

## Short Form Specification L100 StoTherm® Lotusan System

### Section 07 24 00

*Refer to long form specification A100 for detailed information on substrates, performance data, mixing and installation instructions.*

#### **PART 1 GENERAL**

##### **1.01 SUMMARY**

- A. Materials and installation of an EIF System.

##### **1.02 DESIGN REQUIREMENTS**

- A. Wind Load
  - 1. Design for maximum allowable system deflection, normal to the plane of the wall, of L/240.
  - 2. Design for wind load in conformance with code requirements.
- B. Moisture Control
  - 1. Prevent the accumulation of water behind the EIF system, either by condensation or leakage through the wall construction, in the design and detailing of the wall assembly.
    - a. Provide flashing to direct water to the exterior where it is likely to penetrate components in the wall assembly, including, above window and door heads, beneath window and door sills, at roof/wall intersections, decks, abutments of lower walls with higher walls, above projecting features, and at the base of the wall.
    - b. Air Leakage Prevention—provide continuity of Air Barrier System at foundation, roof, windows, doors and other penetrations through the system with connecting and compatible Air Barrier components to minimize conservation and leakage caused by air movement.
    - c. Vapor Diffusion and Condensation-- perform a dew point analysis of the wall assembly to determine the potential for accumulation of moisture in the wall assembly as a result of water vapor diffusion and condensation. Adjust insulation thickness and/or other wall assembly components accordingly to minimize the risk of condensation. Avoid the use of vapor retarders on the interior side of the wall in warm, humid climates.
- C. Impact Resistance
  - 1. Provide ultra-high impact resistance to a minimum height of 6'-0" (1.8 m) above finished grade at all areas accessible to pedestrian traffic and other areas exposed to abnormal stress or impact. Indicate the areas with impact resistance other than "Standard" on contract drawings.
- D. Color Selection

1. Select finish coat with a light reflectance value of 20 or greater. (The use of dark colors is not recommended with EIFS Systems that incorporate expanded polystyrene [EPS]. EPS has a service temperature limitation of approximately 160° F [71°C]).
- E. Joints
1. Design minimum 3/4 inch (19 mm) wide expansion joints in the EIFS where they exist in the substrate or supporting construction, where the EIFS adjoins dissimilar construction or materials, at changes in building height, and at floor lines in multi-level wood frame construction.
  2. Design minimum 1/2 inch (13 mm) wide sealant joints at all penetrations through the EIFS (windows, doors, etc.).
  3. Specify compatible backer rod and sealant that has been evaluated in accordance with ASTM C 1382, "Test Method for Determining Tensile Adhesion Properties of Sealants When Used in Exterior Insulation and Finish System (EIFS) Joints," and that meets minimum 50% elongation after conditioning.
- F. Grade Condition
1. Do not specify EIFS below grade (unless designed for use below grade and permitted by code) or for use on surfaces subject to continuous or intermittent water immersion or hydrostatic pressure.
- G. Trim, Projecting Architectural Features and Reveals
1. All trim and projecting architectural features must have a minimum 1:2 [27°] slope along their top surface. All horizontal reveals must have a minimum 1:2 [27°] slope along their bottom surface. Increase slope for northern climates to prevent accumulation of ice/snow and water on surface. Where trim/feature or bottom surface of reveal projects more than 2 inches (51 mm) from the face of the EIFS wall plane, protect the top surface with waterproof base coat. Periodic inspections and increased maintenance may be required to maintain surface integrity of EIFS on weather exposed sloped surfaces. Limit projecting features to easily accessible areas and limit total area to facilitate maintenance and minimize maintenance. Refer to Sto details 1.04a and 1.04b.
  2. Do not use EIFS on weather exposed projecting ledges, sills, or other projecting features unless supported by framing or other structural support and protected with metal coping or flashing. Refer to Sto detail 1.61.
- H. Insulation Thickness
1. Minimum EPS insulation thickness is 1 inch (25 mm).
  2. Maximum EPS insulation thickness is 12 inches (305 mm) when installed in accordance with ICC-ES ESR 1720.
- I. Fire Protection
1. Where a fire-resistance rating is required by code use EIFS over rated assembly (EIFS is considered not to add or detract from the fire-resistance of the rated assembly).

