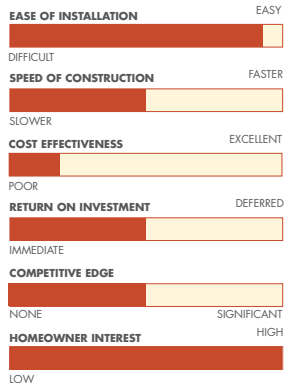


High Wind-Resistant Shingles: Achieving Strength and Affordability with Top-of-the-Line Technology

Builder's Experience



Challenges: They're more expensive than traditional shingles.

Would she do it again? Yes

PATH Attributes:

- ★ Quality and Durability
- 🌱 Environmental Performance

Builder Tips: "The owners can always choose to upgrade countertops and light fixtures later. Build the strong envelope now."

Builder:

Kristin Beall
Charlie Johnson Builder

Builder Type:

Medium-sized Residential Builder

The Technology:

High Wind- and Impact-Resistant Shingles

The Project:

Model home in Eustis, Florida.

"I wouldn't do anything differently. I have 59 more homes to do just like this."

– Kristin Beall



Artist's rendering of the first of 60 homes Beall will build with high wind-resistant shingles in Eustis, Florida.

BEALL'S STORY

"Buying a home is a lot like buying a car," says Kristin Beall. "You don't want to wait until you have an accident to put your family in a safe car. It's the same way with a home. You want the peace of mind of knowing that your home is going to perform well in a storm."

After witnessing the devastation caused by three major hurricanes in central Florida in 2004, Kristin Beall began to investigate ways to build homes that could withstand the effects of high winds and heavy rain for the least amount of money.

TRADING UP TO SAFETY

"It's a lot harder to build a \$200,000 home than a \$1,000,000 home with all the materials that are required for storm resistance that go beyond code," says Beall. "I spent six months conducting research to find the best products that I

could for the best prices, making sure that they'd be safe and affordable for working families."

"Unfortunately, most homeowner insurance plans feature a percent deductible. When you have a house that costs \$150,000 or \$175,000, you're looking at a \$3,000 deductible. A lot of people don't have that kind of money sitting around waiting for a hurricane claim. I'm trying to build homes that aren't badly damaged by storms in the first place."

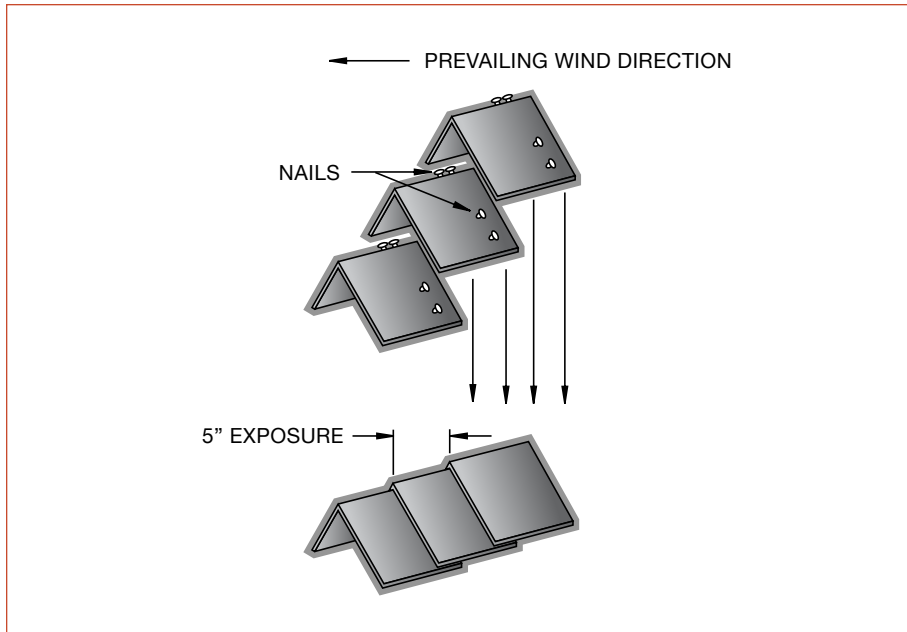
Beall partnered with the Institute for Building and Home Safety's Fortified ... for Safer Living program, which specifies criteria to increase a home's resistance to natural disaster, to create the Storm Safe Homes project. The first homes to be built under the project will be Beall's community in the Oaks at Summer Glen in Eustis, Florida. Each home will be built to exceed



