



CREATIVE  
COMPOSITES  
GROUP

# INTRODUCING OUR GROUP CAPABILITIES & FRP PRODUCT LINES



Your Single Source For Innovative  
Engineered Solutions Using Fiber  
Reinforced Polymer Composites



# We are the Leader in Technical Innovation with a History of Creating Advanced FRP Products

The Creative Composites Group provides customer-focused engineered solutions using Fiber Reinforced Polymer (FRP) composite materials that are lightweight, corrosion-resistant and resilient. With our innovative design and manufacturing expertise, we create products that make customer systems bigger, better and longer-lasting.

## About Us

The Creative Composites Group consists of the U.S.-based composite companies within Hill and Smith Holdings PLC. CCG has vertically integrated all key FRP engineering and manufacturing operations under one brand. As a result, our customers can get comprehensive manufacturing support for molding, pultrusion, filament winding or hand-layup production methods. Our services include comprehensive design, engineering, manufacturing, fabrication and aftermarket support.

## Advanced FRP Capabilities

Advance your products and projects beyond the limitations of traditional concrete, steel and wood by leveraging the combined strength of Creative Composites Group (CCG). We are the leader in technical innovation backed by the industry's most comprehensive FRP design, engineering, manufacturing and field services group for composite infrastructure.

## Our Brand

We offer comprehensive engineering, design and consultation for structural FRP applications. Our manufacturing capabilities include the broadest range of engineered FRP solutions for manufacturing structural composites. That's possible only with our proven end-to-end collaboration, integrated engineering, field services and manufacturing resources.

Since FRP composites last longer than conventional materials, they often have the lowest lifetime cost due to longer service life, low maintenance costs, corrosion resistance and high strength-to-weight ratio. CCG is a leader in engineering resilience into FRP infrastructure.

Our StormStrong® brand is a designation for product lines that have engineered superpowers for various infrastructure protection. StormStrong is designed for a variety of applications providing severe weather protection (from hurricanes and earthquakes), shoreline protection and utility grid protection.

Our FireStrong® brand is a designation for our product lines that include engineering features and benefits that help reduce the effects of intensive fire damage on crucial infrastructure. Our FireStrong products are designed to be resilient and maintain structural strength after contact with fire.

# Composite Manufacturing Capabilities

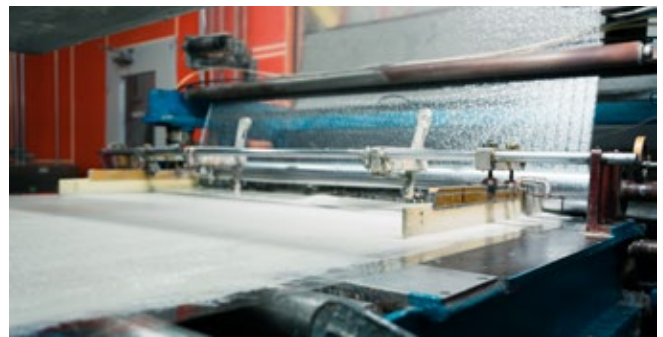
The combined manufacturing capabilities of CCG encompass an integrated approach to fabricating high-performance FRP composite structures with all commercial manufacturing methods under one brand. Whether requiring tight tolerances or big parts, we have the right manufacturing process to meet your requirements, including anything from 30 mils to 100 feet.

Being experts in all these processes enables CCG to select the process that delivers the optimum combination of cost, performance, quality and delivery time. CCG considers parameters including quantity, size, tolerance and structural requirements to provide the lowest lifetime cost of maintenance and ownership.



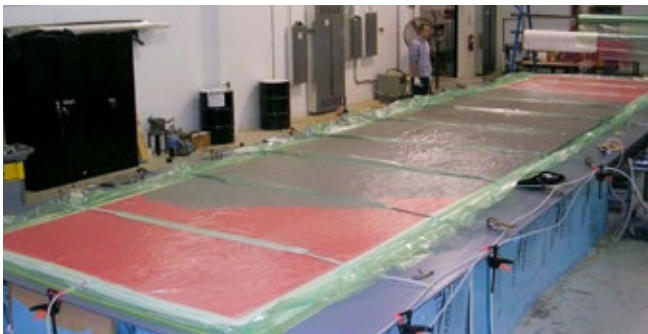
## Pultrusion

Pultrusion creates long, consistent shapes like rods, bars and beams for high quantity applications. Reinforcement fibers are pulled through a resin bath to saturate them and then into a heated steel die that sculpts the composite into the final shape. The process operates continuously and is adaptable to both simple and complex cross-sectional shapes.



