

I

W

M

P

Aluminum GRATING



Pleasant Mount Welding, Inc.
45 Dundaff Street
Carbondale PA 18407-1801
(570)282-6164 Fax: (570)282-7917

TABLE OF CONTENTS

GENERAL INFORMATION

Table of Contents.	2
PMWI History	3

ALUMINUM GRATING

Benefits of Aluminum.	4
Aluminum Grating Products	5
Aluminum Design Criteria.	7
Aluminum I-Bar (SI Series).	8
SI Series - Aluminum I-Bar Product Specification.	9
Aluminum Profiles - I-Bar SI Series	10
19-SI-4 & 19-SI-2 Aluminum Load & Deflection Table.	11
15-SI-4 & 15-SI-2 Aluminum Load & Deflection Table.	12
Aluminum Rectangular Bar (SR Series).	13
SR Series - Aluminum Rectangular Bar Product Specification.	14
Aluminum Profiles - Rectangular Bar SR Series	15
19-SR-4 & 19-SR-2 Aluminum Load & Deflection Table.	16
15-SR-4 & 15-SR-2 Aluminum Load & Deflection Table.	17
Aluminum Dovetail (ADT Series)	18
ADT Series - Aluminum Dovetail Product Specification.	19
Aluminum Profiles - Aluminum Dovetail ADT Series	20
19-ADT-4 & 19-ADT-2 Aluminum Load & Deflection Table	21
15-ADT-4 & 15-ADT-2 Aluminum Load & Deflection Table ** (15-ADT Series Coming Soon)	22
Aluminum Plank (PLK Series)	23
Plank Section Availability	24
Punch Pattern Guide	24
Plank Fabrication	26
PLK Series - Aluminum Plank Product Specification	27
Heavy Duty Plank (PLK Series) Load & Deflection Table	28

ALUMINUM STAIR TREADS

Aluminum Stair Tread Information	29
Aluminum Stair Tread Product Specification.	30
Aluminum Stair Tread Details	31
Standard Tread Widths, Maximum Tread Lengths & Carrier Plate Dimensions	32

ADDITIONAL INFORMATION

Grating Anchors & Angle Frame Embeds.	33
PMWI 3D Advance Steel Capabilities.	35
Engineering Firms.	36
Customer Testimonials.	37

PMWI HISTORY

PMWI has been serving the Fabricated Metals Market since 1983...***We are the Largest Manufacturer of Miscellaneous Metals for Wastewater and Water Treatment Facilities on the East Coast...and now PMWI has it's own line of Aluminum Grating Available.***

Pleasant Mount Welding, Inc. was established in 1983 to serve the fabricated metals market. After a short period, we realized that the metal fabrication industry seemed to have a poor reputation for service. Customers received late deliveries, workmanship was inconsistent, and there were customer service issues. PMWI made a commitment to be different. Our primary goal is to focus on **"what our customers expect"**.

In 1994 PMWI relocated to a 40,000 SQFT building in Carbondale, PA. Our commitment to excellence has fostered tremendous growth, and in 2007 we purchased a second 80,000 SQFT manufacturing facility within minutes of our main headquarters. This building located on 8th Ave is our certified AISC fabrication facility. A third building located directly across from our corporate building houses our Environmental Division and our most recently acquired 43,000 SQFT Atlas Street facility is home to our Grating Division.

Pleasant Mount Welding, Inc. manufacturing and design personnel have over 30 years experience supplying lintels, weir plates, embedded angles, bar racks, grating, pipe supports, ladders and numerous other fabrications. The Design and Engineering team utilizes cutting edge software in order to produce accurate and easy to follow shop drawings. Their goal is to get approved shop drawings on the first submittal. We follow **YOUR** schedule when creating submittals. PMWI also has a licensed Professional Engineer on staff to help meet any of your structural design needs. Our years of experience in metals fabrication will benefit you on all your projects.

QUALITY: The associates at PMWI do their very best to maintain high quality standards in every aspect of the company. We take great pride in producing error free shop drawings and quality fabricated products.

DELIVERIES: PMWI is dedicated to making sure that your deliveries are on time. We strive to make sure that you meet all your contract deadlines.

CUSTOMER SERVICE: Our Customers are our first priority. We are in business to serve you and your needs. We will do everything possible to make sure that you are satisfied with our service and the quality of our products.

COSTS: By focusing on quality, deliveries, and customer service, we help save you money. Quality will increase your jobsite productivity, on-time deliveries will ensure you meet your contract deadlines, and customer service will solve your problems - you will increase your bottom line profitability.



Main Office - 45 Dundaff Street, Carbondale, PA 18407



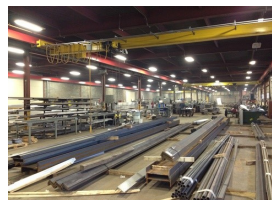
AISC Facility - 24 8th Avenue, Carbondale, PA 18407

The manufacturing operations for PMWI are performed in all four of our facilities. Each location is equipped with a complete line of modern equipment and technology.

PMWI fabricates metals according to all major codes including AISC standards, AWS welding codes and ASME welding codes. Our grating products are fabricated in accordance with NAAMM standards and follow grating industry standard practices. Specialized manufacturing software is used to organize and manage all of our manufacturing operations.

When it comes to fabricating aluminum, stainless steel and carbon steel products, PMWI has the necessary experience you can rely on to help meet your specific application needs.

PMWI manufacturing capabilities include shearing, sawing, plate bending, plate rolling, pipe bending, punching, drilling, TIG or MIG welding and shot blasting. PMWI can also handle all of your coating requirements, painting, galvanizing, anodizing or powder coat finishes.



8th Avenue Mfg Facility



52 Dundaff Environmental Div.



Atlas Street Grating Division

BENEFITS OF ALUMINUM

Aluminum has a unique set of properties...***that make it one of the most useful engineering & construction materials available today.***

Aluminum is the most abundant metallic element and one of earth's greatest natural resources. It's light weight, high strength-to-weight ratio, and excellent corrosion resistance under most environmental conditions makes it the top choice for manufacturing metal bar grating.

Unlike other types of grating materials, aluminum can be recycled, making it an environmentally friendly choice. Aluminum is also a very durable material that provides many years of service without showing signs of wear or decay. Aluminum can be easily cleaned and maintained and does not absorb bacteria sustaining particles. This makes it a perfect solution for sanitary processing operations. Aluminum is also a very resilient material that will deflect under loads and then spring back to it's original shape.

This special set of features and benefits make aluminum grating the go-to-solution for many specialized applications such as: sewage and wastewater treatment facilities, chemical processing plants, pulp and paper industry, and many other manufacturing and industrial applications. Aluminum grating also has a very aesthetically pleasing appearance that makes it a very practical and cost effective solution for many architectural and commercial applications including fencing, building facades, vent grilles, ceiling tiles, and entranceways.



Aluminum is your “Lightweight Grating Solution”

- **Aluminum** has a High Strength-to-Weight Ratio
- **Aluminum** has an Attractive Appearance
- **Aluminum** has Excellent Corrosion Resistance
- **Aluminum** is Lightweight
- **Aluminum** can be Easily Recycled
- **Aluminum** is Non-Toxic
- **Aluminum** can be Easily Modified for Fit-Up in the Field.
- **Aluminum** is Durable
- **Aluminum** is Resilient

ALUMINUM GRATING PRODUCTS

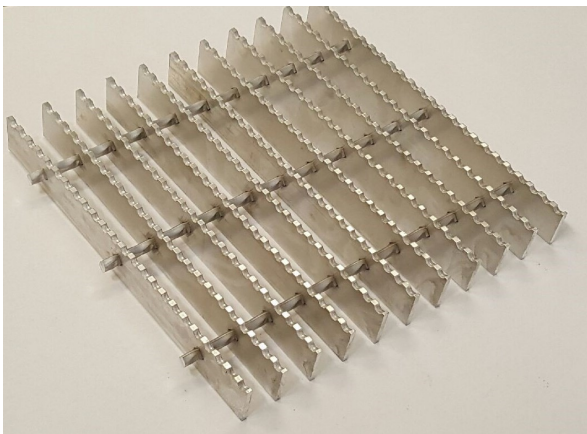
Pleasant Mount Welding offers several types of aluminum grating and stair treads: Swage Locked I-Bar and Rectangular Bar, Pressure Locked Aluminum Dove Tail, and Extruded Aluminum Plank. Aluminum Bar and Plank grating provides smoother lines and an attractive appearance compared to typical welded grating. Corrosion resistant aluminum bar and plank grating has many applications due to its light weight and high strength-to-weight ratio. It is ideally suited for use in corrosive and harsh environments making it the perfect choice for walkways and platforms in wastewater/water treatment facilities, refineries, chemical processing plants, pump stations, and a host of many other industrial and commercial applications. Aluminum grating is durable and provides many years of maintenance free service. Aluminum grating also has the advantages of being non-toxic and is easily recycled. It is available in standard mill finish or anodized finishes and offers various forms of slip resistance.

Aluminum Swage Locked I-Bar Grating SI Series



Swage Locked I-Bar Grating is one of our most popular grating products and provides strength equal to rectangular bar grating of equal depth, but at a lighter weight and lower cost. This is a type of pressure locked grating made by permanently attaching the crossbars to the bearing bars using a pressure applied swaging process. The I-bar shaped bearing bars come in 7 different grating depths ranging from 1" to 2 $\frac{1}{2}$ ". Swage locked I-bar grating is offered in either a 1 $\frac{3}{16}$ " spacing (19-spacing) or $\frac{15}{16}$ " spacing (15-spacing). Crossbars are available on 4" and 2" centers. The I-Bar bearing bar flanges incorporate a striated surface for slip resistance and **SlipNot** slip resistant coating is also available.

Aluminum Swage Locked Rectangular Bar Grating SR Series

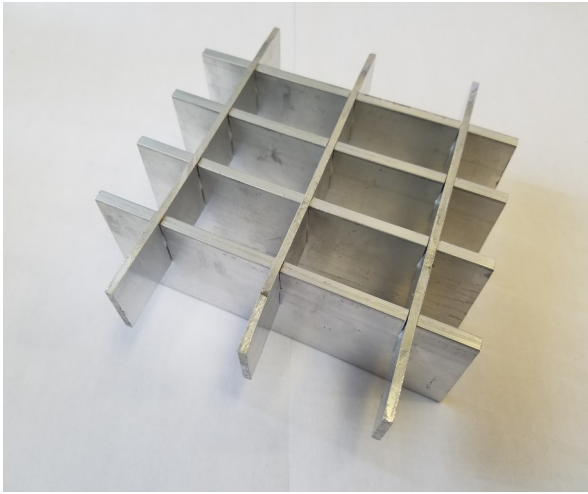


Swage Locked Rectangular Bar Grating is the most widely used pressure locked type of aluminum grating. It is made by locking the crossbars to the rectangular bearing bars using a pressure applied swaging process. The bearing bars have 7 different depths ranging from 1" to 2 $\frac{1}{2}$ ". Swage-locked rectangular bar grating is offered in a 1 $\frac{3}{16}$ " spacing (19-spacing) or $\frac{15}{16}$ " spacing (15-spacing). Crossbars are available on 4" and 2" centers. The rectangular bearing bars are available as a solid plain rectangular bar or with a serrated surface for slip resistance. **SlipNot** slip resistant coating is also available for non-serrated solid rectangular bar grating.

ALUMINUM GRATING PRODUCTS

Aluminum Dovetail Grating

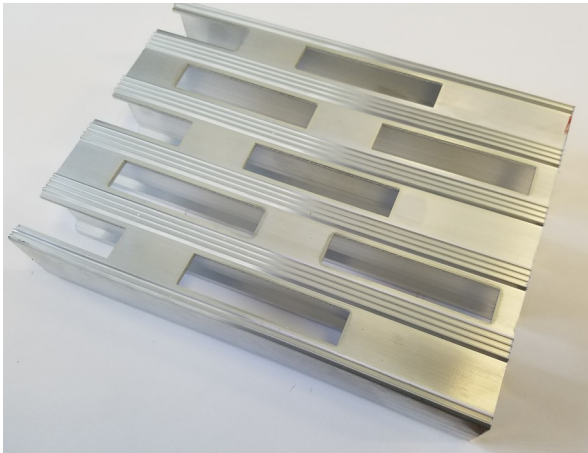
ADT Series



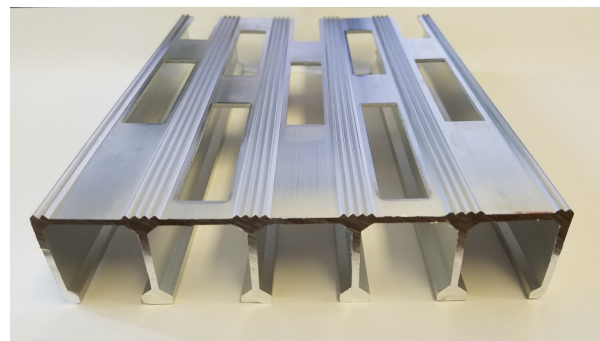
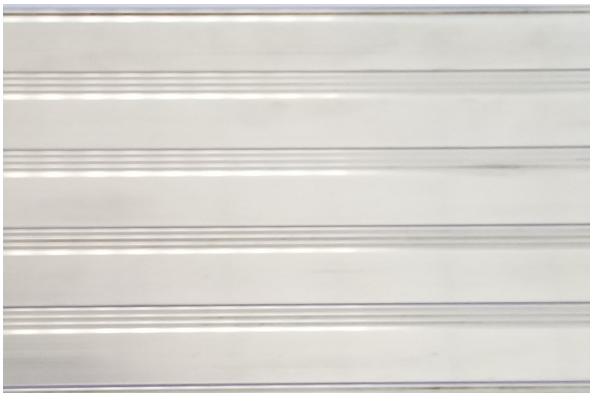
Aluminum Dovetail Grating is a type of pressure locked bar grating that offers a rectangular crossbar that is flush with the top of the rectangular bearing bars. This style of grating offers a smooth clean appearance. Both bearing bars and crossbars are precision slotted and assembled in an egg-crate overlapping configuration and hydraulically pressed together to form a tightly locked rigid grating panel. Dovetail bearing bars are offered in a $1\frac{3}{16}$ " spacing (19-spacing) and $\frac{15}{16}$ " **spacing (15-spacing) is coming soon**. Crossbars are available on 4" and 2" centers. Available in 7 grating depths ranging from 1" to $2\frac{1}{2}$ ". Dovetail grating is a popular choice of Architects because of the aesthetically appealing appearance. The bearing bars come as plain solid or serrated and may be coated with a **Slip-Not** skid resistant coating if required.

Aluminum Plank Grating

PLK Series



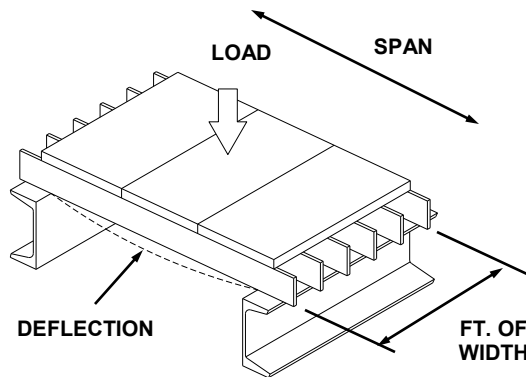
Aluminum Heavy Duty Plank is a structurally sound and attractive alternative to regular bar grating. Made from extruded aluminum, plank grating is available in 6" wide sections in 20'-0" lengths. PMWI has a built in chamfer on the bottom side of the plank that allows planks to easily weld together to form required panel sizes. Aluminum Plank is relatively maintenance free and has no parts to work loose. The plank surface can be provided unpunched or in a variety of punch patterns to allow passage of air, light, heat or moisture. **A diagonal punch pattern that meets the ADA requirements for wheelchair accessibility will be available in the near future**. The plank web top surface offers a flush walking surface for maximum foot contact and comfort. It is a great alternative to applications requiring open grating with attached plate on the top surface. Plank grating is available in 8 grating depths ranging from $\frac{3}{4}$ " to $2\frac{1}{2}$ ".



