

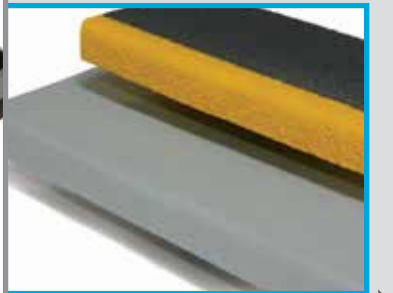
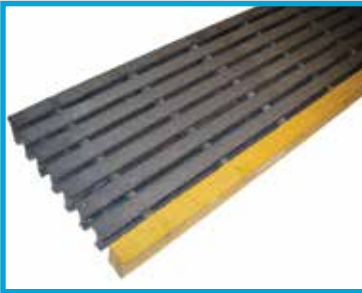
Fiberglass Stair Solutions

SI Units

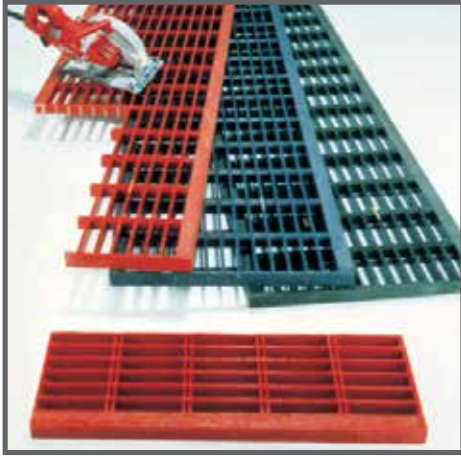


Building the World to Last™

HIGH PERFORMANCE COMPOSITE SOLUTIONS



Stair Solutions - Molded Stair Treads



Fibergrate provides several slip and corrosion resistant products for your stairway safety needs. Our complete stair solution line includes panels in a one-piece molded configuration or assembled pultruded configuration for new or replacement steps; covered stair treads to replace deteriorating concrete steps; or stair tread covers designed to add slip and corrosion resistance to existing metal, concrete or wood steps. All Fibergrate stair treads are engineered to exceed OSHA and other model building code standards for safety, strength, durability and corrosion resistance. Fibergrate offers a wide range of fabrication services from cutting treads to desired lengths to turnkey options including drafting, engineering and fabrication of entire stairways. Contact Fibergrate for information on spans greater than 1067mm.

Fibertred® Panels

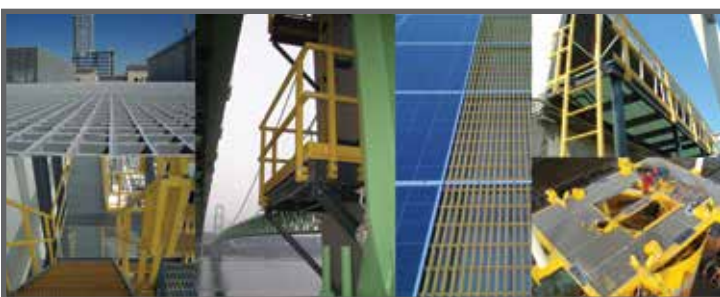


Fibertred stair treads are available in the same high performance resin formulations as Fibergrate grating. Unique cutting channels spaced at 152mm intervals provide efficient utilization when custom fitting treads into stairways. These channels also ensure that all standard stair tread widths are terminated with closed ends. Up to five 610mm wide stair treads can be cut from each side of a single panel. A 38mm wide gritted strip is molded in on both sides of the panel for superior slip resistance.

Standard Fibertred® Panel

Depth	Mesh	Panel Size	Weight	Open Area
38mm	38mm x 152mm	565mm x 3048mm	27 kg	67%
38mm	38mm x 152mm	641mm x 3658mm	37 kg	67%

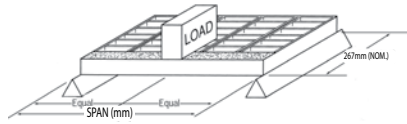
Fibergrate Markets



- Architectural
- Bridge & Highway
- Chemical
- Commercial
- Food & Beverage
- Manufacturing
- Metals & Mining
- Microelectronics
- Oil & Gas
- Pharmaceutical
- Power
- Pulp & Paper
- Recreation
- Telecommunications
- Transportation
- Water & Wastewater

