

SPEC NOTE: This master specification contains 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 Section serves as a guide specification for StoGuard Air and Moisture Barrier only and should be edited to meet specific project requirements.

This specification covers the application of StoGuard Air and Moisture Barrier, Sto Gold Coat, to vertical above grade concrete, concrete masonry, and sheathed wall construction. Claddings such as brick veneer with a cavity, vinyl, wood, fiber cement siding, and portland cement stucco with code compliant metal lath and a slip sheet (typically code compliant sheathing membrane) may be specified for use over Sto Gold Coat. For EIFS claddings see StoTherm® ci specifications.

StoGuard functions as an air barrier component and secondary water-resistive barrier (WRB) or sheathing membrane in wall assemblies. The secondary moisture protection provided by StoGuard protects walls against moisture damage from rain during the construction process and in the event of a breach in the wall cladding while in service. It is not intended to correct faulty workmanship such as the absence or improper integration of flashing in the wall assembly, nor is it intended to correct defective components of construction such as windows or window installations that leak into the wall assembly. Flashing must always be integrated with the WRB in the wall assembly to direct water to the exterior of the cladding, not into the wall assembly, particularly at potential leak sources such as windows.

An air barrier system minimizes the risk of condensation within the building envelope by eliminating mass transfer of warm moisture laden air into the wall assembly to a cold surface where it can condense. A complete air barrier system consists of individual air barrier components and the connections between them. The air barrier components must be continuous to become an effective air barrier assembly. The design/construction professional must take material compatibility and construction sequencing into account when designing an "air tight" assembly to ensure continuity and long term durability. The effects of air tightness on mechanical ventilation should also be included in the overall project evaluation.

The function of an air barrier should not be confused with that of a vapour retarder. A vapour retarder is placed in the wall to resist differential vapour pressures, whereas the air barrier is designed to resist the structural live loads induced by air pressure difference. Generally a vapour retarder is placed on the warm side of the wall. Specifically, it is placed on the interior side of the insulation in cold climates and on the exterior side of the insulation in warm humid climates to minimize condensation within the wall assembly. A vapour retarder may not be necessary depending on the wall components, the range of temperature/humidity conditions inside and outside, and the mechanical ventilation of the building. A vapour retarder should not be used on the interior side of walls in warm humid climates. If a vapour impermeable air barrier is desired refer to Sto Specification C-A1000V.

PART 1 GENERAL

1.1 SUMMARY

- .1 Section includes materials and installation of fluid applied vapour permeable air and moisture barrier membrane over vertical above grade concrete walls, concrete masonry walls, and wall sheathing.

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.

.2 RELATED REQUIREMENTS

- .1 Section 03 30 00: Cast-In-Place Concrete
- .2 Section 04 20 00: Masonry
- .3 Section 06 16 00: Sheathing
- .4 Section 07 25 00: Weather Barriers
- .5 Section 07 26 00: Vapour Retarders
- .6 Section 07 50 00: Membrane Roofing
- .7 Section 07 62 00: Sheet Metal Flashing and Trim
- .8 Section 07 92 00: Joint Sealants
- .9 Section 08 50 00: Windows
- .10 Section 09 21 16: Gypsum Board Assemblies

1.2 DEFINITIONS

- .1 Air Barrier Material: A primary element that provides a continuous barrier to the movement of air.
- .2 Air Barrier Accessory: A transitional component of the air barrier that provides continuity.
- .3 Air Barrier Auxiliary Material: A transitional component that provides air barrier continuity furnished by a source other than the primary air barrier manufacturer.
- .4 Air Barrier Assembly: The collection of air barrier materials, accessory and auxiliary materials applied to an opaque wall, including joints and junctions to abutting construction, to control air movement through the wall.

1.3 PRE-INSTALLATION MEETINGS

- .1 Pre-installation Conference
 - .1 Review air barrier installation requirements and installation details, mock-ups, testing requirements, protection, and sequencing of work.

