**Tremco, Inc. Commercial Sealants & Waterproofing**

**Section 07 27 16.02 SELF-ADHERED BUTYL SHEET AIR BARRIERS, VAPOR-RETARDING  
Guide Specification**

Specifier: This guide specification section specifies **Tremco ExoAir® 110AT** vapor-retarding self-adhering sheet-type air barrier.

ExoAir 110AT Self-Adhered Air and Vapor Membrane is a 22 mil composite sheet designed for use as the membrane or as a component of an air barrier system. ExoAir 110AT comprises 16 mils of high-performance butyl laminated to a 6 mil high-density polypropylene film and a siliconized release liner.

ExoAir 110AT is an impermeable, self-adhered sheet designed to be applied to exterior cavity walls in order to control air infiltration/exfiltration, vapor transmission and water penetration. Typically applied to exterior sheathing boards and concrete block, ExoAir 110AT can also be applied to poured concrete, steel and wood-based substrates and serves as a detailing or transition membrane into window and door openings. ExoAir 110AT is designed to be installed when both the air and surface temperature are 20 ˚F (‑6 ˚C) and rising.

Basic Uses

• Designed to be applied to exterior cavity walls to prevent air infiltration/exfiltration, vapor transmission and water penetration

• Typically applied to exterior sheathing boards and concrete block. Can also be applied to concrete, wood, aluminum and steel substrates

• Also used as a transition membrane into door and window openings and is designed for compatible use with other ExoAir air barrier products

• Used to tie into metal on windows, doors and curtainwall systems

• Typically installed without primer

Other Tremco Air Barrier Products:

• For Tremco ExoAir 110 vapor-retarding modified bituminous sheet air barrier, use Tremco Section 07 27 13.

• For Tremco ExoAir 110AT self-adhered butyl sheet air barriers, use Tremco Section 07 27 15.01.

• For Tremco ExoAir 120 vapor-retarding fluid-applied membrane air barrier, use Tremco Section 07 27 26.01.

• For Tremco ExoAir 220 vapor-permeable fluid-applied membrane air barrier, use Tremco Section 07 27 26.02. ExoAir 220 is a roller-applied product.

• For Tremco ExoAir 230 vapor-permeable fluid-applied synthetic membrane air barrier tested for NFPA 285 compliance, use Tremco Section 07 27 26.03. ExoAir 230 may be roller- or trowel-applied.

• For Tremco/USG SECUREROCK ExoAir 430 factory-applied to gypsum board substrate, use Tremco Section 07 27 23.

This section is easily edited using several common commercial specification software tools.

We recommend you consult with your Tremco construction technical representative, who can be contacted through: Tremco, Inc., Commercial Sealants and Waterproofing Division, Beachwood OH; (866) 321-6357; email: [techresources@tremcoinc.com](mailto:techresources@tremcoinc.com); [www.tremcosealants.com](http://www.tremcosealants.com).

Tremco products appear in the following CSI MasterFormat guide specifications available from Tremco:

• Section 07 01 91 Joint Sealant Rehabilitation and Replacement

• Section 07 14 13.01 Hot Fluid-Applied Waterproofing, Deck (TREMproof 6100)

• Section 07 14 13.02 Hot Fluid-Applied Waterproofing, Vegetated Roof (TREMproof 6100)

• Section 07 14 16.01 Cold Fluid-Applied Waterproofing, Vertical and Deck (TREMproof 250GC)

• Section 07 14 16.02 Cold Fluid-Applied Waterproofing, Vertical (TREMproof 250GC)

• Section 07 14 16.03 Cold Fluid-Applied Waterproofing, Deck (TREMproof 250GC)

• Section 07 14 16.04 Cold Fluid-Applied Waterproofing, Vegetative Roof (TREMproof 250GC)

• Section 07 17 16.01 Bentonite Waterproofing (Paraseal)

• Section 07 17 16.02 Bentonite Waterproofing (Paraseal GM/LG 60 mil)