## Continuous Lamination

Continuous lamination produces consistent FRP profiles across very wide, very long and/or very flat profiles. It is used to produce flat or semi-flat panels with high strength, consistent thickness and structural integrity. This process is ideal for both opaque and translucent panels like roofing panels, sandwich wall panels and agricultural daylighting panels.



## Vacuum Infusion

Vacuum infusion processing (VIP) uses atmospheric pressure to drive resin into dry fiber layers after the vacuum has pulled the bag down and compacted the fibers. This is the most economical process for large parts in low to medium quantities.



## Filament Winding

Filament winding is an automated process that applies resin-saturated, continuous strands of fiber reinforcements over a rotating cylindrical mold. This process creates parts that can handle high operating pressures.

# Bridges, Decking & Access Structures

FRP composite bridge products offer great benefits to owners and users. The corrosion resistance of FRP means long life and minimal maintenance. We engineer and design bridges and decking features to exceed customer requirements. Lightweight FRP means faster and safer installation and lower transportation costs. Our bridge products incorporate safety features and non-slip overlays appropriate for every traffic type.

## Cantilever Sidewalks

The optimal solution to meet the growing demand for bicycle and pedestrian traffic is a lightweight sidewalk alongside vehicle and railroad bridges. By adding a new sidewalk or widening an existing walkway, cantilever sidewalks can create a safe pathway to accommodate all users.

## Pedestrian Bridge Decks

This prefabricated decking is engineered to meet your performance requirements, sizes and shapes. Design features include crown, cross-slope, non-slip overlay, curbs, drains and railing attachments to reduce on-site construction costs. Even when installed in challenging environmental conditions, FRP decking withstands degradation, providing a substantially longer working life than wood.

## Pedestrian Bridges & Boardwalks

Our product line of E.T. Techtonics® fiberglass truss bridges is ideal for parks, trails and industrial access. Our bridges are easy to install as prefabricated spans or on-site bridge kit assembly, which is often the most common method. The bridges carry pedestrian, equestrian and maintenance vehicles. Fiberglass boardwalks are stronger than wood or plastic and can be provided as individual planks or preassembled modules.

## Vehicle Bridge Decks

Only 20% of the weight of concrete, lightweight decking is perfect for movable bridges and historic truss bridges. Decking handles full truck-trailer loads and includes a non-slip overlay resistant to wear from snowplows.



# Mass Transit & Rail

Using FRP for rail systems and transit infrastructure is becoming more popular for many reasons, such as working with accessible prefabricated structures and enjoying fast installation, corrosion resistance, less maintenance, and long product life. Typical applications include platform structures, access structures, stair and railing systems, trackside safety surfaces, and overhead pedestrian walkways and bridges.

## Rail Platforms

FRP composite rail platforms give transportation agencies a corrosion-resistant structure that can withstand weather, de-icing chemicals and high foot traffic at train stations. Lightweight panels can be installed quickly around train schedules, limiting the inconvenience to commuters.

## Composite Stairs

Our stair system is fabricated using FRP structural shapes and FRP molded and pultruded grating treads to create FRP stairway systems for company employees' safety and public pedestrian use. The stair system is designed with easy field installation in mind to reduce construction time and cost. Our advanced fabrication technique delivers the highest quality FRP stairway systems.

## Overpass Walkways & Bridge Decking

For overhead access to both sides of the platform and nearby parking, FRP walkway bridges are fast to install. FRP decking is safe and maintenance-free for the rehabilitation of existing overpass bridges. Prefabricated panels minimize construction time over tracks.

