Multnomah County

Kevin Cook <kevin.c.cook@multco.us>

Couple of questions about the proposed boardwalk structure

Karen Vitkay <Karen.Vitkay@oregonmetro.gov> Thu, Feb 7, 2019 at 2:43 PM
To: Kevin Cook <kevin.c.cook@multco.us>, Gary Shepherd <Gary.Shepherd@oregonmetro.gov>

External Sender - Be Suspicious of Attachments, Links, and Requests for Payment or Login Information.

Hi Kevin,

All the drainage crossing structures are proposed to be fiberglass. I've attached a brochure from a fabricator we like. While the default is pressure treated decking, they offer fiberglass as an option. Crossing #8 (the boardwalk) is 4' wide x 15' long as indicated on the overview and trail layout sheets. The curb or bullrail extends 5" above the deck surface.

Thank you.

Karen

From: Kevin Cook [mailto:kevin.c.cook@multco.us]
Sent: Wednesday, February 06, 2019 5:35 PM
To: Karen Vitkay; Gary Shepherd
Subject: Couple of questions about the proposed boardwalk structure

Hi Karen and Gary,

Regarding the proposed boardwalk structure, can you answer the following:

1. Will it be made of fiberglass or some other nonflammable material?

2. What is the approximate dimensions (length, width, height)?

Thanks

Kevin Cook
Senior Planner

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1600 SE 190th Ave, Suite 116
Portland, OR 97233
P 503.988.0188
Pronouns: (he/him/his)

