



SmartMarket Brief



Building Sustainably:

Green & Resilient Single-Family Homes 2024



Introduction

ABOUT THIS SMARTMARKET BRIEF

The National Association of Home Builders (NAHB) and Dodge Construction Network (DCN) last conducted research on the prevalence of green building in the single-family residential market in 2019, publishing the findings in 2020. This *SmartMarket Brief*, featuring the findings from a survey of 250 home builders and remodelers, reveals that commitment to green building remains strong among single family-builders and remodelers.

- It examines the share of builders and remodelers building green homes and those who engage in specific green building practices, with minor growth in the share doing fully green projects and major growth for many of the practices.
- For the first time, the study examines the use of specific practices that increase home resilience in the face of increasingly severe weather, such as floods and high-wind events, and ongoing challenges like earthquakes.
- It explores what drives builders and remodelers to build green currently and what would influence their engagement with green building in the future, along with ways to increase the demand for green building in the residential market.

DCN wishes to thank NAHB for sponsoring this critical research into green and resilient home construction.

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COVER IMAGE

Builder: Red Tree Builders

House Location: Asheville, North Carolina

Photographer: Darrell Cassell

Environmental Technology:

System of modular smart home devices, which actively monitor indoor air quality.

Certifications:

- ENERGY STAR Certified Home
- Green Built Home

Message From the National Association of Home Builders

In the everchanging industry of home building—whether one is constructing single-family, multifamily, sustainable, for-rent or affordable product—it is important to continually analyze market trends to assess building needs now and in the future. The *Building Sustainably: Green & Resilient Single-Family Homes 2024 SmartMarket Brief* focuses on showcasing builders' perspectives on market demand, drivers, obstacles, and products and practices affecting their green building and resiliency activities, and aims to increase engagement and discussions about the challenges and opportunities associated with sustainable home building.

Resiliency issues, for example, have become increasingly prevalent in the building industry over the last decade. Changes to regulations, codes and consumer demands to ensure homes are prepared to better withstand storms, droughts and other natural disasters have created both uncertainty and opportunities for builders and home buyers. Introducing and analyzing resiliency issues for the first time in this new Brief will establish

a baseline for long-term analysis of trends and perceptions in this space while fostering better-informed decision-making at all levels.

NAHB's mission is to protect the American Dream of housing opportunities for all, while working to achieve professional success for its members who build communities, create jobs and strengthen our economy. The *Green SmartMarket Briefs* conducted on NAHB's behalf over the years have helped the association assess the trends related to builders' needs, customer demands and the changing regulatory landscape for constructing sustainable, resilient and green homes. NAHB is proud to partner again with Dodge Construction Network to better understand the use of green and resilient building practices in the home building industry to inform our advocacy efforts, educate our members, and set them up for success.

James W. Tobin, III
President and Chief Executive Officer,
National Association of Home Builders



Key Findings

Share of Green Home Remodelers and Use of Green Products and Practices Have Grown Since 2019

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Prevalence of Green Home Building/Remodeling in the US

Green building is well-established in the home building industry, with over one third of home builders and nearly one quarter of remodelers who report that their projects qualified as green in 2023, based on a strict definition (see page 6).

- This demonstrates substantial growth in the number of remodelers doing the majority of their work green since 2019, and it shows that the number of green home builders has remained relatively steady.
- However, home builders are more intensively engaged with green building than remodelers: Nearly one quarter (22%) report that more than 90% of their projects qualify as green, compared with just 6% of remodelers.

Average Growth In Use of Practices/Products on More Than 50% of Home Projects Since 2019

Dodge Data & Analytics, 2024



Water Conservation
9 Percentage Points



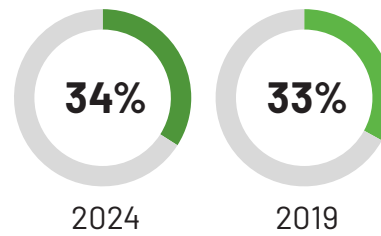
Materials and Resources Conservation
12 Percentage Points



Energy Efficiency
17 Percentage Points

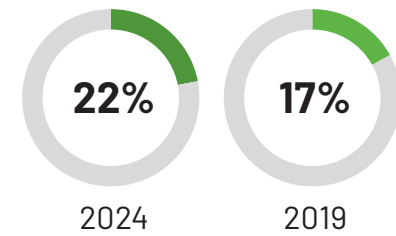
Share of Home Builders With More Than 50% Green Projects

Dodge Data & Analytics, 2024



Share of Home Remodelers With More Than 50% Green Projects

Dodge Data & Analytics, 2024



Use of Green Products and Practices on Home Building Projects

Nearly all (96%) home builders and remodelers say they actively improve home building performance through use of at least one of the following general approaches: energy, water and materials resource efficiency, healthier indoor living environments, resiliency, green site/lot development, and providing operation and maintenance manuals for green features.

In addition, all builders/remodelers were asked whether they use several specific products and practices on 50% or more of their projects in three categories—energy, water and materials resource efficiencies— as well as specific renewables and electric home strategies.

- More builders/remodelers use most of these products and practices now than did in 2019.
- The most popular water and materials conservation products/practices are used by more respondents than those who say that they use water and materials efficiency approaches in general, suggesting that these products/practices are now standard for many home builders/remodelers.
- One quarter of home builders/remodelers state that 50% or more of their home building projects are all-electric homes, and over half include the capacity to accommodate an EV charger.

Key Findings CONTINUED

The Use of Resilient Practices Varies by Region, Clearly Driven by Perceived Need

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Use of Resilient Practices/Features

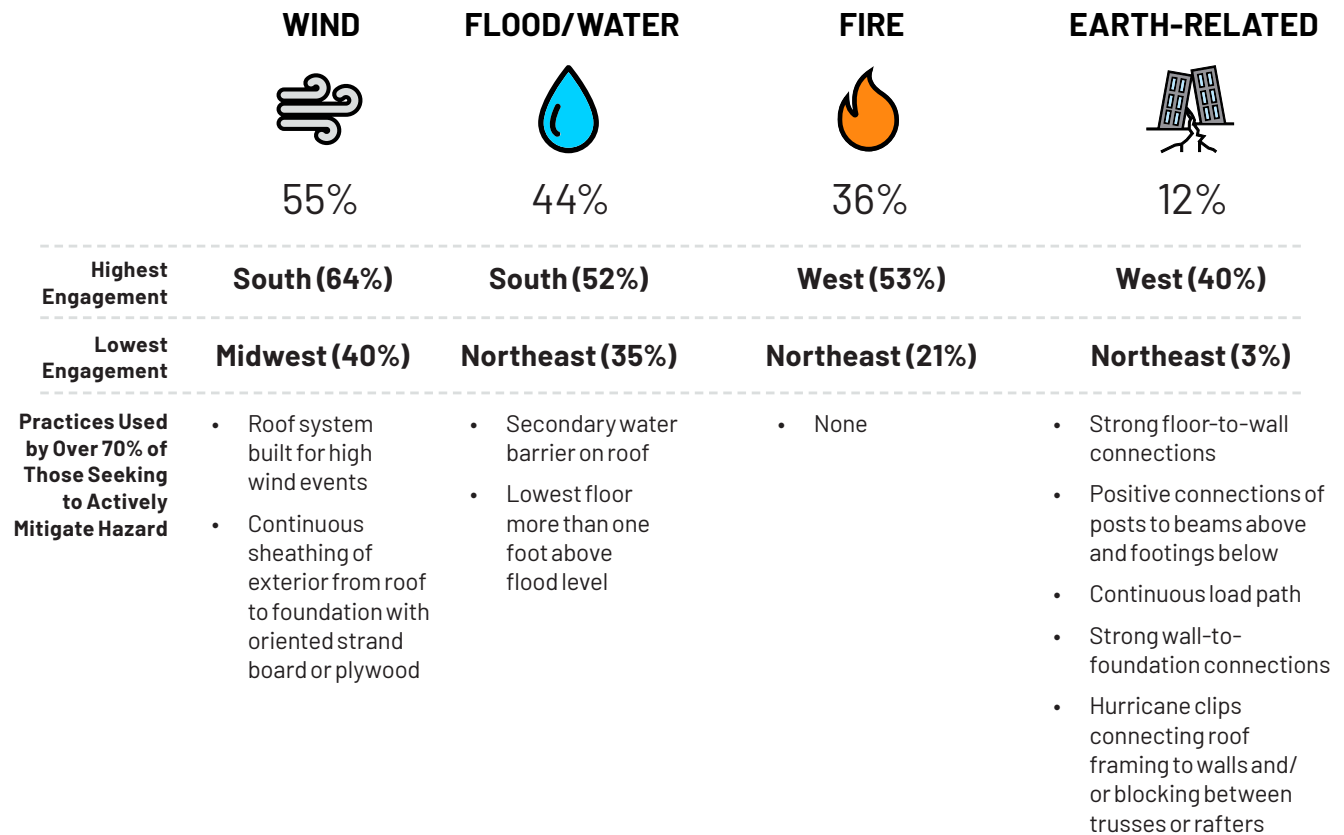
According to NOAA, 2023, 2020, 2021 and 2022 rank first, second, third and fourth, respectively, for years with the most billion-dollar weather and climate disasters that impacted the US.¹ Homeowners were among those who experienced losses due to these events, highlighting the growing need for more resilient homes.

The findings show significant regional variation in the share of home builders/remodelers who actively seek to mitigate the impact of hazards. This is true despite the growing prevalence of weather events with high winds and floods in regions that have not typically experienced them.

The widespread use of multiple practices to mitigate the impact of earthquakes by those who actively address that hazard also suggests that the strategies used to drive their adoption may offer a model for how to increase the use of practices that help mitigate other hazards.

Home Builders/Remodelers Who Actively Seek to Mitigate Impact of Hazards

Dodge Data & Analytics, 2024



¹[https://www.climate.gov/news-features/blogs/beyond-data/2023-historic-year-us-billion-dollar-weather-and-climate-disasters#:~:text=In%202023%2C%20the%20U.S.%20experienced,U.S.%20in%20early%2DFebruary\).](https://www.climate.gov/news-features/blogs/beyond-data/2023-historic-year-us-billion-dollar-weather-and-climate-disasters#:~:text=In%202023%2C%20the%20U.S.%20experienced,U.S.%20in%20early%2DFebruary).)

Key Findings

Growth Is Most Likely If Builders/Remodelers Experience More Market Demand for Green

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Top Drivers and Obstacles for Green Building

The top reasons that home builders/remodelers say that they build green homes are:

- Right Thing to Do: 48%
- Creating Healthier Homes: 38%
- Code Requirements: 36%

Customer demand is currently considered more of an obstacle than a driver:

- Market factors included in the survey, such as product differentiation in the local market or market demand, are selected as top reasons to build green by fewer than one quarter.
- 77% select lack of customer demand as a top obstacle for green building.

How to Increase the Market for Green Homes

Most builders and remodelers find that green home building projects are more expensive than traditional ones. The study suggests a few factors that could help drive demand because each one addresses that challenge.

- Incentives could help offset the cost of green and are among the top triggers for more green building reported by homebuilders/remodelers. There are many incentives in the market, bolstered by the Inflation Reduction Act and other legislation, but the findings suggest that many contractors are either not aware of or are unable to access these incentives.
- Another factor that could help offset the additional cost of building green among home buyers is having the additional value of their green home reflected in their home appraisals. However, 82% report this rarely or never happens.
- An additional way to create customer demand is to increase awareness of the high home performance features of green homes by having green features captured consistently in MLS listings. Unfortunately, home builders/remodelers also find that this is not a common occurrence, limiting the degree to which additional demand can be created for these properties.

Influence of Incentives



16%

Government Incentives Currently One of the Top Three Reasons for Building Green

48%

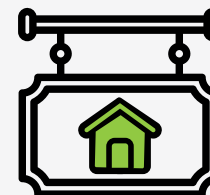
Availability of Government/Utility Incentives in Their Area One of the Top Three Triggers for Doing More Green Projects

Home Appraisals and MLS Listings



82%

Infrequently or Never See Home Appraisals That Reflect Green Value of a Home



72%

Infrequently or Never See Green Features in MLS Listings

Green Building Activity

INTRODUCTION

For a home building or remodeling project to be considered green, it must include a range of green building practices. Therefore, while many green building practices are widely adopted in the industry (see pages 9 to 21), the share of builders and remodelers doing enough to qualify a home project as green is still a smaller part of the overall industry.

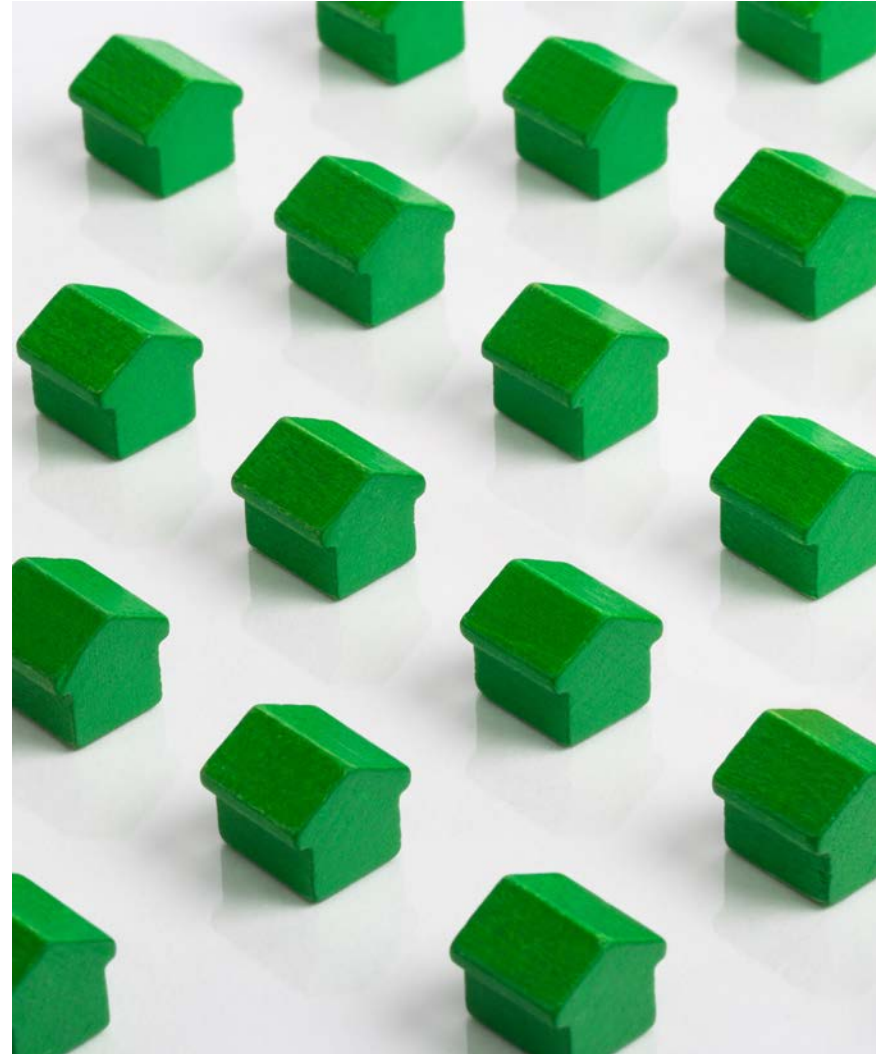
The definition used for a green home in the survey was developed jointly by the National Association of Home Builders (NAHB) and Dodge when this research was first conducted in 2009, and it was most recently refined in 2019 to be the following:

A green home incorporates strategies in design and construction that improve energy, water and resource efficiency, indoor environmental quality, and minimize environmental impacts on the site; and/or is certified by a third party to the National Green Building Standard, LEED for Homes, or any other green rating system or high performance standard.

This section reveals the degree of green engagement among home builders and contractors utilizing their self-reported share of green projects based on this definition.

The responses about the share of home projects in 2023 that qualify as green are also used to put builders and remodelers into four categories that are included in the rest of the analysis in this Brief:

- NO GREEN ENGAGEMENT: No green home projects
- LITTLE GREEN ENGAGEMENT: 50% or fewer home projects qualify as green.
- GREEN BUILDER: 51% to 90% of home projects qualify as green.
- DEDICATED GREEN BUILDER: More than 90% of home projects qualify as green.



Share of Green Projects

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OVER HALF OF BUILDERS AND REMODELERS HAVE DONE GREEN PROJECTS IN 2023

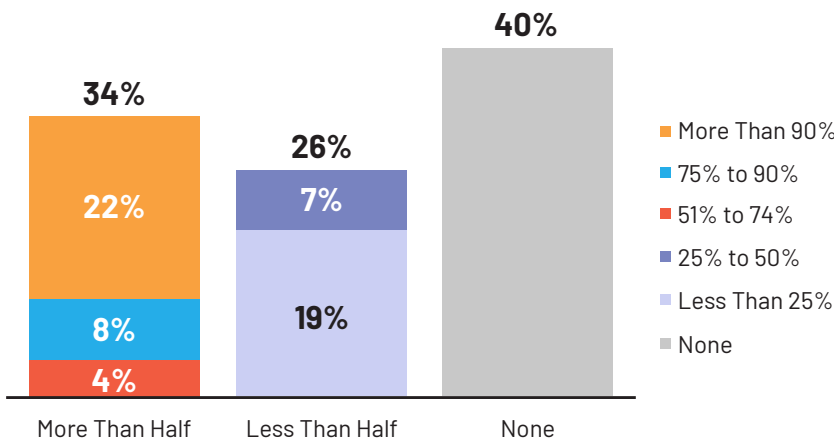
After being presented with the definition of a green home (see page 6), all respondents who engage in new home construction and/or remodeling projects were asked what share of their projects in 2023 qualified as green based on that definition. Their responses are shown in the two charts below by the type of project.