• Section 07 18 00.01 Traffic Coatings, Vehicular

• Section 07 18 00.02 Traffic Coatings, Pedestrian

• Section 07 18 00.03 Traffic Coatings, Mechanical Rooms

• Section 07 27 13 Modified Bituminous Sheet Air Barriers, Vapor-Retarding (ExoAir 110)

• Section 07 27 23 Board Product Air Barriers, Vapor Permeable (SECUREROCK ExoAir 230)

• Section 07 27 26.01 Fluid-Applied Membrane Air Barriers, Vapor-Retarding (ExoAir 120)

• Section 07 27 26.02 Fluid-Applied Membrane Air Barriers, Vapor Permeable (ExoAir 220)

• Section 07 27 26.03 Fluid-Applied Membrane Air Barriers, Vapor Permeable (ExoAir 230)

• Section 07 92 00 Joint Sealants

• Section 08 85 00 Glazing Sealants

• Section 32 13 73 Concrete Paving Joint Sealants

This document includes Specifier notes in hidden text. To view hidden text, [www.bim.net/displaying-hidden-text-in-microsoft-word-step-by-step-instructions-for-windows-and-mac/](http://www.bim.net/displaying-hidden-text-in-microsoft-word-step-by-step-instructions-for-windows-and-mac/)

Paraseal®, TREMproof®, ExoAir®, Spectrem®, Tremflex®, Dymeric®, and Proglaze® are registered trademarks of Tremco, Inc.

SECUREROCK® is a registered trademark of United States Gypsum Company.

GREENGUARD® is a registered trademark of UL LLC.   
This document is Copyright© 2014 by Tremco, Inc.

2016.07.28

SECTION 07 27 15.02 – BUTYL SHEET AIR BARRIERS

GENERAL

* + - 1. SUMMARY
         1. Section includes self-adhering metallized butyl sheet membrane air barriers, vapor retarding.
      2. RELATED REQUIREMENTS

Specifier: If retaining this optional Related Requirements Article, edit to include only those sections included in project manual.

Division 01 Section "Sustainable Design Requirements" for additional requirements, including [LEED] documentation requirements.

Section 04 20 00 "Unit Masonry" for [air barrier substrates and] compatibility with flashing components.

Section 04 21 13 "Brick Masonry" for compatibility with flashing components.

Section 06 16 00 "Sheathing" for air barrier substrates [and joint treatments].

Division 07 roofing Sections for roof assembly air barriers and interface coordination.

Division 08 exterior openings sections for framing for [aluminum-framed entrances and storefronts] [aluminum windows] [glazed aluminum curtain walls] [louvers and vents] receiving air barrier transition assembly specified in this Section.

* + - 1. REFERENCES

Specifier: If retaining this optional References Article, edit to include only those references cited in the edited section.

* + - * 1. References, General: Versions of the cited standards current as of the date of issue of the project apply to the Work of this Section.
        2. ASTM International (ASTM): [www.astm.org](http://www.astm.org):

ASTM A 240/A 240M - Standard Specification for Chromium and Chromium-Nickel Stainless Steel Plate, Sheet, and Strip for Pressure Vessels and for General Applications

ASTM C 920 - Standard Specification for Elastomeric Joint Sealants

ASTM C 1193 - Guide for Use of Joint Sealants

ASTM D 412 - Standard Test Methods for Vulcanized Rubber and Thermoplastic Elastomers - Tension

ASTM E 84 - Standard Test Method for Surface Burning Characteristics of Building Materials

ASTM E 96/E 96M - Standard Test Methods for Water Vapor Transmission of Materials

ASTM E 162 - Standard Test Method for Surface Flammability of Materials Using a Radiant Heat Energy Source

ASTM E 783 - Standard Test Method for Field Measurement of Air Leakage through Installed Exterior Windows and Doors

ASTM E 1186 - Practices for Air Leakage Site Detection in Building Envelopes and Air Barrier Systems

ASTM E 2178 - Standard Test Method for Air Permeance of Building Materials

ASTM E 2357 - Standard Test Method for Determining Air Leakage of Air Barrier Assemblies

* + - * 1. California Department of Public Health: [www.cdph.ca.gov](http://www.cdph.ca.gov)

Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers.