## Coverboards

Third rail coverboards and tie extensions are designed to protect personnel from the "live" rail that may contain stray currents. They are made of lightweight, high-performance pultruded composites that will allow personnel and riders to exit safely in case of an emergency. FRP composite coverboards are custom designed and tested to meet the stringent requirements of transit agencies.



# Utilities & Telecommunications

Most utility poles and crossarms are made from wood, steel and concrete. For electrical and utility companies, the resiliency and maintenance of these poles and crossarms can be problematic. In addition to the high strength-to-weight ratio, our FRP poles and crossarms improve electrical insulation. Our FireStrong poles are especially suited to fire-prone areas and our StormStrong and TridentStrong™ poles play a vital role in storm hardening strategies where high winds demand resilience.

## StormStrong® Utility, Light & Telecom Poles

Our StormStrong FRP utility poles have been engineered to meet the National Electric Safety Code (NESC) and the American National Standard Institute (ANSI) code requirements. Our utility poles are extremely resilient and have survived severe weather, including hurricanes. They will not rot, rust, spall or succumb to termites or woodpeckers. They will not leach dangerous chemicals into the environment, nor do they contain additives that could be detrimental to human contact.

## FireStrong® Utility Poles

Our FireStrong FRP utility poles are designed to self-extinguish after a fire event. FireStrong poles are extremely resilient and have gone through extensive fire testing to ensure that utility grids maintain their design and strength characteristics after exposure to brush and prairie fires.

## StormStrong® Crossarms

StormStrong FRP crossarms are RUS approved, engineered to meet the National Electric Safety Code (NESC) requirements and designed to increase grid reliability. Our advanced ultraviolet light protection system exceeds the American Architectural Manufacturers Association (AAMA) 623 requirements. Lighter and stronger than wood, these are the most cost-effective and structurally efficient crossarms available.

## TridentStrong™ Poles

For self-supporting applications where strength and stiffness is what you're looking for. TridentStrong resilient composite utility poles are designed to fit a wide range of applications. Our poles are the go-to for a variety of applications from tangent distribution pole replacement to self-supporting pole projects. Our multi-layer design provides a unique strength that exponentially enhances resilience.



# Waterfront Infrastructure

Waterfront infrastructure projects present a unique and challenging set of demands. Marine fixtures (even if submerged) are constantly exposed to saltwater, UV rays from sunlight, various weather conditions and even corrosive chemicals. Lightweight, strong, and flexible, FRP structures are emerging as the preferred technology to replace deteriorating wood, concrete and steel structures.

## StormStrong® Pipe Piles

Many applications can benefit from the use of StormStrong FRP pipe piles. CCG's StormStrong pipe piles represent the most resilient piling brand on the market. Piles are the backbone of waterfront infrastructure. Piles support fender systems and guide walls which protect critical structures like bridges, piers and electric towers from damage and guide ferries, boats and ships into terminals and docks. The design flexibility of FRP piles aids in making these systems cost-effective and long-lasting.

## StormStrong® Sheet Piles

StormStrong FRP sheet piles protect the shoreline from erosion and extreme weather. These engineered sheet piles offer high strength-to-weight ratio, corrosion resistance, maintenance-free operation and product versatility compared to wood, vinyl, concrete or steel alternatives.

## Camels & Separators

Camels and separators comprise a diverse set of floating structures that allow safe berths for vessels to approach the docking site. Virtually any camel or separator can be made more durable using FRP composites. Applications include separators for ports and log camels and piers handle small vessels to cargo ships. Able to meet extreme requirements, we supply camels for submarines and aircraft carriers for the U.S. Navy.

## Specialty Applications

FRP may be used in various specialty applications, including trench covers for piers, floating pump-out stations and dam structures for controlling water levels in rivers. The nature of FRP provides customers with minimal maintenance and enhanced service life.



# CCG ENGINEERS INFRASTRU

Advance your infrastructure projects beyond the limitations of traditional

We are the largest manufacturer of structural composites in the U.S. with a technically innovative product  
FRP composites. This means our customers have products that are lightweight, high strength, corrosion-re

CCG combines the expertise of many companies to offer the best in composite design and advanced man  
your project's success. CCG works alongside your team, from owners to design engineers and contractors,  
requirements and environmental conditions.

