

SECTION 07 27 26

VAPOR IMPERMEABLE FLUID-APPLIED AIR BARRIER MEMBRANE

This guide specification has been prepared by Polyguard Products Inc., in printed and electronic media, as an aid to specifiers in preparing written construction documents for vapor impermeable, fluid-applied air barrier membranes.

Polyguard® Stretch Flex is a patented, single-component, cold-applied, solvent-based, non-permeable, elastomeric, thermoplastic, synthetic rubber coating, waterproofing concrete sealer; designed as an above-grade, air-, weather-, and vapor impermeable coating to prevent air and moisture infiltration and exfiltration with a VOC content of 525 g/l.

Edit entire master document to suit project requirements. Modify or add items as necessary. Delete items which are not applicable. Words and sentences may contain choices to be made regarding inclusion or exclusion of a particular item or statement. This section may include performance-, proprietary-, and descriptive-type specifications. Edit to avoid conflicting requirements. Editor notes to guide the specifier are included between lines of asterisks to assist in choices. Remove these editor notes before final printing of specification.

This guide specification is written around the Construction Specifications Institute (CSI) Section Format standards.

For specification assistance on specific product applications, please contact our offices or any of our local product representatives throughout the country.

Polyguard Products Inc. reserves the right to modify these guide specifications at any time. Updates for this guide specification will be posted on the manufacturer's web site and/or in printed media as they occur. Manufacturer makes no expressed or implied warranties regarding content, errors, or omissions in the information presented.

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Surface preparation.
- B. Application of liquid-applied, vapor impermeable air barrier.
- C. Materials for:
 - 1. All penetrations through the wall assembly.
 - 2. Connections to foundation walls.
 - 3. Walls, windows, curtain walls, storefronts, louvers or doors.
 - 4. Expansion and control joints.
 - 5. Masonry ties.
 - 6. Wall and roof connections and penetrations.

1.02 RELATED SECTIONS

Specifier Notes: Edit the list of related sections as required for the project. List other sections dealing with work directly related to this section.

- A. Section 04 20 00 - Unit Masonry.
- B. Section 07 21 00 - Thermal Insulation.
- C. Section 07 50 00 - Membrane Roofing.

- D. Section 07 60 00 - Flashing and Sheet Metal.
- E. Section 07 70 00 - Roof and Wall Specialties and Accessories.
- F. Section 07 80 00 - Fire and Smoke Protection.
- G. Section 07 92 00 - Joint Sealants.
- H. Section 08 10 00 - Doors and Frames.
- I. Section 08 50 00 - Windows.
- J. Section 09 20 00 - Plaster and Gypsum Board.

1.03 REFERENCES

- A. ASTM C 1305 – Standard Test Method for Crack Bridging Ability of Liquid-Applied Waterproofing Membrane.
- B. ASTM D 412 - Standard Test Methods for Vulcanized Rubber and Thermoplastic Elastomers-Tension.
- C. ASTM D 1970 - Standard Specification for Self-Adhering Polymer Modified Bituminous Sheet Materials Used as Steep Roofing Underlayment for Ice Dam Protection – Section 7.9 Nail Sealability
- D. ASTM D 4541 - Standard Test Method for Pull-off Strength of Coatings Using Portable Adhesion Testers
- E. ASTM D 5385 - Standard Test Method for Hydrostatic Pressure Resistance of Waterproofing Membranes.
- F. ASTM E 84 - Standard Test Method for Surface Burning Features of Building Materials.
- G. ASTM E 96 - Standard Test Methods for Water Vapor Transmission of Materials.
- H. ASTM E 2178 - Standard Test Method for Air Permeance of Building Materials.
- I. ASTM E 2357 - Standard Test Method for Determining Air Leakage of Air Barrier Assemblies.
- J. ICC ES-AC 212 - Acceptance Criteria for Water-Resistive Coatings used as Water-Resistive Barriers on Exterior Sheathing
- K. NFPA 285 – Standard Test Method of determining the flammability characteristics of exterior, non-load bearing wall assemblies/panels.

1.04 SUBMITTALS

- A. Comply with Section 01 33 00 - Submittal Procedures.
- B. Submit manufacturer's product data and application instructions.
- C. Sustainable Design Submittals:
 - 1. Submit invoices and documentation from manufacturer of the amounts of materials and content for products specified.
 - 2. Submit invoices and documentation showing manufacturing locations and origins of materials for products manufactured and sourced within 500 miles of project site.
- D. LEED Submittal: Documentation of materials, recycled content and location of manufacturer.

