



Case Study: STRONGRAIL®

Composites Fencing Preserves Sightlines for Pacific Seawall

As one of California's premier resorts, Martin Resorts prides itself in offering guests opportunities to experience access to beautiful beaches, astonishing coastal views and experiences in vacation and event planning.

Recently, three miles of metallic architectural fencing had to be replaced due to the damaging effects from exposure to ultraviolet light, saltwater spray and winds from the Pacific Ocean. Within eight years, the original metallic fencing had oxidized, becoming an eyesore for guests and a concern for maintenance personnel. Due to the nature of metallic fences, corrosion/rust can quickly create safety concerns.

As the owners reviewed options with Allco Fence Industries, they determined that a durable, noncorrosive fence would best serve the needs of the Martin Resorts facility and its guests. Allco recommended Strongwell's STRONGRAIL® architectural handrail and fencing system due to its ease of installation, fabrication, color options, corrosion resistance, durability, and Strongwell's reputation in the market. In coastal and marine installations the durability of STRONGRAIL® is expected to extend beyond multiple lifecycles of aluminum, steel or wood fencing, furthering the return on investment.

The project is planned in phases. During phase one, over 1,300 lineal feet of STRONGRAIL® was installed by Allco Fence Industries for the resort's

main Gazebo area, proving itself as an easy-to-install and attractive-looking solution. Additional phases will replace the remaining 14,000+ lineal feet of corroded metallic railing over the next two years. ●



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Case Study: EXTREN® Resin Infused Hybrid Bridge System

For decades, Pipex px® has been known as an innovator of FRP composites' fabrication and design. Headquartered in Plymouth, United Kingdom, it also shares its home with the Resin Infusion Center of Excellence (R.I.C.E.). The center possesses one of the country's largest five-axis CNC machines in use today.

Recently, Pipex px® solutions designed and manufactured two fiber reinforced polymer composites pedestrian footbridges, four landings and three staircases to replace a metallic bridge which had been condemned after a severe storm at the Dover Sea Wall rail line in Kent, UK.

Unlike most pedestrian footbridges, these components were designed as a hybrid systems, where pultruded components were assembled with resin infused components, uniting strength and aesthetics. The bridge decks, top cords and anti-slip phenolic wear plates were infused; the truss members, stairwells, landings and parapet panels were manufactured with Strongwell FRP pultruded EXTREN® sections and plates.

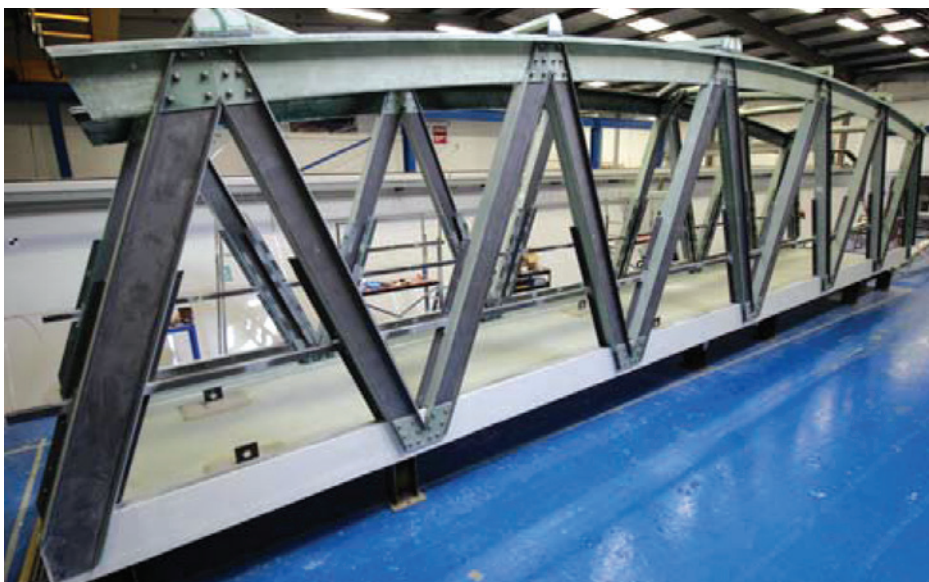
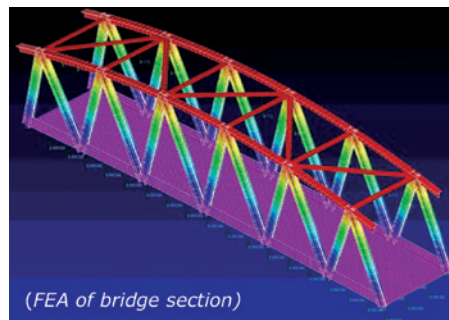
Pipex px® manufactured and painted the bridge with a custom color in its state-of-the-art facility, where tooling and blot hole patterns were created with CNC technology. Upon the completion of the manufacturing process, water fill and lateral wind load tests were both performed in-house to support the FEA analysis.



