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Sto Guide Specification 81646

StoGuard® Air and Moisture Barrier – Sto AirSeal®

Section 07 27 26

Fluid Applied Membrane Air Barriers – High Build Vapor Permeable

This specification is intended for use by the design/construction professional and user of Sto products to assist in developing project specifications for the application of StoGuard Air and Moisture Barrier – Sto AirSeal, to vertical above grade concrete, concrete masonry, and sheathed wall construction. StoGuard Air and Moisture Barrier – Sto AirSeal, is designed for use in StoVentec™ Rain Screen®, StoTherm® ci, StoPowerwall®, StoQuik® Silver, and other wall assemblies such as brick veneer with a cavity. It can also be used behind portland cement stucco or adhered masonry veneer (AMV), provided code compliant metal lath and a WRB (Water-Resistive Barrier), typically code approved building paper or felt, is installed directly behind the stucco or AMV assembly. For EIFS cladding see StoTherm® ci Specifications.

StoGuard functions as an air and moisture barrier component in wall assemblies. Flashing must always be integrated with the air/moisture barrier 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 vapor retarder (vapor impermeable). A vapor retarder is placed in the wall to resist differential vapor pressures, whereas the air barrier is designed to resist the structural live loads induced by air pressure difference. Generally a vapor 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 vapor 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 vapor retarder should not be used on the interior side of walls in warm humid climates. If a vapor impermeable air barrier is desired refer to Sto Specification A1000V.

Notes in italics, such as this one, are explanatory and intended to guide the design/construction professional and user in the proper selection and use of materials. This specification should be modified where necessary to accommodate individual project conditions. Verify that section titles in this specification are correct for the Project Specifications. Verify that table headers and spacing are aligned after final edit, including table header repeated at top of table, at any new pages.

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PART 1 GENERAL

1.1 RELATED DOCUMENTS

Retain or delete this article in all sections of the Project Manual

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

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

Add or delete section below depending on specific project requirements

- B. Related Requirements
 - 1. Section 03 30 00: Cast-In-Place Concrete
 - 2. Section 04 22 00: Concrete Unit Masonry
 - 3. Section 06 16 00: Sheathing
 - 4. Section 07 25 00: Weather Barriers
 - 5. Section 07 26 00: Vapor Retarders
 - 6. Section 07 50 00: Membrane Roofing
 - 7. Section 07 60 00: Flashing and Sheet Metal
 - 8. Section 07 90 00: Joint Protection
 - 9. Section 08 50 00: Windows

1.3 DEFINITIONS

- A. Air Barrier Material: A primary element that provides a continuous barrier to the movement of air.
- B. Air Barrier Accessory: A transitional component of the air barrier that provides continuity.
- C. Air Barrier Auxiliary Material: A transitional component that provides air barrier continuity furnished by a source other than the primary air barrier manufacturer.
- D. 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.

1.4 PRE-INSTALLATION MEETINGS

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

1.5 REFERENCES

- A. Building Codes and Standards
 - 2015, 2018 IBC International Building Code
 - 2015, 2018 IRC International Residential Code
 - 2015, 2018 IECC International Energy Conservation Code
 - 2015 ICC-ES AC 212 ICC ES Acceptance Criteria for Water-Resistive Coatings Used as Water-Resistive Barriers over Exterior Sheathing
- B. AAMA – American Architectural Manufacturers Association
 - AAMA 509 Voluntary Test and Classification Method of Drained and Back Ventilated Rain Screen Wall Cladding Systems
- C. AATCC – American Association of Textile Chemists and Colorists
 - AATCC -TM127 Test Method for Water Resistance: Hydrostatic Pressure
- D. ASTM - American Society for Testing and Materials Standards
 - C1177-13 Specification for Glass Mat Gypsum Substrate for Use as Sheathing
 - C1305-08 Standard Test Method for Crack Bridging Ability of Liquid-Applied Waterproofing Membrane
 - D412-06 Standardized Test Methods for Vulcanized Rubber and Thermoplastic Elastomers – Tension
 - D3273-12 Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber
 - D4541-09 Test Method for Pull-Off Strength of Coatings Using Portable Adhesion Testers
 - E84-15b Standard Test Method for Surface Burning Characteristics of Building Materials
 - E96-12 Test Method for Water Vapor Transmission of Materials
 - E779-10 Standard Test Method for Determining Air Leakage Rate by Fan Pressurization
 - E783-02(2010) Standard Test Method for Field Measurement of Air Leakage Through Installed Exterior Windows and Doors
 - E1186-03 (2009) Standard Practices for Air Leakage Site Detection in Building Envelopes and Air Barrier Systems
 - E1827-11 Standard Test Methods for Determining Airtightness of Buildings Using an Orifice Blower Door
 - E2178-13 Test Method for Air Permeance of Building Materials
 - E2357-05 Standard Test Method for Determining Air Leakage of Air Barrier Assemblies
- E. APA – The Engineered Wood Association
 - E30W-2017 Engineered Wood Construction Guide
- F. American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc. (ASHRAE)
 - ASHRAE 2017, Handbook-Fundamentals

