



## Pennington architect tries to spark interest in construction design advocates say can shrink energy use by 75 to 90 percent

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By **Erin Duffy/The Times**

By

Winter or summer, there are always those days when you just can't get the temperature right inside your house.

Either it's freezing and the furnace won't kick on, leaving you shivering under sweaters and piles of blankets. Or it's blazing hot and the air conditioning just won't get cold enough, leaving you sweating and desperate for a blast of cool air.

Passive-house architects like Doug Schotland say it doesn't have to be that way.



Mary Iuvone/For the Trenton Times

Pennington--4/6/12--Doug Schotland, a green architect and passive house consultant, is photographed in his home.

Schotland, a Pennington architect and certified passive-house consultant, is trying to spark interest in a construction design that advocates claim shrinks energy usage by 75 to 90 percent, reducing energy bills, environmental impacts and the annoyance of constantly fiddling with a thermostat.

"I'm trying to wake people up," he said. "I think people have no idea this exists. Everyone likes to save money, but they just don't know it exists, they don't know it's an option."

The passive-house concept is based on downsizing or even eliminating most energy sources within a house by building air-tight, super-insulated structures with large, triple-glazed windows that absorb sunlight and help recirculate heat given off by people and appliances throughout the house.

Some passive houses have no furnace or heating system, only a small unit as back-up for the coldest days of winter. Energy recovery ventilation systems exchange stale air inside a house with fresh air drawn from

the outside, keeping temperatures comfortable year-round and reducing the moist, damp conditions that allow mold and rot to thrive.

"It's all about the guts, what's happening inside the walls," Schotland said.

Walls are built sometimes three to four times thicker than conventional houses, with 15-inch thick layers of spray foam insulation that block out wind better than fluffy fiberglass.

The passive-house concept originated in Europe and continues to grow in popularity there, with more than 25,000 buildings in countries like Germany and Austria earning the ultra-low energy certification.

But the trend has been slow to migrate to America, even with spiking oil prices and the race for ever-greener buildings and the accompanying federal tax credits.

When Schotland received his passive-house designation last year, he was only the second to do so in New Jersey. According to Passive House Institute US, just 25 buildings in the United States have met the rigorous passive-house standards and construction and material costs remain higher here than overseas.

But Schotland sees passive houses catching on in places beyond progressive cities like Burlington, Vt., and Austin, Texas. The Hopewell-Princeton region, with its plethora of academics and wealthier homeowners, could provide the interested, committed homeowners willing to take a gamble on a little-known design philosophy.

Schotland is in the beginning stages of building his first passive house for a young, environmentally conscious Hunterdon County couple. Constructing passive houses from the ground-up is typically easier than retrofitting houses, though Schotland does do energy-efficient renovations that adhere to less meticulous standards.

Passive houses aren't necessarily for the average homeowner looking to save a few bucks on their heating bill, Schotland cautions.

"A lot of people are looking for quick, easy, cheap solutions and a lot of people out there can help you do that, by caulking, putting better seals in. But it's such a drop in the bucket, it's really not making that much of a difference," he said.

"If you want the quick answer, this is not the quick answer."

Passive-house construction typically costs 10 to 15 percent more than a conventionally built house, but figures from Schotland indicate a 2,700-square foot passive house can save more than \$84,000 in energy costs over the lifetime of a 30-year mortgage. "It does take longer to build, with more labor costs, but it's going to get easier, it's going to get cheaper and more accessible," he said.

Schotland will be hosting an informational session on passive-house design at The Nassau Club in Princeton on April 25 at 6 p.m.

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