Sto Corp
Design No. STO/WDEIFS 25-01
Exterior Wall Systems
Sto Category 1 Exterior Insulation and Finish Systems (EIFS)
StoTherm ci, StoTherm ci XPS, and StoLite Panels
CAN/ULC S134 (2013)
Meets the Conditions of Acceptance

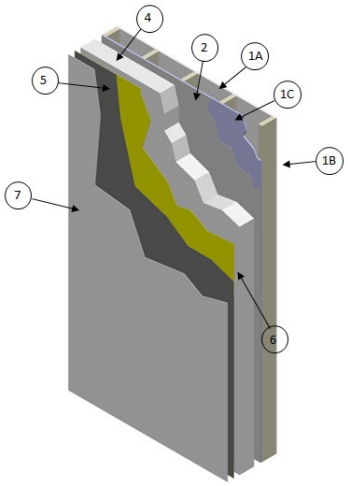

Figure 1: Construction with Wood Studs

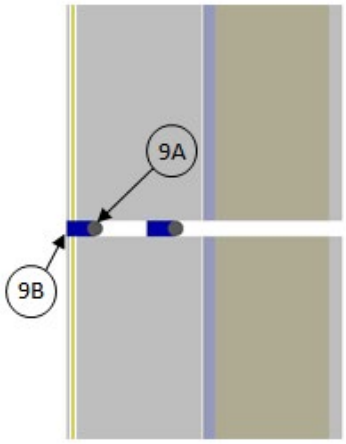

Figure 2: Joint System

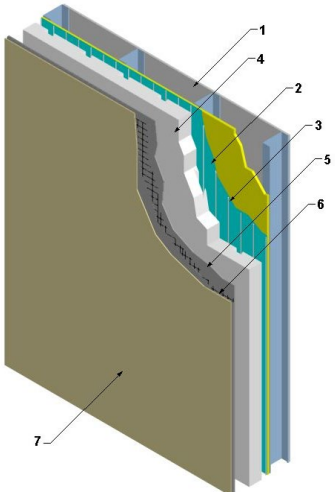

Figure 3: Construction with Steel Studs

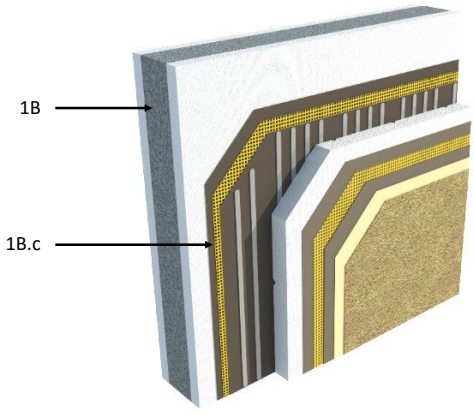

Figure 4: ICF Base Wall

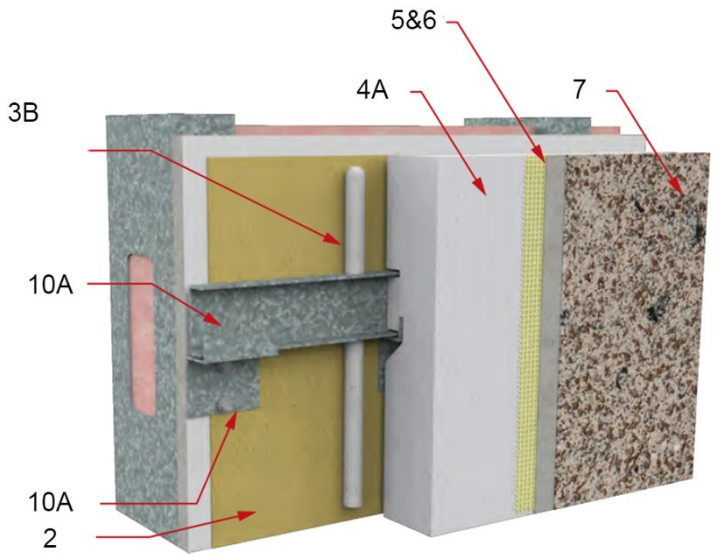

Figure 5: StoLite Panel and Mounting Method

1. **WALL ASSEMBLY:** Construct a wall assembly that shall comply with the local Building Code or other applicable regulatory requirements as established by the local Authority Having Jurisdiction. The wall assembly may include the use of wood or steel framing or Insulated Concrete Forms (ICF). The wall assembly shall include the following, as applicable:

   A. WOOD FRAMED WALLS
      a. INTERIOR SHEATHING – Install one layer of min. 12.7 mm (1/2 in.) thick gypsum interior sheathing to framing.
      b. FRAMING – Use min. nominal 2 x 6 framing spaced max. 406 mm (16 in.) on center (oc) and cover with interior sheathing and exterior sheathing.
      c. EXTERIOR SHEATHING – Install one layer of min. 12.7 mm (1/2 in.) thick gypsum exterior sheathing to framing**.**

   B. INSULATING CONCRETE FORMS (ICF):
      a. The outer EPS insulation layer shall have a max. density of 1.5 pcf and a thickness not exceeding 70 mm (2-3/4 in.) thick. The ICF must conform with CAN/ULC S717.1.
      b. Where expansion joints occur at floor-lines or vertical fire separations, a 200 mm (8 in.) band of ICF insulation is to be removed coincident with the floor-line, and rigid mineral wool insulation of the same thickness is to be inserted. Alternatively, the concrete can be formed flush with the outside surface of the ICF. The span between horizontal floor-line joints shall not exceed two storeys.
      c. The water-resistive barrier must be Sto Flexyl, reinforced with Sto Mesh embedded, and is to be applied over the outside of the ICF.