ETT Boardwalk Brochure(CPM281-090718).pdf
1112K

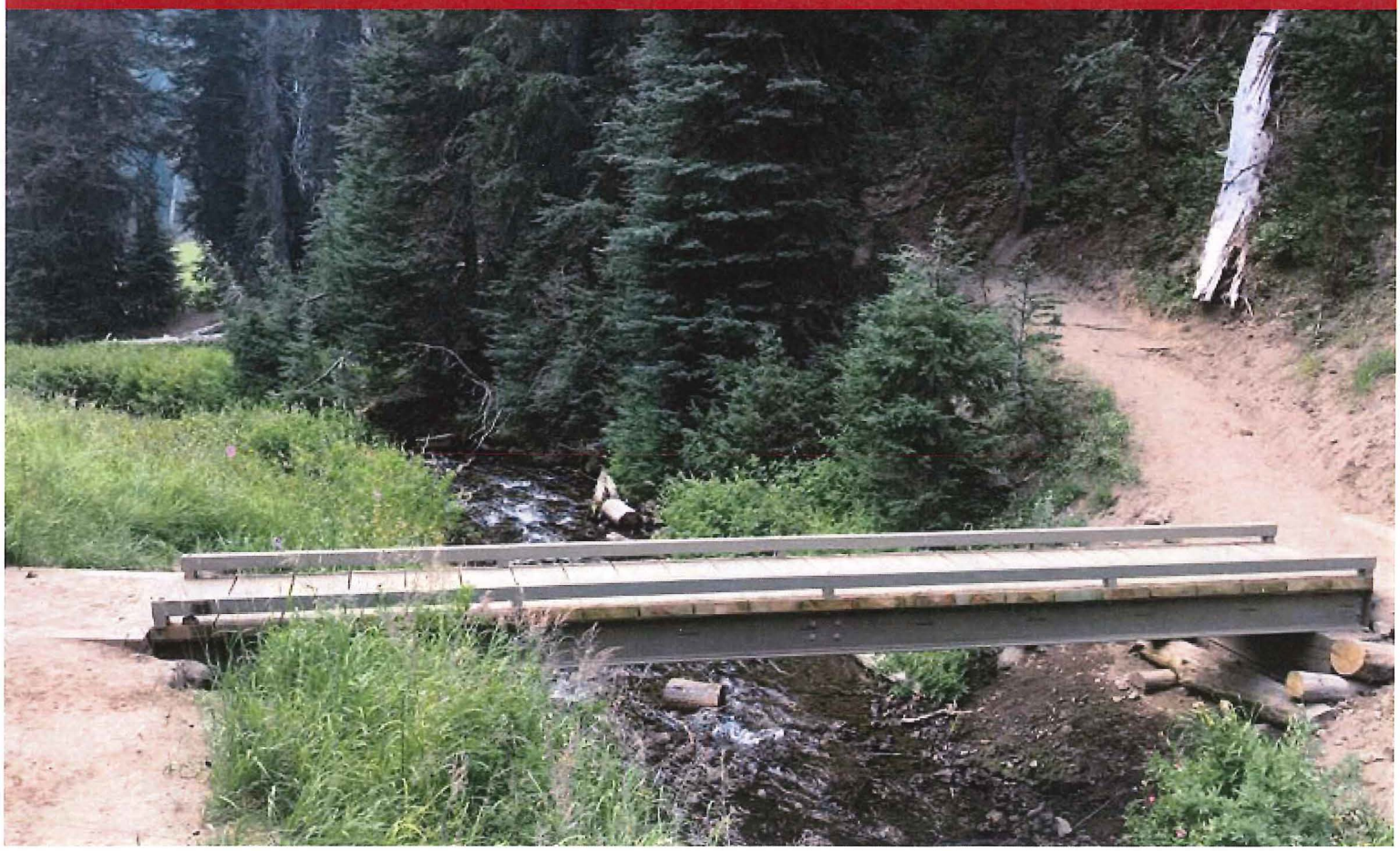
CREATIVE PULTRUSIONS

E.T. TECHTONICS™

A Creative Pultrusions Product Line

BRIDGING THE GAP

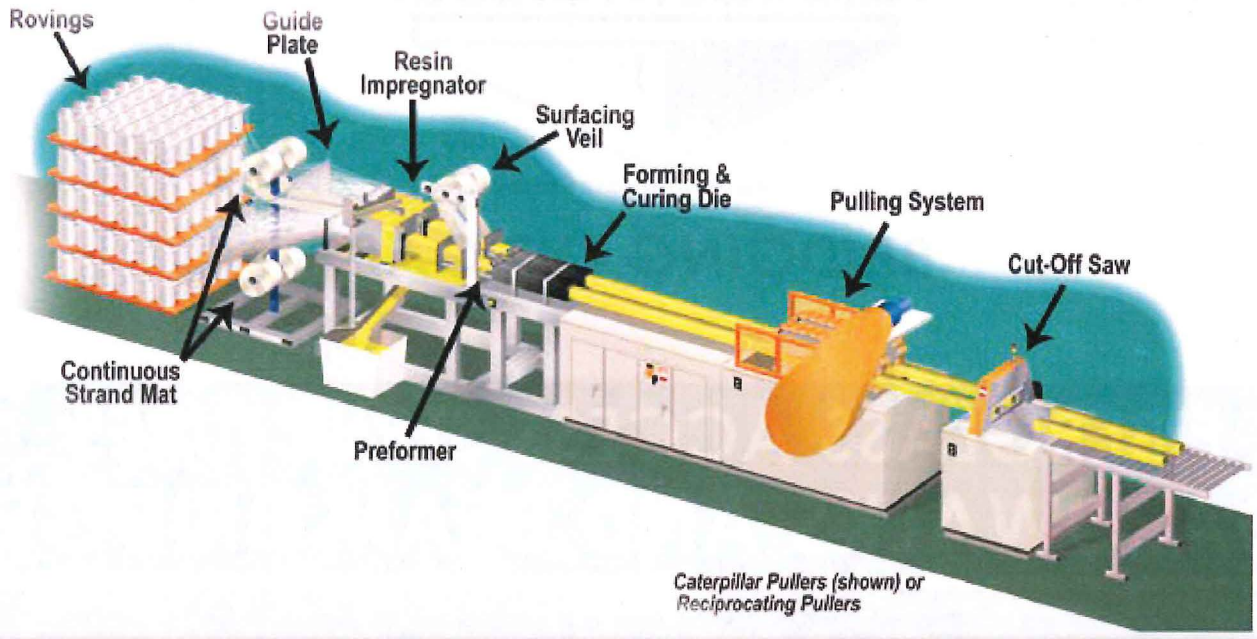
FIBERGLASS ACCESS STRUCTURES
BOARDWALKS AND BEAM BRIDGES



PULTRUSION PROCESS

Our access structures are made from a pultruded high-strength, lightweight fiberglass reinforced polymer (FRP) structural profiles. Pultrusion is a continuous manufacturing process utilized to make composite profiles with constant cross-sections. Fiberglass reinforcements, in the form of roving and mats, are saturated with resin and channelled into a heated die. The profile exits the die in a solid state in the desired cross-section.

