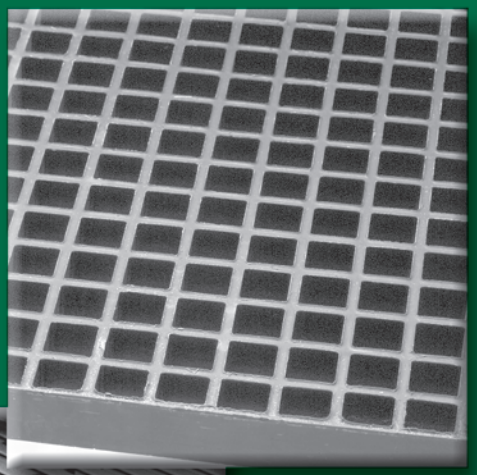

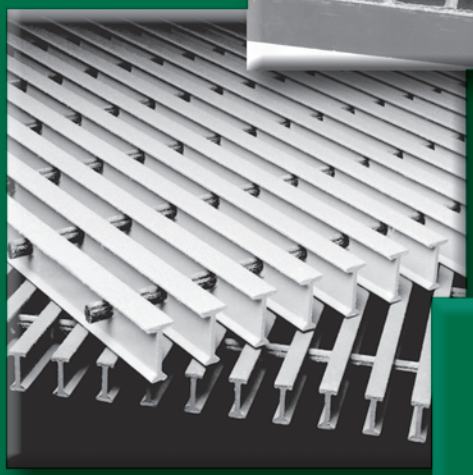

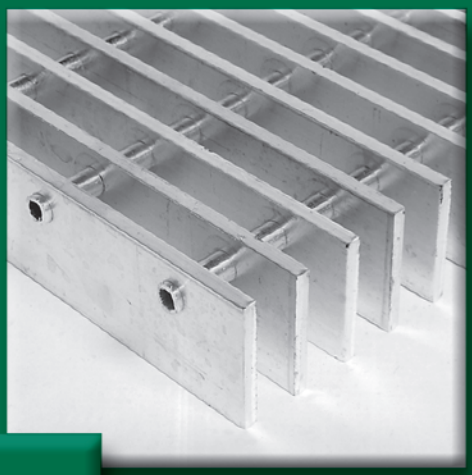

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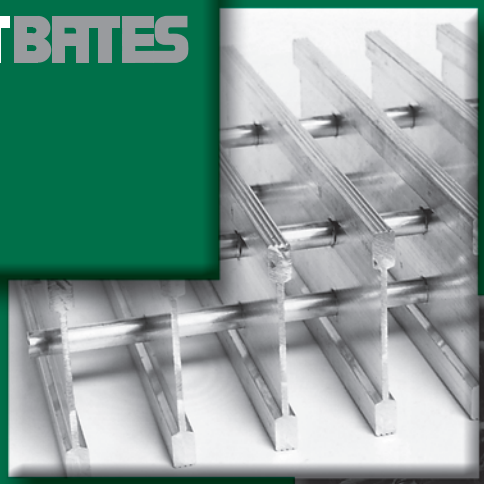
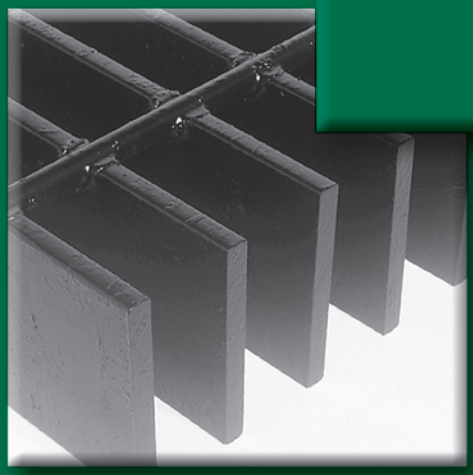
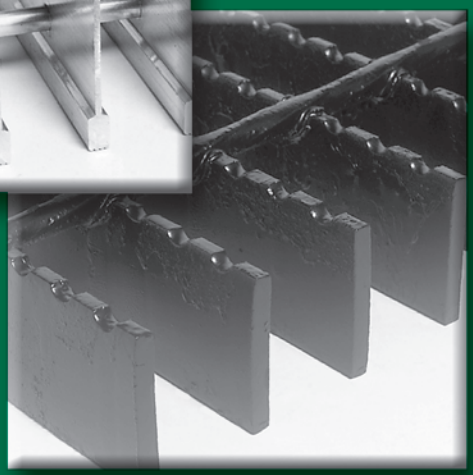






BarnettBates Corporation, 500 Mills Road, Joliet, IL 60433

A Heritage of Innovation & Service

What is now BarnettBates Corporation traces its origins to an ingenious inventor, Albert J. Bates. With more than 300 patents to his credit, Bates developed equipment used for the manufacture of various steel products including barbed wire and grating.

The Barnett family has owned and operated the business since 1976. A continuing series of refinements in the areas of production, material sourcing, workflow, equipment and marketing has enabled us to become an extremely competitive choice as your single source for all types of grating - aluminum, steel, plank-type safety grating, fiberglass and others - as well as stair treads and fiberglass structural shapes. We are continually analyzing our pricing, buying and fabrication procedures to assure you of the best possible value.

Our particular capabilities include the industry's narrowest spacing of aluminum grating. We can accommodate ADA regulations for wheelchair accessibility or any style of footwear. We can also provide complete and convenient knockdown packages for fiberglass platforms, stairs, handrail and ladders, with components partially assembled for fast, easy erection on site.

Contents

Fast, Accurate Response to Inquiries

Our knowledgeable sales people are well equipped to address both the complex needs of design professionals as well as the specific requirements of end-users.

Our computer-assisted quotation system guides our application specialists through a proven product estimating logic for fast quote response. We can quickly evaluate and recommend alternatives that could improve performance and possibly save you time and money.

When you want fast, accurate answers, BarnettBates will help with grating systems that will provide many years of safe, efficient service.

Design/Application Assistance

While we often work from your drawings and specifications, BarnettBates can also provide custom design services to help you plan your project.

Our professional sales staff offers years of experience with all types of commercial/industrial grating applications. Since there are often choices and alternatives for a particular application, we can help you choose the most economical and practical type of grating and installation method based on loadings, type of use and general arrangement.

Custom Fabrication

Custom Fabrication

Many industrial areas require detailed fabrication to fit grating around tanks, piping, structural members and other obstacles. BarnettBates experience can help you properly plan grating layouts for these difficult areas. The finished product must have proper load bearing strength and should be detailed for ease of installation and minimum waste.

As your "single source" for all types of grating and related products, BarnettBates offers one number to call for fast, accurate pricing and application information.

Whether the project is big or small, you can depend on us to help make your job easier. Call us with confidence whenever your job requires any type of grating or stair treads.

Advantages of Bar Grating

Bar grating offers important advantages as a commercial and industrial flooring material, most of which stem from the following characteristics:

• *High Percentage of Open Area*
As much as 80% of grating is typically open area. Less obstruction of light, air and liquids translates directly to maximum efficiency for heating/cooling/lighting systems and improved fire suppression, as well as increased visibility for enhanced safety. This openness also promotes drainage and inhibits the accumulation of dirt and debris, making bar grating practically self-cleaning and maintenance free.

Grating Specifications

• *High Strength-to-Weight Ratio*
The configuration of bar grating delivers maximum strength with minimal weight, offering the capability of supporting loads ranging from light pedestrian traffic to the heaviest vehicular and aircraft loads.

• *Economy*
Because bar grating is generally pre-fabricated to fit the contours and intricacies of the application and pre-finished to withstand the jobsite environment, the floor is immediately ready for service upon installation, thereby minimizing costly field labor. Grating also requires a less complicated support structure and is easier to install than other types of flooring.

Other Applications

The nature of bar grating makes it ideal for a wide variety of alternative applications other than its traditional use as flooring. These include architectural or security grilles and screens, drainage trench and pit covers, machinery safety guards, racks and shelving, scaffolding, fences, trash and wash racks as well as OEM components.

Grating Specifications

Bar grating is available in a variety of materials to provide safe, durable and functional products for nearly all applications.

• *Carbon Steel*
Carbon steel provides an economical, high strength grating for use in most industrial and commercial applications.

• *Stainless Steel*
Stainless steel is ideal for use in environments where corrosion resistance and minimum carbide precipitation are important considerations. It is applicable for chemical and food processing areas.

• *Aluminum*
Lightweight, corrosion resistant aluminum alloys make aluminum grating ideal for use in chemical, petroleum and food processing plants, water and waste treatment facilities, and shipboard applications. Its non-sparking characteristics make it perfect for use around volatile chemicals or vapors, such as those in petrochemical and munitions plants.

• *Fiberglass*
Fiberglass-reinforced plastic grating is easy and economical to transport, install and remove, yet provides excellent strength. Its unique non-conductive characteristics make it ideal for use around electrical equipment. Its corrosion-resistant and non-sparking capabilities benefit water and wastewater treatment plants and installations where volatile or corrosive chemicals are handled.

Our Grating Conforms to Major Industry Specifications

Standard Steel, Stainless Steel and Aluminum Grating
American National Standard
ANSI/NAAMM MBG 531-09
Metal Bar Grating Manual

Heavy Duty Steel Grating
American National Standard
ANSI/NAAMM MBG 532-09
Heavy Duty Metal Bar Grating Manual

Coatings and Finishes

The standard finish for carbon or stainless steel and aluminum grating is unpainted (mill finish). In some applications, stainless steel grating may require secondary finishing, such as chemical cleaning, abrasive blasting or electropolishing.

Fiberglass grating and structural shapes offer the advantage that finishes are part of the material itself. The high resin content of molded fiberglass provides long maintenance-free performance. A synthetic UV-resistant surface veil used in pultruded fiberglass grating members provides extra resistance to weathering and corrosive conditions. Colors are added to the resin system and will outlast coatings on aluminum or steel systems with virtually no maintenance. Typical standard colors are gray, green, orange and safety yellow, while custom colors are also available.

BarnettBates metal grating is available in a variety of finishes to suit virtually any job-site environment or design concept.

Painting
Standard painting with organic coatings is an economical choice for applications not subject to corrosive chemicals or excessive wear or weathering. This coating provides steel with temporary initial protection.

Standard painting as specified by ANSI/NAAMM is not a long lasting or permanent finish.

Hot Dip Galvanizing
The galvanizing process is a time-tested and cost-effective means to add corrosion-resistant protection to steel grating. The metal is thoroughly cleaned and pretreated to remove impurities and to prepare the surface prior to immersion in molten zinc. The result is a zinc and zinc/iron alloy coating to protect all surfaces - even interior surfaces that would normally not be coated by mechanical spraying.

Powder Coating
Powder coating is an all-weather finish for steel or aluminum. The process begins with pretreatment to assure coating adhesion. This can be followed by an epoxy primer applied through electrodeposition, similar to a plating process, and then oven-hardened to provide a barrier against moisture, salt and corrosives. A polyester powder coat is then electrostatically applied and oven cured to provide resistance to abrasion and impact. A urethane topcoat is applied to seal and protect the finish from the color-fading effects of ultraviolet rays.

Note: 20 year limited warranty available for some applications. Please call for further information.

Anodizing
Aluminum gratings may be anodized to add color and/or resistance to corrosion and abrasion. Anodizing is an electrochemical process similar to plating in which the natural tendency of bare aluminum to form a protective oxide film is enhanced. This produces a thicker, harder and more uniform clear film that is actually an integral part of the metal. This protective film can be colored to provide a variety of chip and fade resistant colors. A final treatment seals pores in the coating to prevent staining and provide maximum corrosion resistance.

Slip-Resistant Surfaces
Whenever the application involves unusually slippery conditions, such as oil, grease or icing conditions, a slip-resistant surface is recommended.

• Serrated bearing bars may provide a cost effective method of improving slip resistance. (See page 7)

• SlipNOT® an abrasive surface can be applied using a high-temperature plasma deposition process. The resulting high-traction surface becomes a part of the grating itself. The deposition pattern and thickness results in a surface which wears slowly as compared to surface-applied grits that can quickly wear smooth over time. SlipNOT® exceeds all OSHA standards for slip resistance and is UL approved. It is also USDA/FDA approved for use in the food and drug industry.

• A coarse grit with fiberglass gratings and stair treads can be bonded to the walking surfaces for improved traction.

SlipNOT is a registered trademark of W. S. Molnar Company

TERMS

Bar grating can be defined as a matrix of rectangular, T-bar or I-bar profile bars placed an equal distance apart and joined by cross bars. Proper specification requires a determination of load conditions, effective unsupported clear span, grating surface, environment and finish.

BEARING BARS

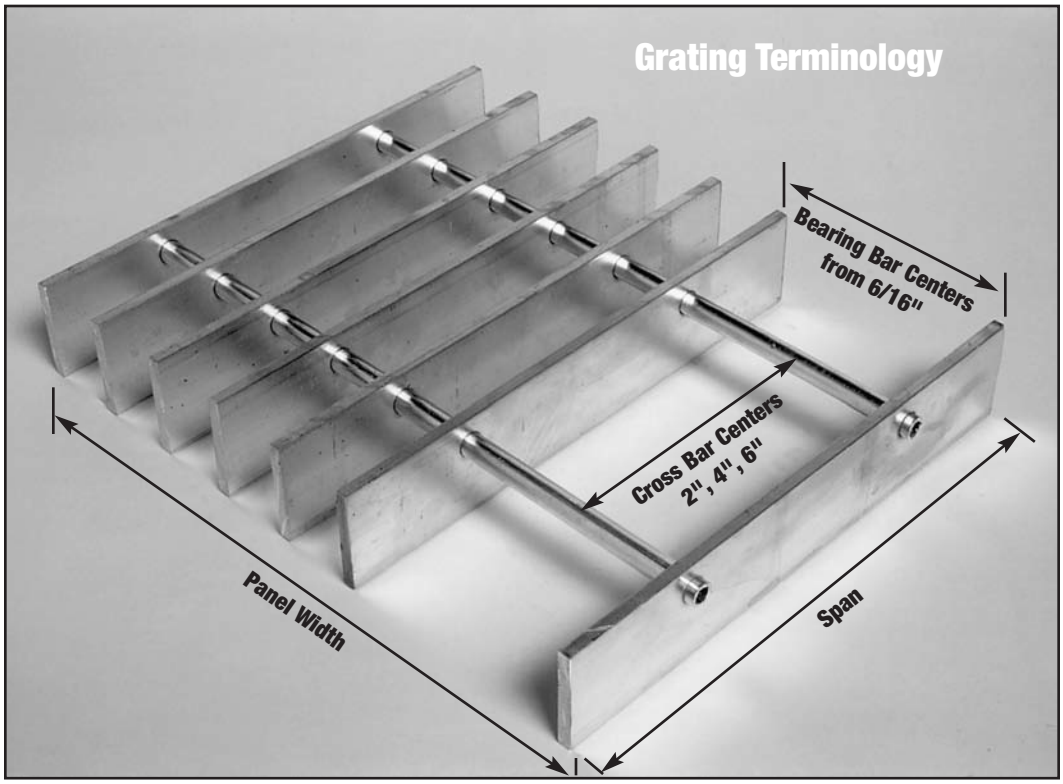
The vertically positioned bars are designated as the bearing bars because they are designed to carry the load for which the grating is rated. The larger the bars, and the smaller the spacing between them, the greater the load that the grating can support. Bearing bars range in size from 3/4" x 1/8" for light pedestrian traffic up to much heavier steel bars for vehicular loads. Bearing bar spacing is typically designated in sixteenths of an inch, as measured between the centers of bars as close as 6/16" with wider spacings available.

