

BUILDING A GREEN KENTUCKY HOME

BY ROBIN ROENKER

Louisville builder Sy Safi is at the forefront of green construction in Kentucky.

Safi is the founder/principal of UberGreen Spaces & Homes, whose award-winning, energy-conscious designs go beyond solar panels. In late July, *Kentucky Living* toured his latest creation at the Norton Commons development in Prospect, a home he dubbed “Su Verde” (“about green” in Italian).

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Grow your green knowledge

A variety of certification programs set the standard for green buildings. Learn more about these resources, used by green builders like Sy Safi of UberGreen Spaces & Homes, by going online to KentuckyLiving.com and entering “Green home” in the Search box.

Safi and Lexington-based architect Clive Pohl of Pohl Rosa Pohl created every inch of the 3,700-square foot home with beauty, utility, efficiency, and wellness in mind. Constructed using paints, wallpapers, and sealers that are free from VOCs (volatile organic compounds), the home also uses finishes and building materials formed from reclaimed and recycled content. It boasts three rooftop garden areas as well as a 3,100-gallon rainwater collection tank that can provide water for laundry usage, landscape irrigation, and toilet flushing.

Built to meet the most rigorous sustainability guidelines, Su Verde serves as a tutorial for world-class green design, right here in Kentucky.

“There are materials and technology and equipment at the ready, here and now, to help make a home more energy efficient, more responsibly sourced, healthier, and more valuable,” says Nancy Church, director of U.S. Green Building Council Kentucky.

The Vision

“Our approach to this house is more than just energy efficiency,” says Safi. “It’s also about water efficiency and indoor air quality, and health and well-being. It’s about incorporating an indoor/outdoor connection throughout the home to reconnect us with nature. Our mindset on this build has been to go local first, whenever possible. It may cost us a small fraction more, but we feel it is important to support our local economy of friends, family, and neighbors while reducing our carbon footprint.”

As of press time, the home was still under construction and neither a sale price or final construction cost had been announced. Safi says an investment of 5–15 percent more than a conventional home is expected to give this home an \$11/month energy bill.

The home features GE appliances, made in Louisville; Big Ass Fans Haiku Home Collection of fans and lighting, made in Lexington; bathroom and kitchen tiles created at the



■ Sy Safi of UberGreen Spaces & Homes points out the Boral TruExterior trim and siding. Made of over 70 percent post-industrial materials, it is durable and uses less energy than creating products from natural resources.

■ Left, the Haiku Home fan by Big Ass Solutions uses 1/10 the energy of a typical ceiling fan. Photos: Brian Bohannon

Florida Tile plant in Lawrenceburg; drywall produced by CertainTeed in Carrollton; and sustainable furniture and fixtures made in downtown Louisville by Rework Collective. The floors are covered in reclaimed wood flooring, salvaged from central Kentucky horse farm fences and sealed with toxin-free whey finishes. The kitchen cabinetry is made just across the river from Louisville, in New Albany, Indiana, by Blue River Cabinetry, using formaldehyde-free, Forest Stewardship Council-certified plywood and zero-toxin finishes. All items and finishes were sourced and executed by downtown Louisville store Honest Home, where owner Sandra Perry has been a key part of Safi's design team. Art installations are by local artists.

"Our intent with this home through all the third-party green

certifications is to be socially just, culturally rich, and ecologically restorative," Safi says.

Cutting-Edge, Energy-Efficient/Green Design

The innovative features of Su Verde together promote sustainability and reduce the home's overall energy consumption by up to 90 percent, when compared with a similar-sized home built to meet only code-minimum specifications. These are a few of the most innovative facets of the house:



Insulated concrete form walls

The walls are constructed of insulated concrete forms, or ICF, made by Tennessee-based Logix. Molds are formed from Styrofoam and furring strips for studs, creating a hollow center that is filled with concrete and rebar. Because the Styrofoam offers high R-value insulation and solid concrete, ICF walls are less leaky, and therefore more energy efficient. They also allow for a quieter indoor

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■ **Left, Su Verde, the Proud Green Home of Louisville, is an Italianate-style home in the New Urbanism development of Norton Commons in Prospect. “Su Verde” means “about green” in Italian. Photo: Brian Bohannon**

■ **Furniture with chemical-free fabrics and cushions, reclaimed-wood table by Rework Collective, painting by local artist Leah Naomi, all from Honest Home, suit Su Verde.**

■ **From Honest Home: Reclaimed columns, beams, rails, breakfast top, tables by Rework Collective; chairs, Bradford Fine Furniture; chandelier, Leah Naomi; art, Casey Dressell, Keith Linton, Leah Naomi.**

■ **This bedroom from Honest Home features local furnishings including a bed by Rework Collective. Photos: Bret Knight**

living space than standard 2-by-4 wood construction. Building with ICF is also fast: Robert Fincher, president and CEO of ProudGreenHome.com, the Louisville-based green building education and advocacy website that endorsed Su Verde as “The Proud Green Home of Louisville,” notes an entire home can be framed in just two days.

