

## 07 25 00 | Weather Barriers & Flashings

Section includes standards for air barriers and flashings for buildings with conditioned spaces.

This design guideline is written to the designer of record (DOR). Texts shown in quotes are expected to be copy pasted into the project specifications. This standard shall apply to all drainage cavities behind veneer on University structures with finished spaces. This guideline is written to assist the designers in ensuring UA standards are incorporated into the contract documents and provide a resource to facilitate the design process. Written variations from this standard may be considered for miscellaneous structures. It is the designer of record's responsibility to coordinate the criteria set forth in this design guideline with the manufacturer requirements and use the most stringent standards. These are minimum standards that shall apply. Additional and/or more stringent requirements may be required by the designer.

This standard is written to the designer and not to the contractors. Thus, some language in this guide is not written in spec language or format. Thus, the designer must ensure any cut/paste insertion from this guideline is written in spec language.

### A. System Description

Weather Barriers shall meet the most recently adopted International Building Code, Energy Code, Fire Code and Envelope standards. Some preapproved products listed below may not meet these standards in specific applications or building categories. It is the responsibility of the designer to confirm these products meet all the specific applicable code requirements.

All weather barriers shall have an approved liquid flashing material that meets the performance requirements listed in Products Section of this Guideline.

### B. Performance Standards

Only those products designed to work as a system with liquid applied flashing are acceptable. "Manufacturer shall have standard detail for various penetrations, flashings and transitions to other envelope materials. Systems shall withstand all positive and negative pressures anticipated for the building, including HVAC and other wind and non-wind pressures, without damage." System shall meet the following minimum requirements:

1. Air Leakage: Less than 0.04cfm per sq. ft. of air leakage when tested at 1.57 psf per ASTM E2357.
2. ICC-ES AC212 Acceptance Criteria for Water-Resistive Coatings Used as Water Resistive Barriers over Exterior Sheathing.
3. Vapor Permeable: 10 perms when tested per ASTM E96 dry cup and 18 perms when tested per wet cup when installed at maximum recommended thickness.
4. Air Permeability: Less than 0.004 cfm per sq. ft. per ASTM E2178.
5. Nail Sealability: Pass (no leakage) per ASTM D1970
6. Chemistry: Acrylic, STPe or STPu
7. Adhesion: 15 psi or substrate failure per ASTM C297 or ASTM D4541

8. Liquid Flashing: Weather Barrier manufacturer shall offer a liquid applied membrane flashing (LAMF) product for use as flashings at wall openings. LAMF product chemistry shall be STPe or STPu and be non-reverting when exposed to saturation condition.
9. Elongation: 200% per ASTM D412
10. Tensile Strength: 100 psi per ASTM D412
11. Exposure: 6 months minimum
12. Fire: If required, pass NFPA 285. The wall assemblies used in the project, must resist flame propagation and flame spread requirements of NFPA 285 if applicable for the designated type of construction, building height and exterior insulation. ASTM E84: Class A Rated, Flame Spread < 25, Smoke Development < 450
13. VOC Compliant

### C. Warranties

Manufacturer shall provide a minimum 5 year material warranty. Installer shall provide a 2 year workmanship warranty.

### D. QA / QC

1. Manufacturer: Minimum of 20 years' experience in manufacturing of liquid applied weather barrier systems.
2. Installer: Minimum of 5 years' experience with similar sized projects using similar materials. Installer must have completed three similar projects of similar scope. Installer must be approved by manufacturer to install the products.
3. Preinstallation Meeting: Shall be held within 10 days of starting mockup installation. Attendees shall be the installer, general contractor, designer, owner and the manufacturer's technical rep.
4. Mockups: Mockups shall be approved by owner and designer prior to installing product on building.
  - a. In place mockups may be approved by Owner for small projects. Mockup size to be determined by project size.
  - b. Mockups shall be provided for each type of substrate on which the weather barrier is to be installed.
  - c. "Mockups shall be installed using identical means and methods as that planned for the building."
  - d. Mockups shall include all conditions anticipated on the building.
  - e. Mockups shall be constructed as required to show compliance with contract and manufacturer's installation recommendation.
  - f. "Manufacturer's technical rep must be on site during the start of product mockup installation and at the start of the in-place product installation."



- g. "Owner may test mockup for material thickness, air leakage (ASTM E 1186) and adhesion (ASTM D7234). Contractor must remedy all conditions causing failed tests. Remedies may include additional surface prep, added primers or changing materials."
5. "Manufacturer's technical rep shall be on site once every week that product is being installed and issue a short report of observations."
6. Field Testing: "Owner may test mockup for material thickness, air leakage (ASTM E 1186) and adhesion (ASTM D7234). Contractor is responsible for providing OSHA approved access to areas for testing. Contractor must remedy all conditions causing failed tests. Areas found to be out of compliance shall be remedied by contractor at no additional expense to owner. Additional applications of material, additional surface prep or the addition of a surface conditioner are some options to remedy non-compliant areas. In rare cases, change of product may be required to meet contract requirements."