A licensed builder for nine years, Kristin Beall is third in a line of builders. Her grandfather Charlie Johnson founded Charlie Johnson Builder in central Florida in 1958. The company builds 100 homes a year ranging in price from \$200,000 to \$1,000,000. Beall is also executive producer and host of Home Talk TV, a weekly production for WRDQ Channel 27.

Why she uses hurricane-resistant shingles:

"If you're going to be putting high-quality shingles on a home anyway, it just makes sense to use ones that are impact- and wind-resistant."



This detail shows the proper installation of ridge shingles in high wind areas.

local building codes, and each will include high-wind-resistant shingles, which can withstand 130-mile-per-hour winds and resist damage from flying debris and hail.

High-end shingles on homes built for affordability? Beall makes it work. She compensates for the cost of the shingles by skipping the fancy extras for the interior. This puts her homes within reach of less affluent buyers while protecting profitability.

"My philosophy is that you can add granite countertops and change your

lighting fixtures, but you can't rebuild the body of a house. That's why I'm putting money and energy into building a really strong envelope."

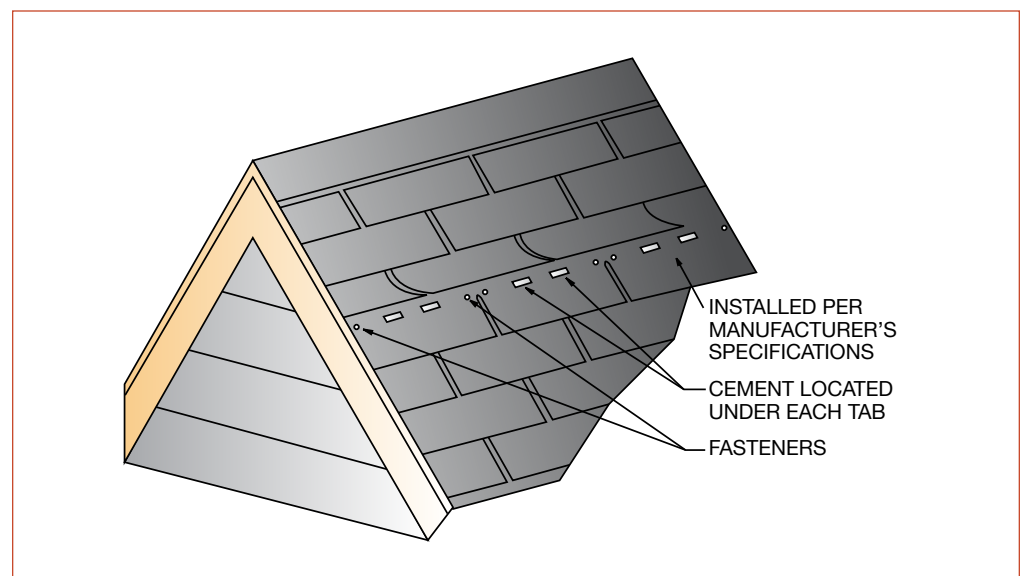
In addition to wind-resistant shingles, Beall used concrete masonry block (CMU) for durable walls and foundations. The home also features a safe room, doors that swing out, impact-resistant windows, and emergency backup power.

BUILDING A ROOF THAT LASTS

"We used Owens Corning 40-year shingles in this project," says Beall. "Compared to traditional shingles, there is little difference in appearance. High wind-resistant shingles are heavier and thicker and require a different nailing pattern, but they take the same amount of time to install and they don't require a special level of expertise. Any builder can use them."

