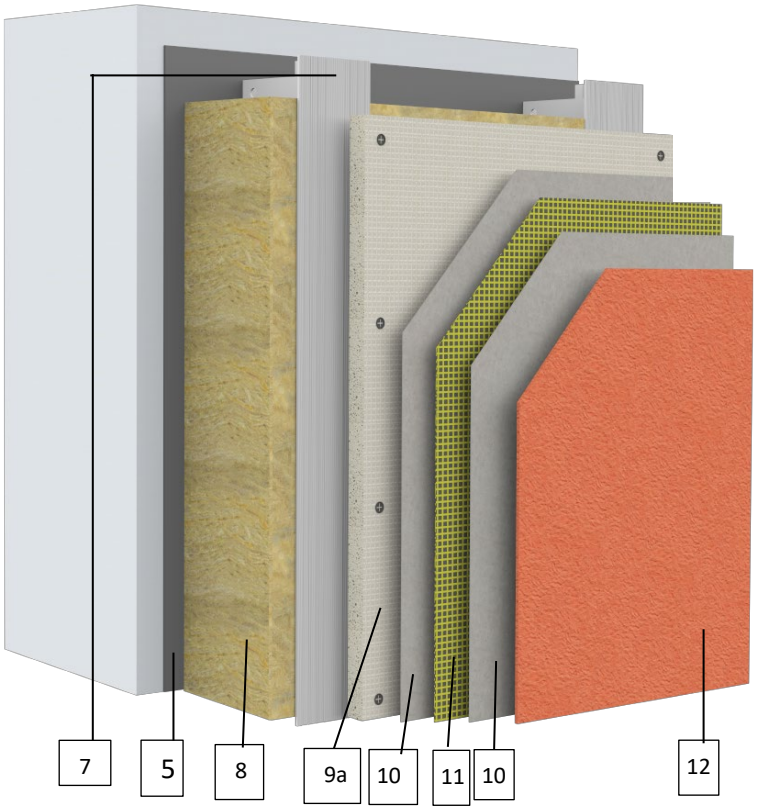
Sto Corp.
Design No. STO/CWP 30-01
Exterior Wall Systems
StoVentec R, StoVentec C, StoVentec M, StoVentec S
NFPA 285
Rating: Meets Requirements



1. **EXTERIOR WALL ASSEMBLY:** Incorporate construction features in the exterior wall assembly as described in Items 2 through 18.

2. **INTERIOR GYPSUM:** (Not Shown) For steel stud wall framing as described in Item 3, apply one layer of 5/8 in. thick, Type X gypsum board meeting the requirements of ASTM C1369. Fasten gypsum board to the steel framing (Item 3) with the long dimension parallel to the steel studs. Secure using #6, 1-1/4 in. long, self-tapping bugle-head screws spaced nominally 8 in. on center (oc) around the perimeter and 12 in. oc in the field. Additional layer of sheathing may be added where required by Code.

   A. JOINT TAPE AND COMPOUND – (Not Shown) Joints to receive Level 2 finish as per ASTM C840.

3. **WALL FRAMING:** (Not Shown) Use cast-in-place concrete, masonry unit, or steel framing providing max. allowable deflection of L/360 with min. 18 GA steel studs spaced nominally 16 in. oc. Attach steel studs to min. 20 GA top and bottom steel tracks using nominal 1/2 in. pan-head framing screws, attached to the front and back of each steel stud.

OPTIONAL – Fill or partially fill steel stud wall cavity with noncombustible insulation, mineral fiber, or fiberglass insulation, meeting FSI 25 and SDI 450 when tested in accordance with ASTM E84.

4. **EXTERIOR CONSTRUCTION:** Where Steel framing is used, install min. 1/2 in. thick glass mat exterior sheathing, meeting the requirements of ASTM C1177 or C1658, to the exterior side of the steel framing (Item 3) using #6, 1-1/4 in. long, self-tapping bugle-head screws spaced nominally 8 in. oc around the perimeter and 12 in. oc in the field. Exterior wall construction may be concrete or masonry of sufficient structural capacity to support the Ventec Render rainscreen cladding.

5. **CERTIFIED MANUFACTURER:** Sto Corp.

   CERTIFIED PRODUCT: Weather Resistive Barrier

   CERTIFIED MODEL: Apply one of the following membrane systems, according to manufacturer's instructions, to the exterior side of the substrate assembly (Item2).

   Roller- or spray-apply Sto AirSeal® vapor permeable air barrier over gypsum board joints and all edges at a nominal thickness of 20 wet mils and embed StoGuard Fabric in the wet material. Spray apply Sto AirSeal® vapor permeable air barrier over the entire wall area (including joints where present) and edges at a nominal thickness of 50 to 70 wet mils. The following alternate weather barriers may also be used: Sto Flexyl, StoGuard VaporSeal R, Sto Gold Coat (81636 or 80265).

   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. Where applied over sheathing, joints are to be first treated with Sto Gold Fill and mesh reinforcement, or StoGuard RapidFill, or Sto RapidGuard, or StoGuard Conformable Membrane in accordance with Sto application instructions. Joints may also be treated with application of StoGuard VaporSeal R in conjunction with StoGuard Fabric.