1. LEED MR Credit 2 – Construction Waste Management: Provide documentation of reusable materials by weight and volume diverted back to manufacturing process or to appropriate sites.
2. LEED, MR Credit 5 – Regional Materials: Provide documentation for cost of materials or products that have been extracted, harvested, recovered, and also manufactured within 500 miles of project site.
 - a. If only a portion of the materials or products is extracted, harvested, or recovered and manufactured locally, then only provide percentage by weight for credit value.
3. LEED EA Credit 1 - Optimize Energy Performance: Provide documentation verification for materials increasing levels of energy performance above the baseline in the prerequisite standard to reduce environmental and economic impacts associated with excessive energy use.

1.05 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Fluid-Applied Membrane must be manufactured by a company with a minimum of ten (10) years of experience in the production and sales of air barrier membrane materials.
- B. Applicator Qualifications: A firm having at least three (3) years of experience in applying these types of specified materials and specifically accepted in writing by the membrane system manufacturer.
- C. Materials: For each type of material required to complete the work of this section, provide primary materials which are the products of a single manufacturer.
- D. Pre-Application Conference: A pre-application conference shall be held to establish procedures and to review conditions, installation procedures and coordination with other related work. Meeting agenda shall include review of special details and flashing.
- E. Manufacturer's Representative: Arrange to have trained representative of the manufacturer on site periodically to review installation procedures.

1.06 MOCK-UPS

- A. Prior to installation of air barrier, apply air barrier as mock-up example to verify details under shop drawing submittals and to demonstrate tie-ins with adjoining construction, and other termination conditions, as well as qualities of materials and execution.
- B. Construct typical exterior wall panel, 6 feet long by 6 feet wide, incorporating back-up wall, cladding, window and doorframe and sill, insulation, flashing; illustrating materials interface and seals.

1.07 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials to site in manufacturer's original, unopened containers and packaging, with labels in tact, clearly identifying product name and manufacturer. Follow all Federal, State and local governing regulations.
- B. Store product drums/pails on pallets.
- C. Keep containers away from sparks, flames, etc.
- D. Protect containers/keep away from water, sparks, flames, excessive heat, and poor ventilation.
- E. Completely cover when stored outside. Protect from rain.
- F. Protect materials during handling and application to prevent damage or contamination.
- G. Store/keep product out of direct sunlight and in ambient temperatures between 10° F (23° C) and 100° F (38° C). For best application results, store in ambient temperatures above 50° F (11° C). Do not store at temperatures above 90° F (32° C) for extended periods.

1.08 PROJECT LIMITATIONS, CONDITIONS AND PRECAUTIONS

- A. This product is not intended to be shipped or used in the States of California, Connecticut, Delaware, Maryland, or Rhode Island. The use of these products must be according to Federal, State and local governing regulations. To be used in exterior applications only. Cannot be applied to any polystyrene or foam-based products. Once the solvent has flashed out of the coating then polystyrene or foam-based products can be installed onto the cured membrane. Not to be used as a liner in potable water conditions.
- B. Avoid use of products which contain tars, solvents, pitches, polysulfide polymers, or PVC materials that may come into contact with dampproofing membrane system.
- C. Install in a well-ventilated open area.
- D. Take safety precautions and wear appropriate safety gear for the application of solvent-based coatings (i.e. gloves, eye protection, respirator, ventilation, etc.) according to Federal, State and local governing regulations.
- E. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. The engineering controls also need to keep gas, vapor, or dust concentrations below any lower explosive limits.
- F. Use explosion-proof ventilation equipment and non-sparking tools. All trucks, barrels and spray equipment shall be properly grounded and bonded. A working fire extinguisher, type ABC, shall be available onsite in both the mixing and work areas.
- G. Prior to use and mixing, review the Safety Data Sheet for proper protective equipment and additional health, environmental and safety precautions.
- H. Keep flammable products away from spark or flame. Post "No Smoking" signs.
- I. DO NOT SMOKE while mixing or applying product. Ensure there are no open flames and/or spark generating sources on project while mixing or applying the product.
- J. Maintain work area in a neat and workmanlike condition. Remove empty cartons and rubbish from the site daily.
- K. Work should be performed only when existing and forecasted weather conditions are within the limits established by the membrane manufacturer. Membrane should be applied in temperatures between -20° F to 120° F.
- L. Application at temperatures between -20° F and 32° F shall continue only after the surfaces are free of moisture or ice.
- M. Application of heat by torch or other heat sources shall heat-dry the surfaces to a depth of 1/8-inch to 3/16-inch.