- ASHRAE 90.1 2016, Energy Standard for Buildings Except Low-Rise Residential Buildings
- ASHRAE 189.1 2014, Standard for the Design of High Performance Green Buildings Except Low-Rise Residential Buildings
- G. NFPA – National Fire Protection Association
 - NFPA 285 2109, Standard Fire Test Method for Evaluation of Fire Propagation Characteristics of Exterior Non-Load-Bearing Wall Assemblies Containing Combustible Components
- H. South Coast Air Quality Management District (SCAQMD)
 - Rule 1113(2016) Architectural Coatings

1.6 COORDINATION/SCHEDULING

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

- A. Coordinate installation of foundation waterproofing, roofing membrane, windows, doors and other wall penetrations to provide a continuous air and moisture barrier.
- B. Provide protection of rough openings before installing windows, doors, and other penetrations through the wall.
- C. Provide sill flashing to direct water to the exterior before windows and doors are installed.
- D. Install window and door head flashing immediately after windows and doors are installed.
- E. Install diverter flashings wherever water can enter the assembly to direct water to the exterior.
- F. Install parapet cap flashing and similar flashing at copings and sills to prevent water entry into the wall assembly.
- G. Install cladding within 180 days of air and moisture barrier installation.

1.7 SUBMITTALS

- A. Manufacturer's specifications, details and product data.
- B. Manufacturer's standard warranty.
- C. Samples for approval as directed by architect or owner.
- D. 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.

1.8 QUALITY ASSURANCE

- A. Manufacturer requirements
 - 1. Manufacturer of exterior wall air and moisture barrier materials for a minimum of 35 years in North America.

2. Maintain current registered ISO 9001:2015 Certified Quality System and ISO 14001:2015 Certified Environmental Management System
- B. 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.
- C. Regulatory Compliance
1. Primary air barrier and joint treatment materials:
 - a. Comply with VOC requirements for Building Envelope Coatings of SCAQMD Rule 1113 - 2016.
 - b. Comply with air barrier material requirements of ASHRAE 90.1 – 2016
 - c. Comply with air barrier material requirements of ASHRAE 189.1 – 2014
 - d. Comply with 2015 and 2018 IRC requirement for a continuous air barrier
 - e. Comply with air barrier material requirements of 2015 and 2018 IBC and IECC
 - f. Comply with 2015 ICC-ES AC 212 requirements for Water-Resistive Coatings Used as Water-Resistive Barriers over Exterior Sheathing
- D. 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.

1.9 PRE-CONSTRUCTION TESTING

- A. Conduct site testing by qualified test agency or building envelope consultant.
1. Conduct assembly air leakage testing in accordance with ASTM E783.
 2. Conduct adhesion testing to substrates in accordance with ASTM D4541.
 3. Conduct wet sealant compatibility testing in accordance with sealant manufacturer's field quality control test procedure.
 4. Notify design professional minimum 7 days prior to testing.

