections, new public stormwater connections and onsite stormwater detention and mitigation improvements, and new electric transformer installation and connections.

All of this, plus the required public improvements, had to be paid by the private development—and only the private development—at large expense. “This is one

of the key contributors to the high cost of new home construction, making new single-family homes unaffordable to many,” Pruitt says.

Nonetheless, construction continued, and the results were worth it, according to Pruitt. Thornton Creek Commons now stands as an example of what can be achieved by city housing developments, combining convenient location and aesthetic appeal without sacrificing energy efficiency and cost-conscious practices.

Pruitt considers the development's success to be a sign of the direction the housing market as a whole should take. “Market demand for artful, high design and carefully crafted multi-generational homes with single-level lifestyle features remains strong,” she says. “Providing great design and high performance is fundamental and is rewarded in the marketplace. Buyers understand and desire a higher quality new home.” **GB**

Key Components

APPLIANCES: Bosch dishwasher, washer, and heat pump dryer; Bertazoni induction range; Beka refrigerator; Rheem heat pump water heater; Frigidaire beverage center

BUILDING ENVELOPE: Stick built, no trusses, 2-by-12 rafters; non-vented roof system; taped and sealed seams and joints on sheathing; Air Guard liquid membrane weather barrier; Aero Barrier sealant; rain screen under siding; Hardie siding

CABINETS, SHELVES, MILLWORK: Belmont cabinets; custom millwork constructed on site by L&K Millwork

CAULKS AND SEALANTS: Acoustic sealant above and below sill gasket; Contega HF air sealing adhesive between joist and subfloor; Fentrim 430 tape to make air seal sheathing to stem wall; taped seams between subfloor sheets using G tap 3040BK6 to seal possible airgaps

COUNTERTOPS: 3-centimeter Italian white quartz

DECKS: TimberTech composite decking installed over pressure-treated framing

DOORS AND HARDWARE: Exterior doors: Therma Tru 6-foot, 8-inches fiberglass glazed door, 0.5-inch glass; Interior doors: Trimlite single panel OBOLO solid wood core interior doors

ELECTRICAL: Level 2 EV charger, net zero possible; South Lake Electric, LLC

EXTERIOR FINISHES: James Hardie siding; Sherwin Williams paint

FLOORING: 7 inch, 0.75 inch T&G fir, from Sustainable Lumber, Missoula Montana; solid wood, tongue and groove, wide plank, Douglas fir, wire brushed; porcelain and ceramic tile, Marazzi, Monarch MIL7, matte, 8-by-8 tile from Dal Tile, heated first floor bathroom, shower, and hallway floors

GARAGE DOOR: Liftmaster, National Garage Door

HVAC/DUCTS: Mitsubishi heat pumps (mini splits) with external compressors; Mitsubishi PEAD wall-mounted interior units

INSULATION: Exterior walls: Mineral wool insulation in south, west and east stud cavities; Brown in Blanket System (BIBS) in north wall cavities. Floors and ceilings: mineral wool sound barrier. Upper-level interior: Foam, fiberglass batts. Lower-level interior: foam

LANDSCAPING: Professional landscaping designed by City Gardens; Ornamental Iron security fence

LIGHTING: Exterior lighting automatically controlled by photocell sensor; LED lighting throughout

PAINTS AND STAINS: Sherwin Williams no-VOC paints

PLUMBING/PLUMBING FIXTURES: Water Sense-certified faucets and shower heads; Toto toilets 1.28 gallons per flush; water submeters measure actual amount of water used by each individual unit

RENEWABLE ENERGY SYSTEMS (SOLAR, WIND, ETC.): Pre-wired solar

ROOF: Non-vented roof system by Legacy Roofing Northwest, spray foam and blown-in blanket insulation to full 12-inch depth; GAF Timberline HDZ shingles; TAK Defender underlayment; TAK Grip Seal Ice & Water Shield; starter materials IAW manufacturer's recommendation; complete flashing; high-profile ridge cap; Nu-Ray Metals Series 1000 Standing Seam Metal, D2 Dynar 600 paint finish

TELECOMMUNICATIONS: Prewired for cable (TV, phone, and internet)

VENTILATION: Panasonic Energy Recovery Ventilator (ERV), continuous operation

WATER HEATING: Rheem heat pump water heater

WINDOWS, SKYLIGHTS, PATIO DOORS: Milgard ENERGY STAR, dual pane, dissimilar pane thickness, argon gas filled

OTHER: Noise deadening: Acoustic drywall; 0.625-inch gypsum with a layer of viso-elastic polymer sandwiched between layers

From the Judges

"Excellent focus on sustainability, resilience, essential living, and budget."



CREDIT: FRAZIER SPRINGFIELD PHOTOGRAPHY

Best of Both Worlds

Past and present designs combine to create a timeless and sustainable home.

There are numerous factors one needs to consider when building a home in a rural environment—from sensible exterior design to ease of maintenance. If one then adds sustainable energy usage to their list of requirements, the project can become even more daunting. The Fairview Passive, however, checks all the boxes when it comes to upkeep, aesthetic appeal, and cost-effectiveness, thanks in no small part to its impressive net zero energy usage.