Our purpose simply stated is:

## ADVANCING INFRASTRUCTUR





# CTURE WITH FRP

l materials by leveraging the capabilities of the CCG.

line. CCG delivers innovative, engineered solutions so that our customers take advantage of the benefits of resistant and long-lasting!

ufacturing processes. CCG is committed to becoming a trusted business partner who is keenly interested in , to help you develop and customize an FRP solution that meets the most demanding structural

# E WITH FRP



# Building & Architectural Products

## TuffSpan® Roofing & Siding

Eliminating maintenance, reducing cost and improving work conditions, TuffSpan FRP roofing and siding panels offer unparalleled combination of strength and corrosion resistance. With higher reinforcing content, premium resin systems and extensive UV protection, TuffSpan is the optimum cladding panel for long-term performance in challenging architectural conditions. Our TuffSpan panels are available in five standard opaque colors and four standard translucent colors. We can also match existing material colors, and many non-standard colors are available.

## TuffSpan® Insulated Composite Panels

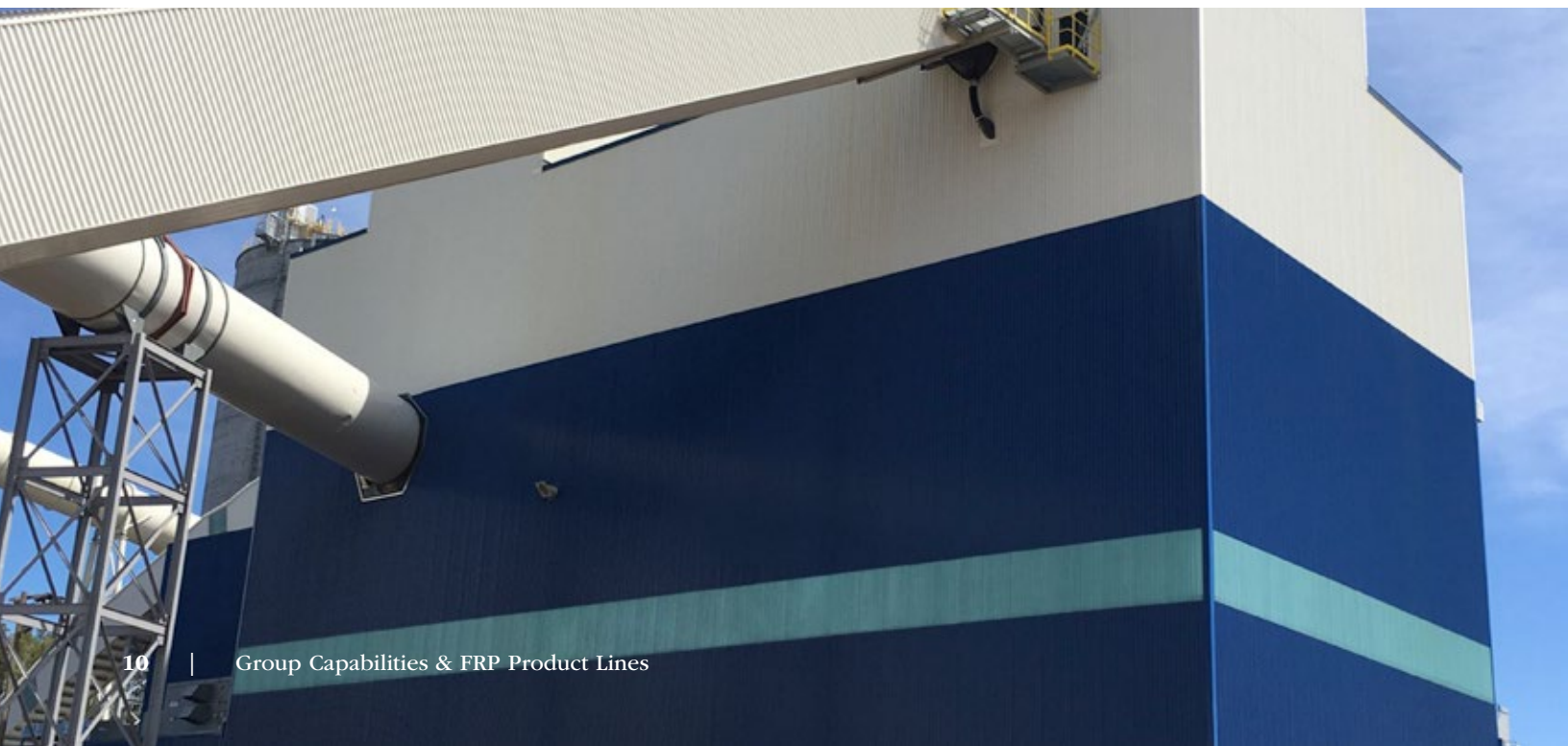
TuffSpan roofing and siding is the market leader providing safe, weathertight, long-term building solutions in the most chemically aggressive and harsh environments. TuffSpan insulated composite panels (ICP) are our next-generation, non-metallic insulated panel system. Insulation board is sandwiched between premium TuffSpan fiberglass exterior and interior panels. The shop-fabricated ICP panels significantly reduce total installed time and cost while providing excellent corrosion resistance and superior UV protection to extend a building's service life.

