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*Custom builder Bill Stratton constructs his first Passive House in Claverack, N.Y.*Source: CUSTOM HOME Magazine
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By Meghan Drueding

When Bill Stratton was offered the chance to develop and build a Passive House, he didn't have to spend much time deliberating. The Hudson Valley, N.Y., custom builder had collaborated on past projects with architect Dennis Wedlick, a New Yorker with a weekend home and satellite office in the area. In 2008, Wedlick decided to design a for-sale house according to the highly energy-efficient Passive House standard. Eventually, he asked Stratton to team with him on the project. "Dennis had been working on this concept, and he urged me to think about jumping in and building it and funding the construction," Stratton says. "It didn't take a lot of convincing, actually."

The only factor that gave him pause was the tough economy, but he decided to go ahead anyway. "I did it to gain the exposure and experience," he says. "If I break even, I'll be tickled pink." In a way, the slowdown in the building industry helped; if he'd been as busy as he was during the boom, he never would have had time to do a spec house, let alone his first Passive House. He viewed this job—which he and Wedlick dubbed the Hudson Passive Project—as a golden opportunity to learn firsthand about a way of building that he believes will become more and more popular as energy costs continue to increase. "It's going to become a lot more commonplace," Stratton predicts.

The Passive House concept originated in Germany in the late 1980s, and since then thousands of European homes have met the standard's stringent certification requirements. These include a super-tight building envelope and strict post-construction energy use monitoring. Passive House is gaining a still-small but devoted following in the United States. It lowers energy use drastically, by as much as 90 percent. The system works particularly well in colder climates, and doesn't require investments in energy-producing add-ons such as solar panels or wind turbines. The key to a Passive House is making it airtight to retain as much heat as possible, from a combination of solar gain, residual warmth generated by household appliances and the occupants themselves, and a dedicated heating system. Fresh air is brought in through a heat recovery ventilator.

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Stratton and his crew built the Hudson Passive Project using a timber-frame, the same technique he used on his own house. The frame sits on a highly insulated foundation, and the home's walls consist of extra-thick SIPs. High-performance windows are placed mostly at the south end of the loftlike house, to maximize passive solar benefits. Thermal breaks are carefully calculated, and electronically controlled insulating shades also hold in the heat. Stone cladding as well as a barnlike roofline and massing serve to connect the building to the surrounding rural context.

Wedlick and Stratton researched the Passive House standards thoroughly, and they also had the

backing of the New York State Energy Research and Development Authority (NYSERDA), from which Wedlick received a grant. The NYSERDA funding paid for an architectural and engineering firm, The Levy Partnership, to act as an energy consultant. The company provided guidance, administered the required building envelope testing, and is now monitoring the completed home's energy use. It's passed blower-door tests with flying colors so far, scoring well under (i.e., better than) the required Passive House numbers. Additional team members include Sciame Development, which provided the land at a discount rate, and mechanical consultants CDH Energy.

In some ways, Stratton notes, building a Passive House isn't so unlike building a regular custom home. "The materials really aren't that different than normal," he says. "The big difference is the willingness to go the extra miles in airtightness." One item is joined to another with even more care than usual, to ensure as little air leakage as possible. He compares the SIP's wall construction, for example, with building a boat—a process that requires multiple layers of sealing and taping. "The assembly is a major part of Passive House," he points out. "You can spend money on panels, but if the building leaks, it leaks."

Another unique challenge of building a Passive House, he found, was getting his entire construction team on the same page. Stratton oversees four separate building crews, and he had them all gather on the site during key moments in the process so they could learn in person. "The crew and supervisors really got into it," he says. Communicating with the subcontractors was more complicated. Because it was everyone's first time building a Passive House, Stratton and project supervisor Nick Ford had to monitor the trades much more closely than usual. "Nick did a stellar job in pushing the message down that this has to be different," Stratton says. "We have to do better than a perfectly great job. It's really more of a mindset, to look at things with a whole different set of rules and get the subs to do so."

Grasping and internalizing the Passive House strategy seems to have energized Stratton. "Certainly listening to Wedlick's team with our eyes and ears wide open, and then reading about the Passive buildings in Europe and being cognizant of where differences can be made, you start thinking about this stuff," he says. "It isn't the same old." He feels equally excited about the 100 or so people who attended the Hudson Passive Project's open house in November. The enthusiastic crowd consisted of builders, architects, consumers, and architecture students, all curious about Passive House design and construction. "There were lots of great questions asked," Stratton recalls.

As of December, the almost-complete, 1,650-square-foot house was on the market for \$595,000 (price includes its 7-acre lot). Construction costs are around \$200 to \$250 per square foot. For more information, visit www.hudsonpassiveproject.com. And to view Dennis Wedlick's virtual seminar on the project, go to www.directionsconf.com.

Bill Stratton Building Co., Old Chatham, N.Y., www.billstrattonbuilding.com / Type of business: Custom builder / **Years in business:** 16 / **Employees:** 24 / **Annual revenue:** \$5 million / **Average number of projects per year:** 10 to 12 / **Project type breakdown—remodeling vs. new construction:** 40 percent vs. 60 percent / **Project type breakdown—residential vs. commercial:** 95 percent vs. 5 percent

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