

Case Study: **EXTREN®** and **DURADEK®** **Pipex px®** Introduces the Cocoon Subsea System

Cocoon and Shroud™ subsea protection systems are designed and manufactured by UK-based Composite Solutions, a Pipex px® company. The systems are designed to protect subsea oilfield flowbases from the marine environment, objects dropped during drilling, or fishing trawler net incidences. Both the Cocoon and Shroud™ use Strongwell components including 8" (203mm) EXTREN DWB® (all glass), EXTREN® series 625 profiles and plate, and DURADEK® I-6000 1-1/2" (38mm) grating.

The Cocoon utilizes a unique skeletal "clam" design with an external surface using lightweight FRP (fiberglass reinforced polymer) materials, ensuring that fishing gear is either safely deflected or easily retrieved. The Shroud element located at the base of the Cocoon allows simple offshore deployment and installation to well heads. The first Cocoon was installed ten years ago and now, there are over 23 in the North Sea.

It was an easy decision to use Strongwell materials due to the weight reduction, corrosion resistance, and ability to withstand impact. Strongwell's vinyl ester products were chosen for enhanced performance in harsh subsea conditions (100m/650 ft. depth+). ●



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STRONGWELL

FRP/Fiberglass
Structures and Systems

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Case Study: **EXTREN®**

EXTREN® Riding High in Downtown Waikiki

Strongwell's products were used by Plas-Tech Ltd., a Hawaiian fabricator, for an architectural trellis overlooking Waikiki, Honolulu, Hawaii. The trellis sits on top of the Waikiki Shopping Plaza located at the center of the city on world-famous Kalakaua Avenue. The retail center is home to over 50 tenants including national brands GUESS® and LeSportSac and also a number of local favorites such as Local Motion®, Ukulele House and Higgins Harte International Galleries™.

MGA Architecture specified the design of the trellis to use Strongwell's EXTREN® 2" x 6-1/2" rectangular tubes. Plas-Tech fabricated the trellis components by molding the outrigger beams and assembling and painting. MGA's design was inspired by the native Hawaiian culture to evoke sensory response and emotional experience while blending in with the overly urban character of modern-day Waikiki.

The job went off without a hitch and both MGA and Plas-Tech are very happy with the fabricated trellis. MGA Architecture was so pleased with Strongwell's FRP structural shapes, they have plans to add five more trellis systems on the neighboring building. They will also use Strongwell components for another future project. ●



Case Study: **SAFRAIL™ and DURADEK®**

FRP Well-Suited for Corrosive Wastewater Treatment Environments

In 2008, a handrail and grating system was installed at the Saginaw, Michigan wastewater treatment plant. The installation needed to meet their requirements for corrosion resistance around the sludge basin.

The installation included Strongwell's yellow SAFRAIL™ handrail systems, DURADEK® I-6000 and EXTREN® structural shapes. All products are impact resistant, strong and particularly well-suited to corrosive environments.

The fabricator, Joe Cavanaugh of Titus Welding, and the installers from Gerace Corporation were very pleased with the products as well as the ease of fabricating and installing the project. ●



Case Study: **COMPOSOLITE®**

Easy Access with Fabricated Covers

The Mulberry wastewater treatment plant, located in Fort Collins, Colorado, installed fabricated FRP covers from Strongwell.

The treatment plant required a removable cover spanning an 8-foot area without building additional structure. Strongwell's distributor Pipe Valve & Fitting offered COMPOSOLITE® covers in lieu of aluminum covers to Montgomery, Watson and Harza Engineering and their contractor, Hydro Construction.

The covers were installed in a 8' x 40' section and several 8' x 8' sections. The reason for not selecting a traditional cover such as aluminum was lack of strength. Aluminum covers are typically not designed for foot traffic. The hollow core construction of the COMPOSOLITE® covers also allowed for easy acceptance of a stainless steel recessed T-Bar handle for a smooth surface. The project was installed in phases in 2010 and 2011. ●



Case Study: EXTREN® and SAFRAIL™

Fiberglass Fencing: Still Strong Eleven Years Later

In 2000, a Drury Inn Hotel located in Englewood, Colorado, established a new look for its fencing and exterior railings that saved on maintenance and replacement costs. The fencing is still as strong and attractive eleven years later. The hotel chain selected fiberglass for its lower installed costs, low maintenance, and ease of assembly. The fiberglass fencing was made from 2" and 1-3/4" EXTREN® square tubing, custom pultruded in black and fabricated to look like wrought iron. FRP fencing makes sense as a long-lasting alternative to iron or steel because it is corrosion resistant. Steel handrail at the Drury Inn has to be painted regularly. Neither the FRP perimeter fence nor the FRP fence around the pool area has had to be repainted.

