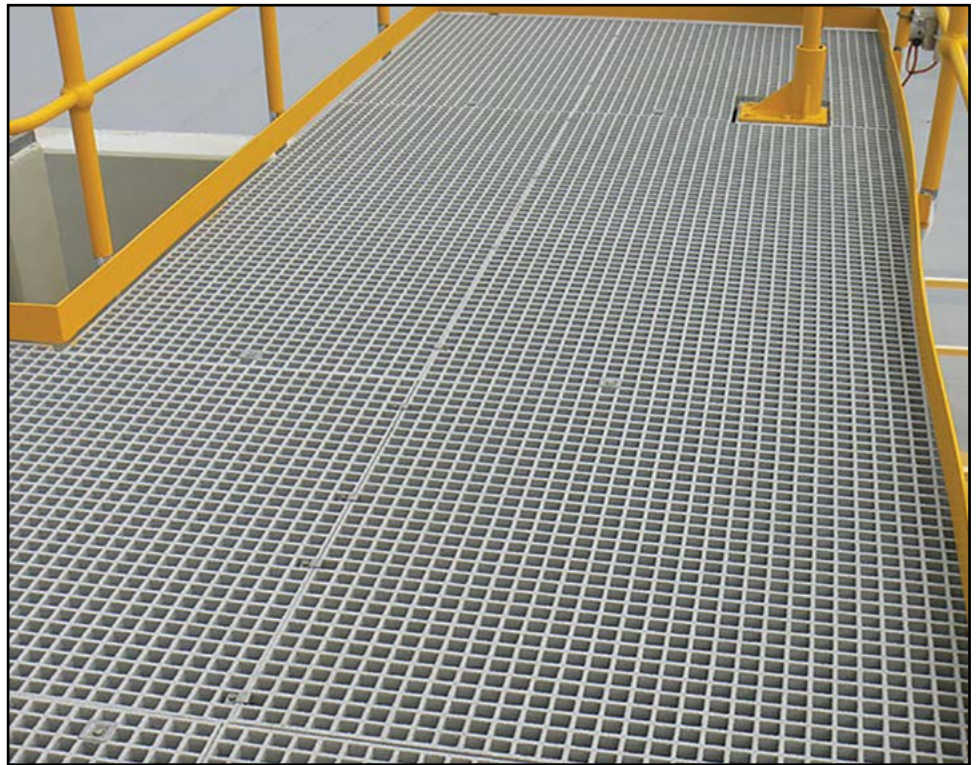
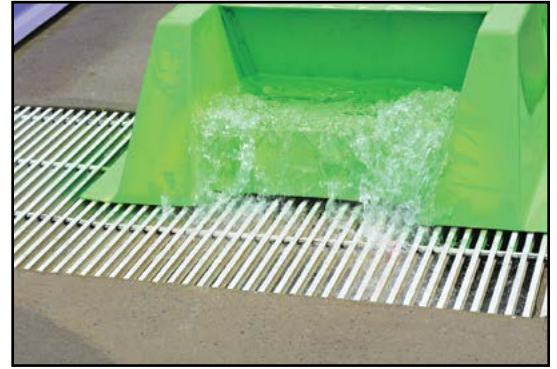


Fiberglass Grating Applications



Fiberglass Grating Products

MOLDED FIBERGLASS GRATING

Molded fiberglass grating is a fiberglass-reinforced plastic (FRP) that combines fiberglass rovings with thermosetting resins to form a strong, one-piece molded panel. A 65%/35% resin to glass weight ratio provides high corrosion resistance. Meniscus surfaces, or applied grit surfaces provide slip resistance when compared to other flooring products. This product is better suited for corrosive environments.

PULTRUDED FIBERGLASS GRATING

Pultruded fiberglass grating is made using premium grade isophthalic polyester, vinyl ester or phenolic resin systems with a synthetic surfacing veil, making it corrosion resistant, lightweight, and durable. Pultruded fiberglass has a grit surface for safety, and a greater strength to weight ratio than molded fiberglass grating. A 35%/65% resin to glass ratio provides greater strength and less corrosion resistance than molded fiberglass. This product is better suited for longer spans.

FIBERGLASS COVERED GRATING

Our fiberglass covered grating is a long-lasting, molded fiberglass floor product that combines smooth, gritted or checker plate and molded grating manufactured with any of our resin systems. It is the ideal choice when a 100% covered flooring surface is needed. Our fiberglass covered grating is often used in loading and storage areas with high foot and cart traffic, where a strong, level surface is ideal. It offers approximately 50% higher stiffness values than that of open mesh grating, and its standard grit-top cover assures secure footing.

