

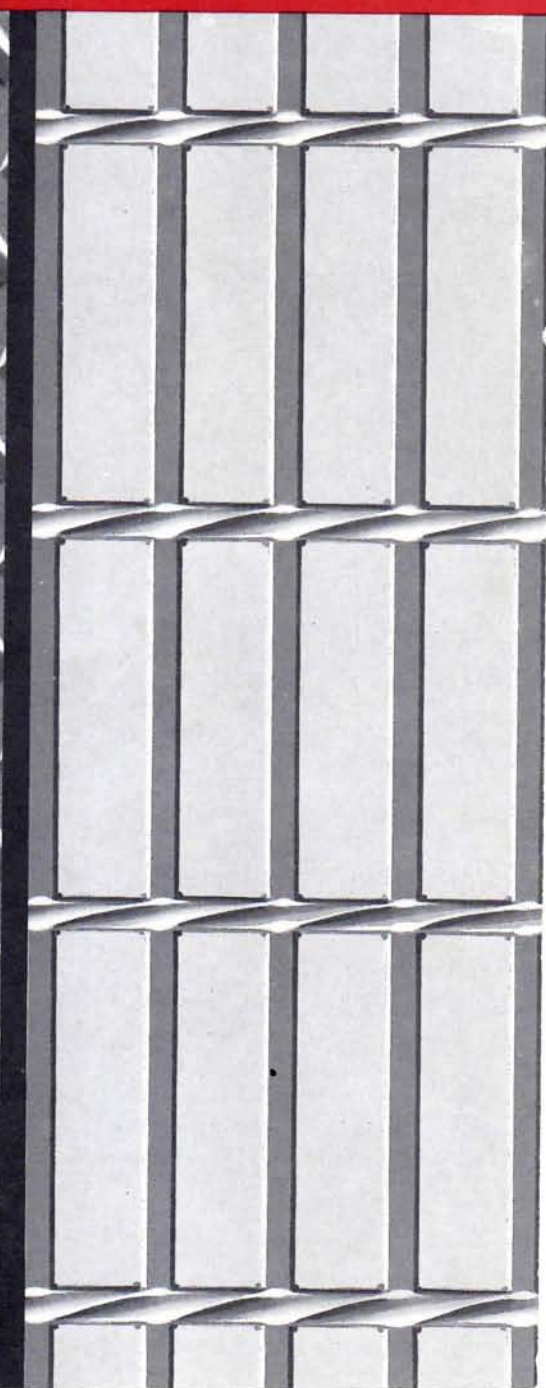
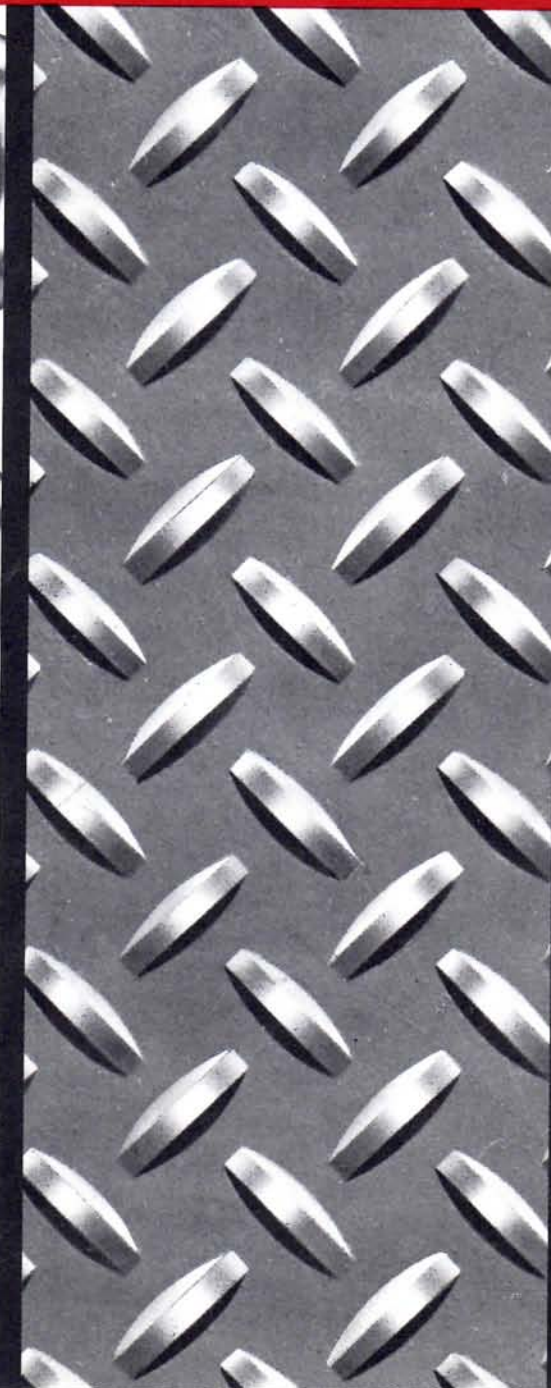
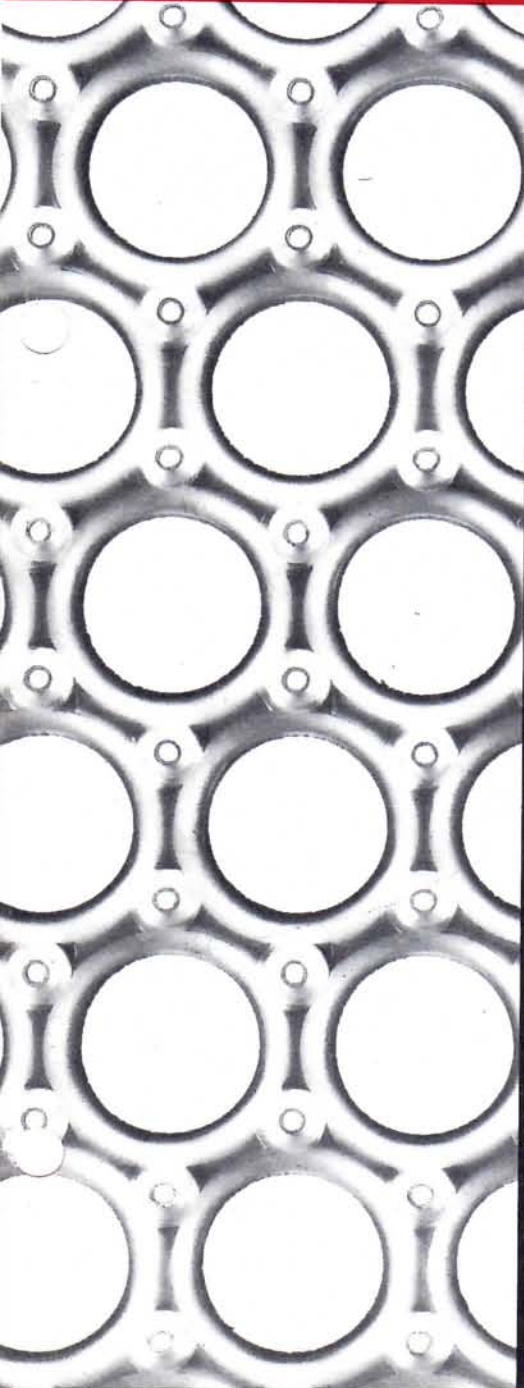


