



Building with conscience.

Sto Corp.

3800 Camp Creek Parkway
Building 1400, Suite 120
Atlanta, GA 30331
Tel: 404-346-3666
Toll Free: 1-800-221-2397
Fax: 404-346-3119
www.stocorp.com

Sto Guide Specification 81646

Sto AirSeal® Substrate-Driven Air and Water-resistive Barrier Specification

Section 07 27 26

Fluid-Applied Membrane Air Barriers – 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 Sto AirSeal to vertical above grade concrete, concrete masonry, and sheathed wall construction. Sto AirSeal is designed for use in Sto proprietary wall assemblies – StoVentec®, StoTherm® ci, StoPowerwall®, StoQuik® Silver, StoPanel®, and StoLite® – and other building code compliant wall assemblies.

*Sto AirSeal functions to restrict air movement through wall assemblies and to resist water penetration. When used as directed in combination with StoGuard Detail Components to connect with other air and water-resistive barrier components, Sto AirSeal creates a complete StoGuard Air and Water-resistive Barrier System. This 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. Sto AirSeal also works in conjunction with flashing to prevent water infiltration. Flashing must always be integrated with the air and water-resistive 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. Refer to Sto Guide Details and Sto Tech Hotline No. 0403-BSc, **Critical Detail Checklist for Wall Assemblies**, Sto Tech Hotline No. 0603-BSc, **Moisture Control Principles for Design and Construction of Wall Assemblies**, and Sto Tech Hotline No. 1001-BSc, **Effects of Temporary Heating on Construction Materials in Cold Weather**, at www.stocorp.com*

The function of an air barrier should not be confused with that of a vapor retarder. 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. A vapor retarder should not be used on the interior side of walls in warm humid climates. If a vapor retarder (or vapor impermeable) air barrier is desired refer to Sto Specification 80263 for a high build vapor impermeable air barrier.

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.

Table of Contents

PART 1	GENERAL	3
1.1	RELATED DOCUMENTS	3
1.2	SUMMARY	3
1.3	DEFINITIONS	3
1.4	PRE-INSTALLATION MEETINGS	3
1.5	REFERENCES	4
1.6	COORDINATION/SCHEDULING.....	5
1.7	SUBMITTALS.....	5
1.8	QUALITY ASSURANCE.....	6
1.9	PRE-CONSTRUCTION TESTING.....	6
1.10	DELIVERY, STORAGE AND HANDLING.....	7
1.11	PROJECT/SITE CONDITIONS.....	7
1.12	WARRANTY.....	7
PART 2	PRODUCTS	7
2.1	MANUFACTURERS.....	7
2.2	MATERIALS	7
2.3	PERFORMANCE REQUIREMENTS.....	8
2.4	DESIGN CRITERIA	9
PART 3	EXECUTION	10
3.1	EXAMINATION	10
3.2	SURFACE PREPARATION	11
3.3	INSTALLATION.....	12
3.4	FIELD QUALITY CONTROL.....	12
3.5	PROTECTION AND CLEANING.....	13

