

Thermal Break Material™ (TBM-3)

Prevents thermal bridging in building envelope connections

Thermal break Material™ (TBM-3) reduces heat loss at wall and roof purlins, fenestration frame attachments and curtain wall transition connections

Features and Benefits

- NON-COMBUSTIBLE
- Thermal resistance of R 2.2 per inch
- 0 Flame spread, 0 Smoke index
- Mildew, mold, rot and moisture resistant
- LBC Red List Free



The purpose of a thermal break is to reduce the impact of thermal bridging by preventing conductive heat flow through the building thermal envelope. Thermal breaks also help to keep surface temperatures within the thermal envelope above the dew point. This eliminates potential condensation risk.

Thermal break material™ (TBM-3) conducts heat 3,000 times less than aluminum, 1,000 times less than steel and 250 times less than stainless steel. For any material, conduction is a function of thickness and temperature difference, so the thickness of a thermal break material should be carefully considered.



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Thermal Break Material™ TBM-3 is a reinforced, non-absorbent, composite manufactured using non-combustible materials. The primary benefit of this thermal bridging solution is that it is non-combustible. As such, it is not necessary to conduct NFPA 285 or ASTM E119 fire rating tests (when required) when Thermal Break Material™ TBM-3 is incorporated in wall or roof assemblies.

Type TBM-3 is used as a thermal break in connections where high compressive strength is not required. It can be used as a thermal break in between steel purlins and roof or wall panels in metal building applications providing continuous insulation where thermal bridging normally occurs. It is also ideal for use in or as a buck for metal-framed window and door installations, reducing heat loss between the metal frames and steel stud framing openings. Likewise, TBM-3 thermal break material can be used as a thermal break at curtain wall transitions.

Physical Properties

Compressive strength	ASTM C165	80 psi @ 5% deflection
Compressive Modulus	ASTM D695	27,000 psi
Thermal Conductivity	ASTM C518	0.438 BTU/in/hr/ft ² /°F
Flame Spread, Smoke Index	ASTM E84	0/0
Non-combustible	ASTM E136	passes

The thermal conductivity of a material is a function of its conductance and is an important value in determining the rate at which heat flows through that material. Heat flow is also dependent on area and temperature. To be effective, a thermal break has to have a much, much lower thermal conductivity than the material it is “breaking”. Since the conductance of a material is a function of its thickness, both thickness and area are important in heat flow calculations for a thermal break.

Thermal break material™ (TBM-3) is available in thickness of 1” to 4”. In any connection design using a thermal break, the goal is to find the appropriate thickness/area combination that helps the wall or roof assembly meet the U value requirement based on climate zone and energy code.



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