BULLET RESISTANT FIBERGLASS PLATE

Our bullet resistant fiberglass plate offers superior ballistic resistance at a weight less than 25% that of a comparable steel panel. Now available for commercial security applications for your business, home or governmental facility, these fiberglass panels offer ballistic resistant security with the additional performance advantages of durability, corrosion resistance, electrical non-conductivity, low thermal conductivity and light weight.

HEAVY DUTY FIBERGLASS GRATING

Our heavy duty fiberglass grating is available in both molded and pultruded grating systems. Both are designed to carry forklift and tractor-trailer loads that traditional molded and pultruded FRP grating products are not designed to support. Heavy duty fiberglass grating provides greater durability for higher volume traffic areas as well. Additionally, heavy duty fiberglass grating can be used to free span longer distances than traditional fiberglass grating

FIBERGLASS STAIR TREADS & STAIR TREAD COVERS

Lightweight and easy to install, fiberglass stair treads are available in both molded and pultruded types, to match the fiberglass floor grating platforms. Fiberglass stair tread covers are made from a molded glass and resin system that is corrosion and impact resistant, fire retardant, and non-conductive. They provide a cost effective, slip-resistant, protective surface for concrete, metal and wood steps.

FIBERGLASS GRATING HANDRAILS AND LADDERS

Fiberglass handrail systems are fabricated from pultruded fiberglass components and molded thermoplastic connectors. Our modular fiberglass grating handrail systems are available in 2" square or 2" round configurations that are easy to grip, making them ideal for any high traffic area. Our fiberglass ladders and cages can be installed in a variety of applications, from sumps to tanks, buildings, piers, portable equipment, etc., providing years of strength and dependability.

FIBERGLASS ATTACHMENTS AND CLIPS

Our fiberglass grating attachments and clips are specially designed to secure fiberglass grating or plates to the supporting structures. Additionally, they are used to fasten together adjacent grating panels, which minimizes load-induced differential deflection. All fiberglass attachments and clips are made of Type 316 stainless steel, and are available in 1", 1-1/2" and 2" sizes.

FIBERGLASS PLATES

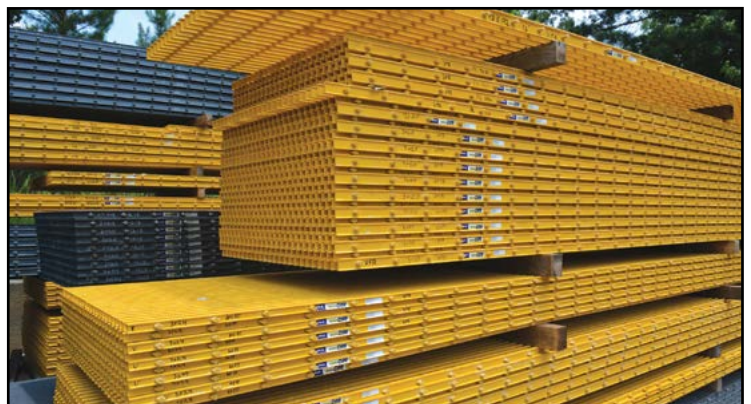
Fiberglass plates feature a non-conductive surface that makes them an economical and safe solution to walking surfaces. In caustic and/or acidic conditions, fiberglass plates provide a level of corrosion resistance that is unequalled and more cost effective than stainless steel. Fiberglass plate is available with a non-grit surface, or with a grit surface where anti-slip traction is needed.

FIBERGLASS STRUCTURAL SHAPES

Our fiberglass structural shapes and pultruded fiberglass profiles are made from a combination of fiberglass and thermosetting resin systems. All shapes are lightweight, impact resistant, low maintenance, non-magnetic, low conductive, and have dimensional stability, making them easy to install and ideal for several applications. Custom shapes are available upon request.

CUSTOM MATCHED COLORS AVAILABLE

Will match to any RAL color.



Our Pultruded Grating Inventory

Fiberglass Grating Resin Systems

To meet the needs of your unique application requirements, our molded fiberglass grating is available in these resin systems:

IFR-10

Premium isophthalic polyester resin with a fire retardant class 1 flame spread rating of 10 or less per ASTM - E84. Provides a very good level of corrosion resistance for industrial applications, and is extra fire retardant.

IFR-25

Premium isophthalic polyester resin with a fire retardant class 1 flame spread rating of 25 or less per ASTM - E84. Provides a very good level of chemical resistance for industrial applications, and is fire retardant. Available in dark gray, green, and yellow.

VFR-10

Premium vinyl ester resin with a fire retardant class 1 flame spread rating of 10 or less per ASTM - E84. Provides an excellent level of corrosion resistance and fire retardant. Available in dark gray and orange.

VFR-25

Premium vinyl ester resin with a fire retardant class 1 flame spread rating of 25 or less per ASTM - E84. Provides an excellent level of corrosion resistance and enhanced fire retardant. Available in dark gray and orange.