CROSS BARS

The bars used to secure the position of the bearing bars are commonly defined as cross bars. Cross bar profiles vary according to the method of assembly and material selected. They are often welded to the bearing bars, but other fastening methods may be utilized, such as pressure-locking, riveting or adhesives. As with bearing bars, cross bar spacing is measured between the centers of bars. Typical cross bar spacing is 4", although 2", 6" and other special spacings are also available.

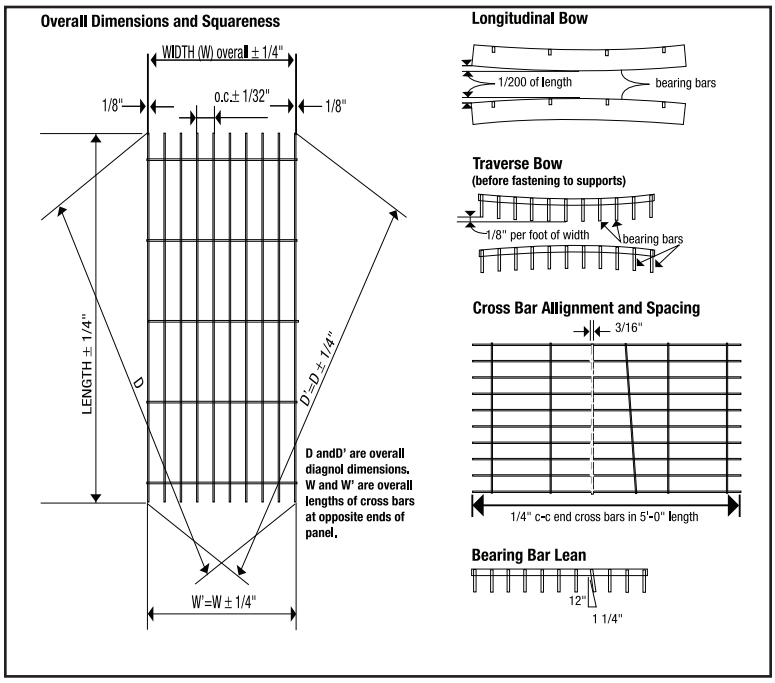
SPAN

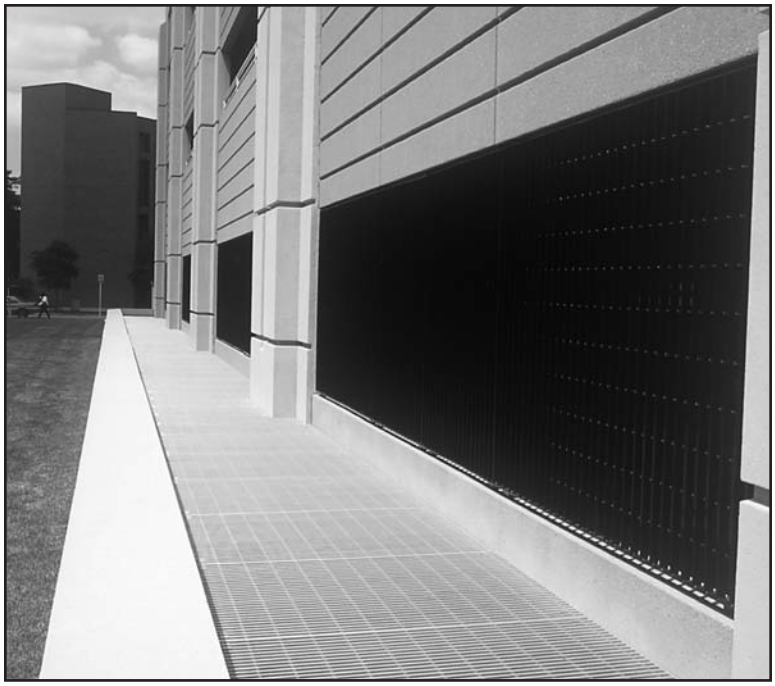
Span indicates the overall-finished length of the grating panels (bearing bar direction). Unsupported span indicates the clear distance between effective points of support for the grating. Once the design load and acceptable deflection criteria have been determined, grating selection will be dictated by determining the maximum unsupported span based on load tables.



Grating Manufacturing Tolerances (Steel & Aluminum)

All dimensions given are maximum permissable tolerances





WIDTH

Width is the overall dimension of the grating panel measured in the crossbar direction. While 24" and 36" nominal widths are typical, grating panels can be provided in a variety of widths.

SURFACE

Bar grating offers an inherent degree of grip for most kinds of footwear under most conditions. However, where the potential of icing and slippery conditions due to oil, grease or chemicals exists, bearing bars with a serrated surface can be considered (also see page 5). When serrated bearing bars are specified, the bar depth must be increased to provide the equivalent strength of non-serrated bars - typically 1/4" greater than the depth recommended by standard load tables.

BANDING

The open ends of metal bar grating panels can be banded to enhance appearance or to provide additional lateral strength. This is achieved by welding a flat bar, similar in size to the bearing bars, to the cut ends of the grating panel. Banding is recommended for trench applications, when ends of the bearing bars are unsupported, when the grating is designed to service vehicular loads or when the grating panels are designed to be removable. Banding is not recommended for fiberglass grating.

Steel Grating

Strength, long service life, ease of installation and relatively low cost make welded steel grating the most popular of all grating types. Stainless steel grating is also available for use in corrosive environments. Most steel grating is manufactured by an automated resistance-welding process under extreme heat and pressure, literally fusing the cross bar/bearing bar intersections together to form a rugged, one-piece panel. The surface remains uniform to accommodate foot or vehicular traffic. Welded bar grating is commonly used in industrial plants and commercial buildings for walkways, platforms, mezzanine decking, safety barriers, trench covers and ventilation grates. OEM applications such as steps, guards or grilles. Standard panels, suitable for general flooring applications, are available in carbon or stainless steel in widths of 24" or 36", with bearing bars spaced at 1-3/16", 15/16" or 11/16".

Close-mesh grating is suitable for applications requiring narrow bearing bar spacing for aesthetic or functional reasons, such as handling heavier loads, meeting ADA requirements for wheelchair accessibility or accommodating any style of footwear.

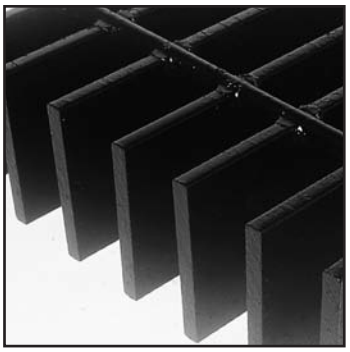
Serrated bars, often chosen for extra traction and slip-resistance are available in all sizes. An abrasive SlipNOT® (see page 5) anti-slip surface is also available.

Standard finish is provided unfinished (mill finish). Hot dip galvanized, painted, powder coated or special finishes are available. In some applications, stainless steel grating may require secondary finishing, such as chemical cleaning, abrasive blasting or electropolishing.

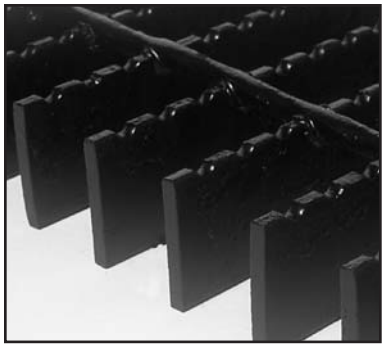
Also available by special order are non-welded rectangular crossbar and riveted grating. With riveted grating, bearing bars are permanently riveted to reticuline bars to form a very rigid product well suited to absorb shock and impact loading such as that from vehicular traffic.

Table of Spacings Available

Standard Welded Grating	Standard Welded Grating with bearing bars spaced at 1 3/16" on center and cross bars at 4" on center.	4" / 1 3/16" / Type W-19-4
Other Bar Spacings	Bearing bars spaced at 1 3/16" on center and close spaced cross bars at 2" on center.	2" 2" / 1 3/16" / Type W-19-2
	Bearing bars spaced at 15/16" on center and crossbars at 4" on center.	4" / 15/16" / Type W-15-4
	Bearing Bars spaced at 15/16" on center and close spaced cross bars at 2" on center.	2" 2" / 15/16" / Type W-15-2
ADA Conforming Spacings	The bar spacings on types W-11-4 and W-11-2 both conform with the Americans with Disabilities Act. When specifying grating to comply with ADA requirements, bearing bars must span "perpendicular to the normal flow of traffic."	4" / 11/16" / Type W-11-4
		2" 2" / 11 /16" / Type W-11-2



Smooth 1 3/16" bearing bar centers; 4" cross bar centers



Serrated 1 3/16" bearing bar centers; 4" cross bar centers

Steel Grating Load Table 19-4 / 19-2

Bearing Bar Size		Clear Span													Material Weight Per Sq. Ft. (lbs)					
		2'-0"	2'-6"	3'-0"	3'-6"	4'-0"	4'-6"	5'-0"	5'-6"	6'-0"	6'-6"	7'-0"	8'-0"	9'-0"	19-4	19-2	15-4	15-2	11-4	11-2
3/4x1/8	U	355	227	158	116	89	70								4.0	4.6	4.7	5.3	6.2	6.8
	D	.099	.155	.223	.304	.397	.503													
	C	355	284	237	203	178	158													
	D	.079	.124	.179	.243	.318	.402													
3/4x3/16	U	533	341	237	174	133	105								5.6	6.2	6.9	7.7	9.2	9.8
	D	.099	.155	.223	.304	.503	.503													
	C	533	426	355	305	237	237													
	D	.079	.124	.179	.243	.402	.402													
1 x1/8	U	632	404	284	206	156	125	101	84	70					5.1	5.5	6.2	6.7	8.2	8.7
	D	.074	.116	.168	.228	.298	.377	.466	.563	.670										
	C	632	505	421	361	316	281	253	230	244										
	D	.060	.093	.134	.182	.238	.302	.372	.454	.536										
1x3/16	U	947	606	421	309	237	187	152	125	105					7.4	8.0	8.9	9.6	12.1	12.7
	D	.074	.116	.168	.228	.298	.377	.466	.563	.670										
	C	947	758	632	541	474	421	379	344	316										
	D	.060	.093	.134	.182	.238	.302	.372	.451	536										
1 1/4x1/8	U	987	632	439	322	247	195	158	130	110	93	81			6.1	6.6	7.5	8.1	10.0	10.5
	D	.060	.093	.134	.382	.238	.302	.372	.451	.536	.629	.730								
	C	987	789	658	564	493	439	395	359	329	304	282								
	D	.048	.074	.107	.146	.194	.241	.298	.360	.429	.504	.584								
1 1/4x3/16	U	1480	947	658	483	370	292	237	196	164	140	121			9.0	9.6	11.2	11.8	14.9	15.5
	D	.060	.093	.134	.182	.238	.302	.372	.451	.536	.629	.730								
	C	1480	1184	987	846	740	658	592	538	493	455	423								
	D	0.48	0.74	.107	.146	.191	.241	.298	.360	.429	.504	.584								
1 1/2x1/8	U	1421	909	632	464	355	281	227	188	158	135	116	89	70	7.4	7.8	8.9	9.4	12.1	12.6
	D	.050	.078	.112	.152	.199	.251	.310	.376	.447	.524	.608	.794	1.006						
	C	1421	1437	947	812	711	632	568	517	474	437	406	355	316						
	D	.040	.062	.089	.122	.159	.201	.248	.300	.358	.420	.487	.636	.804						
1 1/2x3/16	U	2132	1364	947	696	533	421	341	282	237	202	174	133	105	10.5	11.2	13.1	13.7	17.5	18.1
	D	.050	.078	.112	.152	.199	.251	.310	.376	.447	.524	.608	.794	1.006						
	C	2132	1705	1421	1218	1066	947	853	775	711	656	609	533	474						
	D	.040	.062	.089	.122	.159	.201	.248	.300	.358	.420	.487	.636	.804						
1 3/4x3/16	U	2901	1857	1289	947	725	573	464	384	322	275	237	181	148	12.3	13.0	15.2	15.8	20.4	21.0
	D	.043	.067	.096	.130	.170	.215	.266	.322	.383	.450	.521	.681	.862						
	C	2901	2321	1934	1658	1451	1289	1161	1055	967	893	829	725	645						
	D	.034	.053	.077	.104	.136	.172	.213	.257	.306	.360	.417	.545	.689						
2x3/16	U	3789	2425	1684	1237	947	749	606	501	421	359	309	237	187	14.0	14.6	17.3	17.9	23.2	23.8
	D	.037	.058	.084	.114	.149	.189	.233	.282	.335	.393	.456	.596	.754						
	C	3789	3032	2526	2165	1895	1684	1516	1378	1263	1166	1083	947	842						
	D	.030	.047	.067	.091	.119	.151	.186	.225	.268	.315	.365	.477	.603						
2 1/4x3/16	U	4796	3069	2132	1566	1199	947	767	634	533	454	392	300	237	15.6	16.1	19.4	20.0	26.0	26.7
	D	.033	.052	.074	.101	.132	.168	.207	.250	.298	.350	.406	.530	.670						
	C	1796	3837	3197	2741	2398	2132	1918	1744	1599	1476	1370	1199	1066						
	D	.026	.041	.060	.081	.106	.134	.166	.200	.238	.280	.324	.424	.536						
2 1/2x3/16	U	5921	3789	2632	1933	1480	1170	947	783	658	561	483	370	292	17.5	18.1	21.4	22.0	28.8	29.4
	D	.030	.047	.067	.091	.119	.151	.186	.225	.268	.315	.365	.477	.603						
	C	5921	4737	3947	3383	2961	2632	2368	2153	1974	1822	1692	1480	1316						
	D	.024	.037	.054	.073	.095	.121	.149	.180	.215	.252	.292	.381	.483						

Loads and deflections are theoretical values based on 18,000 PSI unit stress. For pedestrian comfort deflections in excess of 1/4" are not recommended.

U = Uniform Load, lbs. per sq.ft.
C = Concentrated Mid-Span Load, lbs. per ft. of grating width
D = Deflection in Inches

NOTE: For gratings with serrated bearing bars, the depth of grating required to meet a specified load and deflection criteria will be 1/4" greater than shown above.