The new FRP fabricated fencing and railing is now standard for all new Drury Inn construction and for any renovations. It is used for perimeter fencing and exterior railings for balconies, stairs, and pools.

The FRP fencing has proven to be durable and maintenance-free — extremely important for Drury Inns which has more than 200 properties throughout the Midwest. ●



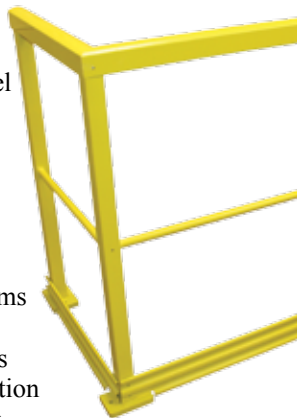
Product Alert:

New SAFRAIL™ Option: Channel Top

Strongwell now offers a new SAFRAIL™ channel top option to the industrial fiberglass handrail line. It is an economical commercial railing system designed for long runs on platforms and walkways.

The railing system is designed for fabrication efficiency and is not particularly well-suited for stair rails with twists and turns. SAFRAIL™ channel top can be used in combination with round and square SAFRAIL™ as needed.

Standard SAFRAIL™ channel top handrail system are pultruded using a polyester, fire-retardant resin. The handrail system includes a UV inhibitor for additional resistance to ultraviolet degradation and corrosion. The standard color is yellow; however, other colors are available upon request. ●







GRIDFORM™ Design Guide Update

The GRIDFORM™ Design Guide is provided as a service to structural engineers to determine if GRIDFORM™ can be used as an alternative to steel rebar as the internal reinforcement system for reinforced concrete bridge decks. GRIDFORM™ is a prefabricated fiber reinforced polymer (FRP) double-layer grating, concrete-reinforcing system with integral stay-in-place (SIP) form for vehicular bridge decks. The anticipated lifespan of a GRIDFORM™ bridge deck is several times that of steel reinforced concrete bridge decks since FRP provides a corrosion-free reinforcement system for the concrete. The GRIDFORM™ Design Guide program has been updated to account for deflection due to Uniform Loads. Additionally, testing of the main bars (GV-2) has increased the sample size to 30. ●



Literature Update:

Updated Strongwell Literature

LITERATURE	UPDATE
 Baffle Panel Flyer	The updates that were made to the flyer reflect a change of flexural modulus and some dimensions.
 EXTREN® Availability List	The document lists the update on stocked and non-stocked availability of all EXTREN® Series 500, 525 and 625 standard shapes.
 SAFRAIL™ Brochure	Added the new channel top option.
 Corporate Portfolio	New portfolio featuring Strongwell's product offerings

STRONGWELL PEOPLE

Glenn Barefoot *Vice President, Business Development and Marketing*



Strongwell has promoted Glenn Barefoot to the position of Vice President of Business Development and Marketing. He is a West Point graduate who has a high profile in the composites industry through his significant industry committee work. He has also been Strongwell's Corporate Marketing Manager for over 17 years.

Tom Rosser *Vice President, Sales*



Tom Rosser has joined Strongwell as Vice President of Sales. Tom is responsible for global sales of all of Strongwell's fiberglass products. Tom joins Strongwell with over 30 years of experience in domestic and international sales. Tom graduated from the University of Tennessee with Bachelor of Science degree in Finance.

David Gibbs *Director, Virginia Operations*



David Gibbs has been promoted to the position of Director, Virginia Operations. David is responsible for all manufacturing operations at Bristol and Highlands divisions. David, having been with Strongwell since 1995, will also continue to serve as the Bristol site manager.

Shelly Blackwell *Materials Control Manager*



Shelly Blackwell has assumed the position of Material Control Manager of the newly formed Materials Management Group at Bristol. She is particularly suited for this assignment based on extensive experience at Strongwell, formal training in Materials Management, and the communication channels she has previously established.

Rhonda Tucker *Customer Service Account Manager*



Rhonda Tucker has been promoted to the position of Customer Service Account Manager. Rhonda has been with Strongwell since 2006 and held the position of Operations / Health and Safety Administrative Assistant. She holds a bachelor's degree in business administration from King College and an associate's degree in accounting from Northeast State Community College.

Justin Ste. Marie *Customer Service Account Manager*



Justin Saint Marie has joined Strongwell as a Customer Service Account Manager. Justin is responsible for handling customer inquiries and orders for Strongwell's Cooling Tower accounts. Justin previously worked at Lowe's and Holston Steel and is pursuing a degree at Virginia Intermont College.

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