

Superdeck™

Product Brochure



Type: Modular FRP Composite Deck
Location: Wickwire Run, Taylor County, WV
Open to Traffic: September 1997

Span and Width: 9.14 m (30 ft.) x 6.60 m (21.7 ft.)
Beams: Steel beams, spaced 1.83 m (6 ft.) apart
Substructure: Concrete footing and walls (cast in place)

Improving the Nation's Bridges



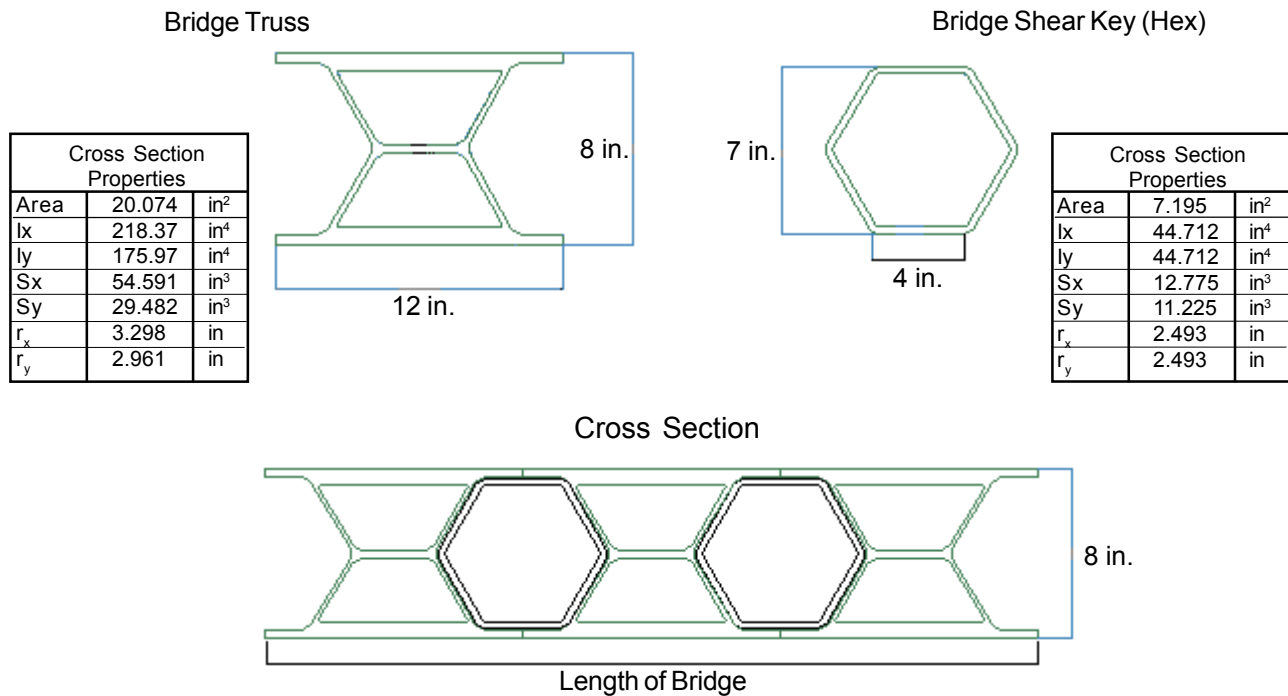
CREATIVE PULTRUSIONS, INC.

- Currently undergoing Highway Innovative Technology Evaluation Center (HITEC) product evaluation, the Civil Engineering Research Foundation's nationally recognized service center and clearinghouse for implementing highway innovation -

High performance characteristics make Superdeck™ the ideal material for highway bridge deck construction:

- Replaces deteriorated concrete or timber bridge decks
- Complies with American Association of State Highway & Transportation Officials (AASHTO) HS 25 Highway Bridge Design
- Cost-effective on an installed cost basis
- Modular bridge construction kits are delivered by truck for quick on-site installations
- Field assembly of deck modules takes only hours to complete
- Safety is enhanced as minimal equipment and formwork is needed, and long traffic delays are eliminated
- Good fatigue resistance and high strength-to-weight ratios yield high durability
- Contains zero metal reinforcements, eliminating corrosion due to de-icing materials
- Corrosive-resistant vinyl ester resin matrix system eliminates all maintenance associated with de-icing salts
- Corrosion-resistant and maintenance-free material minimizes the number of future replacements
- Controlled factory environment ensures highest quality standards