Each footbridge span weighed 9,000 lbs., which is approximately one third the weight of a similarly-designed metallic version. At completion, the footbridge spans almost 102 feet, is almost 8 feet wide and over 11 feet high.

After the installation, Pipex px®, in conjunction with Warwick University, outfitted the soffit of the structure with over 40 pressure sensors to measure train buffeting. The data will be collected and analyzed against various FRP structures around the county.

The life expectancy of this design is expected to be more than 100 years. ●



Literature Updates:

- Custom Pultrusions Brochure
- Why Strongwell Flyer
- Why Fiberglass Flyer
- Strongwell Locations Flyer
- Utility Market Flyer
- DURAGRID® Phenolic Brochure
- Design Manual Section 6 (I&M)
- Design Manual Section 12 (I)
- FIBREBOLT® Flyer
- Strongwell Availability List (I&M)
- Company Portfolio

Visit www.strongwell.com for the latest resources.



Case Study: EXTREN® Preserving a Lighthouse with Composites

Quietly guarding the commercial waterways of Hampton Roads, Virginia are two sandbars named Willoughby's Spit and Horseshoe Bar. On Horseshoe's Bar sits Thimble Shoals, a screw pile lighthouse. In 1872, the reinforced screw pile lighthouse was introduced to the area to withstand the ice and conditions of this heavily-used commercial channel. Eight years later, the lighthouse was destroyed by fire. Another lighthouse was brought in three months later and within a few years it was rammed by steamers, barges, and schooners. The schooner accident knocked over a wood stove resulting in the structure burning into the water. In 1914, a new cassion design was erected in a nearby location as a replacement lighthouse.



Today, the three story structure rises 55 feet above the water and is only one of the two caisson lights on that Bay which possess their original gallery roof. Its lighting system was automated in 1964 and in 2005 the lighthouse was purchased by a private citizen through the National Historic Lighthouse Preservation Act. Today, the Coast Guard still utilizes the lamp as an active navigation aid.

Peter Jurewicz has been maintaining the lighthouse since the 2005 purchase. He has been slowly refurbishing the lighthouse which can only be reached via boat since it is roughly 3½ miles from shore. Over the years, corrosion has accelerated the degradation of specific portions of the lighthouse through ultraviolet exposure, coastal winds and salt water. Thirty-three metallic canopy and gutter supports had corroded beyond repair. EXTREN® FRP beams

were utilized to replace the rusted metallic struts, canopy and gutter supports. Prior to installation, the team had little exposure to pultruded composite fiberglass. Despite this lack of experience, the team chose fiberglass due to its corrosion resistance, durability, high strength-to-weight ratio, ease of handling, and the installation challenges steel would present at their remote location.

The team has been extremely pleased with the performance, ease of installation and attributes of Strongwell's EXTREN® material. ●



Spotlight on Strongwell Talent



Lisa Wilson

Human Resources Generalist and Corporate Hourly Payroll Administrator - Bristol

Lisa Wilson has been promoted to Human Resources Generalist and Corporate Hourly Payroll Administrator. Lisa began her Strongwell career in 2000 as an Administrative Assistant in the Quality Assurance department and then Assistant for the Bristol Plant Manager. She moved to Human Resources in 2005 as Hourly Payroll Administrator where she developed skills and additional responsibilities within HR.