1.4 REFERENCES

- .1 Building Code and Material Evaluation Service Standards and Reports
 - .1 CCMC Technical Guide for Air Barrier Material
 - .2 Evaluation Report CCMC 13120-R, StoGuard® – Air Barrier Material

- .3 Evaluation Report CCMC 13612-R, StoGuard® – Sheathing Membrane
- .2 ASTM Standards
 - .1 C 297-94, Test Method for Tensile Strength of Flat Sandwich Constructions in Flatwise Plane
 - .2 C 1177-08, Specification for Glass Mat Gypsum Substrate for Use as Sheathing
 - .3 D 522-93a, Test Methods for Mandrel Bend Test of Attached Organic Coatings
 - .4 D 1970-00, Standard Specification for Self-Adhering Polymer Modified Bituminous Sheet Used as Steep Roofing Underlayment for Ice Dam Protection
 - .5 D 3273-00, Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber
 - .6 D 4541-09, Test Method for Pull-Off Strength of Coatings Using Portable Adhesion Testers
 - .7 E 84-98, Test Method for Surface Burning Characteristics of Building Materials
 - .8 E 96-00, Test Method for Water Vapor Transmission of Materials
 - .9 E 119-88, Standard Test Methods for Fire Tests of Building Construction and Materials
 - .10 E 779-10, Standard Test Method for Determining Air Leakage Rate by Fan Pressurization
 - .11 E 783-02, Standard Test Method for Field Measurement of Air Leakage Through Installed Exterior Windows and Doors
 - .12 E 1186-03, Standard Practices for Air Leakage Site Detection in Building Envelopes and Air Barrier Systems
 - .13 E 1827-96, Standard Test Methods for Determining Airtightness of Buildings Using an Orifice Blower Door
 - .14 E 2178-03, Test Method for Air Permeance of Building Materials
 - .15 E 2357-05, Standard Test Method for Determining Air Leakage of Air Barrier Assemblies
- .3 South Coast Air Quality Management District (SCAQMD)
 - .1 Rule 1113, Architectural Coatings
- .4 Installation Guides
 - .1 StoGuard Air Barrier Installation Manual
 - .2 Installation Guide – StoGuard Transition Membrane
 - .3 Installation Guide – StoGuard RapidFill

SPEC NOTE: The work in this section requires close coordination with related sections and trades. Sequence work to provide protection of construction materials from weather deterioration.

1.5 COORDINATION/SCHEDULING

- .1 Coordinate installation of foundation waterproofing, roofing membrane, windows, doors and other wall penetrations to provide a continuous air barrier.
- .2 Provide protection of rough openings before installing windows, doors, and other penetrations through the wall.
- .3 Provide sill flashing to direct water to the exterior before windows and doors are installed.
- .4 Install window and door head flashing immediately after windows and doors are installed.
- .5 Install diverter flashings wherever water can enter the assembly to direct water to the exterior.
- .6 Install parapet cap flashing and similar flashing at copings and sills to prevent water entry into the wall assembly.
- .7 Install cladding within 180 days of air and moisture barrier installation (except in the case of StoTherm ci, install insulation board with adhesive within 30 days of Sto Gold Coat installation).

1.6 SUBMITTALS

- .1 Manufacturer's specifications, guide details and product data.
- .2 Manufacturer's standard warranty.
- .3 Manufacturer's CCMC evaluation reports confirming compliance with the National Building Code as an air barrier material and sheathing membrane.
- .4 Samples for approval as directed by architect or owner.
- .5 Shop drawings: substrate joints, cracks, flashing transitions, penetrations, corners, terminations, and tie-ins with adjoining construction, and interfaces with separate materials that form part of the air barrier assembly.

1.7 QUALITY ASSURANCE

- .1 Manufacturer requirements
 - .1 Manufacturer of exterior wall air and moisture barrier materials for a minimum of 30 years in North America.
 - .2 Air and moisture barrier products manufactured under ISO 9001:2008 Certified Quality System and ISO 14001:2004 Certified Environmental Management System.
- .2 Contractor requirements
 - .1 Knowledgeable in the proper use and handling of Sto materials.

- .2 Employ skilled mechanics who are experienced and knowledgeable in waterproofing and air barrier application, and familiar with the requirements of the specified work.
- .3 Provide the proper equipment, manpower and supervision on the job-site to install the air barrier assembly in compliance with the project plans & specifications, shop drawings, and Sto's published specifications and details.
- .3 Regulatory Compliance
 - .1 Primary air barrier material:
 - .1 Listed by CCMC and recognized for use on all types of construction. Refer to CCMC ERs 13120-R and 13612-R.
 - .2 Comply with VOC requirements of SCAQMD Rule 1113.
 - .3 Evaluated and Listed by NABA (National Air Barrier Association) as an air barrier material.

