



Building with conscience.

StoLite™ Panel

Installation Guide

Series 50s.xx | May 2020

Facades



Insulated Prefabricated Panels





Fabrication and Installation Guide

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ATTENTION

The final design of any project is the sole responsibility of the Design Professional, with considerations for compliance of local building and design codes and requirements. Sto Corp. accepts no liability for design, engineering, or workmanship of any project. The information provided herein is in addition to other technical data provided by Sto Corp. (System Bulletin, Specification, Guide Details, etc). For more information, please visit www.stocorp.com

Sto Corp.

3800 Camp Creek Pkwy. SW
Bldg. 1400 • Suite 120
Atlanta, GA 30331
Tel: (800) 221-2397
Fax: (404) 346-3119
<http://www.stocorp.com>
helpdesk.stocorp.com



General

One of the most important aspects of successful StoLite panel fabrication and installation is to determine the size of StoLite panels based on accurate field measurements and to create shop drawings. The shop drawings should identify panel types, size, location and spacing of reinforcing channels, location of aesthetic features, and the final location of the panels on building elevations. The location of joints between panels, whether panels are staggered or stacked, and the effect of these decisions on aesthetics must also be taken into account. Construction of a mock-up wall with critical details such as interface with windows, detailing at grade, and at floor lines, wall penetrations and parapets, is recommended for review and approval by the appropriate authority. Note that panel size is limited by the practical constraints of adhesive application in the field as part of the attachment method for panels, as well as the ability of installers to lift and mount panels by hand.

There are two methods of panel attachment to the structural wall:

1. Adhesive and Back-fastening Method: maximum recommended size of panels is 8 x12 ft (2.43x3.65m) when the adhesive and back-fastening method is used to attach panels to supporting construction. The longest length or width of panels is 12 ft (305mm). Ultimate wind load resistance for this attachment method is: +125 lb/ft², -125 lb/ft² (+5.98 kPa, - 5.98 kPa).
2. Adhesive and Clip Method: maximum recommended size of panels is 4x8 ft (1.21x2.43m) when the adhesive and clip method is used to attach panels to supporting construction. The longest length or width of panels is 8 ft (2.43m). Ultimate wind load resistance for this attachment method is: +125 lb/ft², -24 lb/ft² (+5.98 kPa, - 0.95 kPa).

IMPORTANT: a qualified design professional must determine design wind pressures for the project and apply an appropriate safety factor to ultimate loads as required by building codes to verify adequacy of the proposed attachment method.

For best results and for optimum drying and working time of products, fabricate panels in an interior environment with temperatures controlled between 50 and 80 degrees F (10 and 26.7 degrees C). Fabricate panels on flat, level tables, and store them inside in a clean environment until ready for delivery and installation at the job site.

As a final note, StoLite Panels are intended for use on vertical above grade exterior wall construction. They are not intended for use on ceilings, soffits, roofs or roof-like surfaces, nor for horizontal ledges, sills, or other projecting features. Refer to the StoLite Panel Detail Booklet for further guidance.

Sto EPS Insulation Board

IMPORTANT: maximum total thickness of insulation board is 12 inches (305 mm). This includes trim or build-outs.

1. Sto EPS Insulation Board must conform with the requirements of ASTM E2485 (except for size). It must be fully cured and purchased from a licensed Sto EPS Insulation Board molder. Boards can be produced in billets to match panel sizes or they can be cut to size, or several billets can be “welded” together with adhesive to make the appropriate size panel.
2. Cut insulation boards to the required size based on field dimensions and shop drawings indicating size, location, and layout of panels, making sure to account for the joint between panels and the added dimension along ends and edges of the panels created by the reinforced base coat that is wrapped around ends/edges of the panel (see Backwrapping, C1 below). Where separate blocks of insulation board are used to create the panel, glue the edges of the blocks together with appropriate adhesive on a flat, level table and clamp them together until the adhesive sets.



