Evaluation Service®

AER-18117

Pei **Evaluation Service®** is an accredited **ISO Standard 17065** Product Certifier, accredited by the IAS. This **Assembly Evaluation Report** represents a system that *Pei* **ES** has Evaluated. This **Assembly Evaluation Report** in no way implies warranty for these products or relieves **Sto Corp** of their liabilities for their products and this system. This **AER** is an official document if it is within one year of the Initial or Re-Approval date.

Initial Approval December, 2018

Re-Approved

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Report Owner

Sto Corp
3800 Camp Creek Parkway
Building 1400 Suite 120
Atlanta, GA 30331

Approved Assembly

EIFS Cladding - StoTherm® ci Mineral

For Evaluation Report Questions

Contact: Sto Technical Services
Phone: 800-221-2397

Assembly Evaluated For

1. Exterior insulation and finish system (EIFS): EIFS with Drainage, non-structural component

Code Compliance

2015 International Building Code® (IBC)	**2018** International Building Code® (IBC)
Section 1408- Exterior Insulation and Finish Systems (EIFS) **Section 1609-** Wind Loads	**Section 1407-** Exterior Insulation and Finish Systems (EIFS) **Section 1609-** Wind Loads

2015 International Residential Code® (IRC)	**2018** International Residential Code® (IRC)
Section R703.9.2 Exterior insulation and finish system (EIFS) with drainage **Section-** R301.2.1 - Wind Design Criteria	**Section R703.9.2** Exterior insulation and finish system (EIFS) with drainage **Section-** R301.2.1 - Wind Design Criteria

Standards Tested To

1. ASTM E2273-18 - Standard Test Method for Determining the Drainage Efficiency of Exterior Insulation and Finish Systems (EIFS) Clad Wall Assemblies
2. ASTM E2568 - 17a Standard Specification for PB Exterior Insulation and Finish Systems.
3. Acceptance Criteria for EIFS Clad Drainage Wall Assemblies, AC235. Approved January 2015
4. NFPA 285 - 2012 Standard Fire Test Method for Evaluation of Fire Propagation Characteristics of Exterior Non-Load-Bearing Wall Assenblies Containing Combustible Components
5. NFPA 268 - 2017 Standard Test Method for Determining Ignitability of Exterior Wall Assemblies Using a Radiant Heat Source

Wall Cladding System

StoTherm® ci Mineral is a decorative and protective exterior wall cladding system. The system consists of an air and moisture barrier applied to a gypsum or wood-based sheathing, concrete or concrete masonry, an adhesive, mineral wool insulation board, thermal dowel with fasteners and thermal plugs or caps, a reinforcing mesh, a base coat, and a finish coat. This system provides drainage through gaps created by the application of the insulation board with adhesive to the air and moisture barrier. The system may be installed on Type V (combustible) and Types I-IV (noncombustible) construction as allowed by code.

Component Description and Installation

The following is a description of the substrate and layers of the StoTherm® ci Mineral System.

1. Substrate (by others)

An approved glass mat gypsum sheathing with a current product evaluation report showing compliance to ASTM C1177 or Exterior/Exposure I wood-based sheathing in conformance with the Building Code. The Gypsum sheathing is fastened to a minimum of 18ga. steel framing spaced at a maximum of 16" o.c. Refer to Table 1 for wind load resistance. Wood based sheathing is fastened as described in the Building Code to wood or 18 ga. minimum steel framing at a maximum of 16" o.c. Gypsum sheathing shall be fastened, handled and stored according to the approved manufacturer's Installation Instructions. Wood-based sheathing shall be fastened, handled and stored in conformance with the Building Code.

2. Air and Moisture Barrier

StoGuard® with Gold Coat: The Sto air and moisture barrier must have a current product Evaluation Report for exterior wall applications. Sto Gold Coat is a liquid applied air and moisture barrier that complies with the IBC, IRC, and IECC (see ICC-ESR 1233). It is applied by airless spray or roller to a thickness of 10-12 wet mils. Several accessory components are used with Sto Gold Coat to treat joints, rough openings, and other transition areas of construction (refer to Sto Instruction Manuals and Details).

3. Adhesive

Sto BTS® Plus Adhesive: The Sto adhesive is a polymer modified portland cement material that is mixed with water. It is applied to the back of the insulation board with a 1/2"x1/2"x2" u-notched trowel. The insulation board is immediately placed over the Sto air and moisture barrier in courses and in a running bond pattern with tightly abutted joints. Firm hand pressure is applied over the surface of the board to secure it to the wall. Care should be taken to keep the air and drain cavities in alignment for the full height of the wall.