ALUMINUM DESIGN CRITERIA

The tables of safe loads and deflection that follow have been calculated using the following design parameters:

U = Uniform Load - lbs/ft²
C = Concentrated Load - lbs/ft of grating width
D = Deflection - inches
I = Moment of Inertia - in⁴/ft of grating width
S = Section Modulus - in³/ft of grating width
L = Simple Clear Span - feet
E = Modulus of Elasticity (10,000,000 psi)
F = Allowable Bending Stress (12,000 psi)
M = Bending Moment



Uniform Load

Determine M:

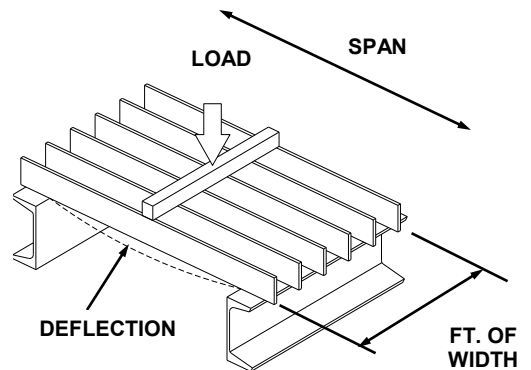
$$M = \frac{FS}{12}$$

Determine U or C:

$$U = \frac{8M}{L^2}$$

Check D*:

$$D = \frac{5UL(L \times 12)^3}{384EI}$$



Concentrated Load

$$M = \frac{FS}{12}$$

$$C = \frac{4M}{L}$$

$$D = \frac{C(L \times 12)^3}{48EI}$$

* Deflection shall be limited to 1/4" under 100 lbs. uniform load for safe pedestrian comfort.

NOTE: The design of aluminum grating for pedestrian loads is deflection limited as opposed to strength limited. Although aluminum alloy 6061-T6 is stronger than 6063-T6, the Modulus of Elasticity for both alloys is the same: 10,000,000 psi. Therefore equal loads will produce the same deflection assuming that the yield strength is not exceeded.

*Aluminum grating is recommended for use with pedestrian traffic and for light, rubber pneumatic tired rolling traffic (carts, dollies and hand trucks).
For other rolling loads (forklifts, cars, trucks, etc.) Heavy Duty Steel Grating is recommended.*

Technical information provided herein is intended only for evaluation by technically qualified persons, with any use thereof to be at their own discretion and risk. Such information is reliable when evaluated in proper manner under conditions described herein. Pleasant Mount Welding, Inc. shall have no responsibility or liability for results obtained or damages resulting from improper evaluation or use.

ALUMINUM I-BAR

SI SERIES

The Aluminum I-Bar SI Series style of grating offers a very popular and economically priced alternative to regular rectangular bar grating. The extruded I-Bar sections have the same load carrying capacity as rectangular bar grating but is approximately 30% less weight per square foot. The striations located on

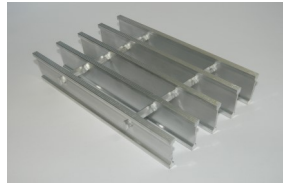
top and bottom flanges of the I-Bar sections provide a built-in means of slip resistance without the additional cost of serrations that are associated with rectangular bar grating. An optional ***Slip-Not*** coating can also be applied to the I-Bar sections to obtain an even greater slip resistance coefficient.



ALUMINUM I-BAR

SI SERIES

PRODUCT SPECIFICATION GUIDE



How to Specify:

The following information provides a model specification format for architectural and engineering specification sections that, when applied, will be consistent with the Three-Part Section Format of The Construction Specifications Institute (CSI) for specifications serving the construction industry. The CSI specification section for Grating is listed in Section 05 53 00, Metal Fabrications - Metal Gratings. These specifications are intended for use as a guide for architects and engineers and may need to be altered or modified to fit the specific conditions of the application in question.

PART 1: GENERAL

1.1 Scope

The contractor shall provide all labor, materials, equipment and incidentals as shown, specified and required to furnish and install grating, stair treads and frames.

1.2 Quality Assurance

A. Comply with applicable provisions and recommendations of the following standards:

1. ANSI/NAAMM MBG 531-09 (Metal Bar Grating Manual) and MBG 533-09 (Welding Standards for Fabrication of Steel, Stainless Steel and Aluminum Bar Grating).
2. Aluminum: ASTM B221, Aluminum Alloy, Extruded Bars, Rods, Wire, Shapes and Tubing.

1.3 Submittals

- A. The contractor shall submit for approval shop drawings for the fabrication and erection of all grating work. Include plans, elevations, and details of sections and connections. Show type and location of all fasteners.
- B. The contractor shall submit manufacturer's catalog pages, specifications, load tables, anchor details and standard installation details.
- C. Grating samples shall be submitted for approval as required.

PART 2: PRODUCT

1. Grating: Aluminum Swage Locked I-Bar Grating (SI Series) by Pleasant Mount Welding, Inc., or approved equal.
2. Bearing Bars: I-Bar section with $\frac{1}{4}$ " flange width on a maximum of $1\frac{3}{16}$ " centers. (Note: Other spacings may be specified at the discretion of the architect/engineer.) See available grating profiles for SI-Series on this sheet.
3. Crossbars: Square bars oriented at 45° and locked perpendicular to bearing bars at a maximum of 4" on center. (Note: 2" crossbar centers may be specified at the discretion of the architect/engineer.)
4. Surface: Flanges have a striated surface and may also have a slip resistant coating applied if required.

5. Loading: Grating to carry pedestrian loading equal to a uniform load of 100 lbs per square foot over the required clear span with deflection not to exceed $\frac{1}{4}$ ". Note: alternate loading requirements may be specified at the discretion of the architect/engineer (base grating depth on loading and clear span requirements).
6. Bearing bars and banding shall be Aluminum Type 6063-T6 and Crossbars shall be 6063-T1.
7. Finish: Standard Mill Finish. Optional A-41 Clear Anodizing available.
8. Fabrication and Tolerances: In accordance with the ANSI/NAAMM MBG 531-09 Metal Bar Grating Manual.
9. Provide appropriate fasteners for type, grade, and class required for the approved anchoring system.

PART 3: EXECUTION

3.1 Installation

A. Prior to grating installation, contractor shall inspect supports for correct size, layout and alignment. Any discrepancies between contract drawings and supporting structure determined to be detrimental to grating placement shall be reported in writing to the architect or owner's agent prior to grating placement.

B. Install grating in accordance with shop drawings and standard installation clearances as recommended by the ANSI/NAAMM MBG 531-09 Metal Bar Grating Manual.

C. Cutting, Fitting and Placement.

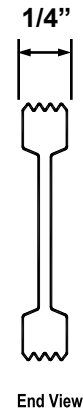
1. Fabricate cutouts in grating sections for penetrations indicated. Arrange cutouts to permit grating removal without disturbing items penetrating gratings. Band ends and cuts in grating with bars of same size and material as bearing bars.
2. Utilize standard panel widths wherever possible.

D. Protection of Aluminum from Dissimilar Materials:

1. Where aluminum surfaces come into contact with dissimilar metals, surfaces shall be kept from direct contact by painting the dissimilar metal with one coat of bituminous paint or other approved insulating material.
2. Where aluminum surfaces come into contact with dissimilar materials such as concrete, masonry or lime mortar, exposed aluminum surfaces shall be painted with one coat of bituminous paint or other approved insulating material.

3.2 Grating Attachment

Use approved attachment system and fasteners to secure grating to supporting members as shown on plans.

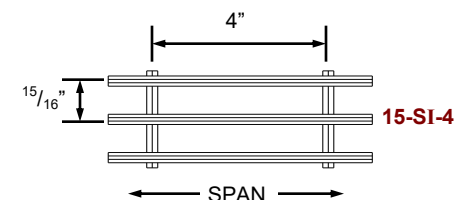
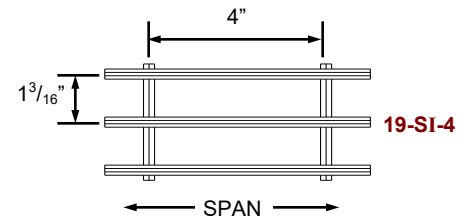


The I-Bar SI Series offers an economically priced alternative to rectangular bar grating. Extruded I-bar sections have the same load carrying capacity with less weight per square foot compared to rectangular bars. The striated top and bottom flanges provide a built-in slip resistance without the added cost of serrating.

Note: The .031" striations top and bottom flanges are in addition to the standard grating depth. For example, a 1" I-bar section has an overall depth of 1.062"

Grating Profiles Available SI Series - Aluminum I-Bar

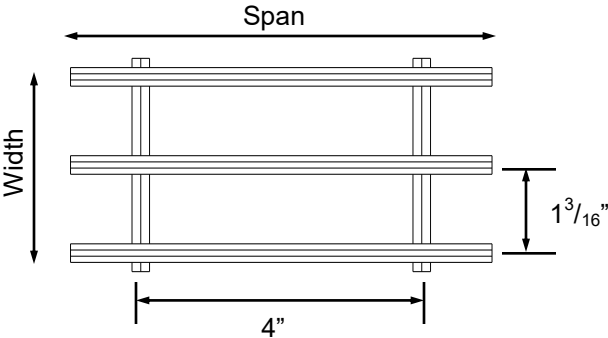
All profiles shown below are also available with 2" crossbar centers. Product numbers for 2" crossbar spacing are identified as either 19-SI-2 or 15-SI-2.



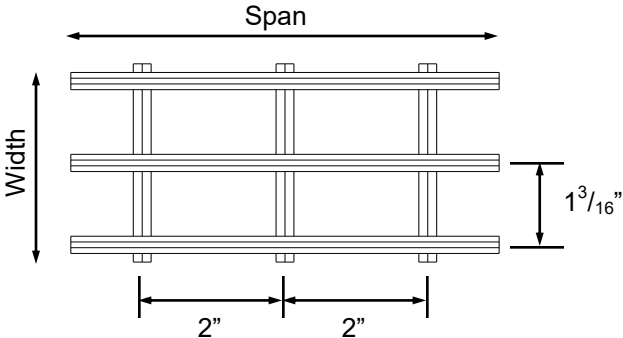
ALUMINUM PROFILES

I-BAR PROFILES - SI SERIES

19-SI-4

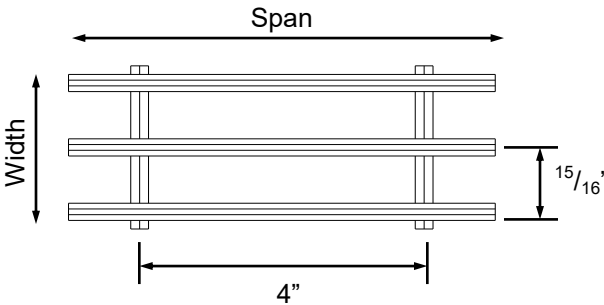


19-SI-2

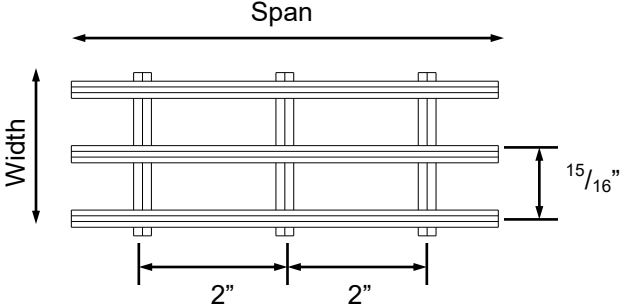


% Open Area	
4" CC	80%
2" CC	77%

15-SI-4



15-SI-2



% Open Area	
4" CC	76%
2" CC	73%

I-BAR SWAGE LOCKED

LOAD & DEFLECTION TABLE

19-SI-4 & 19-SI-2

Bearing Bar Size	Ped. Span inches	Approx. Weight lbs/sqft	Sec. Prop. S _x * (in ³)	Clear Span (Direction of Bearing Bars)												
					2'-0"	2'-6"	3'-0"	3'-6"	4'-0"	4'-6"	5'-0"	5'-6"	6'-0"	6'-6"	7'-0"	8'-0"
					I _x * (in ⁴)											
1" x 1/4"	44	1.99	0.316	U	632	404	281	206	158	U = Safe uniform load (psf) C = Safe concentrated load (lbs/ft width) D = Deflection (inches) E = Modulus of Elasticity, 10,000,000 psi F = Allowable Fiber Stress, 12,000 psi Material: ASTM B221, 6063-T6						
				Du	0.144	0.225	0.324	0.441	0.576							
			0.158	C	632	505	421	361	316							
				Dc	0.115	0.180	0.259	0.353	0.461							
1-1/4" x 1/4"	52	2.34	0.493	U	987	632	439	322	247	195	Loads and deflections shown are theoretical and based on static loading. * Based on 10.105 bars/ft of grating width. Bearing bar spacing of 1-3/16" c.c. Add 0.3 lbs/sqft for 19-SI-2.					
				Du	0.115	0.180	0.259	0.353	0.461	0.583						
			0.308	C	987	789	658	564	493	439						
				Dc	0.092	0.144	0.207	0.282	0.368	0.467						
1-1/2" x 1/4"	59	2.70	0.711	U	1421	909	632	464	355	281	227	Deflection: Spans and loads to the right of the bold line exceed 1/4" deflection for uniform load of 100 psf which provides safe pedestrian comfort. This can be exceeded for other types of loads with the Engineer's approval.				
				Du	0.096	0.150	0.216	0.294	0.384	0.487	0.599					
			0.533	C	1421	1137	947	812	711	632	568					
				Dc	0.077	0.120	0.173	0.235	0.307	0.389	0.480					
1-3/4" x 1/4"	66	3.06	0.967	U	1934	1238	860	632	484	382	309	256	215	Finish: Mill finish unless otherwise specified.		
				Du	0.082	0.129	0.185	0.252	0.329	0.417	0.514	0.623	0.741			
			0.846	C	1934	1547	1289	1105	967	860	774	703	645			
				Dc	0.066	0.103	0.148	0.202	0.263	0.333	0.412	0.498	0.593			
2" x 1/4"	73	3.43	1.263	U	2526	1617	1123	825	632	499	404	334	281	239		
				Du	0.072	0.113	0.162	0.221	0.288	0.364	0.450	0.544	0.649	0.760		
			1.263	C	2526	2021	1684	1444	1263	1123	1011	919	842	777		
				Dc	0.058	0.090	0.130	0.176	0.230	0.292	0.360	0.436	0.518	0.608		
2-1/4" x 1/4"	80	3.75	1.599	U	3197	2046	1421	1044	799	632	512	423	355	303	261	
				Du	0.064	0.100	0.144	0.196	0.256	0.324	0.400	0.484	0.576	0.677	0.784	
			1.798	C	3197	2558	2132	1827	1599	1421	1279	1163	1066	984	914	
				Dc	0.051	0.080	0.115	0.157	0.205	0.259	0.320	0.387	0.461	0.541	0.628	
2-1/2" x 1/4"	87	4.15	1.974	U	3947	2526	1754	1289	987	780	632	522	439	374	322	247
				Du	0.058	0.090	0.130	0.176	0.230	0.292	0.360	0.436	0.519	0.609	0.705	0.923
			2.467	C	3947	3158	2632	2256	1974	1754	1579	1435	1316	1215	1128	987
				Dc	0.046	0.072	0.104	0.141	0.184	0.233	0.288	0.348	0.415	0.487	0.565	0.737

Panel Width Chart (in.) - 19-SI-4 & 19-SI-2

Dimensions are Out-to-Out of Bearing Bar Flanges**

No. of Bars	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1/4" Flange	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
No. of Bars	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
1/4" Flange	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

** Add 1/4" for extended crossbars. Bearing Bar flange width is 1/4" top and bottom. Standard panel width indicated in "maroon".