Alternative Bar Spacing Conversion Factors

The loads shown above are for type 19-4 and 19-2 gratings. To determine the load carrying capacities for alternative bar spacings, multiply the loads given by the following conversion factors (Deflection remains constant): For types 15-4 and 15-2: 1.26
For types 11-4 and 11-2: 1.71

Bearing Bar Size Selection Guide: 19-4 Plain Surface Grating

For deflection of not more than 1/4" when subjected to the uniform loads below.

Safe Uniform Load lbs./Sq.Ft.	2'-6"	3'-0"	3'-6"	4'-0"	4'-6"	5'-0"	5'-6"	6'-0"	6'-6"	7'-0"	8'-0"	9'-0"
50	1 x 1/8	1 x 1/8	1 x 1/8	1 x 1/8	1 x 3/16	1 1/4 x 1/8	1 1/4 x 3/16	1 1/2 x 3/16	1 3/4 x 3/16	1 3/4 x 3/16	2 x 3/16	2 1/4 x 3/16
75	1 x 1/8	1 x 1/8	1 x 1/8	1 x 1/8	1 x 3/16	1 1/4 x 1/8	1 1/4 x 3/16	1 1/2 x 3/16	1 3/4 x 3/16	1 3/4 x 3/16	2 x 3/16	2 1/4 x 3/16
100	1 x 1/8	1 x 1/8	1 x 1/8	1 x 1/8	1 x 3/16	1 1/4 x 1/8	1 1/4 x 3/16	1 1/2 x 3/16	1 3/4 x 3/16	1 3/4 x 3/16	2 1/4 x 3/16	2 1/2 x 3/16
125	1 x 1/8	1 x 1/8	1 x 1/8	1 x 1/8	1 1/4 x 1/8	1 1/4 x 3/16	1 1/2 x 1/8	1 1/2 x 3/16	1 3/4 x 3/16	2 x 3/16	2 1/4 x 3/16	
150	1 x 1/8	1 x 1/8	1 x 1/8	1 x 3/16	1 1/4 x 1/8	1 1/4 x 3/16	1 1/2 x 3/16	1 3/4 x 3/16	1 3/4 x 3/16	2 x 3/16	2 1/2 x 3/16	
200	1 x 1/8	1 x 1/8	1 x 1/8	1 1/4 x 1/8	1 1/4 x 3/16	1 1/2 x 3/16	1 3/4 x 3/16	1 3/4 x 3/16	2 x 3/16	2 1/4 x/3/16		
250	1 x 1/8	1 x 3/16	1 x 3/16	1 1/4 x 3/16	1 1/4 x 3/16	1 3/4 x 3/16	2 x 3/16	2 x 3/16	2 1/4 x 3/16	2 1/2 x 3/16		

Heavy Duty Steel Grating

When extra-heavy loads are anticipated (such as forklift or truck traffic) BarnettBates can provide the heavy-duty grating you need to ensure safety over many years of use. With a strength-to-weight ratio far greater than other flooring material, it can be considered for areas subject to heavy loads such as parking lots, loading docks, ramps, airfields, truck and bus terminals, subway and tunnel ventilation grilles and inlet covers. These gratings meet the standards and load tables as set forth in ANSI/NAAMM MGB 532-09.

Gratings with bearing bar spacings ranging from 15/16" (W-15-4) to 38/16" (2-3/8") (W-38-4) on center are available. The bearing bars are thicker (1/4", 3/8") than those used for standard steel grating. Other bearing bar sizes and spacings including "grizzly grates" can be custom fabricated upon request.

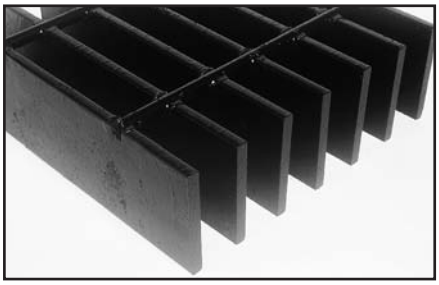
Assistance and technical information is available for selection of grating for vehicular loads. However, these are often unique applications experiencing a wide variety of loading conditions and engineer selection is advised. Please contact the factory.

Because these gratings are tyically in more severe service, it is highly recommended that all open ends be trim or load banded. The welded band bar helps distribute these loads and minimizes potential panel distortion.

Standard material is provided unfinished (mill finish). Galvanized, painted or special finishes are available.

Serrated bars or an abrasive SlipNOT® anti-slip surface are available to enhance skid resistance (also see page 5).

Safe load tables for static concentrated loads for W-19-4 follow. Deflection information and safe loads for other spacings are available. Please contact the factory.



Heavy Duty Spacings Available

Type W-15-4 Bearing Bars at 15/16" on center Cross Bars at 4" on center	15/16" 4"	**Type W-15-2** Bearing Bars at 15/16" on center Cross Bars at 2" on center	15/16" 2" 2"
Type W-19-4 Bearing Bars at 1 3/16" on center Cross Bars at 4" on center	1 3/16" 4"	**Type W-19-2** Bearing Bars at 1 3/16" on center Cross Bars at 2" on center	1 3/16" 2" 2"
Type W-22-4 Bearing Bars at 1 3/8" on center Cross Bars at 4" on center	1 3/8" 4"	**Type W-22-2** Bearing Bars at 1 3/8" on center Cross Bars at 2"on center	1 3/8" 2" 2"
Type W-30-4 Bearing Bars at 1 7/8" on center Cross Bars at 4" on center	1 7/8" 4"	**Type W-30-2** Bearing Bars at 1 7/8" on center Cross Bars at 2" on center	1 7/8" 2" 2"
Type W-38-4 Bearing Bars at 2 3/8" on center Cross Bars at 4" on center	2 3/8" 4"	**Type W-38-2** Bearing Bars at 2 3/8" on center Cross Bars at 2" on center	2 3/8" 2" 2"

W-19-4 Heavy Duty Welded Steel Grating

W-19-4.W-19-2 Static Loading (Other Spacings Available)

Bearing Bar Size	Approx. Wt.lb/sq ft	Safe Concentrated Load, pounds per ft. of width, Clear Span												
		1'-0"	1'-6"	2'-0"	2'-6"	3'-0"	3'-6"	4'-0"	4'-6"	5'-0"	5'-6"	6'-0"	7'-0"	8'-0"
1x1/4	9.7	2807	1871	1403	1123	936	802	702	624	561	510	468	401	351
1x3/8	14.0	4213	2809	2107	1685	1404	1204	1053	936	842	766	702	602	526
1-1/4x1/4	11.9	4387	2924	2193	1755	1462	1253	1096	975	877	797	731	627	548
1-1/4x3/8	17.2	6580	4387	3290	2632	2193	1880	1645	1462	1316	1196	1096	940	822
1-12x1/4	14.0	6313	4209	3157	2525	2104	1804	1578	1404	1263	1148	1053	902	789
1-1/2x3/8	20.5	9473	6316	4737	3789	3158	2707	2368	2105	1895	1722	1579	1353	1184
1-3/4x1/4	16.2	8593	5729	4297	3437	2864	2455	2148	1910	1719	1563	1433	1228	1075
1-3/4x3/8	23.7	12893	8596	6447	5157	4298	3684	3223	2865	2579	2344	2149	1842	1612
2x1/4	18.3	11227	7484	5613	4491	3742	3208	2807	2495	2246	2041	1871	1604	1404
2x3/8	26.9	16840	11227	8420	6736	5613	4811	4210	3742	3368	3062	2807	2406	2105
2-1/4x1/4	20.5	14213	9476	7107	5685	4738	4061	3553	3159	2843	2584	2368	2030	1776
2-1/4x3/8	30.1	21313	14209	10657	8525	7104	6090	5328	4736	4263	3875	3553	3045	2664
2-1/2x1/4	22.6	17547	11698	8773	7019	5849	5013	4387	3899	3509	3190	2924	2506	2193
2-1/2x3/8	33.3	26313	17542	13157	10525	8771	7518	6578	5847	5263	4784	4386	3759	3289
3x1/4	26.9	25260	16840	12630	10104	8420	7217	6315	5613	5052	4593	4210	3609	3158
3x3/8	39.8	37893	25262	18947	15157	12631	10827	9473	8421	7579	6890	6316	5414	4737
3-1/2x1/4	31.2	34387	22924	17193	13755	11462	9825	8597	7641	6877	6252	5731	4912	4298
3-1/2x3/8	46.2	51580	34387	25790	20632	17193	14737	12895	11462	10316	9378	8597	7369	6447
4x1/4	35.5	44913	29942	22457	17965	14971	12832	11228	9981	8983	8166	7486	6416	5614
4x3/8	52.7	67367	44911	33683	26947	22456	19248	16842	14970	13473	12248	11228	9624	8421
4-1/2x1/4	39.8	56840	37893	28420	22736	18947	16240	14210	12631	11368	10335	9473	8120	7105
4-1/2x3/8	59.1	85260	56840	42630	34104	28420	24360	21315	18947	17052	15502	14210	12180	10658
5x1/4	44.1	70173	46782	35087	28069	23391	20050	17543	15594	14035	12759	11697	10025	8772
5x3/8	67.9	105260	70173	52630	42104	35087	30074	26315	23391	21052	19138	17543	15037	13158

Note: When serrated grating is specified, the depth of grating required for a specified load will be 1/4" greater than that shown in these tables.
Loads are theoretical, static, and are based on an allowable fiber stress of 20,000 psi.

W-19-4/W-19-2 Panel Width Chart (inches) Dimensions Are Out-to-Out of Bearing Bars

No. of Bars	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1/4" bars	1-7/16	2-5/8	3-13/16	5	6-3/16	7-3/8	8-9/16	9-3/4	10-15/16	12-1/8	13-5/16	14-1/2	15-11/16	16-7/8	18-1/16
3/8" bars	1-9/16	2-3/4	3-15/16	5-1/8	6-5/16	7-1/2	8-11/16	9-7/8	11-1/16	12-1/4	13-7/16	14-5/8	15-13/16	17	18-3/16

No. of Bars	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
1/4" bars	19-1/4	20-7/16	21-5/8	22-13/16	24	25-3/16	26-3/8	27-9/16	28-3/4	29-15/16	31-1/8	32-5/16	33-1/2	34-11/16	35-7/8
3/8" bars	19-3/8	20-9/16	21-3/4	22-15/16	24-1/8	25-5/16	26-1/2	27-11/16	28-7/8	30-1/16	31-1/4	32-7/16	33-5/8	34-13/16	36

Aluminum Grating

Because of its metallurgical properties and exceptional strength-to-weight ratio, aluminum grating offers many benefits for most applications. It is lighter in weight and is therefore easier to handle and install than steel grating. Because it does not rust, aluminum grating is commonly used in food preparation facilities, water and waste-water treatment plants, pumping stations and aboard ships. Its non-sparking properties are ideal for safety in industries where volatile chemicals are handled.

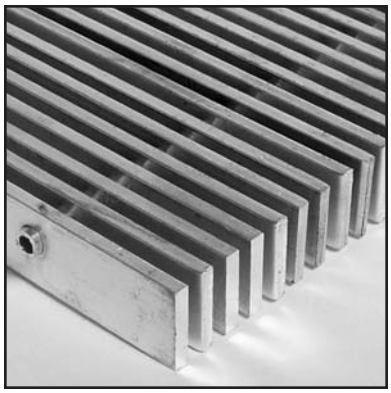
BarnettBates offers the widest choice of bearing bar/crossbar spacings in the industry - narrow enough to meet ADA requirements or to help prevent footwear from being caught, or wide enough for special purpose product screening or equipment safety shielding.

Our aluminum grating is manufactured in an "I-bar" profile with surface grooves or flat rectangular bearing bars, both extruded from 6063-T6 or 6061-T6 aluminum (per ASTM B-221). I-bar grating is available in sizes 1" through 2-1/2". Rectangular bar grating is available in sizes ranging from 1" x 1/8" up to 2-1/2" x 3/16". Rectangular bars are also available with a serrated surface for added safety.

A variety of grating configurations are available, from close mesh with bearing bars spaced at 5/16" to open mesh with up to 1-7/8" spacing, in panel widths up to 3' and spans up to 24'. Other panel widths and lengths are available via special order. Aluminum gratings are commonly supplied unfinished (mill finish), but are also available with optional anodized or powder coated finishes. An abrasive SlipNOT® (also see page 5) anti-slip surface finish is available to enhance skid resistance.

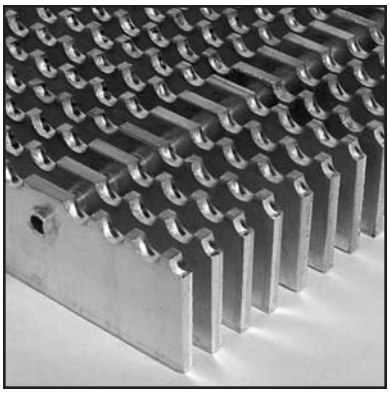
Crossbar designed for Extra Strength and Long Service Life

BarnettBates aluminum grating features expanded tubular cross bars (ASTM B-210), the proven structural efficiency of which is enhanced during grating assembly. Tubular cross bars are inserted into pre-punched holes in the bearing bars. A mandrel is drawn through each cross bar tube expanding the tube to pressure-lock the bars in place creating four evenly spaced "flutes" extending the entire length of the crossbar. The resulting fluted crossbars and the work-hardening that occurs during manufacture enhances grating rigidity in the crossbar direction. This superior pressure-lock process assures maximum grating strength and service life.