That ecofriendly effort has resulted in Fairview Passive being named Green Builder's 2026 Green Home of the Year (GHOTY) winner in the Net Zero Carbon category.

Project Stats

NAME: The Fairview Passive, Grantsville, Maryland

BUILDER: Rounds Home Improvement

ARCHITECT/DESIGNER: [Common Ecology Architecture](#)

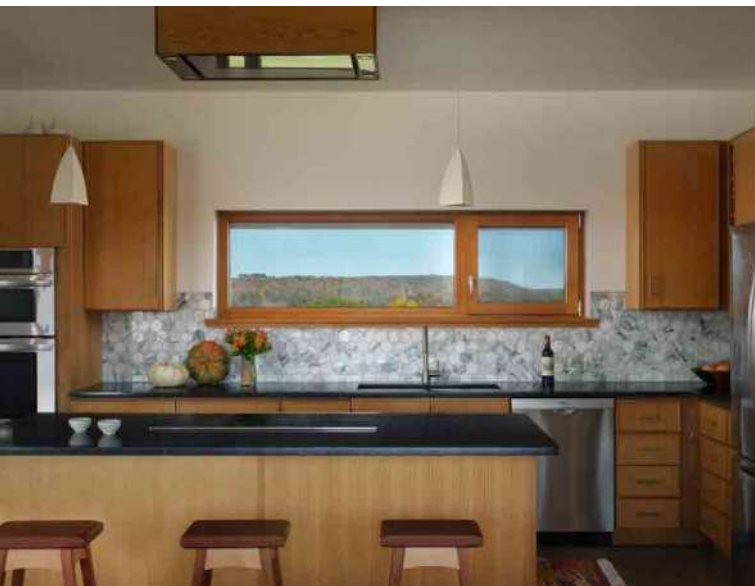
PHOTOGRAPHER: [Frazier Springfield Photography](#)



Glass housing. IKON triple-glazed windows let in light and heat from the low sun in the winter months, providing a natural form of indoor environmental control. CREDIT: FRAZIER SPRINGFIELD PHOTOGRAPHY



Old-style comfort. A wood-burning stove serves as the home's primary heat source, and is one of its only non-electric appliances. CREDIT: COMMON ECOLOGY ARCHITECTURE/CARRI BEER



True timber. The cedar used in the home's siding and oak used for the floors, doors, cabinets, built-ins and trim are from locally felled trees. CREDIT: COMMON ECOLOGY ARCHITECTURE/CARRI BEER



Less than zero. The Fairview Passive home produces more energy than it consumes thanks to an 8.8-kilowatt rooftop solar array. CREDIT: FRAZIER SPRINGFIELD PHOTOGRAPHY



TEMPERATURE CONTROL.
Ceilings throughout the house feature blown-in cellulose insulation.

ROCK SOLID.
Countertops are made from locally sourced granite.

GAS FREE.
Appliances in the kitchen and elsewhere in the home are all electric, helping it achieve net zero status.

HOME GROWN.
Wood for cabinets, drawers, window frames and other areas come from local sources.

CREDIT: COMMON ECOLOGY ARCHITECTURE/CARRI BEER

Located in historic Grantsville, Maryland, the Fairview Passive is a two-story, single-family residence designed from the ground up to be budget-friendly and environmentally conscious. Modeled to meet the Passive House U.S. Standard, the unit produces more energy than it consumes—even with its almost entirely electric appliances—thanks to an 8.8-kilowatt rooftop solar array.

The only piece of equipment that doesn't draw from solar panels is a quaint wood-burning stove, which serves as the primary heat source. Backup heating (and cooling, in the warmer summer months) is provided by a 1.5-ton, wall-mounted Mitsubishi mini-split HVAC system, while a RenewAire ERV provides constant fresh air and exhaust.

None of that air leaks out of the unit thanks to a completely sealed, dense-packed cellulose envelope that frames nearly the entire house. The only exception is the

concrete foundation, which instead has bags of perlite beneath it to round out the insulation without the use of any foam.

LET THE SUNSHINE IN

Even with its impressive airtightness, the Fairview Passive's project team initially had difficulties keeping the unit at a comfortable temperature when faced with the prospect of cold Maryland winters. "The heat from the wood-burning stove and wall-mounted mini-split does not reach the second-floor bedrooms or bathrooms," notes Carri Beer, lead architect for project designer Common Ecology Architecture in Baltimore. "I would have instead installed a ducted heat pump to serve those rooms with heat."

To compensate for the limitations of the chosen heating systems, the team turned to the most powerful source of heat around: the sun. IKON triple-pane windows and doors let

in light and heat from the low sun in the winter months. Combined with high insulation, this provides the entire home with radiant heat. During the summer, expertly designed shading and overhangs prevent overheating from the higher sun.

The Fairview Passive was already perfectly set up to make the most of this design choice; the first step in the home's design had been to orient it along the east-west axis to ensure the maximum possible yield from its south-facing solar panels. The large, southside windows provide the most radiant heat possible to complement the home's minimally sized heating systems. Those same windows give the owner an impressive view of the beautiful surrounding landscape, and they provide a pleasing natural light.