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.

- .4 Mock-ups
 - .1 Build stand-alone site mock up or sample wall area on as-built construction to incorporate back-up wall construction, typical details covering substrate joints, cracks, flashing transitions, penetrations, corners, terminations, tie-ins with adjoining construction, and interfaces with separate materials that form part of the air barrier assembly.

SPEC NOTE: Add or delete tests consistent with the size and scope of the project and an appropriate level of field quality control.

1.8 PRE-CONSTRUCTION TESTING

- .1 Conduct testing by qualified test agency or building envelope consultant.
- .2 Conduct assembly air leakage testing in accordance with ASTM E 783.
- .3 Conduct adhesion testing to substrates in accordance with ASTM D 4541.
- .4 Conduct wet sealant compatibility testing in accordance with sealant manufacturer's field quality control test procedure.
- .5 Notify design professional minimum 7 days prior to testing.

1.9 DELIVERY, STORAGE AND HANDLING

- .1 Deliver all materials in their original sealed containers bearing manufacturer's name and identification of product.
- .2 Protect coatings (pail products) from freezing temperatures and temperatures in excess of 90 degrees F (32 degrees C). Store away from direct sunlight.

- .3 Protect Portland cement based materials (bag products) from moisture and humidity. Store under cover off the ground in a dry location.
- .4 Protect and store accessory and auxiliary products in accordance with manufacturer's written instructions.

1.10 PROJECT/SITE CONDITIONS

- .1 Maintain ambient and surface temperatures above 4 degrees C (40 degrees F) during application and drying period, minimum 24 hours after application of air and moisture barrier materials.
- .2 Provide supplementary heat for installation in temperatures less than 4 degrees C (40 degrees F) or if surface temperature is likely to fall below 4 degrees C (4 degrees F).
- .3 Provide protection of surrounding areas and adjacent surfaces from application of materials.

1.11 WARRANTY

- .1 Provide manufacturer's standard warranty.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- .1 Air and moisture barrier materials specified herein are supplied by:

Sto Canada
3800 Camp Creek Parkway, Building 1400, Suite 120
Atlanta, GA 30331
Phone: (800) 221-2397
URL: www.stocorp.ca

- .2 Obtain primary air barrier and accessory air barrier materials from single source.

2.2 MATERIALS

- .1 Primary Air Barrier Material
- .2 Ready-mixed flexible spray or roller applied air and moisture barrier material.
- .3 Basis of Design Material: Sto Gold Coat
- .4 Accessory Materials

SPEC NOTE: select one and delete the ones not applicable to the project

- .5 Sheathing Joint Treatments
 - .1 One component rapid drying gun-applied joint treatment for sheathing joints.
 - .1 Basis of Design Material: Sto RapidGuard

- .2 Ready mixed coating applied by trowel or knife over nominal 4.2 oz/yd² (142 g/m²) self-adhesive, flexible, symmetrical, interlaced glass fiber mesh.
 - .1 Basis of Design Material: Sto Gold Fill with StoGuard Mesh
- .3 Flexible air and moisture barrier membrane material for embedding non-woven integrally reinforced cloth reinforcement.
 - .1 Basis of Design Material: Sto Gold Coat with StoGuard Fabric

SPEC NOTE: select one and delete the ones not applicable to the project

- .6 Rough Opening Protection
 - .1 One component rapid drying gun-applied rough opening protection for frame and CMU walls. Also used as a detail component for shingle lap transition at flashing.
 - .1 Basis of Design Material: Sto RapidGuard
 - .2 Flexible air and moisture barrier membrane material with non-woven integrally reinforced cloth reinforcements. Also used as a detail component for shingle lap transition at flashing.
 - .1 Basis of Design Material: Sto Gold Coat with StoGuard Fabric and StoGuard Redicorner
 - .3 Ready mixed coating applied by trowel or knife with nominal 4.2 oz/yd² (142 g/m²) self-adhesive, flexible, symmetrical, interlaced glass fiber mesh. Also used as a detail component for shingle lap transition at flashing.
 - .1 Basis of Design Material: Sto Gold Fill with StoGuard Mesh
 - .4 Self-adhered rubberized asphalt tape for frame walls with polyester fabric facing
 - .1 Basis of Design Material: StoGuard Tape with StoGuard Primer

SPEC NOTE: Refer to StoGuard Details and Installation Guides for typical locations where each transition membrane is used. Select one or both membranes as dictated by project details.

