

*In the vertical ICF system, panels slide up to allow through-the-wall pouring to prevent concrete separation. This also allows TF System workers to pour 30-foot-plus walls without cold joints.*



## TF SYSTEM—THE VERTICAL ICF, INC.

Pioneering company makes world's first vertical ICF

BY ZACH BALIVA

INSULATING CONCRETE FORMS (ICFs) are molds that are stacked together and filled with concrete to build permanent and strong walls, floors, and roofs. Although ICFs are not unique in the building industry, TF System—The Vertical ICF, Inc. has developed its own unique approach. The company, located in Green Bay, Wisconsin, manufactures and distributes a vertical ICF system designed for both above- and below-grade use.

The product was invented when Jerry Spude, a masonry contractor, grew frustrated with horizontal ICFs that often resulted in crooked, bowed, and uneven wall surfaces. Spude started investigating and testing improvements to the traditional system, and in 1994, he solicited the partnership of the company's current vice president Don Rudolph. For two years, the duo worked

with horizontal ICFs before making a revolutionary discovery. "We found that a vertical system worked a lot better," Rudolph recalls. "It's stronger during the pour, it's straighter during construction, and it's less problematic overall." TF System developed and marketed the world's first vertical ICF.

Rudolph says that TF System's vertical ICF offers many benefits over horizontal block systems. A vertical ICF eliminates the need for vertical bracing and abolishes problems like compression, floating, and settling during the pouring process.

Exact customization is one of the vertical ICF's biggest advantages. Although basements are typically poured to standard heights, above-grade walls usually have uncommon height requirements. While horizontal ICFs produce

blocks of pre-set dimensions, a vertical ICF allows for an exact custom height. "We can easily manufacture a wall that is an odd height, but if you try to erect a pre-shaped block into an unusual height, you'll be cutting them down over and over," Rudolph says. TF System's vertical method eliminates waste because components are manufactured to reflect exact design requirements.

The vertical ICF boasts other sustainable aspects. The rails are made of 100-percent-recycled PVC, and the components themselves are totally recyclable. "All extra material can be shipped to re-enter the manufacturing stream," Rudolph says, "There is no reason to ever throw any of our products into a landfill."

TF System's reinforced concrete is surrounded by insulation to create a

### AT A GLANCE

LOCATION:  
GREEN BAY, WI

AREA OF SPECIALTY:  
VERTICAL  
INSULATING  
CONCRETE FORMS

EMPLOYEES:  
11

stronger foundation than that of traditional blocks or other building methods. "Many homes are built so cheaply that they aren't going to last long," Rudolph says. "We'll need more resources to build more often. But these ICF homes are predicted to last hundreds of years." Rudolph adds that maintenance is not required.

The enveloping EPS foam is at least two-inches thick and can produce high R-Values to reduce heating and cooling needs. Rudolph says that the vertical ICF yields true R-Values ranging between R-20 and R-40, while wood-frame walls are typically closer to R-13. Heavy insulation on both sides produces an airtight system that also outperforms conventional framing or masonry, and studies have shown that an ICF is 25–40 percent more efficient than traditional building systems.

TF System recently supplied ICF wall forms for Lake Country Lutheran High School in Hartland, Wisconsin. The school district, Rudolph says, chose the vertical ICF for the strength of the walls and the speed and simplicity of construction. Operational costs were another factor. "You can doctor up any wall to perform well, but it's easier to use our vertical ICF. Once you fill it with concrete, there is little concern about errors and omissions," he says. Electrical boxes and other components are mounted directly to the concrete wall without worries about sealant or air leaks.

A home built with an ICF uses less energy. A home built with a vertical ICF also produces less waste, has higher R-insulation, and is fully customizable. The simple design utilizes four basic pieces and is easy for subcontractors to assemble. With its unique product, TF System is destined to go in one direction—up. GBQ



*TF System utilized its vertical IFCs for this residence in Appleton, WI.*

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*Don Rudolph, Vice President*

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