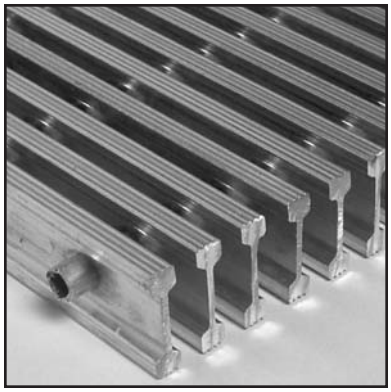


P-6-4, 1" x 3/16", Smooth Surface, 3/8" bearing bar centers; 4" cross bar centers

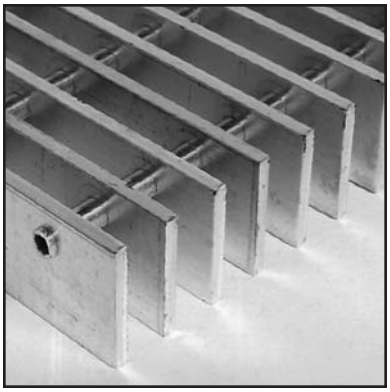
P-7-4, 1" x 3/16", Smooth Surface, 7/16" bearing bar centers; 4" cross bar centers



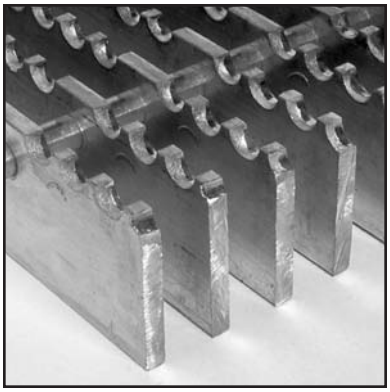
P-8-4, 1-1/2" x 3/16", Serrated Surface, 1/2" bearing bar centers; 4" cross bar centers



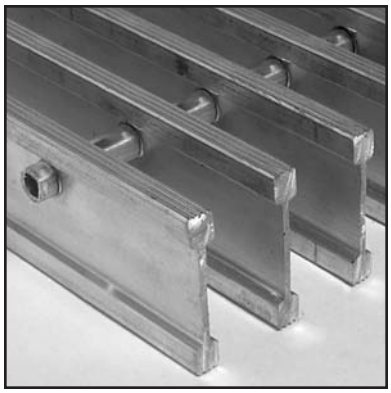
P-8-2, 1" I-Bar, Grooved Surface, 1/2" bearing bar centers; 2" cross bar centers



P-11-2, 1-1/2" x 3/16", Smooth Surface, 11/16" bearing bar centers; 2" cross bar centers



P-11-4, 1-1/2" x 3/16", Serrated Surface, 11/16" bearing bar centers; 4" cross bar centers



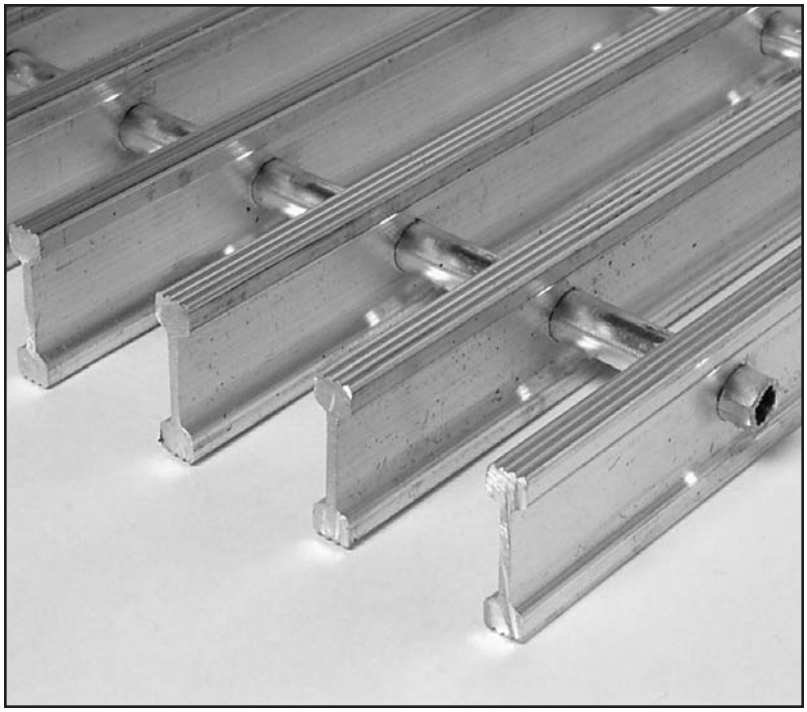
P-15-4, 1-1/2" I-Bar, Grooved Surface, 15/16" bearing bar centers; 4" cross bar centers

P-15-2, 1-1/2" x 3/16", Serrated Surface, 15/16" bearing bar centers, 2" cross bar centers

P-19-4, 1-1/2" x 3/16", Smooth Surface, 1-3/16" bearing bar centers; 4" cross bar centers

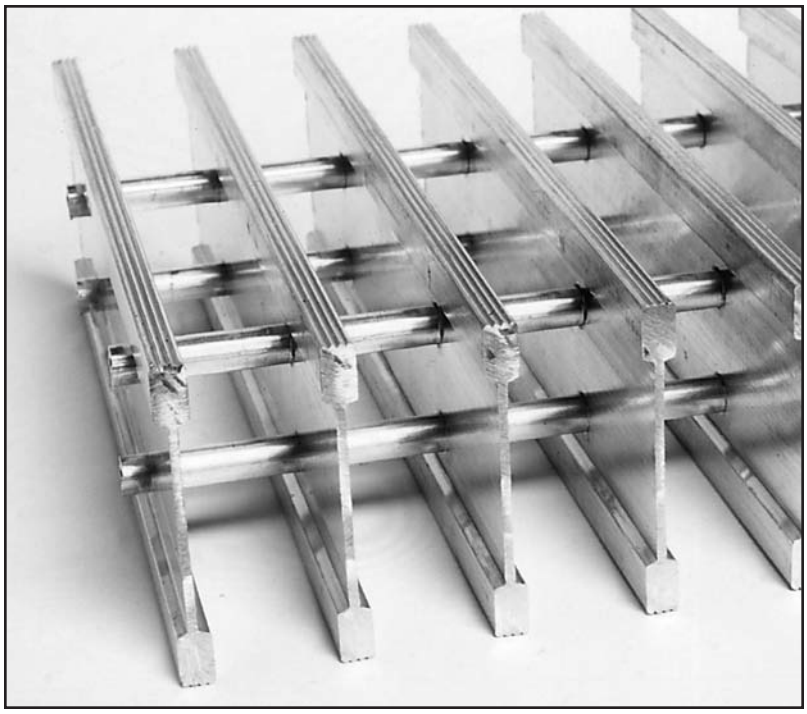
Standard I-Bar

I-Bar grating (the most popular), available in profiles from 1" through 2 1/2", offers equal strength at far less weight and cost than that of rectangular bar of same depth.



"Bar-Lock" Design

This BarnettBates exclusive adds extra stability to gratings with deep (2-1/4" or 2-1/2") I-profile bearing bars by adding additional cross bars to the lower portion of the bearing bar web. These reinforcing bars maintain proper vertical alignment of the bearing bars by preventing top-to-bottom flexing or twisting. There is no additional cost for this important feature.



19-4 / 19-2 Aluminum Grating Load Table

Bearing Bar Size		Clear Span 2'-0"	2'-6"	3'-0"	3'-6"	4'-0"	4'-6"	5'-0"	5'-6"	6'-0"	6'-6"	7'-0"	8'-0"	9'-0"	Weight Per Sq. Ft. (lbs) [I-Bar] 19-4	19-2	15-4	15-2	11-4	11-2
1 x 1/8	U	421	269	187	137	105	83	Loads and deflections are theoretical values based on 12,000 PSI unit stress. For pedestrian comfort deflections in excess of 1/4" are not recommended							1.8	2.2	2.2	2.6	2.9	3.3
	D	.144	.225	.441	.441	.576	.729													
	C	421	337	241	241	211	187													
	D	.115	.180	.353	.353	.461	.583													
1 x 3/16 or 1" I-bar	U	632	404	281	206	158	125				U = Uniform Load, lbs. per sq.ft.				2.6 [1.8]	2.9 [2.1]	3.2 [2.3]	3.5 [2.6]	4.2 [3.0]	4.5 [3.3]
	D	.144	.225	.324	.441	.576	.729													
	C	632	505	421	361	316	281													
	D	.115	.180	.259	.353	.461	.583													
1 1/4 x 1/8	U	658	424	292	215	164	130	105	87	73	C = Concentrated Mid-Span Load, lbs. per ft. of grating width				2.2	2.5	2.7	3.0	3.6	3.9
	D	.115	.180	.259	.353	.461	.583	.720	.871	1.037										
	C	658	526	439	376	329	292	263	239	249										
	D	.092	.144	.207	.282	.369	.467	.576	.697	.829	D = Deflection in Inches									
1 1/4 x 3/16 or 1 1/4" I-bar	U	987	632	439	322	247	195	158	130	110	93	81			3.1 [2.2]	3.5 [2.5]	3.9 [2.7]	4.2 [3.0]	5.2 [3.7]	5.5 [4.0]
	D	.115	.180	.259	.353	.461	.583	.720	.871	1.037	1.217	1.411								
	C	987	789	658	564	493	439	395	359	329	304	282								
	D	.092	.144	.207	.282	.369	.467	.576	.697	.829	.973	1.129								
1 1/2 x 1/8	U	947	606	424	309	237	187	152	125	105	90	77	59	47	2.6	2.9	3.2	3,5	4.2	4.5
	D	.096	.150	.216	.294	.384	.486	.600	.726	.864	1.014	1.176	1.536	1.944						
	C	947	758	632	541	474	421	379	344	346	291	271	237	211						
	D	.077	.120	.173	.235	.307	.389	.480	.581	.691	.811	.941	1.229	1.555						
1 1/2 x 3/16 or 1 1/2" I-bar	U	1421	909	632	464	355	281	227	188	158	135	116	89	70	3.7 [2.6]	4.0 [2.9]	4.6 [3.2]	4.9 [3.5]	6.1 [4.3]	6.5 [4.6]
	D	.096	.150	.216	.294	.384	.486	.600	.726	.864	1.014	1.176	1.536	1.944						
	C	1421	1137	947	812	711	632	568	517	474	437	406	355	316						
	D	.077	.120	.173	.235	.307	.389	.480	.581	.691	.811	.941	1.229	1.555						
1 3/4 x 3/16 or 1 3/4" I-bar	U	1934	1238	860	632	484	382	309	256	215	183	158	121	96	4.2 [2.9]	4.6 [3.2]	5.3 [3.6]	5.6 [3.9]	7.1 [5.0]	7.4 [5.3]
	D	.082	.129	.185	.252	.329	.417	.514	.622	.741	.869	1.008	1.317	1.666						
	C	1934	1547	1289	1105	967	860	774	703	645	595	553	484	430						
	D	.066	.103	.148	.202	.263	.333	.411	.498	.592	.695	.806	1.053	1.333						
2 x 3/16 or 2" I-bar	U	2526	1617	1123	825	632	499	404	334	281	239	206	158	125	4.8 [3.3]	5.1 [3.6]	6.0 [4.0]	6.3 [4.3]	8.0 [5.6]	8.4 [5.9]
	D	.072	.113	.162	.221	.288	.365	.450	.545	.648	.761	.882	1.152	1.458						
	C	2526	2021	1684	1444	1263	1123	1011	919	842	777	722	632	561						
	D	.058	.090	.130	.176	.230	.292	.360	.436	.518	.608	.706	.922	1.166						
2 1/4 x 3 16 or 2 1/4" I-bar	U	3197	2046	1421	1044	799	632	512	423	355	303	261	200	158	5.4 [3.6]	5.7 [3.9]	6.7 [4.5]	7.0 [4.8]	9.0 [6.2]	9.3 [6.5]
	D	.064	.100	.144	.196	.256	.324	.400	.484	.576	.676	.784	1.024	1.296						
	C	3197	2558	2132	1827	1599	1421	1279	1163	1066	984	914	799	711						
	D	.051	.080	.115	.157	.205	.259	.320	.387	.461	.541	.627	.819	1.037						
2 1/2 x 3/16 or 2 1/2" I-bar	U	3947	2526	1754	1289	987	780	632	522	439	374	322	247	195	5.9 [4.0]	6.3 [4.3]	7.4 [5.0]	7.7 [5.3]	10.0 [6.9]	10.3 [7.2]
	D	.058	.090	.130	.176	.230	.292	.360	.436	.518	.608	.706	.922	1.166						
	C	3947	3158	2632	2256	1974	1754	1579	1435	1316	1215	1128	987	877						
	D	.046	.072	.104	.141	.184	.233	.288	.348	.415	.487	.564	.737	.933						

NOTE: When gratings with serrated bearing bars are selected, the depth of grating required to service a specified load will be 1/4" greater than shown in the table above

Conversion Table

The loads shown above are for type 19-4 and 19-2 gratings. To determine the load carrying capacities for alternative bar spacings, multiply the loads given by the following conversion factors (Deflection remains constant): For types 15-4 and 15-2: 1.26 For types 11-4 and 11-2: 1.71 For types 10-4 and 10-2: 1.87 For types 8-4 and 8-2: 2.32 For types 7-4 and 7-2: 2.68 For types 6-4 and 6-2: 3.10
Other spacings available

Selection Guide: 19-4 Plain Surface Grating

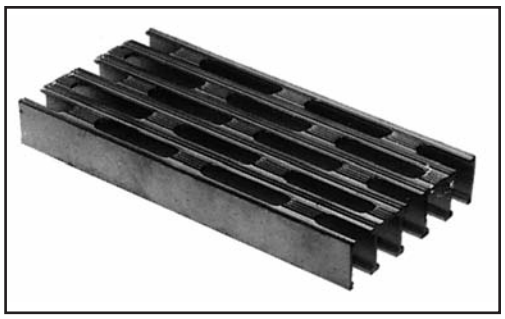
For deflection of not more than 1/4" when subjected to the severest of the following: (1) the uniform loads below, (2) under concentrated mid-span loads of 300 lbs. up to 6'-0" span, or (3) 400 lbs. for spans 6'-0" and over.

Safe Uniform Load lbs./Sq.Ft.	2'-0"	2'-6"	3'-0"	3'-6"	4'-0"	4"-6"	5'-0"	5'-6"	6'-0"	6'-6"	7'-0"
50	1 x 1/8	1 x 1/8	1 x 3/16	1 x 3/16	1 x 3/16	1 1/4 x 3/16	1 1/2 x 3/16	1 3/4 x 3/16	2 x 3/16	2 1/4 x 3/16	2 1/2x 3/16
75	1 x 1/8	1 x 1/8	1 x 3/16	1 x 3/16	1 1/4 x 3/16	1 1/4 x 3/16	1 1/2 x 3/16	1 3/4 x 3/16	2 x 3/16	2 1/4 x 3/16	2 1/2 x 3/16
100	1 x 1/8	1 x 1/8	1 x 3/16	1 x 3/16	1/1/4 x 3/16	1 1/2 x 3/16	1 3/4 x 3/16	1 3/4 x 3/16	2 x 3/16	2 1/4 x 3/16	2 1/2 x 3/16
125	1 x 1/8	1 x 1/8	1 x 3/16	1 1/4 x 3/16	1 1/4 x 3/16	1 1/2 x 3/16	1 3/4 x 3/16	2 x 3/16	2 1/4 x 3/16	2 1/2 x 3/16	
150	1 x 1/8	1 x 1/8	1 x 3/16	1 1/4 x 3/16	1 1/2 x 3/16	1 3/4 x 3/16	1 3/4 x 3/16	2 x 3/16	2 1/4 x 3/16	2 1/2 x 3/16	
200	1 x 1/8	1 x 1/8	1 x 3/16	1 1/4 x 3/16	1 1/2 x 3/16	1 3/4 x 3/16	2 x 3/16	2 1/4 x 3/16	2 1/2 x 3/16		
300	1 x 1/8	1 x 3/16	1 1/4 x 3/16	1 1/2 x 3/16	1 3/4 x 3/16	2 x 3/16	2 1/4 x 3/16	2 1/2 x 3/16			

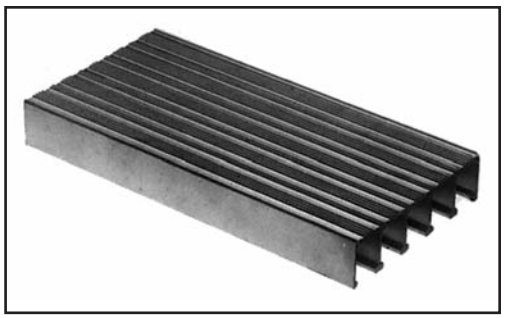
Aluminum Plank Grating

A versatile alternative to bar grating, aluminum plank grating is composed of one-piece extrusions with integral I beam ribs and a fluted, skid-resistant surface. Available as 6" planks or fabricated panels up to 26'. Aluminum plank grating provides a continuous, lightweight flooring with exceptional stiffness-to-weight ratio, strength and durability.

