

Sector Guide

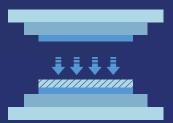






- Manufactured from premium isophthalic and vinylester resin systems
- Superior protection against corrosive elements in water and wastewater treatment operations.
- Allows the water to be safe and usable according to AS 4020

High Strength



- Manufactured by automated pultrusion process.
- Utilises high glass-fibre content and results in unparalleled product consistency.
- Compression moulding and vacuum moulding processes are used.

Durability



- Greater resistance to breaks and twists which ensure better longevity.
- Reduce the harmful effects of added tension on the surface and reliving the framework.



- Longer service life, less maintenance, and life cost savings as compared to other materials.
- Allows better and viable components into the associated framework.



Turnkey Solutions



- Pre-fabricated to eliminate field fabrication and make installation quick and easy.
- Solutions include all necessary accessories.



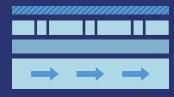
Customised System

Our experienced technical team customises designs to meet project specific load requirements.



UV V Protection

Exterior coatings and stabilisers provide UV protection and ensure long service life.



Low **Profile**

- SureLine® low profile covers reduce the operating cost and size of scrubber units compared to domes.
- Aesthetically pleasing flat covers.
- Eliminate confined-entry issues.
- Provide protection for equipment located on top of the cover instead of below.



Light Weight

- Strength-to-weight properties of GRP reduce loads on tank walls and floors.
- Ease cover removability and installation.
- Can be transported anywhere easily and installed seamlessly.



Dissimilar Metals

Eliminates issues surrounding dissimilar metals



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Quality Policy

Quality is at the forefront of Treadwell's working practices. With over 15 years of manufacturing to the highest quality standards, Treadwell prides ourselves on our reputation for implementing strict quality control measures, and strives to supply products that surpass customers expectations. The company works on a policy of 'continuous improvement'.

Treadwell is conscious of the impact it has on the environment and its associated responsibilities. The company is committed to ensuring its operations satisfy legal obligations and other responsibilities. Treadwell remains committed to sustainability.

Disclaimer: The information contained in this Treadwell design guide herein supplied is as a service to our customers and is intended to be used only as a general guide. It is not a substitute for proven engineering practices and designs.



What You Get When You Work with Treadwell

Specialised Online Tools

Conveniently located online, our selection tool allows users to fill in selection criteria based on each product brand we carry and will recommend a product suitable to your needs. Our product information has been imprinted on the tool to provide ease of outline and inspiration to architects, engineers, designers and other users. Users can also find all our product files in PDF, DWG, STEP etc. files to download for each of our products.

Visit our website at https://www.treadwellgroup.com.au/treadspec/ to try out these online specifier tools.



Friendly & Professional Design Support

Whether you're looking to upgrade or completely revamp your rail infrastructure assets, we can help support your design services across all stages of your project lifecycle. Our qualified and experienced engineering team have provided turnkey as well as purely design-based projects. With a knowledgeable team, we are able to provide solutions to fit your requirements.

Cutting Edge Technical Information

Treadwell has a LEAN manufacturing facility, approximately 4000m² under one roof. Our automated CNC equipment, including state-of-the-art 90,000 PSI waterjet cutting system and beam line ensure minimal material wastage, and as such, eliminates excessive costs. Our internal design engineering department is able to provide design expertise and sign off engineering in all states of Australia (RPEQ and NT certified), and an on-site Quality Assurance team to perform the necessary checks.





With our well-established partnerships with logistics partners across Oceania, complemented by our own fleet of trucks and trailers in Australia, we are able to deliver your projects across the region efficiently and effectively on time and in full.



Bespoke & Specialised Projects -Our Process Explained

COMPLEX TURNKEY PROJECTS

Shipping is undertaken upon completion and our team follows through with you to ensure seamless delivery.

Treadwell receives an enquiry from you, our customer.

Final detailing and production commence following sign-off or approval of submitted design.



An initial consultation is arranged with our specialists to qualify your requirements and establish solution options.

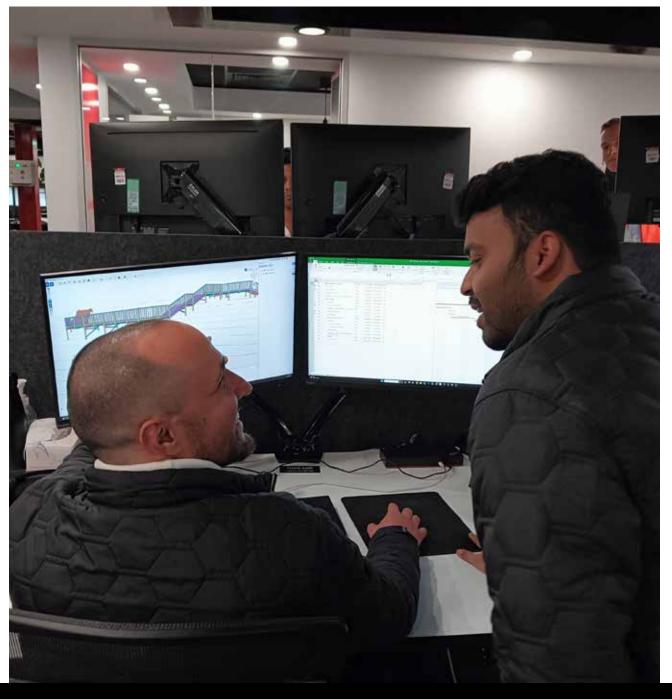
Upon acceptance of our quotation, design and engineering commences and modelling and general assembly drawings developed.

A budget quotation is developed by Treadwell and presented.



Why Choose Treadwell?

- Our team of engineers are available to support your design requirements by providing technical expertise and specifications.
- Our products are tested and meet relevant compliant codes where required. 2
- We offer solutions based on practical calculations and data, providing the optimum products for your 3 application.
- We are an established name in Australia for providing durable and dependable GRP solutions.



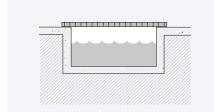




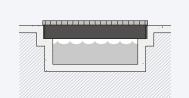
What are EcoEX[®] SureLine® GRP Odour **Control Covers?**

EcoEX[™] odour control covers are an engineered solution designed for containing odours, particulate and corrosive gases over tanks and equipment. EcoEX™ offers two odour control panel styles - our SureLine® & SureLine® HD customisable odour control cover systems which are manufactured from premium grade fibreglass resins of your choice or as advised by our engineering assistants. Our customised tank covers contain the odours emitting from the water mass. The volatile organic compounds (VOCs) that cause the foul smells are halted with the SureLine® covers which result in an effective odour control system.

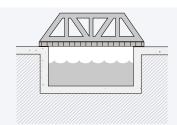








Flat, Beam-supported



Flat, Truss-supported







SureLine® Tank Covers

SureLine® covers are used in many wastewater and sewage treatment applications the globe over.

SureLine® odour control cover systems is a lightweight custom extruded interlocking panel system that can be designed, engineered and fabricated to suit the specifics of your application. SureLine® can be designed as a load-bearing platform solution, enabling operators to safely reach covered areas. The SureLine® system can also be designed as a non-trafficable odour control cover system, meeting AS1170 requirements. SureLine® is a lighter solution to that of its stronger counterpart, SureLine® HD, and is ideal for lighter smaller span tanks.