OFR-25

Orthophthalic polyester resin with a fire retardant class 1 flame spread rating of 25 or less per ASTM - E84. Provides moderate corrosion resistance and fire retardant. Perfect for use in water/wastewater, architectural and decorative, light industrial applications, and in aquatic wave zone areas. Available in green, yellow, and dark gray.

PHENOLIC

Flame-resistant resin with fire retardant class 1 flame spread rating of 5 or less per ASTM - E84 and a smoke index of 45 or less. Typically used for the offshore industry or for enclosed, confined area applications such as subways, tunnels and mine shafts. Available in reddish-brown, phenolic painting of the grating can be performed to obtain a gray or red finish.

FIBERGLASS GRATING CHARACTERISTICS

Rectangular mesh patterns as well as square mesh patterns benefit from integral one-piece construction. Smooth resin-rich vertical surfaces and tapered bars allow debris to fall through.

Angular grit particles are applied to the top of each panel to provide a long-lasting anti-slip top surface.

Continuous glass fiber strand in alternating layers thoroughly wetted with resin for excellent corrosion resistance.

Integral one-piece construction distributes loads to bearing bars and cross bars as well as to the support structure.

CUSTOMIZED HIGH CORROSION-RESISTANT RESIN SYSTEMS AVAILABLE UPON REQUEST

MOLDED FIBERGLASS GRATING SELECTION

Depth	Mesh	Panel Sizes	Lbs/Sq.Ft.	Open Area
1/2"	1-1/2" x 1-1/2"	4' x 8' (non-load carrying product)	0.8 lb.	87%
1/2"	2" x 2" square	4' x 12' (non-load carrying product)	1.0 lb.	82%
3/4"	1-1/2" x 1-1/2" square	3' x 10', 4' x 8', 4' x 12'	2.0 lbs.	70%
1"	1" x 4" rectangular	12' x 4', 10' x 3', 8' x 4'	2.6 lbs.	65%
1"	1-1/2" x 1-1/2" square	3' x 10', 4' x 8', 4' x 12'	2.5 lbs.	70%
1"	2" x 2" square	4' x 12'	1.7 lbs.	76%
1-1/4"	1-1/2" x 1-1/2" square	3' x 10', 4' x 8', 4' x 12', 5' x 10'	3.2 lbs.	70%
1-1/2"	1-1/2" x 1-1/2" square	3' x 10', 4' x 8', 4' x 12', 5' x 10'	3.7 lbs.	70%
2"	2" x 2" square	3' x 10', 4' x 8', 4' x 12', 5' x 10'	4.0 lbs.	72%

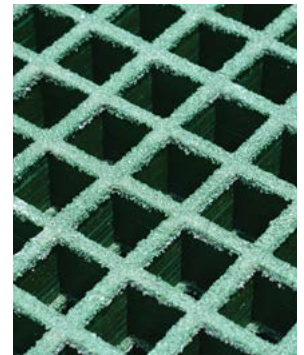
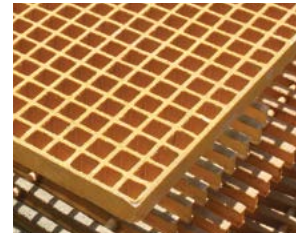
MOLDED MINIMESH FIBERGLASS GRATING SELECTION

1"	Top 3/4" sq. - Bottom 1-1/2" sq.	4' x 12'	2.9 lbs.	44.4%
1-1/2"	Top 3/4" sq. - Bottom 1-1/2" sq.	4' x 12'	5.0 lbs.	44%

MOLDED HIGH LOAD CAPACITY FIBERGLASS GRATING SELECTION

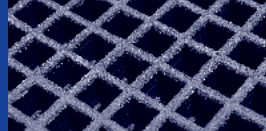
1-1/2"	1" x 2" rectangular	4' x 12'	6.2 lbs.	48%
2"	1" x 2" rectangular	4' x 12'	8.4 lbs.	48%

