The Diamond Snap-Form ICF System consists of Foam-Control EPS with Perform Guard and Diamond Snap-Ties. Diamond Snap-Form ICF system offers a flexible, cost-effective way to build a permanent insulated concrete wall. Contractors with basic construction skill level can build Diamond Snap-Form ICF by following these steps and using the details in the Diamond Snap-Form ICF Construction Manual.

• Study the Diamond Snap-Form ICF Construction Manual.
• Become familiar with the site.
• Site work must be level.
• For below grade work, cut area wide enough to accommodate work activities; overcutting 3’ or greater works best.
• Footings should be level, square, and properly engineered to support the Diamond Snap-Form ICF wall and meet local building codes.
• On the footing, snap a chalk line to mark outside toe-plate guide line.
• Install toe-plate outboard of chalk line using double-headed nails or Tapcon screws so you can remove plating later. Repeat for all exterior walls.

Footings:
• Footings should be level; when they are not, simply shim first course with strips of Foam-Control EPS.
• Footing step-downs should ideally be built in 1’ increments. If odd dimensions are necessary, saw cut Foam-Control EPS to size and notch with tie cuts and assemble as usual.

Corners:
• Factory cut corner pieces allow for exact placement of Diamond Snap-Form ties and start the form building process; 90° and 45° corners are standard. Custom angles and radius corners are readily available.
• Using factory cut corners, begin building the Diamond Snap-Form ICF wall at a corner.
• As you build the first course, start at the corners of each wall segment and work to the middle of the wall. Field cut Foam-Control EPS to fit; use a common hand saw or keyhole saw.

• Since the Diamond Snap-Form ICF System is designed to use stacked vertical joints, the Foam-Control EPS pieces remain a constant length for the height of the wall.

• Place horizontal rebar as required by local codes in the appropriate Diamond Snap-Tie rebar cradles. A helpful technique to support vertical rebar is to insert them in appropriate Diamond Snap-Tie courses.

• As you build corners, use a key hole saw to notch factory long corners, top and bottom, in locations shown in photo. Cut Diamond Snap-Form half and full Snap-Ties so the web can reach into the wall cavity. Set Diamond Snap-Form cut ties in notches.

• Notch the succeeding factory long corners, top and bottom, as in above photo. Set the factory long corner into the cut Diamond Snap-Ties. This will keep the factory corners at a level elevation as you build succeeding courses of the Diamond Snap-Form ICF wall and will provide a solid tie face connection for claddings or finishes attached to the Diamond Snap-Form ICF wall.
• Continue building the Diamond Snap-Form ICF wall by installing Diamond Snap-Ties into the factory notches of the Foam-Control EPS planks.

• The installation of the Foam-Control EPS planks goes easily and quickly. Remember to install rebar in the appropriate courses of the Diamond Snap-Form ICF wall as you build upward.

• At each corner having a long factory corner piece, place a vertical corner brace, cleating it to the toe-plate.

• Note: Refer to the Diamond Snap-Form ICF Construction Manual for bracing details for corners and T-corner intersections.

• Install diagonal kickers to plumb vertical corner brace.
• Fasten kickers securely to the vertical corner brace top and bottom. It is further recommended that additional kickers be installed to the vertical corner brace at its mid-point prior to pouring concrete.

• Install interior toe plate onto the footer tightly against the interior side of the Diamond Snap-Form ICF wall using double headed nails or Tapcon screws so you can remove plating later. Repeat for all interior walls.

Openings.
• If the Diamond Snap-Form ICF wall has openings such as windows and doors, place appropriate blocking and bracing to create openings; use treated lumber if blocking is to be permanent.

• Note: Pre-formed vinyl bucks can also be used. Follow vinyl buck manufacturers’ installation guidelines.

• As you build the Diamond Snap-Form ICF wall, trim the Foam-Control EPS planks to fit flush at blocking of openings.

• Use spaced blocking at the sill of the opening so concrete can be poured directly into the Diamond Snap-Form ICF wall area below the sill opening.
• Diamond Snap-Form half ties are used to terminate and support opening boundary.

• Screw through all wood blocking at one foot centers using a screw length that protrudes into the Diamond Snap-Form ICF wall cavity at a minimum of 6”.

