Monolith™

Polyurethane Insulated Concrete Forms

THE BETTER ICF.

8" Concrete Forms Spec Sheet

Monolith™ Insulated Concrete Forms (ICF) are stay-in-place formwork manufactured using two 2.5" (63.5mm) closed-cell, Polyurethane panels
connected by polypropylene webs placed at 6" (152mm) on center.

The forms offer a 7-in-1 system that provides structure, insulation, vapor barrier, fire barrier, air barrier, sound attenuation and attachments for interior finishes and exterior cladding.

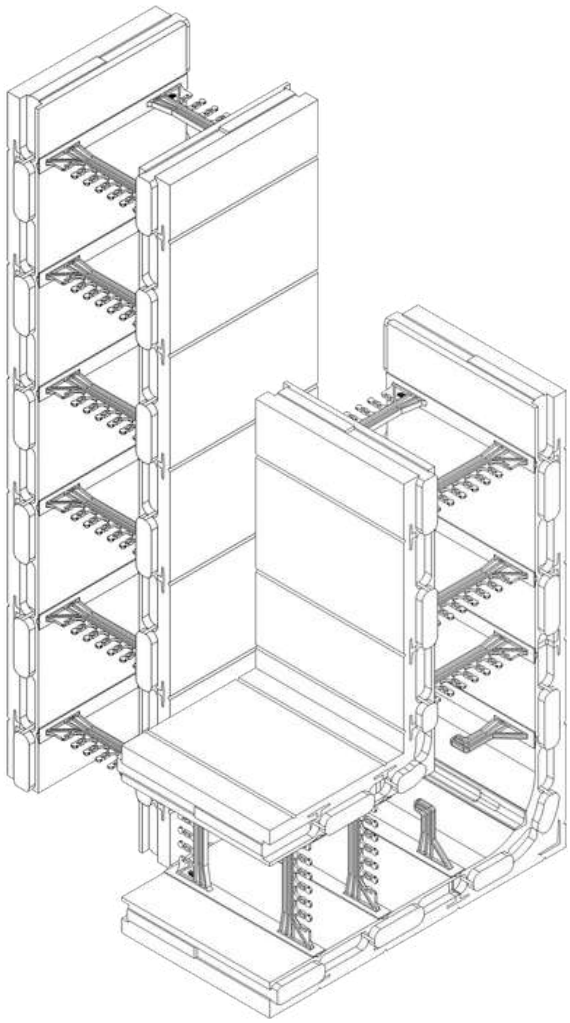
Completed Monolith™ ICF walls offer a sustainable and resilient building structure with an R-Value of 33, STC rating of 55+ and a Fire Resistance Rating (FRR) of 3+ hours.

Applications

- Below-grade foundation walls
- Above-grade walls
- Frost walls
- Additions to existing buildings
- Multi-story residential and commercial construction
- Institutional buildings
- High wind/hurricane areas
- Wildfire-prone areas

Monolith™ ICF ensures exceptional quality, reduced construction time and labor costs.

- Fully reversible interlocking system with a depth of 1" (25mm) provides superior connection strength between blocks.
- Webs have built-in clips that can hold two courses of reinforcing steel, greatly reducing the need for additional tying.
- Withstands internal vibration.
- Generates less than 1% of construction waste.



Physical Properties

Property	Standard	Value
Density	ASTM C1622	2.0 lbs/ft3
Compressive Strength	ASTM D1621	25 psi
Thermal Resistance	ASTM C177	33 °F·ft^2·hr/BTU.
Surface Burning Characteristics	ASTM E84	Flame Spread: 25 or less Smoke Developed: 250 or less
Fire Resistance Rating (FRR)	CAN/ULC-S101	3+ hrs

Design Specifications

Block	Core	Block Dimensions	Concrete Volume per Block	Concrete Volume per ft^2 of Wall Area	Surface Area Per Block
Straight	8"	48" x 12" x 13"	0.101 yrd^3	0.025 yrd^3	4.0 ft^2
90° Corner	8"	[32+24]" x 12" x 13"	0.089 yrd^3	0.016 yrd^3	5.6 ft^2