CUSTOM COLORS AND SIZES AVAILABLE



VIEW LOAD TABLES ONLINE

www.directmetals.com



Molded Grating Details

1-1/2" X 1-1/2" SQUARE

THICKNESS: 1 INCH

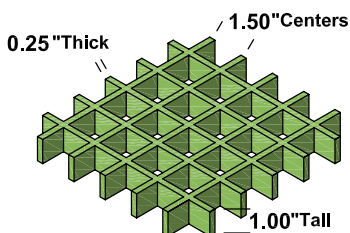
Mesh Pattern: 1-1/2" Square

Open Area: 68%

Weight: 2.5 Lbs/Sq. Foot

Bar Width: 1/4 Inch

Bars/Foot: 8



1-1/2" X 1-1/2" SQUARE

THICKNESS: 1-1/2 INCH

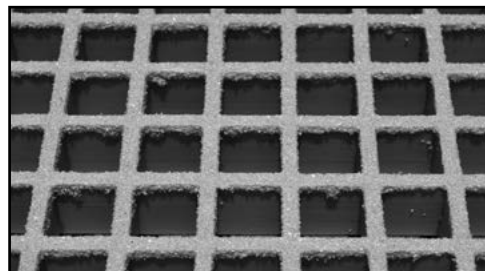
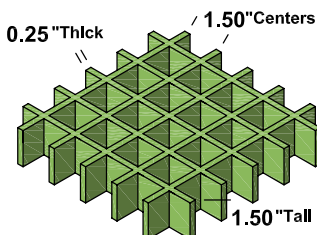
Mesh Pattern: 1-1/2" Square

Open Area: 68%

Weight: 3.8 Lbs/Sq. Foot

Bar Width: 1/4 Inch

Bars/Foot: 8



2" X 2" SQUARE

THICKNESS: 2 INCH

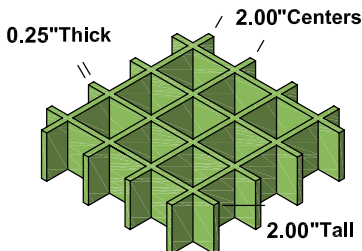
Mesh Pattern: 2" Square

Open Area: 71%

Weight: 4.0 Lbs/Sq. Foot

Bar Width: 1/4 Inch

Bars/Foot: 6



1" X 4" RECTANGULAR

THICKNESS: 1 INCH

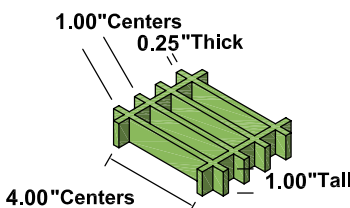
Mesh Pattern: 1" x 4" Rectangular

Open Area: 67%

Weight: 2.6 Lbs/Sq. Foot

Bar Width: 1/4 Inch

Bars/Foot: 12



1-1/2" X .75" SQUARE MINIMESH

THICKNESS: 1 INCH

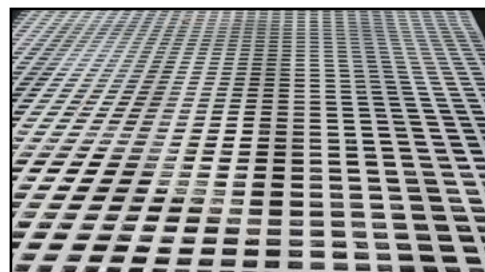
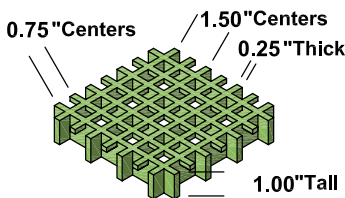
Mesh Pattern: 1-1/2" x .75" Square

Open Area: 43%

Weight: 2.9 Lbs/Sq. Foot

Bar Width: 1/4 Inch

Bars/Foot: 8



1-1/2" X .75" SQUARE MINIMESH

THICKNESS: 1-1/2 INCH

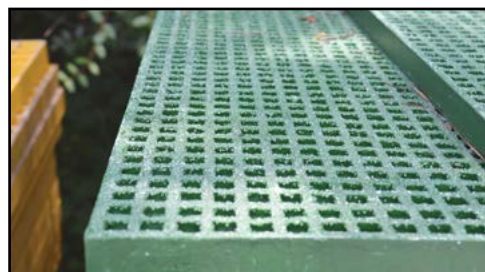
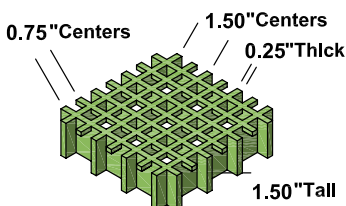
Mesh Pattern: 1-1/2" x .75" Square

Open Area: 43%

Weight: 4.5 Lbs/Sq. Foot

Bar Width: 1/4 Inch

Bars/Foot: 8



Pultruded Grating

Combining corrosion resistance, long life, and a maintenance-free design, our pultruded grating is superior to conventional metals. This advanced grating is also lightweight and easy to fabricate, making it less expensive to install. In fact, the savings on labor and equipment often make the total installed cost of our pultruded grating comparable to that of steel. Combining its low cost of installation with maintenance-free long-life, it is manufactured with a recessed tie bar configuration and an inherent resiliency, which reduces back and leg strain and contributes to ergonomics and worker productivity.

FEATURES AND BENEFITS

CORROSION RESISTANCE - based on the use of premium grade, isophthalic polyester or vinyl ester resin systems and a synthetic surfacing veil.

