

Installation Guide

FIBERSPAN™ FRP DECK PANELS ON PEDESTRIAN BRIDGES



Introduction

This document is a quick summary that will explain the steps required to install FiberSpan bridge deck panels supplied by Creative Composites Group (CCG). This summary is based on the typical FiberSpan deck installation and will include panel types, superstructure preparation, unloading the bridge panels, panel erection equipment, panel installation, beam connections, joints, cosmetic repairs, and typical BOM.

1. Panel Types

The FRP deck panels are classified in different types per the shop drawings. This is due to the individual panels having slight differences. This could be from sizing, or additional options on the panels. The ID of the type is located at both ends of each panel.

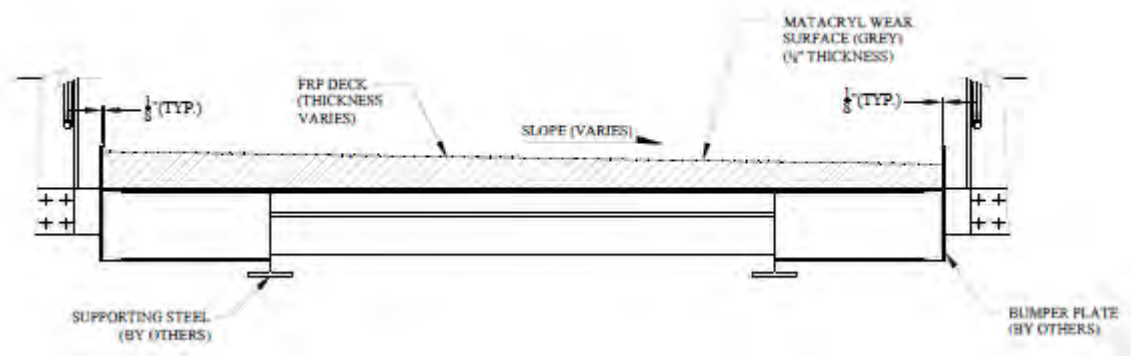


Figure 1 - Basic panel view

2. Bridge Superstructure Preparation

The bridge superstructure should be prepared according to the contractor and steel manufacturer requirements. It is recommended right before setting the FiberSpan deck panels to clean & dry the tops of the beams anywhere that the deck panels will be touching them. This will assure that the deck panels will set flat against them with full contact.

3. Unloading Bridge Panels

The bridge panels will arrive on a flatbed truck. Unloading can be done with a crane and slings or a forklift truck. All unloading is up to the contractor to furnish. When inserting the forks between panels, ensure that the forks do not damage the panel being lifted or scrape off the wear surface on the panel below the one being removed.

The panels are loaded onto the truck one at a time. No more than three panels should ever be unloaded as a stack. This avoids bending the bottom panel too much if the slings are close to the center.



Figure 2 - Typical unloading of truck

Panels are to be stored off the ground on supports that do not yield to the weight of the stacked panels. Panels will be separated by wood blocks on the truck that may be reused to keep the panels separated and supported in the field. This prevents the wear surfacing of the lower panel from damaging the bottom of the upper panel. A clearance of 2 feet minimum should be maintained around the stacked panels in order to allow subsequent panel lifts onto the superstructure.



Figures 3 & 4 – Stacking of panels on site

The expansion joint materials, hardware, panel to panel joint materials, connection clip assemblies, etc. will all be shipped unattached to the panels, typically in a tote or on a skid with the panel shipment.

4. Panel Erection Equipment

A crane with sufficient reach to place all panels without driving on the bridge is the preferred option. The bridge panels are designed for pedestrian loading only, not for heavy equipment loading. Take care to ensure that the straps/slings will not slip or lift the panels in an unbalanced manner.

The lift slings should be guided underneath the panel and evenly spaced so that the lifted panel will remain horizontal and parallel to the ground. The slings are wrapped around the short dimension of the panel.



Figure 5 – Panel installation

5. Panel Installation Overview

The bridge panels are to all be supported by floor beams. The panels are sized to have panel to panel joint centered at each shared beam. Using shims such as wood, steel plates, steel angles or other material that will not easily compress are suggested as an aid when setting the panels.



Figure 6 – Wooded shims used to set panel spacing

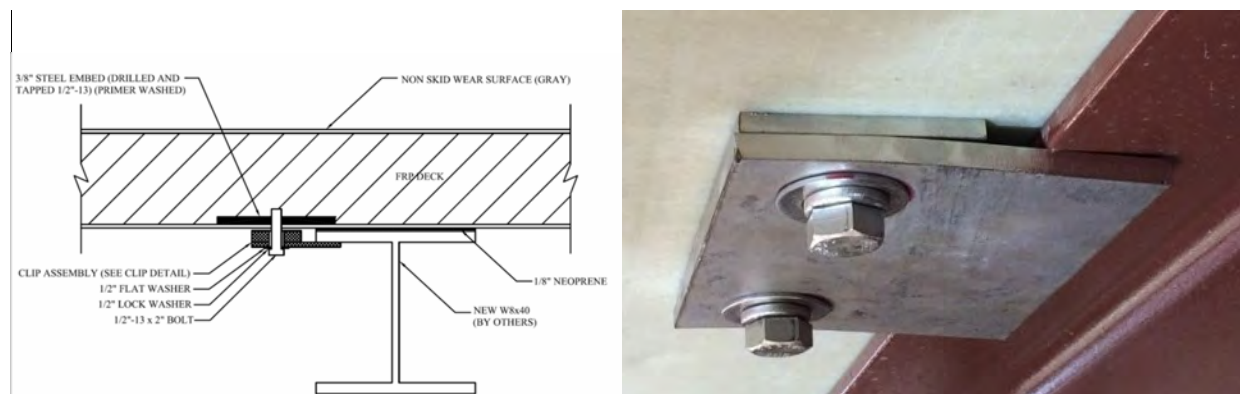
Once the panels are in place, it is recommended to adjust as necessary to even out the panel-to-panel joints, but longitudinal straightness still needs to be maintained