02» Ample insulation by Johns Manville

Su Verde was constructed to have a “complete thermal break from the earth and outside temperatures.” The home’s tight thermal envelope is supported by spray foam and dense-packed fiberglass insulation in the attic and walls, and geofam

insulation beneath the foundations and concrete slab.

03» Triple-pane windows and doors by Zola Windows

The home’s hefty, triple-pane glass front door has three seals, on the inner and outer jambs, plus one in the middle. The result: virtually no air leakage. The triple-pane, triple-glazed, argon gas-filled windows throughout the home boast equally solid seals and are two to three times more efficient than standard high-efficiency windows.

04» Solar panels/passive solar heating

The solar system being sized is 6 kW to offset the needs

of the home, as the annual energy estimated for the house is 6,000 kWh. The home also harnesses the energy of the sun with careful placement and lot orientation to maximize passive solar heating during the winter and natural daylight year-round. A floor-to-ceiling wall of windows faces directly south to allow in winter sunlight. In turn, the home’s porch and roofline eaves help block sunlight in rooms where the home would receive the most direct summer sun.

05» Innovative roofing materials

Su Verde uses only light-colored roofing materials. Dark roofs often drive up the cooling load of a home. A white, tarp-like product called TPO (thermoplastic polyolefin) provides cover on the flat areas of the roof and rooftop garden spaces. The front portion of the home uses a light-colored modified bitumen roofing system, while the front porch is covered with light-colored standing seam metal.



06 >>

State-of-the-art sealant products

Su Verde utilizes cutting-edge R-Guard products by PROSOCO to air-seal every door, window jamb, and penetration in the home. Applied using a caulk gun, it works as a waterproofing and sealing compound that, according to its manufacturer, “combines the best characteristics of silicone and polyurethane.” PROSOCO’s FastFlash, a liquid alternative to other flashing products, and a sister product, Joint & Seam Filler, fill smaller gaps, including plumbing and electrical openings; their AirDam sealant creates an air and weather barrier around every window and door-frame. To seal ductwork throughout the home (a key step in reducing heating/cooling leakage as previous *Kentucky Living* Energy Guides have shown), human error is avoided by machine-sealing the ductwork from the inside, using Aeroseal.

07 >>

ZIP System walls

Instead of traditional plywood, which must be covered by a house

wrap like Tyvek, Safi opted for an innovative product called ZIP System, produced by Huber Engineered Woods, which provides an air barrier and weather barrier in one. Installers tape the seams of the integrated air/weather barriers to provide an airtight and weathertight home.

08 >>

Enertech’s Hydron Module Geothermal System

Norton Commons

North Village is the largest planned residential geothermal community in the United States. Geothermal systems are the most environmentally friendly and energy-efficient heating and cooling systems on the market.

09 >>

Energy recovery ventilator

Because the home was designed to be extremely airtight to reduce leaks and heating/cooling losses, a Zehnder ComfoAir whole-home energy recovery ventilator, or ERV, is used to bring fresh, preconditioned outside air into the home via a con-

trolled, filtered system. ERVs set optimum humidity and help ensure that air is free of mold, mildew, and other allergens.

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GE GeoSpring heat pump water heater

All the appliances in the home are from

Kentucky-based GE Appliances & Lighting, including an 80-gallon GeoSpring Pro Hybrid Electric Water Heater. Its EnergyGuide touts a \$162 annual cost to operate, versus \$400-\$600 per year in the average home.

“Sy Safi is the greenest builder in Kentucky that I know of,” Fincher says. “Green building is about thinking of the home as a complete system, and understanding how all the parts and pieces of the various systems go together.”

Architect Pohl, the home’s co-creator, says not many builders have been willing to push the green envelope, “but I think when people start seeing how inexpensive this house is to operate over the long haul, they’ll begin to think twice.” **KL**



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