SureLine® odour control cover systems also offer a range of inspection hatches, maintenance hatches and full access hatches with safety grates installed. Covers can be manufactured in whole sections or available as an option in certain sizes to suit specific requirements. SureLine® covers may be designed to incorporate take off points and access where required.

SureLine® covers are sealed systems designed to contain odours and/or operate in conjunction with scrubber systems that draw the trapped gases off and treat them to eliminate odour, offering a 99.9% capture rate.

Our offerings for SureLine® come in the form of:

- SureLine®
- SureLine® MD (Medium Duty)
- SureLine® HD (Heavy Duty)

Applications		
Inlet Works & Grit Covers	Chlorine Contact Basins	
Clarifiers	Filtrate Storage Tanks	
Aeration & Equalisation	Chemical Process Tanks	
Sedimentation	Balance Tanks	
Sludge & Gravity Thickeners		





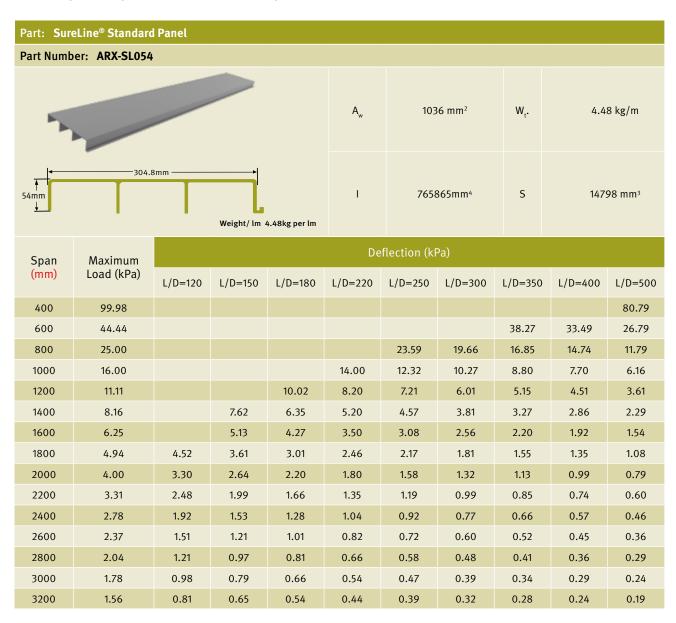


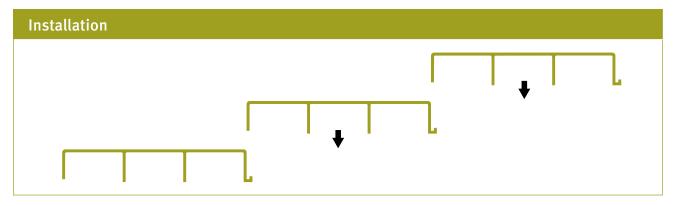
SureLine® & various hatch types. Queensland, Australia.



SureLine®

SureLine® covers are light weight, low profile odour control covers designed for smaller inlet works and provide a range of other applications. EcoEX™ SureLine® systems are easy to install and extremely lightweight with easy to add additional penetrations onsite. SureLine® tank cover systems are ideal for channels, odd-shaped basins, or covers with numerous penetrations where VOCs are present. SureLine® system components include SureLine® GRP panels, GRP beams, access hatches and stainless steel hardware.





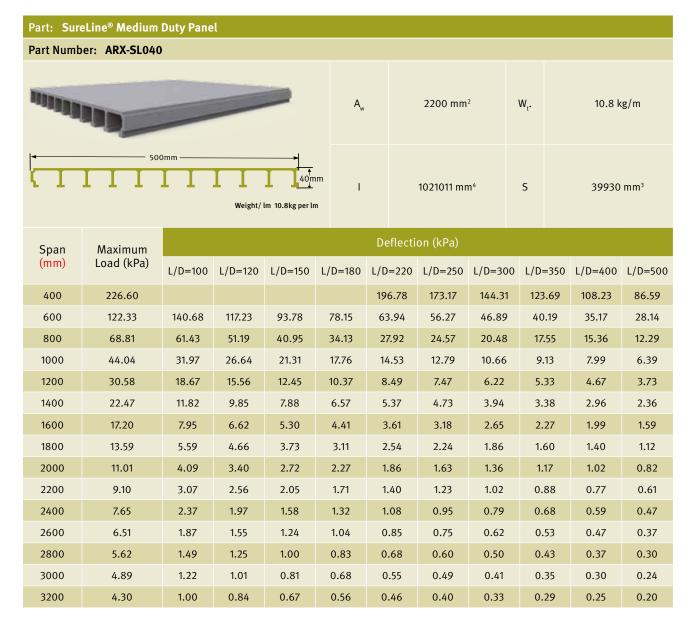


SureLine® MD

SureLine® MD is an immensely versatile profile which combines lightweight and inherent strength to provide a durable product typically provided with an anti-slip surface and in customisable range of colours to suit the specifics of your application. SureLine® MD is designed to withstand loads to enable operators to safely reach covered areas as well as a non-trafficable odour control cover system.

MD or Medium Duty constructions make this cover a flexible intermediate alternative to meet the intermediate loading requirements.

SureLine® MD outperforms with an impressive strength to weight ratio to produce a composite cover that is strong, durable, corrosion resistant and boasts extremely low maintenance.







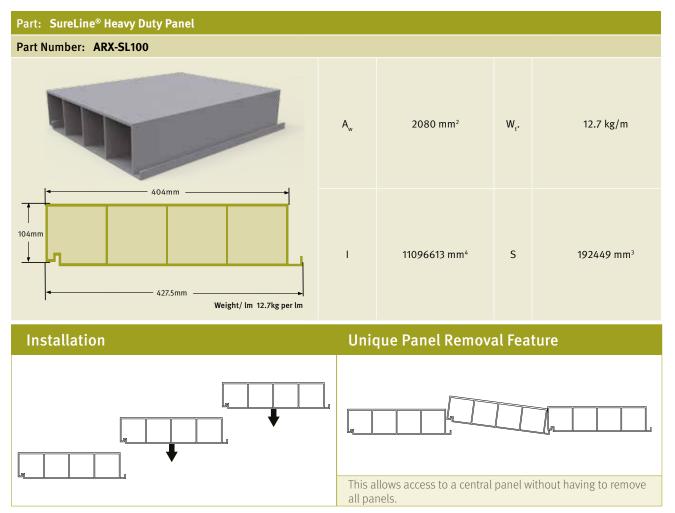
SureLine® HD

The SureLine® odour control tank cover system is comprised of an GRP interlocking panel system that can be designed, engineered and fabricated to suit the specifics of your application. SureLine® HD can be designed as a load-bearing platform solution enabling operators to safely reach covered areas. The Sureline® HD system can also be designed as a non-trafficable odour control cover system, meeting AS1170 requirements.

HD or Heavy Duty constructions means that the cover can accommodate various loading requirements and meet a broad range of local and environmental requirements. Handrails can be accommodated if required and mounted directly off the cover.

SureLine® HD odour control cover systems also offer a range of inspection hatches, maintenance hatches and full access hatches with safety grates or grilles installed.

SureLine® HD are sealed systems designed to contain odours and/or operate in conjunction with scrubber systems that draw the trapped gases off and treat them to eliminate odour.





Please consult our EcoEX™ Odour Control Product Guide for more information.





What is EcoEX[®] SureLine[®] GRP Baffle Walls?

In-line with our offerings for odour control, Treadwell offers a premium solution to control flow in related applications with our multifunctional SureLine® range.

