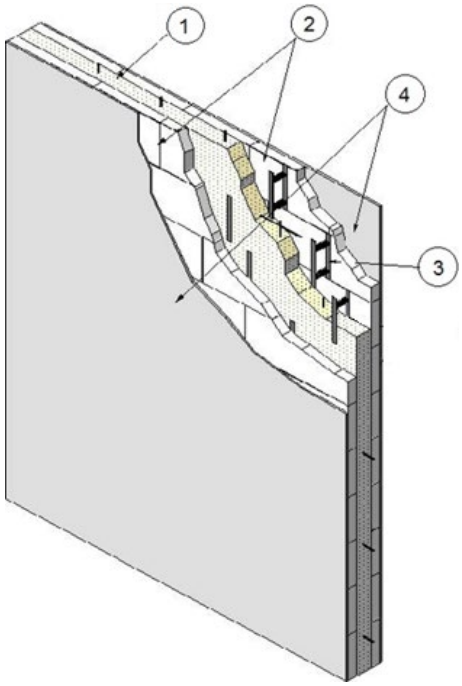
Stronghold Insulation Systems, Inc.
Design No. STR/ICF 180-01
Insulating Concrete Forming
Stronghold ICF Systems, FX and KD Series
ASTM E 119, CAN/ULC-S101
Rating: 3 Hour, Loadbearing and Non-Loadbearing



MIN. CORE THICKNESS	MAX. FIRE-RESISTANCE RATING
6, 8, 10, 12 in. (152, 203, 254, 305mm)	3 Hour

1. **CONCRETE:** Pour concrete with density of 150 lb/ft^3 (2400 kg/m^3) into the ICF system. The concrete shall have a min. 3000 psi (20.7 MPa) normal compressive strength after 28 days of curing time, a max. slump of 6 in., max. aggregate size of 3/4 in. Place the steel reinforcement (not shown) before filling the ICF system with concrete. The rebar used is to be designed and placed per the applicable Code requirements and approved by a registered design professional with the appropriate license for the Authority Having Jurisdiction.

2. **CERTIFIED MANUFACTURER:** Stronghold Insulation Systems, Inc.

   CERTIFIED PRODUCT: Stronghold ICF Systems, FX and KD Series

   CERTIFIED MODEL: 6, 8, 10, and 12 in. Core Thicknesses

   Stronghold ICF Systems consist two 2-3/4 in. thick, Type II expanded polystyrene (EPS) foam plastic panels, separated by injection-molded polypropylene plastic cross-ties that are

partially embedded into the EPS panels. The cross-ties maintain the EPS panel facings at a clear distance equal to the concrete core thickness. The cross-ties are spaced at 8 in. on center (oc), along the length of the constructed wall.

3. **POLYPROPYLENE CROSS-TIES:** Injection-molded polypropylene cross-ties are 16 in. long, with flanges of 1-1/2 in. wide × 0.22 in. thick.

4. **GYPSUM BOARDS:** Gypsum boards in conformance with ASTM C 1396 shall be installed on interior walls and the interior facing sides of exterior walls. Gypsum boards installed must have a min. thickness of 1/2 in. and min. area density of 1.54 lb/ft^2. The gypsum boards are to be fastened to the polypropylene cross-ties, with #6 x 2 in. coarse-thread drywall screws spaced at 12 in. oc. Gaps between adjacent gypsum boards and screw head cavities shall be taped and filled with joint compound.

5. **INTERIOR AND EXTERIOR FINISHES (Optional, Not Shown):** Interior and exterior finishes may be added to Stronghold ICF Systems without affecting the fire-resistance rating.

   Exterior finishes may be applied to the exterior side of the forming system wall assembly without diminishing the assembly rating when desired. Exterior Insulation Finishing System (EIFS), any exterior stucco, brick or brick veneer, stone or stone veneer, cultured stone, and siding made from vinyl, polyolefin, aluminum, wood, fiber-cement, or steel may be used. Apply exterior finishes in accordance with the manufacturer's instructions.

6. **WALL ASSEMBLY:** The Stronghold ICF Systems may be used as either an interior or exterior wall. ICFs exposed to the interior of a building shall have a thermal barrier installed. Exterior walls are only required to have a thermal barrier on the side facing the interior of the building. The fire-resistance rating is applicable to the Stronghold ICF Systems from either side.