

World's Longest Pultruded Pedestrian Bridge

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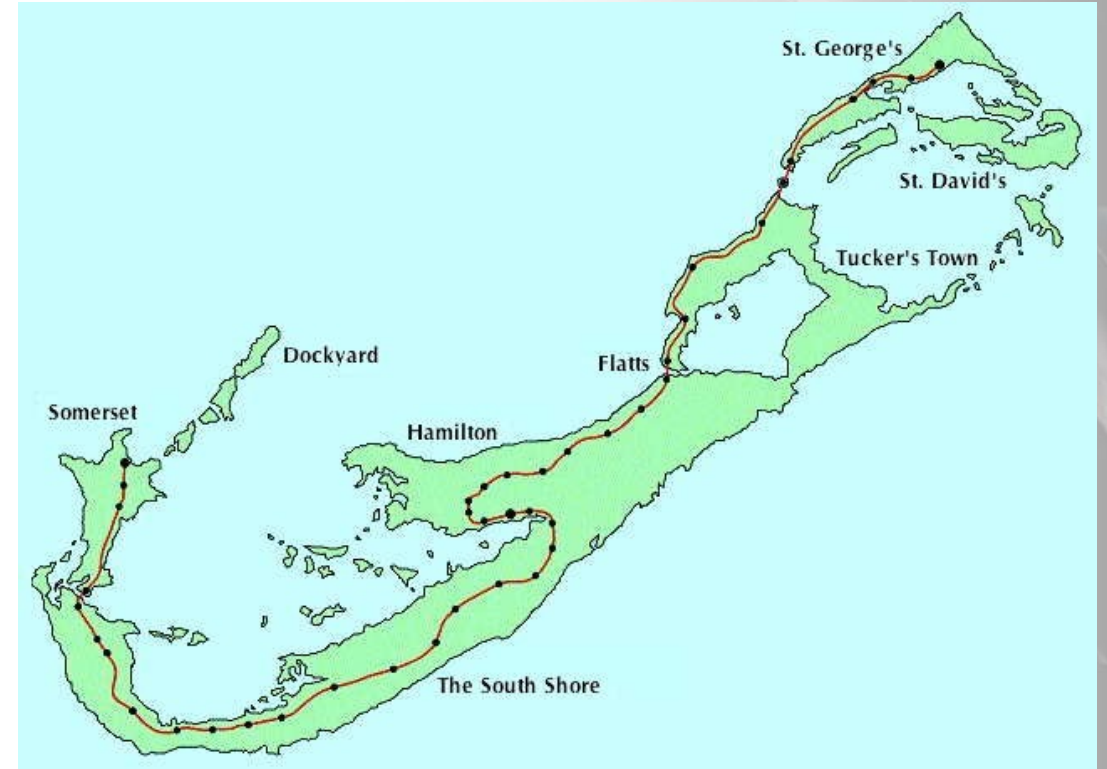


Fiberglass Truss Bridges

- E.T. Techtonics under Eric Johansen set the standard
 - Design
 - Delivered pre-assembled or as a kit for local assembly
 - Commercially successful Customers are increasingly using Fiberglass Reinforced Polymer (FRP) Composite Bridges for pedestrian, equestrian, bike, trail, and any access requirements.
- The Creative Composites Group's E.T. Techtonics bridges are assembled from pultruded profiles.
- Design History
 - Truss bridge
 - Minimize lower structure for hydraulics and minimal approach work
 - Previously Longest FRP Truss Bridge Length was 120 ft
 - Widths of 4 ft to 10 ft

Story of the Longest Bridge Starts with Connecting the Bermuda Railway Trail

- In 2012, Dr. Tucker Murphy and his father, Lawrence, formed a local charity called Friends of Bermuda Railway Trail.
- Their goal was to reconnect the old Bermuda Railway [which ran from 1931 to 1948] route into a single, continuous trail for pedestrians and cyclists.
- The challenge of hurricane-force winds and the continuous onslaught of salt air environment, prompted them to look for a corrosion-resistant material that could meet local safety and performance codes and withstand harsh weather.





In 2017, Friends of Bermuda Railway Trail tapped Creative Composites Group to provide a fiber reinforced polymer (FRP) pedestrian bridge from its E.T. Techtonics line. We've previously installed six bridges. There was one major hurdle.



The project specified a clear span bridge 152 ft. long and 8 ft. wide.

Design & Testing

- Design Requirements
 - Bermuda Building Code
 - 155 mph wind
- Design Process
 - Preliminary Design
 - Validation of member capacity
- Pre-assembled At Factory For Testing
- Testing
 - Full structure testing to 110% of the uniform live load
 - Crane Pick validation



Bottom chord length of bridge is 152'-2" ; 148'-8" c/c bearings bridge length



8'-3" wide (c/c truss) box structure cross section – 20 bays @ 7'-7 ¾" ± spacing





Crane Lift for Installation is a critical design driver.

As part of test program, simulated the Bermuda pick in the CCG yard. Utilized eight pick





Testing: Utilized water filled pools to safely apply the uniform live load



Uniform Load Test - 75psf (dead+live=164,000 lbs \pm) without anchorage in CCG yard



Deflection of 5 inches for test matched model of testing conditions/boundaries.
Performed as intended and designed.

Installation

- Bridge was disassembled, kitted and shipped to Bermuda
- Reassembled near the job site
- Barged to the piers
- Lifted into place



Bridge assembled on pier in Bermuda, ready to be ferried to site.



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The Rest of the Story

- Seven shorter FRP bridges will be supplied over the next few months for the approach spans.
- Target completion is October 2021

- Questions or Inquiries can be sent to
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