I-BAR SWAGE LOCKED

LOAD & DEFLECTION TABLE

15-SI-4 & 15-SI-2

Bearing Bar Size	Ped. Span inches	Approx. Weight lbs/sqft	Sec. Prop. S _x * (in ³)		Clear Span (Direction of Bearing Bars)											
					2'-0"	2'-6"	3'-0"	3'-6"	4'-0"	4'-6"	5'-0"	5'-6"	6'-0"	6'-6"	7'-0"	8'-0"
			I _x * (in ⁴)													
1" x 1/4"	46	2.42	0.400	U	800	512	356	261	200	U = Safe uniform load (psf) C = Safe concentrated load (lbs/ft width) D = Deflection (inches) E = Modulus of Elasticity, 10,000,000 psi F = Allowable Fiber Stress, 12,000 psi Material: ASTM B221, 6063-T6						
				Du	0.144	0.225	0.324	0.441	0.576							
			0.200	C	800	640	533	457	400							
				Dc	0.115	0.180	0.259	0.353	0.461							
1-1/4" x 1/4"	55	2.87	0.625	U	1250	800	556	408	313	247	200	Loads and deflections shown are theoretical and based on static loading. * Based on 12.8 bars/ft of grating width. Bearing bar spacing of 15/16" c.c. Add 0.3 lbs/sqft for 15-SI-2.				
				Du	0.115	0.180	0.259	0.353	0.461	0.583	0.720					
			0.391	C	1250	1000	833	714	625	556	500					
				Dc	0.092	0.144	0.207	0.282	0.368	0.467	0.576					
1-1/2" x 1/4"	63	3.33	0.900	U	1800	1152	800	588	450	356	288	238	Deflection: Spans and loads to the right of the bold line exceed 1/4" deflection for uniform load of 100 psf which provides safe pedestrian comfort. This can be exceeded for other types of loads with the Engineer's approval.			
				Du	0.096	0.150	0.216	0.294	0.384	0.487	0.599	0.726				
			0.675	C	1800	1440	1200	1029	900	800	720	655				
				Dc	0.077	0.120	0.173	0.235	0.307	0.389	0.480	0.581				
1-3/4" x 1/4"	70	3.78	1.225	U	2450	1568	1089	800	613	484	392	324	272	Finish: Mill finish unless otherwise specified.		
				Du	0.082	0.129	0.185	0.252	0.329	0.417	0.514	0.623	0.741			
			1.072	C	2450	1960	1633	1400	1225	1089	980	891	817			
				Dc	0.066	0.103	0.148	0.202	0.263	0.333	0.412	0.498	0.593			
2" x 1/4"	78	4.25	1.600	U	3200	2048	1422	1045	800	632	512	423	356	303	261	
				Du	0.072	0.113	0.162	0.221	0.288	0.364	0.450	0.544	0.649	0.760	0.881	
			1.600	C	3200	2560	2133	1829	1600	1422	1280	1164	1067	985	914	
				Dc	0.058	0.090	0.130	0.176	0.230	0.292	0.360	0.436	0.518	0.608	0.705	
2-1/4" x 1/4"	85	4.66	2.025	U	4050	2592	1800	1322	1013	800	648	536	450	383	331	253
				Du	0.064	0.100	0.144	0.196	0.256	0.324	0.400	0.484	0.576	0.676	0.784	1.023
			2.278	C	4050	3240	2700	2314	2025	1800	1620	1473	1350	1246	1157	1013
				Dc	0.051	0.080	0.115	0.157	0.205	0.259	0.320	0.387	0.461	0.541	0.628	0.820
2-1/2" x 1/4"	92	5.16	2.500	U	5000	3200	2222	1633	1250	988	800	661	556	473	408	313
				Du	0.058	0.090	0.130	0.176	0.230	0.292	0.360	0.436	0.519	0.609	0.705	0.923
			3.125	C	5000	4000	3333	2857	2500	2222	2000	1818	1667	1538	1429	1250
				Dc	0.046	0.072	0.104	0.141	0.184	0.233	0.288	0.348	0.415	0.487	0.565	0.737

Panel Width Chart (in.) - 15-SI-4 & 15-SI-2

Dimensions are Out-to-Out of Bearing Bar Flanges**

No. of Bars	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1/4" Flange	1 ³ / ₁₆	2 ¹ / ₈	3 ¹ / ₁₆	4	4 ¹⁵ / ₁₆	5 ⁷ / ₈	6 ¹³ / ₁₆	7 ³ / ₄	8 ¹¹ / ₁₆	9 ⁵ / ₈	10 ⁹ / ₁₆	11 ¹ / ₂	12 ⁷ / ₁₆	13 ³ / ₈	14 ⁵ / ₁₆
No. of Bars	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
1/4" Flange	15 ¹ / ₄	16 ³ / ₁₆	17 ¹ / ₈	18 ¹ / ₁₆	19	19 ¹⁵ / ₁₆	20 ⁷ / ₈	21 ¹³ / ₁₆	22 ³ / ₄	23 ¹¹ / ₁₆	24 ⁵ / ₈	25 ⁹ / ₁₆	26 ¹ / ₂	27 ⁷ / ₁₆	28 ³ / ₈
No. of Bars	32	33	34	35	36	37	38	39							
1/4" Flange	29 ⁵ / ₁₆	30 ¹ / ₄	31 ³ / ₁₆	32 ¹ / ₈	33 ¹ / ₁₆	34	34 ¹⁵ / ₁₆	35 ⁷ / ₈							

** Add 1/4" for extended crossbars. Bearing Bar flange width is 1/4" top and bottom. Standard panel width indicated in "maroon".

ALUMINUM RECTANGULAR BAR

SR SERIES

The most widely used type of aluminum pressure locked grating is the Swage Locked Rectangular Bar SR Series. The aluminum crossbars are assembled through punched diamond shaped openings in the flat rectangular bearing bars and locked in place by our hydraulic swaging process.

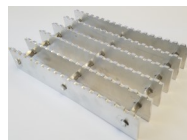
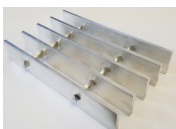
The SR Series provides an aesthetically clean look with sharp lines and a recessed crossbar that allows grating panels to be formed without any need for welding. This grating is often used for architectural applications. Slip resistant coatings are available as well as serrated bearing bar surface.



ALUMINUM RECTANGULAR BAR

SR SERIES

PRODUCT SPECIFICATION GUIDE



How to Specify:

The following information provides a model specification format for architectural and engineering specification sections that, when applied, will be consistent with the Three-Part Section Format of The Construction Specifications Institute (CSI) for specifications serving the construction industry. The CSI specification section for Grating is listed in Section 05 53 00, Metal Fabrications - Metal Gratings. These specifications are intended for use as a guide for architects and engineers and may need to be altered or modified to fit the specific conditions of the application in question.

PART 1: GENERAL

1.1 Scope

The contractor shall provide all labor, materials, equipment and incidentals as shown, specified and required to furnish and install grating, stair treads and frames.

1.2 Quality Assurance

A. Comply with applicable provisions and recommendations of the following standards:

1. ANSI/NAAMM MBG 531-09 (Metal Bar Grating Manual) and MBG-533-09 (Welding Standards for Fabrication of Steel, Stainless Steel and Aluminum Bar Grating).
2. Aluminum: ASTM B221, Aluminum Alloy, Extruded Bars, Rods, Wire, Shapes and Tubing.

1.3 Submittals

- A. The contractor shall submit for approval shop drawings for the fabrication and erection of all grating work. Include plans, elevations, and details of sections and connections. Show type and location of all fasteners.
- B. The contractor shall submit manufacturer's catalog pages, specifications, load tables, anchor details and standard installation details.
- C. Grating samples shall be submitted for approval as required.

PART 2: PRODUCT

1. Grating: Aluminum Swage Locked Rectangular Bar (SR Series) by Pleasant Mount Welding, Inc., or approved equal.
2. Bearing Bars: Rectangular Bar (3/16" thick) on a maximum of 1³/₁₆" centers. (Note: Other spacings may be specified at the discretion of the architect/engineer.) See available grating profiles for SR-Series on this sheet.
3. Crossbars: Square bars oriented at 45° and locked perpendicular to bearing bars at a maximum of 4" on center. (Note: 2" crossbar centers may be specified at the discretion of the architect/engineer.)
4. Surface: Plain. (A serrated top surface may be specified for maximum slip resistance or a slip resistant coating may be applied to the non-serrated plain bearing bars).

5. Loading: Grating to carry pedestrian loading equal to a uniform load of 100 lbs per square foot over the required clear span with deflection not to exceed 1/4". Note: alternate loading requirements may be specified at the discretion of the architect/engineer (base grating depth on loading and clear span requirements).

6. Bearing bars and banding shall be Aluminum Type 6063-T6 and Crossbars shall be 6063-T1.

7. Finish: Standard Mill Finish. Optional A-41 Clear Anodizing available.

8. Fabrication and Tolerances: In accordance with the ANSI/NAAMM MBG 531-09 Metal Bar Grating Manual.

9. Provide appropriate fasteners for type, grade, and class required for the approved anchoring system.

PART 3: EXECUTION

3.1 Installation

A. Prior to grating installation, contractor shall inspect supports for correct size, layout and alignment. Any discrepancies between contract drawings and supporting structure determined to be detrimental to grating placement shall be reported in writing to the architect or owner's agent prior to grating placement.

B. Install grating in accordance with shop drawings and standard installation clearances as recommended by the ANSI/NAAMM MBG 531-09 Metal Bar Grating Manual.

C. Cutting, Fitting and Placement.

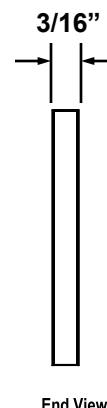
1. Fabricate cutouts in grating sections for penetrations indicated. Arrange cutouts to permit grating removal without disturbing items penetrating gratings. Band ends and cuts in grating with bars of same size and material as the bearing bars.
2. Utilize standard panel widths wherever possible.

D. Protection of Aluminum from Dissimilar Materials:

1. Where aluminum surfaces come into contact with dissimilar metals, surfaces shall be kept from direct contact by painting the dissimilar metal with one coat of bituminous paint or other approved insulating material.
2. Where aluminum surfaces come into contact with dissimilar materials such as concrete, masonry or lime mortar, exposed aluminum surfaces shall be painted with one coat of bituminous paint or other approved insulating material.

3.2 Grating Attachment

Use approved attachment system and fasteners to secure grating to supporting members as shown on plans.



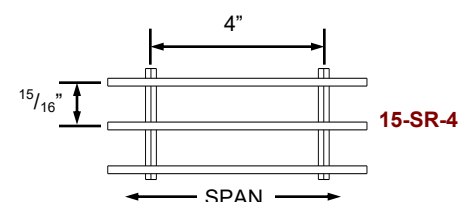
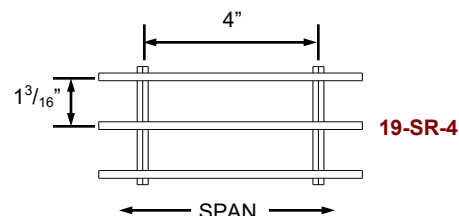
End View

The Aluminum Rectangular Bar SR Series offers an alternative to the I-bar style of grating. The rectangular bearing bars have the same load carrying capacity as the I-Bar series, however the weight per square foot of grating will be greater. The rectangular bearing bars are offered either as a plain surface or can be serrated to provide slip resistance. When a serrated surface is required, the depth of the grating required for a specified load shall be 1/4" deeper than that shown in the load tables of this manual.

Grating Profiles Available

SR Series - Aluminum Rectangular Bar

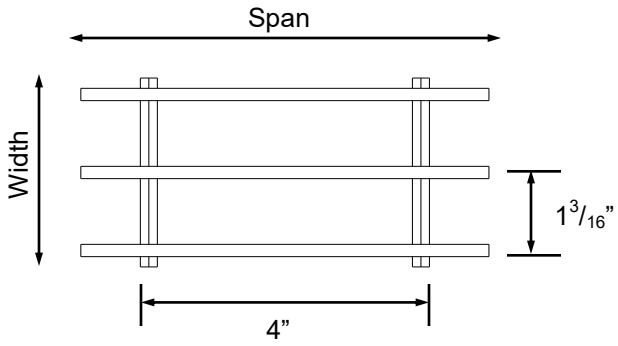
All profiles shown below are also available with 2" crossbar centers. Product numbers for 2" crossbar spacing are identified as either 19-SR-2 or 15-SR-2.



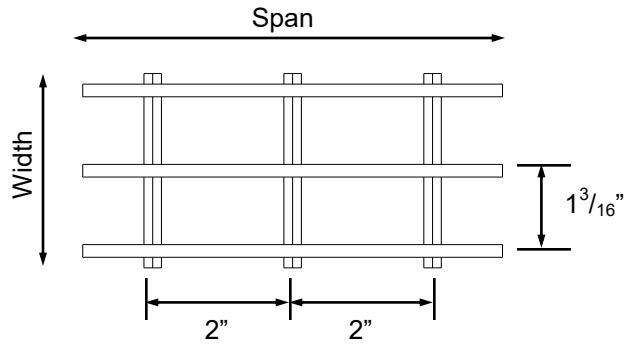
ALUMINUM PROFILES

RECTANGULAR BAR PROFILES - SR SERIES

19-SR-4

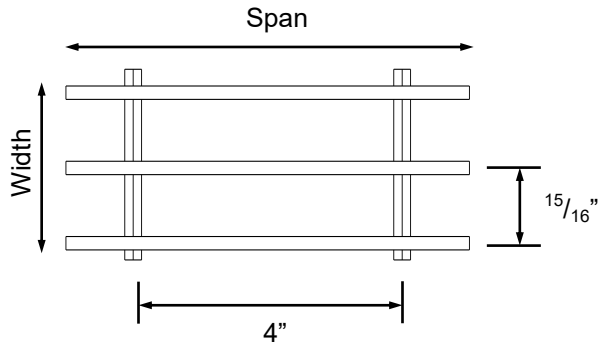


19-SR-2

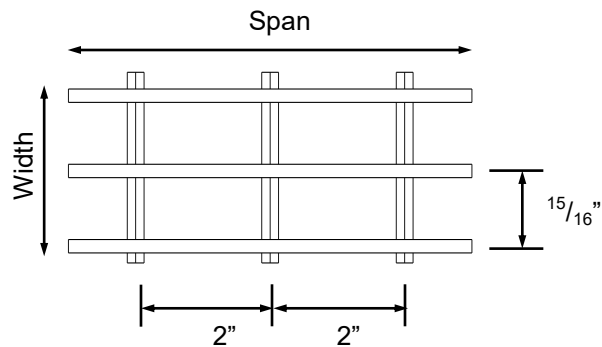


% Open Area	
4" cc	85%
2" cc	81%

15-SR-4



15-SR-2



% Open Area	
4" cc	76%
2" cc	73%

RECT BAR SWAGE LOCKED

LOAD & DEFLECTION TABLE

19-SR-4 & 19-SR-2

Bearing Bar Size	Ped. Span inches	Approx. Weight lbs/sqft	Sec. Prop. S_x^* (in ³)	Clear Span (Direction of Bearing Bars)												
					2'-0"	2'-6"	3'-0"	3'-6"	4'-0"	4'-6"	5'-0"	5'-6"	6'-0"	6'-6"	7'-0"	8'-0"
			I_x^* (in ⁴)													
1" x 3/16"	44	2.46	0.316	U	632	404	281	206	158	U = Safe uniform load (psf) C = Safe concentrated load (lbs/ft grating width) D = Deflection (inches) E = Modulus of Elasticity, 10,000,000 psi F = Allowable Fiber Stress, 12,000 psi Material: ASTM B221, 6063-T6						
				Du	0.144	0.225	0.324	0.441	0.576							
			0.158	C	632	505	421	361	316							
				Dc	0.115	0.180	0.259	0.353	0.461							
1-1/4" x 3/16"	52	3.01	0.493	U	987	632	439	322	247	195	Loads and deflections shown are theoretical and based on static loading. * Based on 10.105 bars/ft of grating width. Bearing bar spacing of 1-3/16" c.c. Add 0.3 lbs/sqft for 19-SR-2.					
				Du	0.115	0.180	0.259	0.353	0.461	0.583						
			0.308	C	987	789	658	564	493	439						
				Dc	0.092	0.144	0.207	0.282	0.369	0.467						
1-1/2" x 3/16"	59	3.56	0.711	U	1421	909	632	464	355	281	227	Deflection: Spans and loads to the right of the bold line exceed 1/4" deflection for uniform load of 100 psf which provides safe pedestrian comfort. This can be exceeded for other types of loads with the Engineer's approval.				
				Du	0.096	0.150	0.216	0.294	0.384	0.486	0.600					
			0.533	C	1421	1137	947	812	711	632	568					
				Dc	0.077	0.120	0.173	0.235	0.307	0.389	0.480					
1-3/4" x 3/16"	66	4.12	0.967	U	1934	1238	860	632	484	382	309	256	215	Serrated Bars: For serrated grating, the depth of grating required for a specified load is 1/4" deeper than that shown in table.		
				Du	0.082	0.129	0.185	0.252	0.329	0.417	0.514	0.622	0.741			
			0.846	C	1934	1547	1289	1105	967	860	774	703	645			
				Dc	0.066	0.103	0.148	0.202	0.263	0.333	0.411	0.498	0.592			
2" x 3/16"	73	4.68	1.263	U	2526	1617	1123	825	632	499	404	334	281	239	Finish: Mill finish unless otherwise specified.	
				Du	0.072	0.113	0.162	0.221	0.288	0.365	0.450	0.545	0.648	0.761		
			1.263	C	2526	2021	1684	1444	1263	1123	1011	919	842	777		
				Dc	0.058	0.090	0.130	0.176	0.230	0.292	0.360	0.436	0.518	0.608		
2-1/4" x 3/16"	80	5.24	1.599	U	3197	2046	1421	1044	799	632	512	423	355	303	261	
				Du	0.064	0.100	0.144	0.196	0.256	0.324	0.400	0.484	0.576	0.676	0.784	
			1.798	C	3197	2558	2132	1827	1599	1421	1279	1163	1066	984	914	
				Dc	0.051	0.080	0.115	0.157	0.205	0.259	0.320	0.387	0.461	0.541	0.627	
2-1/2" x 3/16"	87	5.79	1.974	U	3947	2526	1754	1289	987	780	632	522	439	374	322	247
				Du	0.058	0.090	0.130	0.176	0.230	0.292	0.360	0.436	0.518	0.608	0.706	0.922
			2.467	C	3947	3158	2632	2256	1974	1754	1579	1435	1316	1215	1128	987
				Dc	0.046	0.072	0.104	0.141	0.184	0.233	0.288	0.348	0.415	0.487	0.564	0.737