* + - * 1. National Fire Protection Association (NFPA): [www.nfpa.org](http://www.nfpa.org):

NFPA 285 - Standard Fire Test Method For Evaluation Of Fire Propagation Characteristics Of Exterior Non-Load-Bearing Wall Assemblies Containing Combustible Components

* + - * 1. UL Environment Greenguard Certification: [www.greenguard.org](http://www.greenguard.org)

Greenguard Certification Product Guide

* + - * 1. U. S. Environmental Protection Agency (EPA): [www.epa.gov](http://www.epa.gov):

40 CFR 59, Subpart D - National Volatile Organic Compound Emission Standards for Architectural Coatings

* + - * 1. US Green Building Council (USGBC): [www.usgbc.org](http://www.usgbc.org):

Leadership in Energy and Environmental Design (LEED) Green Building Rating System

* + - 1. ADMINISTRATIVE REQUIREMENTS
         1. Coordination: Coordinate installation of joint sealants with cleaning of joint sealant substrates and other operations that may impact installation or finished joint sealant work.
         2. Preinstallation Conference: Conduct conference at Project Site.

Review requirements for air barrier products and installation, project and manufacturer's details, mockups, testing and inspection requirements, and coordination and sequencing of air barrier work with work of other Sections.

Specifier: Tremco provides detailed video instructional materials and an extensive library of details for utilizing at preconstruction conferences and at commencement of work to ensure proper application of air barrier system components at wall openings.

Review manufacturer's instructions for air barrier application meeting Project requirements for substrates specified, including three-dimensional video model demonstrating proper application of components at wall openings.

* + - 1. ACTION SUBMITTALS
         1. Product Data: For each type of air barrier product specified, including:

Technical data indicating compliance with requirements.

Substrate preparation instructions and recommendations.

* + - * 1. LEED Submittals:

Specifier: Retain subparagraph below for LEED-NC Credit EQ 4.1 Low-Emitting Materials, applying to materials located inside the building primary weather barrier.

LEED NC Credit IEQ 4.1: Product data for air barrier components applied inside the weather envelope. Including statement of VOC content.

Specifier: Retain subparagraph below for LEED for Schools Credit EQ 4.1, applying to materials located inside the building primary weather barrier.

LEED for Schools Credit EQ 4: Laboratory test reports for sealants and sealant primers applied inside the weather envelope, documents indicating compliance with California Department of Health Services testing and product requirements "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers."

* + - * 1. Shop Drawings: Show locations for air barrier. Show details for each type of substrate, joints, and edge conditions, including flashings, counterflashings, penetrations, transitions, and terminations.

Show location of flashing transition assemblies.

* + - 1. INFORMATIONAL SUBMITTALS
         1. Qualification Data: For Installer, manufacturer[, and Air Barrier Inspector].

Certification of manufacturer's approval of Installer.

* + - * 1. Manufacturer's Product Compatibility Certificate: Certify compatibility of air barrier products with adjacent materials.
        2. Low-Emitting Product Certificate: For air barrier products specified to meet volatile organic emissions standards, submit Greenguard Children and Schools Certification or comparable certification acceptable to Architect.
        3. Product Test Reports: Test data for air barrier products and air barrier assembly, by qualified testing agency, indicating proposed membrane air barrier meets performance requirements, when requested by Architect.
        4. Warranty: Sample of unexecuted manufacturer and installer special warranties.
        5. Field quality control reports.
      1. QUALITY ASSURANCE
         1. Installer Qualifications: A firm with minimum [three] years experience in installation of similar products in successful use on similar projects, employing workers trained by manufacturer, including a full-time on-site supervisor with a minimum of [three] years experience installing similar work, able to communicate verbally with Contractor[, Architect,] and employees.
         2. Manufacturer Qualifications: A qualified manufacturer listed in this Section with minimum five years experience in manufacture of air barrier membrane as one of its principal products.