Channel Reinforcement

1. Slots for C-Channel: score grooves matching the channel profile on the back of the insulation boards with a saw or hot knife and blow away debris and EPS beads with oil-free compressed air. Grooves are typically spaced so that channels are either 16 or 24 inches (406 or 610 mm) on center and not more than 12 inches (305 mm) at their centerline from panel edges.
2. Slot for Clips: create a slot where panel clips are installed for mounting of panels that align with stud locations at 16 or 24 inches (406 or 610mm) on center, making sure to allow for proper thickness of EPS insulation board (minimum 1 inch, [25mm]) above the slot. Remove insulation beneath the slots in a wedge shape by rasping or cutting insulation so the clips can slide into the slots when panels are mounted onto walls.
3. C-Channel Installation: apply adhesive to the flat area between the grooves allowing it to “drizzle” into the grooves and immediately place the channel with firm uniform pressure. Allow adhesive to set until the channels are held firmly in place.

Backwrapping

1. Apply a strip of detail mesh on the back of the panels at all ends and edges. The mesh must be wide enough to adhere approximately 4 inches (100 mm) of mesh onto the back of the panels, be able to wrap around the panel ends/edges and cover a minimum of 2 ½ inches (64 mm) on the outside surface of the panel. Make sure to fully embed the mesh in the base coat.

Aesthetic Features

1. Trim and Build-outs: attach Sto EPS board trim/build-outs where designated on shop drawings with Sto TurboStick adhesive to the base layer of the StoLite Panel EPS. Note that trim must conform with size limitations for standard Sto EPS Insulation Board of 2x4ft (0.6x1.2m) and maximum total thickness of EPS is limited to 12 inches (305mm). Fill any gaps between the trim and base layer of StoLite Panel with the adhesive and rasp flush with the trim/build-out surface. Slope the top surface of all trim/build-outs minimum 1:2 (27°).
2. Reveals: cut reveals/aesthetic grooves with a hot-knife, router or groove-tool in locations indicated on drawings. Slope the bottom surface of reveals minimum 1:2 (27°). Make sure the depth of any reveal allows for a minimum of 1 inch (25mm) between the flange of the reinforcing channel and the bottom of the reveal and 1-1/2 inches (51mm) between the bottom of the reveal and the back surface of the panel. Offset reveals/aesthetic grooves minimum 3 inches (75 mm) from insulation board joints, C-Channels, and from ends or edges of panels. Do not locate reveals/aesthetic grooves at high stress locations such as parallel to and immediately over a C-channel flange.

Base Coat and Reinforcing Mesh Application

1. Before applying the base coat and reinforcing mesh, fully rasp the insulation board surface to achieve a true, even plane that breaks the EPS bead surface.
2. Ultra-High Impact Mesh Application (recommended 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, and where indicated on contract drawings): apply base coat over the insulation board with a stainless steel trowel to a uniform thickness of approximately 1/8 inch (3 mm). Work horizontally or vertically in strips of 40 inches (1016 mm), and immediately embed the mesh into the wet base coat by troweling from the center to the edge of the mesh. Butt ultra-high impact mesh at seams. Allow the base coat to dry.
3. Detail Mesh Application at Build-Outs and Reveals: apply detail mesh at trim, reveals and build-outs. Embed the mesh in the wet base coat. Trowel from the base of reveals to the edges of the mesh and overlap minimum 2-1/2 inches onto the surface of the panel from the reveal or the build-out.



Base Coat and Reinforcing Mesh Application (cont'd)

4. Standard mesh application: apply base coat over the insulation board, including areas with Ultra-High impact mesh, with a stainless steel trowel to a uniform thickness of approximately 1/8 inch (3 mm). Work horizontally or vertically in strips of 40 inches (1016mm), and immediately embed the mesh into the wet base coat by troweling from the center to the edge of the mesh. Overlap mesh not less than 2-1/2 inches (64 mm) at mesh seams, overlaps of detail mesh, and at backwrap overlaps. Feather seams and edges. Double wrap all inside and outside corners with minimum 6 inch (152 mm) overlap in each direction. Avoid wrinkles in the mesh. The mesh must be fully embedded so that no mesh color shows through the base coat when it is dry. Re-skim with additional base coat if mesh color is visible.

