

● Innovation Shaping the Industry Orlando, Fla.

This year's The New American Home (TNAH) left an inspirational handprint on the concrete industry as the annual project continued to strive toward sustainable and planning perfection. What started as a showcase for ideas transformed into a real-world laboratory demonstrating what can and should be done in home building.

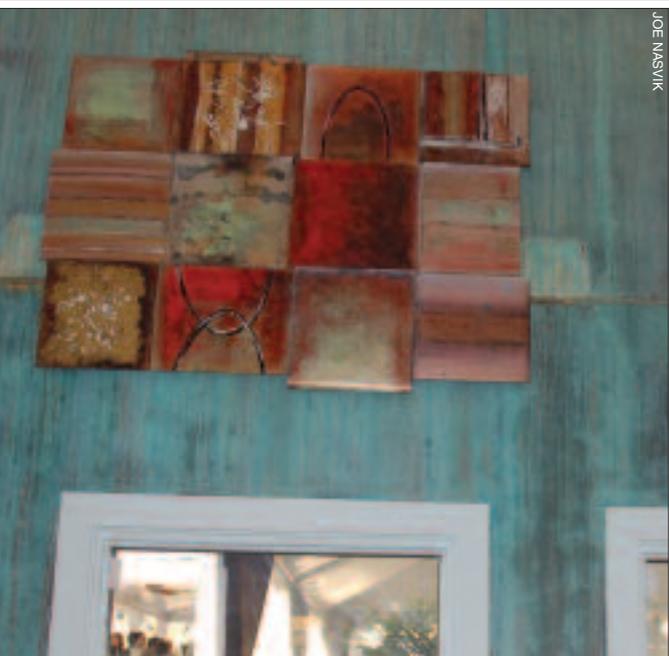
Nestled comfortably on the corner of Broadway Ave. and Ridgewood St. in Lake Eola Heights, this three-story, 3733-square-foot house is a welcomed contemporary addition to the historic district of Orlando, Fla.

As a standing feature of the International Builders Show, TNAH draws a crowd of contractors, builders, and architects interested in energy-efficient, conservation building methods and innovative design techniques. This year's showcase brought together insulated precast concrete walls, pollution-fighting cement, a green roof and a rainwater management system, and cutting-edge HVAC and electrical systems, truly creating a cohesive "green" home.

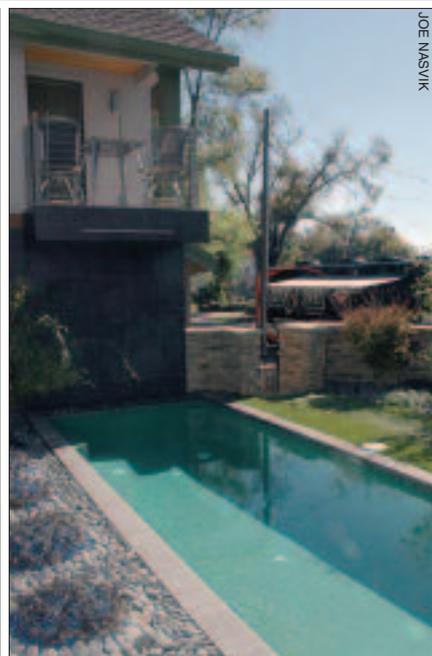
The exterior around the three floors of living space employs a panelized system that meets the regional weather conditions commonly found in southern Florida—such as high winds and an extreme climate—and cut construction time by one-third compared to a concrete masonry unit (CMU) system. Built with precast concrete sandwich walls, the structure was insulated with a rigid extruded polystyrene foam panel creating a thermal envelope that reduces sound and penetration of pests. Special attention also was paid to limiting the number of seals in the concrete wall system, adding to the overall airtightness of the building. As a result, the home uses 73% less energy for heating and cooling, and reduces the energy use for hot water by 54% compared to a similar home in the same region.

A shallow basement, constructed of precast concrete walls with R-5 exterior insulation, hides mechanical equipment. A waterproof membrane was applied on the foundation to help control moisture in the humid Orlando climate. The elevated floors were constructed with structural concrete hollow-core flooring planks, which at 6 inches thick, are relatively thin compared to wood-framed counterparts, and helped conserve space, allowing for 10-foot ceilings on the third floor.





JOE MASVIK



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Above: The three-story house features contemporary lines, sleek balconies, and outdoor vegetation to create a comfortable, energy-efficient home. Bottom, left: Stucco cement mixed with integral color give the exterior a warm feeling, while protecting the home from pollutants such as nitrogen oxides and sulfur. Bottom, center: Exposed concrete walls were acid-washed in various shades of green for an irregular patterned look. Bottom, right: Concrete pavers and coping in gray and pewter framed the backyard pool.

The green roof is a pinnacle feature of TNAH and holds many of the components that make the building an energy-efficient powerhouse. The flat roof is unvented and insulated to R-20. The air conditioning units, a generator, and photovoltaic (PV) and solar panels are concealed from the street by a perimeter of custom-built CMU planters. The layer of vegetation not only is found on the roof but on various balcony levels allowing for further water drainage and producing shade that reduces solar heat gain.

CMUs were employed in the construction of the first floor of the garage, while concrete pavers and coping enhance the pool and garden areas. The installation patterns also contribute to the overall rainwater retention system, creating a permeable surface that helps facilitate the rainwater collection system. Photocatalytic stucco cement mixed with integral color donned the exterior walls and contained new pollution-fighting technology. Fiber-cement siding contributed to the overall warmth of the home's exterior aesthetic. An additional living suite was erected on top of the garage structure using an insulated light-gauge steel frame.

Many of the concrete walls were left exposed on the inside and treated with chemical- and water-based stains. The stairwell shows off cool sea foam and emerald greens. The pool pavers and copings are highlighted with neutral colors of gray and pewter. Other design features include exposed steel creating an industrial modern look and precast concrete overhangs that expand the overall living space and bring vegetation into the home.

After demonstrating that the "green" philosophy is attainable no matter what the size of the home, TNAH 2007 also showed that homeowners can live earth-friendly in an urban area as well. This year's home focused on achieving high efficiency with a stormwater management and recycling system and an additional resource for energy through solar and PV collectors on the roof.

The energy-efficient features of TNAH 2007 not only help conserve energy and reduce the number of resources used, it also reduced construction costs for the builder. With collaborative and proactive planning, these building methods can improve productivity, improve building performance, reduce potential warranty problems, and give the builder a competitive edge.

The lead sponsors for TNAH 2007 include the Portland Cement Association, the Precast/Prestressed Concrete Institute, and the National Association of Home Builder's National Council of the Housing Industry (NCHI). Design was done by Bloodgood Sharp Buster Architects & Planners and the home was built by custom homebuilder Carmen Dominguez. For a list of the suppliers that contributed to the building of this home, visit <http://buildershow.com/Home/Page.aspx?pageID=327> and click on "Contributors" under TNAH.

— Kate Hamilton





Left: Precast concrete sandwich walls created a secure and airtight panelized system. Below: Concrete balconies and precast overhangs provide shade and, on the third floor, contribute to the rain-water harvesting system. Photos: Jim Niehoff



Left: The first floor of the garage was built with concrete masonry units, while the additional living suite employed a steel frame. Above: Special attention was given to the openings for windows and other penetrations to maintain airtightness and energy efficiency.