4. Insulation

Nominal 7.0 lbs./ft^3 density Mineral Wool Insulation Board compliant to ASTM C612. Board size is 2ft. x 4ft. with a thickness of 2 in, 3 in or 4 in. The insulation board must have a current product evaluation report or UL classification with respect to ASTM E136, noncombustible and UL 723 flame spread rating of 0 and a smoke development of 0.

5. Insulation Fasteners

EJOT Thermal Dowel with Fastener and Thermal Plug or Cap: 2-3/8" diameter polyamide/fiberglass dowel with 0.23” diameter corrosion resistant screws to attach insulation. See the illustrations in this report. All fasteners are attached to framing using the fastener installation instructions. See Table 1 for minimum fastener lengths.

6. Reinforcing Mesh

Sto Mesh 4.5 oz.: A glass fiber reinforcing mesh with a nominal weight of 4.5 oz/yd^2 and an alkaline resistant coating.

Sto Mesh 6 oz:. A glass fiber reinforcing mesh with a nominal weight of 6.0 oz/yd^2 and an alkaline resistant coating.

Sto Intermediate Mesh 11.2 oz.: A glass fiber reinforcing mesh with a nominal weight of 11.2 oz/yd^2 and an alkaline resistant coating.

The glass fiber reinforcing meshes are embedded in the base coat. The mesh weights correspond to levels of impact resistance that are achieved based on testing in accordance with ASTM E 2486. See Table 2.

7. Base Coat

The Sto BTS Plus base coat is a polymer modified portland cement material used to spot the thermal dowels, to embed the reinforcing mesh, and to level the wall surface. The base coat is applied with a stainless steel trowel to spot dowels and allowed to dry. The base coat is then applied with a stainless steel trowel to the entire surface of the insulation board to a rough thickness of 1/8” in strips of approximately 40”. The mesh is immediately placed in the wet base coat. The base coat is troweled from the center to the edges of the mesh to completely hide the mesh color. Once the base coat dries a second coat is applied (skim coat) to provide a smooth, level wall surface.

8. Finish

Stolit® Textured Finish: The Sto textured finish is a water-borne acrylic textured finish that provides a decorative and protective finish for the exterior wall surface. The finish is applied with a stainless steel trowel to the base coat to a rough thickness of approximately 1/16” and then scraped down with the trowel to the thickness of the aggregate in the finish texture. It is then floated with a plastic float in a circular or figure “8” motion to achieve the final texture.