LOVE WHERE YOU LIVE

Drawing upon the surrounding environment is one of the core concepts of the Fairview Passive,



Terrific trio. Durable metal siding, high-quality glass and repurposed wood make The Fairview Passive a grand example of sustainable building. CREDIT: FRAZIER SPRINGFIELD PHOTOGRAPHY



Strong as steel. The metal for the home's roof and siding is designed to withstand the harshest weather.

CREDIT: FRAZIER SPRINGFIELD PHOTOGRAPHY

with most of its features and materials being locally sourced. Its metal roof, constructed by AB Martin, and metal siding are sourced from within a 200-mile radius of the property. The cedar used in the home's siding and oak used for the floors, doors, cabinets, built-ins and trim are similarly local. And, in an inter-home example, condensate water from the Whirlpool heat pump clothes dryer and A.O. Smith heat pump water heater is captured for reuse in either of those systems, as well as a Whirlpool dishwasher, or any of the home's other efficient plumbing fixtures, such as its dual-flush toilets or Water Sense faucets.

Plans are in place to continue these sustainable sourcing practices, with rain cisterns being added to the downspouts for irrigation, and a nearby meadow being rewilded for the continuity of the native ecology.

Above all, the Fairview Passive was a labor of love for the design team, who shared the owner's

vision for a quiet, peaceful home, as well as their values for an energy-efficient, low-maintenance, and low-cost living space. In fact, the owner was personally involved in the project, constructing the cabinets, doors, stairs, and built-ins, and completing all of the unit's trim work.

Sometimes, this led to unpleasant surprises, Beer recalls. "The owner took over the door and window order, and unfortunately no one caught that the 36-inch front door was for the opening size, not the frame," she notes. "When ordering a high-performance door, this meant the opening was only 30 inches. We had to wait several months to get a new door from overseas!"

The delay reminded Beer that project timelines "should always be doubled or even tripled."

Overall, the project reinforced Beer's belief in the beauty of collaboration, and the joy of establishing long-lasting friendships with her clients. The impressive results of this sort of collaboration speak for themselves. **GB**

Key Components

APPLIANCES: LG refrigerator, induction cooktop, convection wall oven; Bosch dishwasher; Whirlpool heat pump clothes dryer and washer.

BUILDING ENVELOPE: Featuring 2-by-12, dense pack cellulose insulation walls; TJI roof framing with dense-pack cellulose insulation; slab on grade with perlite below-slab insulation.

CABINETS, SHELVES, MILLWORK: Built by owner from local fallen wood.

COUNTERTOPS: Made from locally sourced granite.

DOORS AND HARDWARE: Door panels are built by owner from local fallen wood.

EXTERIOR FINISHES: Siding is locally sourced and milled from local fallen cedar; metal wall panels are by AB Martin.

FLOORING: Features a concrete slab first floor; locally sourced white oak second floor.

HVAC/DUCTS: Mitsubishi heat pump mini-split wall-mounted unit; Vermont Castings wood burning stove.

INSULATION: Blown-in cellulose.

ROOF: Metal roof by A.B. Martin.

VENTILATION: RenewAire Energy Recovery Ventilator.

WATER HEATING: A.O. Smith heat pump water heater.

WINDOWS, SKYLIGHTS, PATIO DOORS: IKON triple-pane wood windows and doors.

Honorable Mention

Here are four more homes worthy of a callout for sustainable design.



Braeswood Bayou

LOCATION: Houston, Texas

BUILDER AND ARCHITECT:

Everlasting Homes Building Group

CATEGORY: Alternative Building

Everlasting Homes Building Group (EHBG) specializes in homes that withstand nature's fury while offering sustainability, efficiency, and resilience. Braeswood Bayou, a 15,333-square-foot luxury custom home in Houston, is a prime example of that capability. The home showcases EHBG's 3D Structural Concrete Insulated Panels (SCIPs), which are high-strength, load bearing, lightweight and industrially prefabricated. The panels are designed to withstand 200-mile-per-hour winds, and earthquakes of up to 9.0 on the Richter scale, are flood and fire resilient, and energy efficient. Like all of EHBG's projects, Braeswood Bayou is a Zero Energy Ready Home (ZERH) certified by RESNET. This home features RESNET Index rating of 41. The lower energy, insurance and maintenance costs will save the homeowners up to 40 percent of the original construction cost over a 30-year mortgage.



CREDIT: EHBG

Sweet Fern

LOCATION: Asheville, N.C.

CATEGORY: General

BUILDER: **Alair Homes—Red Tree**

ARCHITECT: **Wilson Architects**

This nearly 3,000-square-foot custom home reflects connection, resilience, and beauty that runs deeper than design. It is fully electric, net-positive, and designed to live in harmony with its surroundings. With a HERS rating of minus 9, the home produces more energy than it uses. A 10.5-11 kilowatt rooftop solar array provides 40.5 kilowatt hours of battery storage and energy independence. Heating and cooling are handled by a three-well geothermal system. The home also features a custom network system rivaling a data center—wired, resilient, and tailored to the owners' lifestyle. From smart panels to lighting, technology runs seamlessly in the background, adding convenience without distraction. Meanwhile, warm materials, rich textures, and intentional spaces reflect the couple's desire for comfort and joy.



