

Sto Canada Master Specification	Continuous Insulation Cladding System
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SPEC NOTE: This master specification section includes SPEC NOTEs for information purposes and to assist the design/construction professional in making appropriate decisions. A SPEC NOTE always immediately precedes the text to which it is referring. This specification Section serves as a guideline only for StoTherm ci Mineral and should be edited with deletions and additions to meet specific project requirements.

SPEC NOTE: The incorporation of components indicated in this Section within the wall assembly are not intended to correct faulty design, workmanship, or faulty components of construction such as leaky windows or window installations. As with any exterior wall assembly the proper detailing and integration of components to direct water to the exterior, in particular the proper use and integration of flashing, is essential.

SPEC NOTE: This specification Section offers a choice of adhesives and base coat materials to suit different conditions at the site. Sto BTS Plus and Sto BTS Xtra are base coats evaluated by Intertek to comply with both Article 3.1.5.5 and Clause 3.2.3.8.(1)(b) of the National Building Code of Canada. The StoTherm ci Mineral System with stone wool insulation is suitable for non-combustible construction for all occupancies and set-back conditions defined in the National Building Code of Canada 2015.

PART 1: GENERAL

1.1 SUMMARY

- .1 This Section includes requirements for supply and installation of a continuous insulation (ci) cladding system applied to concrete, masonry or sheathing substrates, and complete with air and moisture barrier, adhesive or mechanical fasteners, continuous insulation, reinforcing mesh, base coat, primer and finish coating.

SPEC NOTE: Include in this paragraph only those sections and documents that directly affect the work of this section. Do not include Division 00 Documents or Division 01 Sections since it is assumed that all technical sections are related to all project Division 00 Documents and Division 01 Sections to some degree. Refer to other documents with caution since referencing them may cause them to be considered a legal part of the Contract. Edit the following paragraphs to suit specific project conditions.

1.2 RELATED REQUIREMENTS

- .1 Section 03 30 00: Cast-In-Place Concrete
- .2 Section 04 20 00: Unit Masonry
- .3 Section 06 10 00: Rough Carpentry
- .4 Section 07 26 00: Vapour Retarders
- .5 Section 07 27 00: Air Barriers
- .6 Section 07 50 00: Membrane Roofing
- .7 Section 07 62 00: Sheet Metal Flashing and Trim
- .8 Section 07 92 00: Joint Sealants

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- .9 Section 08 40 00: Entrances, Storefronts, and Curtain Walls
- .10 Section 08 50 00: Windows
- .11 Section 09 21 16: Gypsum Board Assemblies
- .12 Section 10 14 00: Signage

1.3 REFERENCES

- .1 American Society for Testing and Materials
 - .1 ASTM C612 Specification for Mineral Fiber Block and Board Thermal Insulation
 - .2 ASTM C1382 Standard Test Method for Determining Tensile Adhesion Properties of Sealants When Used in Exterior Insulation and Finish Systems (EIFS) Joints
 - .3 ASTM C1481 Standard Guide for Use of Joint Sealants with Exterior Insulation and Finish Systems (EIFS)
 - .4 ASTM E283 Standard Test Method for Determining Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen
 - .5 ASTM E330 Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Static Air Pressure Difference
 - .6 ASTM E331 Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Uniform Static Air Pressure Difference
 - .7 ASTM E2178 Standard Test Method for Air Permeance of Building Materials
 - .8 ASTM E2357 Standard Test Method for Determining Air Leakage of Air Barrier Assemblies
- .2 Underwriters Laboratories of Canada (ULC)
 - .1 ULC S101 Standard Methods of Fire Endurance Tests of Building Construction and Materials
 - .2 ULC S114 Standard Method of Test for Determination of Non-Combustibility in Building Materials
 - .3 ULC S702 Standard for Mineral Fibre Thermal Insulation for Buildings
 - .4 ULC S716.1 Annex H, Wind Load Testing
 - .5 ULC S716.2 Standard for Exterior Insulation and Finish Systems (EIFS) - Installation
 - .6 ULC S716.3 Standard for Exterior Insulation and Finish Systems (EIFS) – Design Application
- .3 Industry Publications
 - .1 EIFS Council of Canada EIFS Practice Manual Version 1.0
- .4 Proprietary Publications
 - .1 StoGuard® Air Barrier Installation Manual
 - .2 StoTherm EIFS Reference Guide: Repair and Maintenance

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SPEC NOTE: Refer to EIFS Practice Manual for a list of relevant terms and definitions. Include definitions deemed necessary below for this Section or reference the Manual.

1.4 DEFINITIONS

- .1 Refer to EIFS Practice Manual

1.5 ADMINISTRATIVE REQUIREMENTS

- .1 Coordination: Coordinate the Work of this Section with the installation of substrate. Sequence work so that installation of ci cladding system coincides with installation of substrate materials without causing delay to the Work. Comply with ci cladding system manufacturer's written recommendations for sequencing construction operations with other Work.
- .2 Pre-Installation Conference: Conduct on-site pre-installation conference in accordance with Section 01 31 19 – Project Meetings before installing ci cladding system and in conjunction with installation of mock-up attended by Contractor, Consultant, Owner, ci Cladding System contractor, adjacent trades, and system manufacturer's representative to:
 - .1 Review methods and procedures related to installation, including manufacturer's written instructions.
 - .2 Coordinate sequence of installation in connection with adjacent trades.
 - .3 Examine substrate conditions for compliance with manufacturer's installation requirements.
 - .4 Review temporary protection measures required during and after installation.