**Ryerson**  
an Inland Steel company

# GRATING & FLOORING

**STEEL  
ALUMINUM  
PLASTICS**

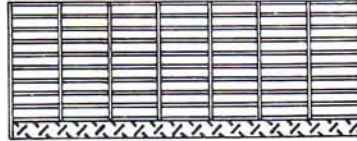
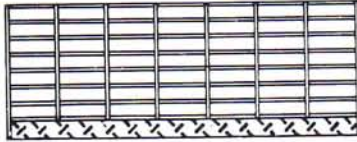
**a guide to selection & design**



# RY-WELD STAIR TREADS

**WHEN ORDERING, SPECIFY:** (1) Type of grating, (2) Size of bearing bars, (3) Length of tread, (4) Width of tread, (5) Type of nosing, (6) Finish — painted, unpainted or galvanized, (7) Number of treads, (8) Type, size and number of stringers, and (9) Shipping instructions.

## TREAD DIMENSIONS



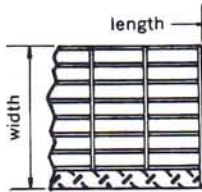
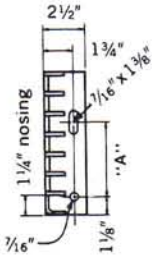
Standard bearing bar spacing in inches

Close bearing bar in inches

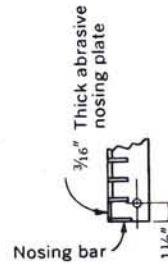
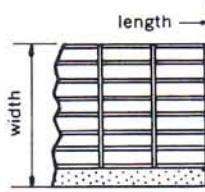
Width	"A" Dimension	Width	"A" Dimension
6 <sup>3</sup> / <sub>16</sub>	2 <sup>1</sup> / <sub>2</sub>	6 <sup>1</sup> / <sub>8</sub>	2 <sup>1</sup> / <sub>2</sub>
7 <sup>3</sup> / <sub>8</sub>	4 <sup>1</sup> / <sub>2</sub>	7 <sup>1</sup> / <sub>16</sub>	4 <sup>1</sup> / <sub>2</sub>
8 <sup>9</sup> / <sub>16</sub>	4 <sup>1</sup> / <sub>2</sub>	8	4 <sup>1</sup> / <sub>2</sub>
9 <sup>3</sup> / <sub>4</sub>	7	8 <sup>5</sup> / <sub>16</sub>	4 <sup>1</sup> / <sub>2</sub>
10 <sup>15</sup> / <sub>16</sub>	7	9 <sup>7</sup> / <sub>8</sub>	7
12 <sup>1</sup> / <sub>8</sub>	7	10 <sup>13</sup> / <sub>16</sub>	7

NOTE: When using 1/8"-thick bearing bar, tread width is 1/16" less.