1.09 WARRANTY

- A. Manufacturer warrants only that this product is free of defects, since many factors which affect the results obtained from this product are beyond our control; such as weather, workmanship, equipment utilized and prior condition of the substrate. We will replace, at no charge, proven defective product within twelve (12) months of purchase, provided it has been applied in accordance with our written directions for uses we recommended as suitable for this product. Proof of purchase must be provided. A five (5) year material or system warranty may be available upon request. Contact Polyguard Products, Inc. for further details.

PART 2 PRODUCTS

2.01 MANUFACTURER

- A. Polyguard Products Inc. P.O. Box 755 Ennis, TX 75120-0755; Phone: (214) 515-5000;
Email: info@polyguard.com

2.02 MATERIALS

- A. Polyguard® Stretch Flex air/vapor barrier: single-component; elastomeric; thermoplastic, synthetic rubber; liquid; spray, rolled, or brushed; cold-applied to concrete walls (i.e. poured-in-place, concrete masonry, precast), plywood, oriented strand board (OSB), or exterior-grade gypsum sheathing substrates.

1. Performance-based Specification: Polyguard® Stretch Flex is a patented, single-component, cold-applied, impermeable, elastomeric, thermoplastic, synthetic rubber coating, waterproofing concrete sealer having the following characteristics:

PHYSICAL PROPERTIES

PROPERTY	TEST METHOD	TYPICAL VALUE
COLOR		Gray
SERVICE TEMPERATURE RANGE		-25° F to 185° F
AIR LEAKAGE & DURABILITY	ASTM E 2357	0.0008 cfm/ft²
AIR PERMEANCE – GYPSUM SHEATHING	ASTM E 2178	0.0017 cfm/ft²
AIR PERMEANCE –BLOCK	ASTM E 2178	0.00012 cfm/ft²
PERMEANCE TO WATER VAPOR TRANSMISSION	ASTM E 96 Method A	0.058 Perms
PERMEANCE TO WATER VAPOR TRANSMISSION	ASTM E 96 Method B	0.216 Perms
ADHESION	ASTM D 4541	> 100 PSI Average
RESISTANCE TO HYDROSTATIC HEAD	ASTM D 5385	231 ft.
TENSILE STRENGTH	ASTM D 412 Modified Die C	387 PSI
ELONGATION	ASTM D 412 Modified Die C	515%
NAIL SEALABILITY	ASTM D 1970	Pass
CRACK BRIDGING	ICC ES-AC 212	Pass
SURFACE BURNING CHARACTERISTICS OF BUILDING MATERIALS	ASTM E 84-94; NFPA 255; ANSI 2.5; UL 723 Omega 1995	10 -Flame Spread Index 35 – Smoke Development
EVALUATION OF FIRE PROPAGATION CHARACTERISTICS	NFPA 285	Compliant*
CATEGORY 1 40 C.F.R.§59.401 “WATERPROOF SEALER TREATMENTS”		525 G/L VOC

*Related to specific assemblies

2.03 SYSTEM ACCESSORIES

- A. Flashing and Sealant: Detail Sealant PW™:
Polyguard® Detail Sealant PW™ is a single component, Silyl Terminated Polyether (STPE), 100% solid moisture-cured, elastomeric tube and trowel applied joint filler, sealant and fluid flashing.
- B. Flashing: Polyguard® Airlok® Sheet 400 NP is a 40-mil, laminated, modified-asphalt, self-adhesive membrane bonded to a cross-laminated polyethylene sheet and is used for wall flashing, through-wall flashing (TWF), joint flashing, and non-vapor permeable sheet air barrier. Use Airlok® Sheet 400 NP for ambient and substrate surface temperatures 25° F (-4° C) and rising. Airlok® Sheet 400 NP resists sunlight up to 30 days.
- C. Flashing: Polyguard® Airlok® Sheet UV 400 NP is a 40-mil, composite membrane, consisting of a foil/polyscrim, laminated to a layer of rubberized-asphalt and is used for wall flashing, and joint flashing, and non-vapor permeable sheet air barrier. Use Airlok® Sheet UV 400 NP for ambient and substrate surface temperatures 25° F (-4° C) and rising. Airlok® Sheet UV 400 NP resists sunlight up to 1 year.