LIGHTWEIGHT YET DURABLE - less than one-half the weight of steel grating, allowing easy removal for access below floor level and installation with no heavy equipment and less manpower required.

ADDED SAFETY - durable grit surface, permanently bonded, and baked to the grating surface, for a safe, slip-resistant walkway.

FIRE RETARDANT - flame spread rating of 25 or less, according to ASTM E-84; meets the self-extinguishing requirements of ASTM D-635.

MAINTENANCE FREE - corrosion resistant and requires no scraping, sandblasting or painting; install it and forget it.

UV PROTECTION - UV inhibitors included in the resin formulation, along with a surfacing veil and grit top surface for optimum protection from the effects of weathering.

EASILY FABRICATED - no need for lifting equipment or expensive tools; can be easily carried by two workers and cut using standard circular or saber saws fitted with carbide blades.

ELECTRICALLY AND THERMALLY NON-CONDUCTIVE - providing additional worker safety.

ELECTRONICALLY TRANSPARENT - does not affect electromagnetic or radio wave frequencies.

VIEW SPEC TABLES ONLINE
www.directmetals.com

To form a pultruded element, continuous fiber rovings and mat are mechanically drawn through a resin bath and shaped through a series of forming guides, then pulled through a heated die.

All of our pultruded gratings are manufactured with a high percentage of glass within the laminate, providing durability, extremely high unidirectional strength, and stiffness. Due to its exceptional stiffness, it can be used with confidence in applications where wide support spans are required. For most applications where it is used to replace corroding steel grating, our pultruded grating rarely requires additional support.

Designed specifically for pedestrian walkways, our pedestrian floor grating is ideal

for any application where a corrosion-resistant, durable, lightweight surface material is required. Our pedestrian grating is available in 1" and 1-1/2" depths and in several configurations and panel sizes. 1" deep pedestrian grating is designed for access areas and walkways where pedestrian traffic is the heaviest load. 1-1/2" pedestrian grating is approximately three times stiffer than the 1" deep version and is used for applications where wider spans (up to 72") or lower deflection criteria are required.

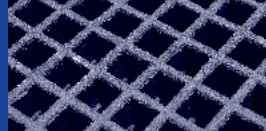


SELECTION OF PULTRUDED INDUSTRIAL GRATING - 6" TIE BAR SPACING STANDARD

Series	Panel Depth	Load Bar Spacing	Sizes		Load Bars/Ft.	Wt./Sq.Ft.	Open Area
			Width	Length			
I-6010	1"	1-1/2"	2', 3', 4'	10', 12', 20', 24'	8	2.4 lbs.	60%
I-4010	1"	1"	2', 3', 4'	10', 12', 20', 24'	12	3.4 lbs.	40%
I-6015	1-1/2"	1-1/2"	2', 3', 4'	10', 12', 20', 24'	8	2.8 lbs.	60%
I-4015	1-1/2"	1"	2', 3', 4'	10', 12', 20', 24'	12	4.1 lbs.	40%
T-5020	2"	2"	2', 3', 4'	10', 12', 20', 24'	6	3.1 lbs.	50%
T-3320	2"	1-1/2"	2', 3', 4'	10', 12', 20', 24'	8	4.0 lbs.	33%

SELECTION OF PULTRUDED PEDESTRIAN GRATING - 6" TIE BAR SPACING STANDARD

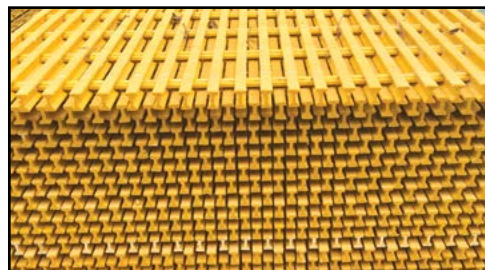
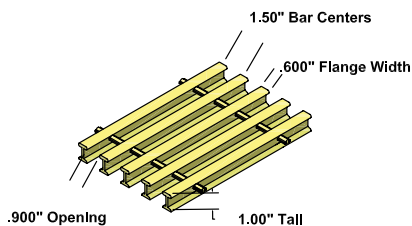
Series	Panel Depth	Load Bar Spacing	Sizes		Load Bars/Ft.	Wt./Sq.Ft.	Open Area
			Width	Length			
T-3810	1"	2.4"	2', 3', 4'	10', 12', 20', 24'	5	1.9 lbs.	38%
T-2510	1"	2.0"	2', 3', 4'	10', 12', 20', 24'	6	2.3 lbs.	25%
T-1210	1"	1.7"	2', 3', 4'	10', 12', 20', 24'	7	2.7 lbs.	12%
T-3815	1-1/2"	2.4"	2', 3', 4'	10', 12', 20', 24'	5	2.7 lbs.	38%
T-2515	1-1/2"	2.0"	2', 3', 4'	10', 12', 20', 24'	6	3.2 lbs.	25%
T-1215	1-1/2"	1.7"	2', 3', 4'	10', 12', 20', 24'	7	3.6 lbs.	12%