5. Sloped Surfaces: for trim, reveals, aesthetic bands, cornice profiles, sills or other architectural features that project beyond the vertical wall plane more than 2 inches (51 mm) and less than 4 inches (102 mm), apply waterproof base coat with a stainless steel trowel to the sloped surface and minimum four inches (102 mm) above and below it. Embed standard mesh or detail mesh in the waterproof base coat and overlap mesh seams a minimum of 2-1/2 inches (65 mm). Allow base coat to thoroughly dry before applying primer or finish.

NOTE: 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) and up to a maximum of 4 inches (102mm) from the face of the wall plane, protect the weather exposed sloped surface with waterproof base coat. If projection exceeds 2 inches (51mm) protect the sloped surface with StoColor Acryl Plus applied on the slope and slightly around the nosing of the slope. Periodic inspections and increased maintenance may be required to maintain surface integrity of the panel finish on sloped, weather exposed surfaces. Limit projecting features to easily accessible areas and limit total area to facilitate maintenance and to minimize maintenance burden. Refer to Sto Details.

Primer application

NOTE: The primer is an optional component [except for some specialty finishes], which reduces surface water absorption of the base coat and enhances finish color, texture, and coverage.

1. Ensure the base coat surface is free of surface contamination before commencing the primer application. Apply primer evenly with brush, roller or proper spray equipment over the clean, dry base coat and allow to dry thoroughly before applying finish.

Finish Coat Application

1. Ensure the base coat surface or primed base coat is free of surface contamination before commencing the finish application.

2. Apply finish directly over the base coat or primed base coat when dry. Apply finish by spray or stainless steel trowel, depending on the finish specified. Follow these general rules for application of finish:

- Avoid application in direct sunlight.
- Apply finish in a continuous application, and work to an architectural break in the wall.
- Weather conditions affect application and drying time. Hot or dry conditions limit working time and accelerate drying. Adjustments in the scheduling of work may be required to achieve desired results. Cool or damp conditions extend working time and retard drying and may require added measures of protection against wind, dust, dirt, rain and freezing. Adjust work schedule and provide protection.
- Do not install separate batches of finish side-by-side. Apply separate batches on different elevations or at other architectural breaks in the wall surface.
- Do not apply finish into or over sealant joints. Apply finish to outside face of wall only.
- Do not apply finish over irregular or unprepared surfaces, or surfaces not in compliance with the requirements of the project specifications.

NOTE: For application of Stolit Milano and other Sto specialty finishes refer to individual Product Bulletins.



Site Preparations Prior to Erection of StoLite Panels

Air and Moisture Barrier: StoGuard®, the air and moisture barrier component of the StoLite Panel wall assembly, is installed on site prior to installation of StoLite panels. The primary air and moisture barrier component within the StoGuard family of products is Sto Gold Coat, a liquid applied air and moisture barrier. All surfaces to which Sto Gold Coat is applied must be clean, dry, and free of any surface contamination (salts, dust, dirt, oils, or other surface contamination) that could interfere with adhesion. Sto Gold Coat can be left exposed for up to 180 days once installed. Several transition or detailing components are available within the StoGuard family of products and must be used at specific transition areas such as at sheathing joints, transitions to flashing, transitions between dissimilar materials, rough opening protection, and pipe, scupper and other through wall penetrations, for air barrier continuity. In some cases another air barrier material, for example, a roof or foundation membrane, may come in contact with StoGuard, in which case, compatibility tests should be done to verify adhesion and no adverse reactions between the two materials. For complete details on installation refer to the StoGuard installation materials at: www.stocorp.com

Adhesive and Clip Attachment Method

(For panels up to 4x8 ft [1.21x2.43m] with maximum length or width of 8 ft [2.43m]).

1. Mounting Clip: attach mounting clips to supporting construction at 16 or 24 inches (406 or 610mm) on center horizontally, making sure that rows of clips are level, and align with slots formed in the back of panels. Use two screws per clip. Screws (by others) must be corrosion resistant and appropriate for the structural support: typically Type S-12 self-drilling screws for 16 or 18 gage steel framing with minimum three thread penetration into steel, Hi-Lo screws for wood framing with minimum 1 inch penetration into wood, and Tapcon screws for concrete or concrete masonry with minimum 1 inch penetration.