- A similar share of respondents report doing at least some new green homes (60%) and some green remodeling/renovation projects (57%).
 - The share doing at least some new green homes is slightly higher than the 57%

- of single-family builders who reported doing green homes in 2019.
- The increase in green remodeling projects is even greater, up seven percentage points from the 50% of single-family remodelers who reported some green projects in 2019.
- The biggest share of new home builders (22%) who built green at all in 2023 report that they do so on more than 90% of their projects.
- This is in sharp contrast to those doing green retrofits/renovations, where the highest share of those doing any green work at all report that those projects are less than one quarter of their total work.
- That disparity in the share of dedicated green builders between new home building and remodeling is also consistent with the findings from 2019.

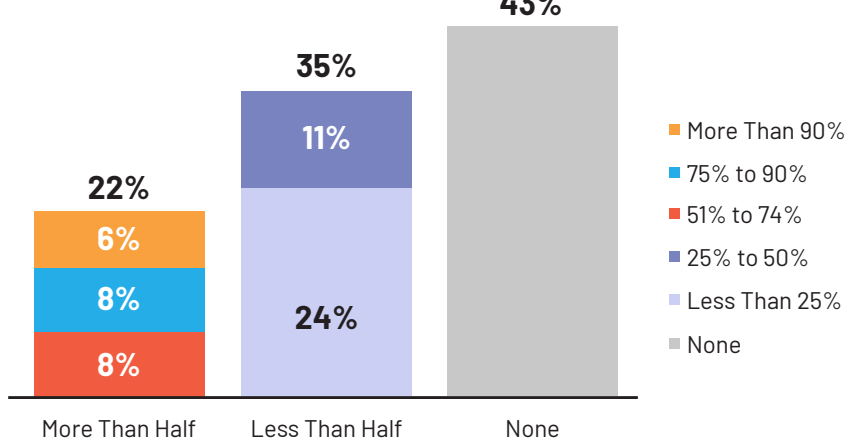
Share of New Green Homes in 2023

Dodge Data & Analytics, 2024



Share of Green Remodeling/Renovations in 2023

Dodge Data & Analytics, 2024



Share of Green Projects CONTINUED

SmartMarket Brief

SMALL REMODELERS ENGAGED IN MORE GREEN PROJECTS IN 2023 THAN DID MIDSIZE OR LARGE ONES

The two charts at right compare the share of small, midsize and large builders and remodelers that did more than half of their projects green in 2023. These will be identified as green builders/remodelers in the rest of the analysis, and those who do more than 90% green as dedicated green builders/remodelers.

- The percentages of green home builders are similar between small, midsize and large companies.
- Small companies doing remodeling projects, in contrast, report that a much larger share of their projects are green than do midsize or large companies. In fact, only 6% of large companies that engage in remodeling projects are green remodelers, and none report that they are dedicated green remodelers.

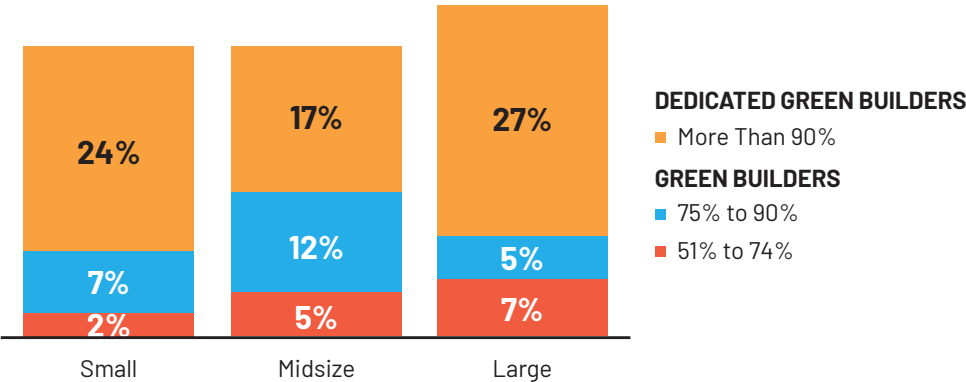
REGIONAL VARIATIONS IN LEVELS OF GREEN BUILDING

There are some regional variations in the levels of green building, which also vary between new home projects and remodeling projects.

- 45% of the new home builders in the Northeast are dedicated green builders, significantly more than the share of dedicated green builders in the South (16%), and directionally more than those in the Midwest (22%) or West (28%).
- Conversely, the Northeast also has the highest share (70%) of remodelers who have done no green projects, significantly more than the share in the West (24%) and directionally more than in the Midwest or South (both 42%).

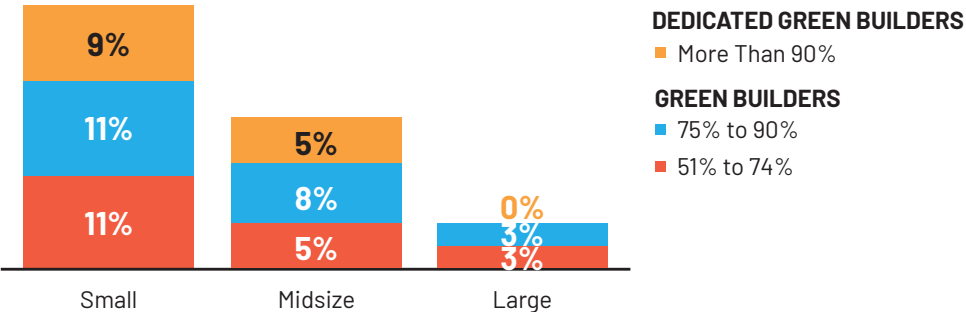
Builders Doing More Than 50% Green Homes in 2023 (by Size)

Dodge Data & Analytics, 2024



Remodelers Doing More Than 50% Green Remodeling Projects in 2023 (by Size)

Dodge Data & Analytics, 2024



Use of Green Building Practices

INTRODUCTION

This section examines the overall use of seven categories of green building practices—those that promote energy efficiency, water efficiency, healthier indoor environments, resource conservation, resiliency, green site management and sharing of operating manuals on green features with homeowners. As the chart at right shows, nearly all of the builders and remodelers use practices that fall into one of these seven categories.

This section then examines the use of specific practices in three of the most widely utilized categories—water conservation, materials and resource conservation, and energy efficiency—in the following ways:

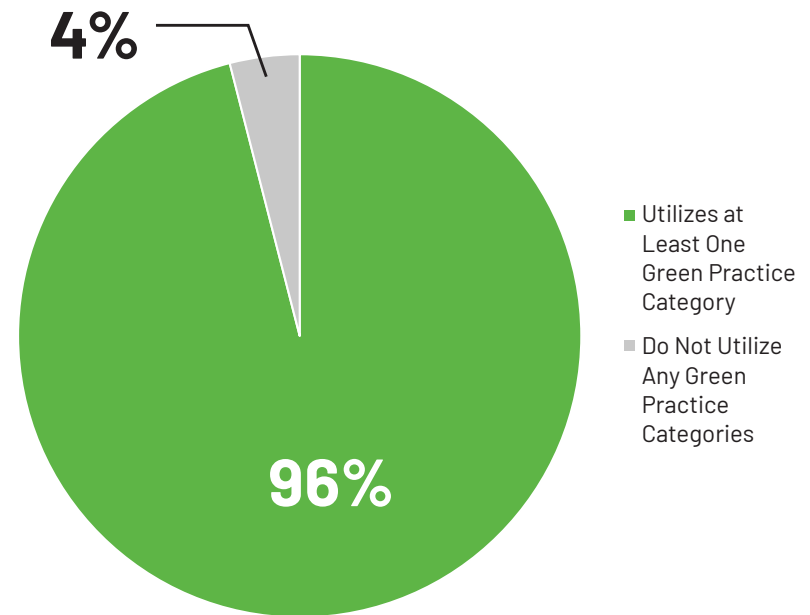
- It shows how frequently builders and remodelers utilize them on more than 50% of their projects currently, and how that compares with the use reported in the 2019 green homes study conducted by NAHB and DCN.
- It examines how the level of green engagement impacts the use of these practices.

This section also examines the degree to which renewables, electrification and EV charging capabilities are deployed on more than 50% of home projects.

Due to the large number of specific practices needed to address disparate hazards such as fire, flood, wind and earth-related hazards, an examination of the multiple practices utilized for resiliency is conducted in the next section on pages 22-29.

Utilizes At Least One of Seven Categories of Green Practices (All Respondents)

Dodge Data & Analytics, 2024



USE OF GREEN BUILDING PRACTICES

Green Practices Used in New Home Construction

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INCREASING ENERGY EFFICIENCY IS A COMMON PRACTICE AMONG HOME BUILDERS

All respondents who build new homes were asked how frequently they used each of the seven categories of green building practices for improving home performance in the last three years, regardless of whether it was a certified green home or not. The levels of use fall into four groups:

- **COMMON PRACTICE:** Using practices that improve energy efficiency is now a common practice among builders, with nearly all deploying them, and almost two thirds (65%) doing so on almost all their projects.
- **WIDELY USED:** Around half of builders use practices that promote water efficiency and healthier indoor living environments. In each case, the largest share of those deploying these practices do so on nearly all of their projects.
- **MODERATELY USED:** About one third utilize practices that increase resource efficiency (such as prefabricated/prefinished components, recycled or renewable materials, etc.) and resiliency features that help homes withstand natural disasters. (See pages 22–29 for more information on resiliency features deployed on home building projects.)
- **EMERGING:** Few contractors are currently greening their sites or providing operation and maintenance manuals for green features.

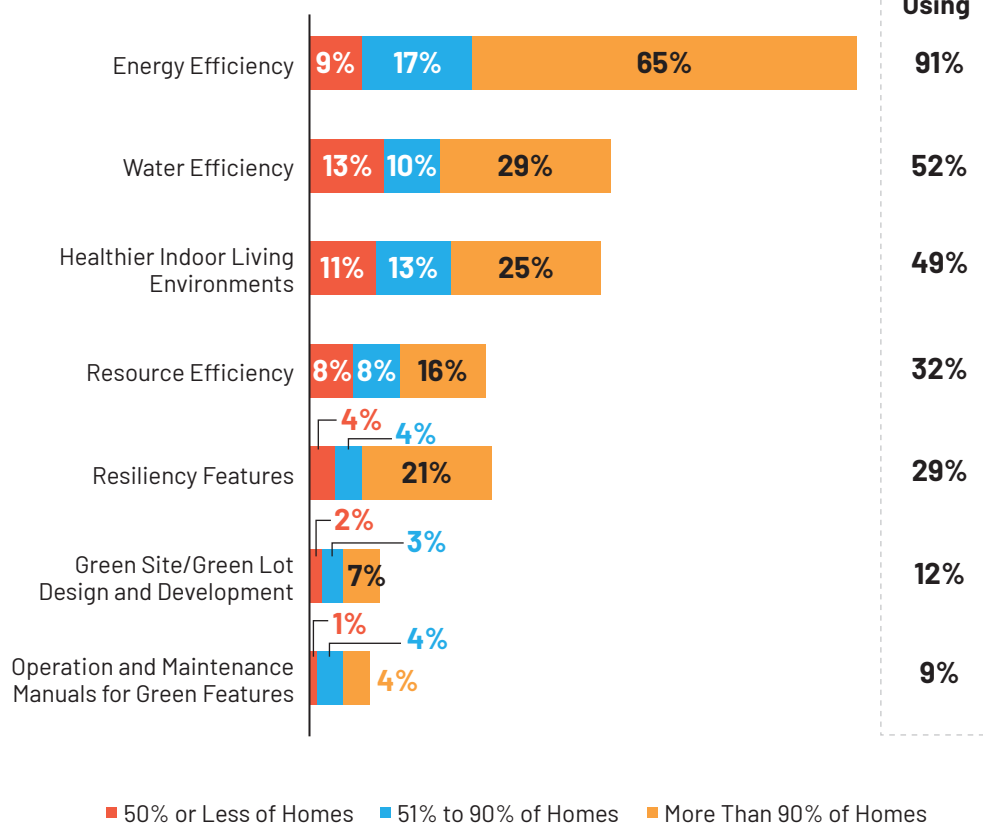
VARIATIONS IN USE ON MORE THAN HALF OF HOME PROJECTS

- **BY LEVEL OF GREEN ENGAGEMENT:** Green builders (those with green homes as more than 50% of their project portfolio) use practices that increase healthier indoor living environments, water efficiency and resiliency more frequently than do those doing fewer or no green homes.
- **BY REGION:** Builders in the West use water efficiency, green site design/development and resource efficiency practices more frequently than other regions, especially the Midwest. Water scarcity in the West is likely a factor in the prominence of these practices in that region.

Degree of Use of Seven Types of Green Building Practices Used for New Homes in the Last 3 Years

(All Respondents Who Build Homes)

Dodge Data & Analytics, 2024



USE OF GREEN BUILDING PRACTICES

Green Practices Used in Green Renovation/Remodeling Projects

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ENERGY EFFICIENCY TOPS REMODELING PRACTICES AS WELL

All respondents who remodel existing homes were also asked about how frequently they used the same seven categories of green building practices on their renovation/remodeling projects in the last three years.

Their responses are very similar to those reported for new homes: energy efficiency is a common practice, features that promote healthier indoor environments and water efficiency are widely used, and resource efficiency and resiliency practices are moderately used.

However, there is one notable difference: The share who report using these practices on more than 90% of their projects is much smaller for remodeling projects than for new homes. Many remodeling projects may be more limited in scope and not offer the opportunity to utilize all of these practices. Therefore, these findings suggest that remodelers are generally as likely to utilize these practices as are home builders when their projects call for them.

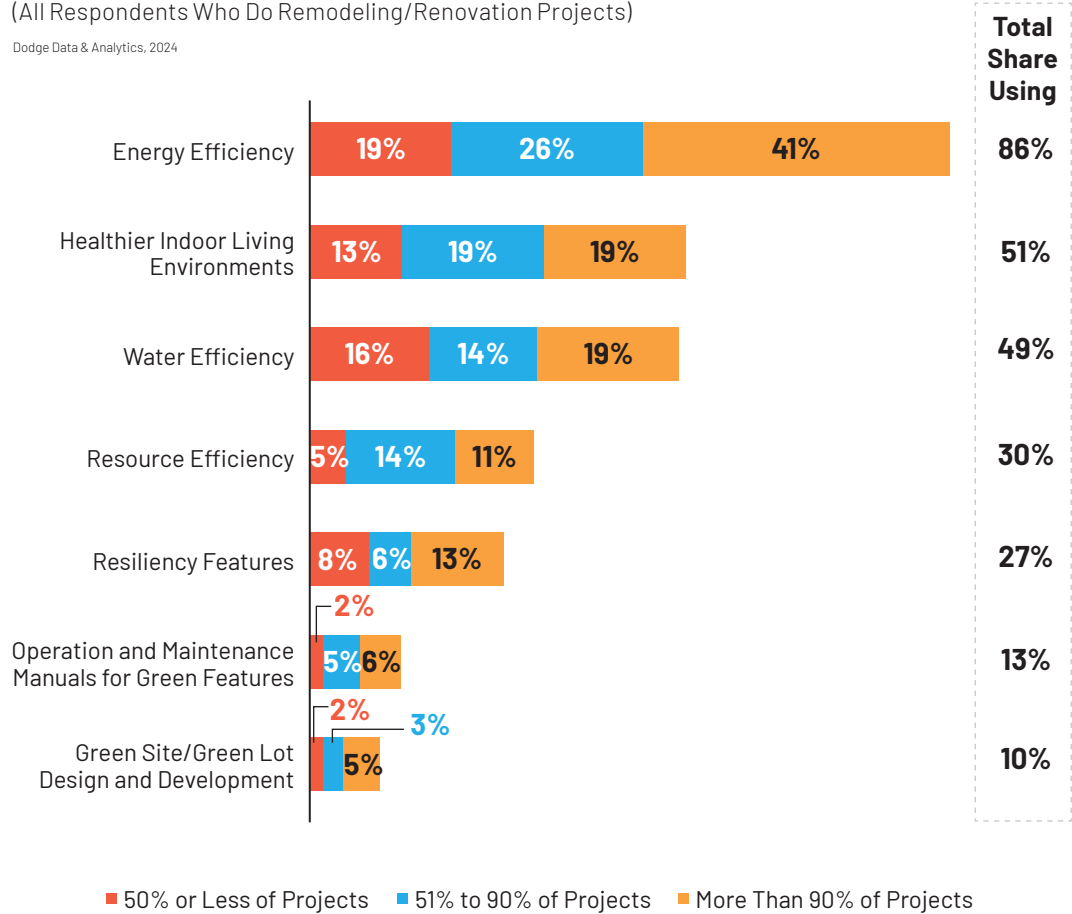
VARIATIONS IN USE ON MORE THAN HALF OF REMODELING PROJECTS

- **BY LEVEL OF GREEN ENGAGEMENT:** Green remodelers use practices that promote energy and water efficiency and healthier indoor spaces far more frequently on the majority of their projects than those doing less or no green building.
- **BY REGION:** Over 90% of contractors in the West using practices that involve green site development and enhanced resiliency and water efficiency use them on more than 50% of their projects, the only region with such high levels of use across all three.