Pultruded Grating Details

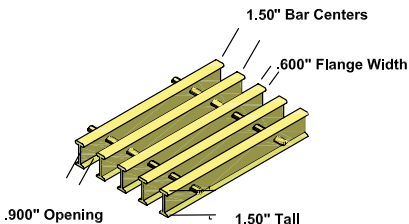
1" DEEP I-6010 GRATING

Bar Height: 1"
Open Area: 60%
Weight: 2.72 Lbs/Sq. Foot
Bar Width: 0.6"
Bars/Foot: 8
Cross Bars: 6" Centers Std. (12" Special Order)



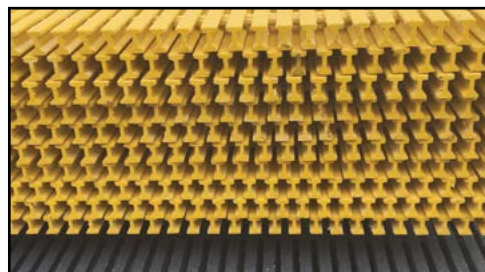
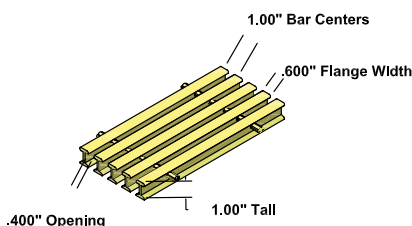
1-1/2" DEEP I-6015 GRATING

Bar Height: 1.50"
Open Area: 60%
Weight: 2.83 Lbs/Sq. Foot
Bar Width: .600"
Bars/Foot: 8
Cross Bars: 6" Centers Std.



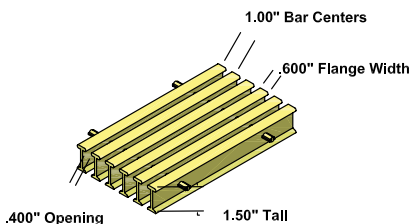
1" DEEP I-4010 GRATING

Bar Height: 1"
Open Area: 40%
Weight: 3.41 Lbs/Sq. Foot
Bar Width: .600"
Bars/Foot: 12
Cross Bars: 6" Centers Std.



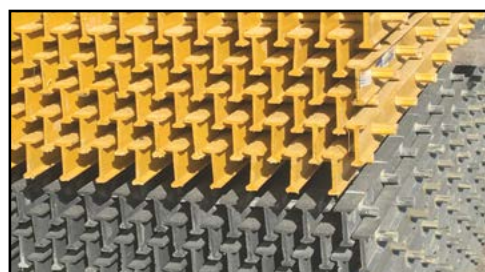
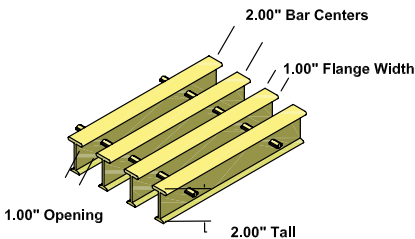
1-1/2" I-4015 GRATING

Bar Height: 1.50"
Open Area: 40%
Weight: 4.13 Lbs/Sq. Foot
Bar Width: .600"
Bars/Foot: 12
Cross Bars: 6" Centers Std.



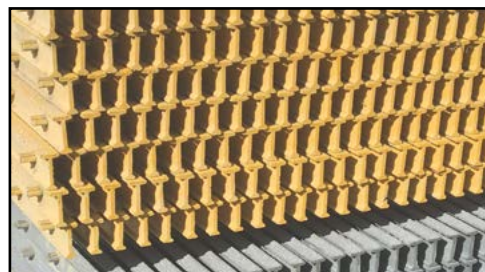
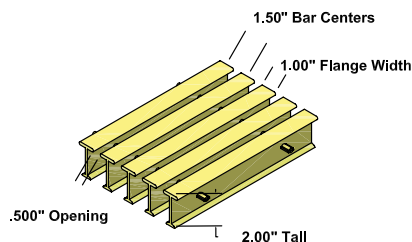
2" T-5020 GRATING

Bar Height: 2"
Open Area: 50%
Weight: 3.10 Lbs/Sq. Foot
Bar Width: 1"
Bars/Foot: 6
Cross Bars: 6" Centers Std.