1.10 DELIVERY, STORAGE AND HANDLING

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

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

1.11 PROJECT/SITE CONDITIONS

- A. Maintain ambient and surface temperatures between 40 degrees F (4 degrees C) and 100 degrees F (38 degrees C), during application and drying period, and for minimum 24 hours after application of air/moisture barrier materials.
- B. Provide supplementary heat for installation in temperatures less than 40 degrees F (4 degrees C) or if surface temperature is likely to fall below 40 degrees F (4 degrees C).
- C. Provide protection of surrounding areas and adjacent surfaces from application of materials.

1.12 WARRANTY

- A. Provide manufacturer's standard warranty.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Sto Corp.
- B. Obtain primary air barrier and accessory air barrier materials from single source.

2.2 MATERIALS

- A. Primary Air Barrier Material: Sto AirSeal – ready-mixed flexible spray applied vapor permeable air and moisture barrier material
- B. Accessory Materials

(Select one of the following options)

- 1. Sheathing Joint, Rough Opening, Shingle Lap at Flashing, Small Penetrations or Attachments (scupper, pipe, electrical box) and other static transitions in above grade wall construction
 - a. Sto RapidGuard™: one component STPE rapid drying gun-applied material
 - b. Sto Gold Fill® with StoGuard Mesh: 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
 - c. Sto AirSeal with StoGuard Fabric: flexible air and moisture barrier material with non-woven integrally reinforced embedded cloth reinforcement

(Select one of the following options)

- 2. Sheathing to Foundation, Dissimilar Materials (CMU to frame wall), Wall to Balcony Floor Slab or Ceiling and other detailing in above grade wall construction

- a. Sto AirSeal with StoGuard Transition Membrane: flexible air and moisture barrier with embedded flexible membrane material
 - b. Sto RapidGuard™: one component STPE rapid drying gun-applied material
3. Floor Line Deflection Joints, Masonry Control Joints, Through Wall Joints in Masonry or Frame Construction, and other dynamic joints conditions in above grade wall construction
- a. Sto AirSeal with StoGuard Transition Membrane: flexible air and moisture barrier with embedded flexible membrane material

Auxiliary materials (furnished by others)

C. Auxiliary Materials

1. Wet sealant: compatible sealant for dynamic joints
2. Pre-cured sealant tape: compatible flexible joint sealant tape for dynamic joints
3. Spray foam: compatible low expanding spray foam for gaps and cracks

D. Patching and Leveling Material for Concrete and Masonry

1. Sto Leveler: polymer modified cementitious patch and leveling material for prepared concrete and masonry surfaces for leveling up to 1/4 inch (6 mm).
2. Sto BTS Xtra: polymer modified lightweight cementitious patch and leveling material for prepared concrete and masonry surfaces for leveling up to 1/8 inch (3 mm).

E. Fluid Applied Block Filler for Masonry

1. StoPrime Block Surfacers HP: acrylic-based block filler for CMU surfaces applied by brush, roller or spray.

2.3 PERFORMANCE REQUIREMENTS

- A. Water Penetration Resistance Rating: AAMA 509, W1 in StoVentec Systems
- B. Water Column: AATCC 127 (modified), no water penetration at 5 hours
- C. Crack Bridging: ASTM C1305, no cracking after 10 cycles at -15° F (-26° C)
- D. Tensile Strength: ASTM D412, > 15 psi (103 kPa)
- E. Elongation: ASTM D412, > 500% at 40 mil DFT, > 450% at 30 mil DFT
- F. Resistance to mold growth: ASTM D3273, Rating = 10, no growth at 70 days
- G. Adhesion: joint treatment and primary air barrier material, ASTM D 4541, ≥ 15 psi (103 kPa), or exceeds strength of glass mat facing on glass mat gypsum substrates
- H. Surface burning: ASTM E84, Flame Spread < 25, Smoke Developed < 100, Class A Building Material
- I. Water vapor permeability: ASTM E96 Method B, > 12 perms (689 ng/Pa·s·m²)
- J. Air permeance: ASTM E2178, ≤ 0.004 cfm/ft² (0.02 L/s·m²) air leakage at 1.57 psf (75 Pa)