Degree of Use of Seven Types of Green Building Practices Used for Remodeling/Renovation Projects in the Last 3 Years

(All Respondents Who Do Remodeling/Renovation Projects)

Dodge Data & Analytics, 2024



USE OF GREEN BUILDING PRACTICES

Use of Specific Water Conservation Practices

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USE OF MANY SPECIFIC WATER CONSERVATION PRACTICES HAS INCREASED SINCE 2019

Builders and remodelers were asked to select which of eight water conservation products or practices they use on more than half of their projects. Their responses are shown in the charts and tables on this and the following pages.

Comparing these findings to those on pages 10 and 11, it is clear that more builders and remodelers use some specific water conservation practices than the share who report that they include water efficiency practices in general on their projects. This disparity suggests that many of the most widely used practices are just part of their standard building processes, instead of considering them specifically green practices.

MOST WIDELY USED

Water-conserving plumbing fixtures, faucets and appliances are used by more than three quarters of builders and remodelers.

- While they were also the top options selected in 2019, far more builders and remodelers report using them now.
- They rank first for both new homes and remodeling projects, but are less widely used for the latter.

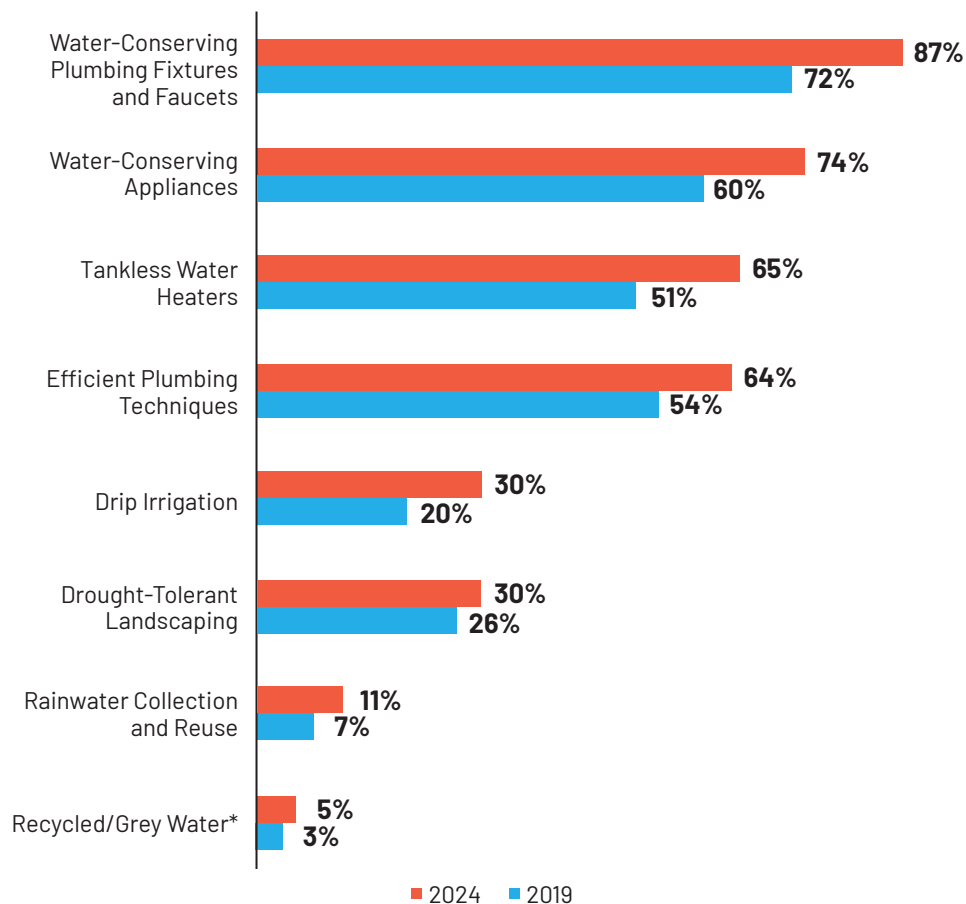
WIDELY USED

Tankless water heaters and efficient plumbing techniques are used by over 60%. Examples of efficient plumbing techniques provided in the

Use of Water Conservation Practices for Half or More of New Homes and Remodeling Projects

(Overall Use Compared With 2019)

Dodge Data & Analytics, 2024



Use of Specific Water Conservation Practices CONTINUED

SmartMarket Brief

survey include compact plumbing design and locating hot water heaters near point of use.

- Use of both of these has grown since 2019.
- Again, use is far more extensive on new homes than in remodeling projects.

LESS WIDELY USED

Only about one third use drip irrigation or drought-tolerant landscaping, and very few currently deploy rainwater collection and reuse or recycled/grey water on more than half of their projects.

- These findings demonstrate that water conservation in the home is a bigger priority than conservation outside the home. That may change since the use of drip irrigation and drought-tolerant landscaping has increased significantly since 2019.
- All four are used more by green builders than by those doing fewer to no green projects (see table below).

Water Conservation Practices Used on Half or More of Projects by Significantly More Green Builders

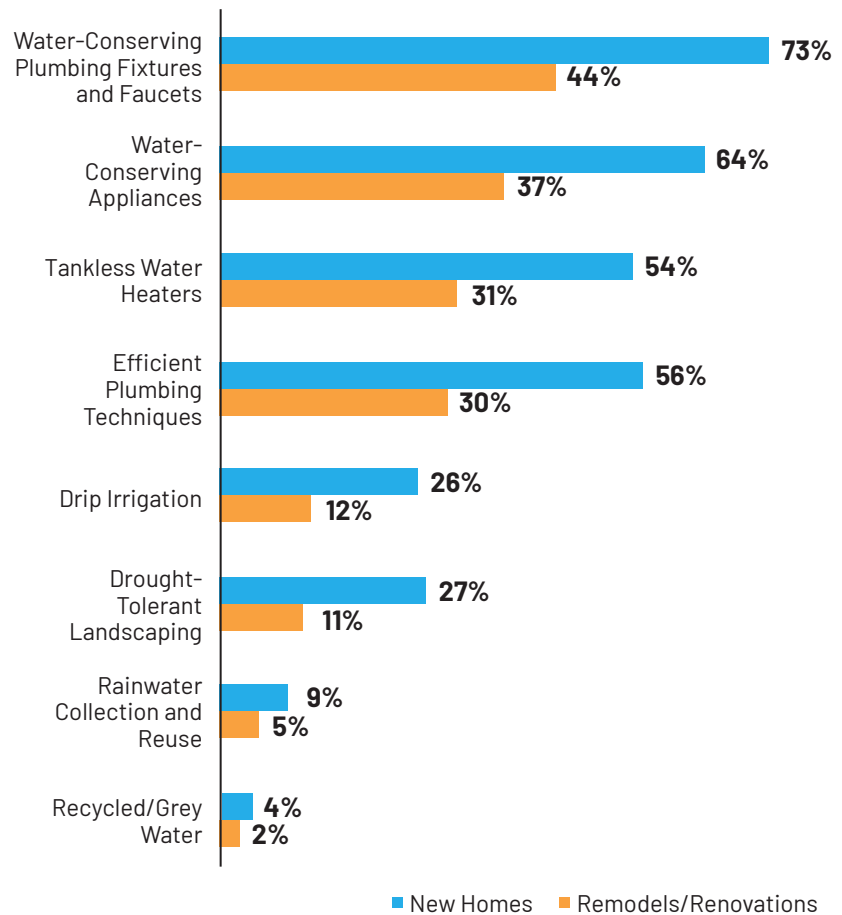
Dodge Data & Analytics, 2024

	Do More Than 50% Green Projects	Do 50% or Less Green Projects	Do No Green Projects
Drought-Tolerant Landscaping	44%	31%	18%
Drip Irrigation	39%	32%	22%
Rainwater Collection and Reuse	18%	11%	5%
Recycled/Grey Water	10%	4%	2%

Use of Water Conservation Practices on Half or More of Projects

(By Share of Those Using Them on New Homes or Remodeling Projects)

Dodge Data & Analytics, 2024



USE OF GREEN BUILDING PRACTICES

Use of Specific Materials and Resources Conservation Practices

SmartMarket Brief

USE OF ALL MATERIALS AND RESOURCES CONSERVATION PRACTICES HAS GROWN SINCE 2019, BUT ONLY TWO PRACTICES ARE WIDELY USED

From the list of six specific materials and resources conservation products/practices in the chart at right, home builders and remodelers were asked to select those that they use on more than half of their projects. Their responses are on this and the following page.

Similar to the water conservation practices, the share utilizing these practices exceed the share who report generally using practices that promote resource efficiency on more than 50% of their projects on pages 10 and 11. Again, this is likely because some of those using the most popular approaches consider them part of their standard building practices instead of considering them specifically green practices.

WIDELY USED

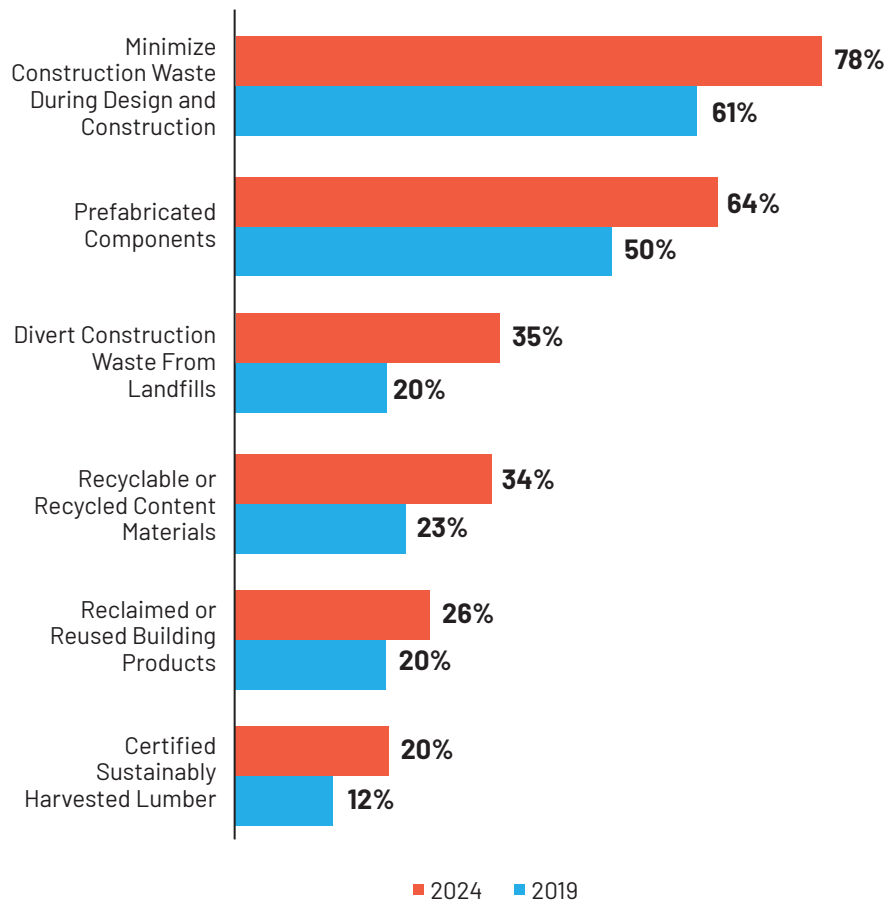
Two of these practices are used by the majority of builders and remodelers.

- **MINIMIZE CONSTRUCTION WASTE:** The largest share (78%) select the broadest category of minimizing construction waste during design and construction.
 - It was also the most widely used in 2019, but it experienced the highest growth in the share selecting it, up 17 percentage points.
 - While it is the practice that is most widely used by remodelers, far fewer (39%) select it than do new home builders (67%). This may suggest that it is more challenging for remodelers to utilize it as a standard practice

Use of Materials and Resources Conservation Practices on Half or More of New Homes and Remodeling Projects

(Overall Use Compared With 2019)

Dodge Data & Analytics, 2024



USE OF GREEN BUILDING PRACTICES

Use of Specific Materials and Resources Conservation Practices CONTINUED

SmartMarket Brief

while working in an existing home, compared with the opportunities on a new home building site.

- There are no statistically significant differences by the level of green engagement in the use of these products/practices.
- **PREFABRICATED COMPONENTS:** Examples of prefabricated components provided in the survey include panels, trusses, SIPS and modular construction, and nearly two thirds of builders and remodelers (64%) report using them.
 - The use of these components has also grown by a wide margin since 2019.
 - Given the structural nature of many prefabricated components, it is not surprising that they are far more widely used on new homes than in remodeling projects.
 - There are no statistically significant differences by the level of green engagement in the use of these products/practices.

LESS WIDELY USED

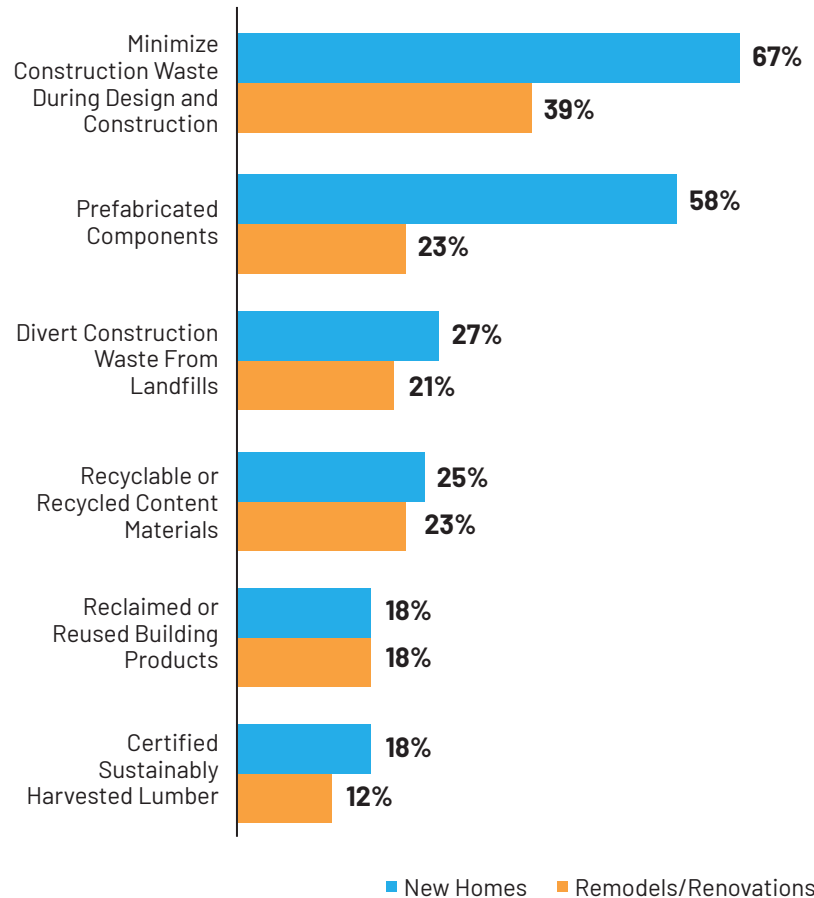
The other four practices and products are not as commonly used, but they are deployed to a similar degree on new homes and remodeling projects.

- Use of all four has increased since 2019, and two of these practices—diverting construction waste from landfills and using recyclable or recycled content materials—experienced double-digit growth in the share implementing them.
- There are no statistically significant differences by the level of green engagement in the use of these products/practices.

Use of Materials and Resources Conservation Practices on Half or More of Projects

(By Share Using Each on New Homes vs. Remodeling Projects)

Dodge Data & Analytics, 2024



USE OF GREEN BUILDING PRACTICES

Use of Specific Energy Efficiency Practices

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SIX ENERGY-EFFICIENCY PRACTICES AND PRODUCTS ARE USED BY MORE THAN 70% OF BUILDERS AND REMODELERS ON MORE THAN HALF OF THEIR PROJECTS

The next four pages examine the use of 14 specific practices and products that help make homes more energy efficient.