Manufacturer's product submitted has been in satisfactory operation on five similar installations for at least five years.

Specifier: Retain "Approval of Manufacturers and Comparable Products" Paragraph below to provide control over qualifying of substituted manufacturers.

Approval of Manufacturers and Comparable Products: Submit the following in accordance with project substitution requirements, within time allowed for substitution review:

Completed and signed Substitution Request form.

Product data, including certified independent test data indicating compliance with requirements.

Sample shop drawings from similar project.

Project references: Minimum of five installations of similar system not less than five years old, with Owner and Architect contact information.

Sample warranty.

Specifier: Retain "Testing Agency Qualifications" Paragraph if Contractor is required to provide independent inspections under Part 3 Field Quality Control article.

* + - * 1. Testing Agency Qualifications: Qualified independent agency experienced in the installation of the specified waterproofing system, and qualified to perform observation and inspection specified in Field Quality Control Article to determine Installer’s compliance with the requirements of this Project, acceptable to Architect, retained by the Contractor.
        2. Mockups: Provide air barrier mockup application within mockups required in other sections, or if not specified, in an area of not less than 150 sq. ft. (14 sq. m) of wall surface where directed by Architect for each type of backup wall construction. Include examples of surface preparation, crack and joint treatment, air barrier application, and flashing, transition, and termination conditions, to set quality standards for execution.

Include intersection of wall air barrier with roof air barrier and with foundation wall intersection.

* + - 1. DELIVERY, STORAGE AND HANDLING
         1. Accept materials on site in manufacturer's unopened original packaging.
         2. Store products in weather protected environment, clear of ground and moisture, within temperature ranges recommended by air barrier manufacturer.

Specifier: Retain first option in "Construction Waste" Paragraph below for LEED projects; retain second option for other projects.

* + - * 1. Construction Waste: Store and dispose of packaging materials and construction waste in accordance with requirements of Division 01 Section ["Construction Waste Management"] ["Temporary Facilities and Controls."]
      1. ENVIRONMENTAL REQUIREMENTS
         1. Environmental Limitations: Apply air barrier within the range of ambient and substrate temperatures recommended by air barrier manufacturer.

Protect substrates from environmental conditions that affect air barrier performance.

Do not apply air barrier to a damp or wet substrate or during snow, rain, fog, or mist.

* + - 1. SCHEDULING
         1. Coordinate installation of membrane air barrier with completion of roofing and other work requiring interface with air barrier.
         2. Schedule work so air barrier applications may be inspected prior to concealment.
         3. Ensure air barrier materials are cured before covering with other materials.
      2. WARRANTY

Specifier: Consult Tremco representative for available special project warranty terms and conditions.

* + - * 1. Special Manufacturer's Warranty: Manufacturer's standard form in which air barrier manufacturer agrees to furnish and install air barrier material to repair or replace those materials installed according to manufacturer's written instructions that exhibit material defects or otherwise fail to perform as specified under normal use within warranty period specified.

Access for Repair: Owner shall provide unimpeded access to the Project and the air barrier system for purposes of testing, leak investigation, and repair, and shall reinstall removed cladding materials upon completion of repair.

Cost Limitation: Manufacturer's obligation for repair or replacement shall be limited to the original installed cost of the work.

Warranty Period: [**X**] years date of Substantial Completion.

* + - * 1. Special warranties specified in this article exclude deterioration or failure of air barrier materials from the following:

Movement of the structure caused by structural settlement or stresses on the air barrier exceeding manufacturer's written specifications for elongation.

Mechanical damage caused by outside agents.

