Seville Residence Case Study

Project Information

Project Type: Single-Family

Location: Decatur, Ga.

National Green Building Standard Certification Level: Emerald

Date Completed: 2017

Climate Zone: 3

Other Certifications: EarthCraft House, LEED for Homes V4, Zero Energy Ready, Energy Star V3

Project Team

Builder: Kurt Ptacek

Designer: Thomas Batemen Hood

Verifier: Rick Stepp

"The house is comfortable and quiet. Because the building envelope is so well-insulated and air-sealed, the ductless mini splits provide even heating and cooling throughout the house. " - Carl Seville

NAHB
National Association of Home Builders

Specifics

This single-family house in the Decatur, Ga. historic district, is the first project certified to the 2015 NGBS. Carl Seville, the home owner and an NGBS verifier, wanted his home designed and built to the most current version of the standard. While the original carriage house on the back of the lot was built in 1925, the property did not include a main house. This meant that Seville had to adhere to many historical requirements in addition to using high-performance building practices when constructing the home.

The home is 2,646 square feet of conditioned space with a detached carport and pervious pavers that create a courtyard. It is wood-frame construction that used ZIP R sheathing and loose-fill fiberglass insulation.

Seville worked closely with his contractors and subcontractors to make sure each step of the process was up to his standards and would meet certification requirements, but he still had to revisit aspects of the project along the way. After taking the time to explain to his framers how he wanted the job done, they did the job as they normally do, without regard to the conversation. Seville had them revisit and fix things, such as extra cripples that weren't necessary for advanced framing. Managing the trades was a time-intensive part of this build.

He thought that building his own house would be a great way to try some nontraditional practices such as ductless mini-splits instead of ductwork and a slab rather than a crawl space.

This recessed header allows for better insulation installation.

Key Features:

- Ductless mini-split HVAC
- R-23 exterior walls
- R-5 slab edge insulation
- R-50 attic insulation
- Low VOC finishes
- ERV for ventilation
- WaterSense plumbing fixtures
- Hot water delivery system meets WaterSense requirements
- LED lighting throughout
- Zero Energy Ready
- Certified blower door test results .88 ACH50
- ENERGY STAR Version 3 certified
- TERM vapor and termite barrier installed on slab
- Boral TruExterior siding over vented rainscreen siding

All information in this case study was provided by one or more members of the project team.

For information on certifying your project to the NGBS, visit homeinnovation.com/green.

Other Details

The house is built on a slab foundation, set on a gravel bed inside of poured foundation walls. This brings the floor level up and looks like a house on a crawlspace, without the downsides of crawlspace construction. The exterior of the foundation walls has a thin veneer brick applied to keep the brick from extending beyond the face of the siding, providing a more traditional look.

A common challenge for this kind of project is designing the hot water distribution system. It is a feat to try to waste little water while getting hot water to a source in an efficient and simple manner. A centrally located water heater with half-inch insulated hot water lines enables hot water to arrive in about 15-20 seconds, wasting less than a half-gallon of water.

Another challenge was working with the historic commission to design a structure that complied with the historical, tree preservation, and permeable area requirements.

If he had it to do again, Seville said he would consider a venting dehumidifier instead of an ERV. Many days the temperature is fine, but the humidity level is higher than he would like inside the home and can be uncomfortable.