

Tuff Span FRP Roof Deck

Unsurpassed Strength & Corrosion Resistance

With outstanding corrosion resistance, Tuff Span fiberglass reinforced plastic roof deck provides long-term structural support for both built-up and single ply roofing materials.

As an alternative to metal or wood, Tuff Span roof deck does not rust, rot, peel, or flake, thus eliminating the threat of falling deck particles that could damage equipment or contaminate product. As an alternative to concrete, Tuff Span offers a 13 lb. psf reduction in dead load on the building structure and huge installation cost and time savings. In addition, its bright white color can dramatically improve work conditions

To optimize structural properties, Tuff Span material includes high (50% by weight) content of glass fiber reinforcements in bidirectional alignment. This provides the strength and stiffness necessary to withstand high wind uplift and dead load of roofing materials. Available in two profiles, Tuff Span roof decks are designed to handle typical load and span conditions found in conventional building construction.

The fiberglass reinforced plastic (FRP) decking delivers significant benefits for natoriums, paper mills, food processing plants, industrial facilities with chemical exposures and other challenging conditions.



Corrosion resistant Tuff Span Roof Deck is a suitable substrate for either single-ply or built-up roofing.



Mechanical fasteners, hot or cold adhesives can be used to attach roofing membrane and insulation.

Uses

- > Roof Deck for Membrane Roofing
- > Roof Deck for Single Ply Roofing

Features

- > Corrosion Resistance
- > Strongest FRP Building Panel
- > Fire Retardant
- > FM and UL Listings
- > Low Thermal Expansion
- > White or Gray Color Options

Benefits

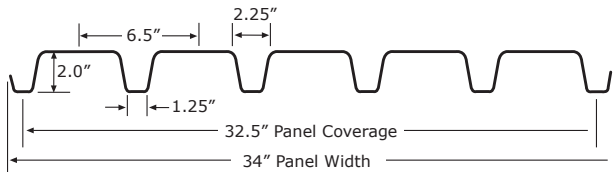
- > Life-Cycle Cost Savings
- > Maintenance-Free Life
- > No Rust, Rot, Peel, or Flake
- > Equipment & Product Safety
- > Improved Work Conditions

Properties	6.5 x 2 Series 500	8.0 x 3.5 Series 700
Nominal Weight /SF	1.06 lb.	1.375 lb.
Nominal Glass Content, %	50	50
Corrosion Resistant Resin System	Fire-Retardant Vinyl Ester	Fire-Retardant Vinyl Ester
Flame Spread Rating (ASTM E-84)	25 or less (Class 1)	25 or less (Class 1)
Moment Capacity/ft.	11,850 lb. in.	12,400 lb. in.
Stiffness EI/ft.	2.32 x 10 ⁶ lb. in.	5.85 x 10 ⁶ lb. in. ²
Fastener Pullover, per fastener	630 lb. (.729" diam. washer)	850 lb. (1.125" diam. washer)
Flexural Strength / ASTM D-790	55,000 psi	55,000 psi
Flexural Modulus / ASTM D-790	2.4 x 10 ⁶ psi	2.4 x 10 ⁶ psi
Tensile Strength / ASTM D-790	42,000 psi	42,000 psi
Coefficient of Thermal Expansion / ASTM D-696	8 x 10 ⁻⁶ in/in/°F	8 x 10 ⁻⁶ in/in/°F

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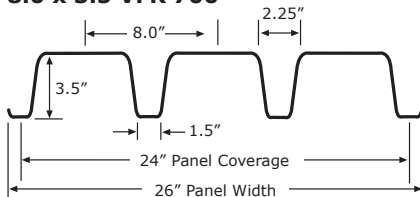
Load/Span Tables: Dead + Live / Uplift Loading

6.5 x 2 VFR 500



Uniform Loads, PSF	20	30	40	50	60	70	80
Single Span	7'0"	6'1"	5'6"	5'1"	4'10"	4'7"	4'4"
Two Span	9'4"	8'2"	7'5"	6'11"	6'6"	6'2"	5'10"
Three or More Spans	8'7"	7'6"	6'10"	6'4"	6'0"	5'8"	5'5"

8.0 x 3.5 VFR 700



Uniform Loads, PSF	20	30	40	50	60	70	80
Single Span	9'6"	8'3"	7'6"	7'0"	6'7"	6'3"	6'0"
Two Span	12'9"	10'6"/11'1"	9'1"/10'1"	8'1"/9'4"	7'5"/8'6"	6'10"/7'9"	6'5"/6'9"
Three Spans	11'9"	10'3"	9'4"	8'8"	8'2"	7'8"	7'2"/7'5"

Design Parameters: Span limits shown are based on roof deck being attached to each support at each low rib. Deflection Limit = L/180. Live Load - Factor of Safety = 2.5 (1st span listed). Uplift Load - Factor of Safety = 1.88.

FM Global Listings

Tuff Span Deck FM Listings	6.5 x 2 Series 500	8.0 x 3.5 Series 700
Maximum Span	6'3"	8'0"
Fastener - Washer Diam. (1)	.729" dia washer (1.125" for I-90)	1.125" dia. washer (5)
Fastener Spacing at Side Laps	18" o.c.	24" o.c.
NC Insulation Fasteners (2)	16 fasteners	16 fasteners
Rigid Insulation (Poly-iso Board)	1.3" thick min.	1.3" thick min.
BUR Glass Felt	3 ply min.	3 ply min.
Wind Uplift Rating	I-90	I-90
Deflection Limit (3)	L/240	L/240

Notes:

- 1) Structural fasteners are required at each low rib of the deck unit.
- 2) Quantity is for each 4' x 8' insulation board panel.
- 3) With 300 lb. concentrated load.
- 4) Automatic sprinklers are required for Class II deck systems.
- 5) Fasteners with integral hex head washers are required.

- 1) A roofing assembly for Tuff Span 6.5 x 2 roof deck has FM Global approval for Class 1 fire and windstorm classification. Other assemblies with Tuff Span roof deck are listed as Class II per FM J.I. OTOA9. Contact Enduro or see FM Global Roof Nav for details.
- 2) Tuff Span roof decks are UL Listed for Class 90 Uplift: Construction #NM523 for 6.5; #NM524 for 8.0.

Specification

Part 1 - General

Tuff Span products establish the minimum quality standard.

Part 2 - Products

FRP roof deck shall be Tuff Span as manufactured by Enduro Composites, Houston, Texas or approved equal.

2.01 Profile/Series shall be:

_____ 6.5, Series 500 _____ 8.0, Series 700

2.02 Glass fiber reinforcements shall be continuous, straight, and bi-directional (along the length and width of the unit). Glass content shall be a minimum of 50% by weight.

2.03 Resin type shall be premium grade vinyl ester.

2.04 Material shall have Class I Flame Spread of 25 or less per ASTM E 84

2.05 Color shall be: _____ White _____ Gray.

2.06 Design Criteria

A. Dead + Live Load: L/D = 180, FOS = 2.5

B. Wind Uplift Load: L/D = 180, FOS = 1.88

C. Compliance with design criteria shall be established by large scale, vacuum box testing for live and uplift loads.

Part 3 - Execution

3.01 FRP roof deck units shall be installed in accordance with Manufacturer's Installation Guide.

3.02 Roofing insulation / membrane shall be attached by:

_____ Mechanical (positive lock) fasteners: Enduro NC Plastic, SFS-TPR Peel Rivet, or Rawl Speed-Lock Toggle.

_____ Cold adhesive: Olybond 500, Duro-Grip, or equal.

_____ Hot bituminous adhesive: Maximum temperature per NRCA Handbook of Accepted Roofing Knowledge