

7 - HVAC AND ENERGY: Building Envelope

Stucco is also relatively porous and must be installed over two layers of building paper or housewrap. The layer directly behind the stucco acts as a bond breaker that prevents the stucco from sticking to the second layer, which acts as the weather barrier.

To control condensation a wall must always be able to dry to at least one side. Follow these guidelines:

- Avoid installing impermeable or semi-impermeable materials on both sides of the wall.

Figure 7-22. Permeance of Common Building Materials

Impermeable (0.1 perm or less)	Semi-Impermeable (0.1 to 1.0 perms)	Semi-Permeable (1.0 to 10 perms)	Permeable (greater than 10 perms)
Rubber membranes	Oil-based paints	Plywood	Unpainted gypsum board
Polyethylene film	Most vinyl wall coverings	Asphalt-impregnated kraft paper	Unpainted plaster
Glass	Unfaced extruded polystyrene (>1-in. thick)	OSB	Unfaced fiberglass insulation
Aluminum foil	3-coat stucco over building paper and OSB sheathing	Unfaced expanded polystyrene (>1-in. thick)	Cellulose insulation
Sheet metal		Unfaced extruded polystyrene (>1-in. thick or less)	Synthetic stucco (without foam)
Foil-faced insulating sheathings		Fiber-faced isocyanurate	Some latex-based paints
Foil-faced non-insulating sheathings		#30 building felt	#15 building felt
		Most latex-based paints	Asphalt-impregnated fiberboard sheathings
			Plastic housewraps

For more
information:
“The Last Word
(We Hope) on
Vapor
Barriers,”
JLC 8/93

The permeance of materials can be separated into four general classes: impermeable; semi-impermeable; semi-permeable; and permeable. To avoid moisture problems, make sure only one surface of a wall is covered with an impermeable or semi-impermeable material, while the other is permeable to allow moisture that does get inside to escape.