Panel Width Chart (in.) - 19-SR-4 & 19-SR-2

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
3/16" Flange	1 ³ / ₈	2 ⁹ / ₁₆	3 ³ / ₄	4 ¹⁵ / ₁₆	6 ¹ / ₈	7 ⁵ / ₁₆	8 ¹ / ₂	9 ¹¹ / ₁₆	10 ⁷ / ₈	12 ¹ / ₁₆	13 ¹ / ₄	14 ⁷ / ₁₆	15 ⁵ / ₈	16 ¹³ / ₁₆	18
No. of Bars	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
3/16" Flange	19 ³ / ₁₆	20 ³ / ₈	21 ⁹ / ₁₆	22 ³ / ₄	22 ¹⁵ / ₁₆	25 ¹ / ₈	26 ⁵ / ₁₆	27 ¹ / ₂	28 ¹¹ / ₁₆	29 ⁷ / ₈	31 ¹ / ₁₆	32 ¹ / ₄	33 ⁷ / ₁₆	34 ⁵ / ₈	35 ¹³ / ₁₆

** Add 1/4" for extended crossbars. Standard panel width indicated in "maroon".

RECT BAR SWAGE LOCKED

LOAD & DEFLECTION TABLE

15-SR-4 & 15-SR-2

Bearing Bar Size	Ped. Span inches	Approx. Weight lbs/sqft	Sec. Prop. S _x * (in ³)	Clear Span (Direction of Bearing Bars)													
				2'-0"	2'-6"	3'-0"	3'-6"	4'-0"	4'-6"	5'-0"	5'-6"	6'-0"	6'-6"	7'-0"	8'-0"		
			I _x * (in ⁴)														
1" x 3/16"	46	3.06	0.400	U	800	512	356	261	200	U = Safe uniform load (psf) C = Safe concentrated load (lbs/ft width) D = Deflection (inches) E = Modulus of Elasticity, 10,000,000 psi F = Allowable Fiber Stress, 12,000 psi Material: ASTM B221, 6063-T6							Finish: Mill finish unless otherwise specified.
				Du	0.144	0.225	0.324	0.441	0.576								
			0.200	C	800	640	533	457	400								
				Dc	0.115	0.180	0.259	0.353	0.461								
1-1/4" x 3/16"	55	3.75	0.625	U	1250	800	556	408	313	247	200	Loads and deflections shown are theoretical and based on static loading. * Based on 12.8 bars/ft of grating width. Bearing bar spacing of 15/16" c.c. Add 0.3 lbs/sqft for 15-SR-2. Deflection: Spans and loads to the right of the bold line exceed 1/4" deflection for uniform load of 100 psf which provides safe pedestrian comfort. This can be exceeded for other types of loads with the Engineer's approval.					
				Du	0.115	0.180	0.259	0.353	0.461	0.583	0.720						
			0.391	C	1250	1000	833	714	625	556	500						
				Dc	0.092	0.144	0.207	0.282	0.368	0.467	0.576						
1-1/2" x 3/16"	63	4.45	0.900	U	1800	1152	800	588	450	356	288	238	Serrated Bars: For serrated grating, the depth of grating required for a specified load is 1/4" deeper than that shown in table.				
				Du	0.096	0.150	0.216	0.294	0.384	0.487	0.599	0.726					
			0.675	C	1800	1440	1200	1029	900	800	720	655					
				Dc	0.077	0.120	0.173	0.235	0.307	0.389	0.480	0.581					
1-3/4" x 3/16"	70	5.16	1.225	U	2450	1568	1089	800	613	484	392	324	272				
				Du	0.082	0.129	0.185	0.252	0.329	0.417	0.514	0.623	0.741				
			1.072	C	2450	1960	1633	1400	1225	1089	980	891	817				
				Dc	0.066	0.103	0.148	0.202	0.263	0.333	0.412	0.498	0.593				
2" x 3/16"	78	5.87	1.600	U	3200	2048	1422	1045	800	632	512	423	356	303	261		
				Du	0.072	0.113	0.162	0.221	0.288	0.364	0.450	0.544	0.649	0.760	0.881		
			1.600	C	3200	2560	2133	1829	1600	1422	1280	1164	1067	985	914		
				Dc	0.058	0.090	0.130	0.176	0.230	0.292	0.360	0.436	0.518	0.608	0.705		
2-1/4" x 3/16"	85	6.57	2.025	U	4050	2592	1800	1322	1013	800	648	536	450	383	331	253	
				Du	0.064	0.100	0.144	0.196	0.256	0.324	0.400	0.484	0.576	0.676	0.784	1.023	
			2.278	C	4050	3240	2700	2314	2025	1800	1620	1473	1350	1246	1157	1013	
				Dc	0.051	0.080	0.115	0.157	0.205	0.259	0.320	0.387	0.461	0.541	0.628	0.820	
2-1/2" x 3/16"	92	7.27	2.500	U	5000	3200	2222	1633	1250	988	800	661	556	473	408	313	
				Du	0.058	0.090	0.130	0.176	0.230	0.292	0.360	0.436	0.519	0.609	0.705	0.923	
			3.125	C	5000	4000	3333	2857	2500	2222	2000	1818	1667	1538	1429	1250	
				Dc	0.046	0.072	0.104	0.141	0.184	0.233	0.288	0.348	0.415	0.487	0.565	0.737	

Panel Width Chart (in.) - 15-SR-4 & 15-SR-2

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
3/16" Flange	1 ¹ / ₈	2 ¹ / ₁₆	3	3 ¹⁵ / ₁₆	4 ⁷ / ₈	5 ¹³ / ₁₆	6 ³ / ₄	7 ¹¹ / ₁₆	8 ⁵ / ₈	9 ⁹ / ₁₆	10 ¹ / ₂	11 ⁷ / ₁₆	12 ³ / ₈	13 ⁵ / ₁₆	14 ¹ / ₄
No. of Bars	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
3/16" Flange	15 ³ / ₁₆	16 ¹ / ₈	17 ¹ / ₁₆	18	18 ¹⁵ / ₁₆	19 ⁷ / ₈	20 ¹³ / ₁₆	21 ³ / ₄	22 ¹¹ / ₁₆	23 ⁵ / ₈	24 ⁹ / ₁₆	25 ¹ / ₂	26 ⁷ / ₁₆	27 ³ / ₈	28 ⁵ / ₁₆
No. of Bars	32	33	34	35	36	37	38	39							
3/16" Flange	29 ¹ / ₄	30 ³ / ₁₆	31 ¹ / ₈	32 ¹ / ₁₆	33	33 ¹⁵ / ₁₆	34 ⁷ / ₈	35 ¹³ / ₁₆							

** Add 1/4" for extended crossbars. Standard panel width indicated in "maroon".

ALUMINUM DOVETAIL

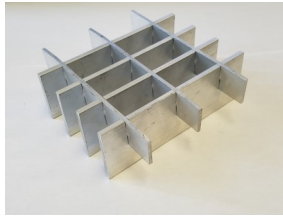
ADT SERIES

Aluminum Dovetail ADT Series grating is a traditional design pressure locked grating that has a flush top rectangular crossbar. Both bearing bars and crossbars are precision slotted, assembled in an egg-crate configuration and hydraulically pressed together to form a rigidly locked grating panel.

Aluminum Dovetail ADT Series grating is a very popular choice of Architects due to its smooth, clean lines and aesthetic eye appeal. Serrated bearing bars are available for this type of grating and a ***Slip-Not*** coating may be applied to non-serrated plain bearing bars for increased slip resistance.



ALUMINUM DOVETAIL



ADT SERIES

PRODUCT SPECIFICATION GUIDE

How to Specify:

The following information provides a model specification format for architectural and engineering specification sections that, when applied, will be consistent with the Three-Part Section Format of The Construction Specifications Institute (CSI) for specifications serving the construction industry. The CSI specification section for Grating is listed in Section 05 53 00, Metal Fabrications - Metal Gratings. These specifications are intended for use as a guide for architects and engineers and may need to be altered or modified to fit the specific conditions of the application in question.

PART 1: GENERAL

1.1 Scope

The contractor shall provide all labor, materials, equipment and incidentals as shown, specified and required to furnish and install grating, stair treads and frames.

1.2 Quality Assurance

A. Comply with applicable provisions and recommendations of the following standards:

1. ANSI/NAAMM MBG 531-09 (Metal Bar Grating Manual) and MBG-533-09 (Welding Standards for Fabrication of Steel, Stainless Steel and Aluminum Bar Grating).

2. Aluminum: ASTM B221, Aluminum Alloy, Extruded Bars, Rods, Wire, Shapes and Tubing.

1.3 Submittals

A. The contractor shall submit for approval shop drawings for the fabrication and erection of all grating work. Include plans, elevations, and details of sections and connections. Show type and location of all fasteners.

B. The contractor shall submit manufacturer's catalog pages, specifications, load tables, anchor details and standard installation details.

C. Grating samples shall be submitted for approval as required.

PART 2: PRODUCT

1. Grating: Aluminum Dovetail Pressure Locked (ADT Series) by Pleasant Mount Welding, Inc., or approved equal.

2. Bearing Bars: Rectangular flat bar (3/16" thick) on a maximum of 1 3/16" centers. (Note: Other spacings may be specified at the discretion of the architect/engineer.) See available grating profiles for ADT-Series on this sheet.

3. Crossbars: Rectangular flat bars (1/8" thick) flush with top of bearing bars and permanently locked perpendicular to bearing bars at a maximum of 4" on center. (Note: 2" crossbar centers may be specified at the discretion of the architect/engineer.)

4. Surface: Plain. (A serrated top surface may be specified for maximum slip resistance or a slip resistant coating may be applied to the non-serrated plain bearing bars).

5. Loading: Grating to carry pedestrian loading equal to a uniform load of 100 lbs per square foot over the required clear span with deflection not to exceed 1/4". Note: alternate loading requirements may be specified at the discretion of the architect/engineer (base grating depth on loading and clear span requirements).
6. Bearing bars and banding shall be Aluminum Type 6063-T6 and Crossbars shall be 6063-T52.
7. Finish: Standard Mill Finish. Optional A-41 Clear Anodizing available.
8. Fabrication and Tolerances: In accordance with the ANSI/NAAMM MBG 531-09 Metal Bar Grating Manual.
9. Provide appropriate fasteners for type, grade, and class required for the approved anchoring system.

PART 3: EXECUTION

3.1 Installation

A. Prior to grating installation, contractor shall inspect supports for correct size, layout and alignment. Any discrepancies between contract drawings and supporting structure determined to be detrimental to grating placement shall be reported in writing to the architect or owner's agent prior to grating placement.

B. Install grating in accordance with shop drawings and standard installation clearances as recommended by the ANSI/NAAMM MBG 531-09 Metal Bar Grating Manual.

C. Cutting, Fitting and Placement.

1. Fabricate cutouts in grating sections for penetrations indicated. Arrange cutouts to permit grating removal without disturbing items penetrating gratings. Band ends and cuts in grating with bars of same size and material as the bearing bars.

2. Utilize standard panel widths wherever possible.

D. Protection of Aluminum from Dissimilar Materials:

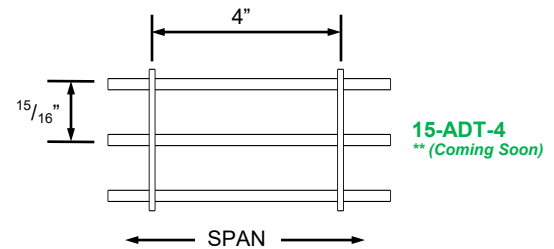
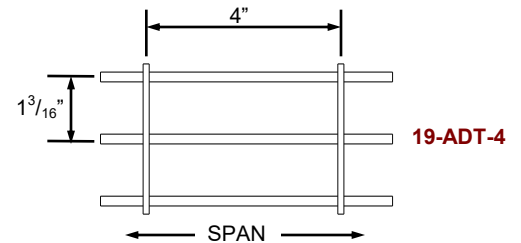
- Where aluminum surfaces come into contact with dissimilar metals, surfaces shall be kept from direct contact by painting the dissimilar metal with one coat of bituminous paint or other approved insulating material.
- Where aluminum surfaces come into contact with dissimilar materials such as concrete, masonry or lime mortar, exposed aluminum surfaces shall be painted with one coat of bituminous paint or other approved insulating material.

3.2 Grating Attachment

Use approved attachment system and fasteners to secure grating to supporting members as shown on plans.

Grating Profiles Available ADT Series - Aluminum Dovetail

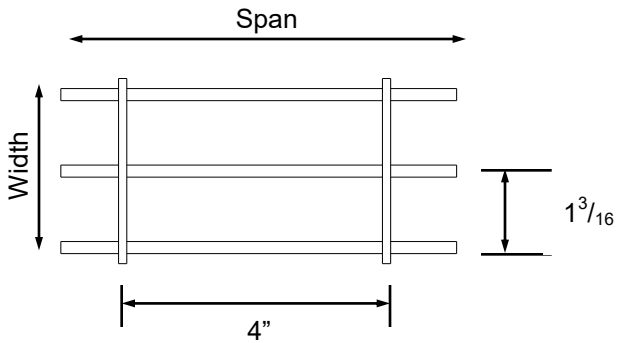
All profiles shown below are also available with 2" crossbar centers. Product numbers for 2" crossbar spacing are identified as either 19-ADT-2 or ** 15-ADT-2 (Coming Soon).