- D. Flashing: Polyguard® Airlok® Sheet UV Ultra 400 NP is a 40-mil, laminated, modified-asphalt, self-adhesive membrane bonded to a cross-laminated polyethylene sheet with a top protective layer of aluminum and is used for wall flashing, and joint flashing, and non-vapor permeable sheet air barrier. Use Airlok® Sheet UV Ultra 400 NP for ambient and substrate surface temperatures 40° F (5° C) and rising. Airlok® Sheet UV Ultra 400 NP resists sunlight up to 2 years.
- E. Flashing: Polyguard® Airlok® Sheet 200 BU/ NP is a 28-mil, laminated, butyl compound, self-adhesive, non-permeable sheet membrane bonded to a cross-laminated polyethylene sheet and is used for wall flashing, through-wall flashing (TWF), joint flashing, and non-vapor permeable sheet air barrier. Use Airlok® Sheet 200 BU/NP for ambient and substrate surface temperatures 20° F (-6° C) and rising. Airlok® Sheet 200 BU/ NP resists sunlight up to 30 days.
- F. Flashing: Polyguard® Airlok® Sheet UV 200 BU/NP is a 28 mil, laminated, butyl compound, self-adhesive, non-permeable sheet membrane bonded to a cross-laminated polyethylene sheet and is used for wall flashing, and joint flashing, and non-vapor permeable sheet air barrier. Use Airlok® Sheet UV 200 BU/NP for ambient and substrate surface temperatures 20°F (-6° C) and rising. Airlok® Sheet UV 200 BU/NP resists sunlight up to 1 year.
- G. Surface Primer Roller-grade Adhesive:
 - 1. Polyguard® 650 LT Liquid Adhesive: A rubber-based, tacky adhesive which is specifically formulated to provide excellent adhesion.

PART 3 EXECUTION

3.01 EXAMINATION

- A. All surfaces to be treated must be sound, dry, clean; and free of dirt, excess mortar smears, form release agents, or other contaminants. Masonry substrate to have tooled mortar joints.
- B. Cutouts and breakouts for support columns and beams are to be filled and made flush with the substrate by others prior to commencing work.
- C. Masonry and new concrete shall have been cured a minimum of three (3) days and must be dry at time of application.
- D. Design Professional to verify substrate and conditions are acceptable to commence work within this section. Examine surfaces to receive membrane. Notify Architect if surfaces are not acceptable. Do not begin surface preparation or application until unacceptable conditions have been corrected.

3.02 SURFACE PREPARATION

- A. Prepare all wall substrate surfaces and penetration substrates be clean and dry: free of mortar smears and form release agents; and free of ice and frost.
- B. Once bleed water is absent from poured concrete walls, allow the concrete a minimum 3-day cure time before coating, giving longer cure time with lower ambient temperatures or heavy moisture saturation to reach a maximum 15% moisture content.
- C. Snap form ties flush to both sides of poured concrete walls; fill tie depressions and voids flush with the face of the wall using Detail Sealant PW or non-shrinking Portland cement grout installed per manufacturer's instructions. Allow fill material to dry before covering.
- D. Fill honeycombs with non-shrinking Portland cement grout, installed per manufacturer's instructions. Allow to thoroughly dry.
- E. Concrete masonry walls are to be unparged.
- F. Test for Stretch Flex adhesion over concrete masonry walls containing integral moisture repellant. Mortar joints need to be struck full and flush to the face of the CMU.

