



Tuff Span™ TRANSLUCENT PANELS

Structural DayLighting Panels for Industrial and Commercial Applications

Delivering outstanding performance, Enduro Tuff Span™ structural daylighting panels offer high strength and light transmission for demanding conditions. Translucent roofing and siding panels are used across the world to help reduce energy costs and improve work conditions by utilizing natural light.



Enduro Tuff Span™ structural daylighting panels offer performance advantages over other translucent panels due to its high content of glass fiber reinforcements - almost 50 percent. This high glass content combined with a premium iso-polyester resin provides the absolute best in corrosion resistance and strength. Tuff Span Series 450 and 400 translucent roof panels are safe for foot traffic within our guidelines. In addition, multi-level UV protection is included for long-term retention of aesthetic and light transmitting properties.

USES

- Structural Daylighting Panels
- Walkable Roof (per guidelines)

BENEFITS

- Natural Light Transmission
- Improved Work Environment
- Long, Maintenance Free Life
- Worker Safety

FEATURES

- High Strength
- Corrosion Resistance
- Extended UV Protection
- Fire Retardant Option
- Range of Translucent Colors
- Range of Profiles



DuroSpan Translucent FRP Roof & Wall Panels

Structural Daylighting Panels for Commercial & Industrial Buildings

Natural Light Transmission

- Better Work Conditions • Lower Energy Cost

DuroSpan translucent panels from Enduro Composites offer natural lighting for buildings along with superior structural performance and appearance. End users love the improved workplace and reduced energy bills resulting from maintenance-free, FRP cladding panels.

Superior Strength

- Leak Protection • Less Fasteners • Lower Cost Installation

DuroSpan glass fiber reinforced plastic panels are much stronger than polycarbonate or chopped strand materials. With high content of glass fiber reinforcements, 48% by weight, aligned for optimum performance, the panels have superior strength and stiffness. This results in leak protection, fewer fasteners, and low installation cost.

UV Protection & Corrosion Resistance

- Better Appearance • Lower Life Cycle Cost

DuroSpan materials do not corrode in coastal or tough industrial conditions. Its premium, UV stabilized polyester resin and exterior coating ensure extended retention of aesthetic and light transmitting properties. For exterior cladding, UV Coating Protection is standard with minimal added cost.

Certifications & Product Options

- Profile, Color & Finish Options • Lengths Cut to Order

Certifications for DuroSpan 12x1.25R-LC2 150 panels include UL Class 90 Wind Uplift and Florida Building Code Approval. The fiberglass roofing and siding panels are offered in a range of profiles and translucent colors that transmit soft, diffused natural lighting. Finish options include: 1) smooth on both sides; 2) embossed on exterior side with smooth finish on reverse side.



| DuroSpan Material | Series | | | | | Glass Fiber Content |
|--|--------|-----|--------------------------------------|-----|-----|---------------------|
| | 450 | 300 | 210 | 150 | 050 | |
| Weight, Oz/SF (nom.) | 16 | 12 | 10 | 8 | 5 | 48% by Weight |
| Tensile Strength, ASTM D638, 43,500 psi | | | Building Code Class, CC2 (Note 2) | | | |
| Tensile Modulus, ASTM D638, 2.52 x 10 ⁶ psi | | | Burning Rate, ASTM D635, <2.5 in/min | | | |
| Flexural Strength, ASTM D790, 40,700 psi | | | Smoke Density, ASTM E84, 300 | | | |
| Flexural Modulus, ASTM D790, 1.24 x 10 ⁶ psi | | | % Elongation, ASTM D638, 2.3% | | | |
| Translucent Colors: Clear, Opal, Smoke Gray, Mist Green, Daylight Blue, Frost, and others. | | | | | | |
| Light Transmission, ASTM D1494: Translucent Clear: Up to 80% Translucent Opal: Up to 55% (Note 3) | | | | | | |

1) ASTM data is based on tests conducted on Series 150 (8 oz.) materials.

2) For CC1 Code Class or FM Approved materials, please contact Enduro Composites for Tuff Span™ FRP building panels.

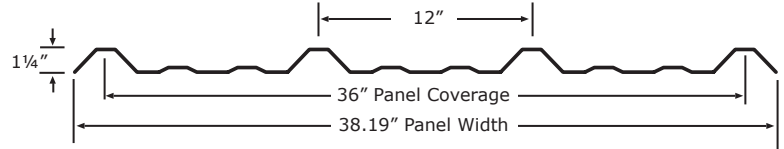
3) Light transmission % varies with color, profile, and thickness. Nominal % in this table is for Series 150 (8 oz.) material.

DuroSpan building panels are manufactured at our ISO 9001 certified, state of the art, facility in Houston, Texas. Please contact us for assistance.

DuroSpan Translucent FRP Roof & Wall Panels

Structural Daylighting Panels for Commercial & Industrial Buildings

DuroSpan 12 x 1.25R



Metal Building Light Transmitting Panels

| Load, PSF | | 20 | | | 30 | | | 40 | | | 50 | | | 180 | | |
|-----------|---------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Span | | 1 | 2 | 3 | 1 | 2 | 3 | 1 | 2 | 3 | 1 | 2 | 3 | 1 | 2 | 3 |
| Roof | LC2-150 | 5.16 | 6.91 | 6.33 | 4.50 | 5.66 | 5.58 | 4.08 | 4.91 | 5.00 | 3.75 | 4.33 | 4.66 | 2.25 | 2.25 | 2.58 |
| Wall | LC2-150 | 6.75 | 8.00 | 8.33 | 5.92 | 6.50 | 7.25 | 5.33 | 5.67 | 6.33 | 4.92 | 5.08 | 5.66 | 2.67 | 2.00 | 2.33 |

Spans for uniform loads are in lineal feet and based on 9 panel fasteners with 1.125" diam. washers at each support.

