



## Case Study: EXTREN® & SAFDECK® Composites Connect Mountains to Sea

Deep in the Appalachian Mountains resides the Mountains-to-Sea Trail. Its unique name is derived from the fact that the trail passes through 37 counties while extending from the tallest mountain peak in the Appalachian Mountains to the highest sand dune in the eastern United States. The trail is well known to hikers as North Carolina's longest marked footpath and as the State Trail. Within the trail lies a junction called Boone Fork Bridge. Previously the junction near Blowing Rock was impassable and dangerous during certain seasons. In an effort to encourage discovery and appreciation for nature, the Friends of the North Carolina Mountains-to-Sea Trail secured monies to build a pedestrian bridge to guarantee safe passage to all hikers for decades to come.

The nonprofit organization, Friends of the North Carolina Mountains-to-Sea Trail, report that 700 volunteers invest more than 30,000 man hours annually to build and maintain the trail. As this project is located remotely about a mile into a national forest, wood and metallic structures both would have been illogical building material choices. Instead, a more durable structural alternative had to be explored in this application as a long term, accessible solution for novice and professional hikers alike.

The design implemented was a four foot wide by eighty feet in length pedestrian bridge constructed with 8" channels and 2" x 2" tubes as structural members. An EXTREN<sup>®</sup> 525 series resin was utilized due to its UV inhibitors and resistance to rot and corrosion.

Being in an isolated location, the trail lacked vehicular road access. Welding and any sort of large scale fabrication would have been challenging to more traditional materials such as wood or metallics. Since lightweight FRP (fiber reinforced polymer) has a high strength-to-weight ratio, a transport helicopter was used to lift piece-marked components from a dropship site to the junction in the mountains. Holes were also predrilled so that installers could easily assemble the structure on-site. As a pedestrian walking surface was also needed, SAFDECK<sup>®</sup> FRP decking was coated with a high quality epoxy grit applied by Strongwell's fabrication team prior to delivery.

The installation was completed as scheduled in September 2016 and was happily received by the Friends of the North Carolina Mountains-to-Sea Trail organization and hikers just in time for the autumn visitors.







Corporate Offices and Bristol Manufacturing Location 400 Commonwealth Ave., P.O. Box 580 Bristol, VA 24203-0580 USA (276) 645-8000

> Chatfield Location 1610 Highway 52 South Chatfield, MN 55923-9799 USA (507) 867-3479

Highlands Location 26770 Newbanks Road Abingdon, VA 24210 USA

Mexico Location Avenida La Silla Apodaca #110 Fracc Parque Industrial La Silla Apodaca Apodaca, NL 66648 MX



#### Case Study: EXTREN<sup>®</sup> & DURAGRID<sup>®</sup> Fiberglass Grating as Screened Fences

In 2015, Pipex px<sup>®</sup> worked with London Underground to create an Anti-Trespass and Security Barrier for the transportation sector in Essex, United Kingdom. In an effort to protect people and railway tracks, London Underground needed a fabricated and nonconductive screen for the Barking Flyover.



KN Network Services and Pipex px® worked together to design an FRP system which allowed air movement while ensuring limited visibility. The barrier system was manufactured from EXTREN® FRP profiles and I-6000 DURAGRID® pultruded fiberglass grating. Outside of the transportation sector, many of Strongwell's case studies have shown that fiberglass molded and pultruded grating can be successfully used in architectural and industrial applications.

In total, three sections provided over 518 linear feet of FRP DURAGRID® screens. In an effort to minimize rail disruption during the installation of over 100 grating panels, Pipex px® prefabricated the interconnecting panels to ensure a quick delivery and drop-in solution for the end user. The barrier system



is estimated to provide over sixty years of maintenance-free operation. •



# Case Study: EXTREN®, DURAGRID® & STRONGRAIL® **Combatting Chloride Stress Corrosion**

Since the inception of indoor aquatic parks, metals such as stainless steel alloys, carbon steel, iron, copper, bronze and aluminum have been commonly prescribed materials with regards to indoor pools and enclosures. Corrosion issues related to building materials have challenged aquatic operators and building architects, especially in the past decade as facilities have expanded with complicated and exposed interactive surface areas, sprays, slides and warmer water. Today, proper ventilation and chloride-induced stress corrosion cracking typically rank high with those involved in design and refurbishment of new and existing structures. Nontraditional materials such as FRP have begun to gain prominence within the aquatics industry, as managers have begun to feel the financial

burdens of keeping corrosion costs in check while reducing operation downtimes related to maintenance.

Like most indoor aquatic facilities, Westlake Recreation Facility, which houses five pools, a diving well, a children's play pool, lazy river and slides, faced serious corrosion-related challenges. Repainting over steel was becoming a semiannual occurrence. A multistory stair

tower connected to multiple slides was subjected to chlorine and moisture on a daily basis, making it especially challenging to maintain.





Overall, Westlake Recreation was pleased with ease of installation and in the years since its installation in 2009, has been pleased with the lack of maintenance required with Strongwell's FRP components.



dangerous heavy machinery.