2. **WATER RESISTIVE BARRIER:** For framed walls, apply one of the following membrane systems, according to manufacturer's instructions, to the exterior side of the wall assembly. Sto Flexyl must be used for ICFs.

   A. STO FLEXYL – A cementitious air and moisture barrier trowel applied at a wet film thickness of 1.6 mm.

B. STOGUARD VAPORSEAL R – A fluid-applied polymeric air, vapor, and moisture barrier, spray- or roller-applied in a two-coat process at a wet film thickness of 0.38 mm (15 mils) per coat.

C. STOGUARD – A fluid-applied polymeric air and moisture barrier applied in two coats at a wet film thickness of 0.25 mm (10 mils) per coat. Where applied over sheathing, joints are to be first treated with Sto Gold Fill and mesh reinforcement, or StoGuard RapidFill, in accordance with Sto application instructions. Joints may also be treated with application of Sto Gold Coat (81636 or 80265) in conjunction with StoGuard Fabric.

3. ADHESIVE: Apply one of the following adhesives, according to manufacturer's instructions, to the certified water resistive barrier.

A. Sto Primer/Adhesive, StoPrimer/Adhesive-B, Sto BTS Silo, or Sto BTS Plus adhesives, applied to create vertical ribbons using a notched trowel with notches configured in one of two configurations:
   a. 13 mm x 13 mm (nominal 1/2 in. x 1/2 in.) at 63 mm oc.
   b. 16 mm x 16 mm (nominal 5/8 in. x 5/8 in.) at 32 mm oc.

B. Sto TurboStick or Sto TurboStick Mini applied in foam bead ribbons 175 mm (7 in.) oc, forming seven vertical ribbons over a 2400 mm (48 in.) wide insulation board.

The approximate thickness of the adhesive ribbons following installation is 2 mm.

4. INSULATION BOARD: Prior to installation of insulation board, install Sto Detail Mesh, or cut strips of Sto Mesh at termination and/or system starting points so to encapsulate the insulation and allow for the overlapping of wrapping mesh and field mesh on the exposed surfaces of the insulation as described in Item 6C. This wrapping mesh is to extend no less than 64 mm (2-1/2 in.) onto the adhering surface, or the inward facing side of the insulation board and then adhered to the substrate using an adhesive described in Item 3A. Install one of the following:

A. 25 mm to 165 mm (1 in. to 6-1/2 in.) thick Expanded Polystyrene (EPS) compliant with CAN/ULC S701, Type 1. The nominal density of the EPS is 16 kg/m^3 (1.0 pcf).
B. 25 mm to 165 mm (1 in. to 6-1/2 in.) thick Graphite Expanded Polystyrene (GPS) compliant with CAN/ULC S701, Type 1. The nominal density of the GPS is 16 kg/m^3 (1.0 pcf). Installation of GPS must use Sto TurboStick as the adhesive.
C. 25 mm to 106.7 mm (1 in. to 4.2 in.) thick Extruded Polystyrene (XPS) compliant with CAN/ULC S701, Type 3. The nominal density of the XPS is 25 kg/m^3 (1.55 pcf).
D. Where EPS or GPS insulation board is installed over an ICF EPS substrate having a max. thickness of 70 mm (2-3/4 in.), the Sto insulation shall not exceed 50 mm (2 in.).
E. Where the EPS or GPS insulation board is installed over an ICF substrate having a max. thickness of 64 mm (2-1/2in.), the Sto insulation board may be a max. of 64 mm (2-1/2 in.).

Insulation board may be flat-faced or contain geometrically defined cavities of up to 15% of the board area in the wall-facing side.

5. BASE COAT: Sto Primer/Adhesive, Sto Primer/Adhesive-B, Sto BTS Silo, or Sto BTS Plus

Apply a first layer of base coat over the EPS board. Embed Sto Mesh in the base coat and apply a second layer of the base coat. Trowel to thoroughly cover the mesh and remove excess coat. The final base coat dry thickness measures 1.6 mm, or thicker where additional layers of mesh are applied.