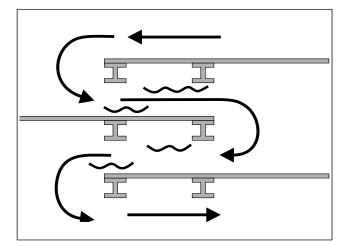
SureLine® fibreglass baffle walls are an effective solution to meet requirements in potable water and wastewater treatment flow control. SureLine® GRP baffle and partition walls compose of high grade fibreglass panels, angles and framing sections, engineered to your specifications. All SureLine® fibreglass baffle walls are certified AS 4020 for processing potable water.



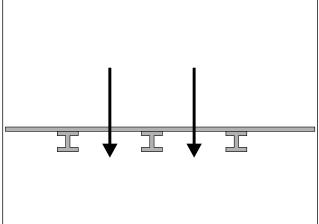
Ideal for New or Retrofit Basins

SureLine® GRP baffle walls are a proven solution for both new and existing basins. These panels can withstand corrosion, unlike traditional materials, and are more cost effective. Being lightweight means quick and easy installation. Maintenance is also lessened as they can be taken down easily for cleaning and other purposes.

Design Versatility and Flexibility







Partition to separate zones or enhance mixing.

Benefits of SureLine® Baffle Walls			
1	Easy to install	3	Easy to remove scum
2	Relatively maintenance free	4	Light weight



Case Study – NSW Sewage Treatment Plant



PROJECT INFORMATION		
Project Category:	Water Treatment Plant	
Scope of Work:	Design and supply of baffle walls	
Treadwell Products:	EcoEX™ GRP Baffle Walls ArchitEX™ GRP Structural Profiles	

Our client in New South Wales prides themselves on managing the environment and the health of their waterways towards high quality living in the state. They supply water, wastewater, recycled water and stormwater services to over 5 million people in Greater Sydney and the Illawarra.

One of their existing treatment plants required the baffle walls to be upgraded to help manage the flow of wastewater.

Treadwell was engaged to engineer, design and supply the GRP baffle wall solution for this sewage treatment plant.





Treadwell's Solution:



Treadwell's EcoEX™ GRP baffle walls are constructed from premium European resin systems, providing superior service life over traditional materials.



EcoEX[™] GRP baffle walls are paired with Treadwell's ArchitEX[™] structural beams to provide a complete GRP solution.



Treadwell's GRP baffle walls are interlocking deck boards that eliminate gaps between boards, allowing for a secure seal.



EcoEX™ GRP baffle walls are built to withstand repeated cyclic loading conditions and fluid dynamic pressures.



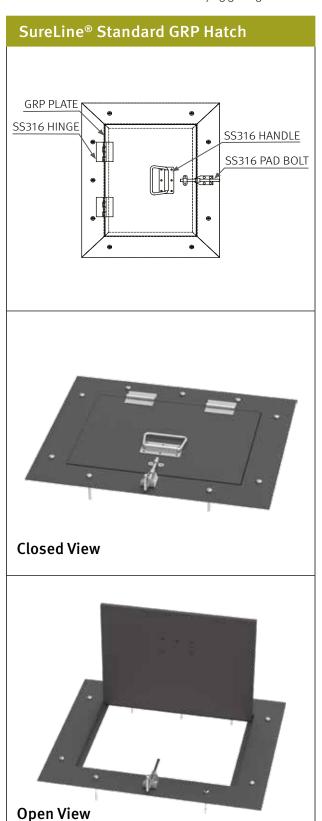
These panels and beams are corrosion resistant and are cost effective, providing lower lifetime costs.



Given the nature of GRP, any system utilising it is virtually maintenance free, keeping maintenance costs to a minimum.

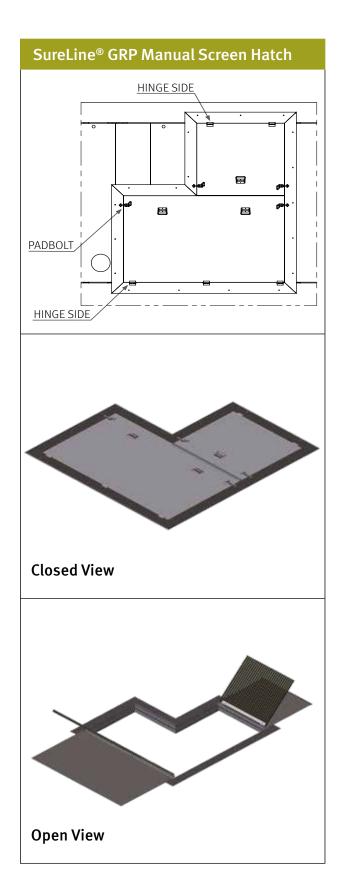


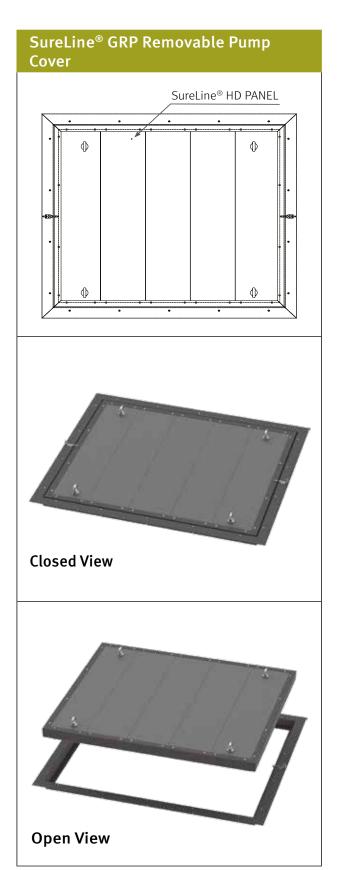
 $EcoEX^{TM}$ Odour Control Covers can also be customised to include load bearing access hatches. With a diverse range of hinges and handles, these can also be installed with an underlying grating cover for added safety, or as the application requires.













Case Study – Wanganui Sewage Treatment Plant



PROJECT INFORMATION		
Project Category:	Water Infrastructure	
Scope of Work:	Design & supply odour control cover system	
Treadwell Products:	EcoEX™ SureLine® Heavy Duty panels	

The Wanganui wastewater treatment plant in New Zealand needed to be upgraded with a solution that was robust and could capture the odour produced from the plant. As a part of this upgrade, Treadwell worked closely with the mechanical contractor, builder and council to deliver an odour control cover solution using Treadwell's EcoEX™ SureLine® HD system. In addition to containing corrosive gases, this project was designed to bear loads allowing safe access across the covers.





Treadwell's Solution:



Treadwell's high performance EcoEX™ SureLine® HD panels are manufactured from premium grade, corrosion-resistant fibreglass resins.



The panels for this project were designed and customised to meet live load requirements.



GRP is simply fabricated and modified on site. This means there is no need for any hot works permit.



Being lightweight and easy to install, GRP is very manageable during construction.



Given the nature of GRP, any system utilising it is virtually maintenance free, thus keeping maintenance costs as low as possible.



Case Study - Cedar Grove Wastewater Treatment Plant



PROJECT INFORMATION		
Project Category:	Wastewater Treatment Plant	
Scope of Work:	Supply EcoEX™ GRP Odour Control Tank Covers	
Treadwell Products:	EcoEX™ SureLine® Heavy Duty Panels and Hatches	

This wastewater treatment plant is Queensland's first environmentally sustainable facility. Designed to treat wastewater to the highest standards, this plant will provide five times the benefits when compared to any other typical wastewater treatment plant in Australia. This plant will produce ultra-low nutrient effluent using a biological treatment process and constructed wetlands to 'polish' the effluent. Additionally, there is a program to replant and rehabilitate sections of the river banks upstream of the plant to prevent tonnes of nutrientladen sediment from entering the waterway.