## TREAD DETAIL-LENGTH AS REQUIRED



Checker Plate Nosing (standard)



Abrasive Nosing (special)

## TREAD WEIGHTS

Tread Width	3/4 x 3/16		1 x 3/16		1 1/4 x 3/16	
	Wt.	Add for Additional Inch	Wt.	Add for Additional Inch	Wt.	Add for Additional Inch
6 <sup>3</sup> / <sub>16</sub>	7.83	.34	9.03	.41	10.23	.48
7 <sup>3</sup> / <sub>8</sub>	8.97	.39	10.41	.47	11.85	.55
8 <sup>9</sup> / <sub>16</sub>	10.11	.43	11.79	.52	13.47	.62
9 <sup>3</sup> / <sub>4</sub>	11.25	.48	13.17	.59	15.09	.69
10 <sup>15</sup> / <sub>16</sub>	12.39	.53	14.55	.65	16.71	.76
12 <sup>1</sup> / <sub>8</sub>	13.53	.57	15.93	.71	18.33	.84

Based on standard spacing of bearing bars and base length of tread 1'6" — for 1/8"-thick bearing bars, deduct 10% from above weights. For close-spaced bearing bars, add 20%.

## TREAD LENGTHS

Bearing Bars	Maximum Lengths	Bearing Bars	Maximum Lengths
3/4 x 3/16	2'3"	1 1/4 x 1/8	4'0"
1 x 1/8	3'0"	1 1/4 x 3/16	4'6"
1 x 3/16	3'6"	1 1/2 x 3/16	5'6"



## PERFORATED PLATE

Perforated plate is used for screening and as trench covers in many industrial applications. Ideal for bridging long, narrow spans. Available from stock in the patterns illustrated or perforated to order in an infinite variety of patterns and sizes, and in all metals — carbon and stainless steel, and aluminum.