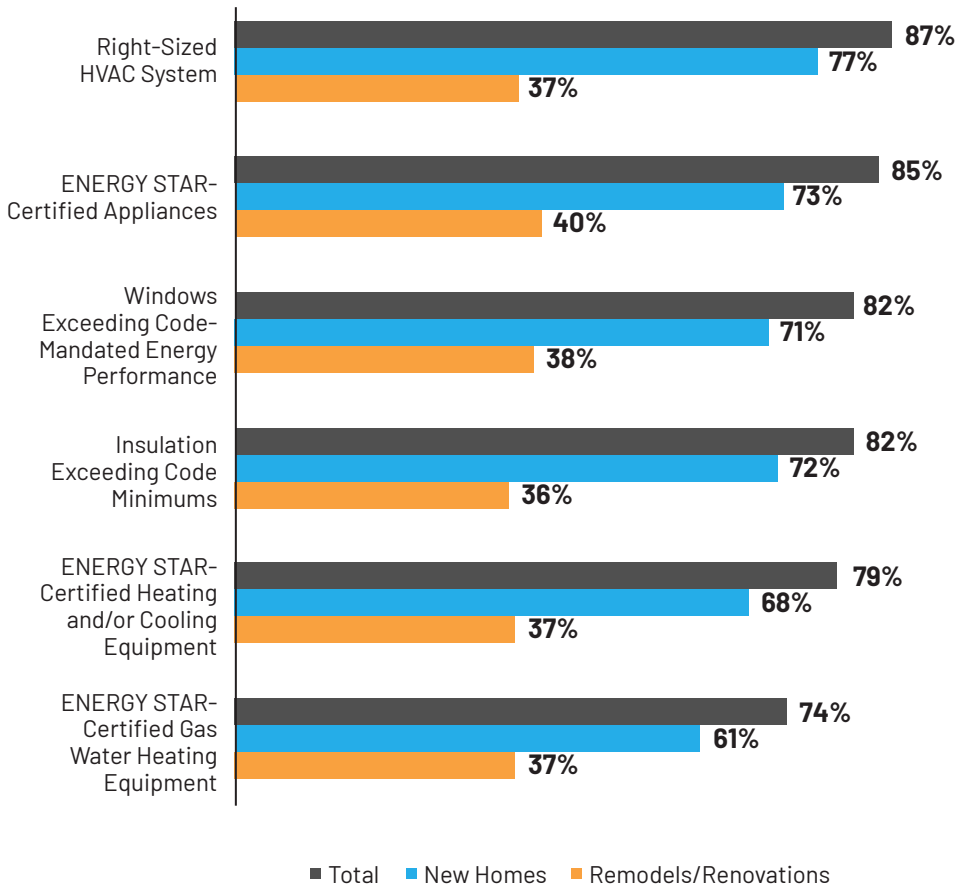
MOST WIDELY USED ENERGY EFFICIENCY PRACTICES

The chart at right reveals that most contractors utilize six products and systems to improve energy efficiency.

- In the current survey, the full description of the top option was “Right-sized HVAC system included the use of ACCA Manual J, including sealed ducting,” but in 2019, it simply was called “Right-sized HVAC system.” As the table on page 18 reveals, this narrower definition did not prevent this approach from being much more widely reported in 2024 than it was in 2019.
- The ENERGY STAR program is very influential in helping to address energy efficiency in new home projects, with ENERGY STAR-certified appliances, heating or cooling equipment, and gas water heaters all widely utilized on more than 50% of new home projects.
- The remaining two top performers are also products, rather than practices: insulation and windows that exceed code.
- These products are all less utilized on remodeling projects, but that may be due to the fact that many remodeling projects may not call for these features. However, additional research would be helpful to understand the degree to which consumers are willing to pay extra for these products, or if that is also a barrier to their use in home remodeling projects.
- Nearly all of the green builders and remodelers utilize these on a regular basis, as the chart on page 17 makes clear.

Energy Efficiency Practices Widely Used on More Than 50% of Projects (Total and by Project Type)

Dodge Data & Analytics, 2024



USE OF GREEN BUILDING PRACTICES

Use of Specific Energy Efficiency Practices CONTINUED

SmartMarket Brief

- In addition, the majority of builders/remodelers that did not green homes in 2023 also report using all of them extensively, with 70% or more using four of these products. This clearly demonstrates that energy efficiency is not just a priority for green buildings.
- The use of windows and insulation that exceed code grew substantially between 2019 and 2024, by around 20 percentage points in both cases. This may suggest that builders and remodelers are increasingly prioritizing energy efficiency in their projects, that windows and insulation that exceed code are more widely available, or a combination of both factors. (Note that the specific types of ENERGY STAR-Certified heating systems were not included in the 2019 survey, and therefore not available for comparison.)

There are also differences by region and size in the use of some of these products.

REGION

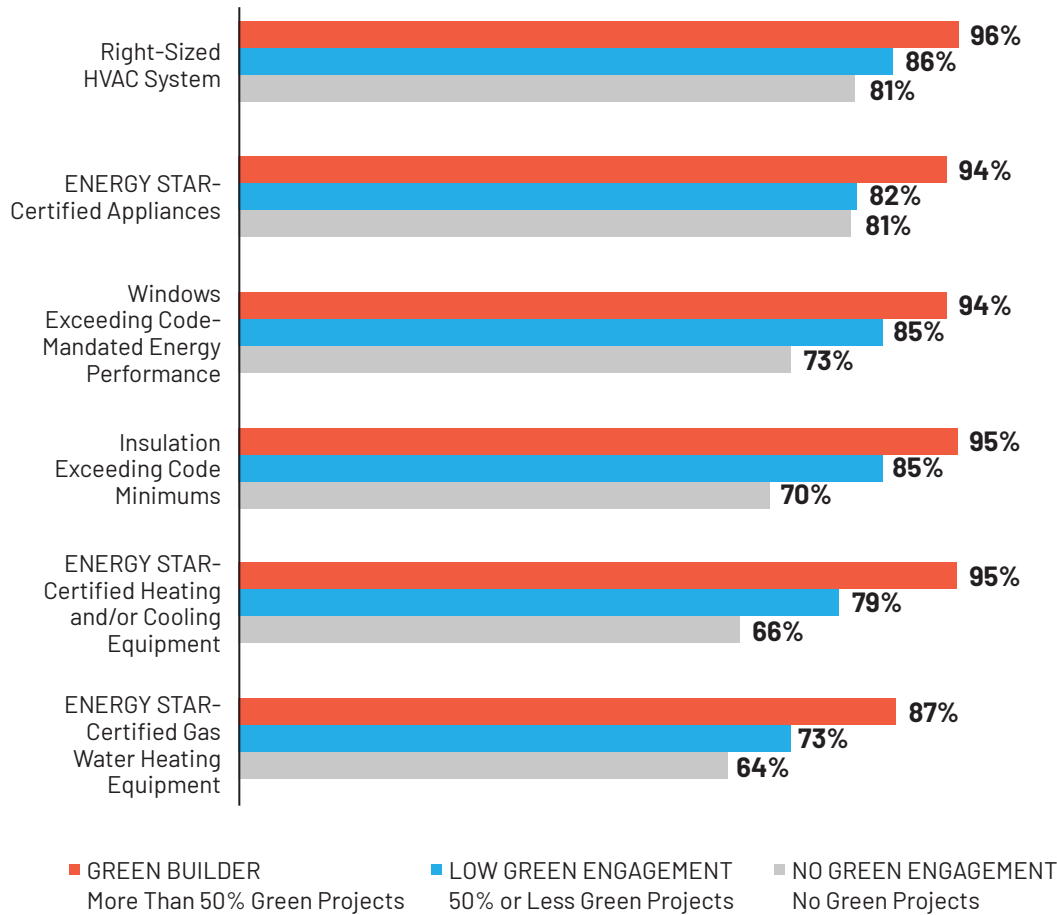
- Builders/remodelers in the South more frequently use right-sized HVAC systems on more than half of their projects than do those from the Midwest (93% versus 74%).
- Those in the Northeast less frequently use insulation exceeding code minimums than in the South (62% versus 85%).

SIZE

- ENERGY STAR-certified heating and/or cooling equipment and insulation exceeding code minimums are both used more frequently by small companies (88% and 89%, respectively) than by large ones (67% and 73%, respectively).

Energy Efficiency Practices Widely Used on More Than 50% of Projects (By Level of Green Engagement)

Dodge Data & Analytics, 2024



USE OF GREEN BUILDING PRACTICES

Use of Specific Energy Efficiency Practices CONTINUED

SmartMarket Brief

USE OF OTHER ENERGY EFFICIENCY PRODUCTS AND PRACTICES

USED BY OVER HALF OF RESPONDENTS

The four remaining energy efficiency approaches used by more than half of builders and remodelers involve practices rather than products.

- All four are more widely used on new home projects than on renovation/remodeling projects, especially blower door testing and targeting air leakage/infiltration rates below code maximums.
- All four are used by 70% or more of green builders. However, around half of those who do no green projects also deploy them regularly, and those with green projects comprising less than half of their

Energy Efficiency Practices Used on More Than 50% of Projects (By Year)

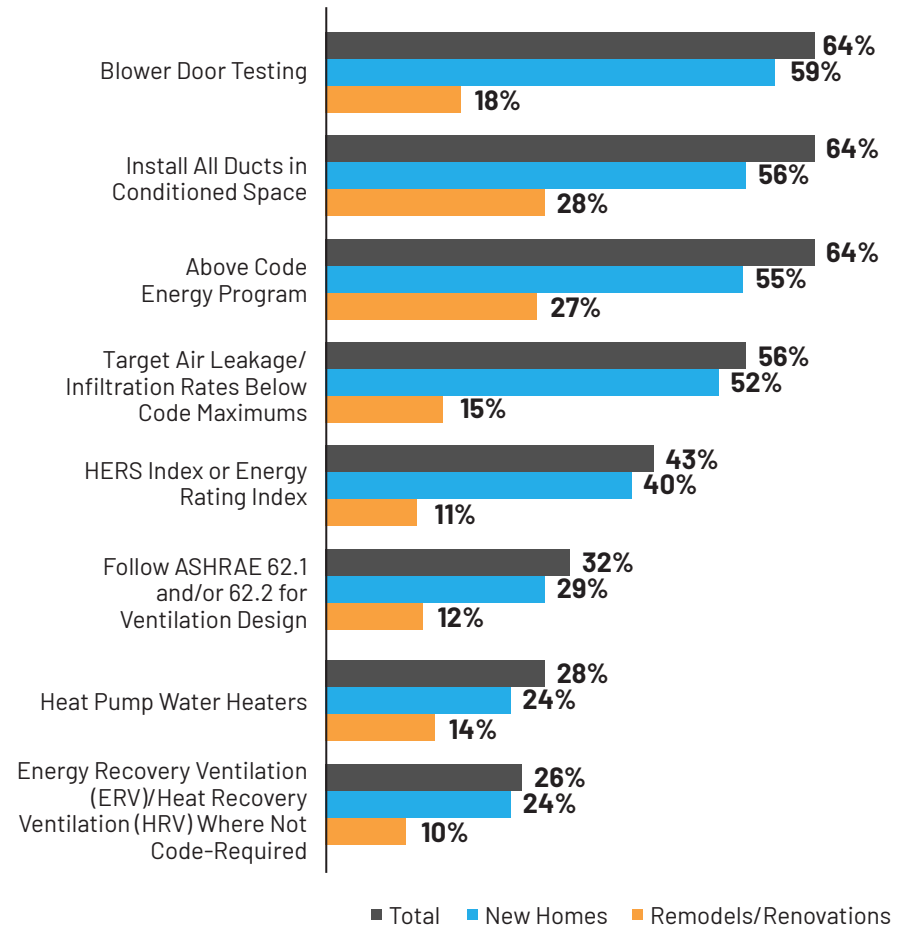
Dodge Data & Analytics, 2024

	2024	2019
Right-Sized HVAC System	87%	72%
Windows Exceeding Code-Mandated Energy Performance	82%	62%
Insulation Exceeding Code Minimums	82%	63%
Blower Door Testing	64%	53%
Above Code Energy Program	64%	31%
HERS Index or Energy Rating Index	43%	26%
Follow ASHRAE 62.1 and/or 62.2 for Ventilation Design	32%	9%
Energy Recovery Ventilation (ERV)/Heat Recovery Ventilation (HRV) Where Not Code-Required	26%	28%

Other Energy Efficiency Practices Used on More Than 50% of Projects

(Total and by Project Type)

Dodge Data & Analytics, 2024



USE OF GREEN BUILDING PRACTICES

Use of Specific Energy Efficiency Practices CONTINUED

SmartMarket Brief

portfolio fall in between. Again, this demonstrates that energy efficiency is prioritized in most home building and remodeling, not just green homes, but that it is clearly an expected feature of a green home.

- The share who report using above code energy programs has more than doubled between 2019 and 2024, suggesting that programs like ENERGY STAR and NGBS Green are making a notable impact on the efficiency of homes in the US.

USED BY FEWER THAN HALF OF RESPONDENTS

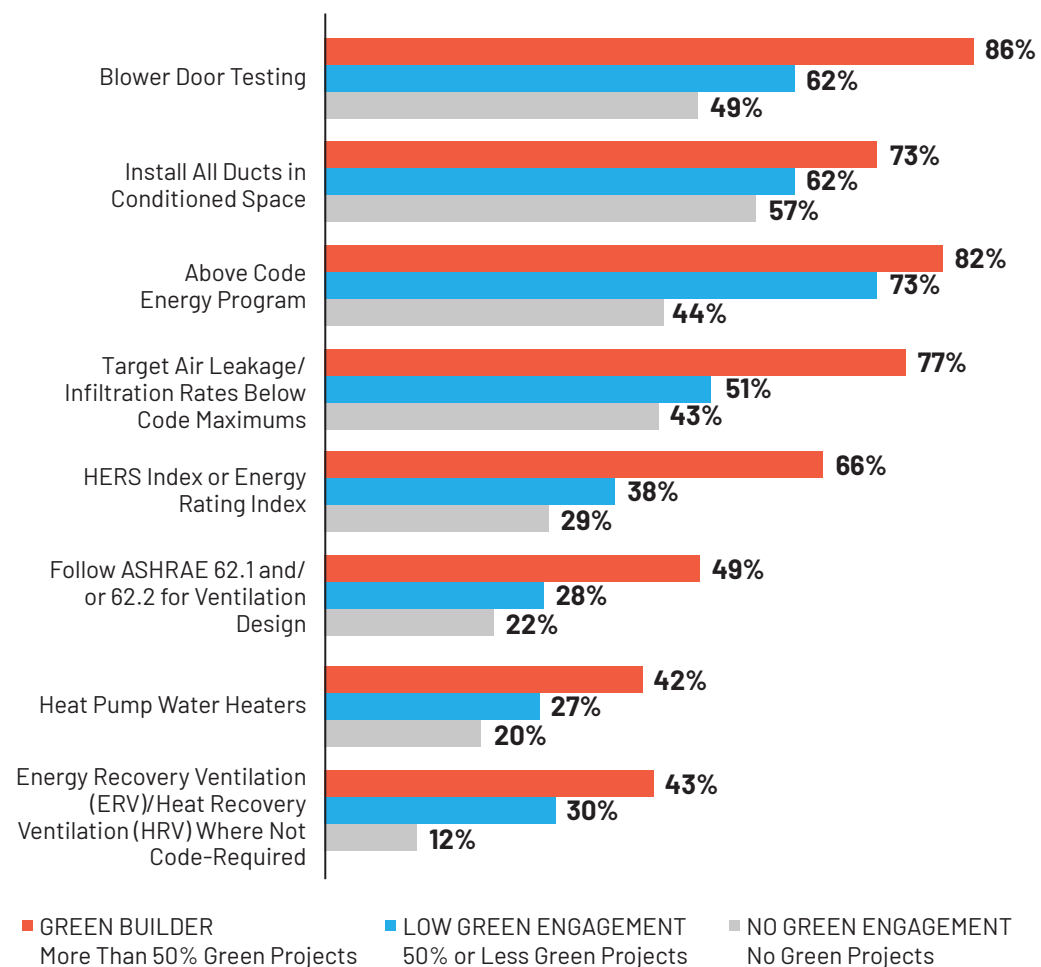
Only four of the 14 energy efficiency products and practices included in the survey are used by fewer than half of the builders/remodelers on the majority of their projects.

- Nearly half have utilized a HERS Index or Energy Rating Index, and the share doing so has grown considerably since 2019. This is more widely deployed by dedicated green and green builders/remodelers than those doing fewer green projects.
- The share following ASHRAE 62.1 and/or 62.2 for ventilation design has grown considerably since 2019 (note that 62.2 was added in the current survey).
- Very few who do not build green homes use ERV or HRV systems where not code required on the majority of their projects. Even though nearly half of green builders (43%) report doing so, this may account for the fact that this is the only practice that was used less in 2024 than in 2019.

Other Energy Efficiency Practices Used on More Than 50% of Projects

(By Level of Green Engagement)

Dodge Data & Analytics, 2024



USE OF GREEN BUILDING PRACTICES

Use of Renewables

SmartMarket Brief

RENEWABLES ARE NOT FREQUENTLY INCLUDED IN HOME BUILDING PROJECTS

Builders and remodelers were asked about their use of eight types of renewable energy on 50% or more of their new home and renovation/remodeling projects. The chart at right shows the total share who report using them to that degree on either type of project.

