



Case Study: EXTREN® & SAFPLANK® FRP Goes Chasing Waterfalls

In the fall of 2018, the Oregon Parks System sourced eight new FRP bridges concurrently. One of the eight bridges was installed at LaTourell Falls. Measuring at 224 feet, the waterfall is well visited and photographed due to how sharply the water drops over an overhanging basalt cliff.

To improve trail accessibility and safety, the park system reached out to Areté Structures to design, fabricate, and supply a durable, maintenance-free bridge for this popular trail site.

Measuring 55' in length and 6' in width, Areté Structures designed and sourced EXTREN® 500 Series fiberglass reinforced structural shapes pultruded with a custom brown pigment. To ensure decades of slip resistance and rot resistance, SAFPLANK® interlocking decking was used for flooring material. For maximum corrosion



resistance, structural connections were outfitted with galvanized hardware, while stainless-steel decking hardware was used for SAFPLANK® attachments.

As for design, this pedestrian rated bridge can withstand up to 90 PSF of live loads and wind loads of up to 120 MPH according to American Association of State Highway and Transportation Officials (AASHTO) per design specifications.

Due to the tight timelines of the overall project, this bridge kit was bundled in North Carolina and delivered onsite to Rooster Rock State Park via a single flatbed truck. A rotorcraft was then used to airlift and place the fabricated bridge structure at the base of the waterfall adjacent to its plunge pool. ●



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Case Study: DURAGRID® FRP is Udderly Amazing for Farms

In new and older dairy barns, concrete is prevalently used for flooring surfaces because it is durable, economical, and can be finished to ensure adequate traction for the hooves and gaits of cows. In addition, research has shown that proper flooring system designs for barns can be a preventative measure against the occurrence of injury throughout herd populations.

One preventative measure against injury is to design flooring systems with trench cover grating. This ensures that cows will have a flooring surface with proper traction, drainage, and structural durability and owners will have efficient ways of mitigating the removal of manure and liquids produced by the herd.

A barn operator worked with The Westfall Company to acquire DURAGRID® 1-1/2" pultruded grating for a new barn in 2010 after researching the extensive corrosion issues of steel grating when exposed to manure, urine, water, and cleaning solvents. In addition, the operator noticed that cows seemed to have high occurrences of aversion to walking on steel grating. Although stainless steel grating is resistant to corrosion, it is expensive and lacks adequate slip resistance compared to pultruded grating.

The farm transitioned into 1-1/2" DURAGRID® HD-6000 grating to better accommodate nonvehicular traffic over the flooring surfaces in the indoor barn area. To sanitize these congregation areas, the farm utilizes a flush water system that exposes certain areas up to 10,000 gallons of water per minute paired with cleaning agents.

Due to cows having a limited depth perception and sensory



comfort, the minimal spacing between grating bars and the embedded pigment that matches the color of the established concrete floor makes for easier hoof transition from one surface material to another.

Since the installation of DURAGRID® HD-6000, the dairy farm has been pleased with the long-term replacement cycles of the FRP grating panels (3-5 years) compared to less than a year with metallics. In addition, when replacement is necessary, the FRP grating panels can be quickly and easily cut and fabricated onsite without the use of special tools and without exposing any part of the pasture to sparks or flames. ●



Strongwell New Hires



Robbie Blevins
Sales Director - Region F

Robbie was born and raised in Bristol, TN, and attended East Tennessee State University. Prior to joining Strongwell, Robbie worked as a sales consultant for two local auto dealers.



Denanhi Solis
Human Resources Assistant - Mexico

A native of Monterrey, Nuevo León, Debanhi received her bachelor's degree from Universidad Autonoma de Nuevo Leon. Debanhi was previously employed as a Recruiter, which gave her experience in hiring processes.



William Cook
Quality Assurance Assistant - Chatfield

William holds a diploma in Industrial Technology from Minnesota State College SE Technical. He is currently finishing his B.A. in Criminal Justice from Metropolitan State University. William joins Strongwell from a global electronics manufacturer, where he held positions as Engineering Technician, Shift Lead for the CNC shop, and Team Lead. These positions provided him with valuable training regarding Quality and Lean Six Sigma methodologies.



Jennifer Hawthorne
Information Technology,
Data Associate - Corporate

In this role, Jenny works to harmonize and standardize records across existing systems and support the overall data migration process for NetSuite. She holds a Bachelor of Science in Elementary Education and an M.Ed. in Reading from The University of North Carolina at Greensboro. After a fulfilling career with Bristol City Tennessee Schools, she recently retired from teaching and is excited to embark on this new journey with Strongwell.



Benjamin Eldreth
R&D Engineer - Bristol

Benjamin conducts research and development activities including designing, analyzing, and testing composites materials and structures, documenting test results, and assisting in qualifying new materials and processes. He holds a joint Bachelor of Science degree in General Engineering from East Tennessee State University and Tennessee Technological University. Prior to being hired as the R&D Engineer, Benjamin worked as an intern with Strongwell's Bristol Fabrication Sales department, performing time studies and job analysis of various fabrication-related tasks within Strongwell's Bristol operations.



Cindy Palmer
Fabrication Sales Technical Assistant - Bristol

Prior to joining Strongwell, Cindy worked at a large national bank in Boones Creek, TN, as a Commercial Credit Specialist.