CREDIT: RYAN THEEDE PHOTOGRAPHY



CREDIT: SARAH VANDERPOOL PHOTOGRAPHY

Colorado River House

LOCATION: Palisade, Colorado

CATEGORY: Mainstream Green

BUILDER: Wind and Willow Construction

ARCHITECT: [Shape Architecture Studio](#)

The process of this project entailed how to best connect the homeowners to their incredible site. Metal siding protects the home from the at-times harsh and potentially fire-prone environment. Large triple-pane windows and an extremely tight, super-insulated envelope create a space that is energy efficient and exceptionally comfortable; the all-electric home is ENERGY STAR certified and built using Passive House principles. Ample

daylight, natural airflow, no-VOC natural materials, and filtered mechanical ventilation contribute to an extremely healthy indoor environment. In addition, there had been an existing, deteriorating home on the property; much of the existing foundation was repurposed, which avoided waste and saved approximately 1,872kg CO₂e in carbon emissions. Use of all-wood construction and natural materials further minimizes the carbon footprint.

Northwest Bungalow

LOCATION: Bend, Oregon

CATEGORY: Net Zero Plus Energy

BUILDER: [Solaire Homebuilders](#)

ARCHITECT: [The Shelter Studio](#)



CREDIT: TYLER PHILLIPS PHOTOGRAPHY

This custom-built net zero home presented a unique challenge due to its sloped lot and rear garage access, and a requirement for strict adherence to subdivision guidelines and city regulations. Window placement was thoughtfully planned to frame key views, enhance interior daylighting, and support passive heating and cooling strategies for year-round comfort and energy efficiency. A rooftop solar array powers this all-electric home, enabling it to achieve a Net Zero Plus design. The home features high-quality insulation, efficient heat pumps, and high-performance windows, resulting in an Energy Performance Score of 0 and the Home Energy Rating (HERS) index score of minus 19. Inside, clean lines and sustainable materials are prioritized, along with water-saving fixtures and low-VOC finishes, further reducing the home's environmental impact.

No wasted effort. ADUs may be high-volume, factory-based structures, but they also precisely match input materials to finished outputs, resulting in total wood debris that fits into garbage cans instead of dumpsters.

CREDIT: CALIFORNIA DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT

Sustainable Density

The role of multi-unit ADUs in urban housing.

BY MIKE KOENIG

As we head into 2026, accessory dwelling units (ADUs) are on a roll, as changing generational tastes have been boosting interest in living in walkable, vibrant, higher-density communities. Sustainability is also a factor in the increased ADU interest by buyers, renters, and governments – and, ultimately, for builders.

There are various facets to ADU sustainability. One that gets less attention than big-picture environmental sustainability has to do with aesthetics. ADUs provide low-profile, distributed housing, quietly preserving a street's character. This prevents the ire of neighborhood associations irked by the prospect of ungainly multifamily buildings or slot houses, both of which can run into permitting problems.

ADUS ARE BUILT TIGHT AND RUN LEAN

For buyers, the key sustainability features mainly have to do with efficiency of the finished product. ADUs typically boast tankless water heaters, as well as highly efficient mini-split HVAC systems that handle heating and cooling. Appliances tend to be right-sized and ENERGY STAR rated. Taken together, a well-built ADU is tight and runs lean. That translates into lower emissions and utility bills.

Also, modern ADUs use electricity for heating, cooling, cooking and heating water. Electrical HVAC systems and appliances can be powered renewably, and ADU roofs are typically designed to accommodate solar.

Freestanding ADUs also tend to be more efficient than the single-

family homes they augment. ADU building envelopes typically include above-code insulation and weatherizing with such features as ZIP System wall sheathing, OSB with rubberized membranes, and ultra-high-efficiency doors and windows. They comply with strict building-code standards such as California's Title 24 Building Efficiency Standards. These, among other requirements, demand that additions and new homes—including ADUs—have enough solar panels to achieve net-zero energy consumption. That makes going with an ADU typically easier than retrofitting or adding to an existing structure.

ADU SUSTAINABILITY STARTS IN THE FACTORY

The energy and resource efficiency associated with prefab construction techniques also apply to ADUs. High-volume, factory-based production based on standardized inputs such as Forest Stewardship Council-certified dimensional lumber, enables the

precise matching of input materials to finished outputs. In fact, the waste from the onsite build of a modular ADU is measured in garbage cans, not dumpsters. That same precision and scale also enables the efficient recycling of metals and the composting of what little wood waste the build generates.

Modular ADU efficiencies extend to shipping and the speed of onsite construction. ADU makers typically ship their products palletized on a single truck. Once the pallets arrive, crews can wrap up construction in weeks rather than the months it takes for traditional stick builds.

That includes site prep and utility connections. With multi-unit ADUs, crews' experience with standard plans and assembly approaches further improves efficiency. Substantially fewer worker commutes to the jobsite cut down on the embodied emissions of the finished product even as shorter construction timelines enable more projects and open doors to predictable, quick ADU builds as gap work between bigger jobs.

