



# Downsizing your home, upgrading your life

▣ BY GARRET K. WOODWARD ▣

It wasn't the initial idea Josh Scala had in mind.

"This is the smallest certified green built house in North Carolina," he said. "Which was not the original plan, but as the thing started to progress, it just turned out that way."

Standing in his driveway in Black Mountain, Scala scans the one-acre property. There is a clearing to the right for a future green built home, which would sit seamlessly in the quiet, mountain neighborhood. To the left, huddled underneath a grove of trees, is a 440-square-foot structure – home to the Scala family.

"It's my wife, three kids, a cat, dog, and myself," he chuckled. "For

us, we used to live in a 1,300-square-foot home and be at arm's length, but it doesn't feel any different in a smaller house."

Owner/builder of GreenSource Construction Management, Scala specializes in energy efficient building practices. Years earlier, before the kids, he was creating green homes around Western North Carolina. And yet, though he was promoting green building, he wasn't yet practicing it himself.

"The first house my wife and I bought wasn't efficient," he said. "It had metal framing, heat and cold leaking through the walls. And there I was, building green homes and not doing it myself – that bothered me."

Soon, a piece of property was located a couple blocks from Scala. When his house sold faster than

expected, he found himself with a little more than two months in March 2015 before he had to find another place to inhabit. A fan of the "tiny house" movement, which is green-built home on a very small and efficient scale, Scala put a quick design together on a napkin and jumped on the nearby one-acre property for sale.

"I didn't want to rent when rent can be just as high as a mortgage payment, so let's build a tiny house in the interim," he said.

While clearing some of the new property, Scala was asked if he thought about a tiny house in a small opening under a grove of trees in front of the driveway. He took some stakes and marked the

**Vaulted ceiling:** R25.9  
**Above grade walls:** R18  
**Exposed Floor:** R25  
**Supplied materials:** ProBuild  
**Windows:** Window Guy  
**Insulation:** R-Pro  
**Roofing/Ceiling:** Best Buy Metals  
**Floor heat system:** Radiant Floor Company  
**Heating:** Fuel-fired hydronic distribution, natural gas, 95.0 AFUE  
**Water heating:** Instant water heater, natural gas, 0.95 EF, 0.0 gal  
**Ventilation system:** Exhaust only, 91 cfm, 15.0 watts

Located in Black Mountain, this 440-square-foot structure is currently the smallest certified green built home (or “tiny house”) in North Carolina. The home was built in just over two months this past spring by Josh Scala (owner/builder of GreenSource Construction Management), who also lives in it with his family. Garret K. Woodward photos

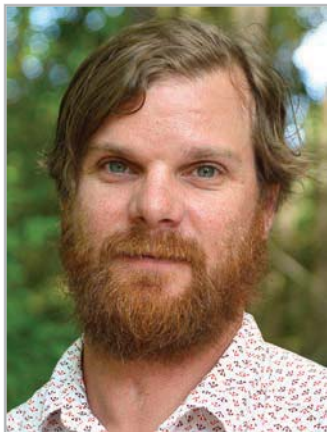
perimeter of the tiny house, with not one tree selected for removal.

“I built the entire house by myself in about two months, with my wife helping to raise a few walls on her lunch break while studying for her master’s degree,” Scala smiled.

Of the wood used on the tiny house, all of which came from the other side of the property. Milled locally and constructed onsite, the structure has pine siding and a poplar interior, as well as numerous panels used for the deck.

“Every stick of wood, I cut it, shaped it and sanded it, every piece in this house was made with love, and that means a lot to us,” he proudly stated.

With the walls up, Scala wrapped one-inch of rigid foam around the



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exterior, ultimately covering what little thermal breaks existed with the outside studs. Inside, there is a bottom floor of a kitchen/living room, two children’s bedrooms, bathroom, closet and master bedroom loft. The ceiling is metal, run-

ning vertical rather than horizontal, thus providing an illusion of a bigger space, and also offering a strong, steep roof against impending snow loads (not to mention that steep pitch of the galvalume roof reflects a lot of heat from the sun).

Instead of using 2-by-12 boards for his rafters, Scala went with 2-by-6s, and added six inches of spray foam insulation in the roof deck.

“With the insulation coming down to six inches, the thermal bridging is now not after every rafter,” he said. “Now, it’s only where the rafter and the blocking meet – cutting down your thermal bridging by about 75 percent or so.”

Due to the shaded tree grove, the tiny house isn’t able to use solar power, at least not just yet. In terms of heat and water, the home is heated with a gas tank-less water heater and radiant floor system. Putting a heat sink below the floor, heated water flows continuously through the system, where warmth now moves from your feet upward, not from your head down like with conventional forced air from ceiling duct.

“If the water is 70 degrees, the floor is 70 degrees,” Scala said. “The pump kicks on and tells the water how to get through the system and up to the needed temperature – hot water leaves the system, with fresh cold waters coming into it, so it’s never stagnant.”

When it came to the HERS score, Scala’s project came in at 52 – an impressive number for such a small home (compared to 100 as the less energy efficient, 80s for meeting building code requirements). Between the structural green energy initiatives, efficient appliances and lighting, the score allowed Scala to receive a \$4,000 Duke Energy rebate for energy efficient building.

“When you’re on a budget, trying to build inexpensively and sustainably, to move in quickly, too, it’s pretty great getting that rebate check from the power company,” Scala said. “Especially if you have a mortgage, all of those green energy savings and rebate programs add up – every month you’re saving.”



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