Strongwell Promotions

Lorrie Eggers
Materials Coordinator - Bristol

Kat Bicknese
Grating Flow Line Supervisor - Chatfield

Kenneth Arms
Maintenance Supervisor - Bristol

Jeff Finley
Director, International Sales

Olan Lovlien
Industrial Products Manager - Chatfield

Heather Cross
Training Coordinator, Pultrusion - VA Operations

Tyler Goad
Director, Inside Sales - Corporate

Alexis Ball
Manager, Customer Relations - Corporate

Laura Siewny
Corporate Sales Account Manager

Rodney Banks
Manager, Drafting & Engineering - Bristol

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Case Study: EXTREN® & DURAGRATE®

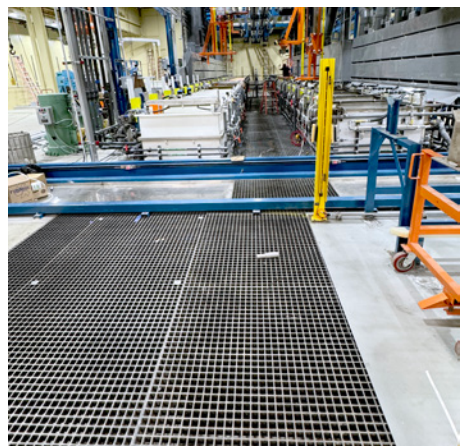
When Grating Rises Above the Grade

Since the early 1900s, a midwestern plating facility has been in the business of metal finishing and coatings for the aerospace, agricultural, automotive, construction, nuclear, defense, electronics, energy, food, and various other industries. The Dayton facility in Ohio recently completed a 12-million-dollar expansion project by adding an additional 26,000 square feet of operational space for four new plating lines and an onsite modern wastewater treatment facility. Today, the 126,000-square foot facility has 15 lines, 50+ processes, and services over 1,000 specifications. Each production line contains a storage tank filled with corrosive chemicals including but not limited to chromic acid, sulfuric acid, phosphoric acid, and boric sulfuric acid. To help with inspection and spillage prevention, the plating company needed an above-ground structure for detection and containment of liquids.

Harrington Industrial Plastics worked with the end user in procuring and securing DURAGRATE® molded fiberglass grating and various EXTREN® Series 525 shapes to erect a durable and corrosion-resistant above ground structure. As an added measure for support and elevation, concrete pillars were

installed to support the EXTREN® framework. DURAGRATE® molded grating was used for flooring, tank support, and personnel access around the perimeter of each tank. The designers utilized Strongwell's Corrosion Resistance Guide to determine the appropriate resin system for both product lines. Design elements were put into place using Strongwell's Design Manual, which aided in determining the spans and sizes of beams needed for this project.

The expansion project took about six months to complete. The customer was pleased with the quality and scheduling processes of Strongwell to ensure that the project completed on time. ●



Let Us Promote Your Project

Did you use Strongwell products in a project you want to showcase? We are always looking for applications that demonstrate the benefits of pultruded FRP and show how versatile our products are.

To get started, fill out the form here:

www.strongwell.com/submit-case-study

Looking for PDH Credits? Learn About FRP!



Would you and your team like to learn more about: the pultrusion process, pultruded FRP, how to specify, or take a deep dive into something more specific?

We're here to help!

Strongwell can offer Professional Development Hours (PDH) for free presentations offered by our experienced Sales Directors and Structural Engineers, and topics can be customized to meet your need.

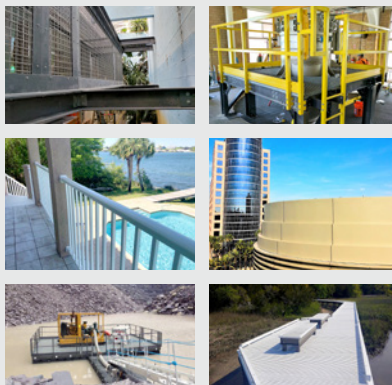
Contact us to schedule:
info@strongwell.com



Literature Updates:

- Fabrication & Repair Manual
- Availability List (I+M)
- SAFRAIL™ Brochure
- Design Manual Sections: 5, 13, 19
- Company Portfolio
- Architectural Concealment Systems Flyer
- HS Armor Panel Brochure

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Case Study: EXTREN®

In-trussing FRP Forest Bridge Installed

A new FRP snowmobile trail bridge was recently installed within the Tioga State Forest in Pennsylvania. As part of Pennsylvania's state forest system, this forest is certified under the Forest Stewardship Council™ and Sustainable Forestry Initiative® standards, making it one of the largest dual certified forests in North America. To maintain these certifications the state park system manages active timber harvests, deer enclosure fences, natural gas

extraction, prescribed fires, vernal pool protection, buffering of streams, and conservation practices for plant species.

Designed by Areté Engineering for snowmobile and pedestrian access, the bridge structure measures 35' in length and 6' in width. Its loading capacity is designed to withstand 85-PSF of pedestrian live loads and 25-PSF for wind loads. For flooring, southern yellow pine was used. Structural members were Strongwell

EXTREN® 500 series for all supports and railing. Aluminum angle mounting clips were used to attach abutments and galvanized hardware was used for connections.

Areté Structures supplied the bridge kit to installers and reported that the installers were impressed with both the streamlined delivery and installation process associated with their FRP bridge kit systems. ●