Treadwell was engaged to supply the EcoEX™ GRP odour control panels for the water treatment tanks.





Treadwell's Solution:



EcoEX™ SureLine® HD covers are manufactured from premium quality resins with reinforced membranes that contain odours.



SureLine® HD odour control panels can incorporate a range of inspection hatches, full hatches with safety grates, as well as maintenance hatches.



These SureLine® HD panels are sturdy enough to have handrails installed to provide enhanced safety for the user.



GRP is simply fabricated and modified on site. This means that any variance on task is easily accommodated.

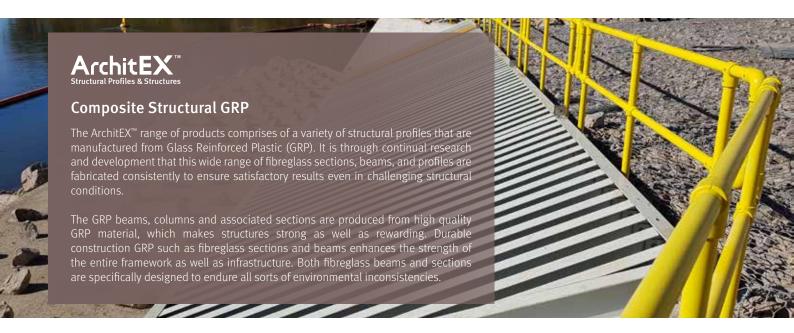


Being lightweight and easy to install, GRP is very manageable during construction.



Given the nature of GRP, any system utilising it is virtually maintenance free, keeping maintenance costs to a minimum.





Scope of Shapes

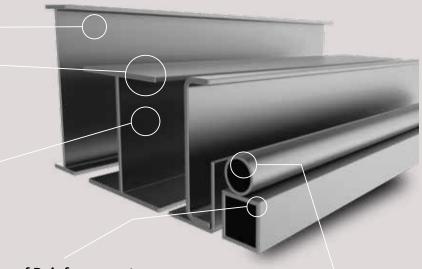
Easy integration to various parts due to the capability to essentially shape any item with a constant cross section which can be pultruded.

Composite Design Engineering

A standard shape customised into a pultrusion by modifying the resin or reinforcement to achieve a particular customer need.

Optimising Resins

Standard resins can be modified or special resins can be used to maximise performance of the pultrusion in challenging environments, such as those found in high temperature or extremely corrosive areas. Typical resins include polyesters, vinylesters, PVC, epoxies, phenolics, urethanes and blends.



Choice of Reinforcements

The type, form, placement and quantity of reinforcements can be customised to optimise economy, develop ascribed strength and create or enhance other physical characteristics of a pultruded part. Typical reinforcements used include glass or carbon fibres in multifilament strands, mat (long fibres held together with a resinous binder) or stitched fabrics.

Core Materials Options

Treadwell provides a range of core material options with comprehensive experience in pultruding over various materials including foam, balsa, polyethylene and aluminium.

Structural Design & Analysis

Our experienced team of engineers and designers can help conceptualise your design and maximise all GRP structural components to offer the most cost effective and simplest solution.





ArchitEX™ GRP Profiles

ArchitEX™ Range			
C Channel	I-Beam	WF-Beam	
	I		
Double Web Beam	Unequal Leg Angle	Equal Leg Angle	
Square Hollow Section	Rectangular Hollow Section	Circular Hollow Section	
Circular Round Bar	Solid Bars	Embedment Angle	

Please consult our ArchitEX™ Product Guide for more information.





Case Study – Water Tank Roof Support



PROJECT INFORMATION		
Project Category:	Water Tank Infrastructure	
Scope of Work:	Supply GRP Roof Structural Beams	
Treadwell Products:	ArchitEX™ GRP Double Web Beams	

Victor Harbour, South Australia – This water tank had to be upgraded as part of maintenance efforts. Treadwell's specially designed double web beams were specified for this upgrade.





Treadwell's Solution:



ArchitEX™ GRP Double Web Beams were specified for this application for its high weight loading capacity.



Being an 'I' type design, fasteners are sheltered within the edges of the profile. This minimises the risk of maintenance divers' gear getting tangled up in protruding fasteners.



Treadwell's GRP products are constructed from premium quality resins with corrosion-resistant properties.





What is EX-Series Industrial Composite Solutions?

A designed composite structural and access solution featuring a combination of our GRP products.

These access structures are easily installed in elevated, remote, indoor or outdoor locations, and possess corrosion resistant and low electrical conductivity properties.





Fixed Staircases

An GRP solution featuring a combination of ArchitEX™ structural profiles, EX-Series® grating and stair treads, and RailEX® handrails. Built to withstand corrosive indoor and outdoor environments.



These can be customised to the span required for its purpose. Being naturally non-conductive and long-lasting solution for chemically sensitive environments.



Stair systems can be trial assembled in the Treadwell factory, before being partly dismantled and packed into modules. This allows for minimal downtime for the site, and quick installation.

Customised Structures

GRP is lightweight with a high strength to weight ratio, compared to traditional materials. treadwell's design and engineering team is able to design structures fit for purpose.







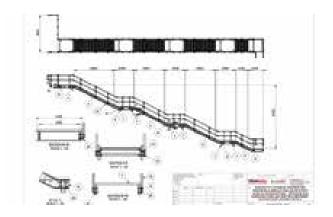


Case Study – Reservoir Access Staircase



PROJECT INFORMATION		
Project Category:	Water storage facility	
Scope of Work:	Supply EX-Series® GRP Solution	
Treadwell Products:	EX-Series® GratEX® GRP Square Mesh Grating EX-Series® RailEX® ROUND GRP Handrails ArchitEX™ GRP Structural Profiles	

In 2015, Treadwell was contracted to carry out supply for works for the replacement of the entire roof over the water supply to ensure that it is completely water proof to prevent contamination of the potable water supply. The works also included the installation of access stairs into the reservoir to improve safe access. This was particularly important for when a polyethylene liner is installed in the future.





Treadwell's Solution:



Extremely durable EX-Series® range (EX-Series® GratEX® Square Mesh Grating and RailEX® ROUND Handrail) engineered and manufactured to comply to AS1657-2013.



The comprehensive range of ArchitEX™ GRP Structural Profiles allows for efficient design providing a lightweight structure making installation straightforward.



GRP is simply fabricated and modified on site this means there is no need for any hot works permit.



Being lightweight and easy to install, GRP is very manageable during construction.



Given the nature of GRP, any system utilising it is virtually maintenance free, thus keeping maintenance costs as low as possible.



Case Study – Maribyrnong River Bridge Pipe Support



PROJECT INFORMATION		
Project Category:	Pipe support beams	
Scope of Work:	Design, engineer and supply GRP products	
Treadwell Products:	ArchitEX™ GRP Structural Profiles and flat plates	

A Melbourne water main needed to be added to the truss structure of a bridge over the Maribyrnong river. To facilitate this, GRP support beams were installed onto the existing truss structure to hold a heavy steel pipe.





Treadwell's Solution:



Highly durable ArchitEX™ GRP structural profiles were customised to the required length.