## Building & Architecture Systems

When engineering structures – especially roofs – weight and resiliency are very important. FRP is a lightweight alternative to conventional materials and is suitable for many building and architectural applications, especially those in wet or corrosive environments. FRP access and safety structures are lightweight and corrosion resistant to deliver a long service life and lasting safety. TuffSpan form deck and roof deck provides structural solutions with the bonus of strength and corrosion protection. FRP is a high-performance building material offering corrosion resistance and an excellent total cost of ownership.

## Purlins, Girts & Beams

TuffSpan purlins and girts utilize an iso-polyester or vinyl resin system to provide outstanding corrosion protection and is fire retardant with a flame spread rating of 25 or less. The resulting combination of corrosion resistance, non-conductivity and long span capability delivers significant life cycle cost savings. TuffSpan™ flanged tube beams deliver high-load and long-span capability plus corrosion resistance. Used for building structures, baffle wall columns and support of tank cover decking, they are also used in secondary framing on pre-engineered metal buildings (PEMB), FRP or fabricated structural steel buildings in new build or retrofit construction.



# Water & Wastewater

## Tank Covers

Enduro fiberglass tank covers are specifically designed for water and wastewater treatment facilities. The industrial tank covers are constructed with high-strength, corrosion-resistant, and lightweight FRP components providing long-term service and designed for easy installation. We offer a comprehensive line of corrosion-resistant tank covers including AXS-3™, XL3 and XL6. AXS-3 is a fifth-generation tank cover system offers the best benefits for users and operators.

## AquaSpan™ Baffle Walls

AquaSpan fiberglass FRP baffle wall systems are specifically designed and certified per NSF/ANSI 61 for potable water and wastewater treatment flow control. Structural baffle walls control the flow of water and increase residence time while partition walls separate zones or enhance mixing. Pre-engineered and composed of fiberglass panels, angles and framing members, our baffle wall systems deliver a superior combination of strength and corrosion resistance. Their industry-leading design flexibility and light weight make them an excellent choice for both new projects and retrofits. Our products are perfect for both municipal and industrial applications as well as new installations and retrofits.

## Clarifier Products

Enduro's suite of wastewater clarifier products are high-strength and corrosion-resistant, capable of withstanding the harsh conditions in wastewater treatment facilities. Our FRP launder covers are available in both round and rectangular designs and offer increased structural performance at a lighter weight than competing materials. Enduro weirs and scum baffles have a long life and are inherently corrosion resistant. As an integral part of activated sludge clarifiers, our density current baffles improve solids capture and increase hydraulic capacity with an easy, low-cost installation. Designed for high loads and low maintenance, our FRP launder troughs efficiently move fluids through treatment processes.

## Installation Services

As part of our single-source promise, CCG not only creates FRP tank covers, baffles and clarifier products but our Enduro Field Services team specializes in their installation. CCG offers full installation services as well as expert supervision services. Enduro Field Services has installed customers' corrosion-resistant solutions since 1955. Customers return to Enduro time and again, because when quality matters, experience counts. The team's attention to detail and commitment to safety consistently exceed customer expectations.