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 membrane air and water-resistive barrier 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 Acceptance Criteria for Water-Resistive Coatings Used as Water-Resistive Barriers over Exterior Sheathing
- B. AAMA – American Architectural Manufacturers Association Standards
 - AAMA 509 Voluntary Test and Classification Method of Drained and Back Ventilated Rain Screen Wall Cladding Systems
 - AAMA 711-20 Voluntary Specification for Self-Adhering Flashing Used for Installation of Exterior Wall Fenestration Products
 - AAMA 714-19 Voluntary Specification for Liquid Applied Flashing Used to Create a Water-Resistive Seal around Exterior Wall Openings in Buildings
- C. AATCC – American Association of Textile Chemists and Colorists
 - AATCC -TM127 (1985) 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
 - C1325-18 Standard Specification for Fiber-Mat Reinforced Cementitious Backer Units
 - D412-06 Standardized Test Methods for Vulcanized Rubber and Thermoplastic Elastomers – Tension
 - D1970-17 Standard Specification for Self-Adhering Polymer Modified Bituminous Sheet Materials Used as Steep Roofing Underlayment for Ice Dam Protection
 - 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
 - E72-10 Standard Test Methods of Conducting Strength Tests of Panels for Building Construction
 - E84-15b Standard Test Method for Surface Burning Characteristics of Building Materials
 - E96-12 Test Method for Water Vapor Transmission of Materials
 - E331-00 (2009) Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Uniform Static Air Pressure Difference
 - 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 |
| E1233-06 | Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights, and Curtain Walls by Cyclic Air Pressure Differential |
| 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 | 2019, Energy Standard for Buildings Except Low-Rise Residential Buildings |
| G. | NFPA – National Fire Protection Association |
| NFPA 285-2019 | 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 (South Coast AQMD) |
| Rule 1113 (2019) | 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 water-resistive 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 water-resistive 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 drawing of: 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 water-resistive barrier materials for a minimum of 35 years in North America.
 - 2. Maintain current registered ISO 9001 Certified Quality System and ISO 14001 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, rough opening, and sheathing joint treatment materials
 - a. Primary air barrier coatings: comply with South Coast AQMD-2019 Rule 1113 VOC requirements for Building Envelope Coatings
 - b. Comply with air barrier material requirements of ASHRAE 90.1 – 2016
 - c. Comply with 2015 and 2018 IBC and IRC requirements for a continuous air barrier
 - d. Comply with air barrier material requirements of 2015 and 2018 IBC, IRC, and IECC
 - e. Comply with requirements of 2015 ICC-ES AC 212
 - f. Liquid-applied flashing for rough openings and sheathing joints: complies with AAMA 714
 - g. Self-adhered flashing for rough openings and sheathing joints: complies with AAMA 711
- 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 and water-resistive barrier materials, unless permitted otherwise by manufacturer.
- 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, roller or spray applied vapor permeable air and water-resistive barrier material
- B. Accessory Materials

Select one of the following options

1. StoGuard Detail Components for: sealing sheathing joints and seams, small penetrations or attachments (scupper, pipe, electrical box) and other static transitions in above grade wall construction, rough opening protection, and counterflashing

- a. Sto RapidGuard®: one component gun-applied STPE liquid flashing, rough opening protection, joint treatment and transition detailing material
- b. StoGuard Conformable Membrane: self-adhered membrane flashing, rough opening protection, sheathing joint treatment, and transition detailing material
- c. 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
- d. Sto AirSeal with StoGuard Fabric: flexible air and water-resistive barrier coating used to embed non-woven integrally reinforced cloth reinforcement

Select one of the following options

2. StoGuard Detail Components for transitions: sheathing to foundation, dissimilar materials (e.g. CMU to frame wall), wall to balcony floor slab or ceiling, and other detailing in above grade wall construction
 - a. Sto RapidGuard®: one component gun-applied STPE liquid flashing, rough opening protection, joint treatment and transition detailing material
 - b. StoGuard Conformable Membrane: self-adhered membrane flashing, rough opening protection, sheathing joint treatment, and transition detailing material
3. Floor line deflection joints, masonry control joints, expansion joints in masonry or frame construction, and other dynamic joint conditions in above grade wall construction
 - a. StoGuard Conformable Membrane: self-adhered membrane flashing, rough opening protection, sheathing joint treatment, and transition detailing material

Auxiliary materials (furnished by others)

- C. Auxiliary Materials
 1. Wet sealant: compatible sealant for dynamic joints or for connections with other air barrier components
 2. Spray foam: compatible low expanding spray foam for filling gaps and cracks
- D. Patching and Leveling Material for Concrete and Masonry
 1. Sto Leveler and Skim Coat: polymer modified portland cement-based 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 portland cement-based lightweight 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. Air permeance: ASTM E2178, ≤ 0.004 cfm/ft² (0.02 L/s·m²) air leakage at 1.57 psf (75 Pa)
- B. Water vapor permeability: ASTM E96 Method B, > 10 perms (572 ng/Pa·s·m²) at nominal 40 mil DFT
- C. Surface burning: ASTM E84, Flame Spread ≤ 25 , Smoke Developed ≤ 100 , Class A Building Material
- D. Elongation: ASTM D412, $> 500\%$ at 40 mil DFT, $> 450\%$ at 30 mil DFT

