

PROFILE

Strongwell News & Applications

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SPECIAL EDITION: DURABILITY

Why are STRONGWELL Products DURABLE?

Strongwell's fiber reinforced polymer (FRP) products have features key to a long life cycle:

Corrosion Resistance - Strongwell's products are highly corrosion resistant. FRP products resist a wide range of chemicals and salts. In addition, FRP will not rot and will resist insect attack.

Strength & Light Weight - On an equal volume basis, pultruded fiberglass will generally weigh only 25% of the weight of steel and 70% of the weight of aluminum. Strongwell products

are very strong and have a particularly high strength-to-weight ratio.

Impact Resistance - Glass mat in Strongwell products distributes impact load to reduce surface damage.

Versatility - Strongwell products are easy to field fabricate and may incorporate non-skid surfaces, multiple colors and UV protectants, resulting in a cost effective, problem solver. ●

Update: DURADEK®

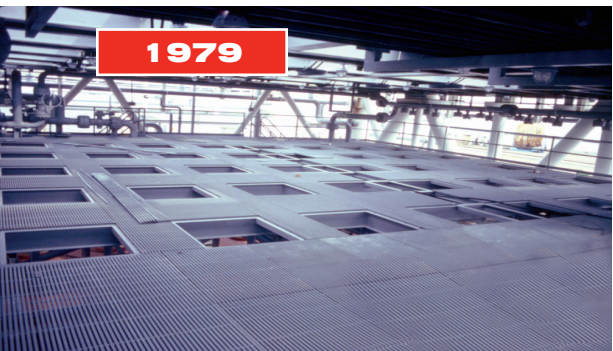
Strongwell's Grating After 30+ Years in Offshore Environment

In 1979, DURADEK® grating was installed on Shell's offshore platform *Ellen*. The platform was destined for the Beta Field off the shore of southern California. Now, with over 30 years of use, the nearly 10,000 square feet of grating continues to show an excellent return on investment for current operators, Beta Offshore.

Anti-skid DURADEK® has always been known for excellent durability and the 30-plus year exposure on *Ellen* has had little to no effect on the grating. Even accidental sandblasting and paint overspray has not degraded the anti-skid surface. Previous reports indicated that abuse from the platform's SSV's (surface safety valves) and performing acid jobs have never been a problem. Workers experience less fatigue and a better kneeling environment with DURADEK® pultruded grating.

When asked in 2010 about the lifespan of the grating on the platform, Facility Superintendent Yohn Rosqui stated, "The grating looks to be in great shape. The surface shows very little wear and tear."

Too often, the industry concentrates on short term costs. Now, years later, the decision to go with DURADEK® has proven to be a better return on investment. ●



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STRONGWELL

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Update: SAFRAIL™ & DURADEK®

Pultruded Fiberglass Walkways Thrive in Extremely Caustic Coal Prep Plant



In 1994, Westfall Company teamed with the engineering group of Kerr McGee Coal Company to address corrosion problems at the Galatia, Illinois coal preparation plant. The coal preparation environment results in significant deterioration of carbon steel within two years and stainless steel in less than six. Kerr McGee's goal was to use as much non-metallic structural products as possible in the design of a new section of the plant.

Strongwell's SAFRAIL™ square tube industrial handrail combined with DURADEK® I-6000 grating and stair treads were specified in all areas of the new section. While the section was under construction, the maintenance supervisor for the preparation plant requested the same products in other areas of the plant. Kerr McGee was so impressed with Strongwell's fiberglass products they elected to replace handrail throughout the coal prep plant with Strongwell's SAFRAIL™ handrail.

After twelve years of service, Strongwell revisited the plant in 2008, which is now owned by American Coal. The results were a testament to the resilience of the pultruded solution. There had not been a single corrosion related problem, while the metal structures and components around the fiberglass railing and platforms were failing. ●

Update: EXTREN® & Fiberglass Baffle Panels

Fiberglass Baffle System a Cost Effective Choice for Wastewater Treatment

In the spring of 2002, the Keegan's Bayou Wastewater Treatment Facility in Houston, Texas required an update.

Houston's growth had forced the facility to expand, however the facility's existing chlorine contact chambers lacked a baffle system to aid in the even dispersion of chlorine throughout each chamber. Houston decided to install a new baffle system with long term costs and the use of a noncorrosive material as key concerns.

Materials considered for the project included aluminum, stainless steel, poured in-place concrete and concrete columns with redwood baffles. However, the best solution came from Glass-Steel of Woodlands, Texas, who designed a less expensive and corrosion resistant alternative using Strongwell's baffle panels and EXTREN® structural shapes.

Glass-Steel owner Pat Lindsay stated, "The system we designed using Strongwell's baffles, tubes and angles was much more economical than any other alternative materials."