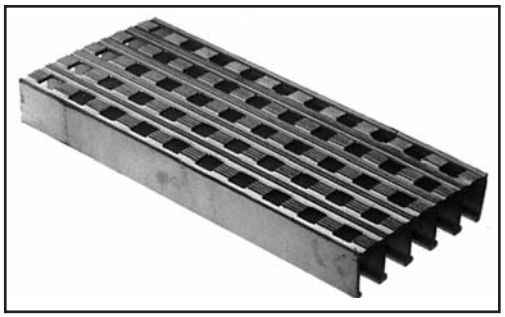
Aluminum plank grating is also corrosion resistant, non-sparking, non-rusting and virtually maintenance free, making it an excellent choice for floors, platforms and walkways in water and wastewater treatment plants. It is available with a solid (unpunched) surface, with square or rectangular punching. By adding end banding, these modular planks are easily fabricated into custom panels.



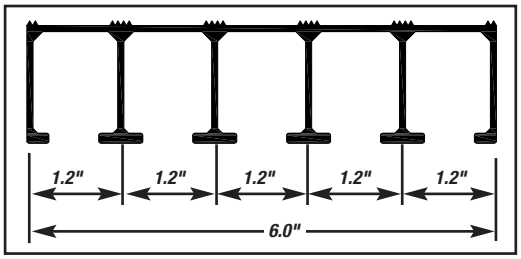
Rectangular Punched Grating

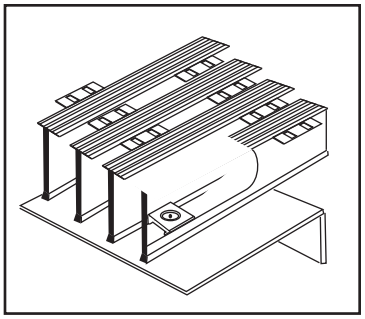


Unpunched Grating



Square Punched Grating





A plank lug inserted between flanges can serve as an anchor block for plank grating.

Extruded Aluminum Plank Grating Load Table

Extruded Aluminum Plank Grating consists of 6" wide planks of extruded aluminum, welded to each other to form panels. Panel ends have an extruded aluminum end bar welded in place. Grating is available unpunched or punched in standard patterns.

Plank Depth	Weight PSF		2' - 0"	2' - 6"	3' - 0"	3' - 6"	4' - 0"	4' -6"	5' - 0"	5' - 6"	6' - 0"	6' - 6"	7' - 0"	8' - 0"
1"	3.10	U D C D	760 0.089 760 0.071	486 0.138 608 0.111	338 0.1999 507 0.159	248 0.271 434 0.217	190 0.354 380 .283							
1 1/4"	3.60	U D C D	1247 0.075 1247 0.060	798 0.117 997 0.094	554 0.169 831 0.135	407 0.230 712 0.184	312 0.301 623 0.241	246 0.381 554 0.304	199 0.470 499 0.376					
1 1/2"	4.30	U D C D	1863 0.064 1863 0.051	1193 0.100 1491 0.080	828 0.143 1242 0.115	608 0.195 1065 0.156	466 0.255 932 0.204	368 0.323 828 0.258	298 0.398 745 0.319	246 0.482 678 0.385				
1 3/4"	4.60	U D C D	2390 0.055 2390 0.044	1530 0.087 1912 0.069	1062 0.125 1593 0.100	780 0.170 1366 0.136	598 0.222 1195 0.177	472 0.280 1062 0.224	382 0.346 956 0.277	316 0.419 869 0.335	266 0.499 797 0.399			
2"	5.30	U D C D	3463 0.051 3463 0.041	2217 0.079 2771 0.063	1539 0.114 2309 0.091	1131 0.155 1979 0.124	866 0.203 1732 0.162	684 0.256 1539 0.205	554 0.317 1385 0.253	458 0.383 1259 0.307	385 0.456 1154 0.365	328 0.535 1066 0.428	283 0.621 990 0.496	
2 1/4"	5.50	U D C D	4130 0.045 4130 0.036	2643 0.071 3304 0.057	1836 0.102 2753 0.082	1349 0.139 2360 0.111	1033 0.181 2065 0.145	816 0.230 1836 0.184	661 0.284 1652 0.227	546 0.343 1502 0.274	459 0.408 1377 0.327	391 0.479 1271 0.383	337 0.556 1180 0.445	
2 1/2"	5.70	U D C D	4835 0.041 4835 0.033	3094 0.064 3868 0.051	2149 0.093 3223 0.074	1579 0.126 2763 0.101	1209 0.165 2418 0.132	955 0.208 2149 0.167	774 0.257 1934 0.206	639 0.311 1758 0.249	537 0.370 1612 0.296	458 0.434 1488 0.348	395 0.504 1381 0.403	302 0.658 1209 0.526

Loads amd deflections are theoretical values based on 10,000 PSI unit stress. For pedestrian comfort deflections in excess of 1/4" are not recommended.

U= Uniform Load , lbs. per sq. ft.
C= Concentrated Mid-Span Load, lbs. per ft. of grating width
D= Deflection in inches

BarnettBates aluminum plank and band bars are 6063 - T6 extrusions per ASTM B 221.

Stair Treads

BarnettBates offers rugged fabricated stair treads to match the full line of our grating products.

- Steel
- Stainless Steel
- Rectangular or I-Bar Aluminum
- Aluminum plank
- Fiberglass (see page 25 for information on fiberglass treads)
- Safety Grating

Welded steel treads, the choice for most industrial plants and commercial buildings, offer strength, economy and easy installation. Light weight, high strength aluminum or fiberglass treads are highly corrosion resistant.

Safe, skid-resistant, self-cleaning and economical fabricated treads are available with a wide variety of nosings. Nosings reinforce tread strength at the point of greatest impact and provide a definitive, visible edge with a roughened surface to help prevent slips and falls. Choose checkered steel nosing, cast abrasive steel or aluminum or SlipNOT® (see page 5) anti-slip nosing for steel or stainless steel treads. For aluminum treads, select corrugated (fluted) aluminum nosing, cast abrasive aluminum or SlipNOT® (see also page 5) anti-slip nosing. Pre-punched end or carrier plates, ready for bolting to stair stringers.

Aluminum Grating Stair Treads

Bearing Bar Size	1 3/16" on center Bearing Bars		15/16" on center Bearing Bars	
	Plain or I-Bar	Serrated	Plain or I-Bar	Serrated
1 x 3/16	2' - 4"	-	2' - 6"	-
1 14 x 3/16	2' - 10"	2' - 7"	3' - 1"	2' - 9"
1 1/2 x 3/16	3' - 6"	3' - 2"	3' - 10"	3' - 6"
1 3/4 x 3/16	4' - 3"	3' - 10"	4' - 8"	4' - 3"

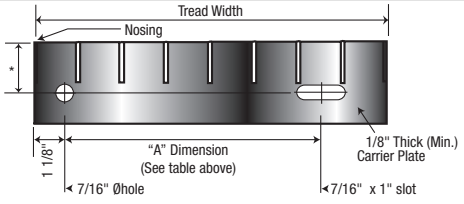
Steel Grating Stair Treads

Bearing Bar Size	1 3/16" on center Bearing Bars		15/16" on center Bearing Bars	
	Plain	Serrated	Plain	Serrated
3/4 x 3 1/6	2' - 4"	-	2' - 8"	-
1 x 3/16	3' - 5"	2' - 10"	4' - 0"	3' - 4"
1 1/4 x 3/16	4' - 8"	4' - 2"	5' - 1"	4' - 6"
1 1/2 x 3/16	5' - 6"	5' - 3"	5' - 6"	5' - 6"

Table of Stair Tread Widths

1 3/16 " on center Bearing Bars			15/16" on center Bearing Bars		
Nominal Tread Width	Number of Bearing Bars	Standard"A" Dimension	Nominal Tread Width	Number of Bearing Bars	Standard"A" Dimension
6 1/4"	5	2 1/2"	6 1/8"	6	2 1/2"
7 3/8"	6	4 1/2"	7 1/8"	7	4 1/2"
8 1/2"	7	4 1/2"	8"	8	4 1/2"
9 3/4"	8	7"	9"	9	4 1/2"
11"	9	7"	9 7/8"	10	7"
12 1/8"	10	7"	10 7/8"	11	7"
			11 3/4"	12	7"

Metal Bar Grating End Plate Detail

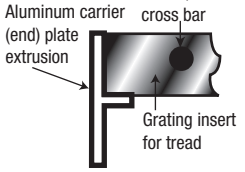


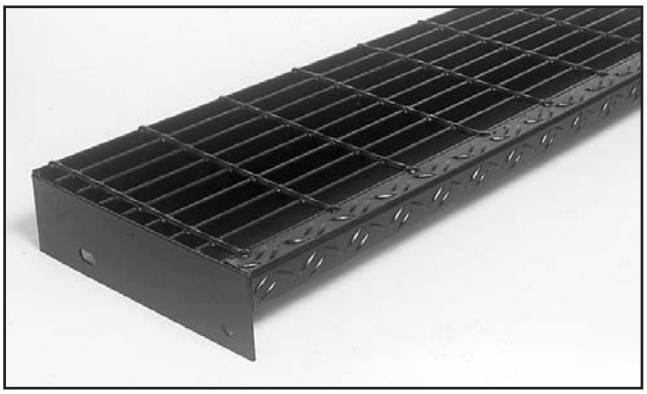
*** Steel Treads**
3/4" thru 1 1/4" bearing bars = 1 3/4"
1 1/2" thru 2" bearing bars = 2 1/4"

*** Aluminum Treads**
All sizes = 2 1/4"

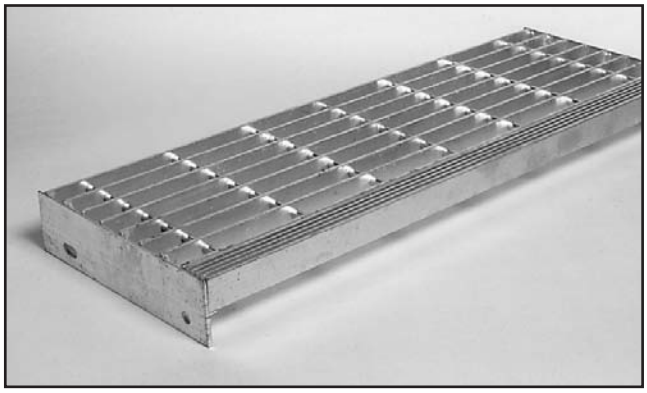
BarnettBates Advantage

Our standard carrier (end plates) for aluminum treads use special extrusions for superior tread strength.



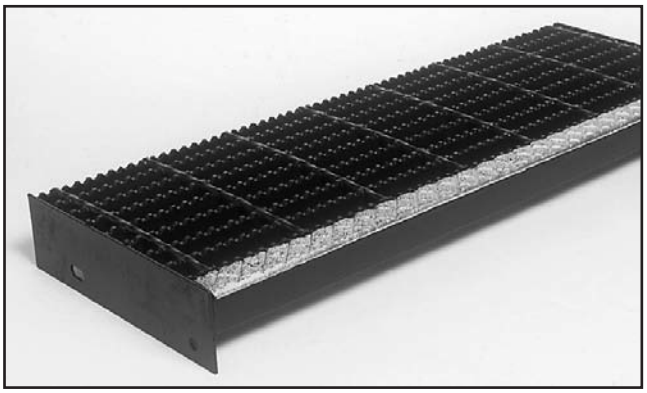


Steel grating tread, smooth surface, checkered nosing

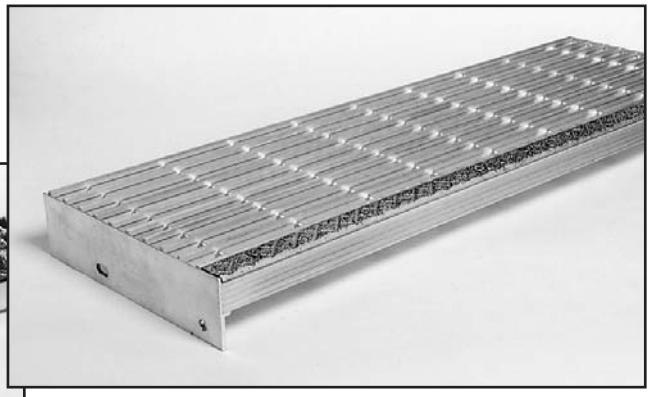


Aluminum grating tread, smooth surface, corrugated nosing

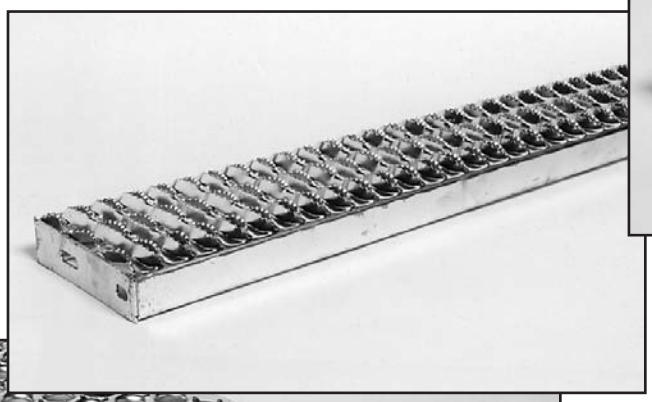
Steel grating tread, serrated surface, cast abrasive nosing

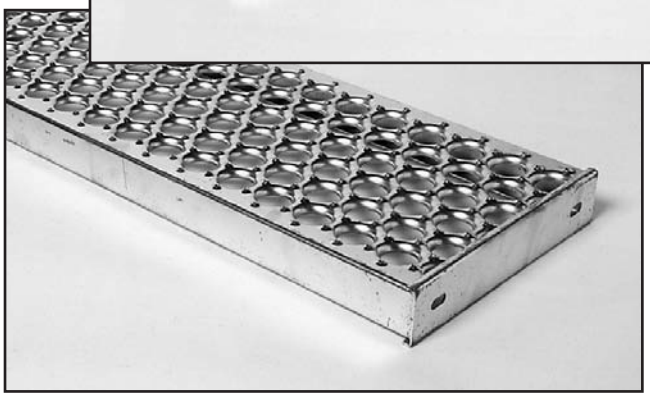


Aluminum grating tread, grooved I-Bar surface, cast aluminum abrasive nosing

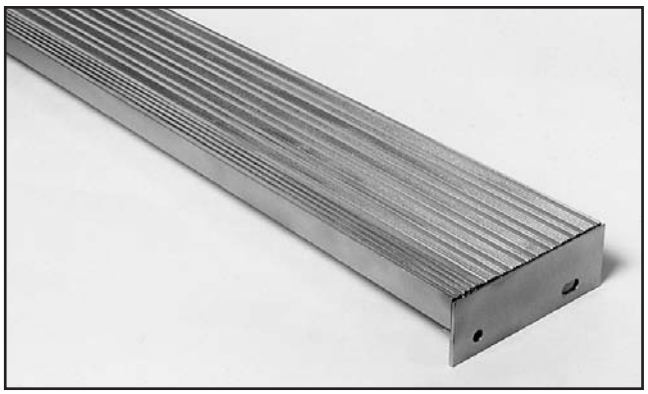


Diamond pattern safety grating tread





Round hole pattern safety grating tread



Aluminum plank grating tread, grooved surface, corrugated nosing

Grating Attachment Methods

All gratings must be firmly fastened in place. Field welding of steel panels to the supporting structure provides a superior, permanent installation.