Cross-section of full-depth hexagons and half-depth trapezoids



Superdeck™ Technical Data

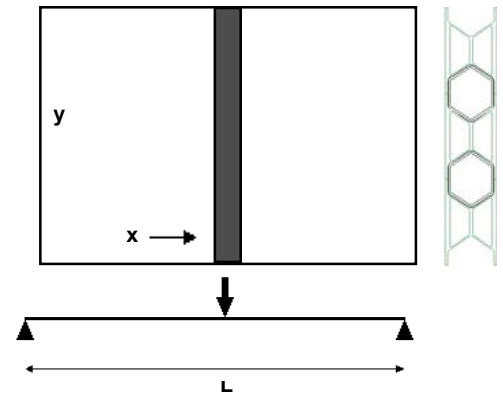
Cross-Sectional Properties Chart

	Cross-Sectional Area	Principal Moment of Inertia	Flexural modulus
	A	I _x	E _x
	in ²	in ⁴	psi
DT Section	20.074	218.37	3,730,000
HX Section	7.195	44.712	3,390,000

The H-deck components are placed transversely to the traffic direction and supported by longitudinal steel or composite beams. Beams can be spaced up to nine feet apart.

The distance between the supports is L (see diagram). A line or strip load is applied at the center of the span.

The applied load is computed per unit length (lb./ft.) in the y direction.



Design Data Chart

Load per unit length (Lb./ft.)					
L (ft.)	L/100	L/200	L/300	L/400	L/500
5	(*)	40771	27181	20385	16308
7	48900	24450	18622	12225	9780
9	32585	16283	12862	8146	6517

(*) - The maximum load may be controlled by other limit states.

Did You Know...?

The Federal Highway Administration estimates that 30% of all fatal automobile crashes are due to the design and nonweather condition of roads and bridges. Approximately 1,000 people die in highway accidents each month because of poor condition or design of the highway or bridge.

- **Excellent environmental and corrosion resistance characteristics of fiber reinforced polymer (FRP) are key in material selection.** - The retention of properties over time depends on material composition, design and environmental exposure. By taking these factors into consideration, a long service life can be expected for FRP bridge decks.*
- **Currently, normal design practice for long-term loaded structures is to retain the**

stresses below 20-30% of the ultimate short-term strength. - Using safety factors of this order, failures due to long-term loadings can be minimized. Using additional data on relevant structural applications makes it possible to design safely with lower safety factors.*

- **Composites display excellent freeze-thaw resistance.** - Composites are resistant to galvanic corrosion and have low water absorption; therefore, they resist the destructive expansion of

freezing water. Composite structures, exposed to years of outdoor freeze-thaw cycles, have minimal loss of properties.*

- **Composites can be designed to meet most fire regulations by specifying special resins and additives.** - Properly designed and formulated, composites can offer fire performance superior to that of some metals.*

* Information supplied by the Society of the Plastics Industry, Composites Institute

Superdeck™ is Easy to Install



Deck panels arrive at site, ready for installation.



High performance adhesive bonding is applied to beam surface.



Prefabricated Superdeck™ is installed using minimal equipment.



On-site assembly takes only a few hours for completion.

Superdeck™, a fiber reinforced polymer (FRP) composite bridge deck, is manufactured by the pultrusion process. The deck is designed-engineered into a lightweight, strong and rigid structure that will not corrode as steel does. Call now for more information.

Additional sales and technical information available for Superdeck™: Installation Profiles, *Improving the Nation's Bridges* Marketing Video, *Improving the Nation's Bridges* Technical Installation Video, Technical Articles, Market Survey Reports, Technical Cost Comparison Reports and News Releases.

Superdeck™ Industry Recognition Awards: Finalist, *The CERF Charles Pankow Award for Innovation*, 1997; *Market Viability Award*, The Composite Fabricators Association, 1997



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