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A SERVICE PARTNERS COMPANY

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AIR BARRIERS

As a manufacturer of building products, our material must meet many industry standards. One of these standards calls for the vapor retarders we use in our higher R value insulation systems to be tested under specific conditions to measure the air permeance of these materials. The results of this test may be useful in determining suitability of that material as a component of an air retarder (barrier) system.

What's Being Said: Certain proprietary systems must be used in addition to standard systems to meet the IECC and ASHRAE air barrier requirements for metal building envelopes.

The Answer: Not necessary. Our Energy SaverTM fabric does on its own! Our Energy SaverTM system when installed properly is a continuous air barrier that helps to control air leakage into and out of the building envelope.

The Explanation: The IECC, and thereby ASHRAE, include mandatory air leakage requirements for the building envelope and the individual components of the envelope (window & door assemblies, air barriers, loading dock weather seals, vestibules, and recessed lighting).

As best described by the Metal Building Manufacturers Contractors Guide: Building envelope sealing - In the 2009 IECC, it states the "openings and penetrations in the building envelope shall be sealed with caulking materials or closed with gasketing systems compatible with the construction materials and location. Joints and seams shall be sealed in the same manner or taped or covered with a moisture vapor-permeable wrapping material."

The Test of the Whole Building: Once the building is constructed a Building Air Leakage test must be performed as per the respective state energy code commands. ASTM 2357-18 is the Standard Test Method for Determining Air Leakage Rate of Air Barrier Assemblies. This test method covers the determination of the air leakage rate of air barrier assemblies that are used in building enclosures. This procedure measures the air leakage of a representative air barrier assembly before and after exposure to specific conditioning cycles and then assigns a rating dependent upon the results. Although this is a laboratory procedure, the method may also be applied to site mockups.

More About This Test

Air Permeance per ASTM E2178 – Air: Less than 0.004 cubic feet per minute per square foot at a pressure differential of 1.57 pounds per square foot (<0.04 cfm/ft² at 1.57psf), Less than 0.02 liters per square meter per second at a pressure differential of 75 Pa (<0.02 L/(s*m²) at 75Pa).

More about the Material

Energy SaverTM air barrier is a woven non perforated coated polyethylene material. Based on material testing, Energy SaverTM fabric is an approved air barrier and vapor retarder all-in-one which meets the IECC and ASHRAE air barrier material requirements.

Our Test Results

When tested the Energy SaverTM material achieved air permeance requirements with an average air leakage across five (5) samples of 0.002 L/(s*m²) (0.005 cfm/ft²) at 75 Pa (1.57 PSF).

Field Application

Our Energy SaverTM System, as part of a completed building test of a 19,950 ft2. At 0.40 cfm/ ft2 the allowable leakage for the project was 7,980 CFT at 75 Pa. The building was tested in both pressurization and depressurization conditions. The average leakage rate between conditions at 75 Pa was 6,646.0 CFM. As a result, this building **PASSED.**

Other Relevant Test Methods

ASTM E1827-11 Standard Test Methods for Determining Air Tightness of Buildings Using an Orifice Blower
ASTM E779-19 Standard Test Method for Determining Air Leakage Rate by Fan Pressurization

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