Stair Solutions - Molded Stair Treads

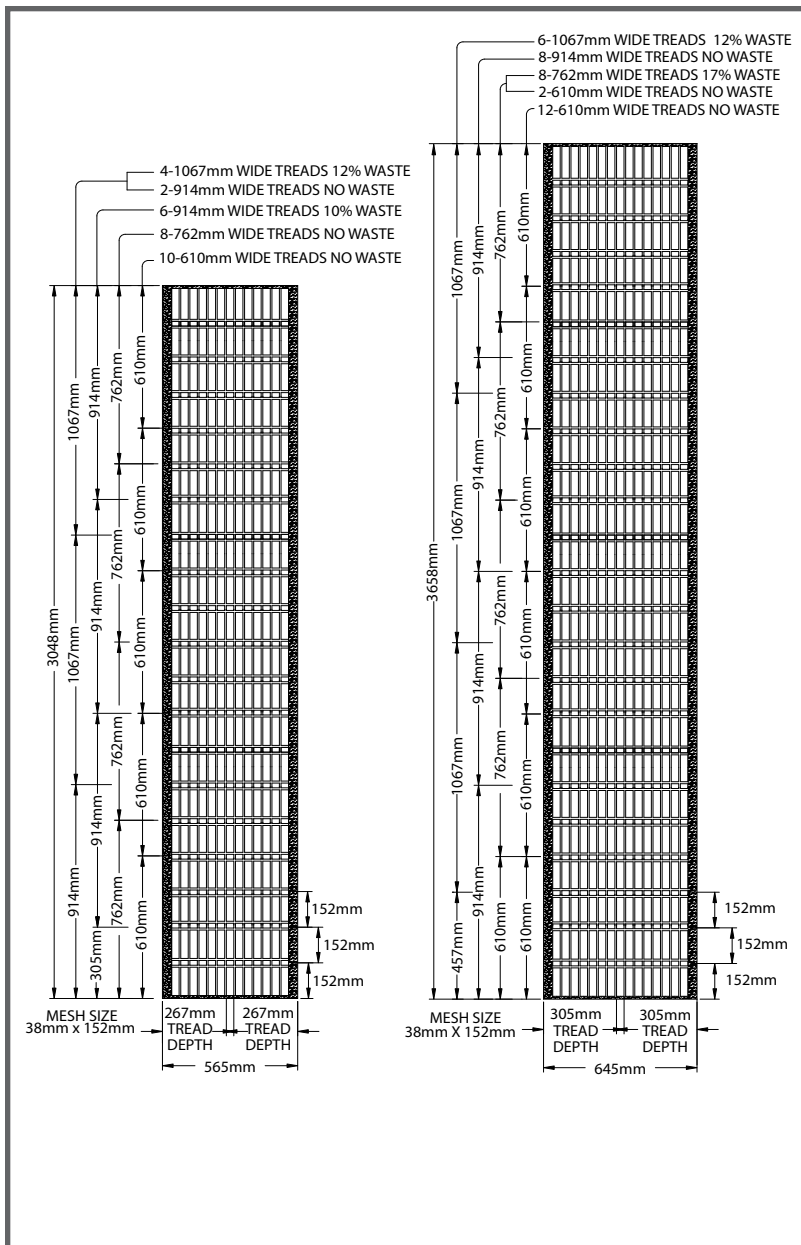
Fibertred® Load Table



Load (kN)	Span (in)	600	800	1000	1200
	Span/150	4.0	5.3	6.7	8.0
1		1.1	2.4	4.7	8.8
2		2.2	5.0	9.5	---

NOTES:

1. It is suggested that stair tread deflections be limited to Span/150. Deflections based on this ratio are at the top of the table.
2. Deflections in the body of the table are for concentrated loads of both 1 kN and 2 kN. A concentrated load is applied at the centerline of the tread, over a width of 102mm and a depth of 152mm, starting at the nosing edge to simulate the landing of a foot.
3. Stair treads with square mesh or for longer spans are available by custom order. Please contact Fibergrete for more information.



This all FRP stairway is located at a private residence in the Pebble Beach community in California. The stairway leads from the front yard of the home to the private beach below.



The stairway above utilizes Fibertred molded stair treads to provide tank access at a pumping station.