### **Case Study: EXTREN®** Sunshade Awnings Preserve Views

Sunshade installations have become increasingly popular in building designs as the influx of city dwellers continue to challenge housing and urban developers. As the demands for natural views and optimal lighting increase, architects and urban developers have begun to implement permanent sunshade installations due to their aesthetics and

functionality. However, not all sunshades are manufactured equally. In certain environments, extruded aluminum with anodized or powder-coated finishes are adequate for sunshades and fascia. Such is not the case for structures in southern California, which are constantly challenged by Pacific winds coupled with abundant sunshine. In marine environments, the question with metallic structures is not if it will corrode, but when. Material choices in design stages matter a great deal in these instances. Designers and installers have begun to introduce FRP materials into projects which







have historically encountered corrosion and installation challenges.

Porter FRP worked with Mill Creek Residential Trust in California to provide a durable and lightweight, low-maintenance solution to offer shade for their luxurious apartments located in Laguna Niguel. By doing so, residents could appreciate the dynamic views of over 12 beaches as well as multiple state and national parks and forests with limited glare. Due to the construction timeline, Porter FRP needed a prefabricated, drop-in FRP solution to be delivered onsite with no welding. For

> this custom sunshade awning, Strongwell's fabrication team utilized EXTREN® 4" channels. tubes and plates so that installers could easily hoist these completed custom awnings for installation with a lightduty crane.

> Both the customer and end-user are pleased with the Made in USA products and are looking forward to decades of maintenance-free service.





Josh Maggert Manager, Manufacturing and Engineering - Chatfield

Josh Maggert has accepted the position of Manager, Manufacturing and Engineering - Chatfield. Josh will

report directly to the Vice President of Minnesota and Mexico Operations. Josh began his career with Strongwell as a Process Engineer in 2007 after receiving a BS Degree from Winona State University in Composite Engineering. Josh was promoted to Engineering Manager in April 2013.



Curtis Bailey 2nd Shift Supervisor - Highlands

Curtis Bailey has accepted the position of 2nd Shift Supervisor Highlands. In his new role Curtis

will report to the Manager, Highlands Manufacturing. Curtis began his career at Highlands in September 2013 as a pultrusion operator.



Nathan Bean Logistics Manager - Bristol

Nathan Bean has been promoted to Logistics Manager - Bristol. Nathan will assume responsibilities

of the Bristol Shipping Department and will report to the Director, Virginia Manufacturing Operations. Nathan has been with Strongwell since 1998 in several progressively responsible positions. Most recently, he served as the Operations Coordinator for the Highlands Facility.

## Literature **Updates:**

- SAFPLANK HD® Brochure
- Design Manual Section 6 (I&M)
- DURADEK<sup>®</sup> Brochure (I&M)
- DURADEK<sup>®</sup> vs DURAGRATE<sup>®</sup> Comparison Flyer
- DURADEK<sup>®</sup> / DURAGRID<sup>®</sup> vs. Aluminum Comparison Flyer
- DURADEK<sup>®</sup> / DURAGRID<sup>®</sup> vs. Steel Comparison Flyer
- DURAGRID<sup>®</sup> Brochure (I)
- Strongwell Availability List
- Utility Market Flyer
- FIBREBOLT<sup>®</sup> Flyer

Visit www.strongwell.com for the latest resources.

Spring 2017



#### What's in this Issue:



Composites Connect Mountains to Sea



**Fiberglass Grating as Screened Fences** 



Combatting Chloride Stress Corrosion



Sunshade Awnings Preserve Views



Spotlight on Strongwell Talent



**Literature Updates** 

# Pultruded Grating Performance at a Molded Grating Price



In June 2016, Strongwell received an overwhelmingly positive response when it announced changes to its premium DURAGRATE<sup>®</sup>, exclusively Made in the USA, molded grating product line. Today, Strongwell



is pleased to share exciting news about its DURADEK<sup>®</sup> pultruded grating product line. **DURADEK<sup>®</sup> pultruded grating panels are now** available at the *same price* as comparably sized and configured DURAGRATE<sup>®</sup> panels.

# What Changed?

- 1. **PRICE:** DURADEK<sup>®</sup> pultruded grating panels are now available at the same price as comparably sized and configured DURAGRATE<sup>®</sup> panels.
- 2. **SERIES:** DURADEK<sup>®</sup> is stocked and available in a 1" or 1.5" I-6500 and a 2" T-5800. On all series, cross-rods are spaced 8" on center.
- 3. **AVAILABILITY:** DURADEK<sup>®</sup> 1" and 1-1/2" thick panels can be purchased in 3'x10', 4'x8', 4'x12', 5'x10', 3'x20', 4'x20' or 5'x20' sizes. 2" thick panels can be purchased in 4'x12', 5'x10', 3'x20', 4'x20' or 5'x20' sizes. All sizes of DURADEK<sup>®</sup> grating are available with a flame retardant polyester or vinyl ester resin system in a light gray or yellow color.

#### VISIT WWW.STRONGWELL.COM/GRATING TO LEARN MORE

The **Profile Newsletter** is published by the Strongwell Corporate Marketing Department. To subscribe to the e-newsletter, please visit **www.strongwell.com/godigital**. Previous editions of *The Profile Newsletter* may also be found online at **www.strongwell.com**. © **strongwell 2017** | **Editor**: **Barry Myers Production/Reporting**: **Brian Godwin & Te-Kai Shu**