1.6 SUBMITTALS

- .1 Provide requested information in accordance with Section 01 33 00 Submittals Procedures.
- .2 Action Submittals: Provide the following submittals before starting any work of this Section:
 - .1 Product Data: Submit manufacturer's product data for each type of product specified and manufacturer's guide details.
 - .2 Samples for Initial Selection: Submit one (1) sample panel, 150 mm x 150 mm (6" x 6") for each colour and texture, for review by the Consultant, on backing of manufacturer's choice.
 - .3 Samples for Verification: Submit two (2) samples 300 mm x 300 mm (12" x 12") for colour and texture verification for each finish specified in this Section prior to ordering products from ci cladding system manufacturer.
- .3 Informational Submittals: Provide other information as requested by the Design Professional or Consultant.

1.7 CLOSEOUT SUBMITTALS

- .1 Operation and Maintenance Data: Submit manufacturer's written instructions for cleaning solutions, materials and procedures. Include name of original installer and contact information in accordance with Section 01 78 23 Operation and Maintenance Data.
 - .1 Provide specific warning of any maintenance practice or materials that may damage or disfigure the finished Work.
 - .2 Provide a complete list of repair and replacement parts with cuts and identifying numbers.

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- .3 Include:
 - .1 Finish coat colour batch numbers.
 - .2 Identification of each type of reinforcing mesh used.
 - .3 Identification of adhesive or mechanical fastener, base coat, primer and finish coat products used.

1.8 DESIGN AND PERFORMANCE REQUIREMENTS

- .1 Design:
 - .1 Structural:
 - .1 Design Professional shall design back-up wall construction for ci cladding assembly to comply with L/240 deflection criteria and applicable requirements of NBC 2015.
 - .2 Ultimate wind load resistance: -4500 Pa (-94 psf)
 - .2 Design Professional shall provide sufficient details on drawings to demonstrate compliance with NBC 2015 Division C Sentence 2.2.5.2.(1).
 - .3 Design details shall follow sound design principles for moisture control:
 - .1 Prevent the accumulation of water into or behind the ci cladding system, either by condensation or leakage into the wall construction, in the design and detailing of the wall assembly:
 - .1 Provide corrosion-resistant flashing to protect exposed elements and to direct water to the exterior, including: above window and door heads, beneath window and door sills, at floor lines (when or as deemed necessary by the design professional), at roof/wall intersections, decks, abutments of lower walls with higher walls, above projecting features, and at the base of the wall.
 - .2 Air Leakage Prevention: Prevent excess air leakage in the design and detailing of the wall assembly. Provide continuity between air barrier components in the wall assembly.
 - .3 At expansion joints, back joints with transition membrane.
 - .4 Seal ci cladding system terminations with sealant in conformance with ASTM C1382 and ASTM C1481.
 - .4 Design details at grade:
 - .1 Do not specify ci cladding system for use below grade or on surfaces subject to continuous or intermittent water immersion or hydrostatic pressure. Provide minimum 200 mm (8") clearance above earth grade, minimum 51 mm (2") clearance above finished grade (pavers/sidewalk). Provide increased clearance in freeze/thaw climate zones.
 - .2 Ensure use of Armor Mat for increased impact resistance of system to 2000 mm (6.5') minimum above grade and in other locations indicated on architectural drawings.

SPEC NOTE: Periodic inspections and increased maintenance may be required to maintain surface integrity of finishes on weather-exposed sloped surfaces. Limit projecting features to easily accessible areas and limit total area to facilitate maintenance and to minimize maintenance burden. Refer to EIFS Practice Manual 2.10.1 Design Considerations.

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- .5 Design of sloped or horizontal surfaces (Including Trim and Projecting Architectural Features):
 - .1 Avoid the use of ci cladding system on build-outs or weather-exposed sloped and horizontal surfaces.
 - .2 Do not use ci cladding system 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.
- .6 Design of joints and joint accessories:
 - .1 Provide expansion joints in the ci cladding system where building movement is anticipated (refer to ULC S716.3, clause 13.1.1):
 - .1 at expansion joints, deflection joints, or other movement joints in the substrate or supporting construction,
 - .2 where the system is to be installed over dissimilar construction or substrates,
 - .3 at changes in building height, or any other areas of anticipated building movement or stress lines in the construction,
 - .4 at floor lines in wood frame construction or other construction types where vertical shrinkage is expected to occur,
 - .5 at cold or control joints in concrete, masonry, or concrete masonry.
 - .2 Back expansion joints, deflection joints, and other movement joints with transition membrane to provide a secondary seal at the joint location.
 - .3 Provide minimum 13 mm (1/2") wide joints where the system abuts windows, doors and other through wall penetrations.
 - .4 Provide appropriate sealant at ci cladding system terminations.
 - .5 Indicate location of joints, size of joints, and joint design on architectural drawings.
- .2 Material and Assembly Performance:
 - .1 Continuous Insulation: Compliant with CAN/ULC S702 or ASTM C612 Type IV requirements.
 - .2 Air Barrier Material Air Leakage Resistance, ASTM E2178: less than 0.02 L/s·m² @ 75 Pa (0.004 cfm/ft² @ 1.57 lb/ft²)
 - .3 Air Barrier Assembly Air Leakage Resistance, ASTM E2357: less than 0.2 L/s·m² @ 75 Pa (0.04 cfm/ft² @ 1.57 lb/ft²)
 - .4 Base Coat: Compliant with CAN/ULC S114
 - .5 Wall Assembly Water Penetration Resistance, ASTM E331: no water penetration
 - .6 Wall Assembly Wind Load Resistance, ULC/S716.1-Annex H, ASTM E330 Procedure B: Complies with CAN ULC 716.1-Annex H requirements. Ultimate wind load achieved: -4500 Pa (-94 psf) when installed over minimum 18 gage, 150 mm (6") deep metal studs spaced maximum 406 mm (16") on center with 16 mm (5/8") glass mat gypsum sheathing attached 200 mm (8") on center maximum.
 - .7 Wall Assembly Fire Endurance, CAN/ULC S101: comply with NBC 2015