Stair Solutions - Covered Stair Treads

Fibergrate® Covered Stair Treads

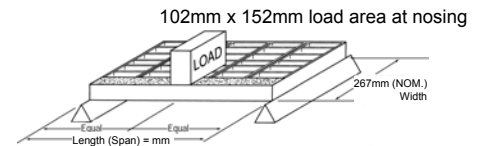


Designed as an alternative to the heavy, high-maintenance concrete or slippery metal steps, covered stair treads are designed for institutional/commercial and industrial applications where slip resistance, aesthetics and low maintenance are important considerations. Covered stair treads come standard in the Corvex® resin system and are light gray in color. Other resins and colors are also available; contact sales for information. The integrally applied grit top is available in two surface textures that provide slip resistance. The lighter standard grit is suitable for barefoot traffic while a coarser grit option is used for industrial applications. These solid, impact resistant covers

can also accommodate high heel shoes. Covered stair treads can perform well in many corrosive environments including salt, continuous moisture and constant cleaning. The weight of the tread is eighty percent lighter than that of a precast concrete step and can be easily fabricated and installed with simple wood working tools. Covered stair treads come in 3.7m lengths that are designed to be cut and installed on-site with a circular saw and an abrasive masonry blade. Common uses are motels, universities, commercial office parks, aquatic and amusement parks, or any other location where outdoor stairs are present.

Standard Panels/Load Table

Depth	Panel Size	Weight
41mm	270mm x 3.7m	23 kg
41mm	311mm x 3.7m	27 kg
54mm	260mm x 3.7m	26 kg
54mm	311mm x 3.7m	31 kg



Tread Type (Depth x Width)	Load (kN)	Span (mm)				
		800 L/D=150	1000	1200	1400	
41mm x 270mm	1	2.3	4.3	9.0	--	
	2	3.7	9.7	--	--	
41mm x 311mm	1	1.8	3.3	6.2	--	
	2	3.5	6.8	11.5	--	
54mm x 270mm	1	1.0	1.7	3.0	4.8	
	2	2.0	3.6	6.1	9.4	
54mm x 311mm	1	0.8	1.5	2.6	4.2	
	2	1.4	3.1	5.3	8.0	

Optional Hidden Hold Down System

Contact your local Fibergrate salesperson for more information. Visit www.fibergrate.com or call us at 800-527-4043.



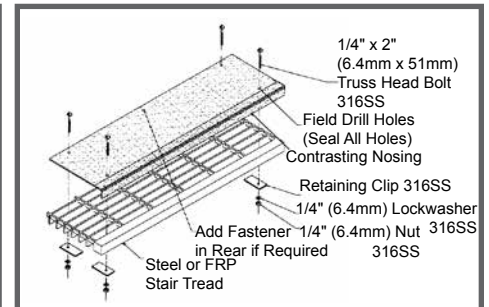
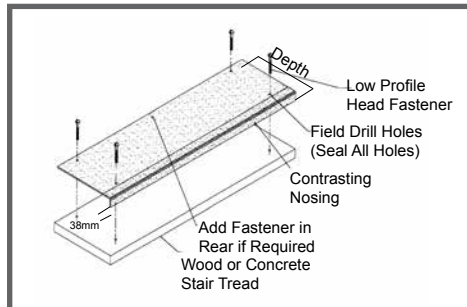
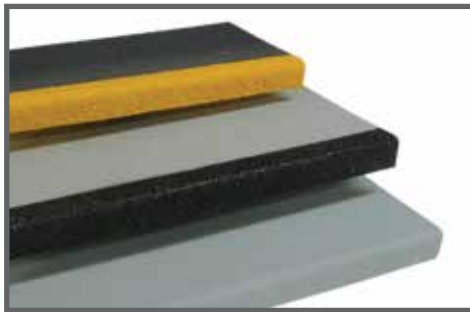
Covered stair treads, with hidden hold down clips, lead to a water slide at a municipal waterpark in Oklahoma.

Stair Solutions - Stair Tread Covers

Fiberplate® Stair Tread Covers

Fiberplate® stair tread covers are a convenient way to provide solid, slip resistant footing for existing treads that are still structurally sound. Stair tread covers may be installed over wood, concrete or metal steps. Standard color is dark gray with a highly visible safety yellow nosing for industrial applications and light gray for architectural applications.

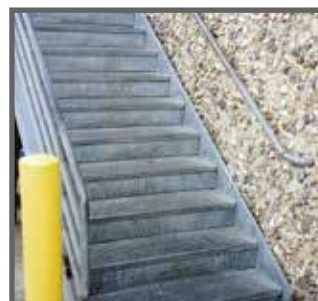
An integral aluminum oxide grit-top surface provides secure footing for maximum safety and a highly durable tread. Reinforced with a woven glass mat for durability and impact resistance, these tread covers come in 203mm, 229mm, 254mm, 279mm and 305mm depths. The standard thickness is 3.2mm with 6.4mm thick covers available for heavy duty applications. Standard 3.7m panels are easily cut to size during installation, or are available pre-cut to custom lengths.