Pultruded profiles are used for structural applications in which lightweight, high-strength, and corrosion resistance attributes are required. Pultruded profiles have higher tensile strength than typical structural steel while weighing about 80% less. To learn more about pultrusion visit our website www.creativepultrusions.com.



FIBERGLASS BOARDWALKS & BEAM BRIDGES

If your access application requires a structure that is Green & Sustainable, Lightweight, Low Maintenance, and Pre-engineered to Industry Standards, then an E.T. Techtonics structure is the right choice.

CONSIDER THE ADVANTAGES...

GREEN & SUSTAINABLE

FRP profiles have longer lives and exhibit a lower carbon footprint and embodied energy as compared to steel and aluminum. Pultruded members are inert and will not leach any chemicals into the environment.

LIGHTWEIGHT

We use lightweight FRP profiles that are easy to lift and transport to limited access locations. Trail organizations, professional contractors, or volunteers can carry our parts to remote sites, and then build and install the structures without heavy equipment.

PRE-ENGINEERED TO INDUSTRY STANDARDS

We engineer each structure to meet the required load conditions and perform the Finite Element Analysis (FEA) in-house. Our analysis is performed in accordance with industry standards including the Allowable Stress Design (ASD) method and the AASHTO standard. Our FRP materials meet the minimum characteristic design stresses as required by ASTM D7290.

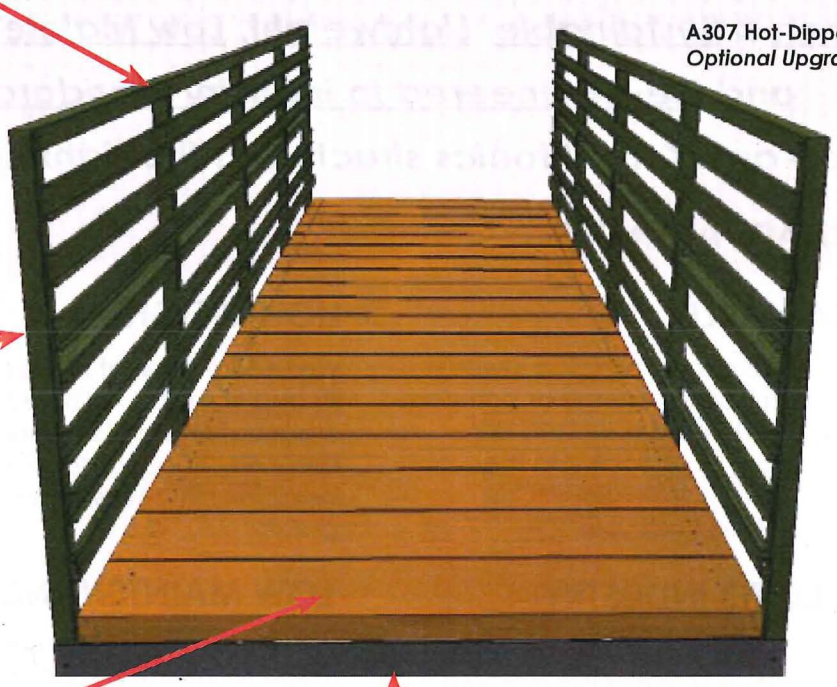
LOW MAINTENANCE

The inherent properties of FRP profiles minimize the need for maintenance associated with corrosion and rot, typically associated with wood, steel, and aluminum structures.