6. Panel Installation Steps

- a. Lift the panels into position. The panel I.D. is on both ends.
- b. Hard stops (by others) to control the joints between the mated panels are to be used during the installation of the panels. The shims will be placed on the previous panel to set the joint gap. The panels will be lowered vertically as close to the previous panel as possible; and then move the panel horizontally against the shims.
- c. Panel to panel alignment checks are recommended to ensure edges are straight
- d. A measurement check for proper panel location is to mark the designed centers of the panel-to-panel joints on the supporting structure (typical 3/8" caulk joints). This reference mark will serve as a visual check to make sure the panels are in the correct locations.
- e. After all panels are set, adjust panel to panel joints as necessary to make them more evenly spaced.
- f. Install panel connection clips (see connections in Section 7). Minimize the work done from on top of the panels until the connection clips have been installed as they will not resist the uplift forces until the clips are in place.

7. Connecting the deck to the beams

After panels are placed, the deck will be mechanically connected to the stringer flanges by bolting clips to the bottom of the panels. A panel connection clip assembly is a custom fastener that is built up from two or more plates with through-holes to allow bolts to be threaded into the tapped holes on the bottom of the panel. This connects the assembly to the bridge panel and simultaneously grips the underside of the beam top flange.



Figures 7 & 8 – Connection clips

Attach the connection assemblies by screwing 1/2" diameter bolts into the tapped holes in the bottom of the deck. Be sure to apply the provided Loctite to bolts. Use washer and lock washer. Torque the bolts until lock washer is compressed. Do not over-tighten.

8. Panel-To-Panel Joints

- a. The panel-to-panel joint receive a sealant system to control water runoff. Panel joints need to be dry prior to installing the system per the manufacturer details.
- b. When provided by CCG, Colorseal (a silicone-coated, precompressed, primary seal) or emseal backerseal (a precompressed, self-expanding secondary, self-adhered foam backer) with Pecora silicone sealant over top are the systems routinely used.



Figure 9 – Colorseal System Installed Between Two Panels

10. Cosmetic Repair

Amershield coating is provided to touch up cosmetic blemishes of the panels. This is for scratches or marks on the painted surfaces of the panels that may occur during installation.

11. Furnished Material

a. Sample BOM from CCG

BILL OF MATERIALS (SUPPLIED TO SITE)			
QTY.	UNIT	DESCRIPTION	LOCATION / USE
1	EA	FIBERSPAN DECK PANEL 1N	-
1	EA	FIBERSPAN DECK PANEL 2N	-
1	EA	FIBERSPAN DECK PANEL 3N	-
1	EA	FIBERSPAN DECK PANEL 4N	-
1	EA	FIBERSPAN DECK PANEL 5N	-
1	EA	FIBERSPAN DECK PANEL 6N	-
1	EA	FIBERSPAN DECK PANEL 1S	-
1	EA	FIBERSPAN DECK PANEL 2S	-
1	EA	FIBERSPAN DECK PANEL 3S	-
1	EA	FIBERSPAN DECK PANEL 4S	-
1	EA	FIBERSPAN DECK PANEL 5S	-
1	EA	FIBERSPAN DECK PANEL 6S	-
160	EA	½"-13 x 2" ASTM F593C SS BOLT	ALL PANELS
160	EA	½" 304SS LOCK WASHER	ALL PANELS
160	EA	½" 304SS FLAT WASHER	ALL PANELS
8	10' ROLLS	½" COLORSEAL WITH MANUFACTURER ADHESIVE (LIMESTONE)	PANEL JOINTS
4	10' ROLLS	1" COLORSEAL WITH MANUFACTURER ADHESIVE (LIMESTONE)	PANEL JOINTS
6	10oz	PECORA 890NST SEALANT (LIMESTONE)	PANEL JOINTS
2	EA	LOCTITE 263 - 50ml BOTTLE	ALL BOLTS
64	EA	4-1/4" x 6" x 3/8" 304SS PANEL CONNECTION CAPTURE TYPE 1 PLATE	ALL PANELS
16	EA	8-3/4" x 3" x 3/8" 304SS PANEL CONNECTION CAPTURE TYPE 2 PLATE	PANELS 4,6
90	EA	¾"-11 x 2" ASTM A325 - HDG BOLT	RET. EDGE
90	EA	¾" ASTM F436 - HDG STRUCTURAL WASHER	RET. EDGE

Figure 10 – Sample BOM

b. Furnished by Contractor

- All hardware, materials, and labor associated with railing
- All material and labor necessary for installation except as noted above
- Forklift/ Crane and rigging equipment for unloading and erecting panels
- IPA for cleaning panel edges
- Caulk gun for sealant application
- Shims for setting joint gaps
- Concrete anchors
- Any sealant for edges other than panel-to-panel joints