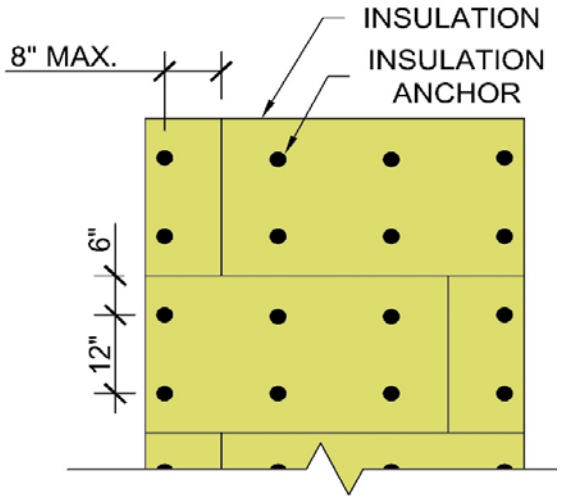

Figure 1
6 anchors per insulation board

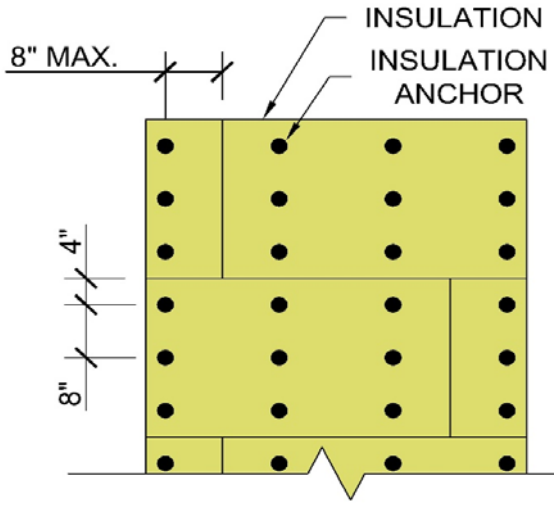

Figure 2
9 anchors per insulation board

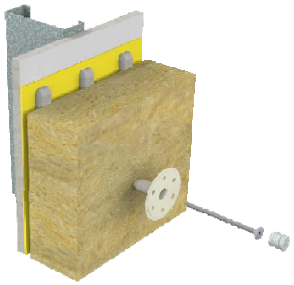

Figure 3
Surface Mount Anchor for up to 2" thick Mineral Wool Insulation Board

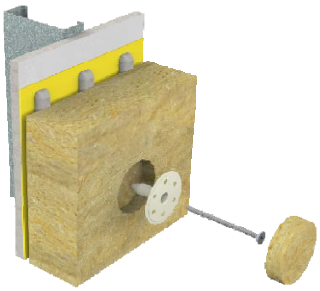

Figure 4
Countersunk Anchor for 3" and 4" thick Mineral Wool Insulation Board

Figure 6- Anchor Screw

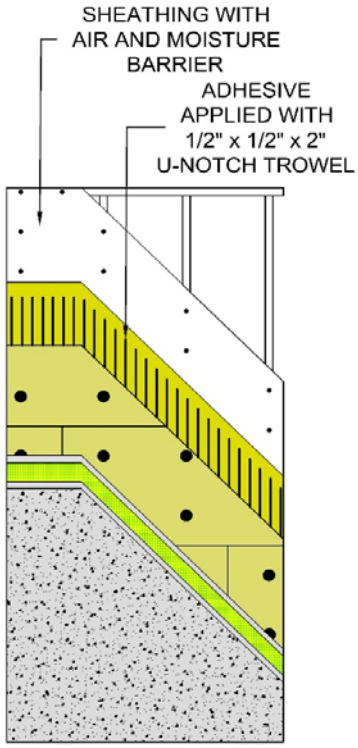

Figure 5- Assembly Details

Table 1 - Ultimate Wind Load Values

Mineral Wool Thickness	Insulation Anchors per Panel	Framing	Ultimate Load	Mimimum Fastener Length
2" & 3"	6	16" o.c. - 18gage	54.1 psf	3.15" & 3.75"
2" & 3"	9	16" o.c. - 18gage	77.8 psf	3.15" & 3.75"
4"	6	16" o.c. - 18gage	95.8 psf	4.75"
4"	9	16" o.c. - 18gage	126.1 psf	4.75"

Notes:

1. See illustrations for anchor spacings
2. The values listed **do not** include a safety factor and one shall be assigned by the design professional.

Table 2 - Impact Resistance Levels

Reinforcing Mesh	Minimum Weight	Impact Resistance
Sto Standard Mesh	4.5 oz./yd^2	Medium: 50-89 in-lbs.
Sto Mesh 6 oz.	6.0 oz./yd^2	High: 90-150 in-lbs.
Sto Intermediate Mesh	11.2 oz./yd^2	Ultra-High: > 150 in-lbs.

Product Labeling

The following components specified in StoTherm® ci Mineral System that are covered by this **AER**, must be marked showing evidence of a current Product Evaluation Report or third party classification or listing program by an accredited Agency.

1. Glass Mat Gypsum Sheathing and Wood-based Sheathing
2. StoGuard® Air and Moisture Barrier
3. Sto BTS Plus Adhesive
4. Mineral Wool Insulation Board
5. Sto Mesh 4.5 oz., Sto Mesh 6.0 oz. and Sto Intermediate Mesh 11.2 oz.
6. Stolit Textured Finish

Product Documentation

1. An Assembly Evaluation Service Agreement between *Pei* **Evaluation Service®** and Sto Corp.
2. Sto Therm Dowel and Cap Technical Data Sheet 01011.
3. Sto Therm® ci Mineral System Bulletin, Dated 08/2018
4. Two letters Dated August1, 2018 and September 5, 2018 from Jensen Hughes
5. Sto Stolit® Acrylic Textured Finish Product Bulletin, dated 07/2017
6. Sto Mesh & Sto Detail Mesh Product Bulletin, dated 06/2016
7. Sto BTS® Plus Product Bulletin, dated 04/2018
8. StoGuard with Sto Gold Coat Product Bulletin, dated 06/2016 and ICC-ES ESR-1233, dated 02/2018
9. PEI Test report 2018-6064 (A)
10. PEI Test Report 2018-6064 (B)
11. PEI Test Report 2018-6064 (C)
12. PEI Test Report 2018-6064 (D)
13. PEI Test Report 2018-6064 (E)
14. PEI Test Report 2018-6064 (F)
15. PEI Test Report 2018-6064 (G)
16. PEI Test Report 2018-6064 (H)