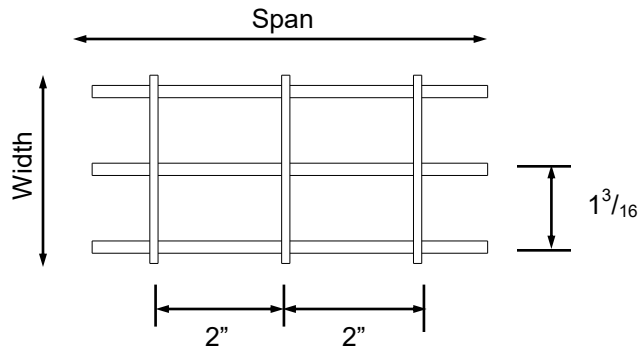
ALUMINUM PROFILES

ALUMINUM DOVETAIL PROFILES - ADT SERIES

19-ADT-4



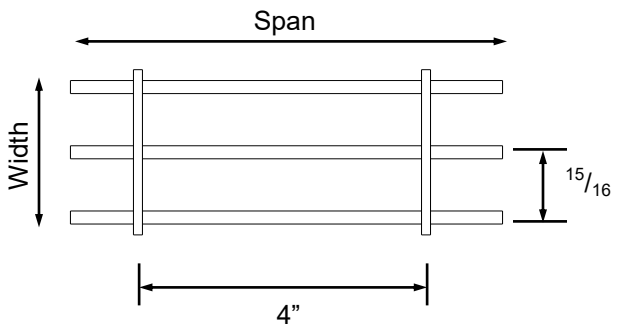
19-ADT-2



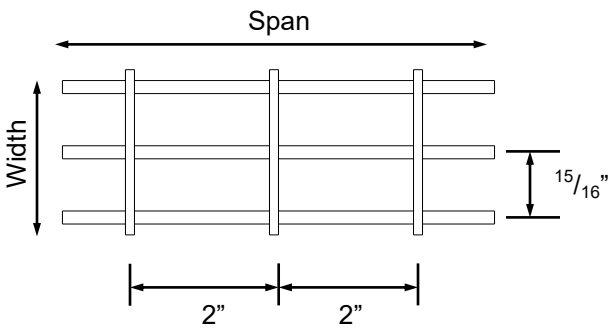
% Open Area	
4" cc	81%
2" cc	79%

**** 15-ADT Series (Coming Soon)**

15-ADT-4



15-ADT-2



% Open Area	
4" cc	77%
2" cc	75%

ALUMINUM DOVETAIL

LOAD & DEFLECTION TABLE

19-ADT-4 & 19-ADT-2

Bearing Bar Size	Ped. Span inches	Approx. Weight lbs/sqft	Sec. Prop. S _x * (in ³) I _x * (in ⁴)	Clear Span (Direction of Bearing Bars)													
				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" x 3/16"	44	2.46	0.316	U	632	404	281	206	158	U = Safe uniform load (psf) C = Safe concentrated load (lbs/ft grating width) D = Deflection (inches) E = Modulus of Elasticity, 10,000,000 psi F = Allowable Fiber Stress, 12,000 psi Material: ASTM B221, 6063-T6							
				Du	0.144	0.225	0.324	0.441	0.576								
			0.158	C	632	505	421	361	316								
				Dc	0.115	0.180	0.259	0.353	0.461								
1-1/4" x 3/16"	52	3.01	0.493	U	987	632	439	322	247	195	Loads and deflections shown are theoretical and based on static loading. * Based on 10.105 bars/ft of grating width. Bearing bar spacing of 1-3/16" c.c. Add 0.3 lbs/sqft for 19-ADT-2.						
				Du	0.115	0.180	0.259	0.353	0.461	0.583							
			0.308	C	987	789	658	564	493	439							
				Dc	0.092	0.144	0.207	0.282	0.369	0.467							
1-1/2" x 3/16"	59	3.56	0.711	U	1421	909	632	464	355	281	227	Deflection: Spans and loads to the right of the bold line exceed 1/4" deflection for uniform load of 100 psf which provides safe pedestrian comfort. This can be exceeded for other types of loads with the Engineer's approval.					
				Du	0.096	0.150	0.216	0.294	0.384	0.486	0.600						
			0.533	C	1421	1137	947	812	711	632	568						
				Dc	0.077	0.120	0.173	0.235	0.307	0.389	0.480						
1-3/4" x 3/16"	66	4.12	0.967	U	1934	1238	860	632	484	382	309	256	215	Serrated Bars: For serrated grating, the depth of grating required for a specified load is 1/4" deeper than that shown in table.			
				Du	0.082	0.129	0.185	0.252	0.329	0.417	0.514	0.622	0.741				
			0.846	C	1934	1547	1289	1105	967	860	774	703	645				
				Dc	0.066	0.103	0.148	0.202	0.263	0.333	0.411	0.498	0.592				
2" x 3/16"	73	4.68	1.263	U	2526	1617	1123	825	632	499	404	334	281	239	Finish: Mill finish unless otherwise specified.		
				Du	0.072	0.113	0.162	0.221	0.288	0.365	0.450	0.545	0.648	0.761			
			1.263	C	2526	2021	1684	1444	1263	1123	1011	919	842	777			
				Dc	0.058	0.090	0.130	0.176	0.230	0.292	0.360	0.436	0.518	0.608			
2-1/4" x 3/16"	80	5.24	1.599	U	3197	2046	1421	1044	799	632	512	423	355	303	261		
				Du	0.064	0.100	0.144	0.196	0.256	0.324	0.400	0.484	0.576	0.676	0.784		
			1.798	C	3197	2558	2132	1827	1599	1421	1279	1163	1066	984	914		
				Dc	0.051	0.080	0.115	0.157	0.205	0.259	0.320	0.387	0.461	0.541	0.627		
2-1/2" x 3/16"	87	5.79	1.974	U	3947	2526	1754	1289	987	780	632	522	439	374	322	247	
				Du	0.058	0.090	0.130	0.176	0.230	0.292	0.360	0.436	0.518	0.608	0.706	0.922	
			2.467	C	3947	3158	2632	2256	1974	1754	1579	1435	1316	1215	1128	987	
				Dc	0.046	0.072	0.104	0.141	0.184	0.233	0.288	0.348	0.415	0.487	0.564	0.737	

Panel Width Chart (in.) - 19-ADT-4 & 19-ADT-2

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
3/16" Flange	1 ³ / ₈	2 ⁹ / ₁₆	3 ³ / ₄	4 ¹⁵ / ₁₆	6 ¹ / ₈	7 ⁵ / ₁₆	8 ¹ / ₂	9 ¹¹ / ₁₆	10 ⁷ / ₈	12 ¹ / ₁₆	13 ¹ / ₄	14 ⁷ / ₁₆	15 ⁵ / ₈	16 ¹³ / ₁₆	18
No. of Bars	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
3/16" Flange	19 ³ / ₁₆	20 ³ / ₈	21 ⁹ / ₁₆	22 ³ / ₄	22 ¹⁵ / ₁₆	25 ¹ / ₈	26 ⁵ / ₁₆	27 ¹ / ₂	28 ¹¹ / ₁₆	29 ⁷ / ₈	31 ¹ / ₁₆	32 ¹ / ₄	33 ⁷ / ₁₆	34 ⁵ / ₈	35 ¹³ / ₁₆

** Add 1/4" for extended crossbars. Standard panel width indicated in "maroon".

ALUMINUM DOVETAIL

LOAD & DEFLECTION TABLE ** 15-ADT Series (Coming Soon) 15-ADT-4 & 15-ADT-2

Bearing Bar Size	Ped. Span inches	Approx. Weight lbs/sqft	Sec. Prop. S _x * (in ³)	Clear Span (Direction of Bearing Bars)													
					2'-0"	2'-6"	3'-0"	3'-6"	4'-0"	4'-6"	5'-0"	5'-6"	6'-0"	6'-6"	7'-0"	8'-0"	
			I _x * (in ⁴)														
1" x 3/16"	46	3.06	0.400	U	800	512	356	261	200	U = Safe uniform load (psf) C = Safe concentrated load (lbs/ft width) D = Deflection (inches) E = Modulus of Elasticity, 10,000,000 psi F = Allowable Fiber Stress, 12,000 psi Material: ASTM B221, 6063-T6						Finish: Mill finish unless otherwise specified.	
				Du	0.144	0.225	0.324	0.441	0.576								
			0.200	C	800	640	533	457	400								
				Dc	0.115	0.180	0.259	0.353	0.461								
1-1/4" x 3/16"	55	3.75	0.625	U	1250	800	556	408	313	247	200	Loads and deflections shown are theoretical and based on static loading. * Based on 12.8 bars/ft of grating width. Bearing bar spacing of 15/16" c.c. Add 0.3 lbs/sqft for 15-ADT-2. Deflection: Spans and loads to the right of the bold line exceed 1/4" deflection for uniform load of 100 psf which provides safe pedestrian comfort. This can be exceeded for other types of loads with the Engineer's approval.					
				Du	0.115	0.180	0.259	0.353	0.461	0.583	0.720						
			0.391	C	1250	1000	833	714	625	556	500						
				Dc	0.092	0.144	0.207	0.282	0.368	0.467	0.576						
1-1/2" x 3/16"	63	4.45	0.900	U	1800	1152	800	588	450	356	288	238	Serrated Bars: For serrated grating, the depth of grating required for a specified load is 1/4" deeper than that shown in table.				
				Du	0.096	0.150	0.216	0.294	0.384	0.487	0.599	0.726					
			0.675	C	1800	1440	1200	1029	900	800	720	655					
				Dc	0.077	0.120	0.173	0.235	0.307	0.389	0.480	0.581					
1-3/4" x 3/16"	70	5.16	1.225	U	2450	1568	1089	800	613	484	392	324	272				
				Du	0.082	0.129	0.185	0.252	0.329	0.417	0.514	0.623	0.741				
			1.072	C	2450	1960	1633	1400	1225	1089	980	891	817				
				Dc	0.066	0.103	0.148	0.202	0.263	0.333	0.412	0.498	0.593				
2" x 3/16"	78	5.87	1.600	U	3200	2048	1422	1045	800	632	512	423	356	303	261		
				Du	0.072	0.113	0.162	0.221	0.288	0.364	0.450	0.544	0.649	0.760	0.881		
			1.600	C	3200	2560	2133	1829	1600	1422	1280	1164	1067	985	914		
				Dc	0.058	0.090	0.130	0.176	0.230	0.292	0.360	0.436	0.518	0.608	0.705		
2-1/4" x 3/16"	85	6.57	2.025	U	4050	2592	1800	1322	1013	800	648	536	450	383	331	253	
				Du	0.064	0.100	0.144	0.196	0.256	0.324	0.400	0.484	0.576	0.676	0.784	1.023	
			2.278	C	4050	3240	2700	2314	2025	1800	1620	1473	1350	1246	1157	1013	
				Dc	0.051	0.080	0.115	0.157	0.205	0.259	0.320	0.387	0.461	0.541	0.628	0.820	
2-1/2" x 3/16"	92	7.27	2.500	U	5000	3200	2222	1633	1250	988	800	661	556	473	408	313	
				Du	0.058	0.090	0.130	0.176	0.230	0.292	0.360	0.436	0.519	0.609	0.705	0.923	
			3.125	C	5000	4000	3333	2857	2500	2222	2000	1818	1667	1538	1429	1250	
				Dc	0.046	0.072	0.104	0.141	0.184	0.233	0.288	0.348	0.415	0.487	0.565	0.737	

Panel Width Chart (in.) - 15-ADT-4 & 15-ADT-2

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
3/16" Flange	1 ¹ / ₈	2 ¹ / ₁₆	3	3 ¹⁵ / ₁₆	4 ⁷ / ₈	5 ¹³ / ₁₆	6 ³ / ₄	7 ¹¹ / ₁₆	8 ⁵ / ₈	9 ⁹ / ₁₆	10 ¹ / ₂	11 ⁷ / ₁₆	12 ³ / ₈	13 ⁵ / ₁₆	14 ¹ / ₄
No. of Bars	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
3/16" Flange	15 ³ / ₁₆	16 ¹ / ₈	17 ¹ / ₁₆	18	18 ¹⁵ / ₁₆	19 ⁷ / ₈	20 ¹³ / ₁₆	21 ³ / ₄	22 ¹¹ / ₁₆	23 ⁵ / ₈	24 ⁹ / ₁₆	25 ¹ / ₂	26 ⁷ / ₁₆	27 ³ / ₈	28 ⁵ / ₁₆
No. of Bars	32	33	34	35	36	37	38	39							
3/16" Flange	29 ¹ / ₄	30 ³ / ₁₆	31 ¹ / ₈	32 ¹ / ₁₆	33	33 ¹⁵ / ₁₆	34 ⁷ / ₈	35 ¹³ / ₁₆							

** Add 1/4" for extended crossbars. Standard panel width indicated in "maroon".

ALUMINUM PLANK

PLK SERIES

Aluminum Heavy Duty Plank (PLK Series) grating is an alternative to typical bar grating. Aluminum plank grating offers a structurally sound and attractive look. Made from extruded aluminum 6063-T6 material, plank grating will provide many years of maintenance free use and has no parts to work loose. The plank surface can be provided unpunched or with a rectangular punch pattern. *Diagonal ADA punch patterns for wheelchair accessibility is coming soon.*

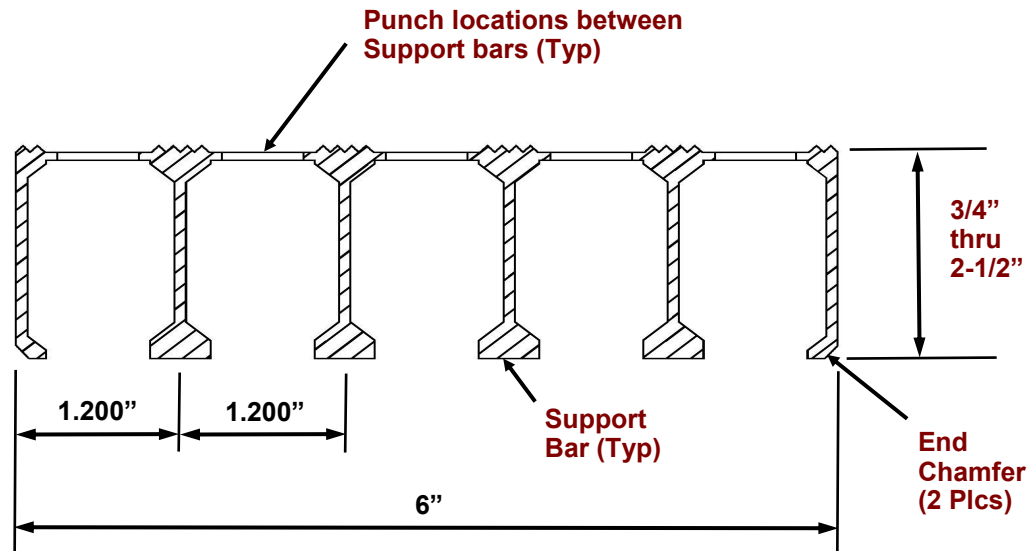
The plank structure of interconnecting webs provide for maximum foot contact and comfort. Plank is a good alternative for applications requiring open grating with plate attached to the top grating surface. Plank is the perfect choice for wastewater treatment plants to help reduce odors associated with these facilities. Plank grating is also ideal for other applications including entranceways, walkways, bridges, trails, stadiums, marinas, decks, docks and more.



ALUMINUM PLANK

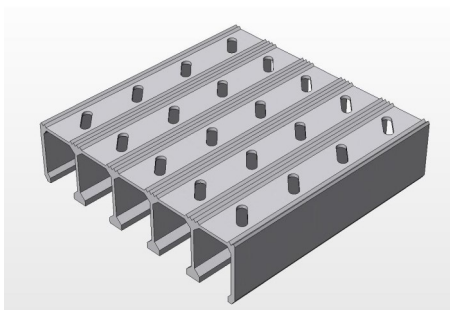
PLANK SECTION AVAILABILITY

Aluminum Plank is only available in our Heavy Duty Plank cross sectional design shown below. The Heavy Duty line of plank grating (PLK Series) is used primarily for water and waste treatment markets and the marine industry but has many benefits that make it an ideal choice for many other applications requiring a structurally sound and relatively maintenance free grating product.



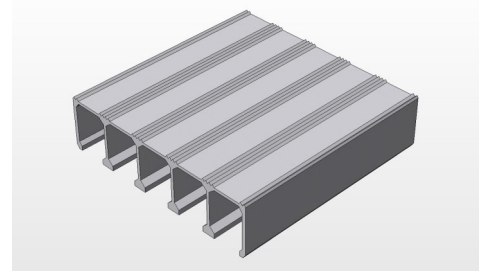
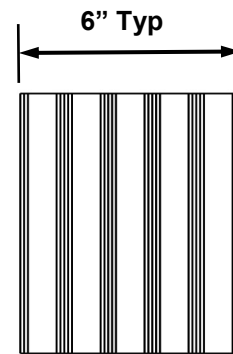
PUNCH PATTERN GUIDE

Aluminum plank is available unpunched or in various punch patterns. Rectangular punched openings are used most often in the water and waste treatment industries and in marine applications. All plank grating comes with built-in striations at each support bar location and the punched patterns are positioned between each of the support bars on the top surface of the plank. All of PMWI's **Diagonal Punched Patterns**** as well as our unpunched plank meet ADA specifications for high heel and wheelchair traffic.



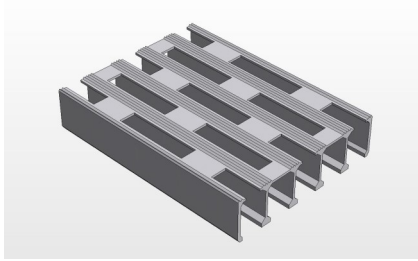
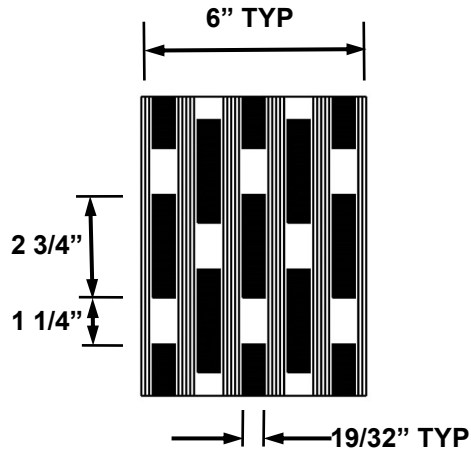
Diagonal ADA Punched Plank Grating ** (Coming Soon)

UNPUNCHED

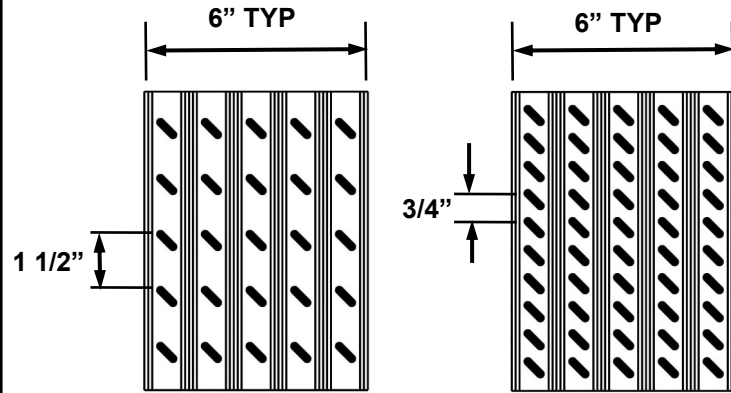


ALUMINUM PLANK

RECTANGULAR PUNCHED

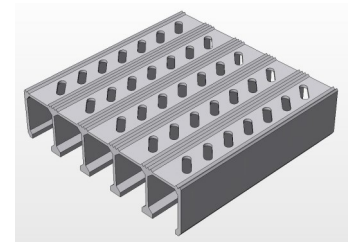
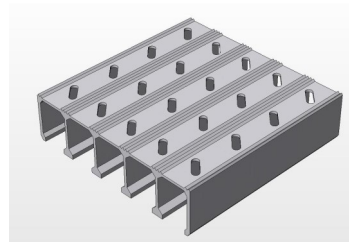


DIAGONAL (ADA) PUNCHED **** (Coming Soon)**



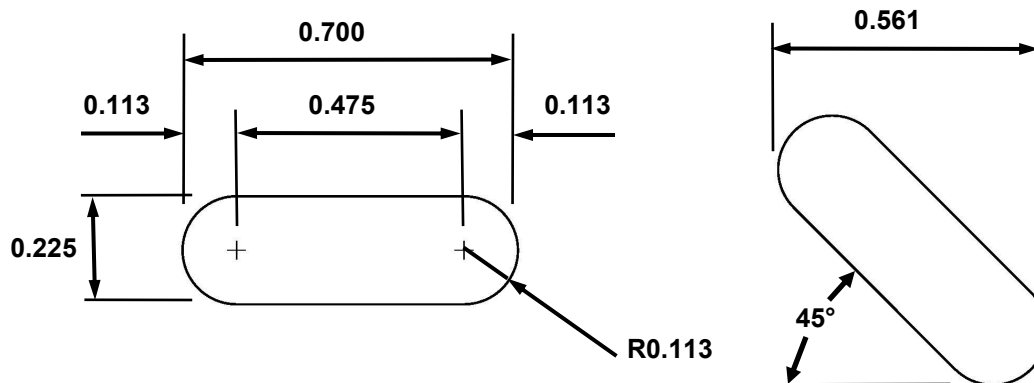
ALPlank 8*

ALPlank 15*



* Number indicates % open area

DIAGONAL PUNCH DIMENSIONS **** (Coming Soon)**



Grating height based on load and clear span requirements

ALUMINUM PLANK

PLANK FABRICATION

Aluminum plank grating (PLK Series) is available in 24'-0" lengths for customer fabrication, or as fabricated by Pleasant Mount Welding according to customer plans and specifications.

