Residential use of varied LP products in a deep energy retrofit

SUMMARY

The home is shared by Jeff Wilson, his wife and their two daughters. The 70-year-old Cape Cod-style house in southeastern Ohio contained 1,000 square feet of conditioned space — and Wilson was being generous calling the space "conditioned."

Wilson is a long-time carpenter with a life-long interest in energy efficiency. His father built a passive solar home in the early 1980s, and the home was designed with the help of his grandfather. Wilson has appeared on several programs for DIY Network and HGTV, and his deep energy retrofit is featured online at www.thegreenedhouseeffect.com.

OBJECTIVES

Wilson sought to accomplish several goals with his retrofit. In a part of Ohio that gets 90 percent of its energy from coal, one goal was to substantially lower his home's energy usage — and his $200 per month heating bills. He also intended to make his home safer, healthier and more comfortable for his family.

His energy-reduction goals are lofty – he intends to reduce energy usage between 50 and 90 percent.

He also tested a theory that deep energy retrofits can help the U.S. economy. With more than 80 million homes at more than 30 years old according to the U.S. Census Bureau, he feels deep energy retrofits are a larger market than new home construction. Wilson also believes that more energy-efficient homes could help wean the United States from its dependency on foreign energy sources.

IMPLEMENTATION

The first step in making a drafty old house such as Wilson's more energy efficient was to seal up the envelope of the house. Once that is complete, you can begin looking at other systems to increase efficiency.

"Engineered wood products, which rely on sustainable, fast-regenerating small trees, were a big part of lowering the environmental impact of our home."

Jeff Wilson, Regular Guy
Regularly seen on HGTV and DIY Network

In Brief

LOCATION
Southeastern Ohio

PROJECT SUMMARY
Jeff Wilson, Regular Guy, star of several programs on DIY Network and HGTV, decided to renovate his 70-year-old Cape Cod-style home, hoping to decrease energy use by 50 to 90 percent, using a deep energy retrofit.

WEBSITE
www.jeffwilsonregularguy.com
www.thegreenedhouseeffect.com

PROJECT OBJECTIVES
- Substantially increase the energy efficiency, comfort and health of the home
- Help the local economy
- Encourage networks to place more focus on renovation projects

SOLUTION
A complete retrofit, using a variety of engineered wood products, including LP® SmartSide® Siding, offered energy efficiency made from sustainable products with cost- effective construction solutions.

He relied heavily on engineered wood products, which he said are more environmentally responsible than other products due to their focus on sustainable, fast growing trees as well as their lack of knots, cores and other defects that create waste.

Wilson said the "curtain wall" design approach he opted for was meant to provide the air-sealed quality he desired. While spray-foam insulation material does the bulk of that work, it can't be left exposed to the weather, so Wilson used LP® TechShield® Radiant Barrier Sheathing and other products as sheathing, underlay and roofing.

He said an advantage of doing it this way is that he also was able to use "new construction" windows instead of replacement windows, which resulted in window and door openings that are completely sealed, as in a new house.

Oriented Strand Board was used on the walls, along with LP® SmartSide® Siding and Trim as well as LP® SolidStart® I-Joists and LP® TopNotch® 350 for sub-flooring.

"LP Building Products helped us achieve that curtain wall, and added the bonus benefits of radiant barrier on the roof, a beautiful exterior siding finish, and the sustainability we wanted," Wilson said.

Wilson tore down a rotting, dilapidated garage and built an addition to the house using all engineered wood products. This added another 350 square feet of conditioned space to the home.

He relied on LP SmartSide Siding for the exterior of the house.

According to Wilson, an advantage of LP SmartSide is it comes in longer lengths — up to 16 feet long. He said the longer lengths resulted in fewer seams that needed to be caulked. As with all of the engineered wood products he used, LP SmartSide Siding can be cut with regular tools using normal construction techniques.

An added bonus, which saved time and money, was that by using Gecko Gauges, Wilson was able to hang boards by himself, even if working from the top of a ladder.

"The gauges hold the board in place at just the right reveal," Wilson said. "Even way up on a ladder, I could handle the 16-foot lengths by myself."

He rounded the retrofit out by using 2½-inch spray foam in the walls and ceiling, installing insulated doors and new windows, and utilizing a number of more efficient mechanical systems, including an energy recovery ventilator to constantly replace stale air. He has also installed a 4kW solar array, a high-efficiency HVAC system, a tankless water heater, and made other conversions to enhance energy efficiency.

OUTCOME

While Wilson has yet to test the deep energy retrofit out on one of Ohio's rough winters, he is confident that the LP engineered wood products he used in his home will help provide the comfort and efficiency he's looking for.

The local economy got a little boost as he purchased materials from local suppliers, and when he did enlist the aid of contractors he shopped locally for them as well.

"The home is easier to heat and more comfortable," Wilson said. "And it has better air quality. We increased comfort while saving energy."

What's more, the home looks great. "My wife and I still come down the street, look up and are stunned by how beautiful the house looks now," Wilson said.

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