- .7 Transition Membrane
 - .1 Flexible air barrier membrane for continuity at transitions: sheathing to foundation, dissimilar materials (CMU to frame wall), wall to balcony floor slab or ceiling, flashing shingle lap transitions, floor line deflection joints, masonry control joints, and through wall joints in masonry or frame construction.
 - .1 Basis of Design Material: StoGuard Transition Membrane
 - .2 One component gun-applied air and moisture barrier membrane material for continuity at static transitions such as: flashing shingle laps, wall to balcony floor slab or ceiling, and through wall penetrations such as pipes, electrical boxes, and scupper penetrations.
 - .1 Basis of Design Material: Sto RapidGuard

SPEC NOTE: Auxiliary materials listed below are by others and are not furnished by Sto Canada and may not be installed by the contractor who installs the Sto products. Other sealants, spray adhesives and spray foams may also be compatible. Verify compatibility through lab or field tests.

- .1 Auxiliary Materials

- .1 Wet sealant: Dow Corning 758, 790, 791, and 795 sealants
 - .2 Pre-cured sealant tape: Dow 123
 - .3 Spray adhesive: 3M Super 77 Spray Adhesive
 - .4 Spray foam: Dow Great Stuff for Gaps and Cracks
- .8 Patching and Leveling Material for Concrete and Masonry
- .1 Sto Leveler: polymer modified cementitious patch and leveling material for prepared concrete and masonry surfaces up to 6 mm (1/4").
 - .2 Sto BTS Xtra: polymer modified lightweight cementitious patch and leveling material for prepared concrete and masonry surfaces up to 3 mm (1/8").

2.3 PERFORMANCE REQUIREMENTS

- .1 Durability, comply with CCMC Technical Guide for Air Barrier Materials
- .2 Flexibility: ASTM D 522, primary air barrier material, no cracking or delamination before and after aging using 3 mm (1/8") mandrel at 10 degrees C (14 degrees F)
- .3 Nail sealability: ASTM D 1970, 7.9.1, primary air barrier passes
- .4 Resistance to mould: ASTM D 3273, no mould growth after 28 day exposure
- .5 Adhesion: joint treatment and primary air barrier material, ASTM C 297 or D 4541, > 207 kPa (30 psi), or exceeds strength of glass mat facing on glass mat gypsum substrates
- .6 Surface burning: ASTM E 84, joint treatment and primary air barrier material flame spread ≤ 25 , smoke developed ≤ 450 , Class A building material
- .7 Water vapour permeance: ASTM E 96 Method B, > 570 ng/Pa·s·m² (10 perms)
- .8 Field adhesion testing: ASTM D 4541, ≥ 207 kPa (30 psi) or exceeds strength of glass mat facing on glass mat gypsum substrates
- .9 Fire resistance: ASTM E 119, permitted for use in exterior walls of fire-resistance-rated construction assemblies.
- .10 Building envelope air leakage: ASTM E 779 or E 1827, ≤ 2 L/s·m² (0.4 cfm/ft²)
- .11 Material air leakage: ASTM E 2178, primary air barrier and joint treatment < 0.02 L/s·m² at 75 Pa (0.004 cfm/ft² at 1.57 psf)
- .12 Assembly air leakage: ASTM E 2357, < 0.2 L/s·m² at 75 Pa (0.04 cfm/ft² at 1.57 psf) air leakage after conditioning protocol
- .13 Volatile Organic Compounds: SCAQMD Rule 1113, joint treatment and primary air barrier material ≤ 100 g/L