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

   D. STO AIRSEAL – A fluid-applied polymeric air and moisture barrier applied at a wet film thickness of min. 50 – 70 mils (1.3 to 1.8 mm). Where applied over sheathing, joints are to be first treated with Sto Gold Fill and mesh reinforcement, or StoGuard RapidFill, or Sto RapidGuard, or StoGuard Conformable Membrane in accordance with Sto application instruction. Joints may also be treated with application of Sto Gold Coat in conjunction with StoGuard Fabric.

6. **WALL BRACKETS:** (Not Shown) Install 2 mm stainless steel or min. 3 mm aluminum x 70 mm – 320 mm for Sliding Point brackets and 2.5 mm stainless steel or min. 3 mm aluminum x 70 mm – 320 mm for Fixed Point brackets. Brackets to be spaced and connected to supporting structure as required per Sto installation instructions.

7. **VERTICAL PROFILES:** STO T-Profiles made of aluminum alloy AW 6063 Temper 6 or EN AW 6005A Temper 5, with 2.7 mm x 90 mm plate and 2.4 mm x 52.7 mm leg, in lengths to 3 m, are

attached to the wall brackets (Item 6) using 5.5 x 19 mm stainless steel screws. Wall brackets (Item 6) to be positioned max. 280 mm from ends of STO T-Profiles. Spacing of T-Profiles typically 12 to 24 in. as required by structural analysis.

8. **EXTERIOR INSULATION:** Install 24 in. wide x 48 in. long x required thickness of mineral wool insulation onto wall using adhesively attached 16 GA impaling steel pins at min. 5 locations per 24 in. x 48 in. insulation section. Pins must be 0.5 to 1 in. longer than thickness of insulation being installed. One steel pin installed at each corner of the insulation section and one steel pin installed at the approximate center. Alternately, pins are at steel stud locations and secured to the studs using one #10 x 1-3/8 in. self-tapping bugle-head screw per pin base. Screws are 3/8 in. longer than the combined sheathing and stud thickness.

   Owens-Corning® Thermafiber Rainbarrier 45 or mineral wool insulation complying with ASTM C612 and ASTM E136 with density range from 3.5 lb/ft^3 to 4.5 lb/ft^3. Thickness shall be no less than 2 in. (50 mm). Thickness shall be based on depth of wall brackets with insulation being max. 20 mm less than wall bracket depth and creating a cavity when measured from the face of the insulation to the inward facing side of the panel of ≤ 60 mm.

   INSULATION AT INTUMESCENT LOCATIONS ABOVE OPENINGS AND FIRE STOPPING – Based on depth of cavity (substrate to inward facing side of the Ventec Panel), cut 4 in. thick, 24 in. x 48 in., 6 lb./ft^3 density mineral fiber insulation so to produce a lamella strip which extends from the substrate to within 1 in. (25 mm), but no closer than 9/16 in. (15 mm) from the inward facing side of the panel. Install as continuous strip along floor-lines and above windows, extending 4 in. either side of the window using #12 self-tapping sheet metal screws (length as required), spaced nominally between 32 in. and 48 in. oc, using two screws per location. On the face of the lamella, install the Roku Intumescent Strip (Strip is 4 in. tall and 1/12 in. (2 mm) thick and is supplied in rolls, 75 to 150 ft. in length). Intumescent strip to be fastened back to the underlying support structure at every stud.

   Alternatively, install min. 28 GA (0.38 mm) thick metal fire breaks. Metal fire break shall span the cavity. Metal break may be supported by underlying structure or T-Profiles in combination with ancillary wall brackets or vented L-profile.

9. **CERTIFIED MANUFACTURER:** Sto Corp.

   CERTIFIED PRODUCT: StoVentec Rainscreen Cladding System

   CERTIFIED SYSTEM: StoVentec R, StoVentec C, StoVentec M, StoVentec

   Systems consist of base coats (Item 10) and reinforcing mesh (Item 11), which are field applied to 12 mm StoVentec Carrier Boards (Item 9a), provided in various widths and lengths to suit project requirements, and attached directly to the T-Profiles (Item 7) using 4.8 x 35 mm or 5.5 x 24 mm stainless steel screws. Spacing varies depending on required wind load resistance. Subframe components (T-Profiles and Wall Brackets) are furnished by Sto Corp. Finish materials (Item 9) are applied over the base coat.

   The air gap between the insulation and back of carrier panel (Item 9a) may be between 10 and 60 mm.

10. **CERTIFIED MANUFACTURER:** Sto Corp.

    CERTIFIED PRODUCT: Base Coat

    CERTIFIED MODEL: Sto Primer/Adhesive, Sto Primer/Adhesive-B, Sto BTS Plus or StoCast Wood Adhesive, or Sto Armat Classic Plus Base Coats.

