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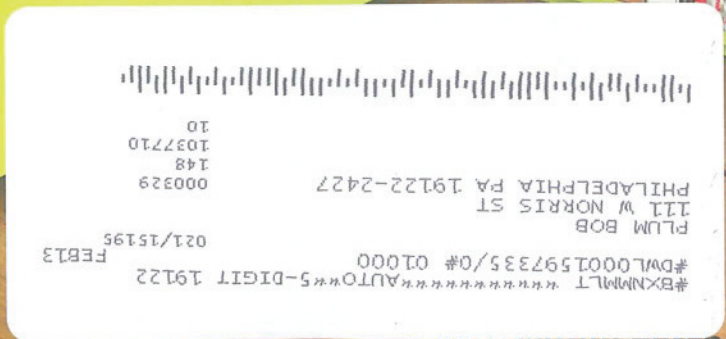
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Near Westside Story

Three houses in Syracuse win a sustainable design competition and reshape an urban neighborhood for \$200,000 apiece.

By William Lamb
Photos by Richard Barnes

When Mark Robbins came to Syracuse, New York, in 2004 to become dean of the Syracuse University School of Architecture, arguably no neighborhood was more emblematic of the city's struggles—and its potential—than the Near Westside, a once-vibrant collection of bungalows and shotgun cottages west of downtown. Many of these structures had been demolished or fallen into disrepair as manufacturing jobs disappeared and residents fled for the suburbs, eroding the area's urban fabric.

Robbins devised the From the Ground Up competition in 2008, inviting each team to submit plans for a well-designed, efficient single-family home to be built on one of three Near Westside vacant lots for \$150,000. The overarching goal was to forge new models for residential infill development that could breathe new life into urban communities across the United States. "I wanted to see if we could build houses that simultaneously made propositions about sustainability and about the possibility of constructing houses in a city like Syracuse," Robbins says.

He partnered with two regional organizations—Home Head-Quarters, which owned the land and served as general contractor, and the Syracuse Center of Excellence, which helped the architects meet sustainability goals—to construct the three winning designs. Unique mechanical and material requirements, along with Home HeadQuarters' insistence that a basement be added to each house, nudged the price tag for each project north of \$200,000. Construction was completed in the fall of 2010, and all three houses are now happily occupied by enthusiastic Near Westside newcomers.

Project: R-House

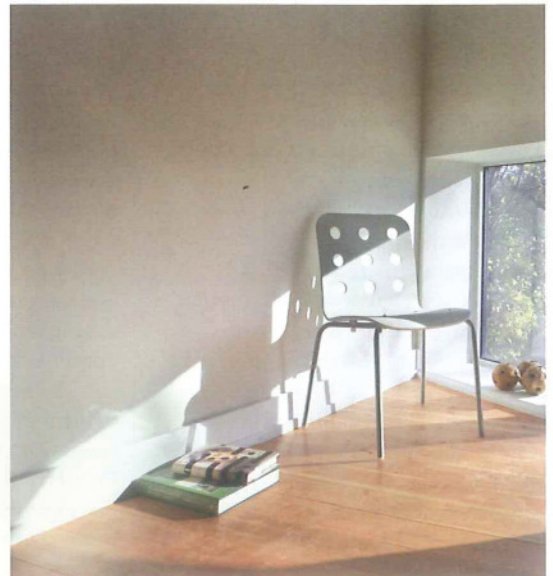
Design team: Architecture Research
Office, New York, and Della Valle
Bernheimer, Brooklyn
Size: 1,100 square feet

Passive solar design, which promotes passive means of generating and retaining warmth over active—and expensive—systems, is central to R-House's success. Solar gain—chiefly from rear-facing windows that cascade from roofline to threshold on the building's south side—and heat generated by people and electrical equipment warm the house. A thick, superinsulated, and tightly sealed exterior minimizes heat loss, and an energy-recovery ventilation system transfers warmth from the inside air that is being exhausted to the fresh air being drawn from the outside.

"The net result," says ARO's principal, Adam Yarinsky, "is you're using the energy equivalent of a hair dryer to heat the house."

The house was designed to be flexible. The second level can be extended across the double-height living space to add a third bedroom, for example. As expenses mounted, Yarinsky and Andrew Bernheimer, a partner at Della Valle Bernheimer, dropped plans for a pair of skylights, and settled for drywall instead of the more whimsical translucent polycarbonate panels they'd envisioned to enclose the two bedrooms.

"It doesn't take that much technology to achieve a certain level of sustainability and a low carbon footprint," Yarinsky says. "It just takes smart use of materials and a strong understanding of how a building's form relates to its energy consumption."





A LIMITED MATERIAL PALETTE: To manage costs, Yarinsky and Bernheimer kept things simple. Fiber cement panels and corrugated aluminum, coated with a clear textured finish to prevent corrosion, were used for the exterior (above).