• Place Diamond Snap-Form half ties to cap the Foam-Control EPS wall and to provide 12” on center attachment points for cladding or finishing materials.

• Complete the installation of Diamond Snap-Form ties and Foam-Control EPS planks. Inspect the Diamond Snap-Form ICF wall for any damage that may have occurred during installation. Repair and/or replace damaged items.

Wall Bracing.

• In preparation for pouring concrete, build and install OSHA approved walkway frames where required. These frames provide a means to plumb the Diamond Snap-Form ICF wall and safely support workers when pouring concrete. Installing OSHA approved bracing and walkways is the sole responsibility of the installer.
• Attach strong-back board with screws to the Diamond Snap-Form half ties at the top boundary of the outside Diamond Snap-Form ICF wall. Attach kickers at a maximum of 6’ on center for walls up to 8’ in height, a maximum of 4’ for walls up to 12’ in height.

• Use a string line to ensure straightness of all Diamond Snap-Form ICF walls.

• While holding the Diamond Snap-Form ICF wall top to the string line, fasten wall kickers securely to the ground to prevent any potential movement of the Diamond Snap-Form ICF wall during the concrete pour.

• Prior to the concrete pour, place adequate reinforcement blocking and/or bracing into the blocked openings in the Diamond Snap-Form ICF wall.
• As a final check, inspect the Diamond Snap-Form ICF wall components again, as well as checking the entire bracing system making sure that all components and materials are secure and functional.

• The Diamond Snap-Form ICF braced wall is now ready for the concrete pour.

Concrete.

• Standard concrete mix designs can be used with Diamond Snap-Form ICF system (always check with local codes):
  
  - 3/4” aggregate size is commonly used
  
  - 5” slump recommended, 6” maximum
  
  - 3,000 to 4,000 psi strength typical, as specified by designer and/or local codes.
  
  - Place concrete at a controlled rate.

• When pouring concrete, maximum 4’ lifts should be used. For taller walls, multiple passes around the walls are needed.

• The Diamond Snap-Form ICF requires no mechanical vibration. The use of 5” slump concrete with 3/4” aggregate, along with the natural vibration that takes place in the form system during concrete placement is adequate. The Diamond Snap-Form ICF system allows for concrete consolidation when installed per Diamond Snap-Form ICF instructions.

• When using a boom pump truck, do not let the concrete fall from the full height of the boom into the Diamond Snap-Form ICF. For best results, a double S hose end is recommended to control the concrete flow into the Diamond Snap-Form ICF wall.
• The top of the wall is screeded, troweled smooth, and anchor bolts are set.

• Once the concrete is sufficiently cured, bracing can be removed and construction can continue. Bracing is not wasted - save lumber and reuse for further building on the site, or use for the next Diamond Snap-Form ICF project.

Finishing the System.

• The exterior should be damp-proofed or water-proofed using cutback asphalts, self-adhering sheet membranes, or high-quality acrylic coatings recommended by the coating manufacturer for use with ICF’s. Do not use products which are highly solvent-extended.

• For above-grade application, common building claddings can be used. Install according to manufacturer recommendations over the Diamond Snap-Form ICF system.

• For electrical outlets/switches, hot knife or router-cut Foam-Control EPS, set boxes using concrete fasteners, and install wire per local code, and foam all components securely in place.

• Use only coarse-thread screws for attachment to Diamond Snap-Form ties. On a weather exposed side, use noncorrosive screws.

Disclaimer: Details, illustrations, pictures and guidelines provided herein give basic information and illustrate examples of Diamond Snap-Form ICF System installation. The basic information provided herein is not intended to cover every potential use and application of the Diamond Snap-Form ICF System. It is the responsibility of the installer to become familiar with his specific application and determine if the Diamond Snap-Form ICF System is suitable. By commencing work, the installer accepts full responsibility for the proper and safe installation of the Diamond Snap-Form ICF System at his job site. Furthermore, it is the sole responsibility of the installer to meet all federal and local regulatory requirements for job site safety for himself, his workers and any others on the job site while in the execution of all phases of the Diamond Snap-Form ICF System installation. Construction must be done in compliance with local building codes.