PROFILE

STRONGWELL NEWS & APPLICATIONS • SUMMER 2022

Case Study: EXTREN® & DURAGRID®

Composites Marches on Against Marsh Conditions

Off the coast of South Carolina is a boardwalk within the Francis Marion National Forest. The boardwalk measures almost 400 feet in length and is an extension of an estimated 4,000-year-old natural trail measuring 1.5 miles in total length. Throughout the years, it has endured multiple natural disasters such as hurricanes, floods, and wildfires.

Previously constructed out of timber and treated wood decking, the boardwalk has been completely replaced three times in less than two decades due to environmental exposure and weather-related damage. Recently, the National Forest Service assessed the condition of the boardwalk and decided to seek durable nonbuoyant materials implemented with better construction that would require little to no maintenance.

With its extensive experience in composites fabrication, A Fiberglass Solution (AFS) partnered with a local contractor and the National Forest Service to replace timber piers, structural supports, and deck boards, with a variety of domestically produced pultruded composites.

To replace the structural underpinnings and supports, EXTREN® 500 series structural shapes were used. Square tubes, channels, plates, and I-beams were fabricated for seating areas and to support the entire walking surface of the boardwalk.

Pedestrian-rated walking surfaces were outfitted with DURAGRID® T-1800 grating panels. This grating series eliminated concerns of standing water on the walking surface due to the product's 18% open space design. This open space also allows sufficient sunlight to pass through the structure to support ecological growth underneath. In addition to those benefits, the grating also offers wider spans and greater load capacity than its wooden predecessor. With the exception of 316 stainless steel fasteners for through bolt connections, the entire boardwalk was constructed out of fiberglass.

The new frame design allows for heavier loads and wider spans than previous iterations, and the new six-foot-wide boardwalk also offers expanded viewing platforms and seating areas to accommodate larger groups. Designed with a 75-year life expectancy, this new structure will continue to showcase the area's natural beauty and history for multiple generations.

STRONGWELL

Corporate Offices / Bristol
400 Commonwealth Ave.
Bristol, VA 24201 USA
(276) 645-8000

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

Highlands
26770 Newbanks Road
Abingdon, VA 24210 USA

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

www.strongwell.com

Case Study: EXTREN® & FIBREBOLT®

Fiberglass Supports Terrestrial Radio Equipment

Located in the Dutch Caribbean, a broadcast transmission facility based on the island of Bonaire recently installed a medium wave radio broadcast antenna system manufactured by Kintronic Labs Inc. For almost forty years, Kintronic Labs has been sourcing FRP components to build their broadcast radio equipment. Located in Tennessee, the seventy-year-old company is a full-service manufacturing and refurbishment facility for broadcast, radio, and wireless frequency transmission components.

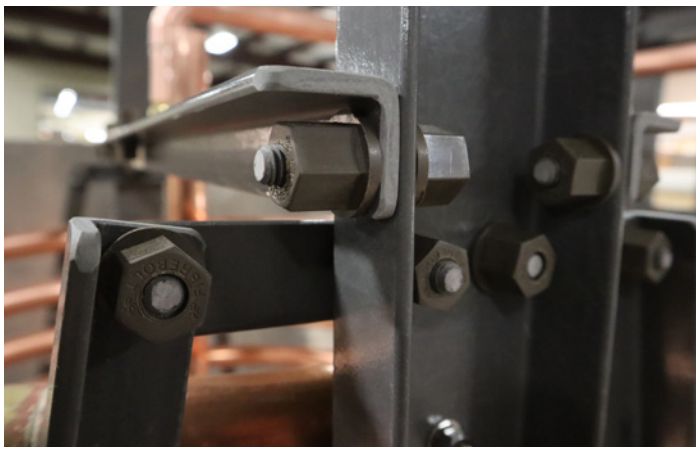
With superior strength-to-weight performance and EM/RF transparency, Strongwell's EXTREN®, DURASHIELD®, SAFPLANK®, and FIBREBOLT® products have been frequently used in applications for cellular shielding and screening due to their L.A.R.R. certification.

