

A MODERN MODEL HOME

An architect sets out to build a high-performance home that integrates a wide range of sustainable technologies

By Margaret Poe

Rainer Schrom is quick to admit he's not a builder. But he always dreamed of building his own house, so he gave himself a challenge: to design a modern home that's sustainable, energy efficient, and low-maintenance—all while sticking to a budget.

The resulting four-story dwelling, complete with expansive windows, radiant heating, and a solar array on the roof, meets that challenge head-on. And it integrates seamlessly into the landscape. "I just like the idea of the outside and inside flowing continuously," he says. "We used the same materials inside and out, so the separation almost disappears."

Schrom, a licensed architect and principal at Stamford, Connecticut-based **Partners For Architecture**, carefully selected every element of the home to meet his quality, efficiency, and aesthetic standards. He wanted to use his home to showcase a number of sustainable technologies he'd used individually in other projects—demonstrating that used together, these features made a modern home greater than the sum of its parts.

REHAU HAS THE ANSWERS

The windows and doors were an essential part of that equation, given the quantity and size of these



✚ Windows from REHAU helped this architect achieve the highly sustainable house he always wanted.

elements. Schrom knew they'd need to be high-performing systems in order to maintain a secure building envelope. That, in turn, would allow him to downsize his heating and cooling equipment and reduce total energy usage. "Once you insulate well, you don't need a lot of heat and cooling to maintain a comfortable environment inside," he says.

After determining he wanted to incorporate tilt-turn windows and tilt-slide and lift-slide doors, Schrom considered his options. As opposed to single-pane windows with aluminum frames, he realized a vinyl solution would give him the best results.

He went with the **REHAU System 4500** tilt-turn and fixed models for the home's 41 custom windows. The European-style design allows Schrom to tilt the window to easily ventilate the home without letting in rain, or to easily clean the glass. The gasket seal is critical in securing the building's envelope, Schrom says. In addition, the windows' large size means they feature significant expanses of glass, reducing the amount of frame used and resulting in fewer moving parts—decreasing the potential for air and water leaks, he notes.

These double-pane, high-performance windows were the perfect fit, says fabricator **Ioan Sita**, vice



+ System 2500 lift-slide doors easily open to the great outdoors.

president of **Starr Windows and Doors**. As on every project, Sita's team analyzed the performance requirements, aesthetics, and engineering specifications to determine the right product. In this case, the REHAU windows and doors had the high U-values Schrom was searching for without putting him over budget, Sita says.

The 11 doors in the home also introduced unique challenges. Schrom selected System 2500 lift-slide doors in the living spaces to easily open out onto the patios, while not blocking any of the view. In the bedrooms, tilt-slide doors were installed. Unlike a typical sliding door, Sita notes that these have a full compression of gaskets around the frame, creating an airtight thermal envelope.

Throughout the home, and including the doors and windows, Schrom chose materials colored all the way through, as opposed to coated products. If the exteriors peel or crack down the line, the same color will show through underneath—eliminating the need for repainting or future maintenance. Other features of the home, which Schrom's family moved into in spring 2017, include a solar array on the roof, a rainwater harvesting system, radiant floor heating, and a geothermal heating and cooling system.

For Schrom, the completion of his home is a dream come true. "To live in a modern home with all these features and the comfort and the big glass and the views, it's a whole different experience," he says. **gb&d**

Fast Facts

19 MONTHS
Construction time for the home

0 Fossil fuels used to heat or cool the home—it's all electric power, some of it generated by the solar panels on the roof

Down to 0.18 U-value potential on REHAU tilt-turn System 4500 windows

Down to 0.20 U-value potential on REHAU lift-slide System 2500 doors



PHOTOS: COURTESY OF REHAU

Up Front Typology Inner Workings Trendsetters Features Spaces Punch List

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