



Renderings courtesy of Ryall Sheridan Architects

Bringing Comfort and Efficiency to the DALLAS MARKET

entertaining and affords access to a generous backyard. The master suite and a study complete the first floor, and two smaller bedrooms are upstairs.

Nothing about the home screams energy efficiency, but there are clues. That recessed front door creates an inviting alcove and also limits the sunlight and heat reaching the entry vestibule. The house is clad in gray stucco and wood siding, their light tones chosen with an eye to reducing solar absorption. The front of the house faces north and still has ample glazing.

“It was a fascinating process,” says architect Ted Sheridan, whose Passive House-centric firm is based in New York. “The climate in Dallas is very different, really completely backward, from what we are used to working

New York, Vancouver, and Dallas? Dallas is not yet a booming Passive House metropolis, but the first Texas house on the PHI certification track is on the market. Fagin Partners, a father and son team consisting of Kyle and Connor Fagin, developed the 3,500-ft² house and sees the likely buyer as a young family who care about comfort and the environment.

The contemporary three-bedroom home, designed by Ryall Sheridan Architects, ushers in visitors through a gracious, recessed entryway that opens into a great room with kitchen, living, and dining spaces. A screened-in porch off the great room allows for easy indoor-outdoor

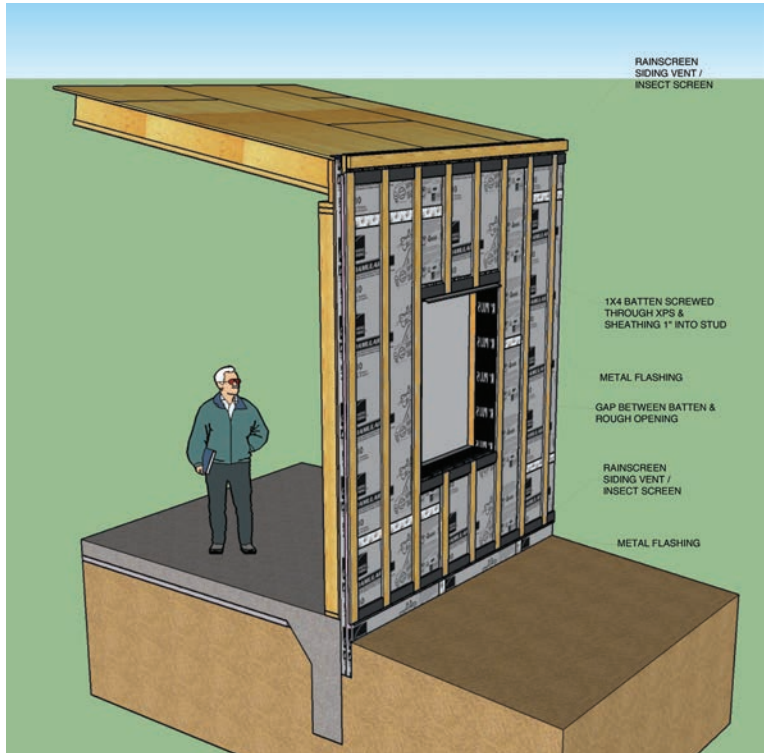
with.” Instead of designing with a focus on keeping heat in a building, Sheridan, his partner Bill Ryall, and associate Will Robinette—all Certified Passive House Consultants—had to shift gears and concentrate predominantly on keeping heat out, although Dallas also has heating loads during its brief winters.

The biggest surprise came early on in the design process. In Dallas, homes are traditionally constructed on a slab-on-grade foundation. Fine, thought Sheridan, we’ll just put a bunch of insulation under it. Or not. In working with the PHPP model, they found they could only meet the Passive House targets when they had no insulation under the slab and the ground could act as a heat sink for the home.

The wall and roof assemblies held fewer surprises. Ryall Sheridan specified a double-wall assembly insulated with cellulose, with an intelligent air and vapor barrier membrane on the interior surface of the stud wall. To avoid risking penetrations of this membrane, Sheridan had the crew fur out an interior false wall for the wiring and plumbing. Triple-pane glazing was required to meet the comfort criteria year-round, so the architects specified an economical, high-performance PVC window.

Shading was an overarching concern, with Sheridan relying primarily on architectural features to avoid the extra cost of exterior blinds. The south-facing windows overlooking the backyard are smaller than would typically be the case in a northeast locale. He positioned some of those windows so that they look through the screened porch and are shaded by it.

In keeping with the home’s contemporary aesthetic, the roof is fairly flat. Its membrane topping is light gray—again to minimize solar absorption. “A black roof would have killed us,” says Sheridan. Below the membrane are 3 inches of polyiso insulation boards, a plywood roof deck, and then about a foot of cellulose insulation. The house is prewired for PV, which the developers plan on implementing before the house is sold.



In addition to heat, Dallas's subtropical climate delivers plenty of humidity. The high-performance HRV, chosen to help meet the heating load, is being supplemented by a central dehumidifier. Ryall Sheridan had heard of Passive Houses in this type of climate becoming uncomfortably humid inside, and he didn't want to take any chances. Heating and cooling are being supplied by a mini-split system.

Ryall Sheridan designed this house to be all electric, avoiding any potential combustion safety issues and the need for gas lines. An electric on-demand tankless water heater will provide the hot water, and an induction cooktop will be used for cooking.

Fagin Partners started promoting this project on social media and the radio toward the end of the construction process. Although the house had not been sold at press time, the home's green features had generated enough interest that the developers are already looking ahead to their next Passive House projects. Says Sheridan, "They are interested in more cost-efficient ways to build Passive Houses and have asked us to design prototypes that could be built with prefab components." Watch out, Vancouver.

—Mary James

Passive House Metrics

Heating energy	Cooling energy	Total source energy	Total renewable source energy	Air leakage
4.75 kBtu/ft ² /yr	1.6	29.0	14.0	0.6 ACH ₅₀ (design)
1.4 kWh/ft ² /yr	0.5	8.5	4.1	
15 kWh/m ² a	5.0	91.0	44.0	

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