- K. Assembly air leakage: ASTM E2357, ≤ 0.04 cfm/ft² (0.2 L/s·m²) air leakage after conditioning protocol
- L. Durability, water penetration resistance: comply with ICC-ES AC 212
- M. Fire propagation: meets requirements of NFPA 285 for use on Types I-IV construction as listed in ICC ESR 1233 and Intertek Design Listing STO/CWP 30-01 and 30-02
- N. Volatile Organic Compounds: SCAQMD Rule 1113, joint treatment and primary air barrier material < 50 g/L
- O. Water-resistive barrier: ICC ES 212, joint treatment and primary air barrier material comply

2.4 DESIGN CRITERIA

- A. Structural (Wind and Axial Loads)
 - 1. Design for maximum allowable deflection normal to the plane of the wall of: 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.
- B. Moisture Control
 - 1. Prevent the accumulation of water in the wall assembly and behind the exterior wall cladding:
 - a. Minimize condensation within the assembly.
 - b. Drain water directly to the exterior where it is likely to penetrate components in the wall assembly (windows and doors, for example).
 - c. 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.
- C. Air Barrier Continuity: provide continuous air barrier assembly of compatible air barrier components.
- D. Substrates
 - 1. Concrete Masonry Units: provide CMU surfaces in conformance with the applicable 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 one coat of the primary air barrier material applied by spray at minimum 50 wet mils (30 mil DFT), and minimum 66 wet mils (40 DFT) where 40 DFT is specified. Alternatively, for “rough” CMU wall surfaces allow for a cementitious parge coat to fill and level irregular surfaces, prior to one coat of the primary air barrier material at minimum 50 wet mils (30 mil DFT).
 - 2. Concrete: provide concrete in conformance with the applicable building code.
 - 3. Sheathing: provide gypsum sheathing in compliance with ASTM C1177, provide APA Exterior or Exposure 1 wood-based sheathing, and provide frame/sheathing assembly that meets required design wind pressures.

- E. Mechanical Ventilation: maintain pressurization and indoor humidity levels in accordance with recommendations of ASHRAE (see 2017 ASHRAE Handbook—Fundamentals).

PART 3 EXECUTION

3.1 EXAMINATION

- A. 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 air and moisture barrier and record any areas of moisture damage or excess moisture.
 - 6. Flush masonry mortar joints completely filled with mortar.
- B. Inspect sheathing application for compliance with applicable requirement:
 - 1. Exterior Grade and Exposure I wood based sheathing: E30W-2017, Engineered Wood Construction Guide, and the requirements of the applicable building code.
 - 2. Glass mat faced gypsum sheathing in compliance with ASTM C1177: consult manufacturer’s published recommendations and ICC ES Report. Conform with project requirements for wind load resistance.
 - 3. Cementitious sheathing – Consult manufacturer’s published recommendations and ICC ES Report. Conform with project requirements for wind load resistance.
- C. 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

IMPORTANT: for “rough CMU wall surfaces skim coat the entire wall surface with the levelling materials to fill and level the surface prior to applying the air and moisture barrier membrane and transition materials. Use the mock-up and site tests as the basis for the work.

- A. 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 or 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 1/8 inch [3 mm] thick) or Sto Leveler (up to 1/4 inch [6 mm] thick).

4. Repair non-structural cracks up to 1/8 inch (3 mm) wide by raking with a sharp tool to remove loose, friable material and blow clean with oil-free compressed air. Apply primary air barrier material over crack by roller or knife at minimum 20 wet mils (12 DFT) and allow to dry.

B. 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 or 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 1/8 inch [3 mm] thick) or Sto Leveler (up to 1/4 inch [6 mm] thick).
4. Repair non-structural cracks up to 1/8 inch (3 mm) wide by raking with a sharp tool to remove loose, friable material and blow clean with oil-free compressed air. Apply primary air barrier material over crack by roller or knife at minimum 20 wet mils (12 DFT) and allow to dry.

C. 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 surface defects and over-driven fasteners with knife grade joint treatment material or air/moisture barrier coating.

