

Super-Sized (Vertical ICFs)—Concrete Walls Grow Up

WHAT IT IS: Vertical insulating concrete forms (ICFs) are perimeter walls that go up quickly, and form a durable, energy-efficient building envelope. These stay-in-place concrete forms serve as a functional part of a wall after the concrete is poured. While most ICFs come in blocks, vertical ICFs form the entire height of the wall. They require less bracing because they are sturdier than traditional block ICF walls.



On average, vertical ICF homes cost about two to five percent more than wood-framed construction. However, because of the required training and learning curve implicit in adopting a new technology, contractors installing ICFs for the first time may find that total cost of the project is five to seven percent higher than a wood-framed home.

OPERATIONAL COST:

None. Energy efficiency over light frame should make it more efficient to operate in the long run.

U.S. CODE ACCEPTANCE:

Most building codes require that vertical ICFs must meet standard prescriptive structural design requirements for cast-in-place concrete walls. The plastic foam insulation on the interior surface requires a gypsum board covering to meet fire resistance provisions.

INSTALLATION:

Installation methods for vertical ICFs are similar to that of their traditional counterparts. Composed of two 2 ½ inch-thick polystyrene panels held together by plastic or steel I-beams, each vertical ICF panel contains an interior space of seven inches into which concrete is poured. They require no additional insulation and are far less labor intensive than wood. Houses built with vertical ICFs take less time to build than their traditional stick-framed counterparts.

WARRANTY:

Warranties vary by manufacturer, but typically cover any damage to the structure due to faulty manufacture for 25 to 30 years.

BENEFITS FOR HOMEOWNERS:

- Vertical ICF homes are more likely to withstand the effects of high wind and rain, making them an ideal material for geographical regions prone to hurricanes and tornadoes.
- Because they are made with concrete and are already insulated—inside and out—they are also highly energy efficient, saving homeowners anywhere from 25 to 50% on their heating and cooling bills.

WHY IT'S A PATH FAVORITE:

- **Multi-Functionality:** Vertical ICFs, typical of most ICFs, can be used for both foundation work and above-grade walls.
- **Energy Efficiency:** Vertical ICFs form a thermal barrier of up to R-25. Because they create a monolithic concrete wall, they are airtight and create less opportunity for air to escape from inside the home.
- **Safety & Disaster Resistance:** Concrete is a tried-and-true building technology in use since ancient times. Its inherent sturdiness allows structures to withstand high winds, seismic forces and fire.

INITIAL COST:

Vertical ICFs range in cost from about \$1.75 per square foot to about \$3.50 per square foot. Cost of installation labor, reinforcement, bracing, and concrete placement are additional. But building with vertical ICFs can be much quicker than conventional stick-building, and even faster than building with conventional ICFs.