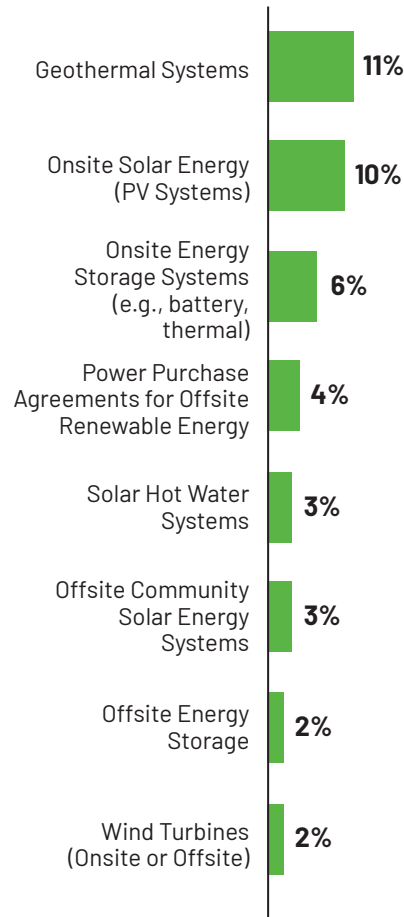
Only 11% or fewer report using any of these systems. The builders and remodelers who do utilize these on more than half of their projects are most frequently using geothermal systems or onsite solar energy (PV systems).

Notably, use of onsite solar energy use differs substantially by region, with 31% of respondents from the West deploying these systems on half or more of their projects, 21% from the Northeast, but only 3% from the Midwest or South.

In addition, far more green builders/remodelers install onsite solar energy (22%) than those with low (8%) or no (3%) green engagement in 2023. Surprisingly, though, this is the only category with substantially higher use reported by green builders. A much higher percentage (17%) include geothermal systems than those doing fewer green projects (6%), but geothermal is also utilized by 11% of those who have no green projects, suggesting that other drivers besides building a green home are influencing the use of this source of renewable energy.

Use Renewables on More Than 50% of Projects

Dodge Data & Analytics, 2024



USE OF GREEN BUILDING PRACTICES

Electrification and EV Charging

SmartMarket Brief

OVER HALF OF BUILDERS AND REMODELERS ARE MAKING HOMES ABLE TO ACCOMMODATE AN EV CHARGER

The need to reduce or eliminate the use of fossil fuels had led many to prioritize the adoption of electric vehicles and to encourage the electrification of homes, coupled with greater use of renewables at the utility level. Builders and remodelers were asked about specific practices that support these efforts, and their responses are shown in the chart at right.

ACCOMMODATING EV CHARGERS

55% report that they size the electrical panel in more than half of their home projects to accommodate an EV charger, and 40% provide a charging outlet on more than half of their homes. These findings suggest that they want to make sure their homes appeal to owners who have invested in electric vehicles.

- 83% of dedicated green builders report that they provide a charging outlet, and 81% size the electrical panel to accommodate a charger.
- 62% of builders in the West provide a charging outlet for a single EV charger, and 31% provide two outlets, more than all other regions.

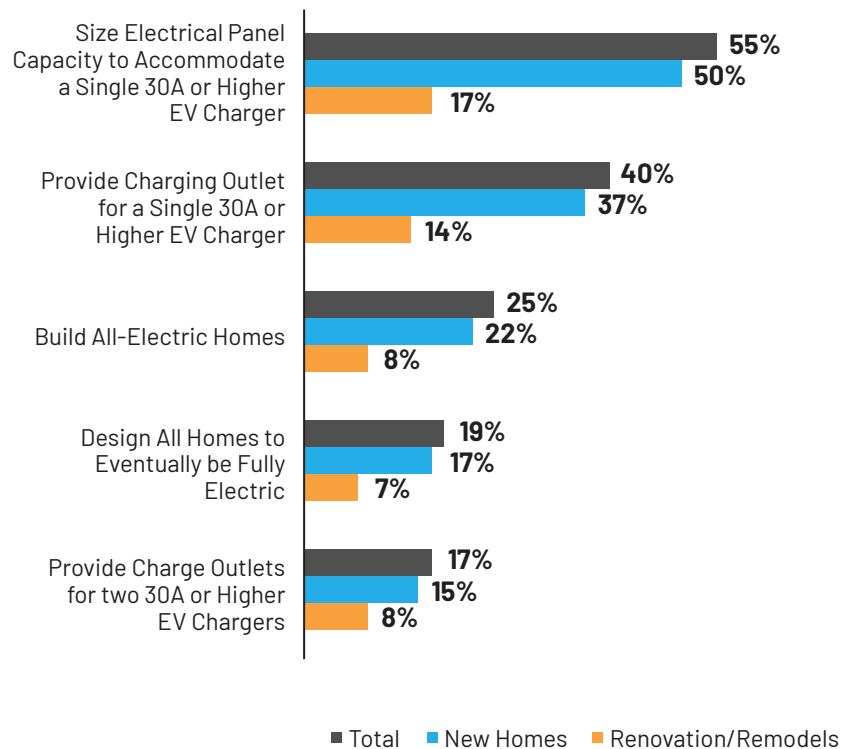
ALL-ELECTRIC HOMES

One quarter of respondents build more than half of their homes to be all-electric, and nearly one fifth design all their homes to eventually only use electricity. 34% of respondents in the South report building all-electric homes. Notably, there is no significant difference by level of green engagement in use of these practices.

Enable Electrification and EV Charging on 50% or More of Projects

(Total and by Project Type)

Dodge Data & Analytics, 2024



Use of Practices to Increase Home Resilience

INTRODUCTION

The US is already experiencing the impacts of climate change, with reports of severe weather or climate-related hazards occurring more widely and frequently than in the past. Green homes need to not only reduce their impact on the environment, but also increasingly need to reduce the impact of the environment on them.

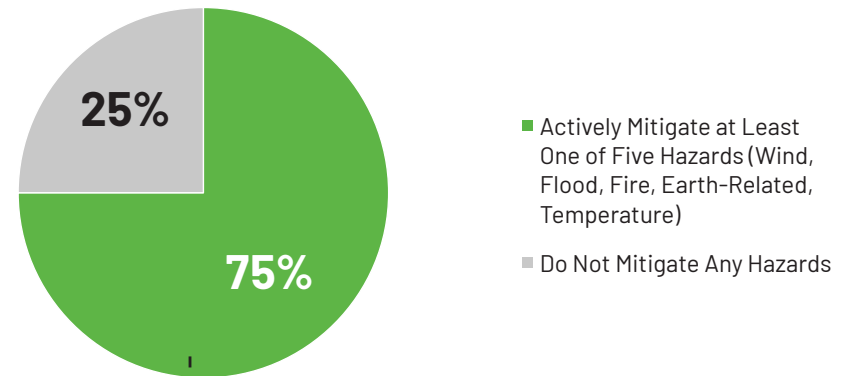
As the chart at right reveals, most contractors recognize the need to mitigate hazards in the homes they build or remodel, but the degree to which they invest in practices that increase home resilience is strongly influenced by the region in which they live. This disparity between regions becomes even more evident when looking at the adoption of specific practices, as this section demonstrates.

TOPICS IN THIS SECTION

- **HAZARDS MITIGATED:** An overview of the share of builders and remodelers who report mitigating wind, flood/water, fire, earth-related and temperature extreme hazards by region.
- **PRACTICES USED TO MITIGATE HAZARDS:** Builders/remodelers who stated that they actively mitigate for wind, flood/water, fire and earth-related hazards were asked about the specific practices they employ. Each of these sections displays the data in two ways:
 - A chart showing the share of the total respondents in the survey who utilize these practices, to understand the degree to which these are adopted overall.
 - A table with the top practices that shows only the share of those who said their projects actively mitigate for these types of hazards (the only respondents asked about their use), to understand the engagement of those who are attempting to mitigate the hazard.
- **CERTIFICATION SYSTEMS:** Use of a growing number of resiliency certification systems. This section establishes a baseline to track how use of these systems changes in the future.

Actively Mitigate at Least One Hazard in Home Building/Remodeling Projects

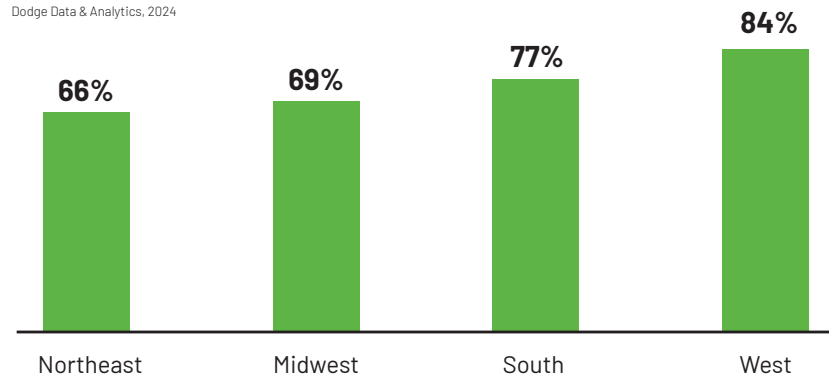
Dodge Data & Analytics, 2024



Builders/Remodelers Who Actively Mitigate at Least One Hazard

(by Region)

Dodge Data & Analytics, 2024



Hazards Actively Mitigated by Builders/Remodelers

SmartMarket Brief

WIND IS THE ONLY HAZARD THAT IS ACTIVELY MITIGATED BY OVER HALF OF BUILDERS/REMODELERS

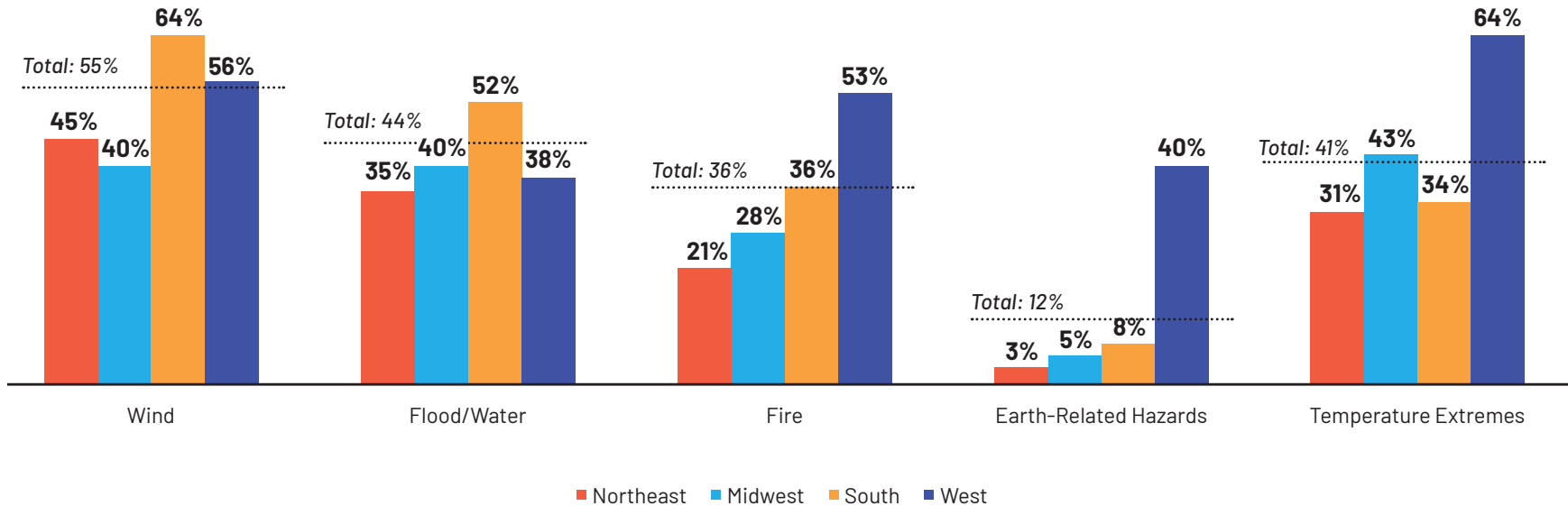
Home builders and remodelers were asked to select the hazards which they actively attempt to mitigate on their projects. Overall the biggest differences in response are by region and by level of green engagement:

- Builders/remodelers from the Midwest most commonly mitigate for wind and water, while those in the West actively address fire, earth hazards and temperature extremes. Their responses generally align with the frequency of the weather-related/natural events in these regions.

- Wind is the only hazard for which significantly more builders actively deploy mitigation practices than remodelers (57% versus 34%), which suggests that many homeowners recognize the increased need for these measures.
- Green engagement increases attention to some hazards.
 - Over 60% of green builders actively mitigate for wind, flood/water and temperature-related extremes.
 - Under half of those doing little to no green do so for flood/water or temperature extremes.
 - 59% of those who do at least some green projects report actively mitigating for wind.

Hazards Actively Mitigated by Builders/Remodelers

Dodge Data & Analytics, 2024



USE OF PRACTICES TO INCREASE HOME RESILIENCE

Use of Specific Wind Hazard Mitigation Practices

SmartMarket Brief

ROOF SYSTEMS DESIGNED FOR HIGH WINDS ARE THE MOST COMMON MITIGATION APPROACH DEPLOYED

Home builders/remodelers who state that they actively mitigate for wind were asked whether they use any of the seven practices shown in the chart at right. The chart captures overall use of these approaches by showing the share of all builders/remodelers who use them, rather than just those who actively mitigate for wind.

- Two out of three of the top practices help roofs resist the impact of wind. Loss of a roof during high-wind events typically leads to more catastrophic damage throughout the home.
- All of these strategies offer the opportunity for wider adoption, especially since exposure to high-wind events occurs across the US.

The table at bottom right shows the practices used by 50% or more of the contractors who actively mitigate for wind. It reveals that four of the seven practices included in the survey are used by the majority of those seeking to address this challenge. This finding suggests that there is an opportunity for wider use of many practices even among those who are already attempting to address this challenge, in addition to the general one noted above.

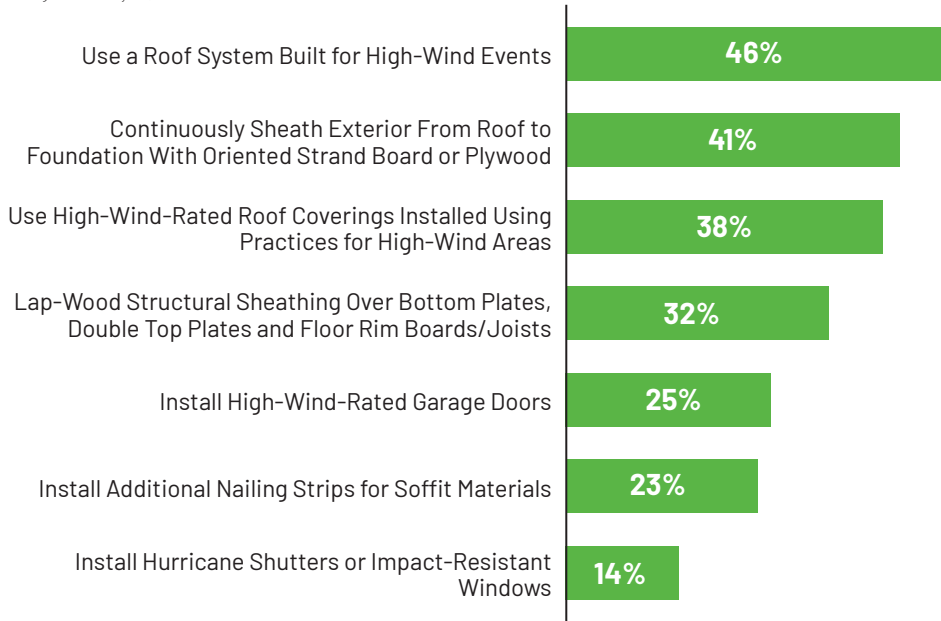
Builders and remodelers also mentioned additional practices that they use to address wind hazards:

- Use of hurricane ties and using hurricane clips for each rafter
- Additional bracing
- Design strategies like designing for a “partially enclosed structure” and detailing airflow through attic spaces

Builders/Remodelers Using Specific Wind Mitigation Practices

(Share of Total Respondents)

Dodge Data & Analytics, 2024



Use of Top Practices by Those Who Actively Mitigate Wind Hazards	
70% or More	
Use a Roof System Built for High-Wind Events	
Continuously Sheath Exterior From Roof to Foundation With Oriented Strand Board or Plywood	
50% to 69%	
Use High-Wind-Rated Roof Coverings Installed Using Practices for High-Wind Areas	
Lap-Wood Structural Sheathing Over Bottom Plates, Double Top Plates and Floor Rim Boards/Joists	

Use of Specific Flood/Water Hazard Mitigation Practices

SmartMarket Brief

OVER HALF OF HOME BUILDERS/REMODELERS WHO ACTIVELY MITIGATE FLOOD HAZARDS USE SIX OF THE SEVEN PRACTICES INCLUDED IN THE SURVEY, BUT THESE PRACTICES ARE NOT WIDELY UTILIZED BY MOST BUILDERS/REMODELERS

Flooding is another hazard that can occur anywhere that there are channels of water. Even deserts have incidents of flash floods in extreme weather. Rain events in recent years have increased in their duration and volume, making regions more vulnerable to flooding than they have traditionally been in the past.

