STRUCTURAL THERMAL BREAK
ENSURE LONGEVITY, PRIORITIZE EFFICIENCY

TECHNICAL DATA SHEET
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STB-1 Structural Thermal Break

STB-1 is a thermoset, reinforced composite plate for steel-to-steel and steel-to-concrete connections that pass through the building envelope. It carries compression and shear while interrupting conductive heat flow at balconies, canopies, shelf angles, rooftop dunnage, parapets and column bases. Manufactured in Canada and cut, drilled and machined to your drawings.

Property	Units	Test Method	Value
Mechanical Properties			
Compressive Strength	psi (MPa)	ASTM D695	48,000 (330.9)
Flexural Strength	psi (MPa)	ASTM D790	25,000 (172.4)
Tensile Strength	psi (MPa)	ASTM D638	11,000 (75.8)
Shear Strength	psi (MPa)	ASTM D732	16,326 (112.56)
Compressive Modulus, 1" (25.4 mm) thick	psi (MPa)	ASTM D695	830,000 (5,723)
Thermal Properties			
Thermal Conductivity	BTU·in/hr·ft²·°F (W/m·K)	ASTM C177	1.055 (0.152)
Coefficient of Thermal Expansion	in/in/°C x 10^-5	ASTM D696	2.2
Operating Temperature Range	°F (°C)	—	-60 to +220 (-51 to +104)
Fire Performance			
Surface Burning Characteristics	Class	ASTM E84	A
Reaction to Fire	Euroclass	EN 13501-1	B
Oxygen Index	% O2	ASTM D2863	21.8
Physical			
Density	lb/ft³ (kg/m³)	—	115 (1,842)
Standard Thicknesses	in (mm)	—	1/4, 1/2, 3/4, 1, 2 (6.4, 12.7, 19.1, 25.4, 50.8)

Creep

Expected long-term deflection is 1.25 × the initial elastic deflection at bearing stresses up to 2,000 psi. Design limit: creep and permanent set not to exceed 5% of original thickness.

Typical Applications

- Steel balcony and canopy connections
- Masonry shelf angles and relieving angles
- Rooftop dunnage, posts and parapets
- Column bases on foundation walls
- Curtain wall and cladding supports

Fabrication

- Cut to plate dimensions, 1/4" to 2" thick
- Holes and slots drilled to your pattern
- Matching thermal break washers and Thermal Bushings
- Parts labelled by connection mark
- Typical lead time 5–7 days

Quotes and design support: 800-580-4195 | structuralthermalbreak.com

Values are nominal and provided for guidance only. Benchmark accepts no responsibility for individual results obtained; users should verify data and obtain independent test results for their application. Data subject to change without notice. Final connection design is the responsibility of the engineer of record.