2" T-3320 GRATING

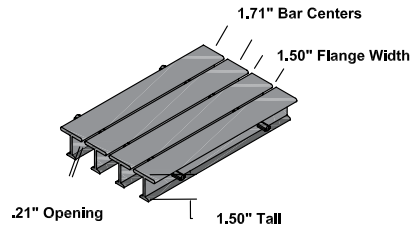
Bar Height: 2"
Open Area: 33%
Weight: 4.00 Lbs/Sq. Foot
Bar Width: 1.00"
Bars/Foot: 8
Cross Bars: 6" Centers Std.



Pultruded T-Bar Pedestrian Series Grating Details

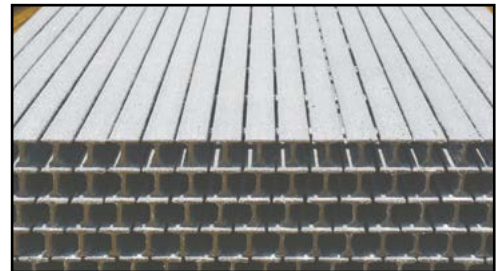
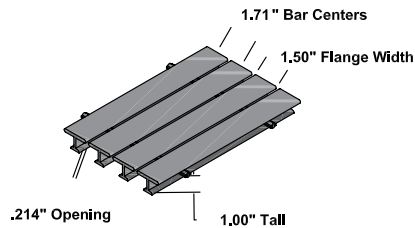
T1215 PEDESTRIAN GRATING

Thickness: 1-1/2"
Cross Bar: 6" Centers
Open Area: 12%
Weight: 3.6 Lbs/Sq. Foot
Bar Centers: 1.71"
Bars/Foot: 7



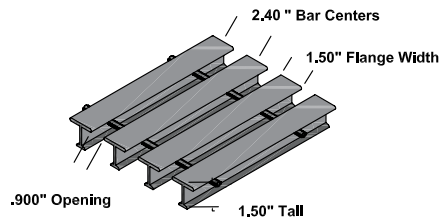
T1210 PEDESTRIAN GRATING

Thickness: 1"
Cross Bar: 6" Centers
Open Area: 12%
Weight: 2.6 Lbs/Sq. Foot
Bar Centers: 1.71"
Bars/Foot: 7



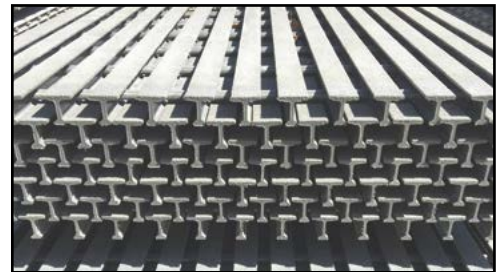
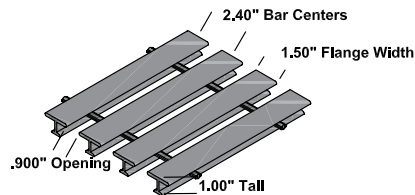
T3815 PEDESTRIAN GRATING

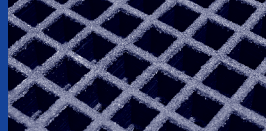
Thickness: 1-1/2"
Cross Bar: 6" Centers
Open Area: 38%
Weight: 2.7 Lbs/Sq. Foot
Bar Centers: 2.4"
Bars/Foot: 5



T3810 PEDESTRIAN GRATING

Thickness: 1"
Cross Bar: 6" Centers
Open Area: 38%
Weight: 1.9 Lbs/Sq. Foot
Bar Centers: 2.4"
Bars/Foot: 5

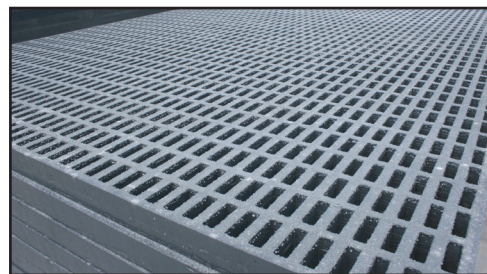




Molded Heavy Duty Grating Details

1-1/2" DEEP X 1" X 2" RECTANGULAR

Load Bar Depth: 1-1/2"
Open Area: 48%
Weight: 6.2 Lbs/Sq. Foot
Bar Width: 0.43"
Bars/Foot: 12



2" DEEP X 1" X 2" RECTANGULAR

Load Bar Depth: 2"
Open Area: 48%
Weight: 8.4 Lbs/Sq. Foot
Bar Width: 0.48"
Bars/Foot: 12



Fiberglass Stair Treads & Covers



Lightweight and easy to install, industrial grade fiberglass stair treads are available in 1-inch and 1-1/2-inch deep "1" bar structural profiles with a variable open area of 40%, 50%, or 60%. We also carry 2-inch deep "T" bar structural profiles with 33% or 50% open area. Stair tread covers are black or dark gray with highly visible yellow nosings, and are available in 9- and 10-inch widths by 12-foot lengths.