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Tool Checklist For ICF Block Installation

- Hand saw, folding pruning saw, or conventional rip saw
- Portable power saw
- Keyhole saw
- Table saw (optional)
- Tape measure
- Cordless driver drill and appropriate bits
- Hammer drill
- Rebar tie tools ("Yankee" twist type preferred)
- Hammer
- Framing square
- 2' (610mm) spirit level
- 6' (183mm) spirit level
- Laser level, water level, or transit
- Plumb bob
- Mason's line (Enough to circle the entire structure)
- Chalk line
- Foam gun
- Rebar bender and cutter
- Scaffold planks
- Wall alignment & bracing system
- Steel stakes to anchor alignment braces (n/a if bracing off a slab)

Tool Checklist For Concrete Pour

- Concrete pencil vibrator, 1" (25mm) maximum head size with 10-14' (3-4.26m) shaft
- Rubber gloves
- Hard hats
- Concrete finishing tools
- Flat shovels for spill cleanup

Note: Keep a spare concrete pencil vibrator head and shaft on hand.

Tool Checklist For Utilities Installation

- Electric chain saw (for creating electric box cutouts, channels for electrical wiring and plumbing)
- Foam dispensing gun and foam

Material Checklist

- Reinforcing steel and accessories, e.g., rebar ties, as required.
- Screws for alignment bracing attachment to ICF blocks (1-5/8" (41mm), 2-1/2" (64mm), #10 coarse thread)
- Concrete screws 1-1/2" (38mm) to 1-3/4" (44mm) to attach the foot of alignment braces to the concrete slab
- Material for rough openings (i.e. standard 2-by lumber or plywood for fabricating wood bucks and nails or spikes to anchor the buck)
- Anchor bolts, nuts, and washers or Simpson Strong-tie® ICFVL ledger connector system
- PVC sleeves for mechanical and/or electrical fixtures
- OSB or plywood to bridge cut joints or removed webs, block out for anchor bolts, etc.
- Low-expansion, polyurethane construction spray foam adhesive
- Waterproofing and drainage membrane

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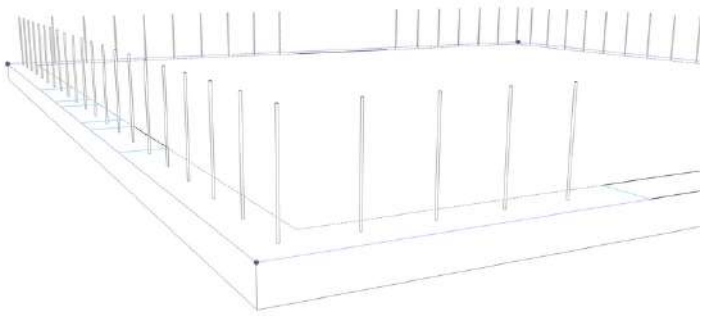
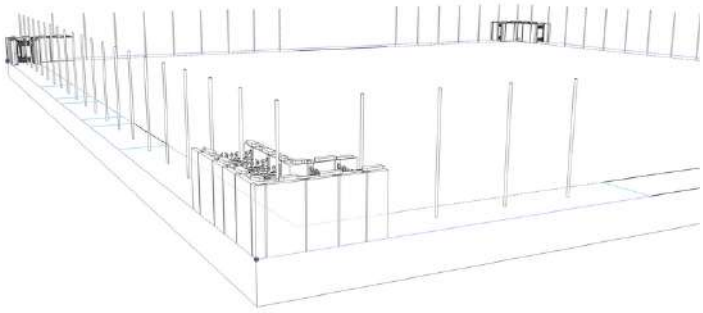
Step 1
Measure

Use a laser level to find the highest point on your conventional footing or slab and mark it accordingly. Mark the outline of the blocks and the location of doors and window openings using a chalk line. Rebar should extend upward at least 24" (610mm) from the footing into the block cavity or as per structural requirements.