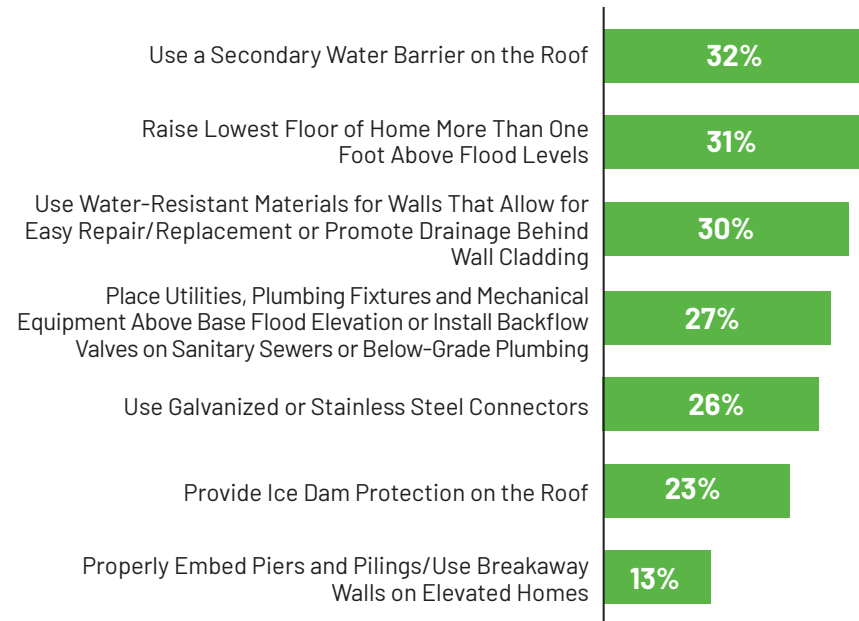
However, currently, only 44% of home builders and remodelers report that they actively seek to mitigate flood/water hazards on at least some of their projects.

Therefore, even though most of the practices shown in the chart at right are used by over 50% of those actively seeking to mitigate flood/water hazards (see the table on page 26), they are utilized by less than one third of the total respondents in the survey.

It is possible that concerns about additional costs to incorporate some of these practices may be an obstacle to wider use. However, a few involve decisions that need to be considered in design, rather than more expensive materials or systems. For example, placing utilities, plumbing fixtures and mechanical equipment above base flood elevation can be done with minimal extra cost if it is considered in the original design phase of a home project.

Builders/Remodelers Using Specific Flood/Water Hazard Mitigation Practices (Share of Total Respondents)

Dodge Data & Analytics, 2024



Use of Specific Flood/Water Hazard Mitigation Practices CONTINUED

SmartMarket Brief

In fact, the widespread deployment of these practices among those who actively mitigate flood/water hazards suggests that the challenge in increasing overall adoption in home projects in general may be to increase the perception that mitigation for flood/water hazards should be a priority, rather than other obstacles like availability of materials or additional cost incurred. Consumer demand would address this, but most home buyers/owners do not think about floods until they experience one. Therefore, it may require updated building codes that consider the latest flood maps. In addition, given the number of areas that have not had a history of serious flooding but have seen it occur in the last few years, greater consideration of the potential for flooding is going to be necessary, both by those in charge of building codes and by the home building industry.

This conclusion is supported by one of the few additional practices offered by a respondent who states that they look at floodplains prior to buying a community and will not build in a flood zone. That builder also uses an engineering company to calculate homesite runoff on their projects and provide a hardscape limit per homesite. This kind of engagement may be necessary in the future as flood risks continue to grow across the US.

Use of Practices by Those Said They Actively Mitigate Flood/Water Hazards
70% or More
Use a Secondary Water Barrier on the Roof
Raise Lowest Floor of Home More Than One Foot Above Flood Levels
50% to 69%
Use Water-Resistant Materials for Walls That Allow for Easy Repair/ Replacement or Promote Drainage Behind Wall Cladding
Place Utilities, Plumbing Fixtures and Mechanical Equipment Above Base Flood Elevation or Install Backflow Valves on Sanitary Sewers or Below-Grade Plumbing
Use Galvanized or Stainless Steel Connectors
Provide Ice Dam Protection on the Roof

Use of Specific Fire Hazard Mitigation Practices

SmartMarket Brief

FIRE MITIGATION PRACTICES ARE NOT WIDELY USED BY HOME BUILDERS/REMODELERS

The hazards posed by wildfires has also increased in the last few years due to climate change, although it is more focused on specific regions than water and wind. Over one third (36%) of home builders/remodelers are seeking to actively mitigate for these hazards, and they were asked whether they use the six mitigation practices shown in the chart at right.

The only practice used by more than 50% of those actively seeking to mitigate fire hazards is the use of noncombustible or fire-resistant materials for exterior walls. Notably, it is used by only 18% of the total respondents.

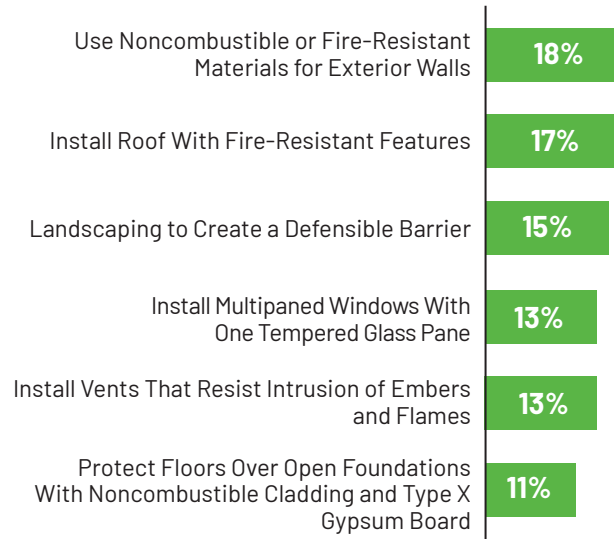
The low levels of use of all of these practices, even among those who are trying to mitigate fire hazards, suggests the need for wider education in the industry about these approaches, including among home buyers and owners, to help drive their use.

A few additional approaches were also volunteered by respondents. These include the use of:

- Fire-resistant insulation
- Fire-suppression systems
- Draft stops
- Fire-retardant spray foam
- Heavy timber construction

Builders/Remodelers Using Specific Fire Hazard Mitigation Practices (Share of Total Respondents)

Dodge Data & Analytics, 2024



Use of Practices by Those Who Said They Actively Mitigate Fire Hazards
50% to 69%
Use Noncombustible or Fire-Resistant Materials for Exterior Walls

Use of Specific Earth-Related Hazard Mitigation Practices

SmartMarket Brief

EIGHT EARTH-HAZARD MITIGATION PRACTICES ARE USED BY MORE THAN HALF OF THE RESPONDENTS WHO ARE ACTIVELY TRYING TO MITIGATE THOSE HAZARDS

Most of the nine practices shown in the chart at right seek to mitigate the impacts of earthquakes, although many home developments throughout the US are not near a major, active fault. Therefore, it is not surprising that only 12% of the overall respondents actively mitigate these hazards, but that 40% of respondents in the West report doing so.

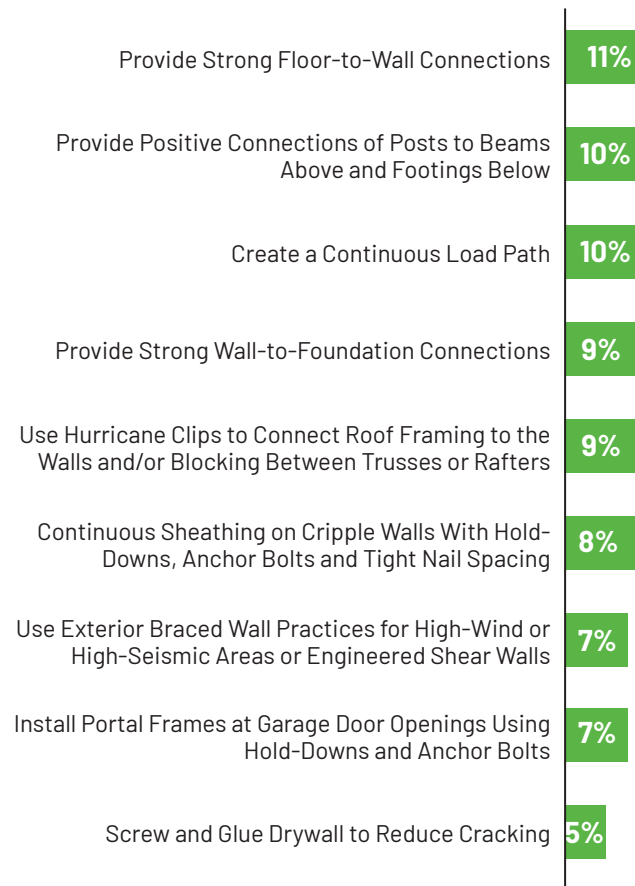
The percentages in the chart at right reflect those low overall numbers, since only the 12% who said that they actively mitigate for earth-related hazards were asked about these nine practices.

However, the management of earth-related hazards may provide a model for wider use of other hazard mitigation practices in the future. After all, earth-related hazards have been a major focus in earthquake-prone US regions for many years, and building codes have been changed to account for these hazards. As a result, the US has experienced some significant seismic events with less loss of life than would have occurred had these practices not been in place.

The findings in the table on page 29 reveal the degree to which adoption of many individual practices are widespread among the 12% who mitigate earth hazards.

Builders/Remodelers Who Use Specific Practices to Mitigate Earth-Related Hazards (Share of Total Respondents)

Dodge Data & Analytics, 2024



Use of Specific Earth-Related Hazard Mitigation Practices CONTINUED

SmartMarket Brief

- Five of the nine practices are in use by over 70% of those who try to manage earth hazards. These are clearly standard practices among those who attempt to address this on their projects.
- Three out of the remaining four are utilized by over half.

It is clear that adoption of these practices is driven by the perception of risk. However, it is important to remember that cycles for seismic activity in a region can be on the scale of centuries rather than years. Risks in areas that have not had seismic activity within the last few generations can easily be overlooked, since it is the experience of events that have driven the reactive use of these practices in the past.

Still, even with that caveat, the widespread use of many practices by those who recognize the need to incorporate them into their houses demonstrates that, with sufficient regulation and public awareness of the risk posed by hazards, different and potentially more expensive construction techniques can be widely deployed. As the risk of floods, wind and fire continue to become more evident in regions that have not experienced them previously on the scale that they are now, builders who can demonstrate that they can help homes survive these challenges are likely to have a competitive advantage, as especially as insurance rates continue to increase, insurance in some regions becomes unavailable, and people seek to protect their homes, which are frequently their largest investment.

Use of Practices by Those Who Say They Actively Mitigate Earth-Related Hazards	
70% or More	
Provide Strong Floor-to-Wall Connections	
Provide Positive Connections of Posts to Beams Above and Footings Below	
Create a Continuous Load Path	
Provide Strong Wall-to-Foundation Connections	
Use Hurricane Clips to Connect Roof Framing to the Walls and/or Blocking Between Trusses or Rafters	
50% to 69%	
Continuous Sheathing on Cripple Walls With Hold-Downs, Anchor Bolts and Tight Nail Spacing	
Use Exterior Braced Wall Practices for High-Wind or High-Seismic Areas or Engineered Shear Walls	
Install Portal Frames at Garage Door Openings Using Hold-Downs and Anchor Bolts	

Use of Certification Systems for Resilience

SmartMarket Brief

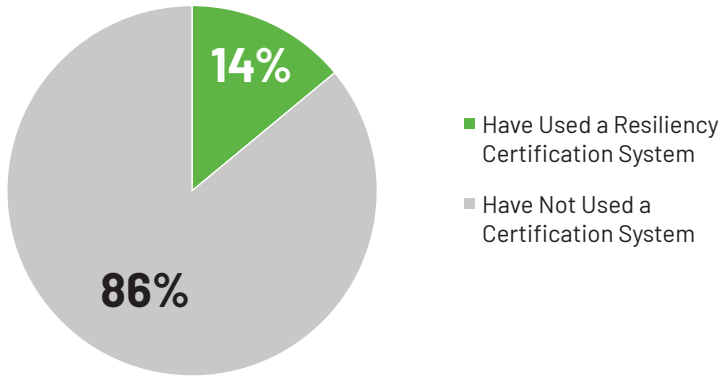
CURRENTLY USE OF CERTIFICATION SYSTEMS FOR RESILIENCE IS VERY LIMITED

All home builders and remodelers, regardless of whether they identified hazards that they actively seek to mitigate, were asked whether they have used any of the seven resiliency certifications listed below:

- NGBS Green+Resilience: The website for NGBS+ states that “NGBS Green+ certification provides a streamlined, supplementary, third-party recognition for NGBS Green Certified homes based on their exceptional performance in one (or more) of six categories of green practices.” Resilience is one of the six categories.
- LEED resiliency credits: LEED v4 includes 2 pilot credits for design for enhanced resiliency.
- IBHS FORTIFIED: According to its website, FORTIFIED is “a voluntary construction standard that can be used to help protect homes against severe weather.”
- NFPA Firewise Community: The National Fire Protection Association’s website describes Firewise as follows: “The national Firewise USA recognition program provides a collaborative framework to help neighbors in a geographic area get organized, find direction, and take action to increase the ignition resistance of their homes and community and to reduce wildfire risks at the local level.”
- US Resiliency Council Earthquake or Wind certification: USRC offers rating systems geared toward building owners in three levels for each hazard: Getting to Silver, Transaction and Verified.
- Arup REDi™ Rating System: The REDi™ system is described on ARUP’s website as follows: “Resilience-based Engineering

Builders/Contractors Who Have Used a Resiliency Certification System

Dodge Data & Analytics, 2024



Certifications Systems Used by More Than 10 Respondents
NGBS Green+Resilience (7%)
LEED Resiliency Credits (5%)

Use of Certification Systems for Resilience CONTINUED

SmartMarket Brief

Design Initiative (REDi™) Rating System, developed by Arup’s Advanced Technology and Research team, proposes a framework for owners, architects, and engineers to implement “resilience-based design.” It describes design and planning criteria to enable owners to resume business operations and provide liveable conditions quickly after a disaster, according to their desired resilience objectives. It also presents a loss evaluation methodology for assessing the success of the adopted design and planning measures in meeting the resilience objectives.”

- RELi™ Resilient Building and Design Standard: This system is described as follows on its website: “RELi™ is a holistic project guide, rating system and third-party certification system available to projects, organizations and governments of any scale.”

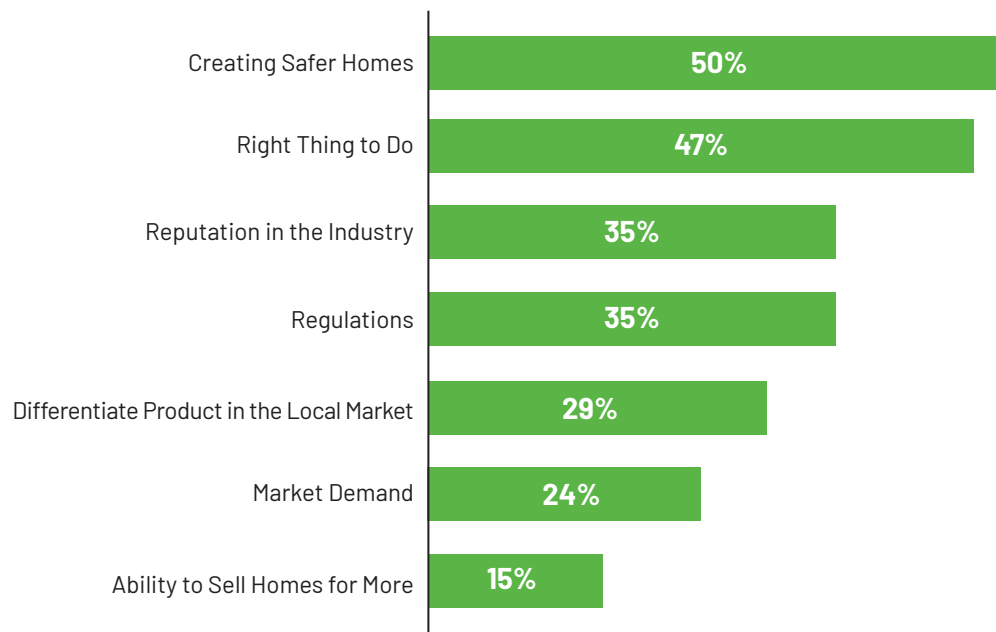
As the pie chart on the previous page reveals, only 14% of respondents report using any of these systems. In fact, only the two systems shown in the table are used by more than 2%: NGBS Green+Resilience and LEED Resilience Credits.

The chart at right shows that, currently, those who have pursued this type of certification are doing so largely to do the right thing and create safer homes. Market drivers, such as differentiation, market demand and the ability to sell homes for more, are the least important drivers. This suggests that greater consumer awareness of the need for and benefit to them from these systems is critical to encourage wider adoption and make the US residential building stock more resilient.