1.9 QUALITY ASSURANCE

- .1 Qualifications: Provide proof of qualifications when requested by Consultant:

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- .1 Contractor: Execute Work of this Section using qualified personnel skilled in installation of work of this Section, having a minimum of three (3) years proven experience of installations similar in material, design, and extent to that indicated for this Project. Installation shall comply with ULC S716.2 in conjunction with manufacturer's installation guide and EIFS Practice Manual.

Contractor: Execute Work of this Section using qualified personnel skilled in installation of work of this Section, having a minimum of three (3) years proven experience of installations similar in material, design, and extent to that indicated for this Project. *SPEC NOTE: Mock-ups establish quality of work and sequence of installation for the materials indicated in this Section. Delete the following paragraph if the scope of work in this section is minimal and a mock-up is not required. Add or delete tests consistent with the size and scope of the project and an appropriate level of field quality control.*

1.10 MOCK-UPS

- .1 Sample Installation: Construct a sample installation to verify selections made under sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution of Work in accordance with Section 01 45 00 Quality Control.
- .1 Construct mock-up of typical cladding/window assembly with specified tools and materials and test air and water infiltration resistance in accordance with ASTM E283 and ASTM E331 respectively. Test structural capacity in accordance with ASTM E330. Test through independent testing agency.
- .1 When tested to ASTM E283, verify that the assembly meets the air leakage requirements for an air barrier system of 0.2 L/s/m².
- .2 When tested to ASTM E331, verify that no water passes inbound of the air barrier system.
- .3 Establish and conduct field water spray test method to verify no leakage of window assembly into the wall.
- .4 When tested to ASTM E330, verify conformance with design wind pressure requirements.
- .2 Verify adequacy of pull-out or withdrawal capacity of fasteners with fastener manufacturer in relation to design negative wind pressures.
- .3 Conduct wet sealant adhesion testing in accordance with sealant manufacturer's field quality control test procedure.
- .2 Notify Consultant a minimum of seven (7) days prior to testing.
- .3 Once reviewed by Consultant, acceptable sample installation can form a permanent part of the Work, and will form the basis for acceptance for the remainder of the project.

1.11 DELIVERY, STORAGE AND HANDLING

- .1 Delivery and Acceptance Requirements: Deliver and store packaged materials in their original containers with manufacturer's labels and seals intact.
- .2 Store as recommended by manufacturer in a weatherproof enclosure, and protect materials during handling and application to prevent damage.
- .1 Store stone wool insulation in a well-ventilated unheated room or in an open area covered with a tarpaulin. Prevent exposure to water (rain or snow), direct heat or sun.

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- .2 Store reinforcing mesh cartons on side (not upright) in dry area protected from sunlight.
- .3 Protect coatings (pail products) from freezing and temperatures in excess of 32 deg C (90 deg F) and store away from direct sunlight.
- .4 Protect portland cement based materials (bag products) from extreme heat (32 deg C [90 deg F]), moisture, humidity and freezing. Store under cover, off the ground, and in a dry location.
- .3 Handle all products as directed on labeling.

1.12 SITE CONDITIONS

- .1 Ambient Conditions: Proceed with installation when ambient and substrate temperature conditions are within limits permitted by manufacturer and when substrates are free from dirt or wetness arising from frost, condensation, or other causes detrimental to adhesion or drying of wet components.
 - .1 Temperature Range: Above 4 deg C (40 deg F) during application and for 24 hours minimum after set of ci cladding system components and finish materials.
 - .2 Provide supplementary heat for installation in temperatures less than 4 deg C (40 deg F) such that material temperatures are maintained as indicated above. Prevent concentration of heat on uncured ci cladding system and vent fumes and other products of combustion to the outside to prevent contact with ci cladding system.
 - .3 Prevent uneven or excessive evaporation of moisture from ci cladding system during hot, dry or windy weather. Do not install ci cladding system materials if ambient temperatures are expected to rise above 38 deg C (100 deg F) within a 24-hour period.
 - .4 Provide protection of surrounding areas and adjacent surfaces from application of materials.

1.13 WARRANTY

- .1 Provide manufacturer's standard limited warranty.

PART 2: PRODUCTS

2.1 MANUFACTURER

- .1 Continuous Insulation cladding system specified herein is supplied by:

Sto Canada Ltd.
1821 Albion Road
Unit 1-2
Etobicoke, ON M9W 5W8
Phone: 416 855 0460
URL: www.stocanada.com

2.2 MATERIALS

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SPEC NOTE: The StoGuard air barrier assembly is to be installed as per StoGuard® Air Barrier Installation Manual.

SPEC NOTE: Select one of the sheathing joint treatment options and delete the ones not required on the project.

SPEC NOTE: Select one of the rough opening protection options and delete the ones not required on the project.

