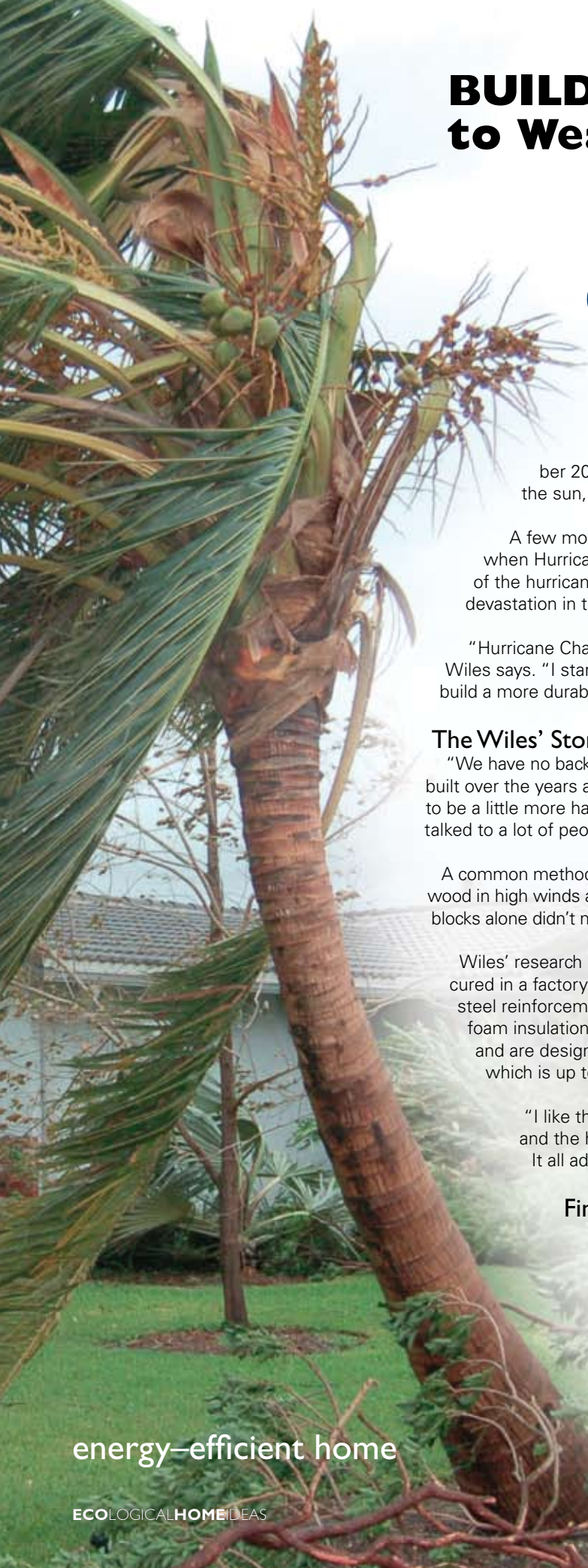
PATH
Partnership for Advancing Technology in Housing

The Partnership for Advancing Technology in Housing (PATH) is a public-private partnership of leading-edge builders, manufacturers, researchers, Federal agencies and others seeking to improve the quality, affordability and environmental performance of America's homes. PATH is administered by the U.S. Department of Housing and Urban Development. Learn more at www.pathnet.org.

Transplanted Floridians build storm-resistant,



BUILDING to Weather the STORM

When they moved into their first home in Florida in December 2003, retirees Randy and Karen Wiles were just happy to be in the sun, away from the snowdrifts of Buffalo, New York.

A few months later, they discovered Florida sunshine can come at a price when Hurricane Charley hit the Gulf Coast. The Wiles' new home was out of the hurricane's direct path and suffered minimal damage, but the broader devastation in the area left a permanent impression on the couple.

"Hurricane Charley made me think about storm-resistant building," Randy Wiles says. "I started to research the technologies and techniques available to build a more durable and efficient home."

The Wiles' Story

"We have no background in construction," Wiles says. "We've had a few houses built over the years and we learned from mistakes with previous builders. I wanted to be a little more hands-on this time. I used the Internet, did a lot of reading and talked to a lot of people. It seems like every builder has a different way of doing it."

A common method in Florida is building with concrete since it performs better than wood in high winds and doesn't retain water. However, poured concrete or concrete blocks alone didn't meet the Wiles' desire for comfort and energy efficiency.