Quick turnaround was needed, and stock was readily available.



The beams were designed and engineered to support the heavy steel pipe.



The support beams needed to be positioned into place without a crane or heavy machinery. Being lightweight, GRP allows for positioning by hand.



Fully engineered and certified by Treadwell to provide peace of mind.



Case Study - Cardinia Fluoride Dosing Plant



PROJECT INFORMATION		
Project Category:	Water Treatment Plant	
Scope of Work:	Allow elevated decking to accommodate safe access to equipment.	
Treadwell Products:	EX-Series® GratEX® GRP Square Mesh Grating EX-Series® Colossus EX-Series® RailEX® ROUND GRP Handrail ArchitEX™ GRP Structural Profiles	

A major producer of potable water, this crucial water treatment plant in Victoria disinfects water by using chlorine to kill potentially harmful micro-organisms and maintain public health. The water is also fluoridated and corrected for pH.

To ensure longevity of their internal structure, Treadwell was tasked with providing a solution that would allow for easy access to instruments as well as provide for levelled flooring. Downtime had to be kept to a minimum. The structure be robust, durable and able to withstand constant exposure to minerals and chemicals.





Treadwell's Solution:



Corrosion resistant EX-Series® GratEX® GRP grating panels are manufactured from premium grade resin systems and were specified over traditional materials to be the decking of choice.



EX-Series® Colossus offers flexibility in height and is able to carry heavy loads. Ideal to support the GratEX® grating panels.



ArchitEX™ GRP Structural Profiles and RailEX® ROUND GRP handrails, including staircases, were the solution of choice.



GRP is simply fabricated and modified on site. This means there is no need for any hot works permit.



Being lightweight and easy to install, GRP is very manageable during construction.



Given the nature of GRP, any system utilising it is virtually maintenance free, keeping maintenance costs to a minimum.



Case Study – Sewage Transfer Hub



PROJECT INFORMATION		
Project Category:	Sewage Treatment Plant	
Scope of Work:	Supply EcoEX™ GRP Odour Control Tank Covers	
Treadwell Products:	ArchitEX™ GRP Structural Profiles EcoEX™ SureLine® HD (Heavy Duty) Panels and Hatches Associated fasteners and support brackets	

This sewage plant located in Victoria, required additional infrastructure to accommodate the growing population in Melbourne's northern suburbs. This would include new above-ground tanks and a new sewage pump station, which would improve their capacity to collect, store and transfer sewage flows. An innovative planning and design process was undertaken that would allow this plant to grow as needed to match development, and resulted in a saving of over \$100 million through this alternative solution.

Treadwell was engaged to supply the GRP odour control solution as part of this project.





Treadwell's Solution:



EcoEX™ SureLine® HD covers are manufactured from premium quality resins with reinforced membranes that contain odours.



EcoEX™ GRP Odour Control Covers are constructed in a way that allows easy removal of panels whenever access is required.



The panels for this project were designed to be anti-slip and customised to meet load requirements.



ArchitEX[™] GRP Structural Profiles and EcoEX[™] panels are made from specially formulated resins to withstand corrosion.



Lightweight and boasting minimal maintenance requirements, EcoEX™ made for an easy decision.



Case Study - Wagga Wagga Water Treatment Plant



PROJECT INFORMATION	
Project Category:	Water Infrastructure
Scope of Work:	Supply of GRP products
Treadwell Products:	ArchitEX™ GRP Structural Profiles EX-Series® RailEX® ROUND GRP Handrails EX-Series® GratEX® GRP Square Mesh Grating

Originally formed in the 1930s, this water treatment plant was incorporated to make reticulated water available to towns and villages in the area.

Over the years, more localities were added. Water supply was established with the Murrumbidgee River with a network of treatment, pumping, storage and pipework installations.

To support expansion plans, a new plant was built. As part of the new plant, a trash screen needed to be installed to prevent debris from the river going into the pipes. Decking was also installed in the chemical bund for potential leaks.





Treadwell's Solution:

Treadwell's GRP products are constructed from premium resins that that include corrosion resistant properties and UV inhibitors.



Treadwell's ArchitEX™ GRP Structural Profiles can be customised to suit the application.



EX-Series® RailEX® ROUND GRP handrails are the choice alternative to metallic handrails and offers electrical transparency while being non-conductive in nature.



EX-Series® GratEX® GRP Square Mesh grating allows for maximum flow through of excess chemicals.



What is EX-Series RailEX ROUND GRP Handrail?

Treadwell's RailEX® ROUND Tubular Handrail is an industrial rated composite handrail system which combines strength, durability and versatility meaning the system is ideal for use in numerous applications in a vast range of industries. Treadwell can supply RailEX® as either components or as fabricated handrail panels ready for installation.

Smart Transposable Designs

Unlike traditionally welded alternatives, Treadwell GRP handrail system disposes the need for drafting, engineering and onsite fabrication while minimising installation costs. Treadwell's safety handrail systems can be adapted or extended with additional components, or cut to size onsite. Pre-engineered kits are supplied as a series of components with simple assembly instructions. With our clients in mind, Treadwell aims to minimise the cost of maintenance and repairs, and damaged components easily with readily available parts and stock.

Simple Zero Weld Assembly

As an added benefit, fibreglass handrail kits are assembled using a simple, zero weld construction method; reducing the chances for corrosion activation. Treadwell's RailEX® designs and fittings effectively eliminate the need for specialist trades, hot works permits, fire spotters and welding protection to finished surfaces. Our selection of GRP increases safety conditions for installers by eliminating toxic fumes, welding in wet areas and fire risk hazards.

Developed by Treadwell with the input of designers, and plan operators, this system offers you all benefits of traditional guardrail systems without the inherent problems - corrosion, welding and hot works permits for onsite modifications. This unique system is a first to be tested and conform with Australian Standards AS 1657. RailEX® is the 'Fit & Forget' handrail system.







Materials of Construction

RailEX® GRP handrail is constructed from fibreglass rovings combined with a blend of thermosetting resin systems. All of the resins used in the production of EX-Series® products contain UV inhibitors and fire retardant additives.



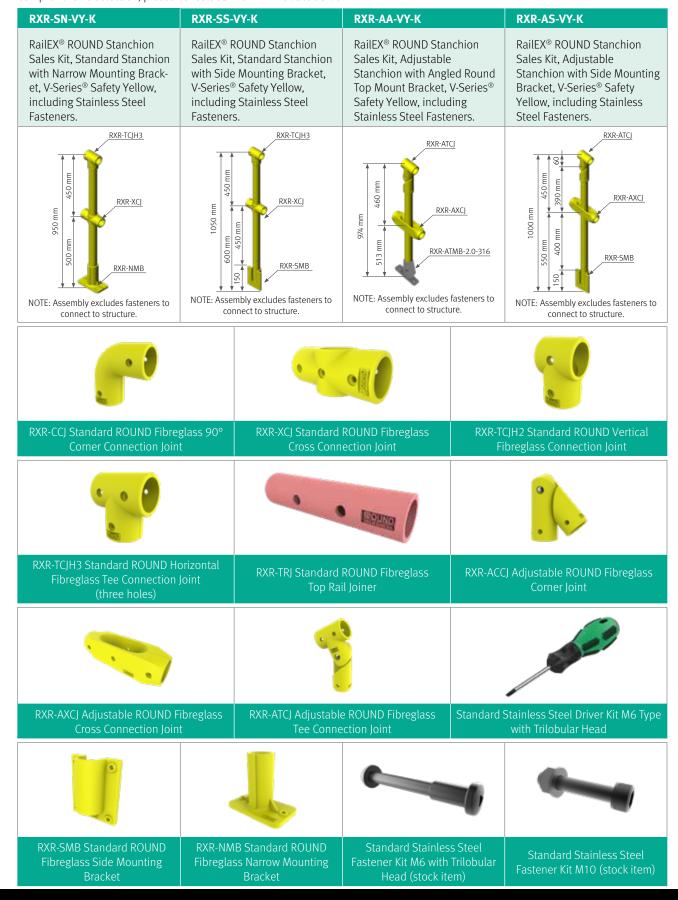


Please consult our RailEX® Product Guide for more information.