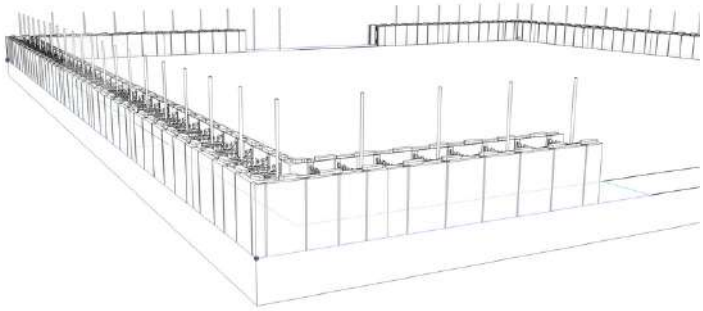


Step 2
Lay the First Course

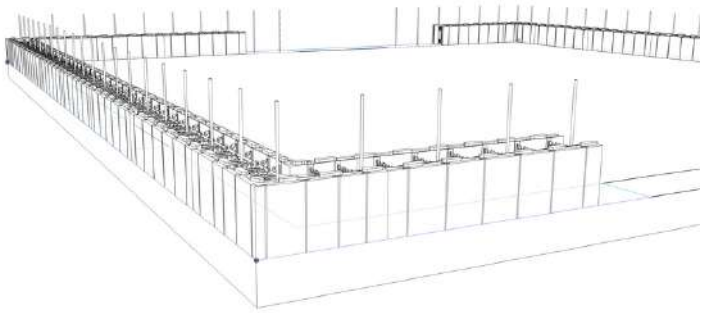
A. Place the first corner blocks at each corner, following the chalk line you pulled in the previous step, and



B. Then, lay the straight blocks from each corner toward the center of each wall segment. Do not lay blocks in the openings for any floor-level openings, such as doors or windows. Level this course using shims or by trimming the blocks, checking carefully with a laser level. Seal the bottom edge using an expanding foam sealant – be careful not to use too much, as the pressure may move the blocks.



C. On the first course, use zip ties on the webs to connect the blocks and pull them snugly together. Following this, install horizontal rebar by placing it in the clips at the top of the internal webs within the block cavity. The clips hold the rebar securely and eliminate the need for wire tying. (Repeat this process for each course of the block).



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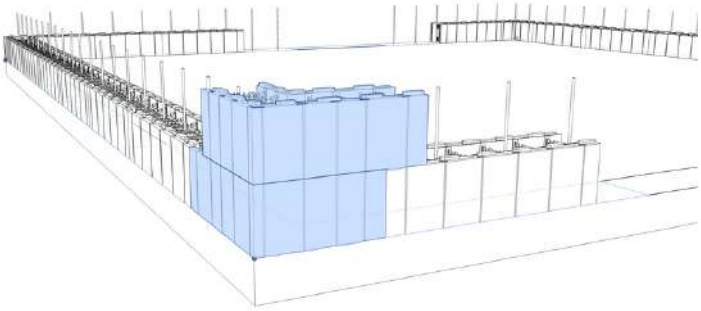
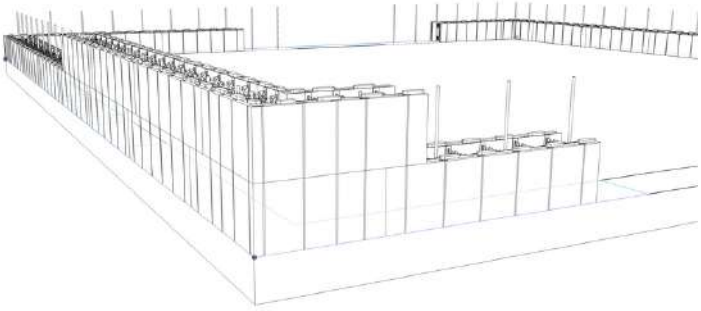
Step 3
Install the Second Course

A. Reverse the corner blocks so that the second course of the block is offset from the first in a running bond pattern. Do not stack courses with vertical seams in the same place, as this will weaken the wall.