3.3 INSTALLATION

3.3.1 Air/Moisture Barrier Installation over Exterior or Exposure I Wood-Based Sheathing (Plywood and OSB), Glass Mat Faced Gypsum Sheathing in compliance with ASTM C 1177, concrete, and concrete masonry (CMU) wall construction

- A. 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 line.
- B. Transition Detailing: detail transition areas with Sto RapidGuard or StoGuard Transition Membrane to achieve air barrier continuity. For illustrations of installation, refer to Sto Guide Details and Sto RapidGuard Installation Guide or StoGuard Transition Membrane Installation Guide (www.stocorp.com).
- C. Rough opening protection
 1. Install rough opening protection. Refer to Sto details and applicable Sto product bulletins.
- D. Sheathing joints

1. Install joint treatment material over sheathing joints. Refer to Sto details and applicable Sto product bulletins.

E. Air and moisture barrier coating

Sto AirSeal is formulated for airless spray or roller application and can be applied by spray to as much as 66 wet mils to achieve 40 DFT thickness if required by specifications. Performance properties are based on a minimum 50 wet mil application to achieve minimum 30 DFT. Roller application typically requires multiple coats to achieve required minimum mil thickness of 30 DFT.

1. Concrete, Concrete Masonry, and Sheathing
 - a. Airless spray application – Apply Sto AirSeal to the prepared substrate using airless spray equipment that pumps a minimum 1 gallon (3.8 L) per minute. Suggested tip size is .029. Pressure and tip size may vary depending on equipment used. Spray uniformly at thickness of approximately 50 wet mils to achieve minimum 30 DFT. Spray at approximately 66 wet mils where 40 mil DFT is specified. If necessary, allow material to set slightly (up to 1 hour depending on weather and substrate conditions), and double back with a second pass to achieve total thickness. Alternatively, apply in two coats, allowing the first coat to fully dry.

IMPORTANT: For concrete masonry the number of coats and thickness of Sto AirSeal is highly dependent on CMU composition, unit weight (lightweight or normal weight), porosity, joint profile, and other variables that may exist. CMU surfaces may require back rolling of the first pass with a ¾ or 1 inch (19 or 25 mm) synthetic nap roller. 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 and transition materials. Use the mock-up and site tests as the basis for the work.

Avoid excess film build-up of wet material to prevent sag, especially on non-porous surfaces and during cold or damp weather. Work away from sun during application

3.4 FIELD QUALITY CONTROL

- A. Owner’s qualified testing agency or building envelope consultant shall perform inspections and tests.
- B. 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 line.

- C. Tests: air barrier materials and assembly are subject to tests to verify compliance with performance requirements:
 - 1. Qualitative air leakage test: ASTM E1186
 - 2. Quantitative air leakage test: ASTM E779, E783, and E1827
 - 3. Adhesion test: ASTM D4541
 - 4. Qualitative adhesion and compatibility testing: wet sealant manufacturer's field quality control adhesion test
- D. Repair non-conforming substrates and air barrier material installation to conform with project requirements.
- E. Take corrective action to repair and replace, or reinstall materials, seal openings, gaps, or other sources of air leakage to conform with project performance requirements.

3.5 PROTECTION AND CLEANING

- A. Protect air barrier materials from damage during construction caused by wind, rain, freezing, continuous high humidity, or prolonged exposure to sun light.
- B. Protect air barrier materials from damage from trades, vandals, and water infiltration during construction.
- C. Repair damaged materials to meet project specification requirements.
- D. Clean spills, stains, soiling from finishes or other construction materials that will be exposed in the completed work with compatible cleaners.
- E. 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 use of Sto products or use as part of an improperly designed or constructed larger assembly or building may result in serious damage to Sto products, and to the structure of the building or its components. **STO CORP. DISCLAIMS ALL WARRANTIES EXPRESS OR IMPLIED EXCEPT FOR EXPLICIT LIMITED WRITTEN WARRANTIES ISSUED TO AND ACCEPTED BY BUILDING OWNERS IN ACCORDANCE WITH STO'S WARRANTY PROGRAMS WHICH ARE SUBJECT TO CHANGE FROM TIME TO TIME.** For the fullest, most current information on proper application, clean-up, mixing and other specifications and warranties, cautions and disclaimers, please refer to the Sto Corp. website, www.stocorp.com.