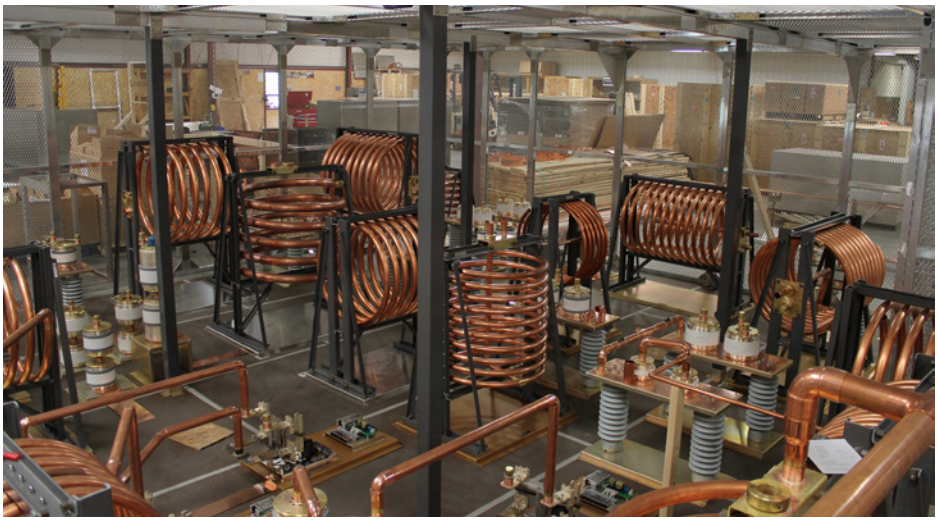
In the broadcast radio systems manufacturing sector, nonferrous metals are commonly used throughout system designs due to weight, conductivity, nonmagnetic nature, and corrosion resistance. In this particular application, maximum corrosion resistance was vital due to the station's proximity to the ocean, and so, like most of Kintronic's systems, Strongwell FRP was used for many of the structural components.

Within their radio system designs, Kintronic Labs cleverly addresses certain structural challenges by using fabricated fiberglass components mechanically fastened together. Kintronic's research shows FRP works best to minimize electromagnetic interference and conductivity while their system is in operation.

Understanding the full advantages of pultruded fiberglass for Kintronic's applications, the company turns to various EXTREN® structural shapes and FIBREBOLT® fiberglass studs and nuts to construct insulated frames and supports for high power passive RF components. These internal components ensure decades of continuous long-range terrestrial broadcasting.

For multiple decades, Kintronics Labs has shipped broadcast systems throughout the world containing Strongwell's FRP products. With regards to FRP, they have never sourced anywhere else due to Strongwell's impeccable service and product design standards. ●





Literature Updates:

- *Design Manual Sections:*
  - 11 (Imperial + Metric)
  - 12 (Metric)
- *FIBREBOLT® Flyer*
- *DURATREAD™ Flyer*
- *DURAGRID® Brochure (I & M)*
- *Fiberglass Structures Brochure*

Visit www.strongwell.com for the latest resources.

Case Study: SAFPLATE®, DURAGRID®, EXTREN®, SAFRAIL™, & DURAGRATE®

Composites Aid Potash Processing Plant

Potassium is a necessary element to produce chemical fertilizers for agricultural use. The element is obtained through the process of mining and extraction of potash. Canada is the world's largest national producer and exporter of potash.

A major producer of potash in Canada recently asked ICON Industrial Group Ltd. to source a material that would be cost effective, yet durable enough to combat a highly corrosive environment within its potash operations.

Outfitted with years of extensive composites experience, ICON recommended the extensive use of Strongwell FRP (SAFPLATE®, DURAGRID®, EXTREN®, SAFRAIL™, & DURAGRATE®) within custom designs for two structures within the debrining area of the potassium mining site.

