

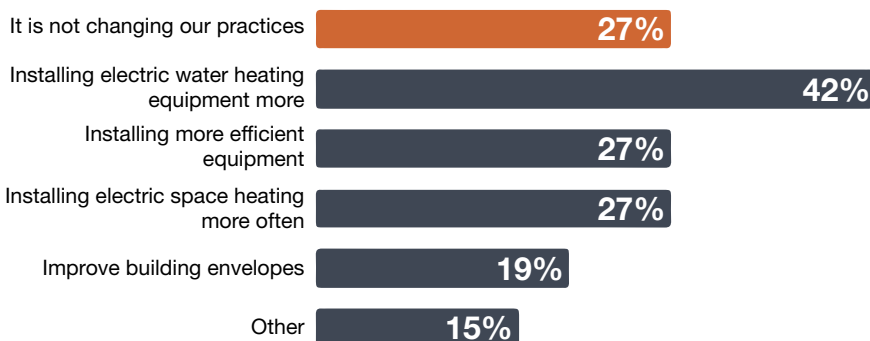


The Best Energy Upgrades to Position Builders for Long-Term Success

Market shifts and changing energy codes continue to reshape building practices in the Northwest. As easy-to-install energy-efficient upgrades become commonplace, residential builders must look for new opportunities to differentiate their homes from others on the market and stay ahead of evolving code. How can builders decide which energy-efficiency upgrades best position their businesses for long-term success? Learn from two Northwest builders tackling this challenge - Quail Homes and New Tradition Homes.

[The Northwest Energy Efficiency Alliance \(NEEA\)'s recent post-code study in Washington](#) offers perspective on how builders adapted to the new 2018 Washington State Energy Code (WSEC), which replaced the 2015 WSEC. The 2018 WSEC required builders to pursue additional energy credits to achieve more energy-efficient buildings, compared to the 2015 code. Based on builder surveys and permit data, the study found that many builders earned credits by installing highly efficient—and more expensive—equipment rather than leveraging high-performance construction techniques. However, some builders who planned for future code changes modified their building practices to construct significantly tighter envelopes, reduce air leakage, and deeply bury ducts or place them inside conditioned space. The graph below shows the results from the study.

Survey Respondents' Changes to Building Practices Due to the 2018 WSEC



How the 26 survey respondents said the 2018 WSEC is changing their building processes, if at all. Multiple responses were allowed.

Energy codes will continue to advance across the Northwest, especially as state and local policies and energy-reduction goals progress. These forward-thinking builders can offer unique insight on ways they incorporated advanced building techniques to stay ahead of building code and their competition.

Build Tight, Ventilate Right

Learn more about New Tradition Home's approach to the "build tight, ventilate right" philosophy in this case study:

[Build Tight, Ventilate Right Provides Homeowners with Complete Control of Home Ventilation](#)



Utilizing advanced framing techniques with staggered studs.

Best practice for designing and building ducts

In this free on-demand training course, learn how NW builders, architects, designers and HVAC contractors can design and build with ducts located inside a home's conditioned envelope:

[Online Training: Building with Ducts in Conditioned Spaces](#)

Construct a more insulated building envelope with advanced framing techniques

Quail Homes is a building company in southwest Washington. According to Chief Financial Officer Jeremy Girod, the company combines mechanical ventilation with advanced sealing techniques to "build tight and ventilate right." That approach starts with the framing.

Advanced framing techniques, such as staggered studs, maximize the cavity size for insulation and can help minimize outdoor noise. This approach, and others like [exterior continuous insulation](#), allow builders to produce a more comfortable home with a tighter envelope. This helps improve climate control, reduce energy costs, and soundproof the home. Girod says these are big selling points to potential clients.

"Once you close that front door, it's really quiet. You can go to the south and the north of the home, and the temperature is going to be consistent. Our clients find it's extremely comfortable for them. Everyone is used to having drafts. Not having those is a big differentiator for us."

Girod also says that while their building style does require extra training for their construction team—especially for their framers—it's not overly burdensome.

"All this we take in bite-sized pieces and work with our framers on it," he said. "We try to get all parties involved. We'll actually bring them in-house to walk them through everything, and why it's important. Once they learn it, they're more than happy to do it."

Steve Tapio is the science team leader at New Tradition Homes, which also leverages high-performance construction techniques for energy efficiency, including building tight envelopes.