2. Refer to manufacturer's applicable code compliance report for other limitations that may apply.

### 1.03 QUALITY ASSURANCE

#### A. Manufacturer requirements

1. Member in good standing of the EIFS Industry Members Association (EIMA).
2. System manufacturer for a minimum of twenty (25) years.
3. Manufacturing facilities ISO 9001-2000 certified Quality System.

#### B. Contractor requirements

1. Engaged in application of EIFS for a minimum of three (3) years.
2. Knowledgeable in the proper use and handling of Sto materials and possessing a certificate of completion of the on-line Sto application test.
3. Employ skilled mechanics who are experienced and knowledgeable in EIFS application, and familiar with the requirements of the specified work.
4. Successful completion of minimum of three (3) projects of similar size and complexity to the specified project.
5. Provide the proper equipment, manpower and supervision on the job site to install the system in compliance with Sto's published specifications and details and the project plans and specifications.

#### C. Insulation board manufacturer requirements

1. Recognized by Sto as capable of producing insulation board to meet system requirements, and hold a valid licensing agreement with Sto.
2. Listed by an approved agency.
3. Label insulation board with information required by Sto, the approved listing agency and the applicable building code.

#### D. Mock-up Testing

1. Construct full-scale mock-up of typical EIFS/window wall assembly with specified tools and materials and test air and water infiltration and structural performance in accordance with ASTM E 283, E 331 and E 330, respectively, through independent laboratory. Mock-up shall comply with requirements of project specifications. Where mock-up is tested at job site maintain approved mock-up at site as reference standard. If tested off-site accurately record construction detailing and sequencing of approved mock-up for replication during construction.

#### E. Inspections

1. Provide independent third party inspection where required by code or contract documents.

2. Conduct inspections in accordance with code requirements and contract documents.

#### 1.04 DELIVERY, STORAGE AND HANDLING

- A. Deliver all materials in their original sealed containers bearing manufacturer's name and identification of product.
- B. Protect coatings (pail products) from freezing and temperatures in excess of 90°F (32° C). Store away from direct sunlight.
- C. Protect portland cement based materials (bag products) from moisture and humidity. Store under cover off the ground in a dry location.

#### 1.05 COORDINATION/SCHEDULING

(The work in this section requires close coordination with related sections and trades)

- A. Provide site grading such that EIFS terminates above finished grade a minimum of 6 inches (152 mm) or as required by code.
- B. Provide protection of rough openings before installing windows, doors, and other penetrations through the wall and provide sill flashing.
- C. Install window and door head flashing immediately after windows and doors are installed.
- D. Install diverter flashings wherever water can enter the wall assembly to direct water to the exterior.
- E. Install copings and sealant immediately after installation of the EIF system and when EIFS coatings are dry.
- F. Attach penetrations through EIFS to structural support and provide water tight seal at penetrations

### PART 2 PRODUCTS

#### 2.01 MANUFACTURERS

- A. Provide EIFS System and accessories from single source manufacturer or approved supplier.
- B. The following are acceptable manufacturers:
  1. Sto Corp. — EIFS

#### 2.02 ADHESIVE (select one)

- A. Sto BTS® Plus—one-component, polymer-modified, cement based adhesive.
- B. Sto BTS® Silo—one-component, polymer-modified, cement based high build adhesive designed for use with StoSilo spray equipment.
- C. Sto BTS® Xtra—lightweight, one component, polymer-modified, cement based high build adhesive.

**2.03 INSULATION BOARD**

- A. Nominal 1.0 lb/ft<sup>3</sup> (16 kg/m<sup>3</sup>) Expanded Polystyrene (EPS) Insulation Board in compliance with ASTM E 2430 and ASTM C 578 Type I requirements.