**BOSTON**  
Box 1111, Boston, Mass. 02103  
Phone: (617) 782-6900

**BUFFALO**  
Box 8, Buffalo, New York 14240  
Phone: (716) 894-3311

**CHARLOTTE**  
Box 10006, Charlotte, N.C. 28237  
Phone: (704) 392-1321

**CHATTANOOGA**  
Box 109, Chattanooga, Tenn. 37401  
Phone: (615) 756-3500

**CHICAGO**  
Box 8000-A, Chicago, Ill. 60680  
Phone: (312) 762-2121

**CINCINNATI**  
Annex Box 14300, Cincinnati, Ohio 45214  
Phone: (513) 542-5800

**CLEVELAND**  
Box 6208, Cleveland, Ohio 44101  
Phone: (216) 432-1411

**DALLAS**  
Box 5960, Dallas, Texas 75222  
Phone: (214) 637-4710

**DENVER**  
Box 16445, Denver, Colo. 80216  
Phone: (303) 287-0101

**DETROIT**  
Box 5338, Milw. Jct. Sta., Detroit, Mich. 48211  
Phone: (313) 874-3311

**HOUSTON**  
Box 2606, Houston, Texas 77001  
Phone: (713) 675-6111

**INDIANAPOLIS**  
Box 19347, Indianapolis, Indiana 46219  
Phone: (317) 359-8282

**KANSAS CITY**  
Box 1588, Kansas City, Mo. 64141  
Phone: (816) 471-3500

**LOS ANGELES**  
Box 3817, Los Angeles, Calif. 90051  
Phone: (213) 262-6141

**MILWAUKEE**  
Box 534, Milwaukee, Wisconsin 53201  
Phone: (414) 453-8000

**MINNEAPOLIS**  
Box 619, Minneapolis, Minn. 55440  
Phone: (612) 544-4401

**NEW YORK**  
Box 484, Jersey City, New Jersey 07303  
Phones: New York—(212) 964-1313  
New Jersey—(201) 435-3434

**PHILADELPHIA**  
Box 7349, Philadelphia, Pa. 19101  
Phone: (215) 724-0700

**PITTSBURGH**  
Box 1919, Pittsburgh, Pa. 15230  
Phone: (412) 923-2424

**SAN FRANCISCO**  
Box 8427, Emeryville, Calif. 94608  
Phones: (415) 653-2933

**SEATTLE**  
Box 3525, Seattle, Wash. 98124  
Phone: (206) 624-2300

**SPOKANE**  
Box 2607, Spokane, Wash. 99220  
Phone: (509) 535-1581

**ST. LOUIS**  
Box 527, St. Louis, Missouri 63166  
Phone: (314) 231-1020

**WALLINGFORD**  
Box 188, Wallingford, Conn. 06492  
Phone: (203) 269-8744  
Other Conn. Areas: 1-800-982-3990



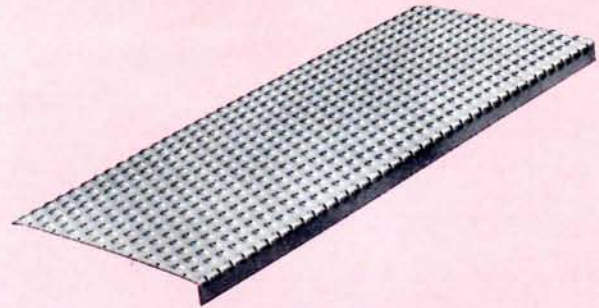
**Ryerson**

an Inland Steel company

# STAIR TREADS AND STRINGERS



Open Grip stairs treads are stocked in two sizes of 13 ga. pre-galvanized steel — 30" or 36" wide x 9½" deep x 2" high with buttons at forward edge to prevent slipping. Formed ends can be bolted or welded to stringers. Custom designs and tread variations are available on special request.



Tread-Grip stair treads can be supplied in a variety of shapes and sizes, fabricated to order. Buttons on bend provide abrasive nosing.



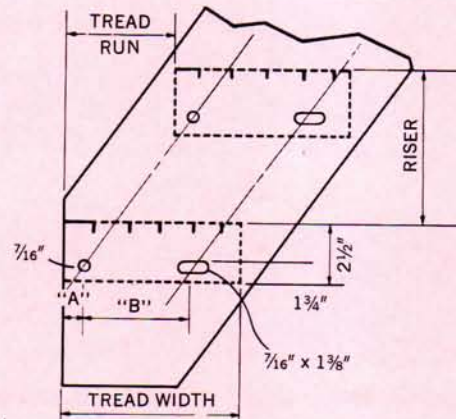
Ryerson stair treads fabricated from Ry-Weld steel grating or Ry-Wedg aluminum grating come complete with standard nosing or abrasive nosing and carrier plates at the end of each tread for bolting to stair stringers. Tread nosing makes next step below easily visible.



Stair treads of 4-Way Safety Plate or Reynolds aluminum diamond tread plate give additional safety, rigidity and long life. Both types can be supplied to customers' specifications for use on straight or winding stairways — with or without nosing or short riser.



Ryex grating stair treads have all the advantages of expanded metal grating and are ideal for fire escapes and all types of industrial and ship stairways. Stair treads are available completely prefabricated in standard widths with or without nosing, ready for installation. Easily installed by a simple attachment with bolts and nuts to standard steel channel stringers.



Stair Stringers — in the typical layout above  $A = 1\frac{1}{8}$ " ;  $B = 2\frac{1}{2}$ " on a  $6\frac{3}{16}$ " deep tread,  $4\frac{1}{2}$ " on  $7\frac{3}{8}$ " or  $8\frac{9}{16}$ " treads, and 7" on  $9\frac{3}{4}$ ",  $10\frac{15}{16}$ " or  $12\frac{1}{8}$ " treads. Rolled steel channels 10" and 12" wide; pressed channels to spec. from  $\frac{3}{16}$ " and  $\frac{1}{4}$ " HR steel; and rectangular tubing 2" x 10" or 12" x  $\frac{3}{16}$ " all — all to ASTM A7 Specs. — are available from Ryerson.

# ALUMINUM TREAD FLOOR PLATE

Nonsparking and nonmagnetic Aluminum Tread Plate, in the conventional diamond pattern or the new raised lug pattern, is resistant to atmospheric corrosion and many industrial corrosive agents. It is easy to clean and provides strength necessary to withstand most industrial loads without excessive deflection.

Made from 6061-T6, 5052-H32, 3003-H12 or 3003-H14 aluminum alloys with raised pattern on one side and with opposite side smooth. Aluminum floor plate is approximately 66% lighter than solid steel flooring and is available in a variety of stock sizes and thicknesses or sheared to your requirements.

