BetterBuiltNW

HOW TAKING A BUILDING SCIENCE APPROACH CAN SIMPLIFY GOING ABOVE CODE

Carol Eisenlohr of the Home Building Association of Greater Portland bridges the gap between above-code utility programs and the residential construction community. An experienced builder herself, Eisenlohr got her start in the industry after buying a fixer-upper right out of high school, though her exposure to homebuilding began even earlier, as she learned a lot about home remodeling during childhood through her family's business.

Over the years, Eisenlohr has served in roles such as a project manager and quality assurance leader for several construction firms, including Legend Homes, Toll Brothers, and John Weiland Homes. In 2021, the Home Building Association of Greater Portland brought her on as their building science* consultant because of her unique background. With a passion for educating, and hands-on experience to back her up, Eisenlohr helps builders and tradespeople in the Portland Metro Area adopt new energy-saving best practices—all in the name of building better homes.

By finding solutions to challenges in the construction industry, Eisenlohr and the Home Building Association of Greater Portland help make high-performance home construction a viable option for builders. Here's what Eisenlohr had to say during an interview with BetterBuiltNW about approaching above-code residential construction from a building science angle. Eisenlohr works to make this concept more accessible to residential construction professionals.

Carol Eisenlohr, Home Building Association of Greater Portland

In this article, we define building science as the understanding of homes as optimizable systems, where design and components, such as building materials, equipment, and environment are considered to improve home performance and comfort.

BetterBuiltNW: What are some pain points you've identified in the residential new construction industry?

Carol Eisenlohr: Achieving above-code energy performance in a new home gets more challenging whenever updates to energy code standards occur. To ensure their homes qualify for high-performance incentive programs, builders must pursue additional measures by using better, more efficient technologies or switching to different construction materials.

Every material used and piece of equipment installed impacts a home's energy performance. Knowing and applying best practices for using specific materials and installing new equipment is necessary to accurately calculate a home's energy performance. The best outcomes occur when designers, construction managers, and all the trades are well-informed and on the same page.

Even experienced staff can struggle with newer, more energy-efficient equipment or advanced building techniques that help get homes above code if they are unfamiliar with the technology and practices. Breaking away from long-held practices isn't easy, and I'm seeing resistance to new ideas.

Despite data showing homebuyers like smaller homes with energy-efficient features, equipment, and appliances, not all builders are pivoting in that direction. That said, I expect this attitude will shift as more efficient homes become the norm due to the availability of federal tax credits, state and local energy policy mandates, and the increasing popularity of home certification programs.

BetterBuiltNW: How can builders and tradespeople start building new homes with more above-code features?

Eisenlohr: I always come back to three main pieces of advice when working with businesses engaged with the Home Building Association of Greater Portland's Building Science Program:

- **Make attending trainings a habit**. Take up to three trainings a year to keep pace with the industry. I encourage people to pursue self-improvement plans to help them be more accountable. Commit yourself to learning the latest building practices by setting a goal, then doing the work to achieve it.

- **Try a new technology and see how it fits**. Incorporating new products and ideas into your tried-and-true methods can have great results. Start by looking into triple-pane windows, high-efficiency HVAC systems, heat pump water heaters, or gas tankless water heaters to get a sense of how they are different from what you currently use, and then include one or more of these measures in your builds.

- **Get involved in a local organization**. There's a hyperlocal focus on the struggles we currently face. Connecting with a local building organization can help you find people in your community who are eager to share information and talk shop. Attending regional conferences, like the annual BuildRight Conference, BuildRight Roadshows, and other events sponsored by the Home Building Association of Greater Portland are good options for businesses in the Northwest. Find your local building association using the National Association of Home Builders' directory.

I encourage people to start trying to build above-code homes sooner rather than later. Take the time to learn what's coming in the next two or three energy code cycles and strive to go a step above what you're currently doing. There might even be opportunities to save money, but you have to put the effort in to find out.

BetterBuiltNW: Looking ahead, what do you think is next for residential construction?

Eisenlohr: The future of single-family developments can be summarized in two words: smart homes. I predict wireless, connected devices and appliances—such as communicating thermostats—and equipment with advanced scheduling functionality, like heat pump HVAC systems, are going to continue to grow in popularity. In addition to being features homeowners are interested in, they help save energy and money.

Net-zero construction is another thing I'm betting on. As we get closer and closer to a standard, more and more net-zero developments will start popping up. I'm eager for the day when every high-efficiency strategy, such as heat pump utilization, in-envelope ductwork, and on-site solar generation, can all be incorporated into the same home.

I am hopeful we will move past the workforce challenges builders and tradespeople currently face. The Home Building Association of Greater Portland is doing its best to encourage construction education in schools, and there are a few organizations in Oregon that are getting young people involved in the trades; some even have waiting lists. Outreach in schools is going really well. It's promising.

BetterBuiltNW: What do businesses in the residential construction industry stand to gain from taking a building science approach?

Eisenlohr: Developers, builders, and the tradespeople who support them can all benefit from a better understanding of building science. Knowing how new products and strategies impact energy performance, and how the building operates as a system, can help projects come together quicker and with more certainty. Participating in incentive programs that promote building above-code homes is one way to gain practical knowledge and incorporate the latest energy-saving equipment into a new project at a lower cost.

Energy performance standards aren't going anywhere, so early adopters have the most time to nail down a strategy that works for their business. Homebuilding organizations in your community are a great resource. If you're in the Portland area, reach out to me at buildingscience@hbapdx.org to learn how I can help. If your local Home Building Association doesn't have someone like me on staff, you can reach out too, and I'll see what I can do to help create one.

Eisenlohr with participants and volunteers at a Girls Build™ workshop in Portland