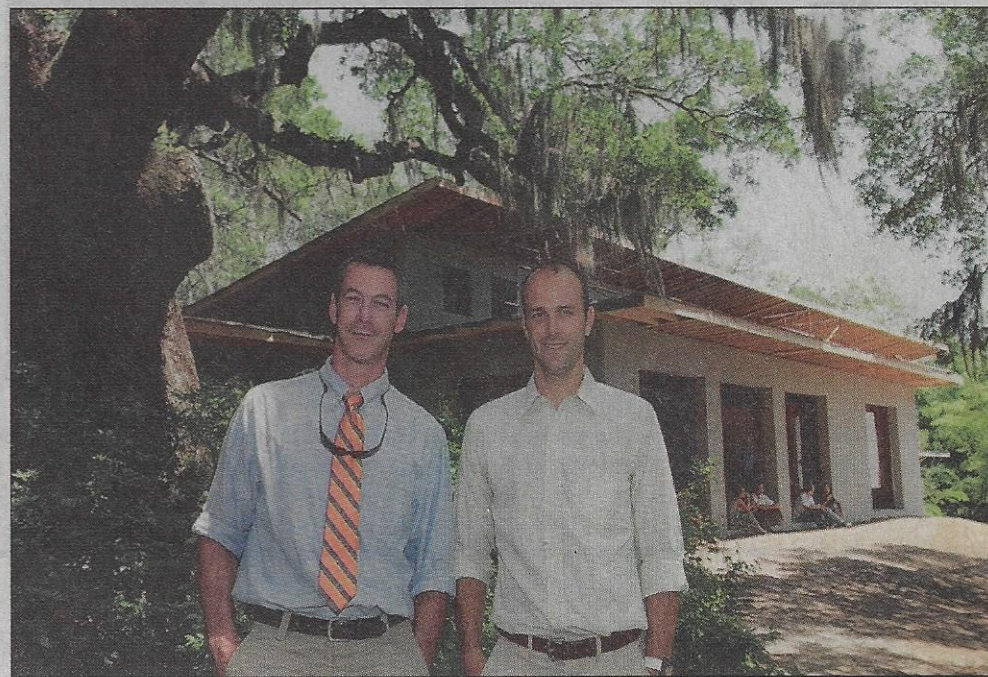


SNEAK PEEK



On Friday afternoon, May 24, a group gathered under majestic oaks overlooking Hewlett's Creek to get a first look at Wilmington's first-ever passive house, a house that meets rigorous standards for energy efficiency. A tour of the shell of the house was offered by the Cape Fear Green Building Alliance (CFGBA) as part of a Lunch & Learn series.

Inside the concrete wall panels, owner/builder Lucien Ellison of Ellison Building Co. and architect Kevin Pfirman discussed what goes into building a passive house and the project's progress thus far.

"I think that passive house is a great, forward-thinking way to build, and I'm excited to introduce it to Wilmington. And I think this is a great venue to do that," said Ellison, who is a certified passive house consultant.

Passive houses are extremely energy-efficient, seeing energy savings of 60 to 70 percent over traditional homes, and up to 90 percent savings on space heating and cooling. A certified passive house is marked by high insulation, virtual air-tightness, high-performance windows and doors and solar orientation.

The house must also be free of thermal bridges and have an air-tight building shell. To achieve this, Ellison chose custom concrete panels from Ideal Precast.

Joe Don Cooper of Ideal Precast discussed the challenges of delivering the heavy concrete walls to the site, without harming the trees — one in particular, a giant old oak called the McCoy Oak.

"This tree's seen a lot. It's been here longer than we've been in the United States," he said. Trucking in the massive panels without damaging the root system took precision. "Our crew became set surgeons," he said.

Once the panels were delivered, it took less than two weeks to erect them.

Ellison explained how the structure will meet passive house requirements and offer energy efficiency, using an energy recovery ventilator.

"It's a great way to lower your carbon footprint and achieve excellent indoor air quality," Ellison said.

Working closely with the architect was the key to developing a design



Staff photos by Allison Potter

Clockwise from top left: Certification by the Passive House Institute U.S. requires high insulation, virtual air-tightness, high-performance windows and doors and solar orientation. Kevin Pfirman, left and homeowner/builder Lucien Ellison teamed up to build Wilmington's first passive house. Ellison, left, speaks with John Roper inside his passive house during the Cape Fear Green Building Alliance Lunch and Learn event on Friday, May 24. The house is situated near live oak trees overlooking Hewlett's Creek.



free of thermal bridges. Thermal bridges are construction materials that run from the inside of the house through the thermal envelope to the outside, through which heat can travel.

Pfirman discussed this and other challenges involved in designing the home, such as dealing with the flood zone, topography issues and the massive trees on the site, all while orienting it to the perfect spot for maximum solar gain.

"We were constantly shifting windows," he said. "It was a constant juggle."

This project holds great significance for the Cape Fear region, Pfirman said. "When we went into this, I didn't know anything about passive house. I didn't know how rigorous it was. I didn't realize how very few of these buildings there are in the country, and I think it puts Wilmington on the map. This is as progressive as it gets. This is the most energy-efficient way you can build in the country right now, and we've got one in Wilmington."

There are currently only about 100 homes that are certified by the Passive House Institute U.S., and this will be the fourth in North Carolina. The other three are located in the Triangle area.

Ellison hopes the project will be completed by the end of the year. Next up are the installs of the mechanicals — the HVAC, plumbing, and

electrical systems. The windows will be installed, and then the house will be trimmed and drywall mounted.

CFGBA hosts the Lunch and Learn series to educate the community and offer a forum for those interested in green construction.

"It's to elevate sustainable building in the community and promote the visibility of sustainable building design in the Cape Fear region," said Jessica Wilson, administrator of CFGBA. "It's exciting that we have such a large amount of community support show up to a green building event."

Eric Jabaley, an architect who serves on the CFGBA board, said, "This is the kind of thing we want to celebrate and educate people about — that this is happening in our town."

He said the momentum of green building practices is increasing in Wilmington. Rising energy costs are helping drive the trend.

"The best solution we have is to make more efficient buildings," Jabaley said. "When it hits people in their wallets, that's what's driving a lot of it."

The event was a success for CFGBA, drawing about 70 attendees.

"I was astounded at how many people wanted to come and learn about passive house," said Ellison.

The group plans to host another event at the homesite when construction is complete.