For aluminum and fiberglass grating, or for steel grating subject to removal, fastening can be accomplished with various types of clips. Most types can be applied with simple hand tools.

Anchor Block

Recessed anchor blocks (also known as weld lugs) of 1/4" or 3/16" thick aluminum or steel can be shop-welded to the grating and used to bolt grating panels to supporting framework.

Saddle Clip

Also called "M" clips, these stainless steel or galvanized steel fasteners are typically used for removable panels. (NOTE: Cross bar segments may have to be cut out in the field to facilitate placement of saddle clips).

An alternative style clip is available for greater resistance to deflection under heavier loads.

"G" Clip

These clips install from the top surface of the grating and self-adjust to the grating depth to create a friction connection with the horizontal flange supporting the panel. Available in aluminum, stainless steel or galvanized steel.

A modified form of "G" clip is ideal for fastening pultruded fiberglass grating to steel structural members. An alternative clamp style can be used to avoid damage to beams with special paint coatings or to fiberglass structural members.

Grating Splice Clamp

This galvanized fastener is used to fasten parallel grating sheets to each other by providing a false flange that projects under the second grating panel. Use a "G" clip to fasten the second panel to the projecting arm.

Accessory Clamp

Attach devices to existing grating surfaces with this galvanized fastener.

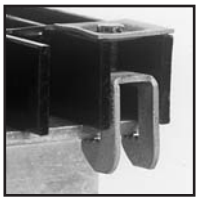
Embedment Angles

Embedment angles, cast into concrete floors and substructures, form a permanent shield against cracking and chipping of otherwise unprotected lead edges and perimeters. During construction, these rigid angles expedite forming and help ensure accuracy of the concrete pour. Frames assembled in the field from embedment angles, when placed around openings, provide a uniform bearing surface for grates or covers.

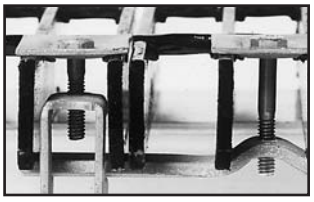
Steel and aluminum (1/4" thick, minimum) embedment angles are provided with concrete stud anchors welded within six inches of each end and a maximum of 24 inches apart. Alternative anchor sizes and spacings are available.

Fiberglass embedment angles have an integral full-length anchor tab. Aluminum is also available with a similar anchor system.

Weld Lug Anchor

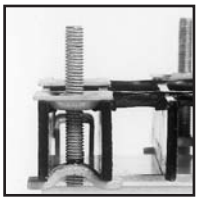


G-Clip Anchor



G-Clip & Panel Connector

Saddle Clip & Tek Screw



G-Clip Mounting Stud

Metal Grating Panel Widths And Layout

Individual grating panels do not require support on all four sides of each cut piece. Bar grating panels only require support perpendicular to the bearing bar span.

BarnettBates offers stock grating panels in 24" and 36" nominal widths. Stock panel lengths (span) are 20'-0" and 24'-0".

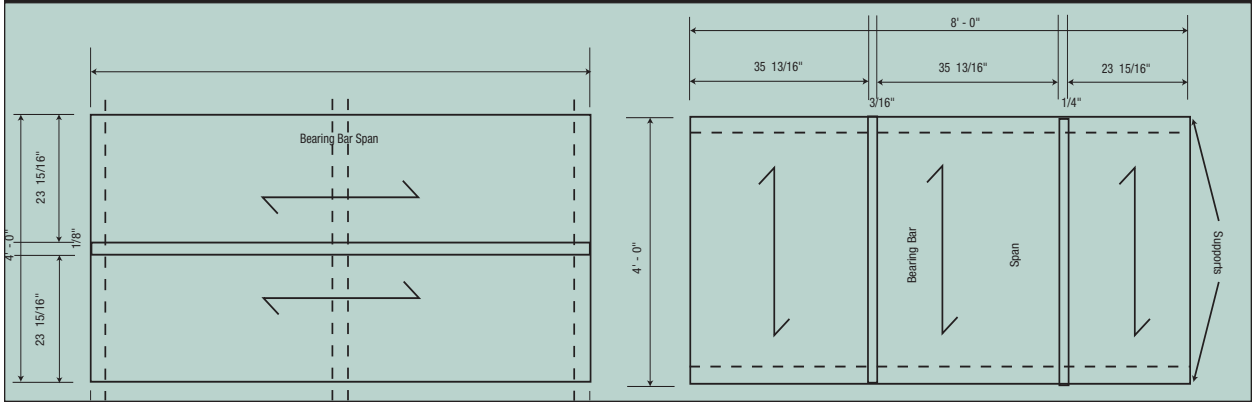
When considering alternate widths, use this table to select widths consistent with out-to-out spacing of the bearing bars.

Panel Width Chart

Number of Bearing Bars	Bearing Bar Spacing				Number of Bearing Bars	Bearing Bar Spacing			
	1 3/16" on center	15/16" on center	11/16" on center	7/16" on center		1 3/16" on center	15/16" on center	11/16" on center	7/16" on center
6 7 8	6 1/8" 7 5/16" 8 1/2"	4 7/8" 5 13/16" 6 3/4"	3 5/8" 4 5/16" 5"	2 3/8" 2 13/16" 3 1/4"	26 27 28	29 7/8" 31 1/16" 32 1/4"	23 5/8" 24 9/16" 25 1/2"	17 3/8" 18 1/16" 18 3/4"	11 1/8" 11 9/16" 12"
9 10 11	9 11/16" 10 7/8" 12 1/16"	7 11/16" 8 5/8" 9 9/16"	5 11/16" 6 3/8" 7 1/16"	3 11/16" 4 1/8" 4 9/16"	29 30 31	33 7/16" 34 5/8" 35 13/16"	26 7/16" 27 3/8" 28 5/16"	19 7/16" 20 1/8" 20 13/16"	12 7/16" 12 7/8" 13 5/16"
12 13 14	13 1/4" 14 7/16" 15 5/8"	10 1/2" 11 7/16" 12 3/8"	7 3/4" 8 7/16" 9 1/8"	5" 5 7/16" 5 7/8"	32 33 34		29 1/4" 30 3/16" 31 1/8"	21 1/2" 22 3/16" 22 7/8"	13 3/4" 14 3/16" 14 5/8"
15 16 17	16 13/16" 18" 19 3/16"	13 5/16" 14 1/4" 15 3/16"	9 13/16" 10 1/2" 11 3/16"	6 5/16" 6 3/4" 7 3/16"	35 36 37		32 1/16" 33" 33 15/16"	23 9/16" 24 1/4" 24 15/16"	15 1/16" 15 1/2" 15 15/16"
18 19 20	20 3/8" 21 9/16" 22 3/4"	16 1/8" 17 1/16" 18"	11 7/8" 12 9/16" 13 1/4"	7 5/8" 8 1/16" 8 1/2"	38 39 40		34 7/8" 35 13/16"	25 5/8" 26 5/16" 27"	16 3/8" 16 13/16" 17 1/4"
21 22 23	23 15/16" 25 1/8" 26 5/16"	18 15/16" 19 7/8" 20 13/16"	13 15/16" 14 5/8" 15 5/16"	8 15/16" 9 3/8" 9 13/16"	41 42... 53...			27 11/16" 28 3/8" 35 15/16"	17 11/16" 18 1/8" 22 15/16"
24 25	27 1/2" 28 11/16"	21 3/4" 22 11/16"	16" 16 11/16"	10 1/4" 10 11/16"	83...				36 1/16"

Widths shown are for 3/16" thick bearing bars, deduct 1/16" from the indicated values for 1/8" thick bearing bars add 1/16" for I-Bar grating. Widths shown do not include cross-bar extensions.

Typical Panel Layouts



Safety Grating

BarnettBates offers two types of cold-formed, channel-shaped steel safety grating products in round hole and diamond patterns. These one-piece safety grating panels help provide a safe work environment under almost any industrial condition. Aluminum and stainless steel safety grating are also available.

Installation is simple and economical. The lightweight design provides high strength to weight ratio and requires little maintenance.

Diamond pattern grating features rough serrated edges around diamond shaped openings to provide excellent slip resistance, even when exposed to snow, ice, grease or oil. Rounded corners at the saddle and side channel locations reduce the possibility of stress cracks across saddles or at the side channels under various loading conditions.

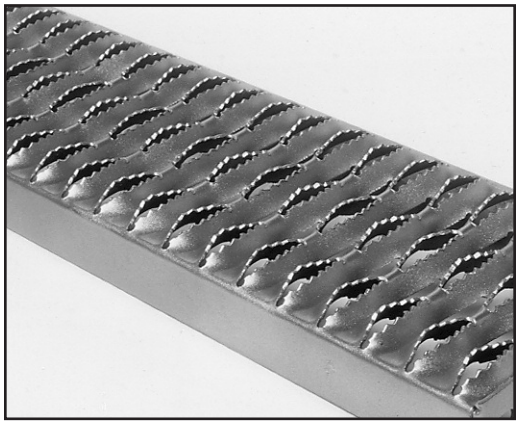
Round hole pattern grating features large embossed holes for maximum drainage, surrounded by smaller embossed traction buttons that provide superior slip resistance in all directions and in all weather conditions.

Diamond Pattern Channel: Pre-galvanized steel, HRPO Steel, 304-2B Stainless Steel, 5052-H32 Aluminum.

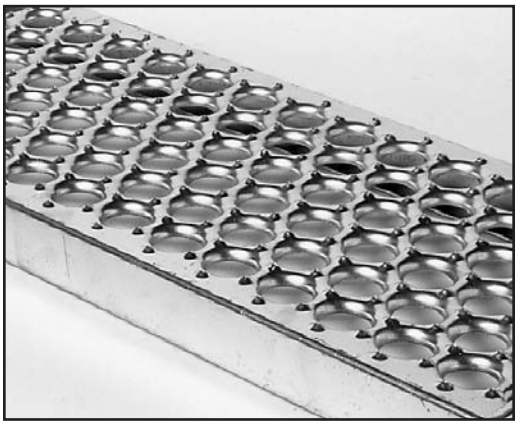
Round Hole Pattern Channel: Pre-galvanized steel, HRPO Steel, 304-2B Stainless Steel, 5052-H32 Aluminum.

Safety Stair Treads: Available in either pattern, shipped complete with end caps ready to install. Diamond pattern treads are available in 12 or 14 gauge pre-galvanized steel. Round hole pattern treads are available in 11 or 13 gauge pre-galvanized steel.

Diamond Hole Pattern

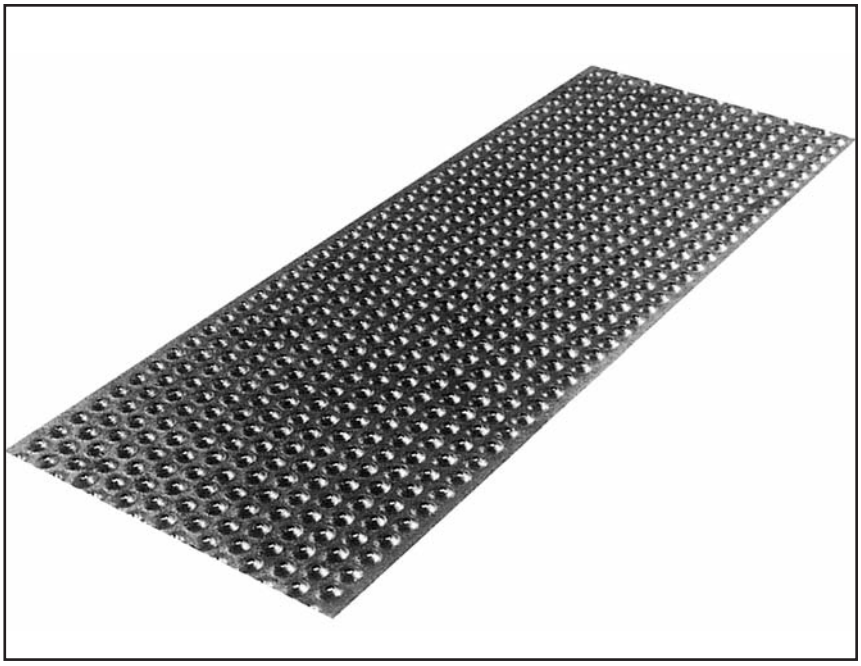


Diamond Pattern		
Width	Stock Length	Channel Height
4 3/4"	144"	1 1/2", 2"
7"	144"	1 1/2", 2"
9 1/2"	144"	1 1/2", 2"
11 3/4"	144"	1 1/2", 2"
18 3/4"	144"	1 1/2", 2"
24"	144"	1 1/2", 2"



Round Hole Pattern

Round Hole Pattern		
Width	Stock Length	Channel Height
5"	144"	1 1/2", 2"
7"	144"	1 1/2", 2"
10"	144"	1 1/2", 2"
12"	144"	1 1/2", 2"
18"	144"	1 1/2", 2"
24"	144"	1 1/2", 2"
30"	144"	1 1/2", 2"



Safety Tread Flooring

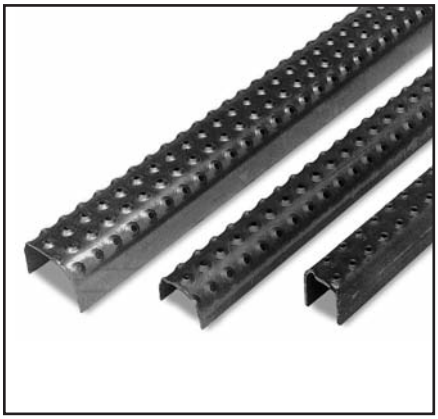
Safety Tread® Flooring

A cold-formed steel flooring that features small perforated dimples, Safety Tread® provides an ideal safety surface for pedestrian traffic. The perforated surface is equally suited for work boots or high heels. The perforations help drain spillage, and prevent oil film from forming on the gripping edges. Standard stock sheets are 36" wide by 120" long.