- G. Allow concrete masonry wall assembly to cure for a minimum 3 days before coating, giving longer cure time with lower ambient temperatures or heavy moisture saturation to reach a maximum 15% moisture content. Core fills, bond beams, and/or rain add significant moisture to the assembly, thereby requiring longer dry time.
- H. Fill concrete masonry wall voids greater than ½" deep and gaps between dissimilar materials with Detail Sealant PW, or non-shrinking Portland cement grout installed per manufacturer's instructions. Allow Detail Sealant PW a minimum 1 hour to skin over before covering, adding additional time for lower ambient and surface temperatures.
- I. Sheathing must be installed and fastened per manufacturer's instructions.
- J. Sheathed wall voids are to be filled and made flush with substrate. Fill sheathing joints less than ¼-inch wide with a bead of Detail Sealant PW™ tooled to 20 mils thick and onto a minimum of ½-inch beyond each side of the joint.
- K. Open joints are to be filled with foam or Polyguard® Detail Sealant PW™.
- L. Smooth and fill flush rough concrete, surface defects, surface protrusions and voids greater than ½" in depth.
- M. For any detail work on transitions, joints, and rough openings:
 - 1. Method A – Field Application followed by Detailing:
 - a. Apply a field coating of Stretch Flex. Allow 24 hours to dry.
 - b. Choose one of the following:
 - i. Install fluid flashings; using Detail Sealant PW™ per Polyguard's details and specifications.
 - ii. Install sheet flashings; using Airlok Sheet 200 Series or Airlok Sheet 400 Series per Polyguard's details and specifications.
 - c. Note: Method A does not require primer with sheet flashings.
 - 2. Method B – Detailing followed by Field Application:
 - a. Choose one of the following:
 - i. Install fluid flashings; using Detail Sealant PW™ per Polyguard's details and specifications.
 - ii. Install sheet flashings; using Airlok Sheet 200 Series or Airlok Sheet 400 Series per Polyguard's details and specifications.
 - b. Apply a field coating of Stretch Flex and allow 24 hours to dry.
 - c. Note: Method B requires primer with sheet flashings.
- N. Masonry Anchors: Install masonry tie fasteners through cured Stretch Flex and sheathing into studs. If fasteners are set into studs and removed, vacant fastener holes will be filled with Detail Sealant PW™. For enhanced water resistance around fasteners, one of the following tie fastener placement methods:
 - Method A: Apply a 1/4-inch daub of Detail Sealant PW on the wall interfacing side of the fastener hole in the tie, and then fasten the tie to the structure, or;
 - Method B: Install a minimum 2-inch-wide strip of Airlok Sheet 200 Series or Airlok Sheet 400 Series onto the face of dry Stretch Flex. Position the flashing strip to be centerline penetrated by the fastener(s).

3.03 APPLICATION OF AIR BARRIER SYSTEM

- A. Install all materials following manufacturer's guide specifications.

- B. No substrate priming is necessary.
- C. Apply Stretch Flex in ambient temperatures and on a surface temperature of -20° F (-29° C) and rising, up to a maximum temperature of 120° F (49° C).
- D. Apply Stretch Flex in one coat or more; by means of a sprayer, roller, or brush; to achieve a continuous film at the desired coverage rate of 40 square feet per gallon (40 wet mils). Coverage will be inversely related to texture and porosity of the substrate. Best spray results occur using a 0.037-inch or 0.039-inch reversible tip and having a minimum pressure of 3700-to-4000 PSI.
- E. Xylene is used for clean-up of uncured / cured Stretch Flex material.
- F. Apply extra material at anchor ties and penetrations.
- G. Do not apply Stretch Flex directly over 650 LT Liquid Adhesive or California Sealant. Do not apply Stretch Flex onto Detail Sealant PW where Detail Sealant PW has been applied over a base layer of either 650 LT Liquid Adhesive or Stretch Flex.
- H. Allow fluid-applied Stretch Flex application to dry for minimum 24 hours and then inspect for continuous coverage. If necessary, apply additional material as needed to provide a continuous coating then allow an additional minimum 24 hours to dry before continuing work on the surface. Coverage is considered complete when the dry Stretch Flex coating has been inspected and found to be continuous.
- I. Stretch Flex dries to an average thickness of 20 mils, but coverage rates will vary inversely related to substrate texture and porosity.

3.04 MEMBRANE REPAIR

- A. Thoroughly clean and dry the damaged areas of Stretch Flex, before coating. Stretch Flex can be applied to damaged Airlok Sheet UV 200 BU / NP, Airlok Sheet UV 400 NP, or Airlok Sheet UV Ultra 400 NP. Stretch Flex will bond to itself without any additional surface preparation. Do not apply Stretch Flex over damaged areas exposed 650 LT Liquid Adhesive, Detail Sealant PW, Airlok Sheet 400 NP, or Airlok Sheet 400 HT / NP.

3.05 PROTECTION

- A. For 24 hours after installation, protect completed membrane system against water filling block cores. Protect finished air barrier system from adjacent work.
- B. Stretch Flex is designed for UV exposures up to 6 months. For periods of (UV) exposure greater than 6 months, cover with Stretch Flex prior to the 6-month term; remove and recoat the exposed Stretch Flex after the 6-month term.

END OF SECTION