6. **REINFORCING MESH:** StoGuard Mesh, Sto Mesh, StoGuard Fabric

   A. Center StoGuard Mesh over sheathing joints by pressing into place.

   B. Center StoGuard Fabric over sheathing joints and embed into Sto Gold Coat (81636 or 80265).

   C. Embed Sto Mesh 152 g/m^2 (4.5 oz/yd^2) into the applied base coat.

   D. For EPS insulation thicknesses of up to 102 mm (4 in.) and XPS systems, mesh overlaps shall be min. 64 mm (2-1/2 in.) and increasing to 102 mm (4 in.) for EPS thicknesses 114 mm to 165 mm (4-1/2 in. to 6-1/2 in.).

   E. Additional layers of mesh may be installed for increased impact resistance. Where Sto Armor Mat 15 Mesh (425 g/m^2 – 15 oz/yd^2) is used, it is to be embedded in a certified base coat, prior to application of base coat and Sto Mesh as per Item 6(d). Alternatively, StoArmat Classic Plus may be applied over Sto Base Coat and Sto Armor Mat 15 in conjunction with Sto Mesh. Sto Mesh overlaps as noted in Item 6(d) for the installed thickness of insulation. Where the base coat application includes Sto Mesh as described in Item 6(d), the Sto Armat Classic Plus may be applied without additional mesh before use of a certified finish coat.

7. **FINISH MATERIALS:** Apply one of the following finish materials, according to manufacturer's instructions, over the dried certified base coat to achieve final texture.

   A. STOLIT, STOLIT X, STOLIT MAX, STOLIT LOTUSAN, STO ELEMENT, STO ESSENCE DPR, STOSILCO LIT – Trowel-applied ready-mixed acrylic based finish coat. The applied thickness is governed by the aggregate size (1 mm – 3 mm).

      NOTE: Stolit finishes are also used to produce StoCreativ Brick

   B. STO-ECOSHAPES – Trowel-apply the Sto Bonding and Pointing Mortar over the dried certified base coat. Press Sto-Ecoshapes, preformed acrylic rendered shapes which simulate brickwork or other patterns, in the Sto Bonding and Pointing Mortar per the manufacturer's instructions. The Sto-Ecoshapes thickness may be nominally 4 mm – 8 mm.

   C. STOCAST WOOD – Apply StoCast Wood Adhesive to Intertek certified base coat using a 6 x 6 mm notched trowel, application weight 2.5 – 3.5 kg/m2. Apply 200 x 16 cm, nominal 2 mm thick, StoCast Wood horizontally across wall, with 5 – 10 mm spacing between adjoining pieces. Press StoCast Wood into the adhesive using a rubber roller removing excess adhesive in the joint between adjoining pieces of StoCast Wood with a spatula. Clean joints with a damp sponge. Once StoCast Wood Adhesive has dried, a first coat of StoAqua Top Stain glaze is applied over the wall with the Sto-Wide Brush M2. Once the first coat has dried, a second coat is applied. Alternately after StoCast Wood Adhesive has dried, a single coat of StoTique is applied over the wall with the Sto-Wide Brush M2. Once dried, a single coat of Sto Clear Coat is applied.

8. **FORTIFICATION LAYER (Optional, Not Shown):**

   A. STO PRIMER – Apply on certified base coat prior to finish application.

   B. STO ARMAT CLASSIC PLUS – Trowel-apply Sto Armat Classic Plus to the rendered certified base coat and certified reinforcing

mesh prior to application of the certified finish coat. The final Sto Armat Classic Plus dry thickness measures 3 mm – 5 mm.

9. **JOINT SYSTEM:** One- or Two-Stage vertical and horizontal expansion joints, in nominal widths 19 mm (3/4 in.) to 25.4 mm (1 in.), are fitted with polyethylene backer rod set at appropriate depths per the manufacturer's instructions. The joint is then treated with polyurethane or silicone sealant having a flame spread index of 10 or less per ASTM E84.

10. **STOLITE PANELS:** StoLite panels are factory-assembled, prefabricated panels comprised of the components described in 4A, 5, 6, 7, 8, and 9, above. Panels are manufactured to a max. size of 6 ft. x 8 ft. and have a supporting C-Channel embedded into the foam backing. The mesh and base coat back wrap onto the unexposed side of the insulation board no less than 102 mm (4in). StoLite panels may used with any Code-complying wall construction described in item 1 with the exception of ICF.

    A. StoLite panels are attached via the adhesive outlined in item 3B and 50 mm x 50 mm (2 in. x 2 in.) Z-Clips that are mechanically fastened to the base wall. The panels are installed by applying the adhesive to the back of the panels spaced at max. 152 mm (6 in.) oc and mounting the C-channel onto the pre-installed Z-clips. Clips spacing is determined per StoLite Panel Design Guidelines.

Consult the listing report on the Directory of Building Products (https://bpdirectory.intertek.com) for the edition of the standard(s) evaluated.

Compliance of the assembly described in this Design Listing with the referenced standard relies on verification that the assembly constructed in the field is consistent with that described herein. Intertek certified products may be verified by the approved Intertek label; other products must be verified by the Authority Having Jurisdiction as meeting the specifications stated herein.