Dollar smart. Because they typically use ENERGY STAR-rated appliances, electricity for heating, cooling and cooking, and roofs designed to accommodate solar, ADUs can be a very affordable option for homebuyers. CREDIT: ISTOCK/JASONDOIV

GENTLE DENSITY DELIVERS LONG-TERM SUSTAINABILITY

Perhaps the greatest sustainability impacts of one-off or multi-unit ADUs hark back to gentle density. Green buildings are about more than building green, and builders should keep that in mind as they consider new projects and markets.

Development on greenfield urban fringes consumes open space, paves over wildlife habitat, and increases air and water pollution. Particularly in the Western United States, pushing development deeper into the wildland urban interface brings greater risk of mass destruction from wildfires and [higher insurance premiums](#). The perceived abundance of exurban space leads to bigger dwellings, and greater direct resource use and long-term operational costs. New communities need new public infrastructure to be built and maintained. Great distances to job hubs bake in long commutes.

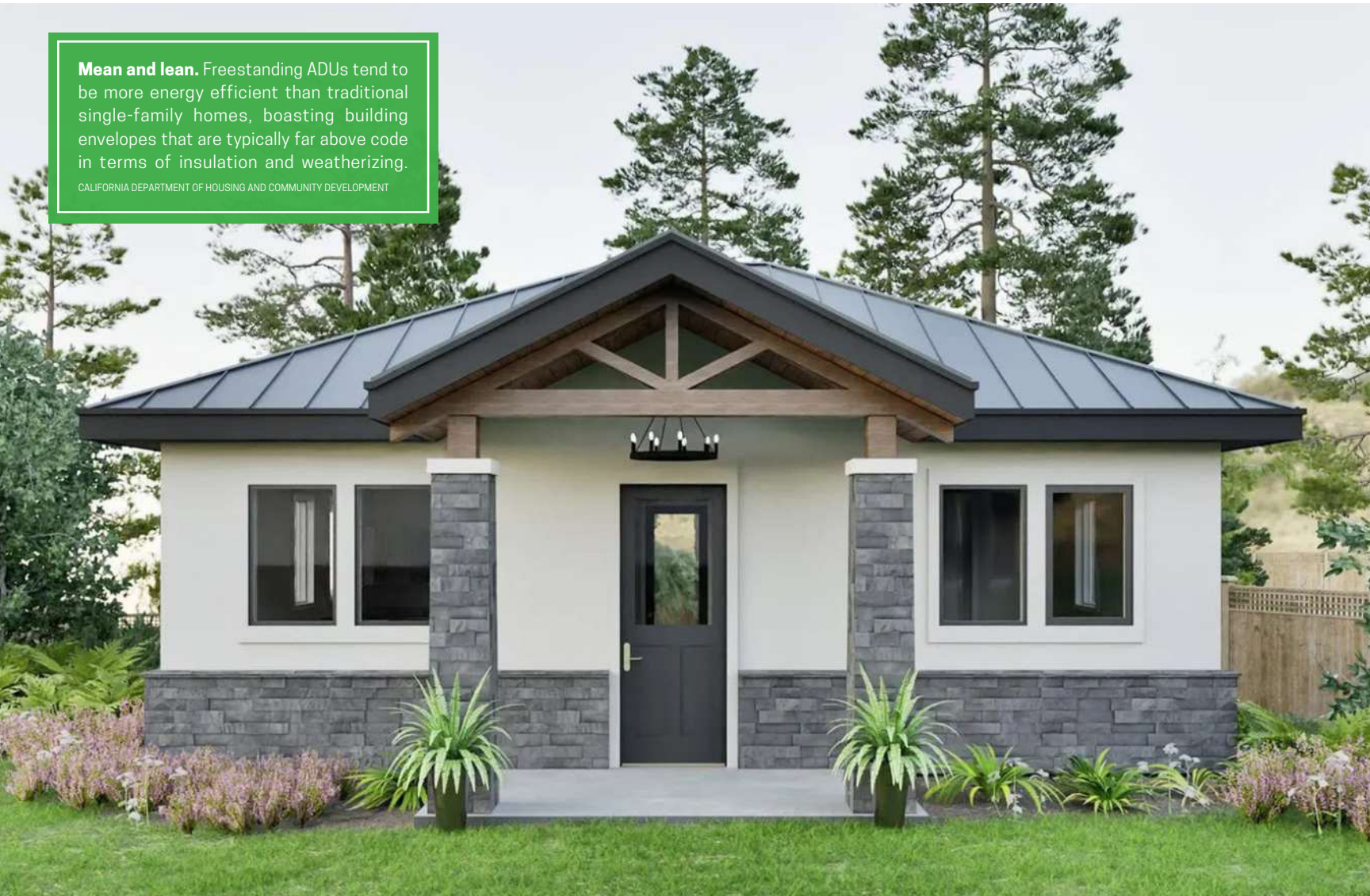
Given all that, it's no surprise that studies have found that doubling

urban density by population reduces emissions from household travel by 48 percent, and residential energy use by 35 percent. Those are big numbers, and all the more so if you consider that household travel and residential energy use account for about 42 percent of total U.S. carbon emissions. Individual and multi-unit ADUs close to urban centers mean less need for cars and more opportunities for public transit. Car trips give way to bike jaunts and foot traffic. It means more people living closer to jobs, schools, shopping, restaurants, and urban cultural amenities such as museums, concert venues, and sports stadiums. They are, from economic, political, quality-of-life, and—not least—sustainability perspectives, a gentler way to boost density.

