

HOME

OF DISTINCTION
by
CELEBRATION CONTRACTING



Photographs by Caryn B. Davis
carynbDavis.com

Elegance & Efficiency

By Valerie Bannister

When it comes to environmental awareness, Europe always seems to be ahead of the curve, but at least one company in Connecticut is trying to change that, one house at a time.

Celebration Contracting of Madison is building a two-story 3,400-square-foot house in Guilford that is designed to meet the requirements for certification from Germany's Passive House Institute.

There are only two other passive houses in the state, and only about 100 in the country, says William Freeman of Celebration Contracting. This energy-efficient house is this year's **FOX CT's "Home of Distinction,"** showcasing passive house design as well as the latest in materials, design and decorating trends.

The house, which includes a 265-square-foot solar conservatory, has a stunning view of a marsh, an island and Long Island Sound.

"It's one of the most picturesque building lots we've ever had," says Joseph Sarfaty, also of Celebration Contracting.

With its solar panels and a geothermal heating and cooling system, the house will be a zero-energy house, says Freeman. "It will not use more energy than it makes," he says.

Fall tours of the Guilford house are being designed to educate consumers about passive home design and will support Camp Courant, the largest free day camp in the country serving more than 1,100 Hartford children, as well as the Shoreline Greenway Trail.

The Passive House

Core principles of the passive house – which can be incorporated into any building, not just houses – are that it be highly insulated; virtually airtight; use high-quality windows and doors; have a ventilation



system that recovers heat and freshens air; and be free of thermal bridges, says Sarfaty. A thermal bridge is where building materials penetrate the thermal barrier and transfer heat between the inside and the outside of a house, he says.

The house has 13-inch double walls – twice the width of a conventional home – filled with densely packed recycled cellulose insulation. The inside of the roof is covered with Demilec Agribalance spray foam insulation.



To make sure the home is airtight, foam was sprayed around windows and doors, and industrial tape, 3M All Weather Flashing Tape, was used to seal every seam in

the house. “If you spend \$1,500 on tape and stopped energy from leaking out of the home forever, it is one of the most cost-effective things you can do,” Freeman says.

The house also features triple-pane Klearwall windows, manufactured by Munster Joinery of Ireland. The smaller windows have five latches so that when they are closed, they are tightly sealed. They can be opened from the side or tilted from the top for better ventilation.

Fewer windows on the north side of the house, and more on the south side, take advantage of the sun, not to mention the incredible water views.

The triple-pane windows mean air temperature outside will not be reflected in the surface temperature of the glass inside. If it were seven degrees outside, the inside would still be in the mid-60s, says Sarfaty. The triple panes also prevent condensation from forming on the windows.

The passive house ensures superior air quality, say the builders, who installed a mechanical ventilation system, Zehnder Energy Recovery Ventilator, to draw fresh air into, and stale air out, of the building. The system recaptures 90 percent of the



heat being removed from the house, says Freeman. Air is removed from the rooms producing the most heat, such as the laundry, kitchen and bathroom, while fresh air is drawn into bedrooms, dining and living rooms.

There is no draft as the air is being slowly exchanged so that the temperature throughout the house remains the same, Sarfaty says.

The house also has a WaterFurnace geothermal heat pump, which takes advantage of the earth’s constant underground temperature to pull heat into the home through a conventional duct system. In cooling mode, heat is extracted from the air.

For hot water, the builders installed a Stiebel Eltron Accelera 300 Heat Pump

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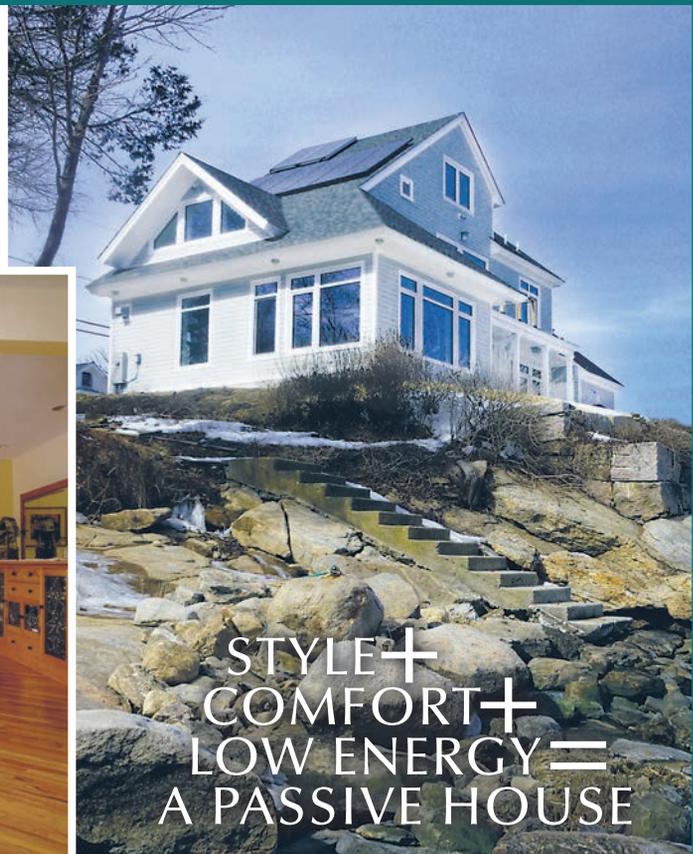
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More efficiency is achieved through the use of LED lighting, Energy Star appliances, a SunPower solar array and a water retention system for irrigation.

"We've always been interested in the energy aspect of building," says Freeman, who has more than 30 years experience in building and real estate development. The passive house is "the penultimate" in energy-efficient design. As he says on his website, "less is more."

The house was designed by Branford architect Philippe Campus, a certified passive home consultant since 2011.

More than 20,000 of these houses have been built in Europe due to the high cost of energy, Campus says on his website.

Energy costs and unpredictable energy supplies are becoming good reasons to use



the technology in this country as well, Campus says.

Construction costs are about 8 percent more for a passive house than for a conventional house, but those costs are made up in energy savings over time, the builders say.

And the houses are healthy – homeowners don't suffer allergy symptoms in them – and comfortable, they say.

