CREATIVE COMPOSITES GROUP

Installation Guide

FIBERSPAN™ FRP DECK PANELS ON VEHICLE BRIDGES

NOVEMBER 2024

Introduction

This document is a quick summary that will explain the steps required to install FiberSpan vehicular bridge deck panels supplied by Creative Composites Group (CCG). This summary is based on the typical FiberSpan vehicular deck installation and will include:

- Panel types
- Superstructure preparation
- Unloading the bridge panels
- Panel erection equipment
- Panel installation
- Joints
- Cosmetic repairs
- 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, shape, or additional options on the panels. The ID of the type is located at both ends of each panel.

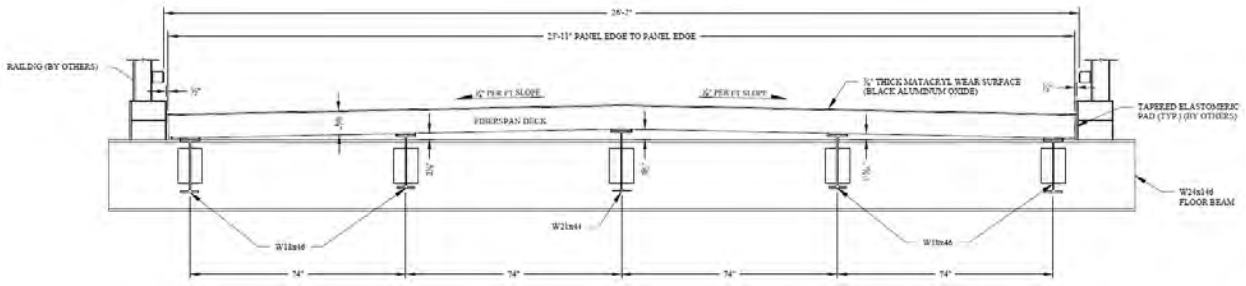

Figure 1 - Basic panel view

2. Bridge Superstructure Preparation

The bridge superstructure should be prepared according to the contractor and steel manufacturer requirements. It is recommended 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. Due to weight, panels should be unloaded in the same manner.


Figure 2 & 3 - Typical 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 4 & 5 – Unloading and 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 forklift with sufficient capacity or a crane with sufficient reach should be used. The bridge panels are designed for an HS-20 loading. 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. Take care to ensure that the straps/slings will not slip or lift the panels in an unbalanced manner.

Figure 6 – 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 shiplap joints centered at each shared beam. It is important to layout the panels and mark the beams prior to setting panels. This insures that they are set in the proper location.

Figure 7 – Panel setting

Once the first panel is in place, it is recommended to fully mount the panel before moving onto the next panels.

6. Panel Installation Steps

a. Lift the first panel into position. The panel I.D. is on both ends.

b. Mount the panel into its position by installing the washers and nuts in the stud pockets.

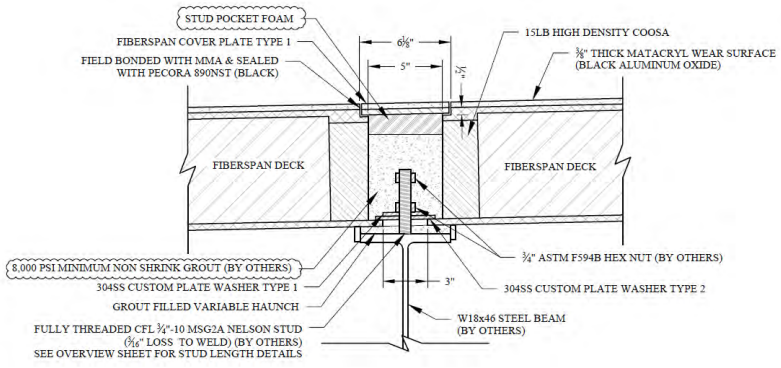

Figure 8 – Stud Connection

c. The panel-to-panel joints are glued and bolted. The adhesive is supplied by CCG. The adhesive is applied to the bottom panel of the shiplap.

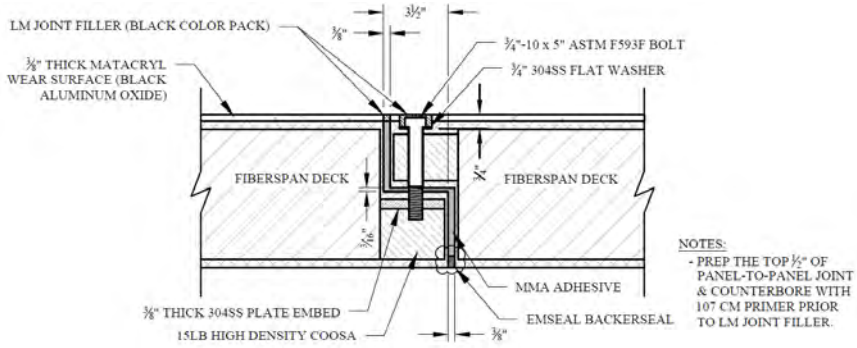

Figure 9 – Panel Joint

d. The panels will be lowered vertically as close to the previous panel as possible; and then move the panel horizontally against hard shims to gap the proper joint.