Wiles' research led him to precast concrete panels. The walls are cast and cured in a factory to ensure quality and consistency. Manufacturers can add steel reinforcements to increase storm resistance or cast the panels against foam insulation to increase energy efficiency. The panels don't absorb water and are designed to handle the stress of 5,000 pounds per square inch (psi), which is up to 40% stronger than poured concrete.

"I like the idea of the extra insulation in the walls. The thicker concrete and the higher psi concrete addresses water penetration and strength. It all adds up to a more storm-resistant home," Wiles says.

Finding the Right Builder

"I didn't come across many builders that actually engaged in advanced construction methods," Wiles says. "The key was finding a builder who was familiar with improved housing technologies, and also would take the time to listen to what my wife and I wanted in a new home."

The precast concrete panels were one of the things that sold the Wiles on hiring Tarpon Coast, based in an Osprey, Fla. Tarpon Coast uses a variety of advanced technologies and practices.

energy–efficient home

1. Impact-resistant doors

2. Reinforced garage doors or single-car openings

3. Hurricane shutters or impact-resistant glass

4. Windows with high-performance glass

"Our goal is to give people affordable homes that are safe," says Mike Romig, president and part owner of Tarpon Coast. "Sometimes it's kind of difficult to get the public to understand that what we are building looks the same as Joe Builder's down the street, but it's so technologically advanced, it doesn't even compare."

One key to making homes safer is reinforcing the roof. Tarpon Coast uses roof trusses and anchors that are engineered to withstand 150-mph winds. The roof decking is attached to ring-shank nailed and glued 5/8-in. foam-backed plywood roof sheathing to provide optimal wind resistance. The shingles are also wind resistant. A synthetic roofing underlayment provides a secondary barrier against water, and the soffits and attic are sealed to prevent wind and rain penetration. The roof is a moderately pitched hip roof, which rises by inclined planes on all four sides. This adds crucial structural integrity that helps the roof hold up in heavy storms.

The result is that every home Tarpon Coast builds is designated as Fortified… for Safer Living, a certification from the Institute for Business and Home Safety for meeting guidelines that increase a home's resistance to natural disaster.

Beyond Storm Resistance

While storm-resistance was the Wiles' first priority, the impact of their home on the environment was another big consideration.

"We were looking for things that were a little more energy efficient. We like to do things that are environmentally friendly. Ultimately, we wanted to be comfortable not just in — but also with — our home," Wiles says.

Working with Romig, the Wileses chose several green features, including double-pane, low-E glass in all windows and doors; a 16-SEER (seasonal energy efficiency ratio) air conditioning system with fresh air intake for healthy air quality; a PEX (cross-linked polyethylene, a PVC substitute) manifold plumbing system to conserve water and reduce maintenance; water-conserving toilets, faucets and showerheads; and xeriscaping with native grasses to reduce landscape watering and maintenance.

The Wiles were particularly interested in upgrading the insulation for enhanced comfort. For this home, Wiles chose BioBased Systems foam spray insulation on the underside of the roof deck and the exterior walls. And to make sure the insulation works the way it is supposed to, Tarpon Coast air sealed the attic, eliminating outside air penetration. Since the house is sealed so tightly, Romig set up the air handling system to circulate fresh air.

Of course, the upgrades didn't come for free. Wiles says the home cost about 10- to 15% more than a similar home in the area because of the structural upgrades; the standard Tarpon Coast home runs only 1- to 2% more than the market. Still, Wiles expects to earn much, if not all, of that investment back through lower energy costs.

"Since we moved in late October, we've discovered the house is very comfortable inside without turning on the air conditioning," Wiles says. "We tend to leave the doors and windows open during the day and just use the ceiling fans."

The Wileses expect to be further comforted when they see their energy bills. The home is Energy Star® qualified, which means it is at least 15% more energy efficient than homes built to the 2006 International Energy Conservation Code.

Those savings are nothing compared to the savings they will see if the home faces a hurricane. As insurance deductibles continue to rise in hurricane-prone coastal areas, homeowners are facing the possibility of paying more out of pocket. On a $300,000 home with an increasingly common 5% deductible, the homeowner pays for the first $15,000 in damage, the *New York Times* reports.[1] That's a stark contrast from the $500 standard deductible that was once common.

"I know the construction isn't cheap," Wiles says, "but in the long run, from both durability and an energy standpoint, it just seems like a better way to build."

By Scott T. Shepherd, for PATH Partners

[1] "Insurers Shift Cost Burdens to Homeowners," *New York Times*, November 23, 2007.