SIZES AVAILABLE							LOADING CAPACITY (6061-T6 Alloy)							
SIZE IN INCHES	Approx. Wt. in Lbs.		3003 H14	5052 H32	5086 H34	6061 T6	7002 T6	Thick. Inch		1'-0"	1'-6"	SPAN		
	SQ. FT.	PLATE										2'-0"	2'-6"	3'-0"
.100x48x192	1.57	100.5	X			X		.100	L	200	—	—	—	—
.125x48x192	1.90	121.6	X	X	X	X		.125	D	.443	—	—	—	—
60x120	1.90	95.00	X					.125	L	313	139	—	—	—
60x192	1.90	152.0			X	X		.125	D	.361	.813	—	—	—
.188x48x192	2.80	179.2	X		X	X		.156	L	512	227	128	—	—
60x192	2.80	224.0			X	X		.156	D	.281	.631	1.125	—	—
.250x48x192	3.70	236.8			X	X		.188	L	722	320	181	116	—
60x192	3.70	296.0			X	X		.188	D	.237	.532	.949	1.49	—
.375x48x144	5.51	264.5				X	X	.250	L	1250	555	312	200	139
48x192	5.51	352.6			X	X		.250	D	.180	.405	.718	1.125	1.62
60x144	5.51	330.6				X	X	.375	L	2810	1250	703	450	312
60x192	5.51	440.8			X	X		.375	D	.111	.259	.461	.720	1.03
.500x48x144	7.30	350.4			X	X	X	.500	L	5000	2220	1250	800	556
60x144	7.30	438.0				X		.500	D	.090	.203	.360	.563	.811
Relative Cost			88%	92%	103%	100%	108%							
Relative Strength			40%	54%	71%	100%	175%							
Forming (A=Best)			A	B	C	D	E							

# STAINLESS SAFETY FLOOR PLATE

The advantages of stainless steel floor plates are many — maximum corrosion resistance, strength at high temperatures, cleanability, positive gripping power, attractive appearance and excellent resistance to wear. Stainless floor plate is especially effective in dairies, meat packing houses, breweries, Navy and commercial vessels, bakeries and kitchens, laboratories and as walkways, stairways and aisles in chemical, food, drug and processing industries, in nuclear plants . . . everywhere a highly wear-resistant, sanitary and easy-to-clean surface can enhance an installation. Available up to 3/8" thick, 48" wide, and 144" long.

Plate Thickness, Inches	SPAN—FEET AND INCHES										
	1'-0"	1'-6"	2'-0"	2'-6"	3'-0"	3'-6"	4'-0"	4'-6"	5'-0"	5'-6"	6'-0"
Weight of Plate Included—Simply Supported Along Two Opposite Edges											
Allowable Bending Stress = 22,000 psi											
3/16	1,031	458	257	165	114	84	64	50	41	34	28
1/4	1,833	814	458	293	203	149	114	90	73	60	50
5/16	2,864	1,273	716	458	318	233	179	141	114	94	79
3/8	4,125	1,833	1,031	660	458	336	257	203	165	136	114
Deflection Coefficient	0.0236	0.0530	0.0943	0.1473	0.2121	0.2887	0.3771	0.4772	0.5891	0.7129	0.8484

Deflections for loadings above the heavy horizontal lines will exceed 1/100th of the span. The deflection coefficient at the bottom of each span column is a constant, which, when divided by the plate thickness under consideration, in inches, gives the deflection in inches at the center of the span for the tabular loading shown.

To find the deflection in inches for any uniform load less than tabulated above, find the deflection for the tabular load for a given span and plate thickness; multiply this deflection by the load per square foot desired; and divide by the tabular allowable safe load above.

Plate Thickness in inches is the body or base thickness and does not include the depth of the projections.



OPEN-GRIP and TREAD-GRIP are perfectly paired to give you a choice between open and closed safety surfaces for your particular application — catwalks, stair treads, ladder rungs, platforms, ramps, walkways, etc., and they meet OSHA standards.



### LOAD AND DEFLECTION DATA — OPEN-GRIP STEEL CHANNELS

SPAN (FT.) (12" WIDTH)		3'-0"	3'-6"	4'-0"	4'-6"	5'-0"	5'-6"	6'-0"	7'-0"	8'-0"	9'-0"	10'-0"	LB/FT
1½" x 13 GA.	U	300	220	168	133	107	89	75	55	42	30	22	4.30
	D	.110	.150	.195	.248	.304	.370	.441	.600	.781	.894	.999	
	C	449	385	337	300	270	245	224	192	168	150	135	
	D	.088	.120	.157	.199	.245	.296	.351	.478	.625	.794	.981	
2" x 13 GA.	U	456	334	256	202	164	135	114	84	64	51	41	4.61
	D	.084	.114	.149	.188	.233	.280	.335	.458	.595	.760	.931	
	C	684	585	512	455	410	372	341	292	256	227	204	
	D	.067	.091	.119	.151	.186	.225	.268	.364	.476	.601	.741*	

