



Virginia Ready-Mixed Concrete Association

Concrete Forms

Insulated Concrete Forms are a fast, efficient and flexible construction technology that can be used to create attractive and comfortable homes in a variety of styles.

Insulated Concrete Forms (ICF's) are interlocking styrofoam forms that are assembled, and then filled with concrete. When the concrete cures inside the styrofoam forms, it creates a solid concrete wall, reinforced with metal, and enveloped in insulating foam. Interior walls of an ICF home can be finished with drywall, tile, etc., just as with conventional construction. The exterior can be faced with brick, stone, stucco or siding.

Comfort

In conventional homes, the temperature at the floor can be as much as 10 degrees cooler than the ceiling temperature. That difference can make you feel uncomfortable, even though the overall room temperature is normal. In an ICF constructed home, the floor-to-ceiling temperature varies by less than 2 degrees, making the room feel cozier throughout.

Confidence

ICF homes surround you with steel-reinforced concrete walls, shown to withstand wind and rain storms better than conventional homes. You can also rest assured knowing your ICF home is energy efficient and built to last.

Clean Air

Most conventional homes have drafty spots-where outside air leaks in through the walls, ceilings and floors. In addition to temperature problems, these drafts can also contain dust, pollen and other allergens. An ICF home cuts that air infiltration by 75%, making ICF an ideal option for respiratory allergy sufferers.

Energy Efficiency

Homes built with ICF exterior walls require an estimated 44% less energy to heat and 32% less energy to cool than comparable frame houses. Consequently, your HVAC systems can be downsized. Since floor systems are hung on the inside of the wall, real energy savings come when you design above-grade, thereby eliminating a huge heat loss area in conventional housing.

Compare the energy performance of an ICF home to your current home:

- A 4,060-square-foot, two-story brick-faced ICF home in Henrico County, Virginia has an average heating and cooling cost of \$44.22/month.
- A one-story brick-faced ICF ranch home in Powhatan County has 3,500 square feet of finished space, and an average heating & cooling cost of \$32.44/month.
- A two-story, 4,060-square-foot home in Hanover County averages \$36.85/month in heating and cooling costs.

(The above averages were taken from actual ICF homes in Virginia over a five-year period.)

Green Building

One of the largest building materials used in building an ICF home is concrete which comes from the ground – sand, gravel, and cement. There is a greatly reduced use of lumber over a frame built house. Plus, the energy cost for the homeowner is reduced over the life of the home, thus saving energy.

Quick Facts about ICF Construction

- In Virginia, ICF homes achieve the equivalent of an R-50 insulation rating.
- ICF homes allow their owners to heat and cool the air in the crawl space, greatly reducing home allergens such as mold and mildew, and keeping HVAC equipment within the building envelope.
- ICF homes dramatically reduce outside noises.
- ICF walls have an excellent fire rating because concrete does not burn.
- ICF construction may even lower your insurance premium. Concrete can be poured in Virginia year-round-even at temperatures below 0 degrees Fahrenheit.

Costs

The cost of ICF construction vs. more traditional methods of construction is typically more for the actual construction, but the cost of ownership of an ICF structure is significantly less than the more traditional methods. In nearly every documented case of the cost of an ICF structure, the return on investment (ROI) for the extra construction cost is within 5 years with many showing less than 3 years. Depending how costs are viewed, ICF Construction may cost a little more or significantly less to build and operate.