PRODUCTS

* + - 1. MANUFACTURERS

Specifier: Retain option for substitutions below and edit if required for project.

* + - * 1. Basis-of-Design Products: Provide air barrier products manufactured by **Tremco, Inc., Commercial Sealants and Waterproofing Division,** Beachwood OH; (866) 321-6357; email: [techresources@tremcoinc.com](mailto:techresources@tremcoinc.com); [www.tremcosealants.com](http://www.tremcosealants.com), [or comparable products of other manufacturer approved by Architect in accordance with Instructions to Bidders and Division 01 General Requirements].
      1. MATERIALS, GENERAL
         1. Source Limitations: Obtain air barrier materials from single source from single manufacturer.

Specifier: Paragraph and related subparagraphs below may apply to LEED-NC, LEED-CI, and LEED-CS Credit IEQ 4.1. Verify additional limitations on VOCs of authorities having jurisdiction.

* + - * 1. VOC Content: 250 g/L maximum per 40 CFR 59, Subpart D (EPA Method 24) and complying with requirements of authorities having jurisdiction.

Specifier: Paragraph and related subparagraphs below may apply to LEED for Schools Credit IEQ 4.

* + - * 1. Low-Emitting Products: Provide sealants and sealant primers complying with the testing and product requirements of the California Department of Health Services' "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers."
        2. Compatibility: Provide membrane air barrier materials that are compatible with one another and with adjacent materials under conditions of service and application required, as demonstrated by membrane air barrier manufacturer based on testing and field experience.
      1. PERFORMANCE REQUIREMENTS
         1. General: Sheet membrane air barrier shall be capable of performing as a continuous vapor- permeable air barrier and as a moisture drainage plane transitioned to adjacent flashings and discharging water to the building exterior. Sheet membrane air barriers shall accommodate substrate movement and seal expansion and control joints, construction material transitions, opening transitions, penetrations, and perimeter conditions without moisture deterioration and air leakage exceeding performance requirements.
         2. Air Barrier Assembly Air Leakage: Maximum 0.04 cfm/sq. ft. of surface area at 1.57 lbf/sq. ft. (0.2 L/s x sq. m of surface area at 75 Pa), when tested according to ASTM E 2357.
         3. Fire Propagation Characteristics: Provide air barrier system qualified as a component of a comparable wall assembly that has been tested and passed NFPA 285.
      2. SELF-ADHERING SHEET AIR BARRIER
         1. Self-Adhered Butyl Sheet Air Barrier: Composite membrane, with not less than 16 mils of butyl laminated to not less than 6 mils metalized high-density polyethylene film.

Basis of Design Product: **Tremco, Inc., ExoAir 110AT**.

Material Air Permeance, ASTM E 2178: Less than 0.001 L/sm² at 75-Pa pressure difference.

Vapor Permeance, ASTM E 96/E96M Dry Cup: Maximum 0.02 US perms

Assembly Air Leakage, ASTM E 2357: 0.003 L/sm² at 75 Pa

* + - 1. ACCESSORY MATERIALS
         1. General: Accessory materials as described in manufacturer's written installation instructions, recommended to produce complete air barrier assembly meeting performance requirements, and compatible with air barrier membrane material and adjacent materials.
         2. Substrate Patching Material: Manufacturer's standard trowel-grade filler material.
         3. Primer: Liquid primer recommended for substrate by membrane air barrier manufacturer.
         4. Counterflashing Strip: Modified bituminous, 40 mils (1.0 mm) thick self-adhering composite sheet consisting of 32 mils (0.8 mm) of SBS rubberized asphalt laminated to an 8 mils (0.2 mm) high-density, cross-laminated polyethylene film, for counterflashing of metal flashings and for substrate transitions and for termination of air barrier to bituminous roof membranes and to air barrier terminations at openings.