"Besides quality, the only real difference is the price. While regular shingles cost \$70 per square, these cost \$97 per square. But for the strength and durability, they're worth it."

Depending on the frequency of storms, the homeowner's cost for a roof with high wind-resistant shingles could be less



This detail shows the proper application of cement in a typical high-impact and wind-resistant shingle installation.

TECHNOLOGY HIGHLIGHTS

This project included the following PATH-profiled technologies:

- High Wind- and Impact-Resistant Shingles
- High Performance Glazing

than the cost of replacing the roof—to say nothing of storm-damaged interior walls and furnishings. Some insurance companies may also offer a discount on homeowner’s insurance for shingles meeting a UL 2218 Class 4 rating.

To complement the strength of the shingles, Beall used a hip roof design, which is less vulnerable than a gable roof in a storm. The roof includes a ridge vent made from a heavier gauge metal that has a lip to prevent water from entering the structure. Beall says ridge vents are stronger than soffit vents and less likely to blow off in a storm. The home also features 5/8-inch roof decking, a tighter nailing pattern than required by code, a peel-and-stick water barrier on all seams of the roof deck, and 30-pound felt. Hurricane straps tie the roof trusses to the body of the house.

A SAFE RETREAT

Beall’s Storm Safe Homes project isn’t just about storm-resistance; it’s also about preparedness. Details like the safe room and back-up power offer buyers peace of mind. Doubling as a master bedroom closet, the safe room is made from 8-inch concrete block, poured solid with a 4-inch cap of concrete on the ceiling. This is

reinforced with #5 rebar running every 8 inches in each direction.

“A lot of the damage we’ve seen in storms has been the result of trees falling through roofs. A poured concrete slab that is reinforced with rebar will be safe from a falling tree.”

A pre-wired six-circuit breaker box plugs into a generator that runs to outlets in the safe room, the master bedroom, the refrigerator, and one set of lights in the living room.

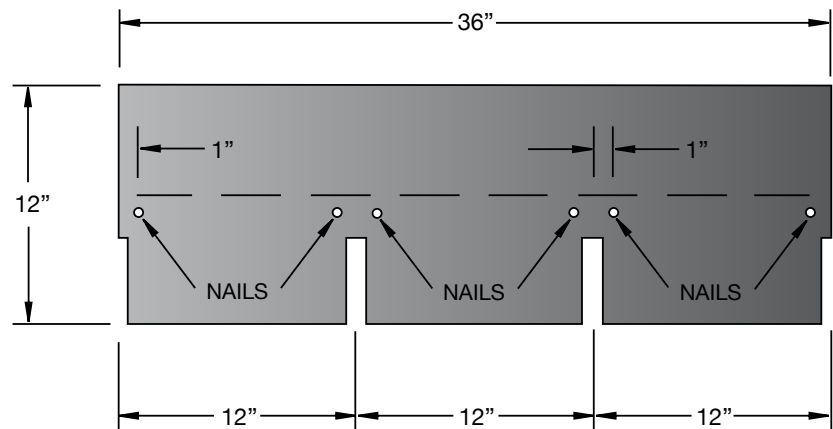
“It won’t be a totally functional home, but it gives you enough power to run a fan, cook, and live for a few weeks,” says Beall. Generators also allow fans and dryers to dry out the home if the power goes out after a hurricane.

The Partnership for Advancing Technology in Housing (PATH) brings together builders, manufacturers, researchers, government agencies, and other members of the housing industry. PATH partners work to improve the quality and affordability of new and existing homes. The program is administered by the U.S. Department of Housing and Urban Development’s Office of Policy Development and Research.

To learn more about PATH, visit www.pathnet.org.
To learn more about PATH-profiled technologies, visit www.toolbase.org/techniv.



The opinions expressed in this document represent those of the builder and do not necessarily reflect the views of PATH.



This detail shows the proper placement of roofing nails on a shingle installation.