Prefab ADU construction at scale is sustainable across many dimensions and time horizons. Builders should follow governments' lead in considering ADUs as key elements in solving housing challenges in ways that are at once more livable and more sustainable. **GB**

Mean and lean. Freestanding ADUs tend to be more energy efficient than traditional single-family homes, boasting building envelopes that are typically far above code in terms of insulation and weatherizing.

CALIFORNIA DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT



For better or worse? Artificial intelligence (AI) is becoming integrated into our daily lives, dictating how, where and what the construction industry builds and consumers buy.

CREDIT: ISTOCK/ANDREY SUSLOV

AI in Green Building

In the construction industry, AI's future is clear: It will be used more in planning, designing and writing. We'll also get better at using it.

BY TERRY BEAUBOIS

I use artificial intelligence (AI) in ways I never experienced with regular word processing software. The topic of "AI in the AEC" is important because AI is already in the process of revolutionizing teaching, learning, and the practice of architecture from this point in history forward. Many students are already using AI. Some teachers are already using AI. Some schools are already widely using AI. The transition is already underway.

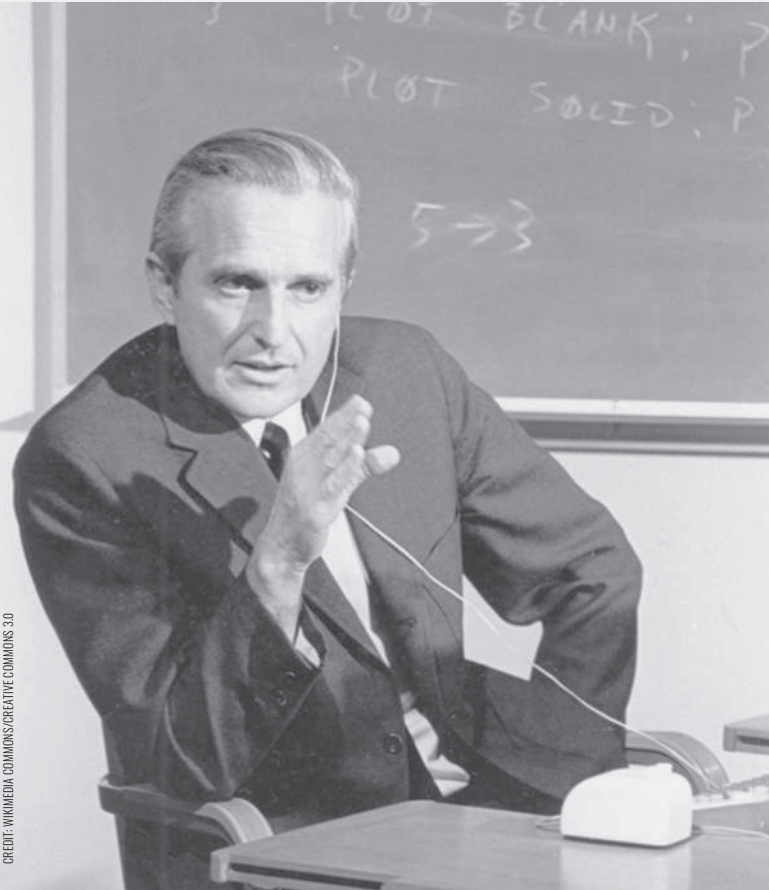
My first presentation about AI was at the "AI in the AEC" conference in Helsinki, Finland, in March 2023. And although today, in 2026, AI is still in its early stages of development, it's exciting to watch as the technology moves from "experimental" to "essential." While the spread of AI gives us more tools, it also introduces new challenges.

This cautious adoption of AI in the AEC is one of the reasons I have hesitated to write about the technology previously. I still caution everyone

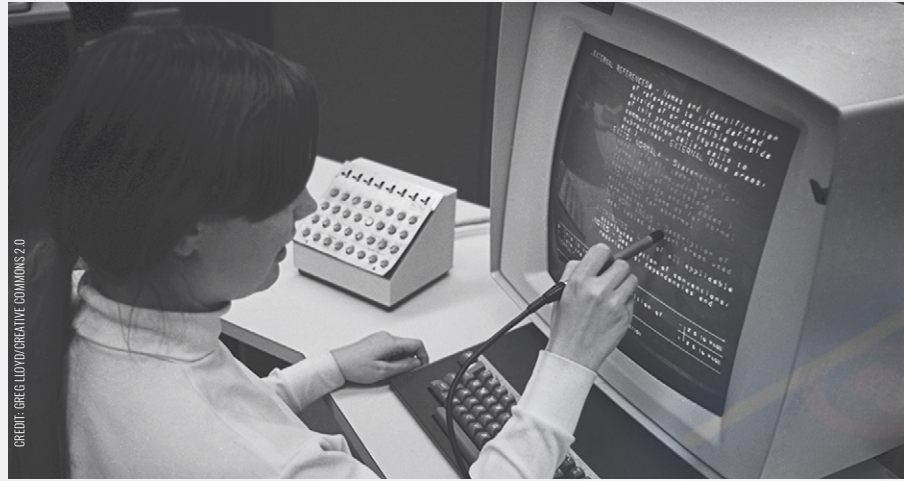
to be careful and aware in their own use of AI. AI can still make mistakes and include incorrect information.