# Electrical Products

## Enduro® Cable Management

For more than 30 years Enduro's industrial cable and wire management systems have delivered value worldwide. The value of our customized, FRP electrical products increases over time. FRP wire and cable ladder tray, wireway, instrument stand and strut products are specifically designed to thrive in harsh conditions, prevent downtime, cut costs and keep teams and projects safe. Proper industrial cable and wire management helps guarantee secure, consistent data transfer and communication and reduce operational costs, downtime and constant repairs.

## Enduro® Cable Tray

Enduro cable tray sets the industry standard for high-quality fiberglass cable tray. Made from the highest quality pultruded materials, our FRP cable tray is extremely durable and resistant to chemical attack, with a proven record of performance in the most corrosive and structurally demanding environments across the globe. Applications include offshore platforms, chemical plants, oil and metal refineries and water treatment plants. Our fiberglass cable tray has been designed by our technical experts to meet customer needs for quality performance in the harshest environments.

## United Conduit Systems

Our United Fiberglass division has been supplying major infrastructure projects with conduit systems since 1983. Because we have the flexibility to create components in sizes, configurations and colors to meet your exact needs, you'll be hard-pressed to find a more convenient and cost-efficient complete package for your fiberglass conduit or duct needs. We offer standard, heavy and extra heavy BulletResistant™ wall fiberglass conduit models in sizes comparable to the most popular Iron Pipe Sizes (IPS) and inside diameter (ID) sizes. Above ground or below ground, we will supply a conduit system to meet your project delivery schedule

## Electrical Instrument Stands

More corrosion-resistant than stainless steel or galvanized instrumentation stands, Enduro's universal fiberglass instrumentation stands are a cost-effective alternative for challenging environments. FRP instrumentation stands eliminate the high cost of maintenance, equipment replacement and associated downtime. Fiberglass electrical instrumentation stands offer many of the same benefits as our cable tray, wireway and strut systems.



# Services

The Creative Composites Group's comprehensive menu of services takes you from design, manufacturing and structural fabrication to field support, industrial plant maintenance for lamination repair or equipment installation. We want our innovative FRP solutions to make your projects and ideas successful.

## Field Services

Manufacturing complex FRP parts and structures in a factory takes smart thinking and good personnel for success but being in the field when the products are still in use makes for a far more challenging environment. Specialty tools that make life easier in the shop are not usually on hand at a work site. This is where our fabricators become innovators. Our technicians have the skills to do complicated jobs in settings such as limited space or time and limited protection from environmental factors.

Our Enduro field services team supports our water & wastewater and FRP manufacturing capabilities with a full variety of services for the Southwest region of the United States. Most of these services support equipment and facilities in industries using corrosive chemicals. These services range from 24-hour emergency service to water & wastewater field services to installation of fiberglass tank covers, baffle walls and clarifier products. The Enduro Field Services team has the unique ability to repair FRP or line concrete pipe while avoiding costly shutdowns.



## Fabricated Structures

Our structural fabrication services provide the broadest range of products and services in the industry, offering Custom Designed FRP Platforms, Handrail Systems, Stairs, Molded Grating, Pultruded Grating, Ladders, Cage Systems and unique one-off fiberglass fabrications.

Starting with the customer's vision for the structure and the performance requirements, our design team selects from our high-quality structural profiles to create a cost-effective fiberglass structure. We welcome complex structural fabrication challenges where our innovation and decades of expertise provide the right solution.

We have a range of shapes and polymer resins to meet your structural fabrication needs. Suppose the solution you need is beyond a structure fabricated from standard fiberglass shapes. In that case, the Creative Composites Group also has advanced capabilities in all composite manufacturing processes, and we can design and build custom FRP projects to meet your needs.

## Design & Build Services

With our engineering expertise and our industry-leading composite manufacturing processes, our design and build services deliver turnkey solutions for FRP products and systems. These can be specialized items for long-term production, as well as "one-off" individually molded parts. We provide services from the design phase through the manufacturing phase, to the final on-site installation at the customer's facility.