"CRATER LAKE NATIONAL PARK INSTALLED FOUR NEW PEDESTRIAN BRIDGES ON THE 1.7-MILE LONG ANNIE CREEK CANYON TRAIL. THIS TRAIL IS NARROW AND SHARPLY DESCENDS INTO THE ANNIE CREEK CANYON. DUE TO THE RUGGED NATURE OF THE AREA, POWER EQUIPMENT AND VEHICLES WERE NOT ABLE TO REACH THE BRIDGE SITES, SO ALL MATERIAL HAD TO BE HAND CARRIED INTO THE WORK SITES; THIS IS WHY WE WERE INTERESTED IN A LIGHTWEIGHT BUT STRONG BRIDGE."

~Jennifer Gifford
Trails Program Supervisor

FIBERGLASS BOARDWALKS & BEAM BRIDGES: With Hand-Railings



TYPICAL DIMENSIONS

Span Length: 5'-0" to 25'-0"
Span Width: 2'-0" to 15'-0"

TYPICAL DESIGN LOADS - PEDESTRIAN, BICYCLE, EQUESTRIAN, AND LIGHT VEHICLE

Uniform Pedestrian Live Loads:	60 psf to 100 psf
Light Vehicle Dead Loads:	10,000 lbs.

STANDARD BRIDGE FEATURES

Fiberglass Structure: Parts made from FRP to create a structure using beams and/or channels with a decking system. Structures can have hand-railing with ADA compliant safety rails and different decking material options.
Hardware: A307 or A325 galvanized steel bolts for assembly and A304 grade stainless steel anchor clips.
Color: Creative Pultrusions, Inc. Series 1500 Slate Gray
Decking: 3" x 12", #2 pressure-treated Southern Yellow Pine for all traffic (required for equestrian). Optional fiberglass decking available (See Optional Accessories).
Hand-Railing: 42" for pedestrian / bicycle; 54" for equestrian with ADA compliant safety rails.

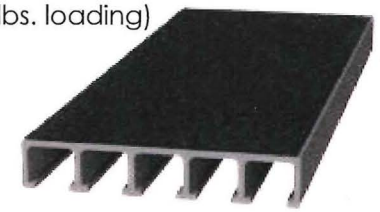
* Optional CNC-Routed Slots for enhanced water drainage for decking.

OPTIONAL ACCESSORIES

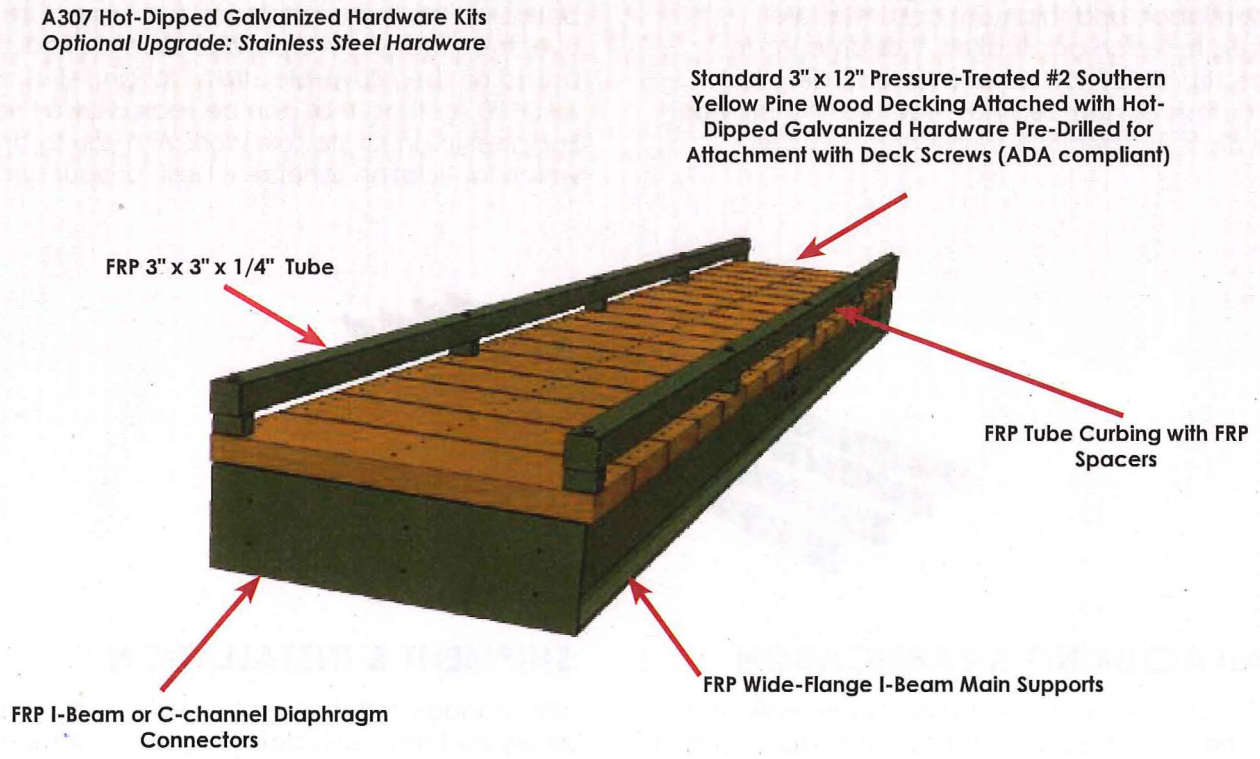
FRP GR205 Fiberglass Superplank® Decking:*
1-1/2" high x 24" wide with Anti-Skid Coating
Pre-Drilled for Attachment
ADA Compliant