Most Important Reasons to Obtain Resiliency Certification

(Selected in the Top Three by Builders/Remodelers Who Have Obtained Certification)

Dodge Data & Analytics, 2024



Drivers and Obstacles for Green Home Building/Remodeling

INTRODUCTION

This section examines the drivers and obstacles for increasing engagement with green home projects by builders and remodelers.

TOPICS IN THIS SECTION

- **CURRENT REASONS FOR BUILDING GREEN:** Reveals the most influential reasons that have led home builders/remodelers to engage in green building. Understanding what leads home builders and remodelers to build green projects now can help determine what may encourage others to do so in the future.
- **OBSTACLES:** Reveals the top issues that prevent home builders/remodelers from building more green projects, including both those who do not build green projects currently, and those who only build a share of their projects green.
- **COST OF BUILDING GREEN:** The increased cost premium of building green homes has consistently been an obstacle to increased green activity, so it is essential to understand how much extra it costs for home builders/remodelers to do green projects. This question was only asked of those with at least some experience in building green.
- **TRIGGERS FOR BUILDING GREEN IN THE FUTURE:** The top factors that would encourage home builders/remodelers to do more green projects in the future. As with the obstacles, this was asked of all builders/remodelers, not just those involved in green projects.



Most Important Reasons Builders/Remodelers Currently Engage in Green Projects

SmartMarket Brief

HOME BUILDERS/REMODELERS BUILD GREEN FOR MANY REASONS

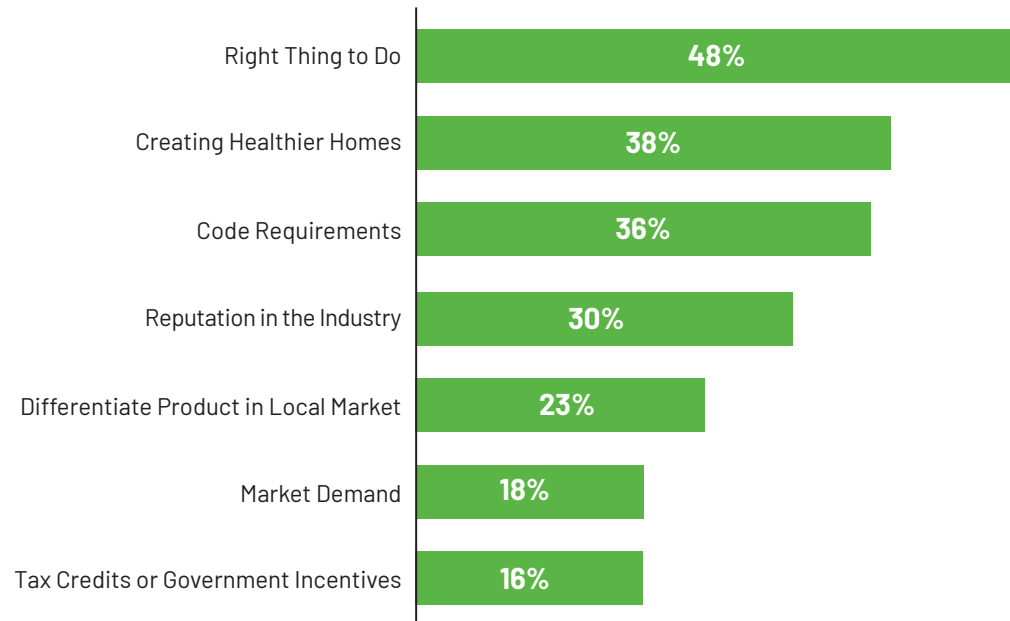
When presented with a definition of a green home, 59% of the builders/remodelers indicated that at least some of their home projects are green. (See page 7.) Those respondents were asked to select up to three of the most important reasons that they build green from the list of options shown in the chart at right.

- Doing the right thing is a major motivator to build green, similar to previous studies. It is also likely that the second most popular reason, creating healthier homes, is also closely aligned with this goal.
- Code requirements are also influential, revealing their ongoing important role in encouraging green home building.
- Notably, market factors and tax credits/government incentives are only influential for a small share of builders/remodelers.
 - Credits and incentives are a top trigger for more green building (see page 36), so their low performance here may suggest that builders/remodelers are not aware of or do not have incentives in their market.
 - If more consumers could see the added value of green in their home appraisals or were more exposed to green features in MLS listings (see pages 40 and 41), that could help increase market demand.
- Dedicated green builders more frequently are influenced by the desire to create healthier homes than are those who do little green building (51% versus 27%).
- Far more contractors in the Northeast (50%) build green in order to differentiate their product in the local market than in other regions (20%).

Most Important Reasons for Building Green

(Selected in the Top Three by Builders/Remodelers Who Have Done Green Home Projects)

Dodge Data & Analytics, 2024



Obstacles to Builders/Remodelers Undertaking More Green Building

SmartMarket Brief

LACK OF CUSTOMER DEMAND AND THE EXPENSE OF BUILDING GREEN ARE THE MAIN OBSTACLES PREVENTING MORE GREEN HOME PROJECTS

Home builders and remodelers were asked to select the top reasons that they do not undertake more green building projects from the list of seven options shown in the chart at right. It clearly reveals that two challenges prevent companies from doing more green building: lack of customer demand and the perception that it is too expensive.

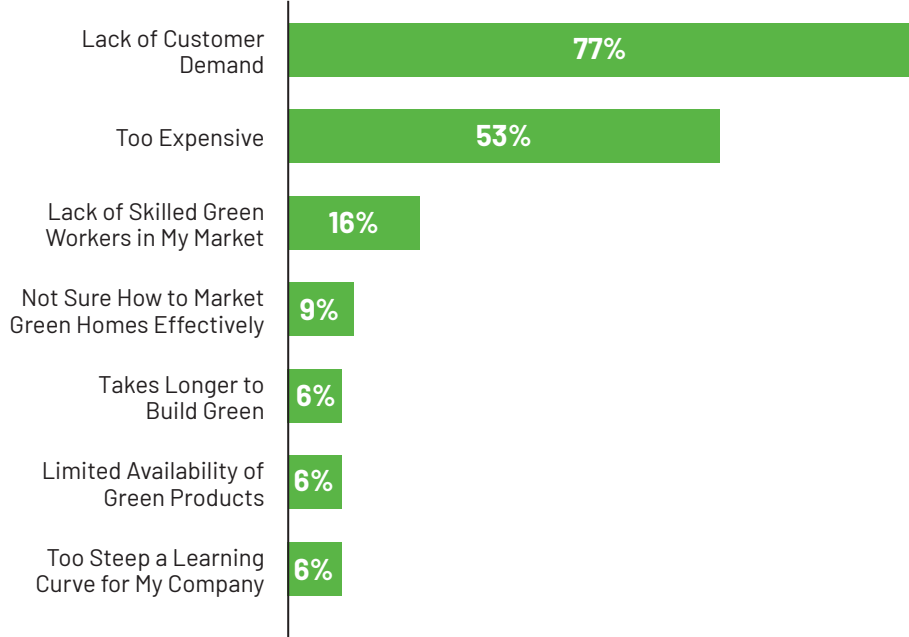
- Far more builders and remodelers with few or no green projects (82% and 87%, respectively) regard the lack of customer demand as an obstacle than those doing the majority of their projects green (60%). It is also likely that green builders are good at making the value of a green home apparent to their potential customers, which could help foster more demand.
- This finding reinforces the previous one that shows that green building is often motivated more by the desire to do the right thing than it is by market factors.
- Notably, there is no significant difference by green building engagement in the share who regard expense as an obstacle, despite the fact that green builders tend to report a much lower-cost premium for building green than do those with less experience (see page 35).

These findings suggest that consumer perception of the increased value of a green home could be an important driver in increasing their production, again suggesting the importance of having appraisals and MLS listings that clearly convey that additional value (see pages 40 and 41).

Obstacles to Builders/Remodelers Undertaking More Green Building

(Selected in the Top Three by Builders/Remodelers)

Dodge Data & Analytics, 2024



Additional Cost to Build Green

SmartMarket Brief

ADDITIONAL COST TO BUILD GREEN

As the findings on the previous page make clear, the added expense of a green home is one of the biggest challenges to building green. Home builders and remodelers who have done at least some green building (see page 7) were asked what the cost premium is to build green.

The chart at right shows their responses based on their level of green engagement, and it clearly reveals that greater familiarity with green building reduces the additional cost. This finding is consistent with all the previous findings since the first green residential study conducted by DCN and NAHB in 2012.

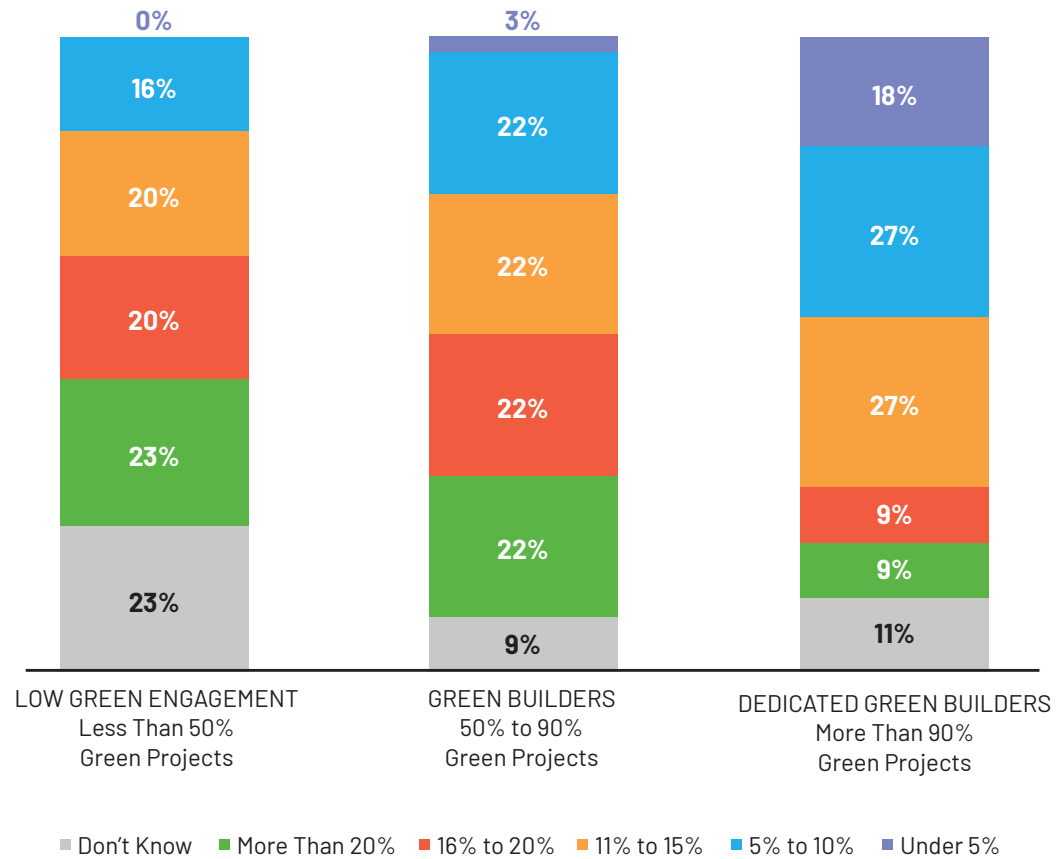
- Nearly half (45%) of dedicated green builders find that the added cost of building green is 10% or less.
- Surprisingly, the share of those with low green engagement and of green builders/remodelers in the three cost categories above 10% are very similar. This may suggest that dedication to green building is needed to result in sufficient expertise and economies of scale to lower the cost of building green.

These findings suggest that green building experience can be a competitive advantage by reducing the additional cost. They also make clear that green building costs more, which increases the importance of home buyers and owners recognizing that the better performance adds value to their home.

Additional Cost to Build Green

(According to Builders and Remodelers by Their Level of Green Engagement)

Dodge Data & Analytics, 2024



Top Triggers for More Green Home Projects

SmartMarket Brief

INCREASED CUSTOMER DEMAND IS THE TOP TRIGGER FOR MORE GREEN HOME BUILDING PROJECTS

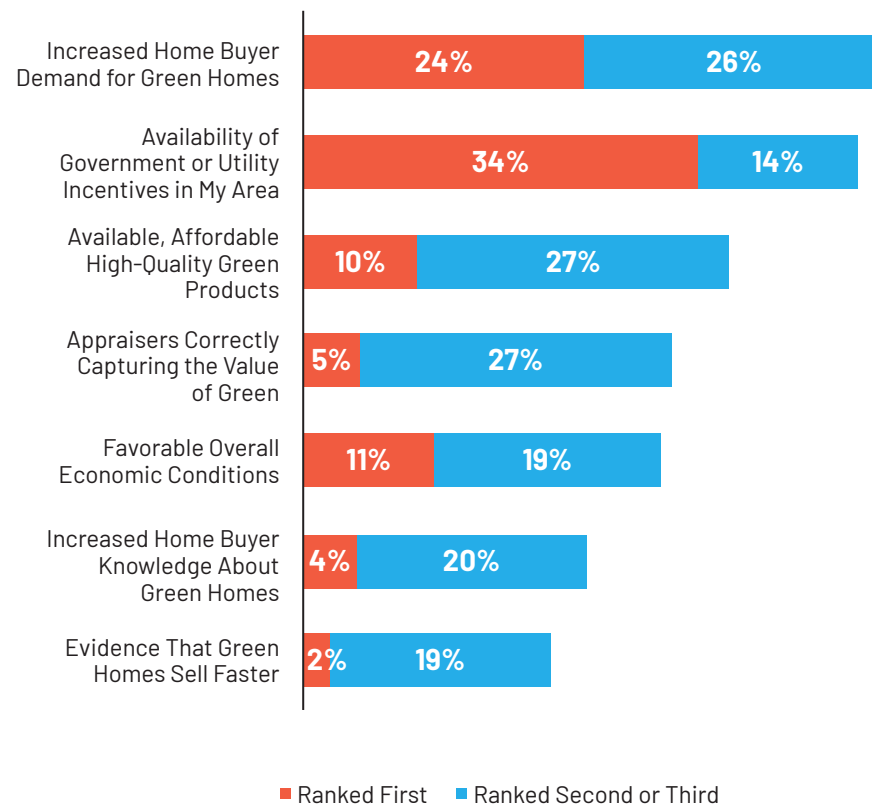
In addition to asking those who have built green homes in the past about the top drivers that led them to do so, the survey also asked all respondents to select the top three triggers that would increase their engagement with green in the future. Their responses are shown in the chart at right.

- The highest share (50%) select increased home buyer demand for green homes in their top three. Interestingly, specific strategies that would accomplish this, such as increased knowledge about green homes and appraisers capturing the value of green, are not selected as frequently.
- Nearly as many (48%) select availability of government or utility incentives in my area. Notably, this is also ranked first by the highest percentage (34%).
 - On page 33, tax credits or government incentives rank last as a current driver for green. However, the importance of incentives as a trigger reveals that contractors are highly influenced by them, and it implies that many do not think that incentives are available in their area. This is particularly important given the number of incentives added in the last few years, and it suggests that wider utilization of these to encourage green building may be a matter of education about what is available and creating simpler, easier ways for builders to learn about and access them.
- Given the concerns about cost made clear on page 34, it is not surprising that they also consider available, affordable high-quality green products to be an important trigger, one that ranks third overall.

Top Triggers for More Green Home Building and Remodeling

(Selected in the Top Three by Builders/Remodelers)

Dodge Data & Analytics, 2024



Increasing the Market for Green Building/ Remodeling

INTRODUCTION

The previous section revealed that market factors are not currently driving the production of green homes, but that increased customer demand would be highly influential to encourage more green home project activity. This section explores ways to increase marketplace engagement with green homes.

TOPICS IN THIS SECTION

- **DEMONSTRATING TO THE MARKET THAT A PROJECT IS GREEN:** An examination of how green builders/remodelers demonstrate that their home building projects are green, including HERS scores, website marketing and use of third-party certification.
- **COMMUNICATING ABOUT GREEN HOMES:** The terminology that builders/remodelers find most effective in capturing the value and appeal of green homes.
- **HOME APPRAISALS:** The frequency with which home appraisals reflect the added value of the green features in a home, and how that has changed since 2019. This also looks at the means that are the most effective to get home appraisals to include that additional value. Given the challenges presented by the cost of building green reported by builders/remodelers, seeing the added value in home appraisals is particularly important to help drive consumers to be willing to pay more for a green home.
- **MLS LISTINGS:** The frequency with which MLS listings include green home features, and an examination of how that frequency has changed since 2019. Having green features become an expected part of MLS listings would help consumers make more informed choices and has the potential to increase consumer interest in green homes.