Individual 6" wide plank sections may be banded together to form standard panel widths for ease of handling and installation. When the width of the total grating "run" (number of continuous series of panels) does not result in a total measurement evenly divisible by the 6" wide plank sections, the last panel can be fabricated from several whole

sections and a partial section according to the Panel Width Chart shown below. In order to meet flatness tolerances, fabricated panels must always be end banded, and should not exceed a maximum 36" width.

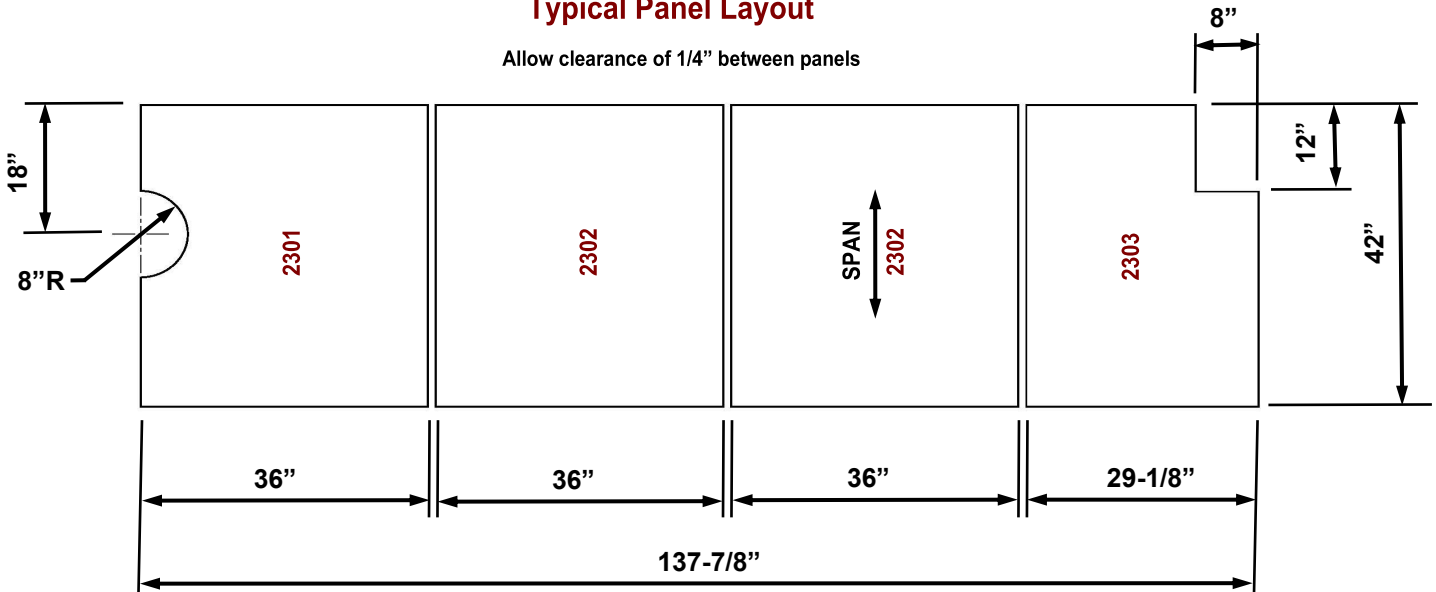
The two arrows on a typical panel layout arrangement drawing designates the span direction of the grating which runs perpendicular to the supporting members. Identical panels shall have the same mark numbers. Cutouts and banding are priced separately according to quantity and size required.

Aluminum Plank - Panel Width Chart (in.)

	1-1/2	2-11/16	3-7/8	5-1/8
6	7-1/2	8-11/16	9-7/8	11-1/8
12	13-1/2	14-11/16	15-7/8	17-1/8
18	19-1/2	20-11/16	21-7/8	23-1/8
24	25-1/2	26-11/16	27-7/8	29-1/8
30	31-1/2	32-11/16	33-7/8	35-1/8
36				

Typical Panel Layout

Allow clearance of 1/4" between panels

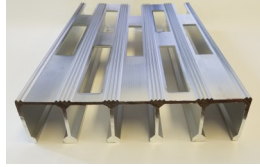


NOTE: Panels made from 6" sections and partial sections are banded on the ends only. Side bands are typically not furnished, unless specified by the customer.

ALUMINUM PLANK

PLK SERIES

PRODUCT SPECIFICATION GUIDE



How to Specify:

The following information provides a model specification format for architectural and engineering specification sections that, when applied, will be consistent with the Three-Part Section Format of The Construction Specifications Institute (CSI) for specifications serving the construction industry. The CSI specification section for Grating is listed in Section 05 53 00, Metal Fabrications - Metal Gratings. These specifications are intended for use as a guide for architects and engineers and may need to be altered or modified to fit the specific conditions of the application in question.

PART 1: GENERAL

1.1 Scope

The contractor shall provide all labor, materials, equipment and incidentals as shown, specified and required to furnish and install grating, stair treads and frames.

1.2 Quality Assurance

A. Comply with applicable provisions and recommendations of the following standards:
1. ANSI/NAAMM MBG 531-09 (Metal Bar Grating Manual) and MBG-533-09 (Welding Standards for Fabrication of Steel, Stainless Steel and Aluminum Bar Grating).
2. Aluminum: ASTM B221, Aluminum Alloy, Extruded Bars, Rods, Wire, Shapes and Tubing.

1.3 Submittals

A. The contractor shall submit for approval shop drawings for the fabrication and erection of all grating work. Include plans, elevations, and details of sections and connections. Show type and location of all fasteners.
B. The contractor shall submit manufacturer's catalog pages, specifications, load tables, anchor details and standard installation details.
C. Grating samples shall be submitted for approval as required.

PART 2: PRODUCT

1. Grating: Extruded Aluminum Heavy Duty Plank (PLK Series) by Pleasant Mount Welding, Inc., or approved equal.
2. Plank Construction: 6" wide extruded Aluminum Heavy Duty Plank with support bars spaced 1.2" on centers, fabricated with banding into panels of standard width to fill grating areas shown on shop drawings. See view of plank section profile for PLK-Series on this sheet.
3. Plank Depth: 3/4" to 2-1/2" based on loading requirements and clear span.
4. Top Surface: Striated or optional Slip Resistant coating.
5. Available Punch Patterns:
A. Unpunched
B. 19/32" x 2-3/4" Rectangular Punched openings staggered and spaced 4" on center along span, and spaced 1.2 inches on center between support bars.

- C. **ALPlank 8** - Diagonal (45°) punched slotted holes 0.225" x 0.787" on 1.5" centers along span, and spaced 1.2 inches on center between support bars. Five rows per 6" wide plank section. To provide 8% open area. **** (Coming Soon)**
D. **ALPlank 15** - Diagonal (45°) punched slotted holes 0.225" x 0.787" on 0.75" centers along span, and spaced 1.2 inches on center between support bars. Five rows per 6" wide plank section. To provide 15% open area. **** (Coming Soon)**

6. Loading: Grating shall be designed to meet live load conditions of 100 lbs/sqft over the required clear span with deflection not to exceed 1/4". Note: alternate loading requirements may be specified at the discretion of the architect/engineer (base grating depth on loading and clear span requirements).
7. Plank and banding shall be Aluminum Type 6063-T6.
8. Finish: Standard Mill Finish. Optional A-41 Clear Anodizing available.
9. Fabrication and Tolerances: In accordance with the ANSI/NAAMM MBG 531-09 Metal Bar Grating Manual.
10. Provide appropriate fasteners for type, grade, and class required for the approved anchoring system.

PART 3: EXECUTION

3.1 Installation

A. Prior to grating installation, contractor shall inspect supports for correct size, layout and alignment. Any discrepancies between contract drawings and supporting structure determined to be detrimental to grating placement shall be reported in writing to the architect or owner's agent prior to grating placement.
B. Install grating in accordance with shop drawings and standard installation clearances as recommended by the ANSI/NAAMM MBG 531-09 Metal Bar Grating Manual.

C. Cutting, Fitting and Placement.

1. Fabricate cutouts in grating sections for penetrations indicated. Arrange cutouts to permit grating removal without disturbing items penetrating gratings. Band ends and cuts in grating with bars of same size and material as the bearing bars.
2. Fabricate standard panel widths from full 6" wide plank sections wherever possible.

D. Protection of Aluminum from Dissimilar Materials:

1. Where aluminum surfaces come into contact with dissimilar metals, surfaces shall be kept from direct contact by painting the dissimilar metal with one coat of bituminous paint or other approved insulating material.

2. Where aluminum surfaces come into contact with dissimilar materials such as concrete, masonry or lime mortar, exposed aluminum surfaces shall be painted with one coat of bituminous paint or other approved insulating material.

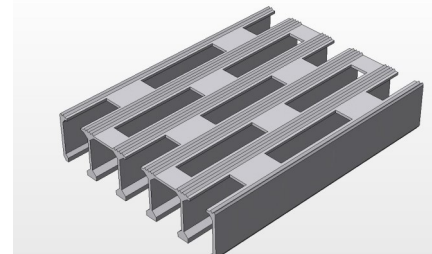
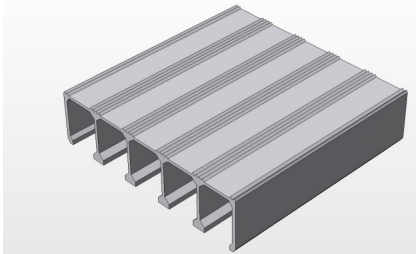
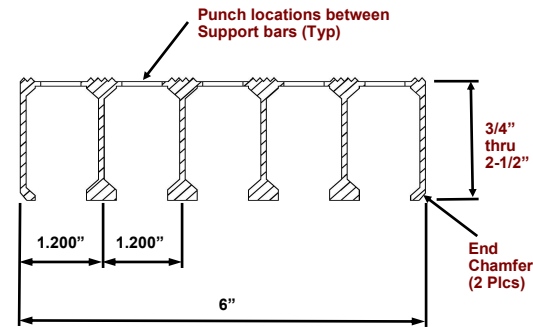
3.2 Grating Attachment

Use approved attachment system and fasteners to secure grating to supporting members as

Plank Section Profile

PLK Series - Aluminum Heavy Duty Plank

Extruded Aluminum Heavy Duty Plank cross section profile is shown below:



ALUMINUM PLANK

% Open Area	
Rectangular Punched	34%

% Open Area	
Diagonal ALPIk8	8%
Diagonal ALPIk15	15%

** Coming Soon

LOAD & DEFLECTION TABLE * Based on Rect Punched plank.

HEAVY DUTY PLANK (PLK SERIES)

Plank Size Inches	Ped. Span Inches	Sec. Prop. S _x * (in ³)	Approx. Weight lbs/sqft		Clear Span (Direction of Support Bars)													
		I _x * (in ⁴)	Non Punched	Rect Punched		2'-0"	2'-6"	3'-0"	3'-6"	4'-0"	4'-6"	5'-0"	5'-6"	6'-0"	6'-6"	7'-0"	8'-0"	
3/4	39	0.224	2.2	1.8	U	447	286	198	146	111	88	71	U = Safe uniform load (psf) C = Safe concentrated load (lbs/ft width) D = Deflection (inches) E = Modulus of Elasticity, 10,000,000 psi F = Allowable Fiber Stress, 12,000 psi Material: ASTM B221, 6063-T6					
		Du			0.153	0.238	0.342	0.467	0.606	0.770	0.946							
		C			447	358	298	255	223	198	179							
		Dc			0.122	0.191	0.275	0.373	0.487	0.616	0.764							
1	48	0.412	2.6	2.2	U	822	526	365	268	205	162	131	108	91	Loads and deflections shown in this table are theoretical and based on static loading. Finish: Mill finish unless otherwise specified.			
		Du			0.122	0.190	0.273	0.372	0.485	0.614	0.756	0.913	1.090					
		C			822	658	548	470	411	365	329	299	274					
		Dc			0.097	0.152	0.219	0.298	0.389	0.492	0.608	0.735	0.875					
1-1/4	57	0.704	3.2	2.8	U	1408	901	626	459	352	278	225	186	156	133	114	88	
		Du			0.103	0.161	0.232	0.316	0.413	0.522	0.644	0.780	0.926	1.088	1.254	1.651		
		C			1408	1126	939	805	704	626	563	512	469	433	402	352		
		Dc			0.083	0.129	0.186	0.253	0.330	0.418	0.516	0.624	0.743	0.872	1.011	1.321		
1-1/2	66	1.083	3.8	3.4	U	2165	1386	962	707	541	427	346	286	240	205	176	135	
		Du			0.090	0.140	0.202	0.275	0.359	0.453	0.560	0.678	0.805	0.948	1.094	1.432		
		C			2165	1732	1443	1237	1082	962	866	787	721	666	618	541		
		Dc			0.072	0.112	0.161	0.220	0.287	0.363	0.448	0.542	0.645	0.758	0.878	1.148		
1-3/4	74	1.479	4.4	4.0	U	2956	1892	1314	965	739	584	473	391	328	279	241	184	
		Du			0.078	0.122	0.175	0.239	0.312	0.395	0.487	0.590	0.701	0.821	0.954	1.243		
		C			2956	2365	1971	1689	1478	1314	1182	1075	985	909	844	739		
		Dc			0.062	0.097	0.140	0.191	0.250	0.316	0.390	0.472	0.561	0.659	0.764	0.998		
2	83	1.989	4.9	4.5	U	3979	2546	1768	1299	994	785	636	526	442	376	324	248	
		Du			0.069	0.108	0.155	0.211	0.276	0.349	0.431	0.522	0.621	0.728	0.844	1.102		
		C			3979	3183	2652	2273	1989	1768	1591	1446	1326	1224	1136	994		
		Dc			0.055	0.086	0.124	0.169	0.221	0.280	0.345	0.418	0.497	0.584	0.676	0.883		
2-1/4	91	2.591	5.5	5.0	U	5223	3342	2321	1705	1305	1031	835	690	580	494	426	326	
		Du			0.063	0.098	0.141	0.191	0.250	0.316	0.390	0.472	0.562	0.660	0.765	0.999		
		C			5223	4178	3482	2984	2611	2321	2089	1899	1741	1607	1492	1305		
		Dc			0.050	0.078	0.113	0.153	0.200	0.253	0.313	0.378	0.450	0.528	0.613	0.800		
2-1/2	97	3.028	5.9	5.5	U	6080	3891	2702	1985	1520	1201	972	804	675	575	496	380	
		Du			0.056	0.088	0.127	0.172	0.225	0.285	0.352	0.426	0.506	0.594	0.689	0.901		
		C			6080	4864	4053	3474	3040	2702	2432	2211	2026	1871	1737	1520		
		Dc			0.045	0.070	0.101	0.138	0.180	0.228	0.282	0.341	0.405	0.476	0.552	0.721		

Deflection: Spans and loads to the right of the bold line exceed 1/4" deflection for uniform load of 100 psf. This can be exceeded for other types of loads with the Engineer's approval.