Safety Tread® Flooring may also be formed into channels or stair treads.

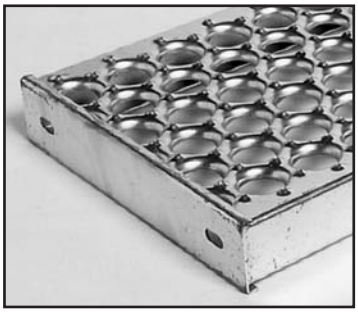
HRPO Steel (11 or 16 gauge), 5052-H32 Aluminum (0.125" thick).

Safety Tread is a registered trademark of the Alabama Metal Industries Corporation



Ladder Rungs

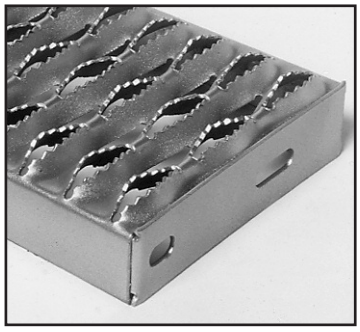
Round Hole Pattern Stair Tread



Ladder Rungs

Ladder rungs use the same raised perforations as in Safety-Tread® flooring, specifically designed for ladder rungs. Ideal for industrial environments, rungs can be ordered in two-, three- and four-hole patterns.

Available in 13 gauge HRPO Steel, 14-gauge Stainless Steel or 0.125" thick Aluminum.



Diamond Hole Pattern Stair Tread

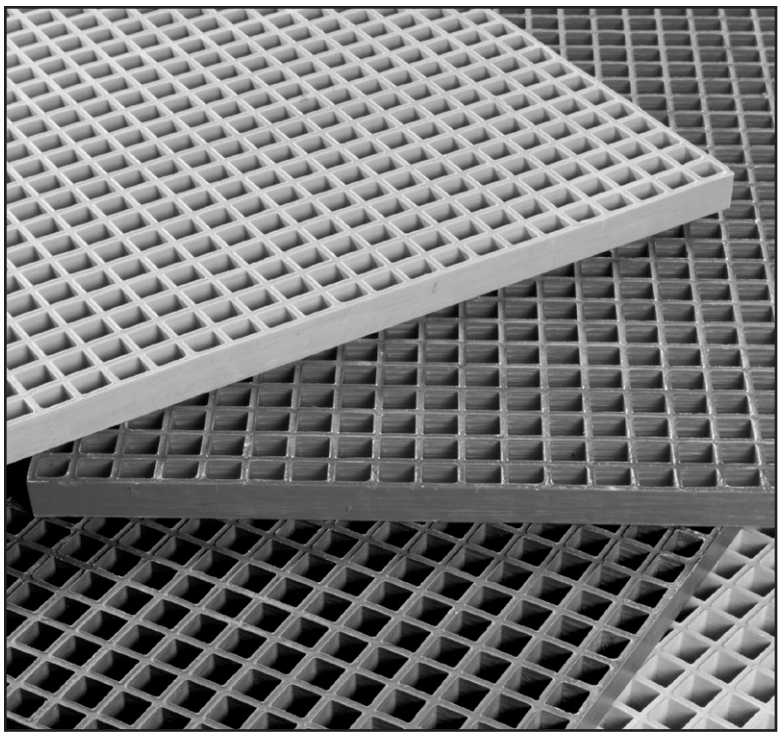
Ladder Rungs					
Type	Width	Height	H.R. P&O	Alum.	S.S.
2 hole	1 1/4"	1 1/2"	1.2#/ft.	.5#/ft.	N/A
3 hole	1 5/8"	1 1/8"	1.3#/ft.	.5#/ft.	.6#/ft.
4 hole	2 1/4"	1 1/2"	1.5#/ft.	.7#/ft.	1.0#/ft.

Fiberglass Grating

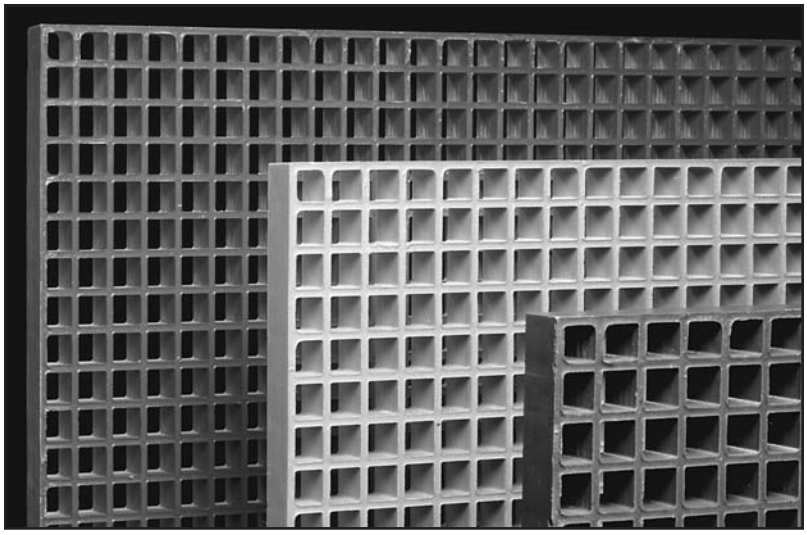
Fiberglass grating offers an attractive, low maintenance alternative to metal grating for many applications. Weighing much less than steel, fiberglass grating is easier and less expensive to transport. Install and remove using only simple hand tools. The rigid glass-reinforced plastic resin structure provides superior strength and load-bearing capability, while its inherent resistance to corrosion, chipping and cracking ensures a long, trouble-free service life.

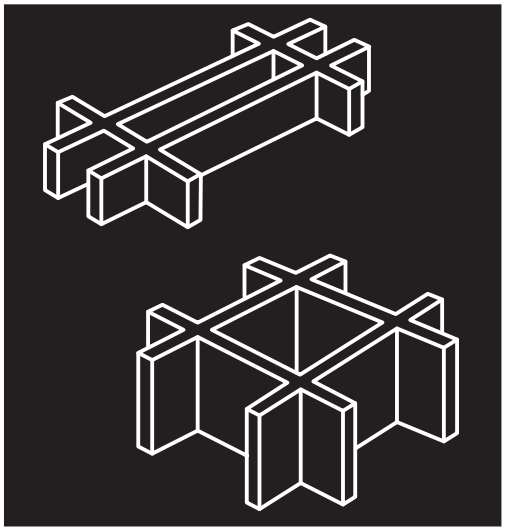
Fiberglass grating is non-conducting and non-magnetic, making it ideal for personnel protection in electrical applications, including electrical work platforms and fencing around high-voltage equipment and microwave installations. In addition, its non-sparking feature makes it safer for use around volatile chemicals.

Fiberglass grating has been used successfully in many industries - including food, beverage and pharmaceutical , chemical, water and wastewater treatment, metal finishing, pulp/paper and textile processing, transportation, marine and offshore installations, oil/gas and plating operations.



Molded Fiberglass Grating





Fiberglass grating square and rectangular mesh patterns

Molded fiberglass grating is produced in one-piece mesh panels with either a plain concave or grit non-slip walking surface. With load-bearing bars running in both directions, it provides a pleasing, uniform appearance. It is manufactured by interweaving continuous fiberglass strands with thermosetting polyester or vinylester resin systems. Integral (solid surface) grating covers are also available. Typical applications include floor systems, walkways, work platforms, stairs, ramps, trench covers and catwalks.

Standard panels are available in fire-retardant resin systems, four panel sizes and six standard grid patterns. Panels may be efficiently cut and sealed on-site to minimize grating waste.

Standard colors are gray, green, orange and safety yellow. Custom colors are available.

Molded fiberglass stair treads with matching colors and integral nosings are also available.

For load and deflection information please call BarnettBates.

Molded Fiberglass Grating Tables

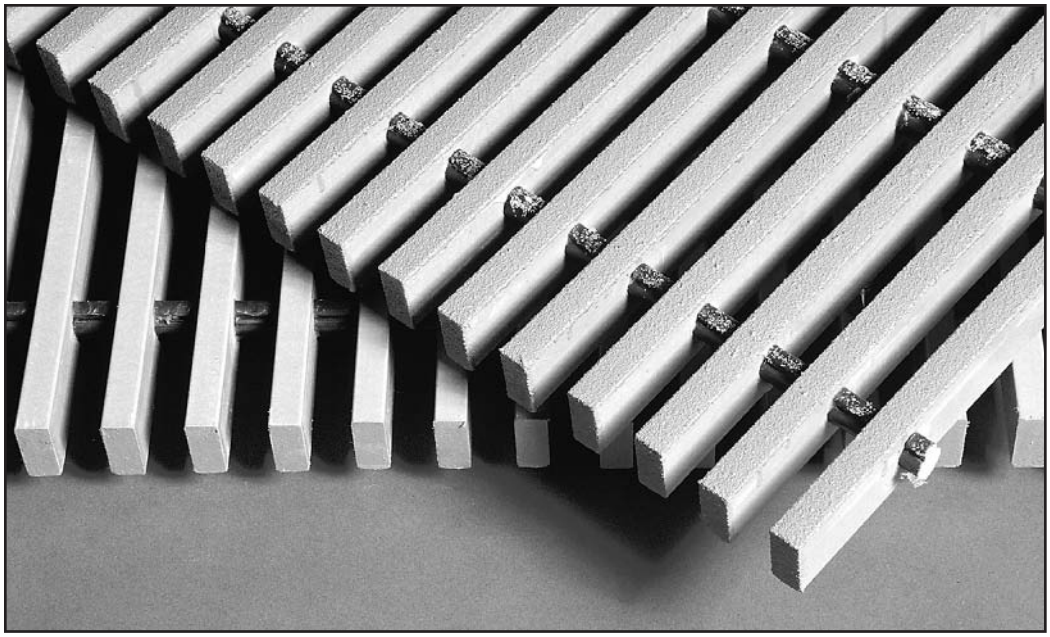
Thickness	Mesh	Panel Sizes	Wt.Per.Sq.Ft.	Resin Systems	Colors
1"	1" x 4" rectangular	3'x 10', 4'x 8', 4'x12'	2.8lbs.	VEFR, ISOFR, Food Grade	Colors typically depend on resin system. Colors availabe include DK Gray, LT Gray, Orange, Yellow, and Green.
1"	1 1/2" x 1 1/2" square	3' x 10', 4' x 8', 4' x 12'	2.6lbs.	VEFR, ISOFR, Food Grade	
1 1/2"	3/4" x 3/4"	4'x12'	4.4lbs	VEFR, ISPFR, Food Grade	
1 1/2"	1 1/2" x 1 1/2"	3' x 10', 4' x 8', 4' x 12', 5' x 10'	3.8 lbs.	VEFR, ISOFR, Food Grade	
1 1/2"	1 1/2" x 6"	4' x 12'	3.5 lbs.	VEFR. ISOFR, Food Grade	
2"	2" x 2"	4' x 12'	4.0 lbs.	VEFR, ISOFR, Food Grade	

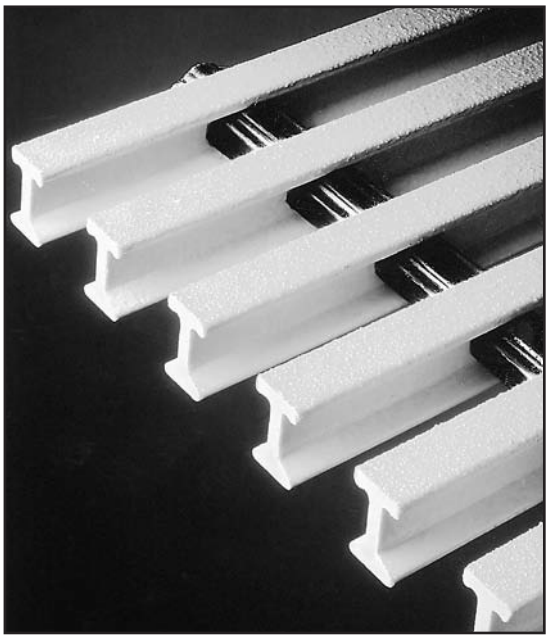
Pultruded Fiberglass Grating

Pultruded grating provides the ultimate combination of strength, corrosion resistance and structural integrity. Bearing bars are made in a continuous, automated process in which a core of densely-packed longitudinal glass strands (roving), wrapped in a matting of randomly-oriented glass strands and a synthetic UV-resistant surface veil, are literally "pulled" simultaneously through a "bath" of thermosetting premium grade vinyl ester or polyester resin and into a heated forming-and-curing die. The result is a strong composite structural shape with high impact and fatigue strength. A coarse epoxy grit is bonded to the walking surfaces of all pultruded grating and stair treads for improved traction.

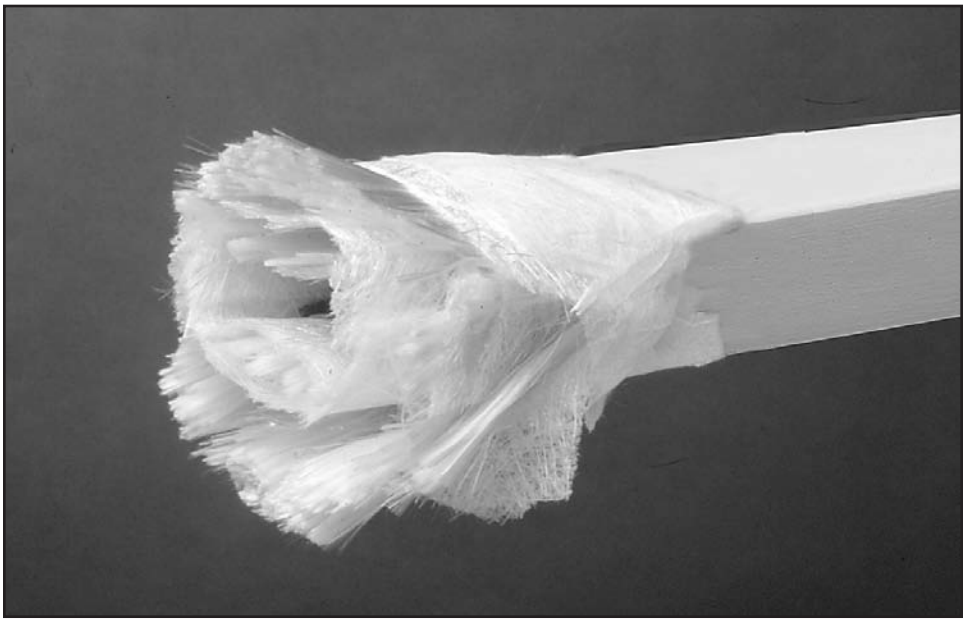
The traditional "I" bearing bar shape, available in 1", 1 1/4" and 1 1/2" depths, provides maximum flexibility in design. The T-bar shape, available in 1", 1 1/2" and 2" depths, can provide a safer walking surface.