FRP GR112 AMERIBOARD FG Plank:*
2.5" high x 12" wide with Anti-Skid Coating
Pre-Drilled for Attachment
ADA Compliant

FRP CP064 Fiberglass Heavy Duty Plank:*
1-7/8" high x 10-1/4" wide with Anti-Skid Coating
Pre-Drilled for Attachment
ADA Compliant
(for vehicle traffic, 10,000 lbs. loading)



FIBERGLASS BOARDWALKS & BEAM BRIDGES: With Curbing



TYPICAL DIMENSIONS

Span Length: 5'-0" to 25'-0"
Span Width: 2'-0" to 15'-0"
(larger or custom widths available)

TYPICAL DESIGN LOADS - PEDESTRIAN, EQUESTRIAN, AND LIGHT VEHICLE

Uniform Pedestrian Live Loads:	60 psf to 100 psf
Light Vehicle Dead Loads:	10,000 lbs.

STANDARD BRIDGE FEATURES

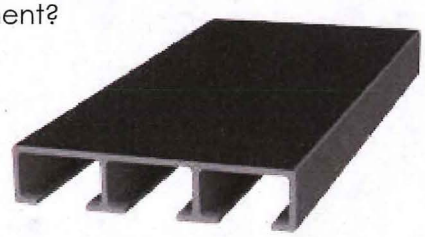
Fiberglass Structure: Parts made from FRP to create a structure using WF I-beams and/or c-channels with a decking system. Structures can have curbing (or no curbing) and different decking material options.
Hardware: A307 or A325 galvanized steel bolts for assembly and A304 grade stainless steel anchor clips.
Color: Creative Pultrusions, Inc. Series 1500 Slate Gray
Decking: 3" x 12", #2 pressure-treated Southern Yellow Pine for all traffic (required for equestrian). Optional fiberglass decking available (See Optional Accessories).
Curbing: FRP tube curbing with off-sets (or no curbing) on both sides of the bridge.

* Optional CNC-Routed Slots for enhanced water drainage for decking.