ALUMINUM STAIR TREADS

Many grating platform and walkway applications require stairways to access the various elevations that are associated with most construction projects. PMWI offers aluminum stair treads in all of our aluminum grating styles to match our grating products: Swage Locked I-Bar (SI Series), Swage Locked Rectangular Bar (SR Series), Pressure Locked Aluminum Dovetail (ADT Series), and Aluminum Heavy Duty Plank (PLK Series).



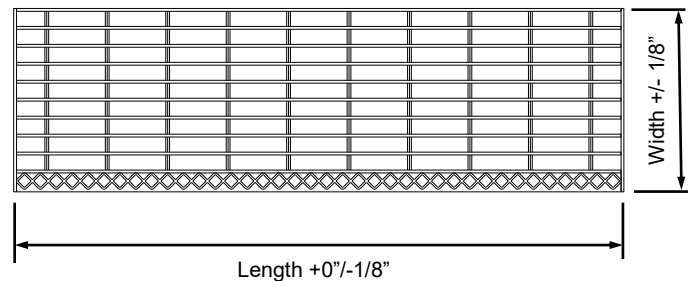
The SR Series and ADT Series stair treads may be ordered with a plain or serrated surface while the SI Series stair treads have a striated surface similar to the I-Bar grating profile. Aluminum Plank stair treads come unpunched or may be punched in one of several of our available punch patterns including "American with Disabilities Act" (ADA) options.

Nosings for aluminum stair treads include standard extruded Grooved Nosing with a striated surface similar to the I-bar grating or an optional cast Abrasive Nosing is available. Additionally, a slip resistant coating can be applied to improve the overall slip resistance of the stair tread.

Carrier end plates are provided with a hole and slot for attachment to stair stringers (Note: mounting bolts for mounting to stringers not furnished with treads).

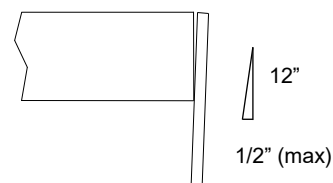


STAIR TREAD TOLERANCES



Overall Dimensional Tolerances

Note: Length of Stair Tread is distance Between outer faces of Carrier Plates



Carrier Plate Lean

ALUMINUM STAIR TREADS



PRODUCT SPECIFICATION GUIDE

How to Specify:

The following information provides a model specification format for architectural and engineering specification sections that, when applied, will be consistent with the Three-Part Section Format of The Construction Specifications Institute (CSI) for specifications serving the construction industry. The CSI specification section for Grating is listed in Section 05 53 00, Metal Fabrications - Metal Gratings. These specifications are intended for use as a guide for architects and engineers and may need to be altered or modified to fit the specific conditions of the application in question.

PART 1: GENERAL

1.1 Scope

The contractor shall provide all labor, materials, equipment and incidentals as shown, specified and required to furnish and install grating, stair treads and frames.

1.2 Quality Assurance

A. Comply with applicable provisions and recommendations of the following standards:

1. ANSI/NAAMM MBG 531-09 (Metal Bar Grating Manual) and MBG-533-09 (Welding Standards for Fabrication of Steel, Stainless Steel and Aluminum Bar Grating).
2. Aluminum: ASTM B221, Aluminum Alloy, Extruded Bars, Rods, Wire, Shapes and Tubing.

1.3 Submittals

- A. The contractor shall submit for approval shop drawings for the fabrication and erection of all work. Include plans, elevations, and details of sections and connections. Show type and location of all fasteners.
- B. The contractor shall submit manufacturer's catalog pages, specifications, load tables, anchor details and standard installation details.
- C. Grating samples shall be submitted for approval as required.

PART 2: PRODUCT

1. Stair Treads shall be of the same type and spacing as grating being specified. Stair Treads shall be manufactured by Pleasant Mount Welding, Inc. or approved equal.
2. Bearing Bar Size shall be based on the tread length and selected in accordance with the ANSI/NAAMM MBG 531-09 Metal Bar Grating Manual.
3. Nosing: Grooved nosing standard. A cast aluminum abrasive nosing or a slip-resistant spray on coating may be specified at the discretion of the Architect/Engineer.
4. Carrier End Plates: Attached by welding in accordance with the ANSI/NAAMM MBG 533-09, Welding Standards for Fabrication of Steel, Stainless Steel and Aluminum Bar Grating.

PART 3: EXECUTION

3.1 Installation

A. Prior to grating installation, contractor shall inspect supports for correct size, layout and alignment. Any discrepancies between contract drawings and supporting structure determined to be detrimental to grating placement shall be reported in writing to the architect or owner's agent prior to grating placement.

B. Install grating in accordance with shop drawings and standard installation clearances as recommended by the ANSI/NAAMM MBG 531-09 Metal Bar Grating Manual.

C. Cutting, Fitting and Placement.

1. Fabricate cutouts in grating sections for penetrations indicated. Arrange cutouts to permit grating removal without disturbing items penetrating gratings. Band ends and cuts in grating with bars of same size and material as the bearing bars.
2. Utilize standard panel widths wherever possible.

D. Protection of Aluminum from Dissimilar Materials:

1. Where aluminum surfaces come into contact with dissimilar metals, surfaces shall be kept from direct contact by painting the dissimilar metal with one coat of bituminous paint or other approved insulating material.

2. Where aluminum surfaces come into contact with dissimilar materials such as concrete, masonry or lime mortar, exposed aluminum surfaces shall be painted with one coat of bituminous paint or other approved insulating material.

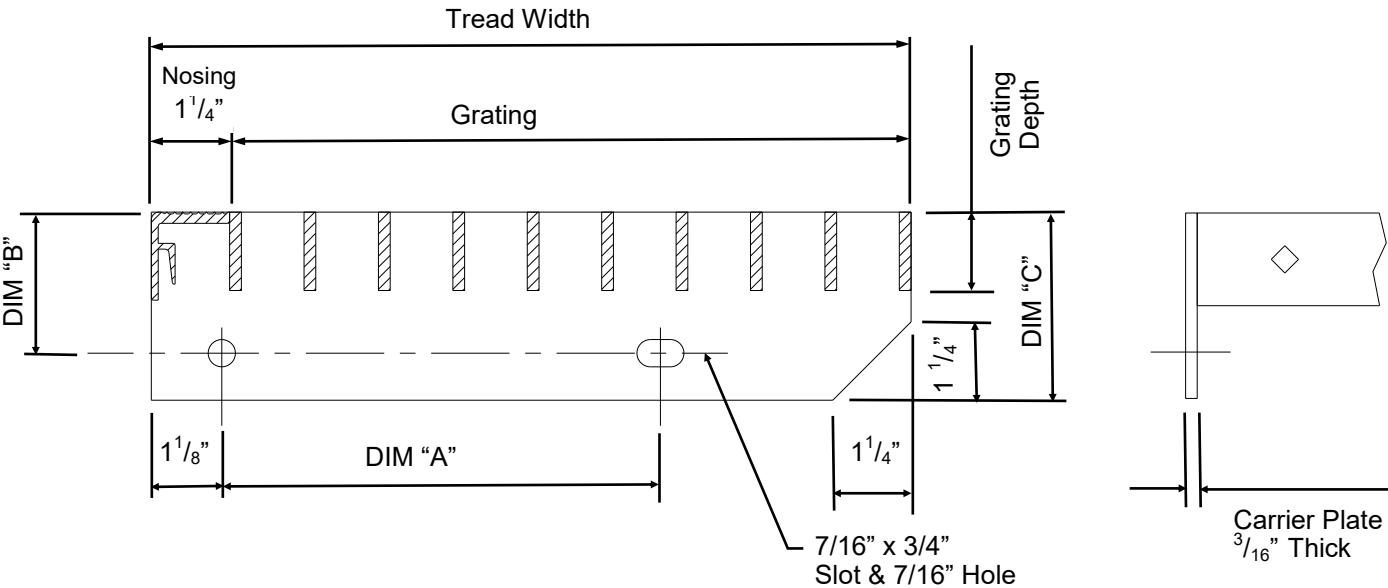
3.2 Grating Attachment

Use approved attachment system and fasteners to secure grating to supporting members as shown on plans.

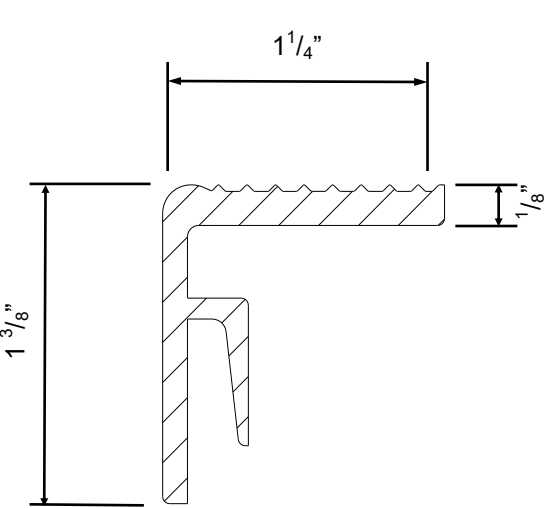
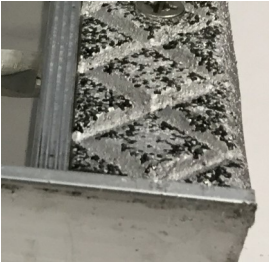
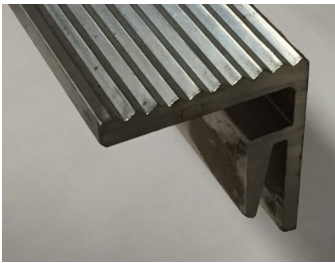


ALUMINUM STAIR TREADS

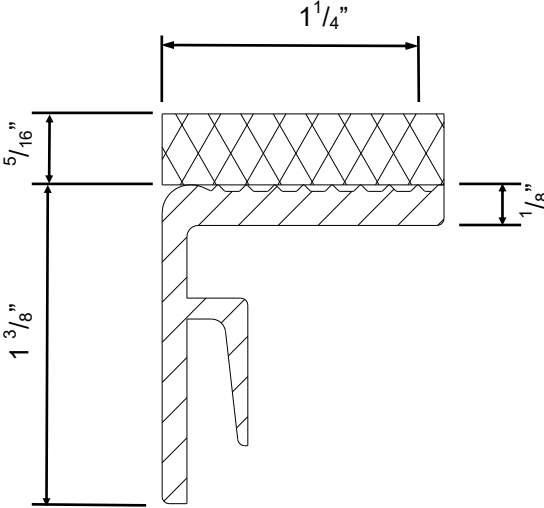
ALUMINUM STAIR TREAD DETAILS



Treads with Carrier Plates



Grooved



Cast Aluminum Abrasive

Nosing Details

ALUMINUM STAIR TREADS

Standard Tread Widths¹

No. of Bearing Bars	Width (includes nosing)			DIM "A"
	SR & ADT Series	SI Series	Plank Series	
5	6-3/16"	6-1/4"	6-3/8"	2-1/2"
6	7-3/8"	7-7/16"	7-1/4"	4-1/2"
7	8-9/16"	8-5/8"	8-3/4"	4-1/2"
8	9-3/4"	9-13/16"	9-15/16"	7"
9	10-15/16"	11"	11-1/8"	7"
10	12-1/8"	12-3/16"	12-3/8"	7"

Carrier Plate Dimensions

Grating Depth	DIM "B"	DIM "C"
1"	2-1/4"	3"
1-1/4"	2-1/4"	3"
1-1/2"	2-1/4"	3"
1-3/4"	2-1/4"	3"
2"	3-1/4"	4"
2-1/4"	3-1/4"	4"
2-1/2"	3-1/4"	4"

Max Plank Tread Length²

Grating Depth	Plank Grating
1"	30"
1-1/4"	36"
1-1/2"	44"
1-3/4"	53"
2"	63"
2-1/4"	66"
2-1/2"	70"

Maximum Tread Length² (inches) ** 15-ADT Series Coming Soon

Bar Size (inches)	SR & ADT Series Plain Surface		SR & ADT Series Serrated Surface		SI Series Striated Surface	
	19 1-3/16" C.C.	15 15/16" C.C.	19 1-3/16" C.C.	15 15/16" C.C.	19 1-3/16" C.C.	15 15/16" C.C.
1 x 3/16	28	30	26	27		
1 x 1/4					28	30
1-1/4 x 3/16	34	37	31	33		
1-1/4 x 1/4					34	37
1-1/2 x 3/16	42	46	38	42		
1-1/2 x 1/4					42	46
1-3/4 x 3/16	51	56	46	51		
1-3/4 x 1/4					51	56
2 x 3/16	61	66	56	61		
2 x 1/4					61	66
2-1/4 x 3/16	66	66	66	66		
2-1/4 x 1/4					66	66
2-1/2 x 3/16	66	70	66	66		
2-1/2 x 1/4					66	70

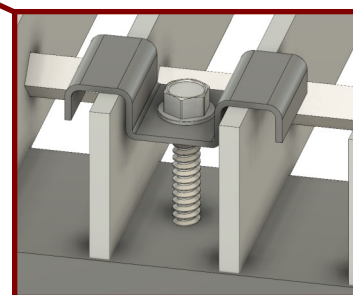
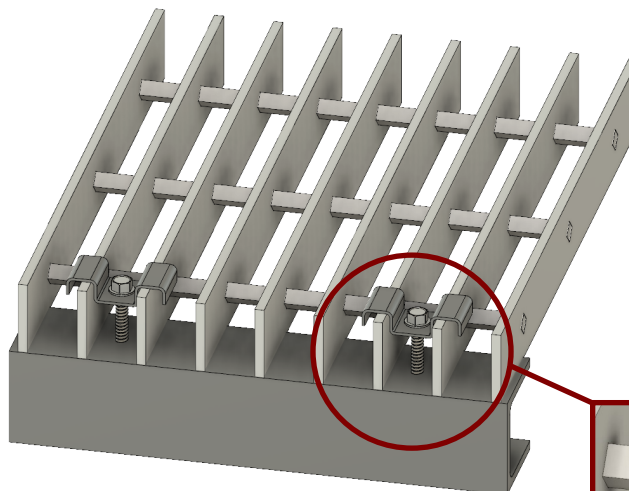
1. Table of widths based on 3/16" thick Rectangular Bearing bars (1/4" I-bars) and standard 1-3/16" center-to-center bearing bar spacing.

2. Maximum tread length based on 300 lb. concentrated load on front 5" of tread at center of tread length and maximum deflection D=1/240 of length. Design treads exceeding 66" length for 300 lb. concentrated loads at 1/3 points.

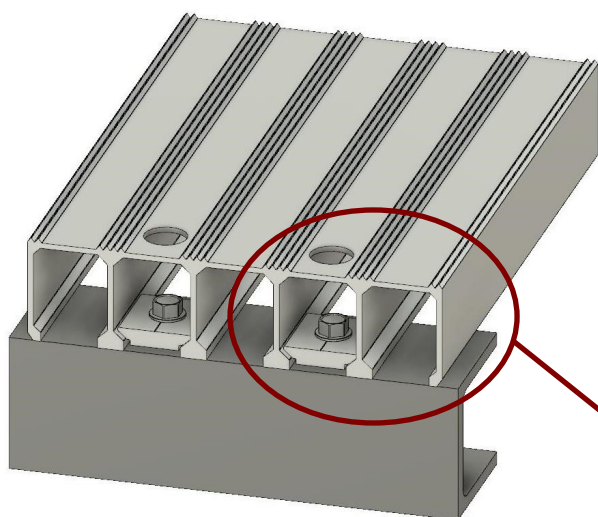
GRATING ANCHORS

Saddle Clip

A bent-clip type fastener for removable bar grating panels. Clips fit over two adjacent bearing bars and can be secured to the substrate using standard TEK screws. Recessed design allows fastener heads to remain below grating surface. Made from stainless steel and available in both 15-spacing and 19-spacing sizes. Saddle clips are compatible with I-Bar, Dovetail, and Rectangular Bar grating types.