"Building a house that is going to be airtight starts at the framing stage," Tapio said. "If you have a poor framing job or someone that doesn't understand the concept of building an airtight home, it's going to be really challenging as you get to the completion of the house."

[Learn more about New Traditions Homes' approach to the "build tight, ventilate right" philosophy.](#)

Locate ducts inside the thermal boundary

Tapio planned the business strategy for New Tradition Homes over the last five energy code updates in his region, which spans about 15 years.

"This last code change was more challenging than the previous ones—as the next one coming up for 2021 will be as well," Tapio said of the 2018 WSEC. "All the low-hanging fruit is disappearing and you're having to look at some of the more advanced measures that you wouldn't necessarily choose first."

This is one reason he steered New Tradition Homes towards energy-efficient upgrades related to ductwork placement years ago. Locating the ductwork within the thermal boundary helps recover any potential leakage and lowers energy costs for homeowners.

"Any leakage from your ductwork or your furnace—rather than leaking out to the garage or leaking out to the attic or the crawl space—is leakage to the thermal envelope of the home," Tapio said. "Whereas if it leaks to the crawl space or the attic, it's wasted."

Tapio says builders looking to install ducts within the thermal boundary may face aesthetic issues. For example, high ceilings are popular but difficult to use when enclosing ductwork within conditioned space. However, he says there are workarounds.

"We went with drop ceilings or soffits to enclose the duct work," he said. "Because tall ceilings are the norm, especially on the first floor, we had to keep the drop ceilings in the hallways or through closets or in bathrooms or in other more discreet areas. We kept tall ceilings in the bedrooms with a coffered ceiling around the perimeter to enclose some ducts so that it was still aesthetically pleasing but accomplished the task."

[Learn more in this online training about building with ducts in conditioned spaces.](#)



New Tradition Homes uses Blown-In-Blanket (BIB®) insulation—a fiberglass loose-fill insulation—that can achieve higher R-values and may be easier to install than other types of insulation, like fiberglass batt insulation, wet blown cellulose and spray foam.



By deeply burying the ductwork in the attic or locating the ductwork completely inside the thermal envelope, New Tradition Homes saves energy. 44% of builders in NEEA's post-code study also declared energy credits in this category.

Air seal to manage air leakage and indoor air quality

Placing ducts inside conditioned spaces or deeply burying them helps mitigate air leakage, but it's not the only option for improving performance.

Girod from Quail Homes says his team builds above-code, future-proofed homes using advanced sealing techniques to reduce the air changes per hour to two or fewer.

"We use a technique called AeroBarrier®," Girod said. "What this product does is it pressurizes the home, and there is a sealant that goes and seals all the gaps that are left within an eighth of an inch."

He says it works great, which is why the homes he builds need heat recovery ventilation (HRV) systems.

"You really need that mechanical ventilation to bring in fresh air consistently," he said. "Otherwise, it's a little too tight."

[Learn more about envelope building science, installing exterior insulation and ERV/HRV design best practices in this "On the Level 2022" on-demand course.](#)

Stand out in a competitive building market: Communicate the benefits of energy-efficient upgrades to homebuyers

Tapio recommends that builders consider the many ways more advanced features can help differentiate their businesses. Rather than just listing out the features, focus on the benefits to homebuyers, he says.

"All the features, whether it's triple-pane windows, or it's a low air change per hour, or a heat pump water heater, there are benefits to the customer," Tapio said.

He thinks that as the market continues to grow more competitive, learning to articulate those benefits will become increasingly important.

"In the last couple years, when it's been a kind of sellers' market, our sales agents haven't really had to sell," he said. "As fast as they could write contracts, they had people standing in line to buy the house. They didn't need to expound on the features and benefits of the homes. But now as the market is shifting, we're going to have to go back to actually selling homes again."

[Learn more in this on-demand training covering today's top 10 best techniques to build energy-efficient homes.](#)

BetterBuiltNW provides resources to accelerate the adoption of the most energy-efficient building practices in residential new construction and is a core component of NEEA's codes, standards and new construction program. Learn more about strategies for building for future code changes with these on-demand trainings and resources:

- [Sustainable Homes Professional: Learn cutting edge design and building best practices that are critical to success in today's housing market](#)
- [Advanced Walls: Thermal Break Shear Wall Factsheet](#)