RailEX® ROUND Stanchion Kits & Handrail Parts

Treadwell has created options of RailEX® handrail stanchion kits. This ensures that all the required parts are included, making for easy planning and installation. Please note that the list below is just a selection of our most popular handrail assemblies. For a more comprehensive selection, please consult our RailEX® Product Guide .





Case Study - Nelson Wastewater Treatment Plant



PROJECT INFORMATION	
Project Category:	Wastewater Treatment Plant
Scope of Work:	Supply GRP handrails
Treadwell Products:	EX-Series® RailEX® ROUND GRP handrails

Our client operates and maintains this wastewater treatment plant in the Nelson region of New Zealand. Experts in their field, our client manages the routine maintenance of all plant and equipment and are responsible for all operations. They also manage vegetation and pest control, and general exterior building maintenance.

The existing handrails had corroded. The new handrails needed to be able to withstand the outdoor conditions as well as the general environment typical of a wastewater treatment plant. The new handrail parts had to be readily available in the event repairs or replacements needed to be made.

Treadwell was engaged to provide these new handrails.





Treadwell's Solution:



Treadwell's EX-Series® RailEX® ROUND GRP Handrails are constructed with UV inhibitors. This allows it to be used outdoors, without compromising on structural integrity.



EX-Series® RailEX® ROUND GRP Handrails have a protective coat which protects fibres from damaging hands, and delamination.



 $\ensuremath{\mathsf{GRP}}$ is non-conductive in nature, this makes it resistant to stray electrical currents.



Treadwell's large stockholdings allow for quick supply of parts for any part replacement, if required.





What is EX-Series Ladders?

LadderEX® is the superior alternative to metallic ladders and cage systems, providing excellent corrosion resistance and electrical transparency. Even in complete immersion applications, Treadwell's fibreglass ladders have outlasted aluminium and steel, and required little or no maintenance.

Our products in this range are made from superior fibreglass which offers unparalleled advantages, leaving behind alternatives that are metal or steel based. Our ladders and ladder cage systems are produced using a premium grade polyester resin system with flame retardant and ultraviolet (UV) inhibitor additives. A vinylester resin system is available upon request for additional corrosion resistance. Standard side rails and cages are in safety yellow. The rungs are a pultruded fibreglass polyester tube with a fluted, non-skid surface.

 $Ladder EX^0 fibreglass\ ladder\ systems\ are\ fabricated\ and\ designed\ with\ GRP\ according\ to\ AS\ 1657-2018.$ The pultruded parts are produced with a fire retardant polyester resin which meets the ASTM E-84 test for flame spread of 25 or less and contains a UV inhibitor. The colour is in standard OSHA safety yellow though colour matching can be provided.

Ladders are shop assembled and may be pre-drilled and prepared for field attachment with standoff clips and/ or base brackets systems.

The LadderEX $^{\odot}$ product range can easily be integrated into any existing platform or structure. It can come in a variety of configurations to suit any purpose as well.

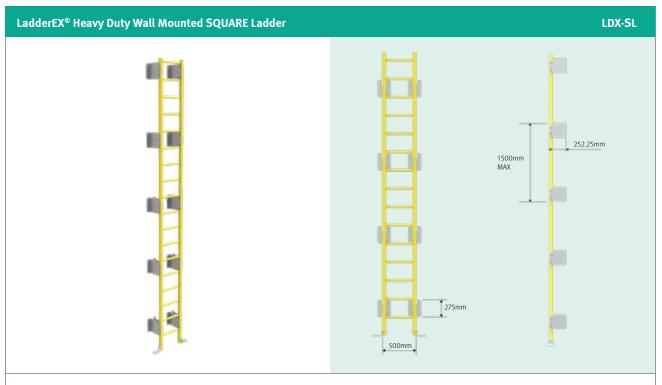


Brief: In instances where there is a requirement for extra security above 15m, Treadwell can supply standard access ladders without returns with a round grab stile.



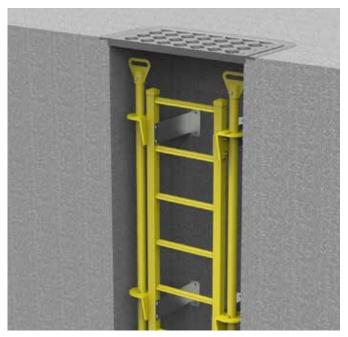
Please consult our LadderEX® Product Guide for more information.





For industrial and other heavy duty purposes, Treadwell supplies a more durable and robust heavy duty wall mount and floor mounts (if required) for that added safety





What are LadderEX® Retract-A-Stiles?

LadderEX® Retract-A-Stiles offer convenience, flexibility, and enhanced safety, especially in confined spaces. Constructed from corrosion-resistant GRP, they require minimal maintenance. Easy to install, they ensure safety at heights with ergonomically designed handles for superior grip and robust fixing brackets for strength and versatility.

LadderEX® components are modular, allowing numerous ladder and access configurations to meet specific site requirements. We can easily integrate your needs into any Retract-A-Stile design.

To comply with AS 1657 standards, ladders must be at least 1700mm long, with stiles extending at least 1000mm above the top landing. The gap between ground level and the first rung should be no less than 90% of the spacing between other rungs.

While Treadwell strives to ensure compliance with AS 1657, bespoke solutions may sometimes result in non-compliant products. In these cases, client approval to proceed is considered consent to supply non-compliant goods or services.



What are Ladder EX° Safety Cages?

The side rails, rungs and cage straps are manufactured from pultruded fibreglass reinforced components which can be found in Treadwell's RailEX® componentry. The side rails are either 50mm round or square tube with a wall thickness of 4mm or greater. The rungs shall be pultruded 32mm across the GRP fluted tube.

Cage hoops are constructed by the open mould hand layup process with a width of 76mm and thickness of 6mm minimum at the top and bottom and 50mm x 6mm at the intermediate hoops. The cage shall be interconnected with 50mm x 4.8mm pultruded straps spaced 230mm on centre around the hoop.



Ladder EX® Safety Cage Options Overview





Case Study – Safety Ladders for Milk Plant



PROJECT INFORMATION		
Project Category:	Safe access for staff	
Scope of Work:	Supply of LadderEX® ladders and safety cages.	
Treadwell Products:	EX-Series® LadderEX® GRP Ladders & Ladder Cages	

Our client undertook a complete mechanical plant design for a milk plant in New South Wales. This included three large tanks with top access safety platforms; this was to allow for easy installation and removal of large aerator mixers. Their design included ladders and ladder cages to provide safety to personnel using the roof mounted manhole access. These ladders also needed to be lockable to prevent non-permitted access.

Treadwell was engaged to provide the GRP ladders and ladder cages.