NOTE: a qualified design professional must determine design wind pressures for the project and apply an appropriate safety factor to ultimate loads as required by building codes to verify adequacy of the proposed attachment method, which includes verifying pullout or withdrawal capacity of screws in relation to design wind pressures, with appropriate safety factor applied.

2. Adhesive Application to panels: apply Sto TurboStick adhesive to the back of panels with ribbons spaced 5-6 inches (13-15 cm) apart in the field of the panels and ½ inch (51mm) from ends of panels. Ribbons must be parallel to each other and oriented vertically when the panel is placed on the wall. Immediately after adhesive is applied hang the panels on the clips and press the panel into place making sure to obtain adhesive contact with the substrate. Allow adhesive to dry without disturbance. Note: Sto TurboStick is a moisture cure adhesive and dries faster with high humidity and/or high temperature, slower with low humidity and/or low temperature. Under normal application range of 50-80 degrees F (10 – 23 degrees C), and 40-80% RH, the adhesive should dry within ½ to 2 hours. If rain, hail, snow, freezing conditions, or high winds are imminent, postpone adhesive application until more moderate weather conditions prevail.

Adhesive and Back-fastening Attachment Method

(For panels up to 8x12 ft [2.43x3.65m] with maximum length or width of 12 ft [3.65m])

General: Back-fastening requires access from the interior of the structure BEFORE drywall or other interior wall covering is in place to enable attachment with fasteners through metal studs (or corrugated metal building) into the back of StoLite Panel C-Channels. Work crews on the interior and exterior must coordinate location of panels to assure attachment from the inside into C-Channels. Screw fasteners must have sufficient length to assure minimum 3-thread penetration into C-Channels and studs (or corrugated metal) with fasteners spaced along stud lines (or corrugated metal ribs) no more than 16 inches (406mm) on center horizontally and no more than 24 inches (610mm) on center vertically.



Adhesive and Back-fastening Attachment Method (cont'd)

(For panels up to 8x12 ft [2.43x3.65m] with maximum length or width of 12 ft [3.65m])

1. Adhesive Application to panels: apply Sto TurboStick adhesive to back of the panels with ribbons spaced 5-6 inches (13-15 cm) apart in the field of the panels and ½ inch (51mm) from ends of panels. Ribbons must be parallel to each other and oriented vertically when the panel is placed on the wall.

NOTE: Sto TurboStick is a moisture cure adhesive and dries faster with high humidity and/or high temperature, slower with low humidity and/or low temperature. Under normal application range of 50-80 degrees F (10 – 23 degrees C), and 40-80% RH), the adhesive should dry within ½ to 2 hours. If rain, hail, snow, freezing conditions, or high winds are imminent, postpone adhesive application until more moderate weather conditions prevail.

2. Back-fastening: immediately after adhesive is applied place the panel into its proper location against the wall surface and secure it firmly into place by back-fastening from the interior, making sure fasteners engage with the centerline of C-channels. A temporary support for the first course of panels and spacers for subsequent courses will aid in positioning panels and keeping them in place as the fastening attachment is completed for each panel.

Post Panel Installation

General: after panels are installed provide protection against water infiltration with proper flashing, parapet coping and other measures necessary to keep water from getting behind the panels. Install compatible backer rod and sealant at panel-to-panel joints and where panels abut dissimilar materials – doors, windows, pipes, scuppers, and other penetrations through the wall.

Protect panels from dirt, dust, and construction damage after they are installed.

Maintenance: clean and maintain the finished wall surface for a fresh appearance and to prevent water entry into or behind the panels. Repair cracks, impact damage, spalls, or other damage promptly. Maintain other components of construction such as sealants, windows, doors, and flashing to prevent water entry into or behind the panels. Refer to Sto reStore Repair and Maintenance Guide for detailed information on cleaning, recoating, resurfacing and refinishing, at www.stocorp.com

ATTENTION

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