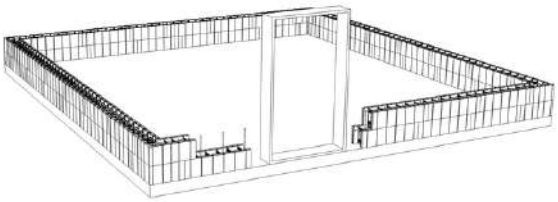


B. Lay the straight blocks toward the center of the walls. At this point, check for level across all of the blocks. If the courses are not level, use shims or trim the block as required.

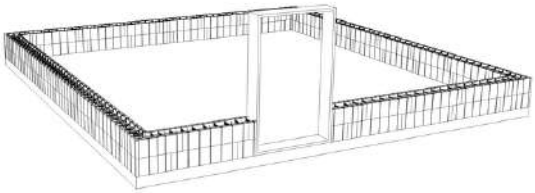


Step 4
Install Bucking

A. Install window and door frames (bucks) at each location where an opening is required; cut and fit the blocks around them. Bucks hold back the concrete and stay in place permanently, providing a nailing surface for installing windows and doors. Pressure-treated lumber or vinyl bucks may be used.



B. Butt the blocks up to the bucking, cutting the block as needed. Seal the joint with caulking or expanding foam sealant.



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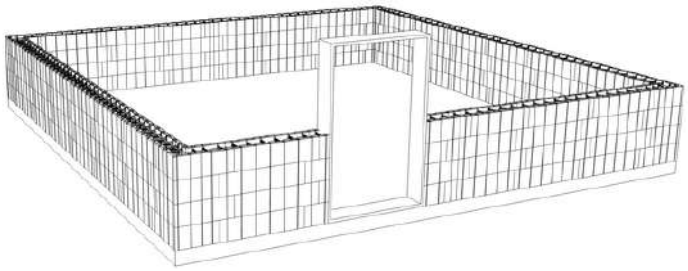
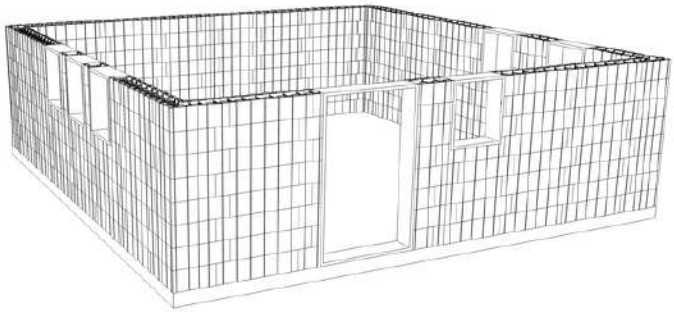
Step 5
Additional Courses

Install additional courses of the block by continuing to overlap the courses so that all joints are locked both above and below by overlapping blocks.



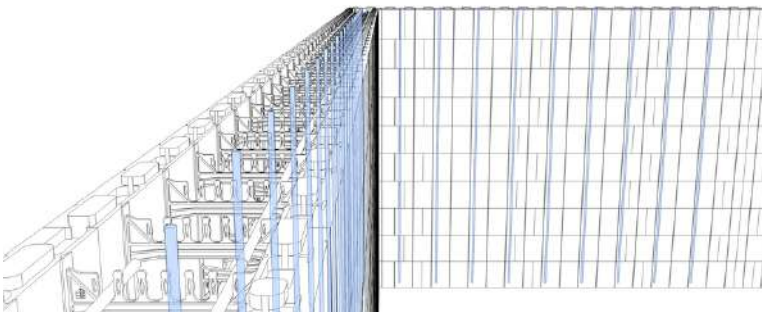
Step 6
Bracing

Install alignment bracing along the entire interior (recommended) of the wall perimeter. This ensures the walls are straight and plumb and allows alignment adjustment before and during the pour. The bracing also serves the dual purpose of providing a secure and safe framework to support scaffolding planks once five courses have been stacked.