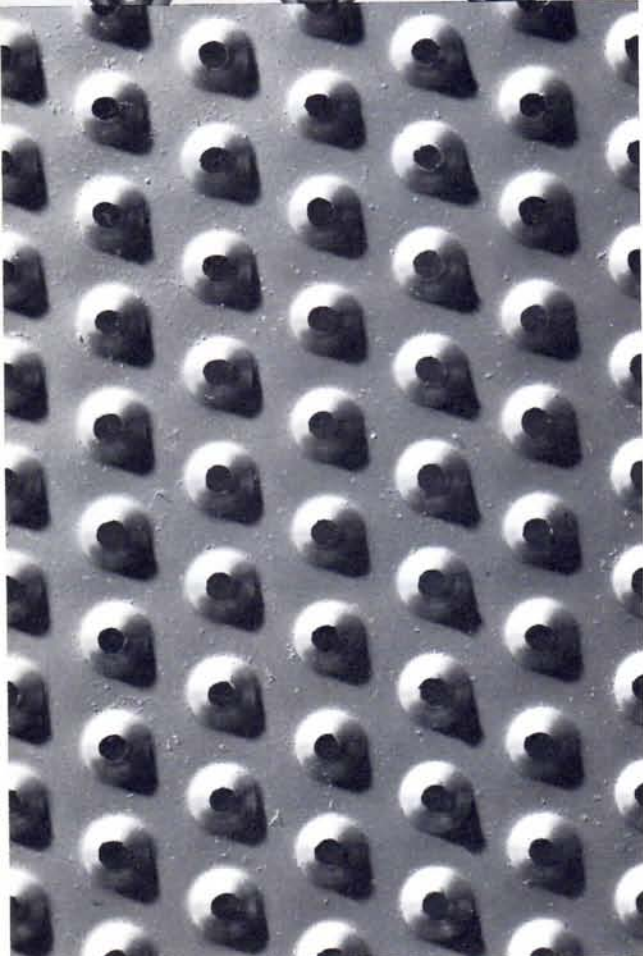
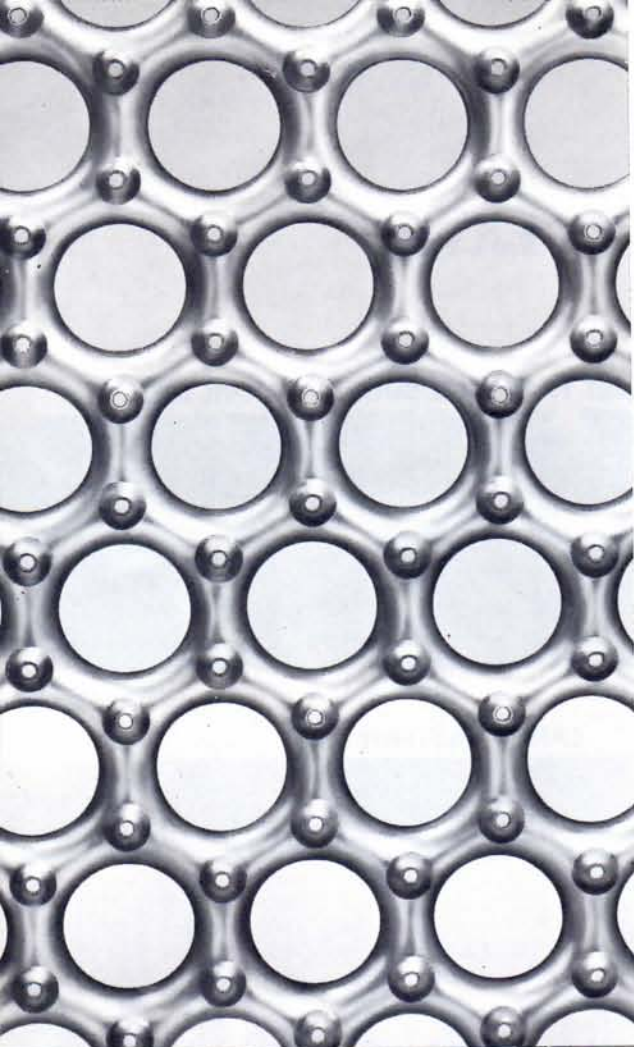
U UNIFORM LOAD, POUNDS PER SQUARE FOOT  
 D DEFLECTION, INCHES  
 C CONCENTRATED LOAD, POUNDS, CENTER OF SPAN, PER FOOT OF WIDTH

To arrive at uniform loads per square foot, or concentrated loads per foot of width, when using other channel widths, apply these factors to above loads: 5" channel (2.40), 7" channel (1.71), 9½" channel (1.26), 18" channel (.67)

SAFETY FACTOR 1.67 DEFLECTION NOT TO EXCEED  $\frac{L}{120}$

Safe loads determined in accordance with the following specifications:

- A) A.I.S.I. Specifications for Design of Cold Formed Steel Structural Members — Section 6 — 1968 Edition
- B) Federal Specification — Grating, Metal, other than Bar Type — RR-G-1602 July 10, 1970



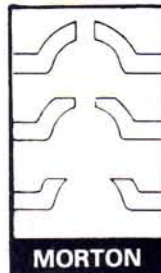
## MORTON OPEN-GRIP® and TREAD-GRIP®

Morton Open-Grip Safety Grating and Tread-Grip Safety Surface are real foot-stoppers . . . in any situation. Perfectly paired to give the designer a choice between open and closed surface applications, both surfaces feature upset perforated buttons to assure anti-skid contact for safe footing in any direction. As buttons wear, new edges continually present a safe gripping action, as well as a comfortable walking surface.