## E. Submittals

Submit technical data, less than 10 years old, showing products conform to the standards listed below. Submit letters showing installer and manufacturer meet the qualifications listed above. "Submit a statement of compatibility from the AB and sealant manufacturers verifying the materials used will perform as required by contract when used together."

1. Shop Drawings: Submit shop drawings showing the various application conditions for the project.
2. Details required include, but are not limited to, the following:
  - a. Standard penetration flashing details.
  - b. Grouped penetration details.
  - c. Transition to below grade WP.
  - d. Through wall flashing details.
  - e. Transitions to other materials.
  - f. Terminations.

## F. Products

"The following products are approved for use as air barriers. No substitutions are allowed after bid. All air barriers shall have be provided with a liquid applied membrane flashing to be used as a single, warrantable system." Designers shall specify either a thick mil system (> 25 mils DFT) or a thin mil system (<25 mil DFT). Thin mil systems shall not be applied to CMU. Only thick mil systems shall be used on CMU substrates and any rough substrate.

### Thin Mil Systems:

1. Prosoco Spray Wrap MVP w/ Fastflash LAMF
  2. Pecora XL-Perm VP w/ XL Flash LAMF
  3. WR Meadows Air Shield TMP w/ Air Shield LAMF
  4. Soprema Sopraseal LM 202 VP w/ Sopraseal Liquid Flashing
  5. BASF MasterSeal AWB 665 or 6600 w/ Masterseal AWB900 LAMF
  6. STS Coatings FW-100A w/ GreatSeal LF-500 LAMF
- Thick Mil Systems
7. WR Meadows Air Shield LMP w/ Air Shield LAMF
  8. Prosoco CAT5 (STPe) w/ Flashflash LAMF
  9. Soprema Sopraseal LM 204 VP (STPe) w/ Sopraseal Liquid Flashing
  10. Carlisle Barritech VP w/ Barribond LAMF
  11. WR Grace PermabARRIER VPL w/ PB Liquid Flashing LAMF



12. Tyvek Fluid Applied WB+ w/ Fluid Applied Flashing and Joint Compound LAMF
13. GP DensElement integral weather barrier in the gypsum wall board with STPe based liquid flashing.

#### Liquid Flashings:

“Unless approved otherwise in writing, all wall penetrations shall be flashed with liquid applied membrane flashing (LAMF). LAMF shall be STPe, STPu, or urethane based products, provided by the AB manufacturer, as long as they meet the following criteria.”

1. Vapor permeable (10 perms minimum per ASTM E96 tested wet).
2. Non-reverting when exposed to saturation conditions.
3. 98% solids minimum.
4. VOC compliant
5. Tack free in 2 hours
6. Self-healing at fasteners (ASTM D1970)
7. One step application that does not involve embedding a separate fabric material
8. Unless the weather barrier (WB or air barrier) is factory installed on the sheathing, the LAMF shall be supplied by the same manufacturer of, and compatible with, the WB. If the WB is factory installed on the sheathing, the LAMF shall form a part of the compatible, tested assembly and be warranted by the sheathing manufacturer.
9. Air leakage less than 0.03 cfm/sf @ 1.57 psf when tested per ASTM E2357 for air barrier wall assemblies (ASHRAE/ABAA 90.1) and no leakage when tested per ASTM E331 @ 2.86 psf for 15 minutes (ICC).
10. Selection of sealants compatible with and properly bonded to the LAMF is the responsibility of the contractor. Sealant shall be approved by the AB and sealant manufacturer.

#### Self-Adhered Flexible Flashing (SAFF):

Self-Adhered Flexible Flashing (SAFF) shall meet the minimum requirements listed below. Basis of design is Hohmann & Barnard Textra Flash (Dow Weathermate, DuPont Flashing Tape and Typar Butyl Flashing are acceptable alternates). Self-adhered butyl, acrylic, PVC, KEE, or other non-bleeding, polymer based products may be acceptable when submitted for approval prior to bid.

1. Thickness: 40 mils minimum consisting of an 8 mil minimum cross laminated polyethylene film with the remainder consisting of a polymer based adhesive waterproofing membrane.
2. Non-drooling when exposed to temperatures up to 220 degrees F.
3. UV exposure: No less than 90 days.
4. Tensile strength and elongation: Minimum 1,200 psi and 15% per ASTM D412
5. Puncture: > 80 lbs. per ASTM E154
6. Water Absorption: <1 %
7. Adhesion in peel: 60 lbs. minimum per ASTM D903
8. Water Permeability: <1 perms per ASTM E96
9. Low Temperature Flexibility: No affect per ASTM D1970

SAFF manufacturer shall offer a compatible sealant to use at cut edges, laps and terminations in the SAFF.