Roofing Positive Load

L/D = 45

Moment FOS = 2.5

| Load, PSF | | 20 | | | 30 | | | 40 | | | 50 | | | 60 | | |
|----------------------------|---------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Span | | 1 | 2 | 3 | 1 | 2 | 3 | 1 | 2 | 3 | 1 | 2 | 3 | 1 | 2 | 3 |
| S E R I E S | LC2-450 | 6.75 | 9.08 | 8.41 | 5.91 | 7.83 | 7.33 | 5.41 | 6.75 | 6.66 | 5.00 | 6.00 | 6.16 | 4.66 | 5.50 | 5.83 |
| | LC2-300 | 6.08 | 8.16 | 7.50 | 5.33 | 6.83 | 6.58 | 4.83 | 5.91 | 5.91 | 4.50 | 5.25 | 5.50 | 4.17 | 4.75 | 5.16 |
| | LC2-210 | 5.58 | 7.41 | 6.91 | 4.91 | 6.00 | 6.08 | 4.41 | 5.25 | 5.50 | 4.17 | 4.66 | 5.08 | 3.92 | 4.25 | 4.75 |
| | LC2-150 | 5.16 | 6.91 | 6.33 | 4.50 | 5.66 | 5.58 | 4.08 | 4.91 | 5.00 | 3.75 | 4.33 | 4.66 | 3.58 | 4.00 | 4.41 |

Roofing/Siding Wind Load

L/D = 20

Moment FOS = 1.88

Pullover FOS = 1.88

| Load, PSF | | 20 | | | 30 | | | 40 | | | 50 | | | 60 | | |
|-----------|---------|------|-------|-------|------|------|------|------|------|------|------|------|------|------|------|------|
| Span | | 1 | 2 | 3 | 1 | 2 | 3 | 1 | 2 | 3 | 1 | 2 | 3 | 1 | 2 | 3 |
| | LC2-450 | 8.92 | 11.00 | 11.00 | 7.75 | 9.00 | 9.58 | 7.08 | 7.75 | 8.66 | 6.58 | 6.92 | 7.75 | 6.17 | 6.33 | 7.08 |
| | LC2-300 | 8.00 | 9.58 | 9.83 | 6.92 | 7.83 | 8.58 | 6.33 | 6.75 | 7.58 | 5.83 | 6.08 | 6.75 | 5.50 | 5.50 | 6.16 |
| | LC2-210 | 7.33 | 8.50 | 9.08 | 6.42 | 7.00 | 7.83 | 5.83 | 6.00 | 6.75 | 5.42 | 5.42 | 6.00 | 4.92 | 4.92 | 5.50 |
| | LC2-150 | 6.75 | 8.00 | 8.33 | 5.92 | 6.50 | 7.25 | 5.33 | 5.67 | 6.33 | 4.92 | 5.08 | 5.66 | 4.58 | 4.58 | 5.16 |
| | LC2-050 | 4.50 | 6.00 | 5.50 | 4.17 | 5.58 | 5.16 | 3.92 | 5.25 | 4.83 | 3.67 | 5.00 | 4.08 | 3.50 | 4.75 | 4.41 |

Roofing/Siding Wind Load

L/D = 60

Moment FOS = 2.5

Pullover FOS = 1.88

| Load, PSF | | 20 | | | 30 | | | 40 | | | 50 | | | 60 | | |
|----------------------------|---------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Span | | 1 | 2 | 3 | 1 | 2 | 3 | 1 | 2 | 3 | 1 | 2 | 3 | 1 | 2 | 3 |
| S E R I E S | LC2-450 | 6.17 | 8.25 | 7.66 | 5.42 | 7.25 | 6.66 | 4.92 | 6.58 | 6.08 | 4.50 | 6.00 | 5.58 | 4.25 | 5.50 | 5.25 |
| | LC2-300 | 5.50 | 7.42 | 6.83 | 4.83 | 6.50 | 5.91 | 4.33 | 5.83 | 5.41 | 4.08 | 5.25 | 5.00 | 3.83 | 4.75 | 4.75 |
| | LC2-210 | 5.08 | 6.83 | 6.33 | 4.42 | 6.00 | 5.50 | 4.00 | 5.25 | 5.00 | 3.75 | 4.67 | 4.66 | 3.50 | 4.25 | 4.33 |
| | LC2-150 | 4.67 | 6.25 | 5.75 | 4.08 | 5.50 | 5.00 | 3.67 | 4.92 | 4.58 | 3.42 | 4.33 | 4.25 | 3.25 | 4.00 | 4.00 |

1. Spans for uniform load are in lineal feet and based on 6 panel fasteners with .729" diameter washers at each support. Shaded spans for Series LC2-050 have fasteners with 1.125" diameter washers.

2. Structural properties and maximum spans are based on large scale tests that consider: Bending Moment at failure; Flexural Stiffness; Pullover Force per fastener.

3. Tables with deflection (L/D) criteria of L/45 and L/20 comply with ASTM D3841 Standard for Glass Fiber Reinforced Plastic Panels. Data with deflection criteria of L/60 is provided for specifications with IBC code requirements or more conservative limits.