Materials

Weights & Glass Content	Panels						Roof Deck	
TUFF SPAN Series FR	150	200	250	300	400	450	500	700
Nominal Weight Oz/SF	8	9	10.5	12	14	16	16.5	22
Nominal Glass Content, %	48	47	49	48	48	47	50	50
TUFF SPAN Series FM	10	13	16					
Nominal Weight Oz/SF	10.5	13.5	16.5					
Nominal Glass Content, %	30	30	30					

Standard Colors Light Transmission

Tuff Span	Color	Light Transmission ASTM D-1494-60
Roofing & Siding	Gray, White, Beige & Stone White	Opaque
	Translucent: Green, White, Gray, & Beige	Up to 50%
	Translucent Clear	Up to 80%
Roof Deck	White	Opaque

For translucent panels, percent (%) of light transmission will vary with panel thickness, color, and profile. For vinyl ester roofing and siding panels, the recommended color is beige. For iso-polyester material, all standard colors are recommended. Contact Enduro Composites for colors not listed.

Physical Properties

Property	Value	Test
Coefficient of Thermal Expansion	8 x 10^{-6} in/in°F	ASTM D-696 (1)
Flame Spread Index	25 or less	ASTM E84 / UL723
R value	0.07	(2)
Barcol Hardness	45	–

(1) Value based on coupon tests.
(2) Based on generic thermoset resins.

Other physical properties and data are available upon request.

Design Parameters

The load/span tables shown in this guide are based on data derived from large scale testing conducted on full-sized panels. This includes three-point load test and two-span vacuum box test, which simulates actual service conditions (at reference temperature of 77° F).

Each span listed in the load/span tables represents the most conservative span determined using these parameters:

- Critical bending moment at actual panel failure;
- Flexural stiffness factor, EI, (where E is the flexural modulus of elasticity and I is the moment of inertia of the panel section); and
- Pullover force resistance per fastener.

Load / Span Tables

The load/span tables shown in this Guide are developed using the following maximum deflections limits and Factors of Safety (FOS), unless otherwise noted:

Panel Roofing:	Positive Loads: Deflection: L/60, FOS:2.5	Negative Loads: Deflection: L/60, FOS: 1.88
Panel Siding:	Wind Loads: Deflection: L/30, FOS:1.88	
Roof Deck:	Dead + Live Loads: Deflection: L/180, FOS:2.5	Uplift Loads: Deflection: L/180, FOS:1.88

Note: The load/span tables are to be used as a guide only as specific environmental conditions are not considered. Specific applications should be verified by a registered Professional Engineer.