

## How to Bid an Air Barrier!

The key to success in bidding air barrier work is to know & understand the specification thoroughly. There are currently 3 levels of air barriers being specified:

**Level 1, Specification Requirement, ASTM E2178**, this is for an air barrier material only. This test requirement does not require the specific use of a specific sealant or flashing, just a specific air barrier material that meets the test requirements.

Material Air Permeance	ASTM E2178 - 03	Standard Test Method for Air Permeance of Building Materials
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Example: Wall Guardian FW-100 meets this requirement at 40 mils wet film thickness (44.4 ft<sup>2</sup> per gallon). Wall Guardian FW-100A meets this requirement at 32 mils wet film thickness (50 ft<sup>2</sup> per gallon) for residential applications only.

**Level 2, Specification Requirement, ASTM E2357**, this is for an air barrier system. This test measures only the air barrier properties of an air barrier assembly/system in a full wall test with penetrations. This specification requirement mandates the use of the same flashings & sealants that were used to pass this test.

Full Wall Test	ASTM E2357-11	Standard Test Method for Determining Air Leakage of Air Barrier Assemblies
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Example: Wall Guardian FW-100 passed this test at 60 mils wet film thickness (26.7 ft<sup>2</sup> per gallon) and FW-100A passed this test at 40 mils wet film thickness (40 ft<sup>2</sup> per gallon). The use of LT-100 and UT-40 are mandatory when ASTM E2357 is the performance standard as these were the materials that were involved in the passing of the test.

**Level 3, Specification Requirement, An ABAA Evaluated Air Barrier Assembly/System**, system must have passed ASTM E2178 & ASTM 2357 and additionally must be tested to and pass the standards below at the application rate of 60 mils wet for FW-100 and 40 mils wet for FW-100A and only UT-40 and LT-100 can be used in this Specification Requirement.

Material Air Permeance	ASTM E2178 - 03	Standard Test Method for Air Permeance of Building Materials
Full Wall Test	ASTM E2357-11	Standard Test Method for Determining Air Leakage of Air Barrier Assemblies
Water Resistance	AATCC 127 - 03	Water Resistance: Hydrostatic Pressure Test for 5 hours
Fastener Sealability	ASTM D 1970-01	Section 7.9 Nail Sealability
Pull Adhesion	ASTM D 4541-05	Standard Test Method for Pull-Off Strength of Coatings Using Portable Adhesion Testers
Crack Bridging	ES-AC 212 or ASTM C 1305	Acceptance Criteria for Water-Restive Coatings used as Water-Restive Barriers over Exterior Sheathing Standard Test Method for Crack Bridging Ability of Liquid Applied Waterproofing Membrane
Water Vapor Transmission (at applied thickness)	ASTM E 96-00e1	Standard Test Methods for Water Vapor Transmission of Materials – Water and Desiccant Method

**TECHNICAL NOTES:** Building Code requires that any wall insulated from the outside with foam plastic insulation needs to be able to show that it has passed **NFPA-285 Full Scale Wall Fire Testing**, this is mandatory for Type I, II, III, IV construction;

1. As of this date, no asphalt containing air barrier has passed this test.
2. Wall Guardian FW-100A has indeed passed this test and is listed by Owens Corning in their test report.

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# How to Specify Air Barrier

## 1.03 PERFORMANCE REFERENCES

- A. ASTM E 2178-01: Standard Test for Determining the Air Permeability of Building Materials.
- B. ASTM E 2357, Specimen 2, Standard Test Method for Determining Air Leakage of Air Barrier Systems **(Full Scale Wall Testing of the Air Barrier System)**.
- C. Air Barrier System must be fully tested and listed as evaluated at [www.airbarriers.org](http://www.airbarriers.org).

## 1.05 SUBMITTALS

- A. Section 01 33 00 – Submittal Procedures: Submittal Procedures.
- B. Prior to commencing the Work, submit manufacturer's independent Laboratory Report for the Air Barrier Systems testing on ASTM E 2357 tested on a steel stud frame wall and the ABAA listing.
- C. Prior to commencing the Work, submit independent documentation certifying that the air barrier membranes have been tested independently, indicating air leakage at rates recommended by the NRC and the National Building Code.
- D. Prior to commencing the Work, submit copies of manufacturers' literature for membrane, primers, sealants, adhesives and associated auxiliary materials shall be included.
- E. Prior to commencing the Work, submit references clearly indicating that the materials proposed have been installed for not less than three years on projects of similar scope and nature. Submit references for a minimum of five projects.
- F. Prior to commencing the Work, submit manufacturers' complete set of standard details for air/vapor retarders. The manufacturer's representative shall review the contract drawings and note any modifications required to make the system air and water tight.

## 1.08 PRE-INSTALLATION CONFERENCE

- A. Convene four weeks prior to commencing work of this section, under provisions of Section 01 30 00 – Administrative Requirements: Pre-Installation Meeting. Attendance by the manufacturer's representative along with the installer is **mandatory**.

**DO NOT PROCEED WITH THE INSTALLATION OF THE AIR BARRIER MEMBRANE AND THE THROUGH WALL FLASHING MEMBRANE PRIOR TO THE PRE-INSTALLATION CONFERENCE.**

## 2.01 MEMBRANES

- A. Liquid air barrier: One component elastomeric membrane, spray, trowel or brush applied, having the following characteristics and have passed all evaluations by the Air Barrier Association of America (ABAA) and be listed on their web site as having passed all the evaluations :
  - 1. Air permeability:
    - a. Air Leakage Thru Cured Films:  $<0.001 \text{ cfm/ft}^2 @ 10.5 \text{ lbs/ft}^2$  or  $<0.005 \text{ L/sm}^2 @ 75 \text{ Pa}$  to ASTM E283 (Modified) 24 hours, +/- 10%.
    - b. Air Leakage Thru Cured Films  $0.002 \text{ cfm/ft}^2$  at a pressure difference of 1.57 psf when tested in accordance with ASTM E 2178
  - 2. Air Barrier System Test on Full Scale Wall Assembly, ASTM E 2357
    - a. System Air Leakage,  $0.0005 \text{ CFM/ft}^2 +/- 10\%$
    - b. Penetrations Check, **MUST PASS** ASTM E 2357 requirements

## 3.05 PRIMARY AIR BARRIER

- A. Apply by spray or roller, a complete and continuous unbroken film at a temperature of 40F and rising with less than a 30% chance of rain in the next 24 hours:
  - 1. Exterior Gypsum Sheathing, Plywood or OSB
    - a. Apply at same rate used to pass ASTM E2357 requirements and as listed by ABAA.
    - b. Spray around all projections, including masonry veneer anchors, ensuring a complete and continuous air seal.