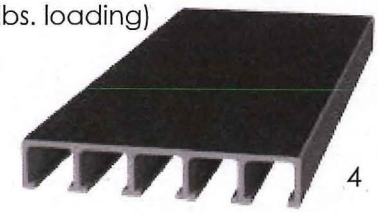
OPTIONAL ACCESSORIES

FRP GR205 Fiberglass Superplank® Decking:*
1-1/2" high x 24" wide with Anti-Skid Coating
Pre-Drilled for Attachment
ADA Compliant

FRP GR112 AMERIBOARD FG Plank:*
2.5" high x 12" wide with Anti-Skid Coating
Pre-Drilled for Attachment?
ADA Compliant



FRP CP064 Fiberglass Heavy Duty Plank:*
1-7/8" high x 10-1/4" wide with Anti-Skid Coating
Pre-Drilled for Attachment
ADA Compliant
(for vehicle traffic, 10,000 lbs. loading)



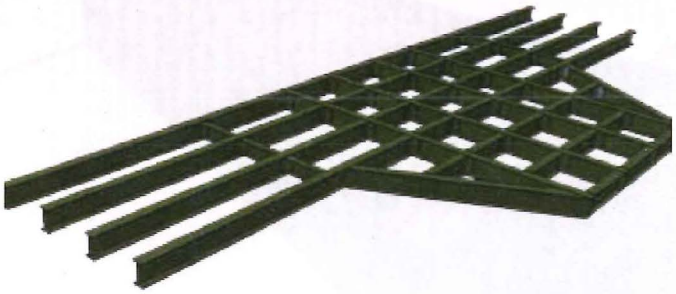
CUSTOM-ENGINEERED FIBERGLASS BOARDWALKS & BEAM STRUCTURES

CUSTOMIZED QUOTES

We provide cost quotes based on material amounts, fabrication labor, and shipment costs that are customized for each application. Customers can select the structure features and receive detailed quotes for their customized FRP structure. We provide optional costs for special features and upgrades.

ENGINEERING DESIGN & ANALYSIS

We design an structures for your unique application based on the load conditions and type of traffic over the structure. We provide structural calculations based on the Allowable Stress Design (ASD) method or AASHTO method that can be sealed by a Professional Engineer in any state. We work with you to determine which foundation scheme is best for your application.



MANUFACTURING & FABRICATION

We pultrude every part used in our boardwalk and beam bridge systems and manage the fabrication of the parts. We create 3D CAD models of every product and create the fabrication shop drawing packages. We manage all aspects of the project from the initial quote to final delivery.

SHIPMENT & INSTALLATION

We manage the shipment of each order and provide every customer with detailed and customized installation instructions with supporting assembly CAD drawings. Every fabricated part is labeled and matches the assembly drawings for ease of assembly and installation.

"IN 2015 THE CITY EXPANDED ITS TRAIL SYSTEM IN A MAJOR CITY PARK THAT REQUIRED THE CROSSING OF HIGHLY SENSITIVE WOODLAND WETLAND. THE CITY WAS LOOKING FOR AN AESTHETIC AND COST EFFECTIVE OPTION THAT COULD BE DELIVERED QUICKLY. AFTER RESEARCHING A NUMBER OF OPTIONS E.T. TECHTONICS PROVIDED THE PERFECT SOLUTION. THE FRP BRIDGE WAS EASY TO ASSEMBLE AND IS A PERFECT FIT FOR THE SITE. THE ENGINEERING STAFF WAS VERY KNOWLEDGEABLE AND CUSTOMER SERVICE WAS EXCEPTIONAL."

~M. Sullivan, P.E. Design Engineer

LIMITED ACCESS IS OUR SPECIALTY- NO SITE IS TOO REMOTE!

Our lightweight prefabricated boardwalks and beam bridges can be assembled and installed in a variety of methods depending on your site location. CPI can ship structures partially-assembled, fully-assembled, or in component parts for easy carry-in to remote sites.

CONSIDER THE SHIPPING OPTIONS...

FULLY-ASSEMBLED

CPI will deliver the structure to the nearest location accessible by truck. The installer can use a crane or helicopter to unload and place the structure onto the prepared foundation. The lightweight attribute of the structure allows for smaller lifting equipment. CPI will provide the client with a Lifting Plan CAD drawing that shows the strap locations and weights for picking and lifting a fully-assembled structure. CPI recommends a professional contractor and rigging crew perform this type of installation. Depending on the size of the structure, this shipment may require special pricing due to oversize loads and wide-load permit costs.