Open-Grip's debossed hole design makes it ideal for many industrial applications — catwalks, platforms, stair treads, conveyors and raised floors — because it offers a self-cleaning surface that substantially eliminates the hazard of water, oil or dirt accumulation on the surface — and lets plenty of light and air get through.

Tread-Grip's closed surface design, used widely in commercial applications such as ramps, walkways and stairways, provides a safe, easy to walk on surface.

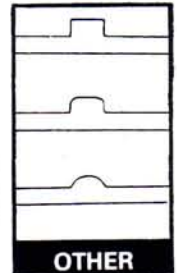
Open-Grip and Tread-Grip are manufactured in several gauges of steel and aluminum and both surfaces are produced as flat sections, flanged channels or stair treads offering high structural strength. Open-Grip channels are stocked in 13 ga. (.090") H. R. steel, 5" to 18" widths, 10 and 12 foot lengths, standard pre-galvanized finish or painted to order. Also available 18" wide in 11 ga. steel for heavy duty applications. A specially designed Open-Grip Walkway Channel is also available in 13 or 11 ga. pre-galvanized or unfinished steel, 24", 30" or 36" wide x 10 or 12 ft. long with 4 1/4" toe boards on both sides. Tread-Grip is made to order in any size up to 36" x 120" and is stocked 36" x 120" in 11, 13 and 16 ga. steel. Also available in .125" thick aluminum and stainless steel in some sizes.



**MORTON**

### MORTON OPEN-GRIP AND TREAD-GRIP RETAIN THEIR SAFETY

New sharp, gripping edges are constantly presented as the raised buttons wear down. The perforations drain spillage and break oil film from gripping edges.



**OTHER**

OPEN-GRIP In Stock					TREAD-GRIP In Stock	
Width	Gauge	Channel	Wt. 10'	Wt. 12'	Gauge	Lbs./Sq. Ft.
5"	13	1 1/2"	26.3	—	16	2.4
		2"	29.5	—		
7"	13	1 1/2"	30.5	36.6	13	3.6
		2"	33.6	40.3		
9 1/2"	13	1 1/2"	36.7	44.1	11	4.8
		2"	39.8	47.8		
12"	13	1 1/2"	43.0	51.6	Morton TREAD-GRIP is stocked and may be supplied flat in any size up to 36 inches wide by 120 inches long.	
		2"	46.1	55.3		
18"	13	1 1/2"	56.8	68.2		
		2"	59.9	71.9		
18"	11	2"	75.0	—		

Morton TREAD-GRIP of #11 or #13 gauge steel may be used in load carrying applications with a suitable supporting system. The lighter gauges are generally used as an overlay. Morton TREAD-GRIP may be supplied to order in channel sections like OPEN-GRIP for load carrying applications.

# INLAND 4-WAY® SAFETY PLATE

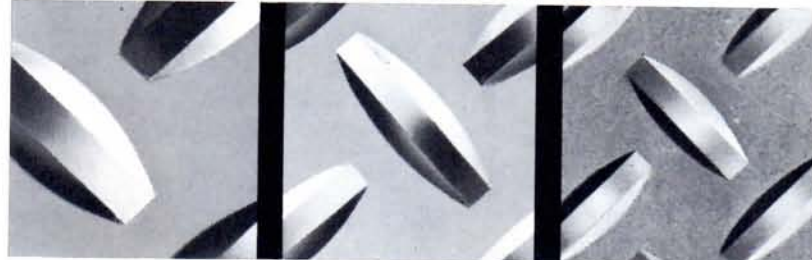
This tough, rolled steel floor plate with its raised lug pattern provides plenty of traction for feet and wheels — enables men and vehicles to start and stop quickly and safely. The attractive design, formed by lugs at right angles to each other and diagonal to the length and width of plate, permits free drainage since there are no pockets in which dirt and grease can collect and no pores to absorb spilled liquids.

4-Way safety plate is low in cost, inexpensive to install. Available in carbon or high strength, low-alloy steel and a wide range of sizes in three patterns as shown in the tables below. The small pattern is ideal for applications requiring weight reduction or severe forming, covers more square feet per dollar of cost than any other rolled steel floor plate. The medium pattern is the most versatile of all patterns and is widely used in plant or on products. The large pattern is recommended for floors that must withstand heavy loads and abuse, where unusual structural strength is needed.

4-Way can be sheared, punched, cut and bent to specification with conventional fabricating equipment.