- E. Tensile Strength: ASTM D412, > 15 psi (103 kPa)
- F. Crack Bridging: ASTM C1305, no cracking after 10 cycles at -15° F (-26° C)
- 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. Nail Sealability: ASTM D1970, no water penetration after 72 hours at 40°F (4°C)
- I. Resistance to Mold Growth: ASTM D3273, Rating = 10, no growth at 70 days
- J. Accelerated Weathering/Hydrostatic Pressure: ASTM E2570/AATCC 127 (modified), no cracking of the coating or bond failure, no water penetration after cyclic weathering & 5 hour water column (21.5 in [55 cm])
- K. Structural, Racking, Restrained Environmental Conditioning, and Resistance to Water Penetration: ASTM E2570/ E1233/ E72/E331 (par 6.6.3), no water penetration after sequence of 15 minute water sprays at 2.86, 6.24 psf (137, 299 Pa)
- L. Assembly air leakage: ASTM E2357, < 0.04 cfm/ft² (0.2 L/s·m²) air leakage after conditioning protocol
- M. Water Penetration Resistance Rating: AAMA 509, W1 in StoVentec Systems
- N. Fire Performance of Assembly: NFPA 285, meets requirements for use on Types I-IV construction as listed in ICC ESR 1233 and Intertek Design Listings STO/CWP 30-01 and 30-02, and Intertek CCRR-0454
- O. Volatile Organic Compounds: South Coast AQMD Rule 1113, knife grade joint treatments and primary air barrier material < 50 g/L
- P. Water-resistive Barrier: ICC ES AC 212, knife grade joint treatments, self-adhered membrane, 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).
 - 2. Concrete: provide concrete in conformance with the applicable building code.
 - 3. Sheathing:
 - a. Provide frame/sheathing assembly that meets required design wind pressures.
 - b. Provide gypsum sheathing in compliance with ASTM C1177
 - c. Provide Exterior Grade plywood sheathing in conformance with APA-The Engineered Wood Association E30, Engineered Wood Construction Guide
 - d. Provide Exposure 1 OSB (Oriented Strand Board) sheathing in conformance with APA-The Engineered Wood Association E30, Engineered Wood Construction Guide
 - e. Provide cementitious sheathing with ICC-ES listing or other nationally recognized product evaluation agency
- 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 water-resistive 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 water-resistive 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 water-resistive 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 1/8inch [3 mm] thick) or Sto Leveler and Skim Coat (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 WFT (12 DFT) and allow to dry. Consult a structural engineer for structural cracks.

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 and Skim Coat (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 WFT (12 DFT) and allow to dry. Consult a structural engineer for structural cracks.

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 or air and water-resistive barrier coating.

3.3 INSTALLATION

3.3.1 Air and water-resistive barrier installation over Exterior or Exposure I Wood-Based Sheathing (Plywood and OSB), Glass Mat Faced Gypsum Sheathing in compliance with ASTM C1177, Cementitious sheathing in compliance with ASTM C1325 Type A, 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 roofing.
- B. Transition Detailing: detail transition areas with appropriate StoGuard Detail Component. Refer to StoGuard Detail Booklets at www.stocorp.com.
- C. Rough opening protection
 - 1. Install rough opening protection. Refer to StoGuard Detail Booklets at www.stocorp.com.
- D. Sheathing joints
 - 1. Install joint treatment over sheathing joints. Refer to StoGuard Detail Booklets at www.stocorp.com.
- E. Air and Water-resistive Barrier
 - 1. Apply coating uniformly by airless spray or roller to achieve a VOID and PINHOLE FREE surface on all substrates. Back roll when applying by airless spray on CMU and OSB substrates.
 - 2. Glass Mat Gypsum: apply one coat at minimum 20 mils WFT
 - 3. Plywood: apply one coat at minimum 20 mils WFT
 - 4. Cementitious Sheathing: apply one coat at minimum 20 mils WFT
 - 5. OSB: apply one or two coats at minimum 20 mils WFT. Touch up any bare spots and raised OSB strands.
 - 6. CMU: apply one, two, or three coats at 20-65 mils WFT. If applied by roller, apply minimum two coats.
 - 7. Concrete: apply one coat at minimum 20 mils WFT

IMPORTANT: the condition of the substrate may dictate thicker application or more coats to achieve a VOID and PINHOLE FREE SURFACE, particularly on substrates like concrete masonry where CMU composition, unit weight (lightweight or normal weight), porosity, joint profile, and other variables may exist. For "rough" CMU wall surfaces level with a Sto portland cement based leveler or fill with StoPrime Block Surfacer HP before applying the coating. 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 roofing.
- 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, and to 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.