VERTICAL JOISTS: To reinforce the thermal efficiency of the envelope, 16-inch-wide I-joists made from black spruce lumber were employed as wall studs, allowing for what Bernheimer describes as a "tremendous amount of insulation." ▶

DECKING INDOORS: Laminated tongue-and-groove decking by Lock-Deck was used for the second-level floor. The durable material is sturdy enough to span long distances without joists, maximizing headroom in the first-floor living room (left). lockdeck.com

Project: TED

Design team: Onion Flats, Philadelphia

Size: 1,150 square feet

SOLAR CHIMNEY:
TED's three-floor atrium creates natural convection, exhausting warm air and humidity from the space and eliminating the need for an air-conditioning system.



STEEL CLADDING:

The rain screen that serves as the building's skin was made from painted steel panels by Pac-Clad (right). The low-maintenance material is durable and, at around \$2.30 per square foot, relatively cheap. pac-clad.com



Unlike its next-door neighbor, R-House, TED wasn't originally planned to meet the exacting Passive House standard. Onion Flats initially won on the basis of its relatively straightforward proposal for a two-bedroom house with a three-story interior atrium. The building's green bona fides came largely from four roof-mounted thermal solar panels and a 120-gallon water storage tank that Tim McDonald, a partner at the firm, says would have met nearly all of the home's heat and hot-water needs.

After submitting the proposal, though, McDonald completed a course in the Passive House standard. Inspired, McDonald modified the original approach, ditching the tank and thermal panels in favor of a

highly insulated, airtight envelope—the equivalent, he says, of shielding the house from the harsh Syracuse winter with a fur coat instead of a windbreaker.

"It was kind of crazy to effectively completely redraw the project and redesign the envelope, in particular, and the mechanical systems, but that's what we did," he says. "We made even more of a challenge of it by doing that midstream, but it worked in the end and it was really fabulous."

The owner decided to scrap the original plans for an elaborate storm-water management system, including a 1,000-gallon underground cistern and a landscaped rain garden—but both can still be added later.

ECO-FRIENDLY INSULATION:

Recycled polystyrene foam-board insulation panels can be purchased for a fraction of what it costs to buy them new. Check the panels carefully for wear and discard any that are tattered or torn. insulationdepot.com

Project: Live Work Home

Design team: Cook + Fox Architects and Terrapin Bright Green, New York

Size: 1,400 square feet



MOBILE SUSTAINABILITY:

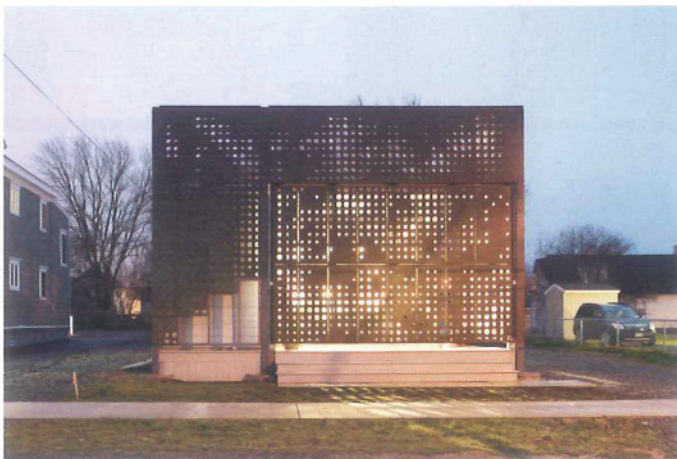
The sliding doors were made in Syracuse by Cab-Fab with a formaldehyde-free plant-and-soy-based composite board manufactured by e2e of Ithaca, New York. The mobile partitions were fashioned from TimberStrand, an engineered lumber made from younger trees rather than old-growth timber. cabfab.com e2ematerials.com ilevel.com

AN UNCONVENTIONAL EXTERIOR:

The solar screen is made from medium-density overlay plywood, a widely available and relatively affordable material whose traditional use for highway signs testifies to its durability.

RECLAIMED

MATERIALS: Recycled building materials can cut construction costs while simultaneously forging a link with the past. "Be alert about what is being taken down in the area and talk to home-builders," Campbell says. "There may be more opportunities than you think."



Richard Cook, a principal at Cook + Fox Architects, surveyed the Near Westside's inventory of vacant structures and arrived at a conclusion that would guide the design of the Live Work Home. "The last thing in the world that the Near Westside needed was another house, whether it's green or otherwise," he says. "What it needed was a new prototype."

Cook's team designed a single-story space with an open layout. Sliding doors and mobile partitions on wheels can be configured to create different layouts for living and working, eliminating the costs and landfill waste associated with residential remodeling.

Clad with fiber cement board and wrapped in an MDO plywood solar screen, the building doesn't resemble a house so much as a small commercial or industrial

structure—an impression enhanced by a garage-style bifold door that opens onto the front porch. A photograph of dappled sunlight filtering through treetops was enlarged and pixelated to create the perforation pattern in the screen, which is cut in places into swiveling panels that can be turned to create shade or to bounce light into the house.

The pine floor was salvaged from the dilapidated shotgun house that was deconstructed to make way for Live Work Home, and the kitchen cabinets were fashioned from wood from a nearby warehouse that was gutted to create condominiums. "It relates by story back to how the building was made," says Pam Campbell, a senior associate at Cook + Fox. "It makes the building more related to the place and connected to it." ■