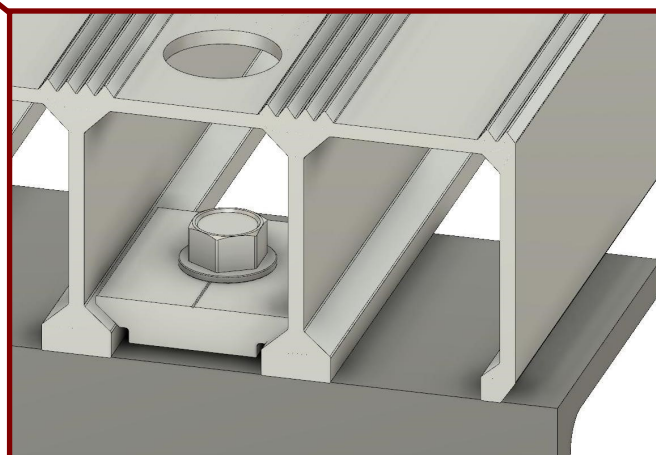
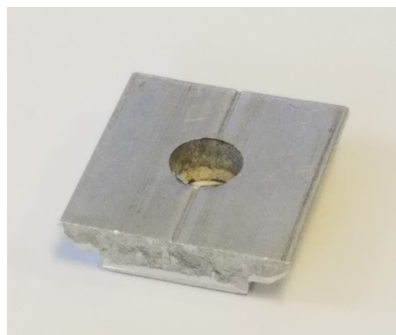


Note: Crossbars may need to be snipped in field to facilitate placement of saddle clips at support locations.



Plank Lug

A plank lug is sized to fit between the bottom flanges of plank grating and is an ideal method for anchoring plank grating. Plank lugs may be tack welded in place and can be secured to the substrate using standard TEK screws. Made from aluminum and fits all depths of plank grating. Plank lugs may also be used with 19-spacing I-Bar. 5/8" diameter holes are required in plank decking to access plank lug fasteners.

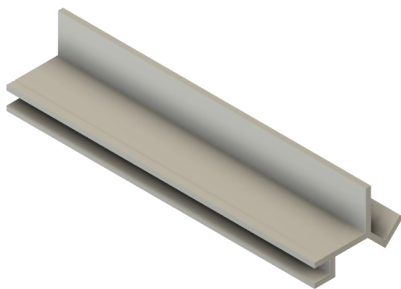


Note: Tack welding of grating in the field (by others) is an alternative method for anchoring all permanently installed grating.

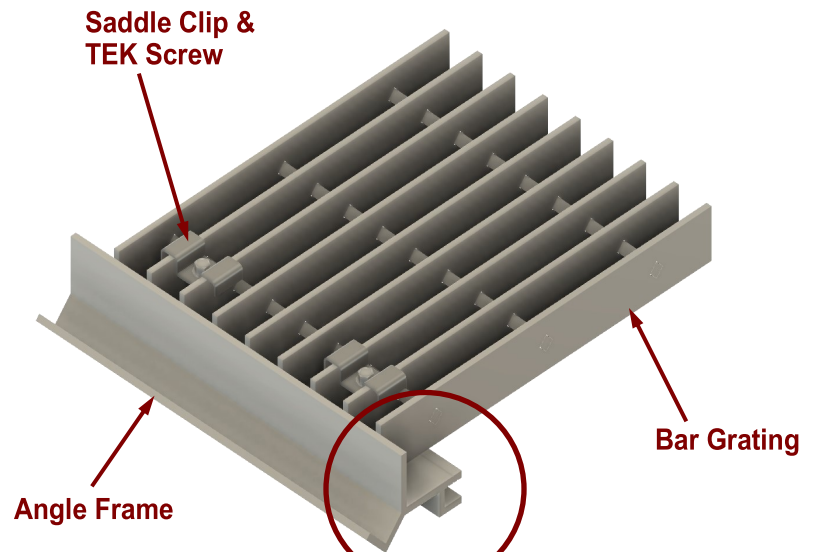
GRATING ANGLE FRAME

Aluminum Grating Angle Frame Embed

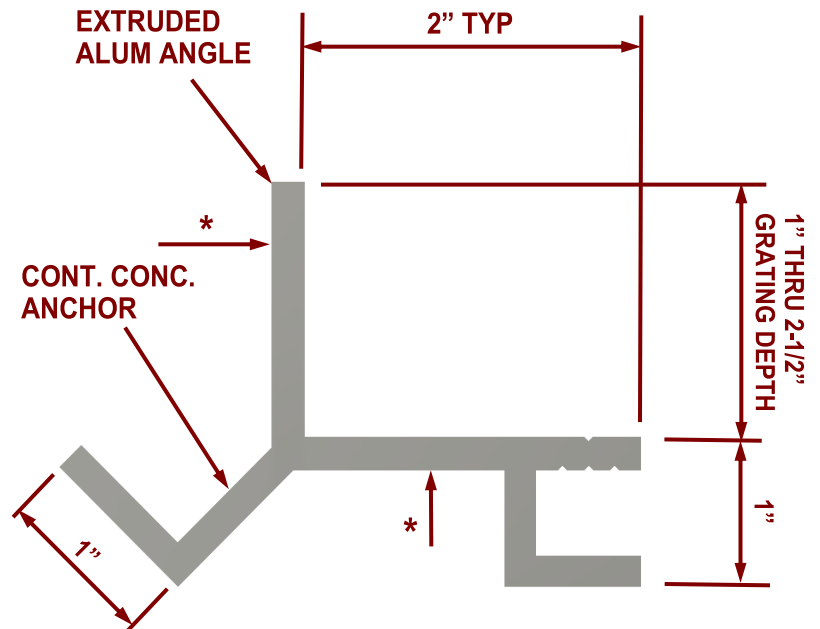
Pleasant Mount Welding offers an extruded aluminum grating frame for embedded concrete applications. The angle frame incorporates a continuous slot to accommodate grating fasteners, clips or self tapping screws. The extruded angle frame also provides a continuous anchor for embedding in concrete and may be used alone or in conjunction with a supplemental anchor strap (if necessary). Grating angle frame is offered to match grating depths from 1" to 2-1/2" and shall have mitered corners (where applicable). Angle frames can be provided in mill finish or coated with bituminous paint to protect surfaces that will come into contact with concrete.



Extruded Angle Frame

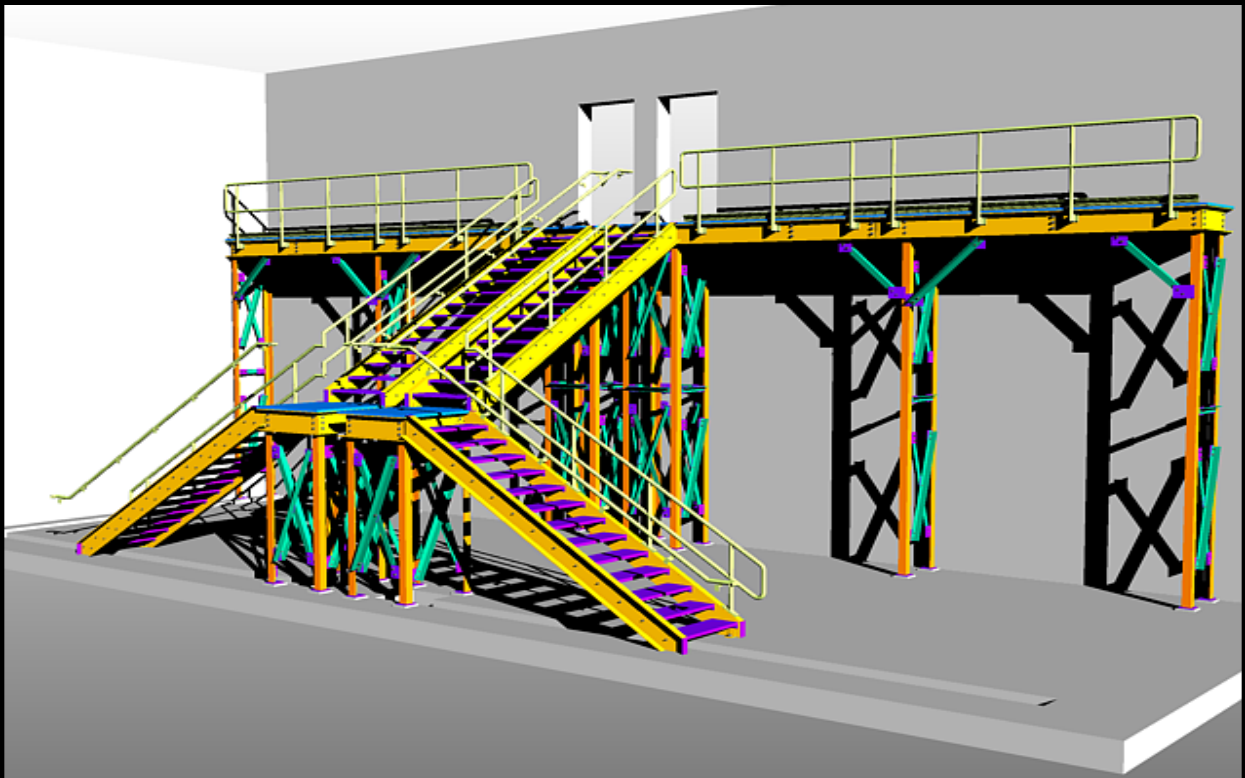
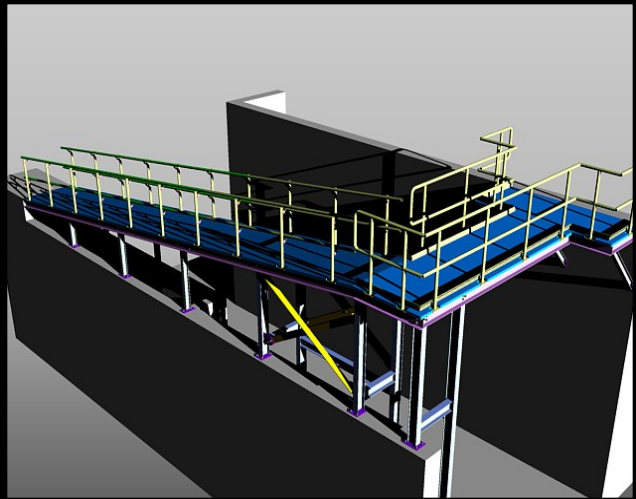
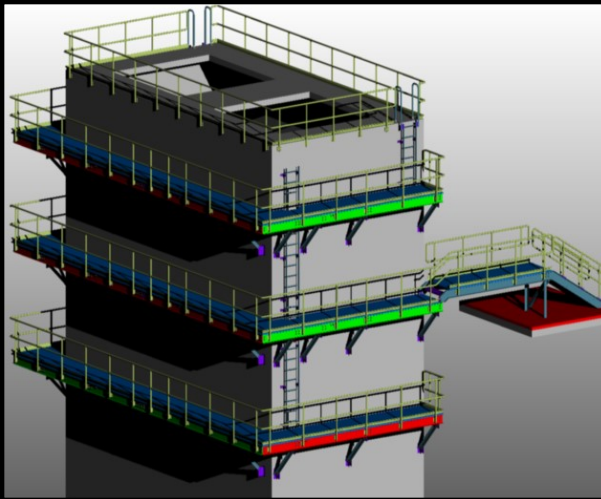


Note: Concrete not shown



PMWI EXTRUDED ANGLE SECTION

Pleasant Mount Welding Inc.
continues to advance into the
future by now offering drawings in
3D modeling software



ENGINEERING FIRMS

PMWI HAS COMPLETED MISCELLANEOUS METALS CONTRACTS FOR WATER OR WASTEWATER PROJECTS DESIGNED BY THE FOLLOWING ENGINEERS.

KARAM ASSOCIATES
CLARK ENGINEERS
GANNETT FLEMING, INC.
BRINJAC KAMBIC & ASSOCIATES
CHARLES MANGANARO CONSULTING ENGINEERS
GLACE ASSOCIATES
BCM ENGINEERS & SCIENTISTS
KILLAM ASSOCIATES
CLOUGH HARBOUR ASSOCIATES
MILNES ENGINEERING
RIELLY ASSOCIATES
DELAWARE ENGINEERING
T & M ASSOCIATES
LANC & TULLY ENGINEERING, INC.
STEARNS & WHELER, INC.
C.T. CONSULTANTS, INC.
WHITMAN, REQUARDT & ASSOCIATES
ROY F. WESTON ENGINEERS
HAVENS & EMERSON, INC.
POST, BUCKELY, SCHUH & JERNIGAN, INC.
HAZEN & SAWYER, INC.
ACER ENGINEERS & CONSULTANTS
O'BRIEN & GERE ENGINEERS, INC.
GSEE ENVIRONMENTAL CONSULTANTS
SYSTEMS DESIGN ENGINEERING, INC.
PENNSYLVANIA DEPARTMENT OF ENVIRONMENTAL PROTECTION
GIBSON THOMAS ENGINEERING
SCHOOR ENGINEERING, INC.
GEORGE, MILES & BUHR ARCHITECT & ENGINEERS
L. ROBERT KIMBALL & ASSOCIATES
EUSTANCE & HOROWITZ, P.C.
THE EADS GROUP
BLACK & VEATCH ENGINEERING
M.S. CONSULTANTS, INC.
NEW YORK CITY DEPARTMENT OF ENVIRONMENTAL PROTECTION
MALCOLM PIRNIE, INC.
LAMONT VAN DEVALK ENGINEERING
THE PORT AUTHORITY OF NY & NJ
ENTECH ENGINEERING, INC.
FORCIER ALDRICH & ASSOCIATES
BASKERVILLE DONOVAN, INC.
WRIGHT PIERCE
WEBSTER MARTIN CONSULTING ENGINEERS
GWIN DOBSON & FOREMAN, INC.
CABE ASSOCIATES, INC.

C.F.M. ASSOCIATES
KELLEY ENGINEERING
MAST ENGINEERING
RETTEW ASSOCIATES
THE QUAD THREE GROUP
TAYLOR, WISEMAN & TAYLOR CONSULTING ENGINEERS
BUCK, SEIFERT & JOST, INC.
R.K.R. HESS ASSOCIATES
ALFRED BENESCH & COMPANY CONSULTING ENGINEERS
DAY ENGINEERING
F.X. BROWNE ASSOCIATES
BIPIN GANDHI, PC.
CET ENGINEERING SERVICES
McGOEY, HAUSER & EDSALL CONSULTING ENGINEERS
F & M ASSOCIATES
THE CHESTER ENGINEERS
METCALF & EDDY, INC.
RODHE & SOYKA
BUCHART HORN, INC.
EBASCO SERVICES, INC.
CAMP DRESSER & McKEE
U.S. ARMY CORPS OF ENGINEERS
CH2M HILL
NUSSBAUMER & CLARKE, INC.
K.L.H. ENGINEERS, INC.
MORRIS ASSOCIATES
J.P.W. ENGINEERING
RUMMEL, KLEPPER & KAHL CONSULTING ENGINEERS
KEYSTONE CONSULTING ENGINEERS
LOUREIRO ENGINEERING ASSOCIATES
TATMAN LEE ASSOCIATES, INC.
EDM CONSULTANTS, INC.
PENNONI ASSOCIATES
RICHARD A. ALAIMO ASSOCIATES
LEE T. PURCELL ASSOCIATES
THE NEW YORK CITY TRANSIT AUTHORITY
EARTHTECH, INC.
CECO ASSOCIATES, INC.
THE McGUIRE GROUP
MONTGOMERY WATSON, INC.
FINKBEINER PETTIS & STOUT, INC.
BRINNIE & LARIOS, P.C.
WATER MANAGEMENT SERVICES
UNI-TECH CONSULTING ENGINEERS

CUSTOMER TESTIMONIALS

“ I have been in this business for many years and have never seen shop drawings of this caliber. I am very pleased with the presentation, assemblies, accuracy and details. Keep up the good work.”

Michael Roy, C.H. Nickerson

“ When we receive metals from P.M.W.I. the quality, customer service and on time deliveries are exceptional. The years of experience that P.M.W.I. has in water and wastewater treatment plants is invaluable.”

Dominic Ruggiero, Michael F. Ronca and Sons, Inc.

“We have purchased all of the miscellaneous metals on our last four large wastewater treatment plants from Pleasant Mount Welding. Not only is their pricing competitive, but the time and detail that they put into the production of their shop drawings ensures that the final product received at the jobsite fits without costly field modifications.”

Rob Knapke, Peterson Construction Company

“ Over the past ten years, I have worked with P.M.W.I. on various water and wastewater treatment plants involving challenging metal work. P.M.W.I. has consistently provided outstanding customer service with a high level of attention to detail, accuracy and quality metal fabrications for projects with aggressive schedules.”

Robert T. Huie, Pizzagalli Construction Company

“ From start to finish the experience of dealing with P.M.W.I. was outstanding. All drawings and products were delivered as promised with painstaking attention to detail. The structural steel was labeled and fabricated correctly and fit perfectly. This was without a doubt the best experience we have had with a fabricator in our 22 years in business.”

Brian Fagersten, President, Sparwick Contracting, Inc.

Pleasant Mount Welding, Inc.

45 Dundaff Street, Carbondale, PA 18407

Phone 570-282-6164

Estimating Fax 570-282-7917 email: Sales@PMWI.net

Drafting Fax 570-281-5931 email: Submittal@PMWI.net

Mfg Fax 570-282-7920 email: Delivery@PMWI.net