#### Termination Bars:

“Termination bars shall be 1/8” thick by 1” wide with integral caulk tray in top for manufacturer specified sealant. Bars in masonry construction (including those in cavity walls for masonry veneer) shall be stainless steel. Termination bars shall be pre-punched at 8 inches on center for anchoring to substrates. 20 gage by minimum 6 inch wide galvanized straps shall be installed behind gypsum wall board centered on termination bars to allow for anchorage of the termination bar at 8 inches on center.”

**Metallic Flashings:**

Metallic flashings shall be 26 gauge stainless steel (SS) or 16 oz. copper. Other metals (zinc, lead coated copper, aluminum) may be warranted in rare occasions. "All metal flashings shall be end lapped 4" with hems (if present) removed from bottom piece. Mitered corners are NOT allowed."

**G. Execution****Surface Preparation and Application:**

"All surfaces shall be dry and free from gaps, holes, projections, cracks and voids that could cause pin holing of the WB. Strike masonry substrate joints flush. Installer shall inspect substrates and record observations in daily logs. Treat joints in substrate per manufacturer's recommendations prior to installing WB."

"Spraying of WB onto masonry substrates is NOT allowed. Application of WB on masonry substrates shall be by roller, trowel, or stiff bristle brush. WB at wall ties on masonry substrates shall be touched up with stiff bristle brushes. Six (6) wet mill thickness measurements shall be taken every 1000 square feet of WB applied and for every day the WB is applied and recorded in installer's daily log."

**Flashings:**

"All penetrations through the WB shall be flashed. Flashing shall be installed to meet the following."

1. "LAMF shall be used at all wall penetrations."
2. "Treat all gaps and joints between blocking per manufacturer's written instructions."
3. Flashings shall extend 6 inches onto the WB on all sides of the opening. This shall be measured from the outside edge of blocking."
4. "Install water tight stainless steel (SS) sleeves through the WB and the veneer for elements to be installed after the veneer is installed. Install water tight SS sleeves for all HVAC duct penetrations."
5. "Sealants shall be installed between the flashed opening and the penetrating element. The Contractor is responsible for ensuring compatibility between the sealant and the LAMF. Mockup pull testing of the sealant is required."

**Through Wall Flashings:**

Through wall flashing (TWF) shall be installed in the following locations.

1. Shelf angles.
2. Horizontal and VERTICAL transitions into and out of barrier wall and drainage cavity systems (i.e., hung precast).
3. It is preferred to install TWF every two floors. TWF may be installed every three floors with UA approval.
4. Below window sill stones where there is no TWF within 8 feet of the bottom of the sill stone.
5. Below all coping stones and APC.

Through wall flashing shall be installed to meet the following minimum requirements.

1. "LAMF shall not be used to fabricate through wall flashings (TWF) "
2. "The top of all SAFF shall be terminated at 8" on center and contain an upper caulk tray at ALL locations. Sealant in termination bars shall be approved by LAMF manufacturer. Vertical edges typically will not require a termination bar."
3. "Metallic flashing extenders shall be lapped 4 inches and the hem shall be removed from the lower piece to provide a clean splice at the drip."



4. Horizontal and vertical splices in the SAFF shall lap a minimum of 4" unless a larger lap length is required by the manufacturer. A 3/8" bead of cut edge sealant (lap sealant) shall be installed along the edges of the SAFF at all splices."
5. "Flashings below copings shall have the following elements.
  - a. 3/8" maximum SS hemmed drip on face of building.
  - b. 360 degree SS receiver projecting below the rear of the coping to hold a metallic counterflashing
  - c. SAFF on top of the metallic flashing to seal tie anchor penetrations.
  - d. Copings with both faces exposed shall have a two piece flashing extender with drips on both sides to ensure drips do not project beyond 1/4" from the face of the veneer. The inside edges of the flashing extenders shall lap and be sealed with SAFF."

**QA / QC:**

"Manufacturer's technical representative shall be on site during the mockup installation and the initial installation of the product on the building. Manufacturer's technical representative shall make a field visit during WB installation when the installation is 50% complete and when the installation is 95% complete. Written reports shall be issued for each visit."

Owner may test mockup for material thickness, air leakage (ASTM E 1186) and adhesion (ASTM D7234). Contractor must remedy all conditions causing failed tests. Remedies may include additional surface prep, added primers or changing materials."

- End -