How Home Builders/Remodelers Demonstrate That Their Projects Are Green

SmartMarket Brief

BUILDERS/REMODELERS UTILIZE MULTIPLE MEANS TO DEMONSTRATE THAT THEIR PROJECTS ARE GREEN

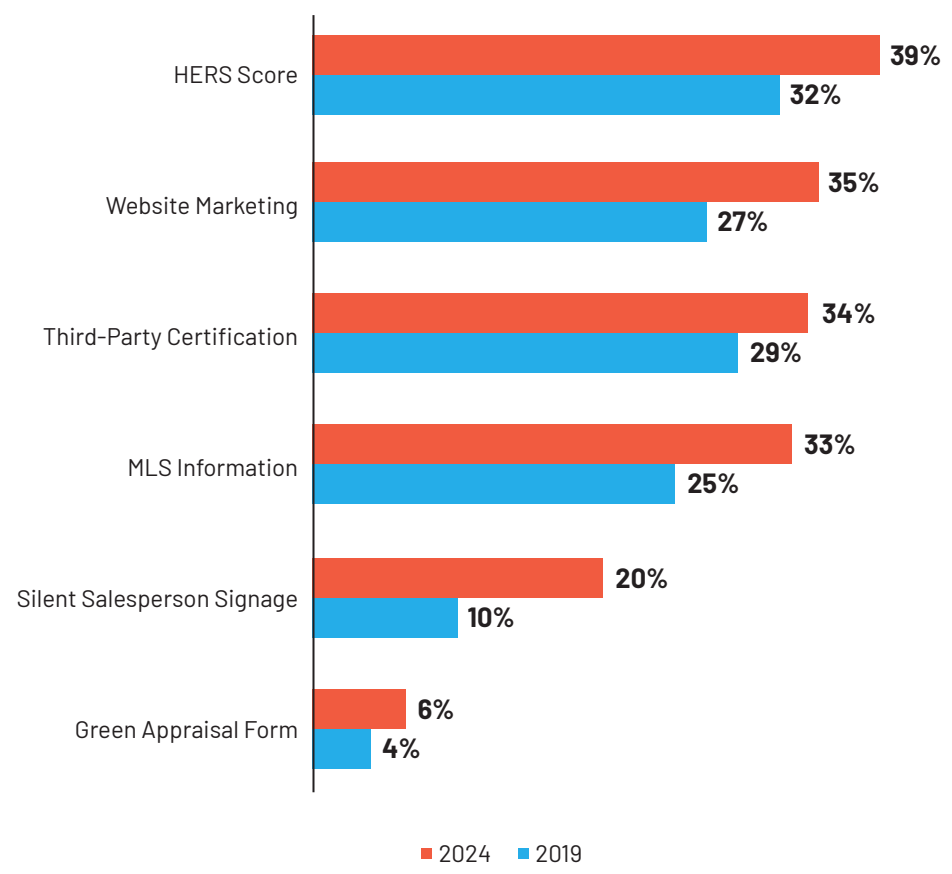
Home builders and remodelers who build at least some green homes were asked whether they utilize the six approaches in the chart at right to demonstrate that their home building projects are green. They were asked this question in the current survey and in 2019.

- Most of the methods are used by a higher percentage of builders and remodelers than they were in 2019, with the largest growth in silent salesperson signage.
- HERS score ranks first as the means to demonstrate that a home building project is green. They are most widely used by dedicated green builders (58%), and less frequently used by those with low green engagement (22%).
- Website marketing, third-party certification and MLS information are all used by between 33% and 35% of contractors.
 - Only third-party certification is used by significantly more dedicated green builders than by those doing less green building (34% versus 22%).
 - Website marketing is used widely in the Northeast (60%), Midwest (52%) and West (43%), but it less common in the South (20%).
- Generally, the ranking of frequency of use for each approach remains the same as in 2019, with one exception: Website marketing is now second, swapping places with third-party certification. However, their level of use is very similar in both time frames.

Respondents offered a few additional options such as CHiP certified, and traditional marketing and literature. Notably, though, nearly half of those who selected the "Other" option said that they do not use any green marketing or notification at all.

Ways That Builders/Remodelers Demonstrate That Homes Are Green (by Year)

Dodge Data & Analytics, 2024



Most Effective Terms for Describing Green Features

SmartMarket Brief

SEVERAL TERMS ARE CONSIDERED MOST EFFECTIVE FOR DESCRIBING GREEN FEATURES TO CUSTOMERS

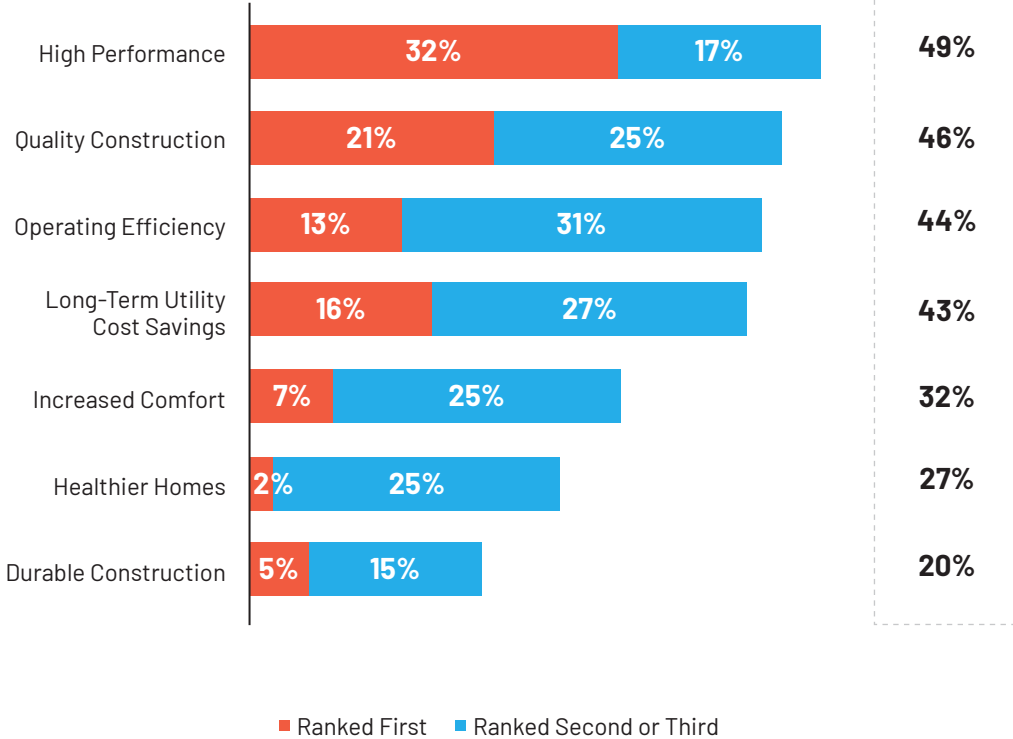
Home builders and remodelers who do at least some green home projects were asked to rank the top three most effective terms for talking to their customers about green-related features from a list of 12 options. The top seven are shown in the chart at right.

- High performance is the top ranked option, both in the top three and ranked first.
- The top four terms are the same as they were in 2019, when respondents were presented with a similar list. However, high performance moved from fourth ranking to first, and operating efficiency moved from first to third.
- 41% of green and dedicated green builders/remodelers rank high performance first, far more than those with low green engagement (19%), who more frequently choose quality construction (28%) as the most effective term.
- Increased comfort, healthier homes and durable construction can be considered moderately effective, ranked in the top three by between one third and one fifth of respondents.
- The other five descriptions included in the study were selected by fewer than 10% of respondents in their top three, and several were not ranked first at all.
 - Terms more closely associated with green construction than with building performance fall into this list, such as recyclable, certified green home, reduced environmental impact and sustainable.
 - Resilient was the lowest performer, with only 1% of respondents ranking it in their top three. It will be interesting to see if this term becomes more compelling as climate uncertainty increases.

Most Effective Terms for Describing Green Features

(Ranked in the Top Three by Those Building Green Homes)

Dodge Data & Analytics, 2024



Home Appraisals That Reflect Green Value

SmartMarket Brief

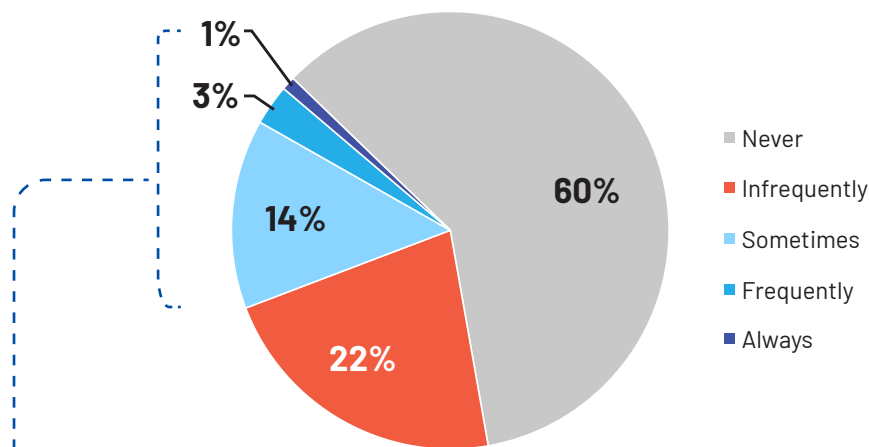
FEWER HOME BUILDERS/REMODELERS SEE HOME APPRAISALS THAT REFLECT THE ADDED VALUE OF GREEN THAN IN 2019

Home builders and remodelers were asked how frequently they see home appraisals that reflect the added value of a green home. Strikingly, the majority of respondents (60%) in the current survey report that they never see this occur. Given the importance of customer demand to drive more green home building projects (see page 36), it is essential that consumers can see that their increased investment in a green home will pay off.

- 51% of those who build at least some green homes find that home appraisals never reflect their full value. This is in sharp contrast to the findings in 2019, when this question was asked only of contractors who do green homes and only 36% selected never.
- Notably, there are no significant differences between the responses of builders and remodelers or the respondents from the four census regions, which suggests this challenge is felt across the industry.
- 57% of those who do see appraisals reflect the value of green report that third-party green rating systems are useful to make that occur. This is an important way that rating systems can help drive green home building.
- More respondents in 2024 who find that appraisals reflect the value of green believe that third-party rating systems (57%) and green appraisal forms (30%) help, a notable increase from 2019 (44% and 15%, respectively).

Frequency With Which Builders/Remodelers See Home Appraisals That Reflect the Added Value of a Green Home

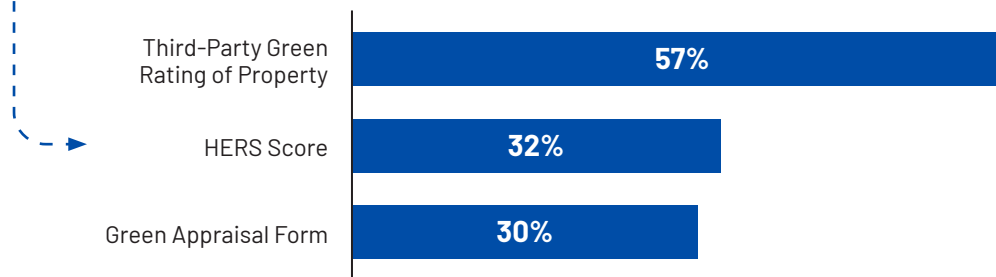
Dodge Data & Analytics, 2024



Most Useful Information to Reflect Added Value in Appraisals for Green Homes

(According to Respondents Who Sometimes/Frequently/Always See Home Appraisals Reflecting That Value)

Dodge Data & Analytics, 2024



Green Features in MLS Listings

SmartMarket Brief

FEW BUILDERS/REMODELERS REPORT THAT GREEN FEATURES ARE REFLECTED WITH ANY FREQUENCY IN MLS LISTINGS THAN IN 2019

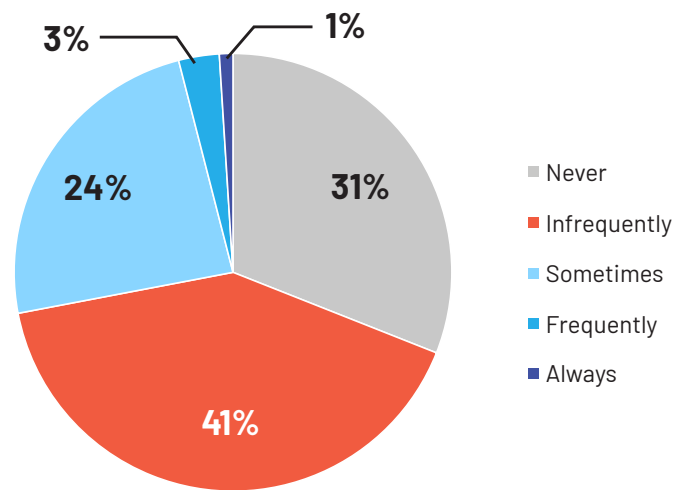
Home builders and remodelers were also asked about the frequency with which they see green features reflected in MLS listings, the database used by realtors for home sales. As the pie chart at right reveals, 72% never or infrequently see these features represented in the listings. Consistent, frequent listing of green features would help educate consumers about what they could expect in terms of better home performance.

The same question was asked in 2019, but only of those who have done at least some green home building projects, and the lower chart compares the share of those doing green home projects in 2024 who report that they never or infrequently see green features represented in the MLS listings with the 2019 findings. As with the home appraisals, it is less common for those doing green homes to see their green elements featured in the MLS listings in 2024 than it was in 2019.

These findings likely influence the low score for market demand among the drivers that have encouraged builders/remodelers to undertake green home projects (see page 33). To create market demand, consumers need to be able to reliably compare the homes with green elements to those without them, to make informed decisions about expected home performance, the cost of operating the home and the quality of their indoor living environment.

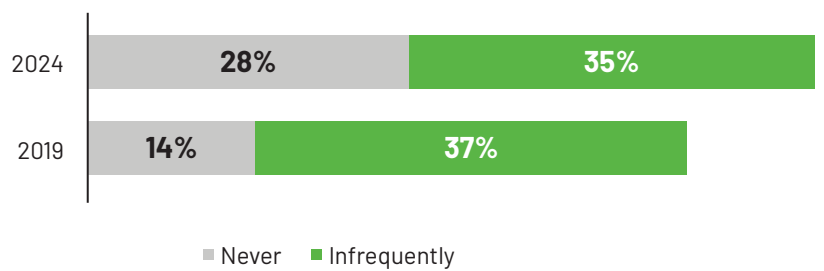
Frequency of Green Features Being Reflected in MLS Listings

(According to Builders/Remodelers)
Dodge Data & Analytics, 2024



Infrequently/Never See Green Features in MLS Listings

(Builders/Remodelers Who Do Green Projects)
Dodge Data & Analytics, 2024



Methodology

The research findings in this report are based on an online survey of US single-family home builders and remodelers, which was conducted from Dec. 18, 2023 to Jan. 15, 2024.

SURVEY RESPONDENTS

The respondent sample came from the member database of the National Association of Home Builders (NAHB). A total of 250 respondents participated in the survey.

To qualify to participate in the survey, participants had to identify themselves as a single-family builder, single-family remodeler or single-family land developer.

ANALYTIC VARIABLES

Four variables are used throughout the Brief to analyze the findings.

PRIMARY OPERATION

Respondents were asked to identify the primary operation of their company.

- 63% identified themselves as primarily builders/developers.
- 19% identified themselves as primarily remodelers.
- 18% identified themselves as equally as builders and remodelers.

GEOGRAPHIC LOCATION

Respondents were asked to identify the state in which their office is located, and then were grouped based on those responses into the four US Census Regions.

- Northeast: 12%
- Midwest: 23%
- South: 47%
- West: 18%

SIZE OF COMPANY

Respondents were asked to identify the number of projects they work on. If they said they are a single-family builder, they were asked how many single-family homes they started or expected to start during 2023. If they said they are a remodeler, they were asked how many remodeling projects they completed or expected to complete in 2023.

All who engaged in both functions in 2023 (even those who primarily identified themselves as builders or remodelers) were asked both questions.

They were then grouped based on those responses as follows:

- Builders:
 - SMALL: 1-9 units
 - MIDSIZE: 10-50 units
 - LARGE: 51 or more units
- Remodelers:
 - SMALL: 1-9 projects
 - MIDSIZE: 10-24 projects
 - LARGE: 25 or more projects

Those who did both types of work were put into the category for whatever type of work they did more of. For example, a contractor who built 8 homes and did 26 remodeling projects was placed into the large category.

LEVEL OF GREEN ENGAGEMENT

The levels of green engagement categories were determined by the share of new green homes and green remodeling projects completed by the respondents in 2023. For more information on the responses and the four categories of engagement, see page 6.

Contacts & Resources

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About the National Association of Home Builders

The National Association of Home Builders is a Washington-based trade association representing more than 140,000 members involved in home building, remodeling, multifamily construction, property management, subcontracting, design, housing finance, building product manufacturing and other aspects of residential and light commercial construction. NAHB is affiliated with 700 state and local home builders associations around the country. NAHB's builder members will construct about 80% of the new housing units projected for this year.

Learn more at:

<https://www.nahb.org/advocacy/industry-issues/sustainability-and-green-building>

<https://www.nahb.org/advocacy/industry-issues/resiliency>



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