Basis of Design Product: **Tremco, Inc., ExoAir TWF Thru-Wall Flashing.**

* + - * 1. Butyl Strip: Vapor retarding, 22 mils thick, self-adhering high-density polypropylene surface laminated to layer of butyl adhesive with release liner backing, for termination of air barrier to EPDM or TPO roof membranes. Fixed EA 110AT to show once at the proper mils. The mils are 18 mils.

Basis of Design Product: **Tremco, Inc., ExoAir 110AT.**

* + - * 1. Reinforcing Fabric: High strength mesh fabric consisting of open-weave glass fiber saturated with synthetic resins formulated for high moisture resistance, for reinforcing of liquid and mastic applications; not less than 2.5 oz/sq. yd (85 g/sq. m).

Basis of Design Product: **Tremco, Inc., Tremco 2011.**

* + - * 1. Termination Mastic: Air barrier manufacturer's standard cold fluid-applied elastomeric liquid; trowel grade, with recommended glass-fiber-mesh tape.

Basis of Design Product: **Tremco, Inc., ExoAir Termination Mastic.**

* + - * 1. Stainless-Steel Sheet: ASTM A 240/A 240M, Type 304, 0.0187 inch (0.5 mm) thick, and Series 300 stainless-steel fasteners.

Specifier: Tremco recommends including opening transition assembly described below either in this Section or in applicable Division 08 openings sections.

* + - * 1. Opening Transition Assembly: Cured low-modulus silicone extrusion, with reinforcing ribs, sized to fit opening widths, [with aluminum race for insertion into aluminum framing extrusions,] with the following characteristics:

Basis of Design Product: **Tremco, Inc., Proglaze ETA Engineered Transition Assembly**.

Tear Strength: 110 lb/in (19.3 kN/m).

* + - * 1. Preformed Silicone-Sealant Extrusion: Manufacturer's standard system consisting of cured low-modulus silicone extrusion, sized to fit opening widths, with manufacturer's recommended silicone sealant for bonding extrusions to substrates.

Basis of Design Product: **Tremco, Inc.; Spectrem SimpleSeal**.

* + - * 1. Liquid Joint Sealants:

ASTM C 920, single-component polyurethane, approved by air barrier manufacturer for adhesion and compatibility with membrane air barrier and accessories.

Basis of Design Product: **Tremco, Inc., Dymonic 100**.

ASTM C 920, single-component, neutral-curing silicone, approved by air barrier manufacturer for adhesion and compatibility with membrane air barrier and accessories.

Basis of Design Product: **Tremco, Inc., Spectrem 1**.

Single-component STPU, approved by air barrier manufacturer for adhesion and compatibility with membrane air barrier and accessories.

Basis of Design Product: **Tremco, Inc., ExoAir DualFlash®.**

* + - * 1. Preformed Foam Joint Sealant: Open-cell flexible polyurethane foam tape impregnated with synthetic resin.

Basis of Design Product: **Tremco, Inc., Eco**.

* + - * 1. Sprayed Polyurethane Foam Sealant: Foamed-in-place, 1.5- to 2.0-lb. /cu. ft. (24- to 32-kg /cu. m) density, for filling of gaps at openings and penetrations.

Basis of Design Product: **Tremco, Inc., Low-Expanding Flex Foam (LEF)**.

Surface-Burning Characteristics: ASTM E 84, Flame-Spread Index: 25 or less; Smoke-Developed Index: 450 or less.

EXECUTION

* + - 1. EXAMINATION
         1. Surface Condition: Before applying air barrier materials, examine substrates and conditions to ensure substrates are fully cured, smooth, clean, dry, and free from high spots, depressions, loose and foreign particles and other deterrents to adhesion, and conditions comply with manufacturer's written recommendations.

Verify concrete and masonry surfaces are visibly dry, have cured for time period recommended by membrane air barrier manufacturer, and are free from release agents, curing agents, and other contaminates. Test for capillary moisture by plastic sheet method according to ASTM D 4263.

Verify masonry joints are filled with mortar and struck flush.