APPLICATIONS

- Amusement/water parks
- Hotels/motels
- Outdoor stairways
- Outdoor sports facilities
- Restaurants
- Food processing facilities
- Chemical processing plants
- Water/wastewater treatment facilities

Safety and durability are just two of many outstanding features that make fiberglass stair treads and stair tread covers preferred components for stairs and landings. Maximum pedestrian safety is provided by the anti-slip walking surface. Fiberglass stair nosings form a highly visible and durable edge at the primary point of contact on stairs and landings. Fiberglass stair treads and stair tread covers provide a cost-effective, slip-resistant protective surface for concrete, metal, and wood steps.

Stair tread covers are made from a molded polyester mat that is corrosion and impact resistant, fire retardant, and non-conductive. Stair treads come in 8", 9", 10", 11", and 12" depths with a standard thickness of 1/8 inch with 1/4-inch thick covers available for heavy duty applications. Standard 12-foot stair treads are easily cut to size during installation or are available pre-cut to custom lengths.

Fiberglass stair tread covers have a durable aluminum oxide grit surface, which increases the safety of stairways and protects exposed edges that are prone to chipping and cracking.

FIBERGLASS MOLDED STAIR TREADS	
Material	Molded Polyester or Vinyl Ester
Resin	IFR-25/VFR-25
Surface	Grit
Mesh	1-1/2" x 6"
% O/A	67%
Height	1-1/2"
Depths	7-5/8", 9-1/8", 10-5/8", 12-1/4"
Widths	Cut-to-size

IMPORTANT FEATURES OF STAIR TREADS & STAIR TREAD COVERS

- Corrosion resistant
- Slip resistant
- High impact resistant
- Durable
- Low maintenance
- Fire retardant
- Lightweight
- Easy to install
- Non-conductive



Pultruded Grating Resin Systems

Our ASTM E84 pultruded grating is available in two resin formulations for an accurate match of product characteristics with the application. Both resin systems provide corrosion resistance that is superior to that offered by metal grating.

IFR-25 - This isophthalic polyester resin formulation provides a low flame spread rating of 25 or less, and is designed for applications where there is moderate exposure to corrosive elements.

VFR-25 - With a flame spread of 25 or less, this vinyl ester resin system provides dependable resistance to both acidic and alkaline environments.

RESIN	SERIES	STANDARD COLOR
IFR-25 & VFR-25	T3810, T2510, T3815, T2515	YELLOW & DARK GRAY
IFR-25 & VFR-25	T1210, T1215	LIGHT GRAY
IFR-25 & VFR-25	I6010, I6015, I4010, I4015, T3320, T5020	YELLOW & DARK GRAY
VFR-25	H4710, H4715, H4720, H4725, H4730	YELLOW & DARK GRAY

CLIP ASSEMBLIES FOR MOLDED GRATING

We offer specially-designed attachments and clips, both to fasten panels together and to secure them to support structures. All types are made of Type 316 Stainless Steel, and are available in 1", 1-1/2" and 2" sizes. Install clips a maximum of every 48", and use at least four clips per piece of grating (at least eight clips per 4' x 12' panel)



TYPE Z HOLD DOWN CLIPS:
Secure grating panels to support frames.



TYPE F END PANEL CLIPS:
Provide a simplified method for joining factory edges of adjacent abutting panels. (Not for use with some resins)



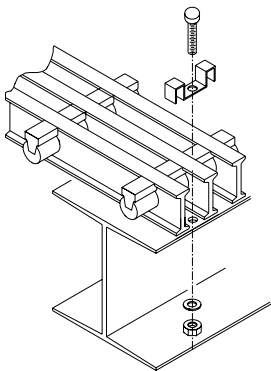
TYPE M HOLD DOWN CLIPS:
Secure panels to a support in the same manner as type Z Clips, but designed to use two adjacent grating bars for a more secure fit. Similar in design to metal grating saddle clips.



TYPE G HOLD DOWN CLIPS:
Attach grating to any structural member flange, 3/4" or smaller in thickness, with no drilling required.

Field cutting of one bar required

CLIP ASSEMBLIES FOR PULTRUDED GRATING



TYPE P

We offer Hold Down Clip Assemblies for many pultruded grating types

CLIP TYPE

- P18 for 18% open area pultruded grating
- P25 for 25% open area pultruded grating
- P33 for 33% open area pultruded grating
- P40 for 40% open area pultruded grating
- P50 for 50% open area pultruded grating
- P60 for 60% open area pultruded grating

SEALING KITS

To maintain corrosion resistance and structural integrity, we offer standard resin sealing kits for protecting the exposed ends of cut panels and other components.