

Air Barrier:

Research shows that 40% of building heat loss can be attributed to air leakage conducted through the building envelope. Tests for air leakage conducted by an independent laboratory recognized by the CCMC show that **POLARFOAM™ PF-7300-0 SOYA** exceeds 500 times the requirements of the NBC as an air barrier material.

These results confirm that POLARFOAM™ PF-7300-0 SOYA is one of the highest performance air barrier materials on the market and this feature is the key element in an air barrier system that meets the objectives of the NBC.

By creating a sealed air barrier and eliminating air exfiltration, **POLARFOAM™ PF-7300-0 SOYA** does not allow wall condensation that can often result in mold, mildew and wall degradation. **POLARFOAM™ PF-7300-0 SOYA** fully adheres to provide a seamless, monolithic air barrier that conforms to irregular shapes and allows easy detailing around penetrations. Its closed cell rigid polyurethane foam formulation creates an **effective, rigid, seamless and durable** air barrier.

- **National Building Code requirements :**
Air barrier material = $0.02 \text{ L} / (\text{s}\cdot\text{m}^2) @ 75 \text{ Pa}$
- **Tested results of POLARFOAM™ PF-7300-0 SOYA :**
Air barrier material, thickness 25 mm = $0.00004 \text{ L} / (\text{s}\cdot\text{m}^2) @ 75 \text{ Pa}$

Vapour Barrier:

Water vapour permeance is the speed to which water goes through an homogeneous material. The National Building Code, stipulates that a vapour barrier must have a water vapour permeance less than 1.05 PERM ($60 \text{ ng} / \text{Pa}\cdot\text{s}\cdot\text{m}^2$).

- 75 mm of **POLARFOAM™ PF-7300-0 SOYA** spray applied on an exterior gypsum board = $44 \text{ ng} / \text{Pa}\cdot\text{s}\cdot\text{m}^2$ (0.77 PERM).
- 75 mm of **POLARFOAM™ PF-7300-0 SOYA** spray applied on concrete blocks = $22 \text{ ng} / \text{Pa}\cdot\text{s}\cdot\text{m}^2$ (0.38 PERM).

When a building envelope assembly contains only a plastic foam as insulating material and that the permeance rate of this assembly is less than 1.05 PERM ($60 \text{ ng} / \text{Pa}\cdot\text{s}\cdot\text{m}^2$), this assembly does not need any additional vapour barrier.

As far as sustainability of the building envelope is concerned, it is imperative to have a perfect continuity of the air barrier material which is much more important than the performance of the vapour barrier.