Green building is a broad undertaking. We can benefit considerably if we choose to use AI in our practices of collaboration "across green building in the AEC," as individuals and in our professional capacities work together. AI is designed to foster and facilitate people working together on extremely complex technical issues—beyond what most humans can manage. The depth of AI's capabilities is phenomenal and continuing to increase, although AI does come with a flaw that we must be aware of as its tools "move from experimental to essential."

My own experience with exploring the "augmentation of human intelligence," which led to incorporating AI knowledgeably into my work, goes back to my college days at the University of Michigan. When I was at the university in the late 1960s and early 1970s, the school



CREDIT: WIKIMEDIA COMMONS/CREATIVE COMMONS 3.0



CREDIT: GREG LLOYD/CREATIVE COMMONS 2.0



CREDIT: WIKIMEDIA COMMONS/CREATIVE COMMONS 3.0



CREDIT: ISTOCK/MEROVINGIAN

Tools of the trade. Douglas Carl Engelbart was ahead of his time with his research on future technology. His work in the 1960s led to creation of everyday items such as the computer mouse, hypertext, and graphical user interfaces.

acquired a “mainframe computer.” U of M made the capability of that computer available to some students to increase awareness of the use of interactions that the university was developing. Later I would go on to create the NASA-AIA Advanced Technology Application Committee of NASA/Stanford in Palo Alto, California, and lead our continuing exploration of the use of computers in education and space exploration.

These experiences have contributed to my thinking on how computers could directly “augment” our own intelligence to assist us in accomplishing things that humans couldn’t accomplish on our own. I’ve always taken a broad view of the building industry and how we can best use advanced computing to improve our work in the design of buildings in the AEC.

FURTHER BACKGROUND

An early area of background knowledge regarding AI is related to the work of Douglas Engelbart. In his influential 1962 paper, “Augmenting Human Intellect: A Conceptual Framework,” Engelbart described a hypothetical scenario of an architect using a computer to design, manipulate, and visualize complex structures interactively. This vision was part of his broader goal to use computers to solve complex problems and augment human intelligence, long before computers were generally seen as interactive or personal tools.

In an essay that he wrote in 1962, Engelbart envisioned a system where a human and computer would work together in a cooperative loop, going

far beyond simple automation. Key aspects of this idea included:

- **Interactive visual displays:** The architect would work with a computer coupled to a “three-dimensional color display,” where sophisticated images could be constructed and manipulated.
- **Rapid response:** The system would respond rapidly to minimal human input, allowing for a seamless, interactive workflow.
- **Complex operations:** The computer would be able to execute a wide variety of processes on parts or all of the images, following complex rules defined by the architect.
- **Exploration of ideas:** This augmented system would allow the user to explore concepts and designs that were not possible with traditional, non-computer methods.

Engelbart’s specific example was of an architect using a computer as a dynamic design and visualization tool. This was just one of several scenarios he used to illustrate his vision for human-computer interaction. He invented the computer mouse, the graphical user interface, and hypertext. His work beginning in the 1950s led to his patent for the computer mouse, the development of the basic graphical user interface (GUI), and groupware. In 1997, Engelbart won the A.M. Turing Award, the highest honor in computer science, for his “inspiring vision of the future of interactive computing and the invention of key technologies to help realize this vision.” I worked with him for many years.



Intelligence effort. Scalable smart village projects, such as this one envisioned for Bela, a rural village in Nagpur, India, would combine advanced tech like drone-assisted farming, AI in schools, smart irrigation, e-health cards, and free government-supplied Wi-Fi. CREDIT: DESIGNFAKT INDIA

Many of the ideas originally promoted by Engelbart inspired related efforts that I was involved with in the AEC, such as The SMART House movement, and then The SMART Village movement of Prof. Solomon Darwin of the University of California at Berkeley. Here, the ideas of building upon human-computer interaction are examined to see how they can contribute to the betterment of humans, such as by using computers to design more than one building at a time, and considering how to use AI for the development of communities.

These were not the only implementations of Engelbart's research, but they represent examples of and continuation of the spirit of his work. Prof. Darwin has conducted workshops and programs in more than 18 countries. His more recent projects include "Building Scalable Smart Villages" and "The Rebuilding India Initiative," which were commissioned by the government of India.

That goal was to create sustainable, high-impact, and scalable villages by connecting them to global markets. It involves a community-driven process to define needs and develop related solutions. Key aspects include a focus on achieving the UN Sustainable Development Goals.

I mention these examples to show how the ideas of Augmenting Human Intellect are alive and well. They continue to grow and expand throughout the world, including across the greater building industry.

WHAT NOW?

AI still has some issues. It is in a development stage and will continue to improve. Being aware of these issues and problems is important and will eventually have to be adequately addressed as we go forward. It will be an important aspect of the future success of AI.

In the meantime, we all have to be careful, cautious and aware of AI's imperfections. We can use AI to help us become better writers ourselves, rather than relying on AI to write articles for us.