Step 7
Stacking and Rebar

Stack the block to the full wall height for single-story construction or to just above floor height for multiple-story construction. Cut the vertical rebar to length and install it from the opening at the top of the wall through the spaces between the horizontal rebar.



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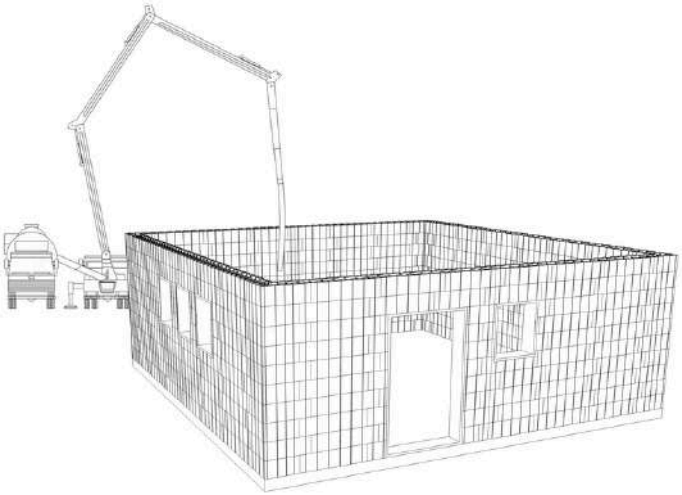
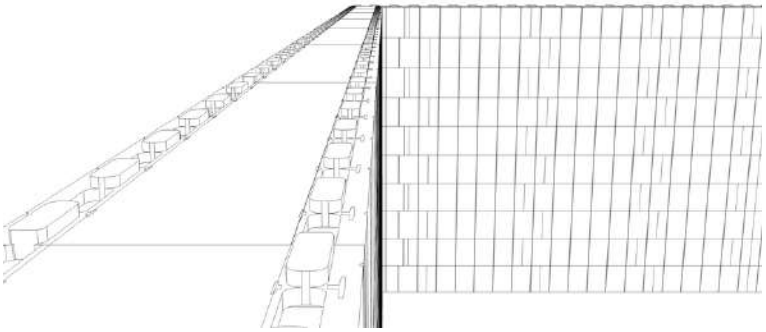


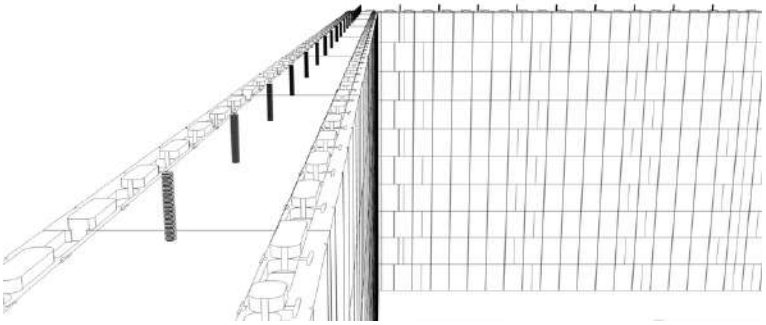
Step 8
Concrete

Using a boom pump, pour the concrete into the stacked walls. Do this in layers approximately 3-4' (0.9-1.2m) at a time, circling the structure until the top of the wall is reached. Use a mechanical pencil vibrator to vibrate the concrete and remove all air pockets within the wall. Up to one story can be poured each day using this method.



Step 9
Mud Sill

A. Screed off the concrete until it is even with the block top.



B. "Wet set" anchor bolts into the concrete top. These bolts will be used later to install the top plate (mud sill) for the installation of rafters or trusses.