Phosphorescent Nosing

Fiberplate stair tread covers can be ordered with a special phosphorescent coating for the nosing area, causing it to glow even after the primary light source has been removed. The special nosing is perfect in stairways which serve as emergency exits during power outages, outdoor access ways where lighting is periodically dimmed as in arenas and concert halls, or as a safety measure for nighttime operation in outdoor applications such as on passenger ships. This special nosing has been tested in accordance with ISO/TC 8/SC 1 N. Ships and Marine Technology — Low Location Lighting on Passenger Ships. The standard color for tread covers with phosphorescent coating is yellow.

Fiberplate stair tread covers were used over existing aluminum stairs at a UPS facility in Dallas, Texas. The original stairs were worn and unsafe. In addition, the stairway was not well lit, making it potentially hazardous when used by workers at night. The grit-top surface of Fiberplate tread covers provided slip resistance and the yellow nosing on the treads made them more visible at night, making it safe for workers.



Before



After

Stair Solutions - Pultruded Stair Treads

Safe-T-Span® Pultruded Industrial/Pedestrian Stair Treads



Slip resistant and non conductive, Safe-T-Span pultruded stair treads offer the same level of safety, strength and corrosion resistance as other Fibergrate pultruded fiberglass products. Designed for use in industrial applications where wider support spans are required, Safe-T-Span pultruded stair treads are available in 25mm and 38mm depths in an I bar configuration with 40% and 60% open areas for most applications. A 51mm depth T bar configuration, with either a 33% or 50% open area, is also available for applications requiring wider spans or lower deflections.

Safe-T-Span pultruded pedestrian stair treads are available in 25mm and 38mm depths in a T bar configuration, with 12%, 25% and 38% open areas. The application shown here utilizes Safe-T-Span pultruded industrial stair treads. These are used in conjunction with Dynarail® handrail and Dynaform® structure to construct a stairway leading from the ocean, up the rocky side of a cliff, to a research center located on Farallon Island, off the San Francisco coast.

Industrial Stair Tread Load/Deflection Information

TREAD TYPE	Load (kN)	SPAN (mm)	500	600	800	1000	1200
		SPAN/150	3.3	4.0	5.3	6.7	8.0
25mm Deep, I6010	1		0.5	1.8	4.3	6.9	9.5
	2		1.0	3.5	8.7	--	--
38mm Deep, I6015	1		< 0.3	0.5	1.2	1.9	2.6
	2		< 0.3	0.9	2.4	3.8	5.2
51mm Deep, T5020	1		< 0.3	0.4	0.9	1.3	1.8
	2		0.4	0.8	1.8	2.7	3.6
25mm Deep, I4010	1		< 0.3	1.2	3.1	4.9	6.8
	2		0.7	2.6	6.2	9.9	--
38mm Deep, I4015	1		< 0.3	0.3	0.8	1.3	1.8
	2		< 0.3	0.7	1.6	2.5	3.4
51mm Deep, T3320	1		< 0.3	< 0.3	0.7	1.0	1.4
	2		< 0.3	0.6	1.3	2.0	2.7

NOTES:

1. It is suggested that stair tread deflection be limited to SPAN/150. Deflections based on this ratio are provided at the top of the table.
2. Deflection in the body of the table are for concentrated loads of both 1 kN and 2 kN. A concentrated load is applied at the center of the tread, over a width of 102mm and a length of 152mm, starting at the nosing edge to simulate the landing of a foot.
3. Deflections are not appreciably different due to stair tread depth. Actual depth will vary depending on stair tread configuration.

Pultruded Treads & Accessories

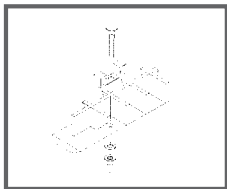
Pedestrian Stair Tread Load/Deflection Information

TREAD TYPE	Load (kN)	SPAN (mm)	500	600	800	1000	1200
		SPAN/150	3.3	4.0	5.3	6.7	8.0
25mm Deep, T1210	1		1.5	2.8	5.4	8.0	10.5
	2		3.1	4.9	8.7	12.4	--
38mm Deep, T1215	1		1.1	1.5	2.3	3.1	3.9
	2		1.8	2.6	4.3	5.9	7.6
25mm Deep, T2510	1		1.3	2.7	5.5	8.3	11.1
	2		3.0	5.1	9.3	--	--
38mm Deep, T2515	1		0.9	1.4	2.3	3.2	4.1
	2		1.5	2.4	4.1	5.9	7.7
25mm Deep, T3810	1		1.8	3.3	6.4	9.5	12.6
	2		3.1	5.6	10.5	--	--
38mm Deep, T3815	1		1.5	2.8	5.4	8.0	10.5
	2		3.1	4.9	8.7	12.4	--

NOTES:

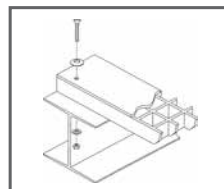
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2. Deflection in the body of the table are for concentrated loads of both 1 kN and 2 kN. A concentrated load is applied at the center of the tread, over a width of 102mm and a length of 152mm, starting at the nosing edge to simulate the landing of a foot.
3. Deflections are not appreciably different due to stair tread depth. Actual depth will vary depending on stair tread configuration.