I'll continue to write about "AI and the AEC." I'll include:

- Responsible AI use in green building and beyond.
- A call to action, urging readers to stay informed, engage in discussions about AI ethics, and promote responsible AI practices within their specific areas of work.
- Encourage people to reflect on the impact of AI and their own roles in shaping the future.
- Be aware of the current federal and state levels of AI laws, which are still evolving. The federal effort to encourage U.S. states to enact artificial intelligence regulations has paused, and national standards are being considered and are being developed.

Get involved in these activities if you can. We can all work together. **GB**

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Editor's caveat: As noted in my introduction to this issue, the large scale financial benefits of AI remain a fraction of the build-up costs, and the negative environmental impacts, so far, vastly outweigh the "green" dividends. The risk of a bubble, or worse, remains a real concern.

—Matt Power

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THE FALSE AFFORDABILITY NARRATIVE



Ron Jones
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Almost exactly a century ago, a fellow in Europe with aspirations of world domination asserted that “the great masses of the people...will more easily fall victim to a big lie than to a small one.” As he and his propagandists refined his idea, the message evolved to become, “if you tell a big enough lie, and repeat it often enough, it will be accepted as true.”

Truth, as we are reminded almost daily, is a moving target whose validity must be carefully questioned, depending on the source. Often, the “truth” we are asked to accept is shaped around the desired outcomes of the person or group of people whose declarations we are hearing.

A noted American investment guru warned against asking the barber if you need a haircut because since the barber makes his living cutting hair, he has a “vested interest” in the answer, making objectivity the first casualty of any such discussion.

Recently, affordability has become a popular subject of much political contention. We are certainly presented with a wide variety of definitions, explanations, accusations and denials surrounding the authentic meaning behind it. These arguments may be topical, but the most blatant hijacking of the term has been right in front of us for decades.

Some of the loudest voices of the housing industry in America, specifically the National Association of Home Builders (NAHB) and the sectors that are its core constituency, have been allowed to claim the rights to use the word “affordability” to advance its own purposes.

By continually beating an affordability drum of its own invention, NAHB has essentially been awarded the keys to the kingdom by virtually all of the other stakeholders who have necessary roles in the housing of the nation’s people. And, by endlessly repeating its message, NAHB has methodically worn down any resistance to its mantra.

“Fundamental to this deception is the universally accepted notion that value can be measured by that most simplistic formula known as ‘dollars per square foot,’ prioritizing quantity over quality, in conjunction with the outrageous contention that first cost is interchangeable with full cost, which as anyone who has ever owned a home knows to be ridiculous.”

Unfortunately, we can all assume part of the blame because we have simply been too lazy to challenge any misrepresentations in any meaningful way. As a result, NAHB has framed the narrative so that the mortgage sector, the appraisal and insurance industries, those responsible for the code development process, those in the public policy arena, and yes, even the aspiring home owner, have ceded ownership of the term. By NAHB’s definition, this has reduced the entire concept of owning a home, indeed the American Dream itself, to a single transactional event. NAHB would have us believe that the moment of purchase is all that it should be held accountable for.

Fundamental to this deception is the universally accepted notion that value can be measured by that most simplistic formula known



Encouraged misperception. Today's home buyers face numerous challenges before they receive their house keys—including commoditization of ownership, where a home is marketed as a financial investment instead of a fundamental human need. CREDIT: ISTOCK/TOUCAN STUDIOS

as “dollars per square foot,” prioritizing quantity over quality, in conjunction with the outrageous contention that first cost is interchangeable with full cost, which as anyone who has ever owned a home knows to be ridiculous.

When the closing documents have been signed and the shiny new keys have been handed over to the home buyer, the process has reached an important milestone, to be sure, but the challenges facing that owner are just beginning. There is no transfer of responsibility for escalating energy costs and property taxes, insurance premiums, maintenance, replacement, or upkeep. Durability, resilience, resistance to the ravages of natural and man-made disasters, and the stability of the economy in general, remain potential problems for the homeowner.

Meanwhile, it is business as usual for those in the housing sector who essentially seek to perpetuate a model that no longer provides dependable asset appreciation or the promise of generational wealth. This was once the very foundation of the housing industry and the backbone of the nation's prosperity and security. Those lofty goals have

fallen victim to the commoditization of home ownership to satisfy the ever-escalating pressures of the dreaded quarterly report.

The accepted goal seems to be to attempt to warehouse as many families as possible, often in houses that offer little more than planned obsolescence by disguising profitability as affordability, while delivering no more than the absolute minimum that is required to pass as legal. It is akin to serving low-quality fast food by convincing people that paying cheap prices for calories is the same thing as investing in nutrition.

The situation will not change on its own. The industry will continue to serve its vested interests by repeating its big lie to anyone who will listen. The familiar voices will deliver the same refrain, sweetened with phony “mom and apple pie” rhetoric. Our industry can do better. Aspiring homebuyers deserve better.

For too long, we have stood by while this manipulation has occurred, and in that way we are complicit. It is up to us to demand the real meaning of affordability. Let's work toward establishing a valuation metric and a home ownership model that serves everyone, especially those on the outside looking in. **GB**



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