Figure 10 – Panel Shiplap

e. The supplied bolts should then be ran in tight with an impact. Be sure to run them in until the head of the bolt is below the panel surface.

f. After the rest of the panels are set, go back and install the remaining washers and nuts in the stud pockets.

g. Panel to panel alignment checks are recommended to ensure edges are straight

h. Grout should be installed in the stud pockets stopping approximately 1-1/2” from the top. This allows foam to be installed and the FRP cap to be installed sealing the stud pocket.

i. The FRP cap is installed with the same adhesive as the joint. Use black Pecora to finish sealing the caps to the panel. This should be watertight.

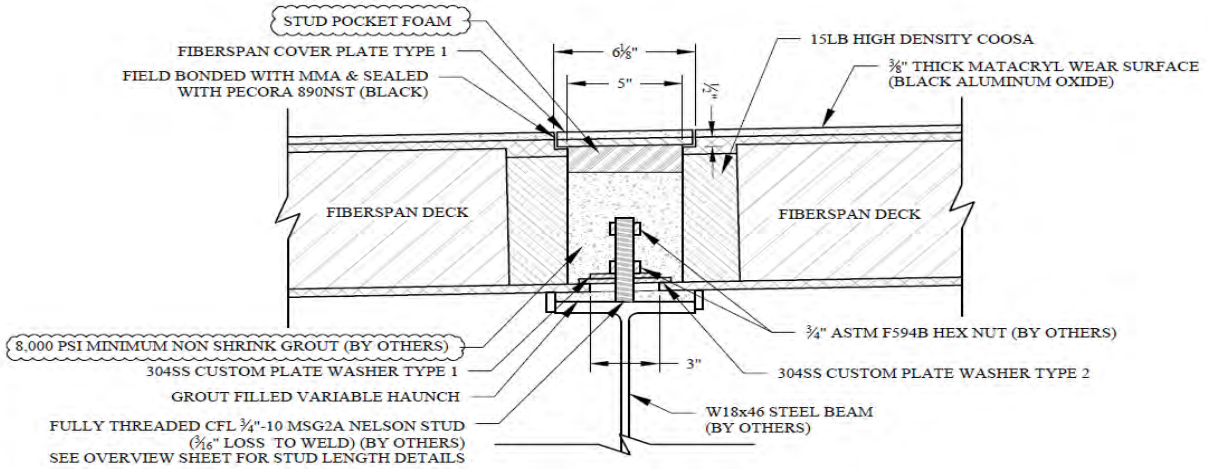

Figure 11 – Stud Pocket Sealing

8. Panel-To-Panel Joints and Panel Connection Bolts

a. The panel-to-panel joint receive a sealant system to control water runoff. The panel connection bolts will also receive the same material to seal them. These all need to be dry prior to installing the system per the manufacturer details.

b. Each panel-to-panel joint and panel connection bolt needs to be primed prior to the joint material (LM Joint Filler) being installed. This creates a greater bond between the joint material and the panels.

c. After the primer has dried (20-30 min) the LM Joint Filler can be mixed per the manufacture instructions and carefully poured into the joints and on the connection bolts. Be sure to stay slightly lower than the panel surface.

d. Material will dry to 20-30 minutes

Figure 12 – LM Joint Filler 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

204	EA	-----	5"Ø STUD POCKET FOAM CORE	STUD LOCATIONS
2	EA	CA	LOAD PLATE - 12" x 3" x 3/16"	BRIDGE ENDS
1	GAL	-----	AMERSHIELD - CONCRETE GRAY	TOUCH UPS
5	EA	890NST	10oz TUBE PECORA SEALANT - BLACK	CAP JOINT FILLER
55	GAL	SS230	HVA MMA ADHESIVE	BONDS & CAPS
5	GAL	SS218	HVB MMA ACTIVATOR	BONDS & CAPS
4	GAL	-----	LM JOINT FILLER (BLACK COLOR PACK)	PANEL-TO-PANEL JOINTS
1	GAL	-----	MATACRYL 107 CM PRIMER	LM JOINT FILLER
5	LBS	-----	MONACRYL REACTIVE FILLER	LM JOINT FILLER
25	13' ROLL	-----	3/8" EMSEAL BACKERSEAL	JOINTS
68	EA	-----	3/4"-10 x 5" ASTM F593F BOLT	PANEL-TO-PANEL JOINTS
68	EA	-----	3/4" 304SS FLAT WASHER	PANEL-TO-PANEL JOINTS
204	EA	-----	3"Ø 304SS CUSTOM PLATE WASHER	STUD LOCATIONS
204	EA	-----	4"Ø 304SS CUSTOM PLATE WASHER	STUD LOCATIONS

Figure 13 – 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