2.4 DESIGN CRITERIA

- .1 Design professional shall provide sufficient details on drawings to demonstrate compliance with National Building Code Canada Division C Sentence 2.2.5.2 (1).
- .2 Structural (Wind and Axial Loads)
 - .1 Design for maximum allowable deflection normal to the plane of the wall: $L/240$. Where cladding dictates stiffer deflection criteria use cladding design criteria for maximum allowable deflection.
 - .2 Design for wind load in conformance with code requirements.
- .3 Moisture Control
 - .1 Prevent the accumulation of water in the wall assembly and behind the exterior wall cladding:
 - .1 Minimize condensation within the assembly.
 - .2 Drain water directly to the exterior where it is likely to penetrate components in the wall assembly (windows and doors, for example).
 - .3 Provide corrosion resistant flashing to direct water to the exterior in accordance with code requirements, including: above window and door heads, beneath window and door sills, at roof/wall intersections, floor lines, decks, intersections of lower walls with higher walls, and at the base of the wall.
- .4 Air Barrier Continuity: provide continuous air barrier assembly of compatible air barrier components.
- .5 Substrates
 - .1 Concrete Masonry Units: provide CMU surfaces in conformance with the National Building Code, and such that a void and pinhole free air barrier is achieved. Provide normal weight units with flush joints (struck flush with the surface) and allow for a minimum of two (2) coats of the primary air barrier material, applied by spray or roller. Alternatively, for “rough” CMU wall surfaces allow for a cementitious parge coat to fill and level irregular surfaces, prior to one (1) coat of the primary air barrier material.
 - .2 Concrete: provide concrete in conformance with the National Building Code.
 - .3 Sheathing: provide gypsum sheathing in compliance with ASTM C 1177, provide Plywood or OSB wood-based sheathing in compliance with the National Building Code, and provide sheathing attachment that meets required design wind pressures.
 - .4 Mechanical Ventilation: maintain pressurization and indoor humidity levels in accordance with the requirements of the National Building Code.

PART 3 EXECUTION

3.1 EXAMINATION

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

- .1 Inspect concrete and concrete masonry surfaces for:
 - .1 Contamination – algae, dirt, dust, efflorescence, form oil, fungus, grease, mildew or other foreign substances.
 - .2 Surface deficiencies – weak, friable, chalkiness, laitance, bugholes, and spalls.
 - .3 Cracks – measure crack width and record location of cracks.
 - .4 Damage or deterioration.
 - .5 Moisture content and moisture damage – use a moisture meter to determine if the surface is dry enough to receive the waterproof air barrier and record any areas of moisture damage or excess moisture.
 - .6 Flush masonry mortar joints completely filled with mortar.
- .2 Inspect sheathing application for compliance with applicable requirement:
 - .1 Plywood or OSB wood-based sheathing: conform with requirements of National Building Code and project requirements for wind load resistance.
 - .2 Glass mat faced gypsum sheathing in compliance with ASTM C 1177: consult manufacturer's published recommendations and conform with project requirements for wind load resistance.
 - .3 Cementitious sheathing – Consult manufacturer's published recommendations and conform with project requirements for wind load resistance.
- .3 Report deviations from the requirements of project specifications or other conditions that might adversely affect the air and moisture barrier installation. Do not start work until deviations are corrected.

3.2 SURFACE PREPARATION

SPEC NOTE: The fluid applied air and moisture barrier is typically applied in one (1) coat to sheathing substrates. Two coats (or more) are typically required on CMU substrates depending on the condition of the substrate. For "rough" CMU wall surfaces skim coat the entire wall surface with the leveling material to fill and level the surface prior to applying the air and moisture barrier membrane and transition materials. When a skim coat of the levelling material is installed only one coat of the air and moisture barrier coating is typically required. Use the mock-up and site tests as the basis for the work. A void and pinhole free surface must be achieved for the fluid applied air and moisture barrier to properly function.

- .1 Concrete Masonry
 - .1 Surface must be structurally sound and free of weak or damaged surface conditions such as laitance or spalls. Surface must be clean, dry, frost-free, and free of any bond-inhibiting materials such as dust, dirt, oil, algae, mildew, salts,

efflorescence, or any other surface contamination. Mortar joints must be struck flush with the surface.