- .1 Fluid Applied Air and Moisture Barrier: Consisting of the following multiple compatible components:
 - .1 One component, ready-mixed flexible air and moisture barrier, compatible for application on wood or gypsum sheathing, concrete, and concrete masonry substrates.
 - .1 Basis-of-Design Material: Sto Gold Coat by Sto Canada.
 - .2 Sheathing joint treatment: One component quick-drying air and moisture barrier material to seal sheathing joints, seams, cracks and transitions in above grade wall construction.
 - .1 Basis-of-Design Material: Sto RapidGuard by Sto Canada.
 - .3 Rough opening protection: One component quick-drying air and moisture barrier material for rough opening protection.
 - .1 Basis-of-Design Material: Sto RapidGuard by Sto Canada.
 - .4 Mesh reinforced joint treatment and rough opening protection: Nominal 142 g/m² (4.2 oz/yd²), self-adhesive, flexible, symmetrical, interlaced glass fibre mesh, with alkaline resistant coating for compatibility with Sto materials, used with acrylic elastomeric joint filler to reinforce rough openings, inside and outside corners, sheathing joints, and connections with flashing.
 - .1 Basis-of-Design Material: StoGuard Mesh with Sto Gold Fill by Sto Canada.
 - .5 Fabric reinforced joint treatment and rough opening protection: non-woven cloth reinforcement used with Sto Gold Coat to reinforce rough openings, inside and outside corners, sheathing joints, and connections with flashings.
 - .1 Basis-of-Design Material: StoGuard Fabric with Sto Gold Coat
 - .6 Tape for rough opening protection: Self-adhering rubberized asphalt tape for rough opening protection in wood or metal frame construction.
 - .1 Basis-of-Design Material: StoGuard Tape by Sto Canada.
 - .7 Primer for use with StoGuard Tape.
 - .1 Basis-of-Design Material: StoGuard Primer by Sto Canada.
 - .8 Transition Membrane: Flexible air barrier membrane, 0.64 mm (25 mils, 0.025”) thick, designed to detail transition areas and achieve continuity of the air barrier assembly, and functions as a secondary weather seal at joints in construction.
 - .1 Basis-of-Design Material: StoGuard Transition Membrane by Sto Canada

SPEC NOTE: The drainage medium provides a 10 mm cavity behind slab insulation for drainage. As an alternative vertical ribbons of adhesive may be used with stone wool lamella insulation to create the drainage cavity where less than 10 mm cavity is permitted by

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applicable code. The drainage medium may be omitted if permitted by the design professional or AHJ (Authority Having Jurisdiction).

- .2 Drainage Medium
 - .1 Tangled filament nylon core drainage mat with fabric facing, 10 mm thick
 - .1 Basis-of-Design Material: Sto DrainScreen 10mm by Sto Canada
- .3 Continuous Insulation:
 - .1 Noncombustible stone wool insulation manufactured in accordance with CAN/ULC S702 or ASTM C612 Type IV and tested in accordance with CAN/ULC S114, thickness as indicated on drawings.

SPEC NOTE: StoTherm ci Mineral uses stone wool lamella boards ('lamellas') adhesively attached, or stone wool slabs mechanically fastened. Select one of the following stone wool options, and delete the one not required on the project:

- .1 Stone wool lamella insulation, nominal dimensions 150 mm X 1220 mm (6" x 48"), density 96 kg/m³ (6 lb/ft³), cross cut so fibre orientation will be perpendicular to the surface of the wall when installed.
- .2 Stone wool slab insulation, nominal dimensions 610 mm X 1220 mm (24" x 48"), density 128 kg/m³ (8 lb/ft³).

SPEC NOTE: Verify acceptance of less than 10 mm drainage cavity with local code authority before selecting the adhesive method of installation. Select one of the following adhesive options for lamella board insulation, and delete the adhesive not required on the project. Omit adhesive if slab insulation is used.

- .4 Insulation Adhesive:
 - .1 Single component polymer modified factory-blended portland cement-based adhesive.
 - .1 Basis-of-Design Material: Sto BTS Xtra by Sto Canada.
 - .2 Single component polymer modified factory-blended portland cement-based adhesive.
 - .1 Basis-of-Design Material: Sto BTS Plus by Sto Canada.

SPEC NOTE: Select one of the following fastener options, and delete the fastener not chosen. Refer to fastener manufacturer's literature for fastener type relative to substrate and minimum penetration into substrate, and for fastener pull-out values. Verify acceptable pull-out values relative to design wind pressures with appropriate safety factor.

- .5 Fasteners
 - .1 Wind-lock ULP-302 fastener disk with appropriate fastener.
 - .2 Wind-Devil 2 fastener disk with appropriate fastener.

SPEC NOTE: Select one of the following base coat options, and delete the base coat not required on the project.

- .6 Base Coat:

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- .1 Light-weight one component polymer modified factory-blended portland cement-based extra high build base coat material.
 - .1 Basis of Design Material: Sto BTS Xtra by Sto Canada.
- .2 One-component polymer modified factory-blended portland cement-based high build base coat.
 - .1 Basis of Design Material: Sto BTS Plus by Sto Canada.
- .7 Detail Reinforcing Mesh:
 - .1 Nominal 143 g/m² (4.2 oz/yd²), flexible, symmetrical, interlaced open-weave glass fibre mesh treated with alkaline resistant coating for compatibility with Sto materials used for standard back wrapping and aesthetic detailing.
 - .1 Basis of Design Material: Sto Detail Mesh by Sto Canada.
- .8 Standard Reinforcing Mesh:
 - .1 Nominal 203 g/m² (6.0 oz./yd²), symmetrical, interlaced open-weave glass fibre mesh treated with alkaline resistant coating for compatibility with Sto materials.
 - .1 Basis of Design Material: Sto Mesh 6 oz by Sto Canada

SPEC NOTE: Select one of the following meshes to supplement impact resistance on ground floors or other areas of anticipated impact or abuse, and delete the one not required on the project.