Our customers excel in their products and systems but don't need to be experts at FRP composites to put this material to work for them. With over 50 years of delivering leading FRP products, CCG's innovative design, engineering and manufacturing processes provide vertically integrated expertise for our customers.

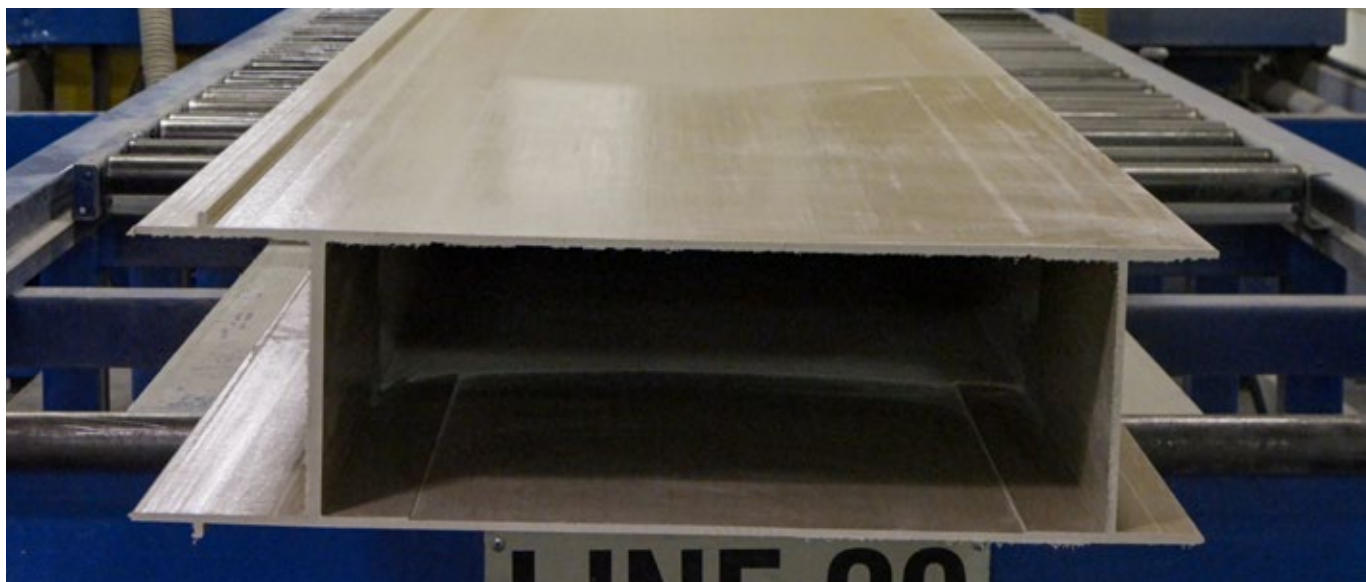
# Industrial Corrosion

FRP is the standard material choice for any industry using strong chemicals. The equipment we produce excels in these environments with longevity and ease of maintenance. Applications include chemical storage tanks, process tanks, stock towers, pipes, ducts and covers. A key value is our field services for new product installation as well as maintenance and repair of existing equipment.



## OEM & Custom Products

These “best in class” FRP parts are often the enabling technology that makes our customers’ systems special. These can be custom applications using special materials like carbon or polyurethane or long-term production for OEM customers. We provide turnkey solutions, taking products from concept to design, tooling manufacturing and production. This includes a lifetime tooling guarantee that is unique to the industry.



# Standard Structural Products

This is an extensive array of pultruded fiberglass reinforced structural shapes such as angles, channels, rods, tubes, bars and beams, sold under the PulTex™ and SuperStructurals™ brand names. A comprehensive design manual and CAD files allow customers to incorporate these shapes into their structures quickly and efficiently.



# Tower Tech® Cooling Towers

Tower Tech manufactures the world's most efficient FRP cooling towers. It is the leader in towers designed from the ground up to effectively bridge the gap between sustainability and energy efficiency. Tower Tech offers the most innovative cooling towers with patented technology that makes any chilling system more efficient. Check us out at [TowerTechUSA.com](http://TowerTechUSA.com).





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