- .2 Remove excess mortar from masonry ties, lintels and shelf angles.
 - .3 Remove loose or damaged material by [water-blasting] [sandblasting] [mechanical wire brushing]. Remove surface contamination such as dirt or efflorescence by chemical or mechanical means. Repair surface defects such as spalls, voids and holes with Sto BTS Xtra (up to 3 mm [1/8"] thick) or Sto Leveler (up to 6 mm [1/4"] thick).
 - .4 Repair non-structural cracks up to 13 mm (1/2") wide by raking with a sharp tool to remove loose, friable material and blow clean with oil-free compressed air. Apply joint and seam filler over crack and smoothen with a trowel, drywall or putty knife.
- .2 Concrete
- .1 Surface must be structurally sound and free of weak or damaged surface conditions such as laitance, bugholes, or spalls. Surface must be clean, dry, frost-free, and free of any bond-inhibiting materials such as dust, dirt, oil, form release, algae, mildew, salts, efflorescence, or any other surface contamination.
 - .2 Remove projecting fins, ridges, form ties, and high spots by mechanical means.
 - .3 Remove loose or damaged material by [water-blasting] [sandblasting] [mechanical wire brushing]. Remove form release by chemical or mechanical means. Repair surface defects such as honeycombs, pitting, spalls, voids or holes with Sto BTS Xtra (up to 3 mm [1/8"] thick) or Sto Leveler (up to 6 mm [1/4"] thick).
 - .4 Repair non-structural cracks up to 13 mm (1/2") wide by raking with a sharp tool to remove loose, friable material and blow clean with oil-free compressed air. Apply joint and seam filler over crack and smoothen with a trowel, drywall or putty knife.
- .3 Sheathing
- .1 Remove and replace damaged sheathing.
 - .2 Spot surface defects such as over-driven fasteners, knot holes, or other voids in sheathing with knife grade joint treatment material.
 - .3 Spot fasteners with knife grade or coating joint treatment material.

3.3 INSTALLATION

- .1 Air/Moisture Barrier Installation over Wood-Based Sheathing (Plywood and OSB), Glass Mat Faced Gypsum Sheathing in compliance with ASTM C 1177, concrete, and concrete masonry (CMU) wall construction:
 - .1 Coordinate work with other trades to ensure air barrier continuity with connections at foundation, floor lines, flashings, lintels and shelf angles, openings and penetrations such as pipes, vents, windows and doors, masonry anchors, rafters or beams, joints in construction, projections such as decks and balconies, and roof membrane.

- .2 Transition Membrane Detailing: detail transition areas with StoGuard Transition Membrane to achieve air barrier continuity. For illustrations of installation, including complex geometries such as inside and outside corners, refer to Sto Guide Details and StoGuard Transition Membrane Installation Guide (www.stocorp.com).
 - .1 Floor line deflection joints up to 25 mm (1") wide, static joints and transitions – sheathing to foundation, dissimilar materials (CMU to frame wall), flashing shingle lap transitions, wall to balcony floor slab or ceiling:
 - .2 Apply waterproof coating (Sto Gold Coat) liberally to properly prepared surfaces with brush, roller, or spray.
 - .3 Place pre-cut lengths of StoGuard Transition Membrane centered over the transition in the wet coating. At changes in plane crease the membrane and similarly place the membrane material in the wet coating.
 - .4 Immediately top coat the membrane with additional coating and apply pressure with brush or roller to fully embed the membrane in the coating and achieve a smooth and wrinkle-free surface without gaps or voids.
 - .5 Apply coating liberally along all top horizontal edges on walls and along all edges on balcony floor slabs to fully seal the edges.
 - .6 Overlap minimum 51 mm (2") at ends and adhere lap seams together with coating. Shingle lap vertical seams and vertical to horizontal intersections with minimum 51 mm (2") overlap.
- .3 Movement joints up to 25 mm (1") wide and up to $\pm 50\%$ movement: masonry control joints, through wall joints in masonry or frame construction
 - .1 Insert backer rod sized to friction fit in the joint (diameter 25% greater than joint width).
 - .2 Recess the backer rod 13 mm (1/2").
 - .3 Apply the waterproof coating liberally to properly prepared surfaces with brush, roller, or spray along each side of the joint (not in the joint).
 - .4 Immediately place the membrane by looping it into the joint against the backer rod surface to provide slack.
 - .5 Embed the membrane in the wet coating along the sides of the joint by top coating with additional coating material and applying pressure with a brush or roller.
- .4 After the membrane installation is complete and the air and moisture barrier coating is dry:
 - .1 Apply a final liberal coat of the coating to all top horizontal edges on walls to ensure waterproofing integrity. Similarly apply coating at all edges on balcony floor slabs.
 - .2 Inspect the installed membrane for fish mouths, wrinkles, gaps, holes or other deficiencies. Correct fish mouths or wrinkles by cutting, then embedding the area with additional coating applied under and over the membrane.
 - .3 Seal gaps, holes, and complex geometries at three dimensional corners with Sto RapidGuard.