- .1 Nominal 425 g/m² (15.0 oz./yd²), symmetrical, interlaced open-weave glass fibre mesh.
 - .1 Basis of Design Material: Sto Armor Mat by Sto Canada.
- .2 Nominal 678 g/m² (20 oz./yd²), symmetrical, interlaced open-weave glass fibre mesh.
 - .1 Basis of Design Material: Sto Armor Mat XX by Sto Canada.

SPEC NOTE: Priming is recommended to provide uniform substrate absorption and finish colour, to improve adhesion and water resistance, and to retard efflorescence. Select one of the following primers and delete the ones not required for the project.

- .9 Primer: Acrylic based low VOC primer:
 - .1 Sanded Primer Basis of Design Material: Sto Primer Sand by Sto Canada.
 - .2 Smooth Primer Basis of Design Material: Sto Primer Smooth by Sto Canada.

SPEC NOTE: Select the following paragraph when a faux brick is desired on the project. Sto Primer Creativ has enhanced UV resistance and can be left exposed to simulate mortar joints.

- .3 Basis of Design Material: Sto Primer Creativ by Sto Canada.
- .10 Finish Coat
 - .1 Acrylic-based low VOC textured wall finish

SPEC NOTE: Select one of the following finishes. Delete finishes which are not required on the project.

- .1 Basis of Design Material: Stolit Lotusan by Sto Canada with Lotus-Effect technology for highest water repellency and resistance to soiling.
- .2 Basis of Design Material: Stolit by Sto Canada

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- .3 Basis of Design Material: Stolit X by Sto Canada
- .4 Standard Finish Textures: [1.0 - Fine Finish][1.5 - Medium Finish][R1.5 – Swirl Finish (Stolit only)][Freeform Finish (Stolit and Stolit Lotusan only)].
- .5 Colour: [_____] [As selected by the Consultant from the manufacturers standard product line] [As indicated on Drawing _____]

SPEC NOTE: Select one of the following specialty finishes if an alternate finish is desired. Delete finishes which are not required on the project.

- .2 StoCreativ Brick Finish: Decorative wall finish system requiring a two-step application process. Self-adhering stencils applied over the primer layer to provide appearance of mortar. Finish layer is applied in varying thickness to achieve the desired stand-out appearance of the brick.
- .3 Stolit Milano Finish: A very fine, ultra-smooth finish used to achieve multiple distinctive looks.
- .4 StoCreativ Lux Finish: Combines the texture and depth of natural stone with the luster of reflective materials.
- .5 StoCreativ Granite Finish: Trowel applied and designed to provide a polished granite look.
- .6 StoTique Finish: Specialty coating applied over finish to achieve a mottled, antiqued or old world appearance.
- .7 Sto Decocoat Finish: Ready-mixed, decorative wall and floor coating composed of fine aggregate encased in an acrylic binder.
- .8 Sto Limestone Finish: Provides the look and feel of natural stone.
- .9 Sto GraniTex Finish: Spray-applied, acrylic based wall finish providing the look and feel of natural stone.
- .10 Colour: [_____] [As selected by the Consultant from the manufacturer's standard product line] [As indicated on Drawing _____].

SPEC NOTE: Accessories listed below are by others and are not furnished by Sto Canada and are not typically installed by the contractor who installs the Sto components .

- .11 Accessories
 - .1 Flashing: In accordance with Section 07 62 00.
 - .2 Joint Sealants: In accordance with Section 07 92 00

2.3 MIXES

- .1 Mix materials in compliance with recommendations specified in Sto Canada's written instructions.
 - .1 Use only clean potable water, free of salts, other contaminants or deleterious materials to mix adhesive/base coat.
 - .2 Use clean, rust-free, high-speed mixer to stir finish to uniform consistency. Add small amounts of clean potable water to aid workability.
 - .3 Use of antifreeze agents, accelerators, rapid binders or other additives is not permitted.
 - .4 Mix only as much material as can readily be used.

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2.4 SOURCE QUALITY CONTROL

- .1 Ensure ci cladding system components, air and moisture barrier, adhesive, reinforcing mesh, base coat, primer, and finish coat materials are supplied by Sto Canada.

PART 3: EXECUTION

3.1 EXAMINATION

- .1 Verification of Conditions: Verify that substrate conditions which have been previously installed under other sections or contracts meet design tolerances and are acceptable for product installation in accordance with Sto Canada's instructions prior to installation of ci cladding system.
- .2 Inspect surfaces to determine conditions as follows:
 - .1 Contamination from algae, chalkiness, dirt, dust, salts, efflorescence, form oil, fungus, grease, laitance, mildew or other foreign substances.
 - .2 Surface absorption and chalkiness.
 - .3 Surface cracks: Measure and record location.
 - .4 Damage and deterioration.
 - .5 Moisture content and moisture damage: Use moisture meter to determine if surface is dry enough to receive the fluid applied air and moisture barrier.
 - .6 Inform Owner and Consultant of unacceptable conditions immediately upon discovery.
 - .7 Proceed with installation after correction and verification of surface conditions.

3.2 PREPARATION

- .1 Protect adjacent surfaces from damage or overspray resulting from ci cladding system work.
- .2 [Mask] [Cover] adjacent surfaces, fixtures, equipment, landscaping and other components to protect from over spraying.
- .3 Remove loose or damaged materials by [water blasting] [sandblasting] [wire brush].
- .4 Resurface, patch or level surfaces to required tolerance and smoothness with Sto Canada levelling materials to meet Sto Canada's written instructions.
- .5 Ensure foundation waterproofing material and roof membrane materials are correctly terminated to properly transition with the fluid applied air/moisture barrier on the wall for air barrier continuity and waterproofing integrity.

