

The Hartford Courant.

The House That Yale Built

Chief Executive Susan Froshauer One Of Seven Women In State Chosen For Creative Leadership

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September 8, 2006

The new contemporary at 590 Orchard St. in New Haven offers many of the extras you would expect in a house designed by Yale-trained architects.

From its edgy roof with solar panels to the basement with its high-efficiency furnace, numerous practical and aesthetic touches set this house apart from its slightly shabby Victorian-era neighbors.

The Marvin windows are gigantic. The ceiling is cathedral. The floor is engineered maple. The bathroom floors are tile, and the custom staircase leading to the second floor has its banister built into the slanting wall - and a skylight.

Nothing in the house suggests the bland, low-cost and vandalism-proof chock-a-block design usually associated with urban renewal.

But earlier this year, the house was purchased by a low-income single mother who moved her family from public housing to the first home of her own.

The house on Orchard Street is one of 10 affordable homes that students at Yale's School of Architecture have designed and built over the past decade in New Haven's most blighted neighborhoods.

The home design and construction projects give architecture students a chance to leave the studio and find out what it's like to build in the real world. At the same time, students create a home that can lift the fortunes of one family and buoy the neighborhood

where it is located.

"This is a unique part of their education, because it is hands-on," says Paul Brouard, an architect and director of the Yale Building Project. "Students learn how to problem-solve - deal with the sheetrockers and the plumbers; that they can't just draw something and not deal with the consequences of it being made."

In the spring of their first year, after a semester of classroom work, students in the three-year graduate program in architecture tackle the building project.

It begins when Neighborhood Housing Services, a nonprofit group that promotes home ownership and housing rehabilitation in New Haven, selects a vacant lot on a street that needs a face lift.

At first, each student sketches a building for the site. Homes must be 1,500 square feet and include three bedrooms and two bathrooms. Designs are supposed to fit in with the neighborhood, but there is plenty of room for creativity.

Next, students are assigned to 10-member teams, and each group spends about a month choosing and refining a single design. Students then vote for their favorite of roughly five designs that emerge from the collaboration.

The Orchard Street house grew from an initial sketch by Brook Denison, a 29-year-old student who completed his undergraduate work in architecture at the

University of Florida.

"We suggested and did some pretty outrageous things," says Denison. He says the roof, which dips like a saddle at the rear, is the most unconventional aspect of the Orchard Street house.

But the unusual shape has a function. It was designed to maximize the exposure for solar panels on the roof that absorb sunlight, convert it to direct-current electricity and send it to an inverter in the basement. The inverter converts the energy to household (alternating) current and records the electricity produced on a meter.

Like many other expensive features in the house, including the maple floors and the maple-veneer kitchen cabinets, the solar-electric system was donated to the project.

By soliciting donations of building products, the students can stretch the \$90,000 that Neighborhood Housing Services pays for each house. For the Orchard Street house, the students scored about \$70,000 worth of donated supplies. By doing all of the design work and most of the construction themselves, the students also saved thousands of dollars.

The home, which probably cost about \$160,000 to build, would sell for about \$300,000 on the open market.

Instead, Neighborhood Housing Services sold the house to a single mother with two children who qualified for a mortgage with tremendous subsidies. The owner did not want to be identified.

Last winter, she moved into a house with a bright, wide-open floor plan that bears no resemblance to the mazes of crowded rooms with low ceilings and small windows so common in low-rent apartments. The difference starts at the front door, which is not in front. A synthetic-wood ramp leads from the sidewalk to the home's left side, where the main entryway is a transparent glass door.

The door leads to a living/dining area with floor-to-ceiling windows on two sides. Globe fixtures of milky glass hang from the ceiling.

At the front of the house is a small kitchen, separated from the living/dining area by a half wall.

The students designed the home's living areas with an eye toward making a small house feel spacious.

"We were thinking, 'What does it mean to be a room?'" Denison says. "Does it have to have a wall?"

As a result, the only first-floor room with four conventional walls is the bedroom, which faces the street. Denison acknowledges that placing a bedroom at street level, where lights, sirens and motors could intrude on sleep, was not ideal. But it allowed the public spaces to connect with the prettier side of the landscape - the backyard with its giant deck.

Back in the living/dining room, an open staircase leads to the second floor. On one side of the stairs is a wall of glass. The wall faces north, maximizing the sun's light while minimizing its heat.

The steps lead to a loft, an ideal spot for a playroom or home office. There are also two small bedrooms and a bathroom with a tub.

The home's transparency came partly in reaction to the previous year's house, which was across the street from a prison. The design of that house was a bit fortress-like, with a steel door and mirrored glass to maximize security, Denison says.

While so much glass in a marginal neighborhood, such as Orchard Street, could be considered its own security risk, Denison says part of the students' mission was to consider safety in their design. They determined that the street already was experiencing a renaissance and assumed that home ownership and neighborhood responsibility would only increase with the addition of the Yale house.

Brouard says that each neighborhood the students have tackled over the past 10 years has enjoyed an upturn after construction of a new house.

Andrew Rizzo, New Haven's building official

and director of the Livable City Initiative, which tries to eliminate blight and improve neighborhoods, says it's more about home ownership than a Yale-built home.

"Anytime you have a homeowner come in, it has an impact on the neighborhood," Rizzo says. "People take care of their property when they're not renting."

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