    Apply one of the following base coats by trowel over the StoVentec Carrier Board (Item 9a).

a. STO PRIMER/ADHESIVE, STO PRIMER / ADHESIVE-B, STO BTS SILO, OR STO BTS PLUS – Embed Sto Mesh (Item 11) in the base coat. Apply a second layer of the base coat to thoroughly cover the mesh. The final base coat dry thickness measures nominal 1/16 in. (1.6 mm) or thicker where additional layers of mesh are applied.
b. STO ARMAT CLASSIC PLUS – Apply a first layer and embed Sto Mesh (see Item 8) in the base coat. Apply a second layer of the base coat to thoroughly cover the mesh. The final Sto Armat Classic Plus dry thickness measures 3mm – 5mm.

11. CERTIFIED MANUFACTURER: Sto Corp.

CERTIFIED PRODUCT: Reinforcing Mesh

CERTIFIED MODEL: StoGuard Mesh, Sto Mesh, StoGuard Fabric

a. Embed Sto Mesh nominal 4.5 oz/yd^2 (152 g/m^2) into the applied base coat (Item 10).
b. Mesh overlaps shall be min. 2-1/2 in. (64 mm).
c. Additional layers of mesh may be installed for increased impact resistance. Where Sto Armor Mat 15 Mesh (nominal 15 oz/yd2 –425 g/m^2) is used, it is to be embedded in a certified base coat (Item 10), prior to application of base coat and Sto Mesh. Alternatively, StoArmat Classic Plus and Sto Mesh may be applied over Sto Base Coat (Item 10) and Sto Armor Mat 15. Sto Mesh overlaps as noted in Item 12B. Where the base coat (Item 10) application includes Sto Mesh, the Sto Armat Classic Plus may be applied without additional mesh before use of a certified finish coat (Item 12).

12. CERTIFIED MANUFACTURER: Sto Corp.

CERTIFIED PRODUCT: Finish Materials

A. **CERTIFIED SYSTEM:** StoVentec R

Apply one of the following finish coats, according to manufacturer's instructions, over the dried certified base coat (Item 10) to achieve final texture.

a. STOLIT, STOLIT X, STOLIT MAX, STOLIT LOTUSAN, STO ELEMENT, STO ESSENCE DPR, STO TEXTURED FINISH, 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.

Optionally apply Sto Primer to the prepared base coat (Item 7) prior to finish application.as per the manufacturer's instructions.

b. STOCAST BRICK – Trowel-apply the Sto Bonding and Pointing Mortar over the dried certified base coat (Item 10). Press StoCast Brick (preformed acrylic rendered shapes which simulate brickwork or other patterns), into the Sto Bonding and Pointing Mortar per Sto's instructions. The StoCast Brick may have a nominal thickness of 4 mm – 8 mm (1/8 in. – 1/4 in.).
c. STOCAST WOOD – Apply StoCast Wood Adhesive to Intertek certified base coat (Item 5) using a 6 x 6 mm (1/4 in. x 1/4 in.) notched trowel, application weight 2.5 – 3.5 kg/m2. Apply 200 x 16 cm (78-3/4 in. × 6-1/4 in.), nominal 2mm (1/12 in.) thick, StoCast Wood horizontally across wall, with 5 – 10 mm (1/4 in. - 1/2 in.) spacing between adjoining pieces. Press StoCast Wood into the adhesive using a rubber roller. Once StoCast Wood Adhesive has dried, two coats of StoAqua Top Stain glaze or one coat of StoTique are applied over the wall. Once dried, a single coat of Sto Clear Coat is applied.

B. **CERTIFIED SYSTEM:** StoVentec C, StoVentec M, StoVentec S

Apply StoColl KM adhesive with a floating-buttering method, according to manufacturer's instructions, over the dried certified base coat (Item 7) to achieve an application weight of 3.5 – 4.5 Kg/m^2.

a. STOVENTEC M – Glass Mosaic Tiles, 4 to 10 mm thick.
b. STOVENTEC S – Natural Stone Tiles, 4 to 15 mm thick.
c. STOVENTEC C – Glazed Ceramic/Brick Slips, 4 to 15 mm thick.

Immediately after applying StoColl KM adhesive, lightly press the tiles to the adhesive. After curing of the adhesive for a min. of 14 days, and according the manufacturer's instructions, apply StoColl KM-S pointing mortar to all tile joints.

13. **EXPANSION JOINT SYSTEM:** (Not Shown) Expansion joints may be open (dry) or treated as per Sto's installation instructions.

14. **OPENING HEAD AND SILL FLASHING:** (Not Shown) Min. 26 GA steel head flashing adhered with silicone or mechanically fixed to top of opening treated with weather barrier (Item 5). Min. 26 GA steel sill flashing adhered with silicone to bottom of opening with supplemental fasteners. Where desired, ASTM C1177 compliant gypsum sheathing may be used to line opening prior to application of the weather resistive barrier.

    Window header may incorporate ventilated or unventilated head profile and the top of the wall may include the ventilation 2-profile at the parapet.

15. **OPENING JAMB DETAIL:** (Not Shown) Min. 26 GA steel jamb installation detail to bridge the gap from opening to edge of panel.

16. **FLOORLINE FIRESTOPPING:** (Not Shown) Provide floor-line fire stopping as required by Code.

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.