



GRIDFORM[™] FRP BRIDGE DECK SYSTEM

GRIDFORM[™] is a stay-in-place concrete bridge deck system that is designed to replace steel rebar in reinforced concrete bridge decks. GRIDFORM[™] consists of two layers of pultruded FRP I-bar grating separated by FRP shear connectors with nylon bolts. Standard GRIDFORM[™] grating features I-bars (lengthwise direction) on 4[™] centers and cross rods (crosswise direction) on 4[™] spacings. GRIDFORM[™] (shown above) also has a 1/8[™] pultruded FRP plate bonded to the bottom grating layer to create a stay-in-place concrete form.

GRIDFORM[™] OPTIONS

GRIDFORM[™] is available without pultruded plate bonded to the bottom grating layer. GRIDFORM[™] can also be customized by varying bar spacing and panel separation. The application pictured to the right was installed at Fond du Lac, Wisconsin, in 2004, and utilized GRIDFORM[™] with no bonded plate.





- » High Strength
- » Light Weight
- » Corrosion Resistant
- » Quick and Easy Install

History

- In 2001, Strongwell began developing the GRIDFORM[™] system with the University of Wisconsin. The First generation of the GRIDFORM[™] system was installed on a bridge in Waupun, Wisconsin.
- The second generation of the GRIDFORM[™] system was installed on a vehicular bridge near Fond du Lac, Wisconsin, by the Wisconsin Department of Transportation. The Fond du Lac research project compared two bridges: one constructed using the GRIDFORM[™] system and another constructed with conventional steel rebar reinforcement.
- The third generation of the GRIDFORM[™] system was installed on a vehicular bridge in Greene County, Missouri. A 1/8" thick FRP plate was integrated into the system and bonded to the bottom layer of grating to create the stay-in-place concrete form. *(photos below)*



This field application in Greene County, Missouri, shows FRP panel setting and anchoring. The bridge was reconstructed in only five days.

							Predicted Failure Loads		
GRIDFORM™ GTG Series and Spacing	Slab Depth	Slab Span	Slab Length	Slab Width	Concrete Strength (psi)	Test Failure (kip)	Flexure (kip) ACI 440	Punching Shear (kip) UW-Madison	Flexural Shear (kip) ACI 318
1-1/2" I-Bars at 4" o.c. 1/2" dia cross rods at 4" o.c.	7.625"	6'-4"	8'-0"	7'-0"	4350	125	97.3	115.3	122.2
	8"	6'-6"	7'-6"	6'-6"	5347	119.3	86	119.5	127.6
					5343	120.6	93.5	120.5	127.5
					5507	121.8	94.7	121.7	129.5
		7'-6"	8'-6"	7'-8"	6854	121	107.6	121.9	158.3
		8'-6"	9'-6"	8'-8"	4652	109.4	89.8	107.2	141.8
2" T-Bars at 4" o.c. 1/2" dia cross rods at 4" o.c.	8"	8'-6"	9'-6"	8'-8"	4630	115.7	101.9	114.2	140.1

GRIDFORM[™] Test Results

Laboratory Test Results for Load Capacity of GRIDFORM[™] at Various Spans

DESIGNING WITH GRIDFORM™:

Design of FRP-reinforced concrete bridge deck systems follows the methodology of *AASHTO LRFD Bridge Design Specifications and ACI PRC-440.1 Guide for the Design and Construction of Structural Concrete Reinforced with Fiber-Reinforced Polymer Bars.* Design assistance can be obtained by contacting Strongwell – Chatfield Location.





ISO 9001 Quality Certified Manufacturing Plants

CHATFIELD LOCATION

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