SECONDARY CONTAINMENT (left)

In order to mine potash deep within the earth, potash deposits have to dissolved with water and salt. This liquid formulation is calling the brining solution. The highly corrosive liquid is piped, treated, and then recirculated. In instances where pipe leakages may occur, a secondary containment system is installed to protect structures underneath the piping outfit from the corrosive properties of the brining solution. In this design, the secondary containment system was installed to protect centrifuges, a crane, and processing equipment underneath the vast network of piping.

Prior to installation and to ensure a good seal, the containment system was tested with 4" of standing water to demonstrate a 100% seal across the entire floor elevation.

INERTIA PLATFORM (right)

Previously, workers at this mining facility had to tie themselves off while working around debrining centrifuges due to the elevated access points of the centrifuges. To address safety concerns, inertia platforms were designed to provide a stable noncorrosive working surface for personnel access around the centrifuges. This eliminated the use of tethering while garnering better accessibility to critical equipment.

PROJECT SAVINGS

Upon initial design, both ICON and the plant operator agreed that EXTREN® Series 625 offered a much higher corrosion resistance rating than carbon steel. This eliminated the concern of any corrosion-related maintenance costs over the project's life cycle.

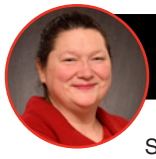
In addition to corrosion resistance, the lightweight nature of FRP yielded an estimated 30-50% cost savings on labor and additional equipment required if the project had used carbon steel. Most of the contributing factors for these savings were attributed to the heavy weight of transporting, rigging, and fabricating with steel.

ICON was able to follow up with the end user after six months to report that the secondary containment system presented no evidence of leakage. Employees were also complimentary of how the inertia platforms aided accessibility, safety protocols, and production processes. ●

Spotlight on Strongwell Talent

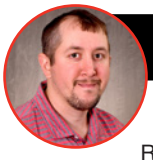
Logan Smith
Process Engineer - VA Operations

Logan comes to Strongwell from an Industrial Mixing background with Philadelphia Mixing Solutions (an SPX Flow brand) out of Palmyra, PA. He earned a Bachelor of Science degree in Chemical Engineering from Tennessee Tech University in Cookeville, TN.



Frances Pung
Manager, Quality Assurance for VA Operations

Frances began her career at Strongwell in 2019 in the role of Quality Improvement Coordinator. She has over 20 years of experience in the Quality field. Frances earned a Bachelor of Science degree in Metallurgical Engineering from Missouri University of Science & Technology.

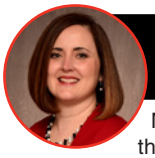


Jeremy Smith
Manager, Bristol Pultrusion

Material Preparation functions, including the Glass Room and Resin Room, will now report to Jeremy. Since his hiring as Process Engineer in 2015, Jeremy has gained increasing responsibilities as his role within the Operations team has advanced, most recently as Engineering Services Manager, which tasked him with, among other duties, overseeing the Design/Drafting and Setup Departments to ensure successful, on-time delivery.

Cody Clark
Supervisor, Pultrusion Production Crew 2 - Bristol

Cody previously worked for a logistics company in Bowling Green, KY, as an Operations Supervisor. Cody holds a bachelor's degree in Business Management Administration from East Tennessee State University.



Meghan Carty
Corporate Director, Supply Chain and Strategic Pricing

Meghan is now responsible for the management and coordination of all corporate supply chain relationships and pricing activities. She will continue to guide the pricing activities for all standard, custom, and fabricated products, working closely with Sales Directors, Fabrication Sales, Operations, Accounting, and Customer Service to coordinate and provide strategic market pricing for all Strongwell products and services. She will also manage corporate supply chain relationships while working closely with divisional Purchasing groups, corporate Contract Management, and Accounting. Meghan began her career with Strongwell in 1999 in Customer Service. She has held progressively increasing positions of responsibility, most recently Strategic Pricing Manager. She received her Bachelor of Science degree from the University of Tennessee, Knoxville.