3.3 COORDINATION

- .1 Provide coordination such that earth grade terminates a minimum 200 mm (8") below ci cladding system, minimum 50 mm (2") above finished grade (pavers/sidewalk). Provide increased clearance in freeze/thaw climate zones.
- .2 Coordinate installation of foundation waterproofing, roofing membrane, windows, doors and other wall penetrations to provide a continuous air barrier and continuous moisture protection.
- .3 Provide protection of rough openings before installing windows, doors, and other penetrations through the wall, and provide sill flashing.

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- .4 Coordinate installation of air and moisture barrier components with window and door installation to provide weatherproofing of the structure and to prevent moisture infiltration and excess air infiltration.
- .5 Provide head flashing immediately after windows, doors, and similar elements are installed.
- .6 Provide diverter flashings wherever water can enter the wall assembly to direct water to the exterior, for example, at lower-to-higher wall intersections.
- .7 Install splices or tie-ins from the air/moisture barrier over back leg of flashings and similar details to form a shingle lap that directs incidental water to the exterior.
- .8 Install copings and sealant immediately after installation of the ci cladding system when coatings are dry, and such that, where sealant is applied against the ci cladding system surface, it is applied against the base coat or primed base coat surface.
- .9 Schedule work such that the air/moisture barrier is exposed to weather no longer than 30 days.
- .10 Attach penetrations through ci cladding system to structural support and provide airtight and water tight seals at penetrations.

3.4 INSTALLATION

SPEC NOTE: Hot or dry conditions accelerate drying and moisture loss from system, which can diminish strength and resistance to cracking. Cold temperatures retard drying and strength gain. Under these conditions adjustments in the scheduling and application of the ci cladding system are necessary to achieve a satisfactory installation. Do not install air barrier, adhesive, base coat, primers or finishes during extremely hot, dry and/or windy conditions, or during freezing conditions, or on frozen substrates.

- .1 Install in accordance with the manufacturer's written instructions and the contract documents over plumb, true, level, and clean prepared substrate.
- .2 Air and Moisture Barrier:

SPEC NOTE: Do not allow air and moisture barrier installation to remain exposed more than 30 days. Protect with insulation promptly after installation.

SPEC NOTE: The air and moisture barrier installation described below is one component of the air barrier assembly for the building envelope and the moisture protection of the wall construction. Installation of the air and moisture barrier must be integrated with other air and moisture barrier components in the construction. This requires coordination with other trades to ensure proper sequencing of work, to achieve air barrier continuity, and to direct rain water to the exterior, not into the wall assembly. Always protect rough openings in wall construction BEFORE installing windows, doors, louvers, etc. Where water is likely to penetrate the wall assembly, such as windows, flashing must be installed to direct water to the exterior at the leak source.

- .1 Install StoGuard in accordance with Sto Canada's StoGuard® Air Barrier Installation Manual.
- .2 Application:
 - .1 Prepare surfaces to receive transition membrane at expansion joints and openings through substrate in accordance with manufacturer's written instructions.

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- .2 Locate surface defects such as knots in plywood sheathing, joint treatment of wall sheathing, fasteners, and cracks in concrete masonry units. Remove loose and bond-inhibiting material, including dust, dirt, mould and efflorescence.
 - .3 For non-structural cracks up to 13 mm (1/2") wide, apply and tool joint and seam filler to fill the crack.
 - .4 Install air and moisture barrier over substrates in accordance with manufacturer's written instructions.
 - .5 Allow 24 hours minimum before adhering insulation to air and moisture barrier and not more than 30 days.
 - .6 Protect installed products from rain and freezing until dry.
- .3 Insulation Installation:

SPEC NOTE: Wrapping insulation with base coat and mesh at terminations is a requirement to keep water out and to provide an adequate substrate for sealant connections.

- .1 Wrapping terminations: Where water is intended to drain, pre-wrap insulation board at terminations with base coat and mesh prior to installation to create Starter Boards. Where drainage is not intended pre-wrap or backwrap insulation board.
 - .1 Pre-wrapping: Embed mesh of sufficient width around the edge of the insulation board to cover minimum 65 mm (2.5") on the back and front of the board. Adhere a 230 mm wide (9") strip of detail mesh with adhesive to the substrate at locations where the pre-wrapped insulation starter boards are butted together. Ensure the length is adequate to wrap 65 mm (2.5") to the substrate plus the thickness of the insulation plus 65 mm (2.5") onto the face of the insulation.
 - .2 Backwrapping: Adhere mesh approximately 65 mm (2.5") onto the substrate at all system terminations (windows, doors, expansion joints, etc.). Ensure the length is adequate to wrap around the insulation board edge and to cover a minimum of 65 mm (2.5") on the outside surface of the insulation board.

SPEC NOTE: Choose the installation method below for lamella type insulation.