Test substrates for adhesion when recommended by manufacturer.

* + - * 1. Proceed with installation only after unsatisfactory conditions have been corrected.
      1. INTERFACE WITH OTHER WORK
         1. Commencement of Work: Commence work once air barrier substrates are adequately protected from weather and will remain protected during remainder of construction.
         2. Sequencing of Work: Coordinate sequencing of air barrier work with work of other sections that form portions of building envelope air barrier to ensure that flashings and transition materials can be properly installed and inspected.
         3. Subsequent Work: Coordinate air barrier work with work of other sections installed subsequent to air barrier to ensure complete inspection of installed air barrier and sealing of air barrier penetrations necessitated by subsequent work.
      2. PREPARATION
         1. Clean, prepare, and treat substrate in accordance with air barrier manufacturer's written instructions.

Remove contaminants and film-forming coatings from substrates.

Remove projections and excess materials and fill voids with substrate patching material.

Prepare and treat joints and cracks in substrate per ASTM C 1193 and air barrier manufacturer's written instructions.

* + - 1. APPLICATION OF TRANSITION STRIPS
         1. General: Install strips and accessory materials according to air barrier manufacturer's written instructions and according to recommendations in ASTM D 6135. Install strips and transition strips to form connect and seal sheet air barrier material to adjacent components of building air barrier system, including, but not limited to, roofing system air barrier, exterior fenestration systems, door framing, and other openings and penetrations.
         2. Primer: Apply primer to substrates when recommended by manufacturer. Apply at required rate. Re-prime areas not covered within 24 hours.

Prime concealed perimeter frame surfaces of windows, storefronts, curtain walls, louvers, and doors when indicated by adhesion tests.

Prime other substrates when recommended by air barrier manufacturer.

* + - * 1. Strips: Apply strips to form air- and water- tight junction with other construction; apply material so that a minimum of 3 inches (75 mm) coverage is achieved over each substrate.

Assembly Transitions: Connect and seal exterior wall air barrier material continuously to roofing-membrane air barrier, concrete below-grade structures, floor-to-floor construction, exterior glazing and window systems, glazed curtain-wall systems, storefront systems, exterior louvers, exterior door framing, and other construction used in exterior wall openings, using accessory materials.

Rough Openings: Treat rough openings with a joint sealant bead in joints, followed by a base coat of air barrier membrane, install fabric and a final top coat of air barrier membrane

Opening Transitions: Fill gaps at perimeter of openings with foam sealant and level with termination mastic.

Penetrations: Fill gaps at perimeter of penetrations with foam sealant and level with termination mastic. Seal transition strips around penetrating objects with termination mastic.

Joints: Bridge and cover isolation joints, expansion joints, and discontinuous joints between separate assemblies utilizing overlapping modified bituminous strips.

Changes in Plane: Apply termination mastic beads at corners and edges to form smooth transition.

Substrate Gaps: Cover gaps with stainless steel sheet mechanically attached to substrate and providing continuous support for air barrier.

* + - * 1. Flashings: Seal top of through-wall flashings to membrane air barrier with continuous transition strips of type recommended by sheet air barrier manufacturer for type of flashing.
        2. Seal punctures, voids, and seams in strips. Patch with strips extending 6 inches (150 mm) beyond repaired areas.
      1. SELF-ADHERING SHEET AIR BARRIER INSTALLATION
         1. General: Apply sheet air barrier to form a seal with modified bituminous strips to achieve a continuous air barrier according to air barrier manufacturer's written instructions and according to recommendations in ASTM D 6135. Apply sheet air barrier within manufacturer's recommended application temperature ranges.
         2. Sheet Air Barrier: Apply and firmly adhere air barrier sheet material in full contact with substrate to produce a continuous seal with transition strips according to air barrier manufacturers written instructions. Maintain uniform lap widths and end laps of not less than 2-1/2-inch- (64-mm-). Stagger end laps. Seal seams to ensure airtight installation.