Clip Assemblies for Stair Solutions Products



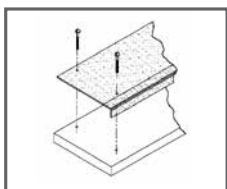
TYPE M HOLD DOWN CLIPS:

Secure open mesh treads to a support using two adjacent grating bars for a secure fit. Similar in design to metal grating saddle clips.

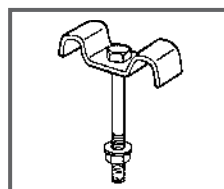


TYPE WLP STRUCTURAL CLIPS:

Secure covered treads to a structure or stair tread covers to an existing stair tread.



TYPE H (TRUSS HEAD) STRUCTURAL CLIPS: Secure stair tread covers to an existing stair tread.

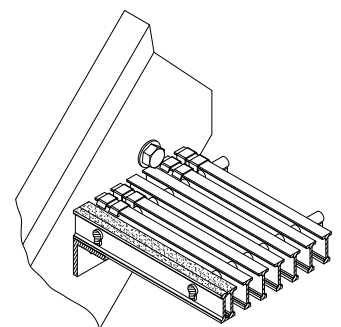


TYPE M HOLD DOWN CLIP ASSEMBLIES FOR PULTRUDED STAIR TREADS: MI40 for I4010 and I4015 treads, MI60 for I6010 and I6015 treads, MT5020 for T5020 treads, MT3320 for T3320 treads.

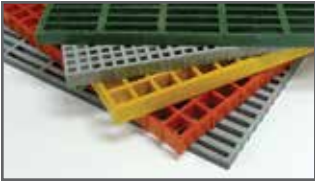
Stair Tread Installation Note

All load carrying bars of both molded and pultruded stair treads (especially the nosing bar of the tread) must be fully supported at its ends to be considered properly installed.

To maintain corrosion resistance and structural integrity, all cut ends must be sealed with Fibergrate's sealing/coating spray and bonding kit.



Fibergrate Products & Services



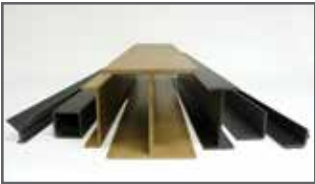
Fibergrate® Molded Grating

Fibergrate molded gratings are designed to provide the ultimate in reliable performance, even in the most demanding conditions. Fibergrate offers the widest selection in the market with multiple resins and more than twenty grating configurations available in many panel sizes and surfaces.



Safe-T-Span® Pultruded Industrial & Pedestrian Gratings

Combining corrosion resistance, long-life and low maintenance, Safe-T-Span® provides unidirectional strength for industrial and pedestrian pultruded grating applications.



Dynaform® Structural Shapes

Fibergrate offers a wide range of pultruded structural components for industrial and commercial use, including I-beams, wide flange beams, round and square tubes, bars, rods, channels, leg angles, plate and custom shapes.



Dynarail® & DynaRound™ Guardrail, Handrail & Ladder

Easily assembled from durable components or engineered and prefabricated to your specifications, Dynarail square tube and DynaRound round tube railing systems and Dynarail safety ladder systems meet or exceed OSHA and strict building code requirements for safety and design.



Custom Composite Solutions

Combining Fibergrate's design, manufacturing and fabrication services allows Fibergrate to offer custom composite solutions to meet our client's specific requirements. Either through unique pultruded profiles or custom open molding, Fibergrate can help bring your vision to reality.



Design & Fabrication Services

Combining engineering expertise with an understanding of fiberglass applications, Fibergrate provides turnkey design and fabrication of fiberglass structures, including platforms, catwalks, stairways, railings and equipment support structures.



Worldwide Sales & Distribution Network

Whether a customer requires a platform in a mine in South Africa to grating on an oil rig in the North Sea, or walkways in a Wisconsin cheese plant to handrails at a water treatment facility in Brazil; Fibergrate has sales and service locations throughout the world to meet the needs and exceed the expectations of any customer.

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