STRONGWELL - CORPORATE OFFICES
400 COMMONWEALTH AVE.
BRISTOL, VA 24201 USA

What's in this Issue:

Composites Marches on Against Marsh Conditions

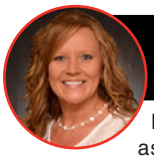
Fiberglass Supports Terrestrial Radio Equipment

Literature Updates

Composites Aid Potash Processing Plant

Spotlight on Strongwell Talent

Spotlight on Strongwell Talent



Lorrie Eggers

Fabrication Sales Technical Assistant - Bristol

Lorrie joined Strongwell in 2013 as the Operations Administrative Assistant. In 2015, Lorrie accepted the position of Fabrication Sales Administrative Assistant. Prior to her job at Strongwell, Lorrie worked at the Sullivan County General Sessions Court in Kingsport, TN.

Darryl Taylor

Software Engineer - Corporate

Darryl has spent the bulk of his career in manufacturing, along with previous experience in retail, government, and healthcare. He even ran his own consulting company during the early 2000's. He is always eager to learn new technologies.

Purnima Mutnuri

Network & Security Analyst - Corporate

Purnima began her career with Strongwell in 2021 as an IT contractor. She received her Bachelor of Technology degree in Computer Science Engineering from Jawaharlal Nehru Technological University, Hyderabad, India, and earned networks and security-related certifications in the US.

Tyler Goad

Drafting Coordinator - Bristol

Tyler joined Strongwell in 2008 as a Drafter in the Fabrication Sales Department and was promoted to Drafter Lead in 2010. Prior to his job at Strongwell, Tyler worked for a local truss fabricator as well as other part time jobs while attending college at Virginia Tech. Tyler is currently pursuing his bachelor's degree in Engineering.

Michelle Arnold

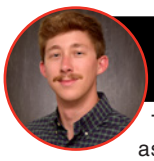
Materials Sourcing Planner - VA Operations

In this new role, Michelle will procure raw materials necessary to support manufacturing requirements, maintain service contracts, and assist in production control functions. Michelle began her career with Strongwell in 2002 as the Administrative Assistant in the Research and Development Lab, and then moved to the position of Production Control Expeditor in 2014.

Gilbert Valadez

Senior Accountant / Job Cost Analyst - Chatfield

Gilbert joined Strongwell in 2020 as Accounts Payable/Payroll Administrator. He received his Bachelor's Degree in Accounting from Luther College in Decorah, IA. Gilbert was previously employed as an Assistant Wrestling coach at Luther College.



Ty DeJager

Senior Process Engineer, Chemical Research Associate - VA Operations

Ty started his career with Strongwell as an intern in the Research and Development Lab while attending The University of Tennessee, Knoxville. He received his Bachelor of Science in Chemical Engineering in 2017 and joined Strongwell as Process Engineer shortly thereafter. Prior to his career with Strongwell, Ty was employed in the Midwest as a powder coating chemist for Diamond Vogel Paints.

Karen Rabren

Corporate Director, Human Resources

Karen will be responsible for the management, coordination, and leadership of all corporate Human Resources functions for Strongwell. Karen has more than twenty-five years' experience as a Human Resources leader with Fortune 500 manufacturing companies. Her previous roles include senior management positions with Baldor Electric, Mohawk Industries, and Contour Industries. She most recently served as Human Resources Director with A & L RV Sales, where she created and developed a Human Resources department for the rapidly growing business. Karen received her Bachelor's degree in Human Resource Management from Wheeling Jesuit University and her Master's degree with honors in Organizational Management from Tusculum College.

*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**. **| Editor: Barry Myers Production/Reporting: Brian Godwin & Te-Kai Shu**