**2.04 BASE COAT** (select A, B or C. Select D to supplement A, B or C on surfaces that require waterproofing)

- A. Sto BTS® Plus—one-component polymer modified cement based high build base coat with less than 33 percent portland cement content by weight and capable of achieving minimum 1/16 inch (1.6 mm) thickness in one pass.
- B. Sto BTS® Silo—one-component, polymer-modified, cement based high build adhesive designed for use with StoSilo spray equipment.
- C. Sto BTS® Xtra—light weight, one component, polymer modified, cement based high build factory blend base coat.
- D. Sto RFP—one-component ready mixed non-cementitious, fiber reinforced acrylic base coat.
- E. Sto Flexyl—two-component fiber reinforced acrylic based waterproof base coat mixed with portland cement.

**2.05 REINFORCING MESHES**

- A. Standard Mesh
1. Sto Mesh--nominal 4.5 oz./yd<sup>2</sup> (153 g/m<sup>2</sup>), symmetrical, interlaced open-weave glass fiber fabric made with alkaline resistant coating for compatibility with Sto materials (*achieves Standard Impact Classification*).
- B. Ultra-High Impact Mesh
1. Sto Armor Mat--nominal 15 oz./yd<sup>2</sup> (509 g/m<sup>2</sup>), ultra-high impact, double strand, interwoven, open-weave glass fiber fabric with alkaline resistant coating for compatibility with Sto materials (*recommended to a minimum height of 6'-0" [1.8m]above finished grade at all areas accessible to pedestrian traffic and other areas exposed to abnormal stress or impact. Achieves Ultra-High Impact Classification when applied beneath Sto Mesh*).

**2.06 PRIMER** (optional component)(select one)

- A. Sto Primer Sand —acrylic based tintable primer for roller application.
- B. Sto Primer Smooth – acrylic based tintable primer for roller or spray application.

**2.07 FINISH COAT**

- A. Stolit® Lotusan® —Acrylic based textured wall coating with the Lotus-Effect®, pronounced self-cleaning performance.

**2.08 JOB MIXED INGREDIENTS**

- A. Water--Clean and potable.

- B. Portland cement – ASTM C 150 Type I, Type II or Type I-II

### PART 3 EXECUTION

#### 3.01 INSTALLATION

- A. Install EIFS in compliance with manufacturer's published instructions.

#### 3.02 PROTECTION

- A. Provide protection of installed materials from water infiltration into or behind them.
- B. Provide protection of installed materials from dust, dirt, precipitation, freezing and continuous high humidity until they are fully dry.

#### ATTENTION

Sto products are intended for use by qualified professional contractors, not consumers, as a component of a larger construction assembly as specified by a qualified design professional, general contractor or builder. They should be installed in accordance with those specifications and Sto's instructions. Sto Corp. disclaims all, and assumes no, liability for on-site inspections, for its products applied improperly, or by unqualified persons or entities, or as part of an improperly designed or constructed building, for the nonperformance of adjacent building components or assemblies, or for other construction activities beyond Sto's control. Improper use of Sto products or use as part of an improperly designed or constructed larger assembly or building may result in serious damage to Sto products, and to the structure of the building or its components. **STO CORP. DISCLAIMS ALL WARRANTIES EXPRESS OR IMPLIED EXCEPT FOR EXPLICIT LIMITED WRITTEN WARRANTIES ISSUED TO AND ACCEPTED BY BUILDING OWNERS IN ACCORDANCE WITH STO'S WARRANTY PROGRAMS WHICH ARE SUBJECT TO CHANGE FROM TIME TO TIME.** For the fullest, most current information on proper application, clean-up, mixing and other specifications and warranties, cautions and disclaimers, please refer to the Sto Corp. website, [www.stocorp.com](http://www.stocorp.com).