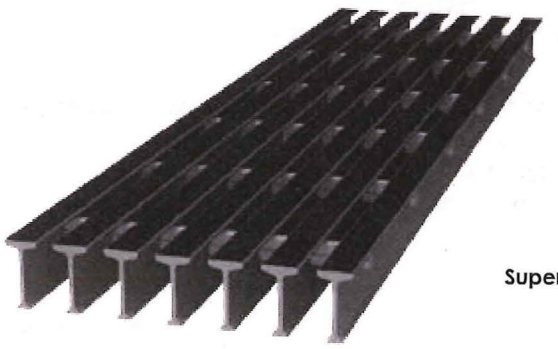
PARTIALLY-ASSEMBLED

CPI will pre-assemble certain parts of the structure like hand-railings or the main I-beams with the diaphragm connectors to minimize assembly at the job site and save on labor costs. Installers can use carts or trailers to move partially-assembled parts to remote sites for final assembly.

PREFABRICATED COMPONENTS

This is our most common form of shipment and installation. Workers can unload the FRP boardwalk and beam bridge components from the delivery truck using a fork truck or by hand, and then stage the parts at the trail head or a nearby designated staging area. CPI packages all FRP parts to allow for storage until the structures are ready to install. Volunteers, park crews, or contractors typically carry the parts to the bridge installation site. No site is too remote. We often have parts carried several miles or more on park trails. Once everything is at the job site, workers can easily assemble the structure using standard hand tools. Workers can build and install a 25' section of boardwalk or I-beam bridge in just a few hours with a crew of two or three workers. Typical boardwalk and I-beam sections are connected end-to-end on piers or other foundations to create a structure as long as you need.

Need an access structure with an open top? Our Supergrate® Pultruded or Molded grating surface is the solution. Some of our clients prefer open decking to allow sunlight to penetrate below the elevated walkway.



Supergrate® Pultruded Grating Example

CPI/E.T. TECHTONICS HISTORY

Creative Pultrusions, Inc., (CPI) is the world leader in pultrusion manufacturing and fabrication. Our commitment to become "Best in Class" has transformed CPI into a world-renowned pultruder that specializes in pultruding structural profiles and systems. Our ISO 9001:2015 quality management system is based on a strong commitment to continuous improvement in products, service, operations and client satisfaction. It all adds up to the kind of manufacturing experience you would expect from a world-class pultruder that never settles for status quo. CPI can take your project from concept to production. Our staff of talented engineers combined with over 45 years of pultrusion and design experience makes CPI the right choice to service your trail bridge needs!

E.T. Techtonics, Inc., has been at the forefront in the research, design and construction of fiber reinforced polymer (FRP) bridges and building systems, since its beginning in 1987. Originally located in Philadelphia, PA, the company is recognized as an international leader in the design of FRP bridges and boardwalks. To date, over 900 pedestrian bridges and walkway systems have been engineered and installed using the E.T. Techtonics, Inc. fiberglass bridge systems.

During the past twenty years, E.T. Techtonics, Inc., developed reliable design procedures and specifications for FRP pedestrian, equestrian, bicycle and light vehicle bridge structures as well as utility catwalks and platforms. The company also acquired invaluable construction expertise erecting and providing on-site supervision for many of its bridge structures. This led to the development of reliable field procedures for the assembly and installation of FRP structures.

In early 2016, E.T. Techtonics, Inc., was acquired by their long time manufacturing partner CPI. Today, E.T. Techtonics exists as a CPI product line that is fully owned and operated by CPI. The E.T. Techtonics access systems sales, engineering, and design group resides at the corporate headquarters of CPI in Alum Bank, PA.

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www.creativepultrusions.com • www.ettechtonics.com

CREATIVE PULTRUSIONS

E.T. TECHTONICS™

A Creative Pultrusions Product Line

PLEASE SCAN WITH PHONE

For additional information about E.T. Techtonics fiberglass bridges contact
Ted Harris at 888-CPI-PULL (274-7855) Ext. 265
Email: tharris@pultrude.com
or visit our website at www.ettechtonics.com