Six years later, Strongwell revisited the Keegan's Bayou facility where it was no surprise to find the baffle wall had stood up to the chlorine-rich waste water environment. The fiberglass baffle system had no problems or maintenance issues. ●



Update: **STRONGDEK™**

Ocean Front Fiberglass Decking Impervious to Salt Water Environment

STRONGDEK™ installed at Perdido Beach Resort in Orange Beach, Alabama in 2003 has withstood the test of time and elements. Two years after the decking installation in 2005, Orange Beach was pounded by Hurricane Dennis and several panels from the deck were blown away during the storm. Many panels were recovered in good condition and were easily re-installed.

The owner of Perdido Beach Resort, Jim Medlock told Strongwell in 2007, “The deck has held up very well. It has been installed for about five years and during the summer months has a function on it just about every Friday and Saturday night.”

Ken Nadolny, the Director of Engineering on the project said, “During the five years we have had it [STRONGDEK™], the only thing we have had to do to it maintenance-wise is pressure wash it periodically. It gets a lot of traffic as we call it our “party deck.” ●



Update: **Custom Fiberglass Handrail**

Custom ADA Compliant Handrail Remains Virtually Maintenance-Free



In 2003, the Moody Gardens Theme Park in Galveston, Texas, embraced the low maintenance and corrosion resistance of Strongwell's custom fiberglass handrail systems for theme park's dock.

The day dock at the popular destination featured an ADA compliant custom handrail system that was built using several of Strongwell's pultruded fiberglass structural profiles.

Visitors to the theme park continually use the fiberglass handrail when taking cruises around Galveston Island. The handrail remains strong and has no corrosion damage. Even the 2008's Class 2 Hurricane Ike had no effect on the Strongwell custom handrail. The project managers at Moody Gardens are very pleased with the installation and love the fact that the handrail system will remain virtually maintenance-free for many more years. ●

Update: **DURADEK®, SAFRAIL™ & EXTREN®**

Fiberglass Platform Thwarts Corrosion for Over 10 Years

With over ten years of exposure over a salt water aquarium, a fiberglass platform continues to thwart corrosion damage at a popular zoo.

The Ohio-based zoo that operates the aquarium platform has had no maintenance or repair related problems since installation in 1999. The platform was built using Strongwell's DURADEK® fiberglass grating, SAFRAIL™ fiberglass handrail system and EXTREN® structural shapes. The structure maintains its initial integrity even after more than a decade of use. ●



Update: SAFRAIL™ First Round SAFRAIL™ Job



In 2002, Fort Lauderdale, Florida received the very first installation of Strongwell's round SAFRAIL™ industrial handrail system below the city's 17th Street Bridge. The handrail was installed on the bridge's fenders.

Inspection in 2010 revealed this intercoastal waterway installation has maintained aesthetics. Eight years of exposure to the Florida sun and the Atlantic Ocean have resulted in no corrosion related issues.

Barnes Industrial Plastic Piping, Inc, Strongwell's distributor on the project, reports the customer was pleased with the fiberglass application and all requirements of the handrail were and continue to be met with satisfaction. ●

Update: EXTREN® Architectural Trim & Flashing



With over ten years exposure to the elements, the EXTREN® structural shapes on to the Oakwood Commons buildings in Southfield, Michigan look as good as the day the parts were installed.

Mullen Equipment, of Troy, Michigan, provided EXTREN® for architectural use because of the product's similar aesthetic qualities to that of steel, as well as lightweight and corrosion resistant properties. The choice has clearly paid off. ●

Strongwell's Commitment Strongwell Corporation Shares Green Initiatives on Strongwell.com

Strongwell has had protection of the environment as one of its core strategies for more than 25 years. The company has long been at the forefront of composites industry leadership in environmental matters. The focus on "green" and "sustainability" issues have grown exponentially in business and public awareness in recent years. As a result, Strongwell has decided to post its Green Initiatives on the company's website: www.strongwell.com/green.

Strongwell is dedicated to assessing and reducing the environmental impact of its fiber reinforced polymer (FRP) composites. As a responsible corporate citizen, Strongwell continually seeks to improve its manufacturing practices to further protect the environment, while providing essential, environmentally friendly products to its customers.

The new Green Commitment page on Strongwell's website lists Life Cycle Assessments (LCAs) of composites, recycling facts, manufacturing impact reduction initiatives, legal compliance and the future of Strongwell's green initiative.

Most of Strongwell's FRP composites are structural alternatives to traditional building materials like steel, aluminum and concrete. Compared to these materials, the manufacture of Strongwell's pultruded FRP products produces fewer air and water emissions, consumes less energy and emits less greenhouse gas, leading to both a reduced environmental impact and a lower carbon footprint. More importantly, however, virgin production of FRP usually has less environmental impact than even recycling alternate materials, such as steel and aluminum. FRP composite products have high resistance to rot and corrosion, a longer and more economical service life and require less frequent energy-intensive maintenance and replacement. These inherent advantages lead to superior overall sustainability for FRP products. ●



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