Lydia Sinemus

Manager, Virginia Operations Human Resources and Environmental, Health and Safety

Lydia Sinemus has been promoted to Manager, Virginia Operations Human Resources and Environmental, Health and Safety. Lydia will be responsible for directing all aspects of Bristol and Highlands environmental, health and safety as well as assist the Corporate Director of Human Resources concerning HR functions for Strongwell's Virginia facilities. Lydia holds a Master's Degree from East Tennessee State University. Lydia has a wide range of experience in both the private and government sectors, as well as teaching experience as an adjunct professor.



Meghan Carty

Corporate Manager, Purchasing and Pricing - Bristol

Meghan Carty has been promoted to Corporate Manager, Purchasing and Pricing. Meghan will be responsible for the management and coordination of corporate purchasing activities, raw material contract negotiations, and strategic supply chain relations, while working closely with divisional purchasing, production control, and material control departments to foster efficient procurement activities. She will also continue to guide Virginia Operations pricing activities for standard and custom products. Meghan began her career with Strongwell in 1999 in Customer Service, holding progressively increasing positions of responsibility as an Account Specialist, Cooling Tower Project Coordinator, Customer Service Manager, and most recently Pricing Manager in Bristol. She holds a Bachelor of Science degree from the University of Tennessee.



Doug Edwards

Customer Service Account Manager - Bristol

Doug Edwards has accepted the position of Customer Service Account Manager. Doug has been with Strongwell since 2007 as Team Facilitator and Shipping Manager. He graduated from the University of Tennessee with a Bachelor of Science in Forestry Timber Resource Management.



Anne Robida

Materials Analyst / Buyer - Bristol

Anne Robida has rejoined Strongwell as Materials Analyst/ Buyer. Anne graduated from Dickinson College in Carlisle, PA with a Bachelor of Arts in Political Science and earned an Italian Studies Certificate from the Dickinson Center for European Studies in Bologna, Italy. Anne previously worked at Strongwell as Administrative Assistant to the Director, Virginia Operations from October 2015 to January 2017.



Susan Annor

Accounts Payable Administrator - VA Operations

Susan Annor has accepted the position of Accounts Payable Administrator—Virginia Operations. Susan graduated from East Tennessee State University with a Bachelor of Science in Business Administration and is currently working on her Master's Degree in Business/Strategic Leadership.



Gail Stout

Buyer & Pricing Specialist - Bristol

Gail Stout has been promoted to Buyer and Pricing Specialist. Gail began her career at Strongwell as Pricing Administrative Assistant in 2016. Recently she accepted more responsibility with the reorganization of the Purchasing and Pricing Departments. Gail has an Associate's Degree in Business Administration and is completing work on her Bachelor's Degree.



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Spotlight on Strongwell Talent



Fiberglass Decking is a Permanent Add-On Walkway Solution for Bridges



Case Study: SAFPLANK® & EXTREN®

Fiberglass Decking is a Permanent Add-On Walkway Solution for Bridges

In 2015, the Franklin County Engineers Office in Columbus, Ohio needed to refurbish a public walkway alongside a four lane bridge spanning over Big Walnut Creek.

Over time, the steel check plates and support members corroded beyond repair due to heavy exposure from vehicular runoff comprised of brine salt, de-icing fluids, gasoline, antifreeze and motor oil.

Through the use of Strongwell's Corrosion Resistance Guide, Made in USA pultruded fiberglass products were prescribed for this installation due to future concerns with corrosion and also due to FRP's ease of installation. Gritted, interlocking SAFPLANK® panels measuring 2" thick x 24" wide were used for the decking/walkway surfaces. EXTREN® Series 525 pultruded beams were used to replace various steel support structures underneath the walkway.



Transportation detours and closures weren't an option for this project. Franklin County bridge crews were able to minimize traffic disruption by not bringing in heavy lifting equipment such as cranes or forklifts.



BEFORE



AFTER

Instead, Strongwell products were delivered onsite and lifted by crew members into installation over a short time span.

Through the success of this project, the department is examining how to utilize more fiberglass pultruded products in transportation related refurbishments to provide multiple decades of maintenance-free service. ●