

Air Barrier FAQs

1. What is an Air Barrier?

An air barrier is a synthetic, man made material that stops the infiltration of air through the walls into the conditioned space of a building. Most of the technical community agrees that air permeability should be 0.004 cfm/ft² at 0.3 inches of water (0.02L/m² at 75 Pa).

An air barrier system is a series and combination of connected components that provide for air-tightness of the building. Most true air barriers are tested in accordance with the procedures contained in the Florida Building Code, one the most advanced in the USA.

2. Are there any ASTM or other consensus Standards for Air Barriers?

No, there are some manufacturers' standards. Most manufacturers test their products against the Florida Building Code. There are no present code criteria for what constitutes an airtight building BUT the IBC & IECC codes do call for the sealing of the Building Envelope.

3. How close are the codes to adopting and Air Barrier requirement?

In 2006 ASHRAE approved an amendment to its 90.1 model energy code that would require continuous air barriers for many buildings. Its adoption is almost certain. (Specifier, April 2007, p 77)

4. What Materials are not Air Barriers? (Wagdy Anis, various publications)

- Perforated house wraps
- Concrete block
- Expanded polystyrene (bead board, EIFS board)
- Fiberglass insulations
- Asphalt (tar) felt
- Wood fiberboard
- Cellulose spray-on insulation
- Vermiculite insulation
- Dampproofing, traditional materials (ASTM D 1227) which crack with age and are inelastic in the wall assembly

5. Which is the bigger problem, moisture vapor or air intrusion?

By a huge margin, air intrusion. One study compared moisture contributed by air leakage versus moisture vapor diffusion. Air leakage was 228 gallons versus 6 ounces by moisture vapor diffusion alone. (Architectural West Magazine, March/April 2007, page39).

General agreement exists that the air leakage moisture contribution affect is 16Xs the amount of moisture vapor transmission.

6. What type of air barrier should I use and where should it be placed?

For all Frame Wall construction the use of a Permeable Air Barrier (vapor retarder) is now the industry standard.

For all CMU Wall construction the use of an Impermeable Air Barrier (vapor barrier) is now the industry standard.

7. Are there energy savings to be had using an Air Barrier?

Huge energy savings are part of the equation when an Air barrier is used. Studies by various organizations indicate that up to 40% of energy usage could be saved by the incorporation of an air barrier. (Architectural West, March/April, 2007)

8. How are these materials applied?

The technology of each manufacturer is based on different chemistry, and, therefore, requires different application techniques. Some manufacture a one-component product while others are two components. The two-component products generally require the purchase of approximately \$40,000 of specialized application equipment. The one-component products can be applied with traditional methods as was used with dampproofing.

9. What are the application rates?

Application rates (coverage rates) and joint treatments vary considerably, anywhere from 3.75 gallons per 100 ft² to 7.5 gallons per 100 ft². Joint treatments also vary widely in application and installed cost. The easiest and most cost effective frame wall joint treatment is the use of GreatSeal LT-100 Liquid Tape from STS Coatings (www.stscoatings.com), a Certified Texas HUB manufacturer. LT-100 is compatible with all air barriers.