Treadwell's Solution:



EX-Series® LadderEX® is the choice alternative to metallic ladders and cage systems, providing superior corrosion resistance and electrical transparency.



EX-Series® LadderEX® ladders and cages are produced using a premium grade resin system with flame retardant and ultraviolet inhibitor additives.



For added safety, the ladder rungs are designed to be non-skid.



GRP is simply fabricated and modified on site. This means there is no need for any hot works permit.



Being lightweight and easy to install, GRP is very manageable during construction.





What is EX-Series® **GRP Grating?**

Treadwell's GratEX® moulded GRP grating is a high strength, single piece construction mesh panel product. Treadwell offers both standard panel sizes as well as the option of custom panels made to order from your drawings, or alternatively, drawings provided by Treadwell's drafting department.

Cost effective GratEX® panels allow for effective on-site fabrication/trimming whilst ensuring that wastage is minimised. Load bearing bars in both directions allow for use without continuous side support and so contribute to cost effectiveness. GratEX® offers all the benefits available with grating made from other materials plus a host of superior benefits unequalled by steel or other metal alternatives.



GratEX® Surface Options

Anti-Slip Surface (Standard). This surface is most **Concave Surface.** This is preferred for environments does not impact load carrying capacity.

commonly used in industrial applications. It is very where by-products are commonly caught by hard wearing and boasts an extremely effective serrations, and is hence very often utilised by the coefficient of friction (NATA laboratory test report food industry. This surface option can also be used available). Unlike serrated steel, the anti-slip surface for guarding options to allow safe handling/contact.

Plain Surface. This is a stock option that is widely utilised for guarding and architectural features in a variety of applications. Whilst the aesthetics of the product are improved, the anti-slip properties are not as profound as the other options available.









Treadwell EX-Series® GRP **Grating**

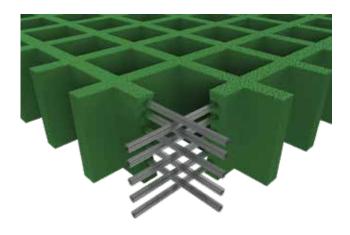
Treadwell EX-Series® Glass Reinforced Plastic (GRP) grating products are recommended for areas where physical properties are paramount to design and longevity. Treadwell offers an extensive range of GRP grating products, two of which are highly utilised in the rail industry. There are key differences to take note of. The information below outlines the key differences and the ideal scenarios in which the different types of grating are to be utilised.

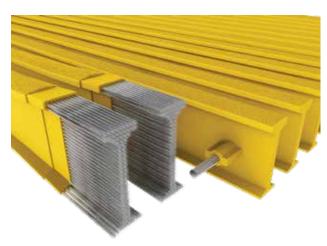
GratEX® Moulded GRP Grating

The perfect solution for areas where excessive amounts of penetrations (i.e. for piping) call for traditional uni-directional spanning products. This greatly increases the costs when using traditional materials, like steel. GRP grating maintains strength and integrity even with multiple penetration cut outs, while keeping costs low.

GridEX® Pultruded GRP **Grating**

The ultimate choice for areas where extremely high loadings, or larger spans present a challenge. Such applications include wide walkways, or where equipment needs to be installed on top of grating.





Please consult our EX-Series® Grating Product Guide for more information.





Case Study – Sale Water Treatment Plant

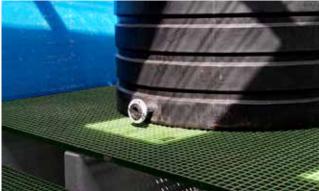


PROJECT INFORMATION		
Project Category:	Water Treatment Plant	
Scope of Work:	Supply GRP grating and stair treads	
Treadwell Products:	EX-Series® GratEX® GRP Square Mesh Grating and stair treads	

This water treatment plant supplies fresh, clean drinking water to over 70,000 customers and waste water services to more than 63,000 customers in Victoria. A major water supplier, they manage an infrastructure network consisting of 15 water treatment plants, as well as an extensive network of water and sewer mains and wastewater treatment plants. As part of upgrading works to more efficiently supply and conserve water, new pipelines and pump stations were constructed.

Treadwell was engaged to supply the grating and stair treads for this upgrade.





Treadwell's Solution:



Treadwell's team of certified engineers are skilled in ensuring grating deflection always meets the relevant compliance codes and industry standards.

2

Treadwell has ample stockholdings to ensure timely completion of projects.

3

GratEX® GRP stair treads and decking panels are easily customised to requirements.

4

GRP is simply fabricated and modified on site. This means there is no need for any hot works permit.



Being lightweight and easy to install, GRP is very manageable during construction.







What is SecurEX° Fencing & Screening Solutions?

Treadwell's SecurEX® solution consists of our signature GRP grating panels and ArchitEX™ structural profiles. Constructed from premium resin systems, Treadwell's GRP fencing and screening solutions are ideal across a diverse range of industries. Designed with anti-climb features, along with security benefits like low conductivity and addressing safety concerns, SecurEX® can be fitted with razor hoops and barbwires for added security, to give you added peace of mind.

Design Life

Minimum 50 years design life in case proven and also accelerated UV testing to ASTM G154-06.

Suitability

Our analysis shows that the capacities of the GRP members used for fence system are adequate to support shear and bending.

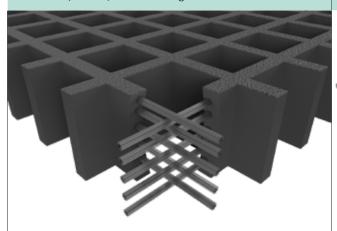
Deflection Note

The deflection at mid-height under serviceability wind condition is 90mm. The deflection limit recommended by Table C1 of AS/NZS 1170.0 for wall elements (Walls- General (face loaded)) is Height/150 at mid-height under serviceability wind conditions. This is equal to 25mm. The fence structure would deflect for a short time at the highest wind gust only.



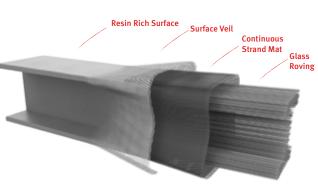


SecurEX® (GratEX®) GRP Screening Mesh



Screening is constructed using this method of manufacturing.

SecurEX[®] (ArchitEX[™]) GRP Pultrusions



Palisade pickets posts & rails are all constructed using a pultrusion process.



Case Study - Fencing & Screening



PROJECT INFORMATION		
Project Category:	Utilities Infrastructure	
Scope of Work:	Supply GRP Solution	
Treadwell Products:	SecurEX® GRP Fence Systems EX-Series® GratEX® GRP Grating ArchitEX™ GRP Structural Profiles	

Treadwell's SecurEX® GRP Fencing System is suited for a wide range of industries where security fencing and screening are required. SecurEX® GRP Fencing System is non-conductive and non-corrosive, making it suitable for highly corrosive environments.

Treadwell's composite fencing solution is the perfect choice due to the adaptable designs. Easily bolted down or embedded, it can be fabricated to suit any requirement. Based on the required quantities and specifications, the resin system is easily adapted to meet requirements. The ease of installation, along with incredibly low maintenance, makes SecurEX® GRP Fencing an ideal choice.





Treadwell's Solution:

Treadwell's GRP products and systems are customisable to project requirements.

Fencing can be mesh grating or palisade style depending on application.

Wind loading factors are taken in consideration when recommending type of fence system.