- .2 Install stone wool lamellas with Sto adhesive applied with a 13 mm X 13 mm (1/2" X 1/2") 'U' shaped notched trowel with the notches spaced 65 mm (2.5") on centre.
 - .1 Install pre-wrapped lamella starter boards using vertical ribbons of adhesive at the bottom of the wall and at other terminations where drainage is intended such as floor lines. Secure with blocking or mechanical fasteners to support the subsequent rows of lamellas installed above.
 - .2 Install pre-wrapped or backwrapped lamellas at other terminations such as windows and doors, expansion joints, and fixture penetrations, allowing for a minimum 13 mm (1/2") wide joint, or wider as dictated by the condition at the termination.
 - .3 Apply ribbons of adhesive to the substrate or the back of the lamella with a vertical orientation to allow drainage.
 - .4 Install the insulation immediately after the application of the adhesive in a running bond pattern with joints offset from sheathing joints a minimum of

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- 200 mm (8"). Apply firm uniform pressure across the entire surface of the lamella to ensure good adhesive contact with the substrate.
- .5 Install lamellas tight to adjacent lamellas, free of gaps or voids.
 - .6 Install lamellas in an 'L'-shape around openings to avoid alignment of insulation joints with corners of openings.
 - .7 Prevent adhesive from getting between lamellas.
 - .8 Fill gaps between lamellas with wedges of insulation.
 - .9 Allow adhesive to dry twenty-four (24) hours minimum prior to rasping. Allow longer drying periods during cool, wet, or humid weather until lamellas are firmly held in place by the adhesive.
 - .10 Rasp the lamella surface as needed to produce a smooth, even surface.

SPEC NOTE: Choose the installation method below for slab type insulation. Slab insulation is installed with an initial set of fasteners to keep it in place before the application of the reinforced base coat. A second set of fasteners is then installed over the reinforced base coat for final attachment of the insulation. Fasteners may "telegraph" through the finished wall surface as the building ages because of the inherent thermal bridging effects of mechanical fasteners.

- .3 Install drainage medium horizontally in courses with fabric facing out and shingle lapped. Shingle lap over flashing and trim at terminations such as windows, doors and other wall penetrations or fixtures. Attach with corrosion resistant staples, as few as needed to hold the drainage medium in place.
- .4 Immediately install slab insulation with mechanical fasteners over the drainage medium.
 - .1 Install pre-wrapped slab starter boards at the base of the wall and other areas where drainage is intended, such as floor lines.
 - .2 Install pre-wrapped or backwrapped slabs at all system terminations where drainage is NOT intended.
 - .3 Install slabs in courses in a running bond pattern tight to adjacent slabs, free of gaps or voids, and with slabs offset from sheathing joints a minimum of 200 mm (8").
 - .4 Install slabs in an 'L'-shape around openings to avoid alignment of insulation slab joints with corners of openings.
 - .5 Fill gaps between insulation slabs with wedges of insulation.
 - .6 Initial Fastener Attachment: mechanically fasten insulation slabs with a minimum of five (5) mechanical fasteners per insulation slab (refer to Sto Details) placed at maximum 100 mm (4") vertically from corners of insulation and at least one in the middle.
 - .7 Keep fastener disk flush with surface of insulation slab. Do not overdrive the fastener disk into the insulation slab.
 - .8 Install fasteners into studs, concrete, or masonry to minimum depth recommended by the fastener supplier.

SPEC NOTE: Ultra-high impact mesh application is recommended to a minimum height of 2000 mm (6.5') above finished grade at all areas accessible to pedestrian traffic and other

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areas exposed to abnormal stress or impact. This is accomplished by using one layer of Armor Mat reinforcing mesh and one layer of standard reinforcing mesh

- .4 Install a “scratch” coat of base coat over the insulation board and fastener disks and allow to dry.
- .5 Reinforced Base Coat:
 - .1 Reinforce first 2000 mm (6.5') minimum above grade and other designated areas with Armor Mat reinforcing mesh.
 - .1 Install Armor Mat reinforcing mesh at locations indicated. Tightly butt reinforcing mesh. Do not overlap mesh joints.
 - .2 Using stainless steel trowel, apply base coat over surface of insulation board in areas with Armor Mat reinforcing mesh.
 - .3 Apply horizontally or vertically in strips of approximately 1016 mm (40") and immediately embed Armor Mat reinforcing mesh into wet base coat.
 - .4 Trowel smooth to ensure mesh colour is not visible and allow to dry.
 - .2 Apply standard reinforcing mesh over entire surface of insulation board, including areas with Armor Mat reinforcing mesh.
 - .1 Using stainless steel trowel apply base coat over surface of insulation board.
 - .2 Work in strips of approximately 1016 mm (40").
 - .3 Immediately embed reinforcing mesh in wet base coat by troweling from the center to the edges of the mesh.
 - .4 Trowel smooth so no mesh color is visible to a thickness of approximately 1.6 mm (1/16").
 - .5 Overlap mesh seams minimum 65 mm (2.5").
 - .6 Feather base coat on each side of mesh overlaps.
 - .7 Avoid wrinkles in mesh.
 - .8 Reinforce corners of openings with a “butterfly” of detail reinforcing mesh placed diagonally at the corner and embedded in base coat.
 - .9 Reinforce inside and outside corners with detail reinforcing mesh wrapped in each direction a minimum of 200 mm (8") embedded in base coat.
 - .10 Allow reinforced base coat application to completely dry before proceeding to the next step

SPEC NOTE: Test assembly if needed to verify conformance of assembly with design wind pressure requirements.

- .3 Primary Mechanical Fastener Attachment
 - .1 Install fasteners over the reinforced base coat every 203 mm (8") on center vertically (with initial set of fasteners included) and 406 mm (16") on center horizontally into supporting construction (refer to Sto Details).
 - .2 Keep washer flush with surface of reinforced base coat. Do not overdrive the fastener/washer or crack or penetrate the reinforced base coat surface with the washer.
 - .3 Spot fasteners with base coat and allow to dry.
 - .4 Apply a 1.6 - 3 mm (1/16 – 1/8") skim coat of base coat over the entire wall surface to completely cover the fasteners and to level imperfections in the wall

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surface and allow to dry.