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

- .5 Rough opening protection
 - .1 Install rough opening protection. Refer to Sto details 20.20M, 20.20F, 20.20FT, 20.20T, 20.20R, and 21.20R and applicable Sto product bulletins.
- .6 Sheathing joints
 - .1 Install joint treatment material over sheathing joints. Refer to Sto detail 20.00a and applicable Sto product bulletins.
- .7 Air and moisture barrier coating
 - .1 Concrete – install one coat of Sto Gold Coat by spray or roller in a uniform, continuous film of 0.25 mm (0.010", 10 wet mils) to the prepared concrete substrate. Do not install over working or moving joint sealants. If applied by roller apply minimum two coats at 0.41 mm (0.016", 16 wet mils) per coat, allowing sufficient dry time between coats.
 - .2 Concrete Masonry – install one liberal coat of Sto Gold Coat by spray or roller in a uniform, continuous film to the prepared concrete masonry substrate, backroll, and allow to dry. Install a second liberal coat in a uniform, continuous film, and backroll to achieve a void and pinhole free surface. Depending on the condition of the surface, a minimum of 0.25 mm (0.010", 10 wet mils) up to a maximum of 0.76 mm (0.030", 30 wet mils) per coat is required. Apply additional coats if needed to achieve a void and pinhole free surface. Do not install over working or moving joint sealants.
 - .3 Sheathing
 - .1 Glass mat faced gypsum sheathing: install one coat of Sto Gold Coat by spray or roller in a uniform, continuous film of 0.25 mm (0.010", 10 wet mils) to the prepared glass mat gypsum substrate to achieve a void and pinhole free surface. Do not install over working or moving joint sealants.
 - .2 Plywood sheathing: install one coat of Sto Gold Coat by spray or roller in a uniform, continuous film of 0.25 mm (0.010", 10 wet mils) to the prepared substrate to achieve a void and pinhole free surface. Do not install over working or moving joint sealants.
 - .3 OSB sheathing: install one coat of Sto Gold Coat by spray or roller in a uniform, continuous film of 0.25 mm (0.010", 10 wet mils) to the prepared substrate and allow to dry. Install a second coat in a uniform, continuous film of 0.25 mm (0.010", 10 wet mils) to achieve a void and pinhole free surface. Do not install over working or moving joint sealants.

SPEC NOTE: Add or delete inspections and tests consistent with the size and scope of the project and an appropriate level of field quality control.

3.4 FIELD QUALITY CONTROL

- .1 Owner's qualified testing agency or building envelope consultant shall perform inspections and tests.

- .2 Inspections: air barrier materials are subject to inspection to verify compliance with requirements:
 - .1 Condition of substrates and substrate preparation.
 - .2 Installation of primary air barrier material, accessory materials, and compatible auxiliary materials over structurally sound substrates and in conformance with architectural design details, contractor's shop drawings, project mock-up, and manufacturer's written installation instructions.
 - .3 Air barrier continuity and connections without gaps and holes at foundation, floor lines, flashings, lintels and shelf angles, openings and penetrations such as pipes, vents, windows and doors, masonry anchors, rafters or beams, joints in construction, projections such as decks and balconies, and roof membrane.
- .3 Tests: air barrier materials and assembly are subject to tests to verify compliance with performance requirements:
 - .1 Qualitative air leakage test: ASTM E 1186
 - .2 Quantitative air leakage test: ASTM E 779, E 783, and E 1827
 - .3 Adhesion test: ASTM D 4541
 - .4 Qualitative adhesion and compatibility testing: wet sealant manufacturer's field quality control adhesion test
- .4 Repair non-conforming substrates and air barrier material installation to conform with project requirements.
- .5 Take corrective action to repair and replace, re-install, seal openings, gaps, or other sources of air leakage to conform with project performance requirements.

3.5 PROTECTION AND CLEANING

- .1 Protect air barrier materials from damage during construction caused by wind, rain, freezing, continuous high humidity, or prolonged exposure to sun light.
- .2 Protect air barrier materials from damage from trades, vandals, and water infiltration during construction.
- .3 Repair damaged materials to meet project specification requirements.
- .4 Clean spills, stains, soiling from finishes or other construction materials that will be exposed in the completed work with compatible cleaners.
- .5 Remove all masking materials after work is completed.

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

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