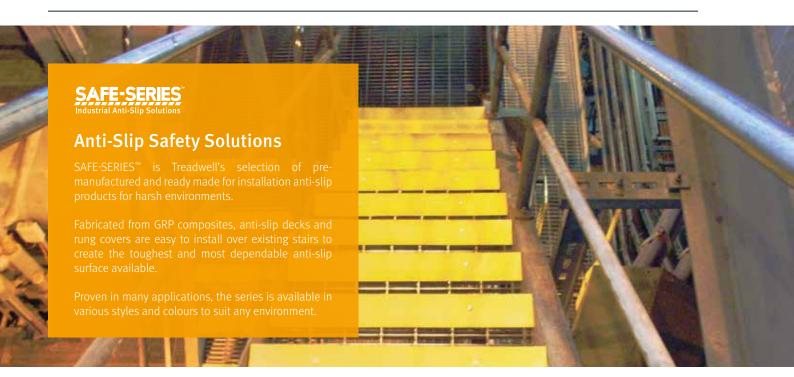
Treadwell's GRP products and systems are termite proof, corrosion resistant, radio frequency transparent, and long lasting making this the ideal choice.

GRP is simply fabricated and modified on site. This means there is no need for any hot works permit.

Being lightweight and easy to install, GRP is very manageable during construction.









StairSAFE™

Long wearing, anti-corrosive, nonslip nosing designed to re-profile the leading edge of any step are the characteristics of StairSAFE™.



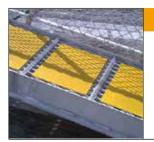
RungSAFE™

The abrasive grit surface eliminates the very high possibility of slips from access ladders, avoiding serious ramifications. The surface, while ideal for the negation of slip issues, has been developed so as not to damage bare skin.



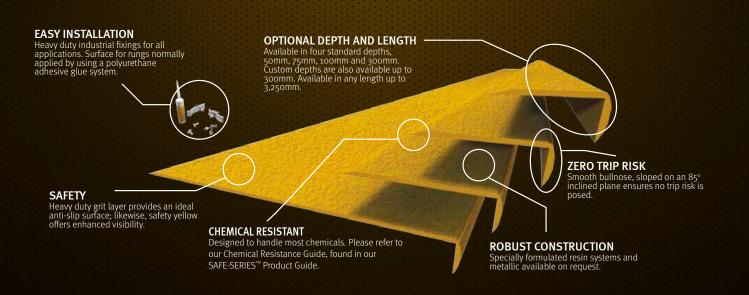
CableSAFE™

CableSAFE™ creates a safe walkway over exposed pipes, cables, wires and conduit. With a durable anti-slip surface, CableSAFE™ provides a safety bridge for foot traffic over these areas, avoiding slips, trips and falls.



DeckSAFE™

DeckSAFE™ is the ultimate solution for slippery ramps, decks, catwalks and landings. Designed to reduce the risk of slips, trips and falls in areas where oil, water and other forms of liquids are present, DeckSAFE™ greatly reduces risks.





Case Study – Point Fairy Domestic Water Reclamation Plant



PROJECT INFORMATION		
Project Category:	Stairnosing retrofit	
Scope of Work:	Supply GRP products	
Treadwell Products:	StairSAFR® GRP Stair Nosing	

This water reclamation plant provides sewage treatment services to residential and business customers. Using an Intermittently Decanted Extended Aeration (IDEA) process, sewage goes through four one-hour treatment cycles. The four cycles include two stages of aeration, settling and decanting the treated water from the surface of the tank. Treated water then travels through a UV disinfection process, which assists in eliminating harmful bacteria. Clear water is then released to the ocean.

Treadwell was engaged to supply the GRP stair nosing for the plant's staircases.





Treadwell's Solution:



StairSAFE® GRP stair nosings are available in a range of depths and sizes, allowing for optimal fit to steps.



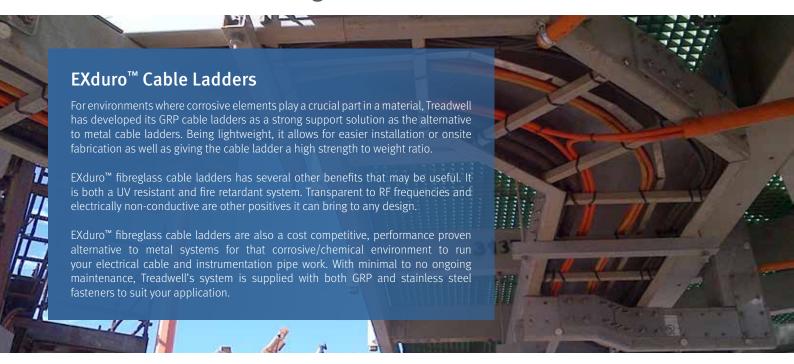
Grit is impregnated into the stair nose surface, this means that the surface is long-wearing and will withstand heavy foot traffic.

Please consult our SAFE-SERIES™ Product Guide for more information.

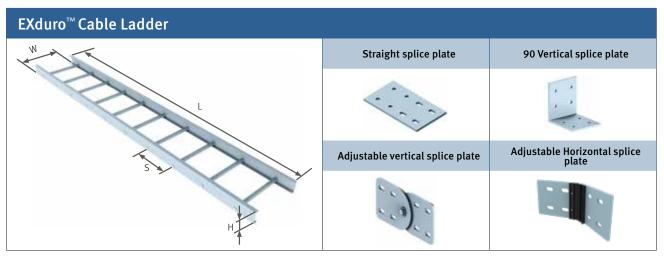




EXduro™ GRP Cable Management Products



F-EXD-CL-C(H)(W)-(R)(S)-(RS)(C)-(L)						
Side Rail Height (H)	Width (W)	Rung Type (RT)	Rung Spacing (S)	Resin (RS)	Colour (C)	Length (L)
50mm (050)	150mm (150)	Standard Rung (S)	150mm (150)	Standard Polyester (SI)	Light Grey (LG)	3m (1) N
75mm (075)	300mm (300)	Marine Rung (M)	250mm (250)	Standard Vinylester (SV)	Custom Colour (CC)	6m (2) C
100mm (100)	450mm (450)		300mm (300)	Conductive Polyester (CI)		
150mm (150)	600mm (600)		450mm (450)	Conductive Vinylester (CV)		
200mm (200)	750mm(750)			Halogen free Polyester (HI)		
	900mm (900)			Halogen free Vinylester (HV)		
				Halogen free Low Smoke Plus (HF)		



Cable Ladder Splice Plates

Our splice plates are available in both horizontal and vertical degree sections. We also offer the accompanying accessories separately. We construct both flat and peaked covers. These plates are non-conductive and do not react on electric and magnetic fields.



Case Study – Desalination Plant Instrument Stand



PROJECT INFORMATION		
Project Category:	Desalination Plant	
Scope of Work:	Provide customised instrument stands	
Treadwell Products:	EXduro™ GRP Instrument Stands	

Our client was one of the designated subcontractors for the design, development, implementation, testing and commissioning of a desalination plant in Australia. This was part of an expansion project that would double the capacity of the existing plant.

As per the plans, this new infrastructure would be integrated to the existing operations. This called for instrument stands, among other improvements, to be installed. Treadwell was engaged to provide the GRP solution to address these requirements.





Treadwell's Solution:



EXduro™ instrument stands do not rust even in constant exposure to various oxidising conditions.



EXduro™ instrument stand posts were customised to fit the application.



GRP is simply fabricated and modified on site. This means there is no need for any hot works permit.



Being lightweight and easy to install, GRP is very manageable during construction.







Our Partners





























































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