SPEC NOTE: In some cases, where decorative features are required, Sto EPS Insulation Board is used. EPS allows more flexibility with shapes and profiles than can be obtained with stone wool. IMPORTANT: Obtain acceptance from the local authority having jurisdiction for the use of combustible elements in a non-combustible cladding assembly.

- .4 Apply waterproof base coat to weather-exposed slope when trim, reveals, aesthetic bands, cornice profiles, sills or other architectural features project more than 50 mm (2") beyond vertical wall plane.
 - .1 Ensure slope is 27 degrees minimum to horizontal.
 - .2 Where build-outs terminate at a dissimilar material, backwrap the EPS build-out by installing detail mesh onto the terminating edge of the system.
 - .3 Install EPS build-outs directly over hardened base coat with cementitious foam trim adhesive. Apply adhesive with the appropriate size notched trowel to the back of the insulation board and immediately place build-out in the proper location on the wall. Press firmly into place and trim or tool excess adhesive from ends and edges of EPS trim for a smooth void-free connection to the substrate.
 - .4 After the adhesive has dried sufficiently to hold the build-out firmly in place, rasp the entire surface smooth.
 - .5 Complete the backwrapping procedure by applying the trim base coat to the exposed edges of the build-out and minimum 65 mm (2-1/2") onto the face. Pull the backwrap mesh around the build-out and fully embed it into the base coat. Use a corner trowel for neat straight corners.
 - .6 Apply base coat to the build-out and approximately 75 mm (3") onto the adjacent surfaces to an approximate thickness of 3 mm (1/8"). Immediately embed the reinforcing mesh in the wet base coat. Trowel from the centre to the edges of the mesh to avoid wrinkles and remove excess base coat. Overlap mesh seams and lap mesh onto adjacent wall a minimum 65 mm (2-1/2"). Feather base coat onto the wall surface.
- .5 Allow base coat to dry twenty-four (24) hours minimum prior to applying primer or finish.

SPEC NOTE: Different finishes require different application methods. Refer to applicable Sto Product Bulletins for the selected finish instructions. The Primer is an optional component (except for specialty finishes) that is recommended to provide uniform substrate absorption and finish colour, to improve adhesion and water resistance, and to retard efflorescence.

- .6 Finish Coat:
 - .1 Prime reinforced base coat prior to application of finish coat.
 - .1 Allow primer to completely dry prior to applying finish coat.
 - .2 Mix small amount of mixing water with finish coat materials to aid workability.
 - .3 Apply finish coat to primed base coat using [trowel] [spray applicator equipment], to thickness recommended by ci cladding system manufacturer.
 - .4 Shade work to prevent rapid setting of finish.

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- .5 Provide equipment, materials and work crew of sufficient size to ensure a continuous operation without cold joints.
- .6 Apply finish in continuous application.
 - .1 Work to a wet edge.
 - .2 Work to an architectural break in wall.
- .7 Do not install different batches of finish coat side-by-side.
- .8 Do not install finish coat in joints to receive sealants.

3.5 SITE QUALITY CONTROL

- .1 Schedule site visits by design professional, owner's consultant, or third party quality assurance agent to conduct tests and review work as follows:

SPEC NOTE: Edit the following to suit project requirements. Establish the type and frequency of tests and the number and duration of site visits required and modify below.

- .1 Testing:
 - .1 [ci cladding system adhesion at [once per [700 m²] [7500 ft²]]]
 - .2 [Window water spray tests at [three per elevation.]]
 - .3 [Sealant field adhesion tests on each elevation.]
- .2 Site visits:
 - .1 [At project pre-installation meeting.]
 - .2 [After delivery and storage of products.]
 - .3 [Upon completion of preparatory work upon which this Section depends, but before installation begins.]
 - .4 [Two times during progress of work [at [25%] and [60%]] of completion.]
 - .5 [Upon completion of work, after cleaning is carried out.]

SPEC NOTE: Joint sealants, copings, and flashing are not furnished by Sto Canada and are not typically installed by the installer of Sto components. Provide for their installation in tandem with the insulated cladding work or shortly after the finish work is completed to complete the weatherproofing of the structure. Refer to ASTM C1481 and the EIFS Practice Manual Section 3.3 for more information on the design of joints and sealant selection with EIF systems.

3.6 CLEANING AND PROTECTION

- .1 Provide protection of installed materials from water infiltration into or behind the system. Provide protection of installed primer and finish coat from dust, dirt, precipitation, freezing, and continuous high humidity until fully dry.
- .2 Provide sealant complying with ASTM C1481 and backer material at ci cladding system terminations to protect against air, water and insect infiltration. Provide weeps at floor lines, window and door heads, and other areas to conduct incidental water to the exterior.
- .3 Progress Cleaning: Leave work area clean at the end of each work-day, ensuring safe movement of passing pedestrians.
- .4 Final Cleaning: At completion of installation, clean all surfaces so they are free of foreign matter using cleaners recommended by material manufacturer.

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- .5 Refer to Sto reStore Repair and Maintenance Guide for detailed information on cleaning, repairs, recoating, resurfacing and refinishing, or re-cladding.
- .6 Waste Management: Co-ordinate recycling of waste materials and packaging at appropriate facility, diverting waste from landfill. Installer shall be responsible for ensuring waste management efforts are practiced.
 - .1 Clean pails with water prior to recycling.
 - .2 Collect and separate for disposal [paper] [plastic] [polystyrene] [corrugated cardboard] packaging material [in appropriate onsite bins] for recycling.

END OF SECTION 07 24 26

ATTENTION

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