Apply air barrier sheet material over modified bituminous strips bridging joints, cracks, and gaps in substrate.

Seal top of through-wall flashings to air barrier sheet with additional 6-inch- (150-mm-) wide, modified bituminous strip.

Seal exposed edges of sheet at seams, cuts, penetrations, and terminations not concealed by metal counterflashings or ending in reglets with termination mastic or sealant.

Coordinate air-barrier installation with installation of roofing membrane and base flashing membrane to ensure continuity of air barrier with roofing membrane. Install compatible transition strip on roofing membrane or base flashing so that a minimum of 3 inches (75 mm) of coverage is achieved over each substrate.

* + - * 1. Connect and seal exterior wall air-barrier membrane continuously to subsequently-installed roofing-membrane air barrier, concrete below-grade structures, floor-to-floor construction, exterior glazing and window systems, glazed curtain-wall systems, storefront systems, exterior louvers, exterior door framing, and other construction used in exterior wall openings, using accessory materials.
        2. Wall Openings: Apply [opening transition assembly] [preformed silicone sealant extrusion] [modified bituminous transition strip] so that a minimum of 3 inches (75 mm) of coverage is achieved over each substrate. Maintain 3 inches (75 mm) of full contact over firm bearing to perimeter frames with not less than 1 inch (25 mm) of full contact. Apply continuous sealant at edges of sheet transition material.
        3. Seal punctures, voids, and seams in strips. Patch with strips extending 6 inches (150 mm) beyond repaired areas.

Specifier: Retain paragraph below when Project includes field quality control inspection prior to concealing work.

* + - * 1. Do not cover air barrier until it has been tested and inspected by Owner's testing agency.
        2. Correct deficiencies in or remove air barrier that does not comply with requirements; repair substrates and reapply air-barrier components.
      1. FIELD QUALITY CONTROL
         1. Testing Agency: Owner may engage a qualified testing agency to perform tests and inspections.

Specifier: Retain "Testing Agency" Paragraph below along with related rate of inspection subparagraphs if Contractor is required to include third party inspection of air barrier installation.

* + - * 1. Testing Agency: Contractor shall engage a qualified Inspector to perform tests and inspections, including documenting of membrane air barrier prior to concealment.

Inspections and testing shall be carried out at the following rate:

Up to 10,000 sq. ft. (930 sq. m): One inspection.

10,001 to 35,000 sq. ft. (931 to 3,250 sq. m): Two inspections.

35,001 to 75,000 sq. ft. (3,251 to 6,970 sq. m): Three inspections.

75,001 to 125,000 sq. ft. (6,971 to 11,610 sq. m): Four inspections.

125,001 to 200,000 sq. ft. (11,611 to 18,580 sq. m): Five inspections.

Over 200,000 sq. ft. (18,580 sq. m): Six inspections.

Scope of Testing: Testing shall include the following:

Qualitative air-leakage testing per ASTM E 1186.

Quantitative air-leakage testing per ASTM E 783.

Photo documentation of work to be subsequently concealed.

* + - * 1. Coordination of Testing: Cooperate with testing agency. Allow access to work areas and staging. Notify testing agency in writing of schedule for Work of this Section to allow sufficient time for testing and inspection.

Do not cover Work until testing and inspection is completed and accepted.

* + - * 1. Reporting: Forward written inspection reports to the Architect within 10 working days of the inspection and test being performed.
        2. Correction: Correct deficient applications not passing tests and inspections, make necessary repairs, and retest as required to demonstrate compliance with requirements.
      1. CLEANING AND PROTECTING
         1. Clean spills, stains, and overspray resulting application utilizing cleaning agents recommended by manufacturers of affected construction. Remove masking materials.
         2. Protect membrane air barrier from damage from subsequent work. Protect membrane materials from exposure to UV light for period in excess of that acceptable to membrane air barrier manufacturer; replace overexposed materials and retest.

END OF SECTION