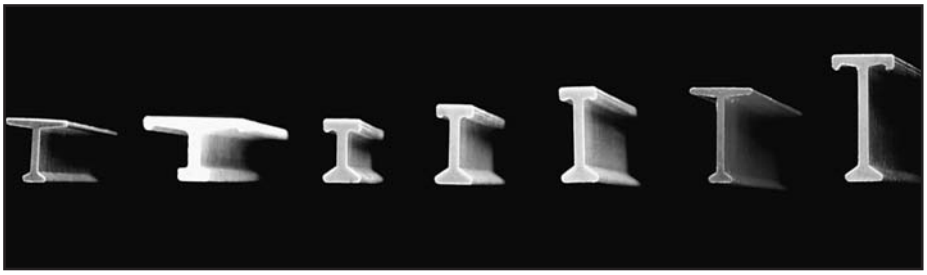
Heavy Duty flat solid bar fiberglass grating in depths up to 2 1/2", designed to take heavy wheel traffic such as forklifts and trucks, is also available.





Please call Barnett/Bates for assistance & Load and Deflection information.





A patented multi-piece locking cross bar assembly forms a strong unified panel. This panel can be cut and fabricated like a solid sheet to fit almost any plant requirement, using standard carpenter's tools with abrasive cutting edges.

Standard colors are gray and safety yellow. Panels with 1" I- and T-bars are also available in white non-fire retardant polyester resin. Other colors can be quoted upon request.

Heavy Duty flat solid bar fiberglass grating in depths up to 2 1/2", designed to take heavy wheel traffic such as forklifts and trucks, is also available.

High-strength pultruded bar-type gratings are ideal alternatives for steel or aluminum gratings in corrosive environments or anywhere that environmental conditions require the frequent and costly replacement of metal grating and walkways.

Standard panel sizes are 3', 4' and 5' widths in 8', 10', 12' or 20' lengths. Standard panels come with cross bar spacing of 6" or optional 12" on center.

Pultruded Fiberglass Table

Series	Panel Thickness	Sizes Widths	Sizes Spans	Wt. Per Sq. Ft.	Open Area	Resin Systems	Colors
Light Duty Pedestrian Gratings							
T1800	1"	3',4', 5'	8',10',12', 20'	2.5	40%	ISOFR, VEFR	White, Gray, Yellow
ET5000	1", 1-1/2"	3',4',5'	8',10',12', 20'	1.9 -2.2	50%	ISOFR, VEFR	Gray, Yellow
Standard Duty Industrial Gratings							
T3300	1-1/2", 2"	3',4',5'	8',10',12', 20'	2.4-4.2	33%	ISOFR, VEFR	Gray, Yellow
T5000	2"	3',4,'5'	8', 10',12', 20'	3.0	50%	ISOFR, VEFR	Gray, Yellow
I3000	1", 1-1/4", 1-1/2"	3',4',5'	8', 10',12', 20'	4.2-5.1	30%	ISOFR, VEFR	Gray, Yellow
I4000	1", 1-1/4", 1-1/2"	3',4',5'	8', 10',12', 20'	3.7-4.5	40%	ISOFR, VEFR	Gray, Yellow
I5000	1", 1-1/4", 1-1/2"	3',4',5'	8', 10',12', 20'	3.2-3.8	50%	ISOFR, VEFR	Gray, Yellow
I6000	1", 1-1/4", 1-1/2"	3',4',5'	8', 10',12', 20'	2.4-3.0	60%	ISOFR, VEFR	Gray, Yellow
I7000	1", 1-1/4", 1-1/2"	3',4',5'	8', 10',12', 20'	2.2-2.6	70%	ISOFR, VEFR	Gray, Yellow
Heavy Duty Gratings							
HD4000	1", 1-1/4", 1-1/2", 1-3/4", 2", 2-1/2"	3',4',5'	8', 10',12', 20'	7.0-16.3	40%	ISOFR, VEFR	Gray, Yellow
HD5000	1", 1-1/4", 1-1/2", 1-3/4", 2", 2-1/2"	3',4',5'	8', 10',12', 20'	5.9-13.7	50%	ISOFR, VEFR	Gray, Yellow
HD6000	1", 1-1/4", 1-1/2", 1-3/4", 2", 2-1/2"	3',4',5'	8', 10',12', 20'	4.9-11.1	60%	ISOFR, VEFR	Gray, Yellow

Fiberglass Structures Handrail and Ladders

Pultruded structural member profiles, available in either polyester (gray) or vinylester (beige) resin systems, offer a dimensionally stable, strong and easily installed alternative to steel. Fiberglass structures can economically solve a multitude of plant safety and access problems, especially in extremely corrosive environments. All have a surface veil to increase corrosion and UV resistance and to prevent glass fibers from penetrating the resin surface while in service.

A wide variety of pre-fabricated components simplify the erection of platforms, stairs and walkways. Stock materials include:

Equal Leg Angles:
2" x 1/4"
3" x 1/4"
3" x 3/8"
4" x 1/4"
4" x 3/8"
6" x 1/2"

Solid Bar (white):
1" Diameter
1" x 1"
1 1/2" x 1 1/2"

Channels:
4" x 1-1/8" x 1/4"
6" x 1-5/8" x 1/4"
8" x 2-3/16" x 3/8"

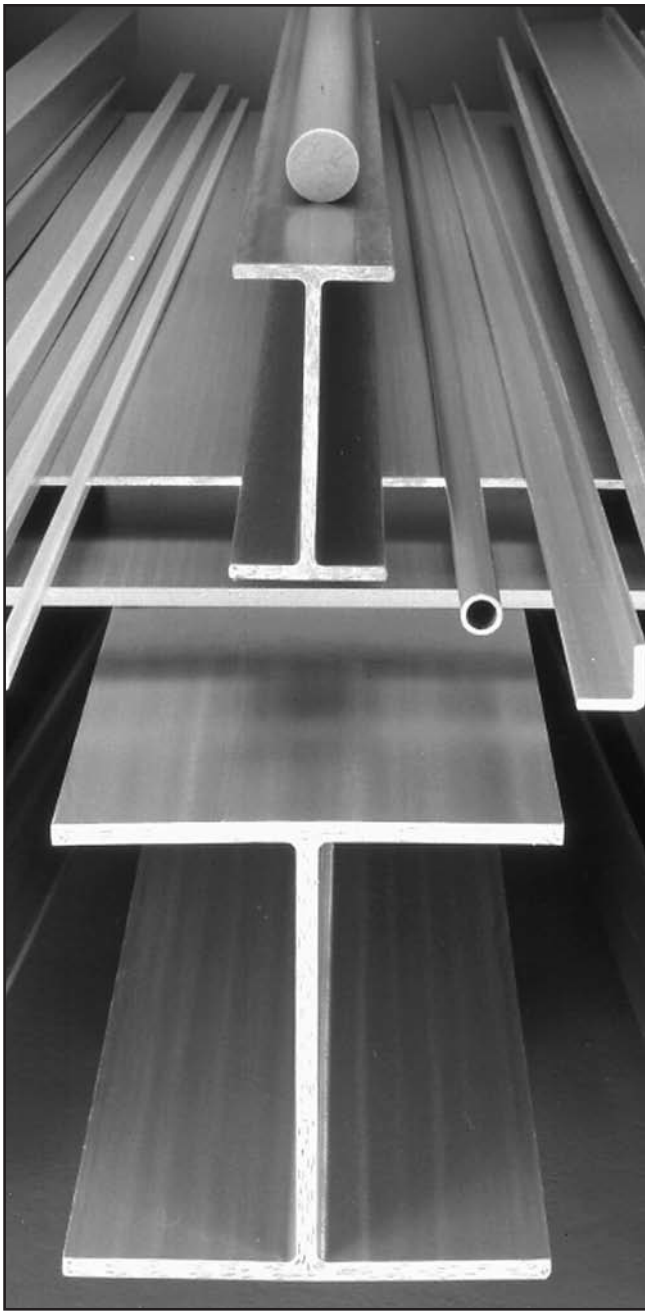
Square Tube:
1 1/2" x 1/4"
2" x 1/4"
2" x 0.156" (Yellow)

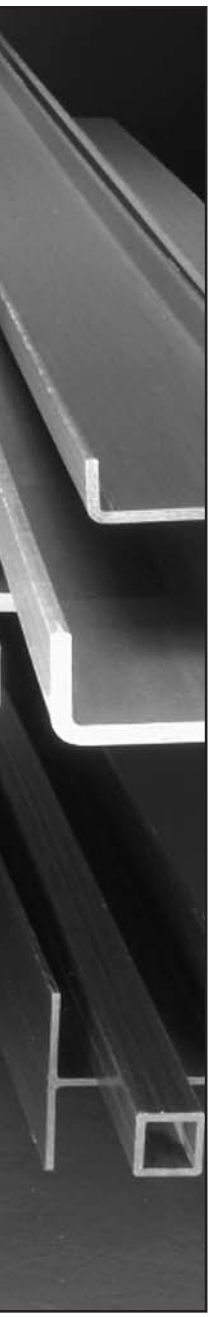
Wide Flange Beams:
4" x 1/4"
6" x 1/4"
6" x 3/8"
8" x 3/8"

Plate:
(Gritted surface optional)
1/4"
3/8"
1/2"

Special Shapes: (Yellow)
4" x 1/2" x 3/16" kickplate

Custom pultruded profiles are also available. The BarnettBates sales team can help you design and specify products to meet your needs.





Fiberglass Handrail Systems

BarnettBates 2" x 2" square pultruded fiberglass tubing handrail forms the basis of railing systems for stairs, platform/walkway handrails and guardrails. Strong and safe, these fiberglass systems meet OSHA standards. For ease of assembly, they are produced in lightweight standard sections that include both posts, rails and flush-fit internal connectors. The result is a pleasing, streamlined appearance, even around circular tanks, without special fittings. Round top or picket-style infills (which provide narrower openings for enhanced safety) are available. They can be prefabricated in large sections and shipped to the site, or fabricated and installed on site with simple carpenter tools.

Standard colors are gray and highly visible safety yellow. Custom colors are also available. Colors are added to the resin and will outlast coatings on aluminum or steel systems with virtually no maintenance.

Fiberglass Structures Continued

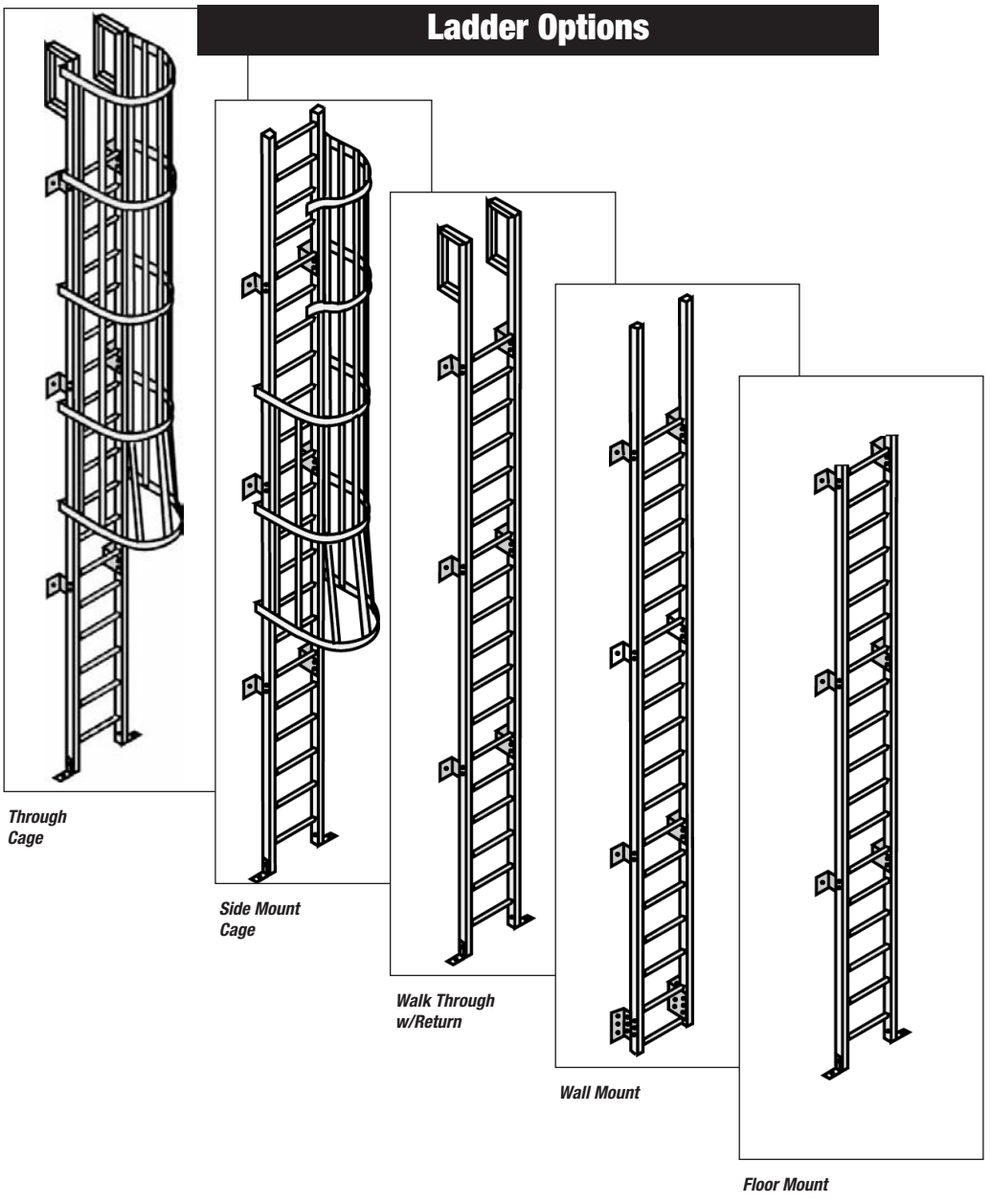
Fiberglass Ladders

Fiberglass ladders and ladder cages designed to meet OSHA standards are suitable even for complete immersion. They are fabricated in various lengths from a vinylester resin system with flame retardant and UV inhibitor additives. Standard side rails and cages are safety yellow. Rungs are pultruded fiberglass with a non-skid surface. Standard rung width is 18" and standard rung spacing is 12". Custom designs are available upon request. Ladder/cage systems can be shipped partially pre-assembled for quick and easy installation.

Complete Custom Structures

Based on your rough sketches, field measurements or detailed drawings, BarnettBates can apply its 20+ years of fiberglass fabrication experience to accurately design and quickly build the unique fiberglass structure you need at a reasonable cost. To simplify field installation, structures are pre-assembled at our plant and partially broken down for shipping.

Call BarnettBates for "spare" fiberglass grating panels, stair treads, doors, ladders or handrails to keep on hand for miscellaneous maintenance needs.



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