

Insulated Tensioned Membrane - 24 mm

Tensotherm is an insulated, tensioned membrane composite system with an outer weather barrier of PTFE fiberglass, and an inner PTFE acoustical layer. The central component of the composite consists of a translucent blanket of aerogel insulation. Tensotherm enhances a tensioned membrane system's thermal, solar and acoustic capabilities while maintaining its translucent quality. The aerogel insulation maintains its performance characteristics for the entire lifespan of the system. Hydrophobicity of the insulation, combined with long lasting waterproof membranes, creates a continuous vapor barrier and mitigates problems associated with moisture. The performance of Tensotherm can enhance the acoustical quality of the space with absorption of broadband noise and reduction of sound transmission. This durable insulated membrane system is first of its kind in the industry with enormous potential to revolutionize the lightweight tensioned systems market.

Composite Performance Properties

Property	Value	Test Method
Thickness	24 mm	---
Unit Weight	0.70 psf	ASTM D4851.88
R-Value	10.1	ASHRAE 90.1
Solar Heat Gain Coefficient	2.30 %	SHGC = T+(U/h)xA
Acoustical Absorption	0.73 Sabins/ft ²	ASTM C423*
Sound Transmission Class	21.0 dB	ASTM E90*
Visual Transmission	2.2 %	ASTM E424
Fire Performance	Class A	ASTM E108

* Values for 16 mm acoustical absorption and sound transmission class were measured in a laboratory. The 8 mm and 24 mm values were modeled based on 16 mm performance.

Membrane Property

Property	Outer**	Liner**	Test Method
Breaking Strength			ASTM D4851.88
Dry, Warp	785 min. avg.	300 min. avg.	
Dry, Fill	560 min. avg.	210 min. avg.	
Breaking Strength after Crease Fold			ASTM D4851.88
Dry, Warp	645 min. avg.	285 min. avg.	
Dry, Fill	395 min. avg.	200 min. avg.	
Trapezoidal Tear (lb.)			ASTM D4851.88
Warp	70 min. avg.	24 min. avg.	
Fill	65 min. avg.	19 min. avg.	
Color	White (After Exposure to Sunlight)	White (Pre-Bleached)	

** For the basis of performance, the outer material is Sheerfill II-HT (PTFE) and the liner material is Fabrasorb 1A (PTFE).

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Tensile Architectural Structures