Inland 4-Way safety plate, conforming to QQ-F-461C, Class 1, is available in Large pattern No. 10, Medium pattern No. 7 and Small pattern No. 17

## ALL PATTERNS SHOWN ACTUAL SIZE



LARGE PATTERN

MEDIUM PATTERN

SMALL PATTERN

## LARGE PATTERN SIZES

lbs. per sq. ft.	nominal gage	maximum lengths							
		width 24" & under	over 24" to 72"	84"	88"	90"	92"	94"	96"
8.70	3/16"	480	720	360	300	—	—	—	—
11.25	1/4"	480	720	360	360	360	300	288	240
13.80	5/16"	480	720	360	360	360	300	288	240
16.35	3/8"	480	720	360	360	360	360	360	360
21.45	1/2"	480	720	360	360	360	360	360	360
26.55	5/8"	480	720	360	360	360	360	360	360
31.65	3/4"	480	720	360	360	360	360	360	360
36.75	7/8"	480	720	360	360	360	360	360	360
41.85	1"	480	720	360	360	360	360	360	360

## MEDIUM PATTERN SIZES

lbs. per sq. ft.	nominal gage	maximum lengths					
		width 24"	36"	48"	54"	60"	72"
3.00	16	240*	240*	240*	240	240	
3.75	14	240*	240*	240*	240	240	
4.50	13	240*	240*	240*	240	240	
5.25	12	288*	288*	288*	288	288	
6.15	1 1/8"	288	288	288	288	288	288
8.68	3/16"	480	480	480	480	480	480
11.25	1/4"	720	720	720	720	720	720

\*Also available galvanized

## SMALL PATTERN SIZES

lbs. per sq. ft.	nominal gage	maximum lengths				
		width 24"	36"	48"	60"	72"
2.4	18	192*	192*	192*	192	

\*Also available galvanized. Please inquire.

## SAFE UNIFORM LOAD in lbs. per sq. ft.

GAGE	SPAN								
	1'-6"	2'-0"	2'-6"	3'-0"	3'-6"	4'-0"	4'-6"	5'-0"	6'-0"
3/16"	333	188	120	84	61	47			
1/4"	593	333	213	148	109	83	66	53	
5/16"	925	520	333	232	170	130	103	83	58
3/8"	1335	750	480	333	245	188	148	120	84
7/16"	1810	1020	655	453	333	255	204	164	113
1/2"	2370	1330	852	592	435	333	264	213	148
5/8"	3000	1690	1080	750	550	423	333	270	187
3/4"	3700	2080	1330	925	680	520	411	333	232
7/8"	5340	3000	1920	1330	980	750	593	480	333
1"	9481	5333	3413	2370	1741	1333	1053	853	593
deflection coefficient	.037	.066	.104	.149	.203	.265	.335	.414	.596

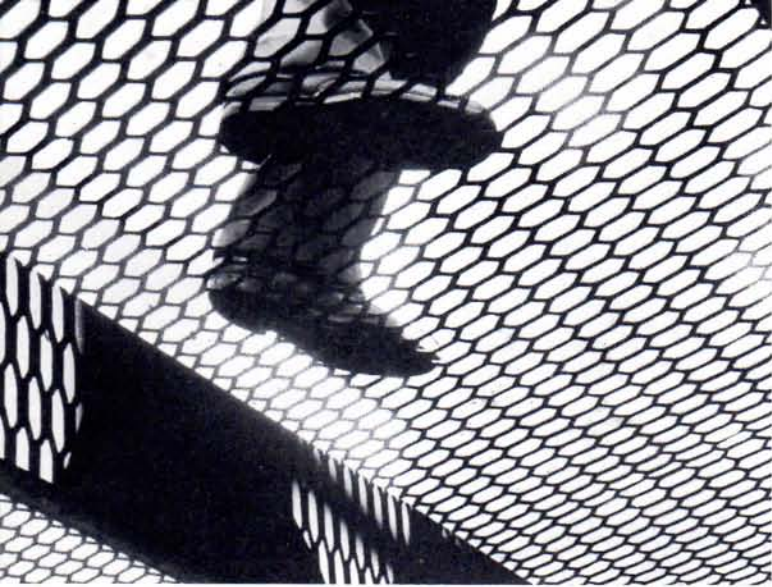
Thickness of plate is thru body, does not include projections. Loads include weight of plates.

f = 16,000 psi.

The safe uniform load above the heavy line will exceed the deflection 1/100th of the span.

Deflection in inches with maximum safe uniform load = deflection coefficient divided by thickness of plate in inches.

Deflection in inches with any uniform load within the elastic limit = deflection coefficient times actual load per sq. ft. all divided by maximum safe load per sq. ft. times the plate thickness.



## RYEX® EXPANDED METAL GRATING

Ryex is a steel plate flooring which fits most applications indoors and out and costs less than bar grating. The ridges of the strands provide non-slip footing, and the open diamond patterns help keep mud, grease, and snow from collecting on the walking surface. Ryex grating is used for plant runways, catwalks, working platforms, stairtreads, tank walkways and safety surface tread. Several types are in Ryerson stock —

**WALKWAY** has narrow, one inch openings the short way of the diamond, protecting against tool drop-through. Closely spaced bonds provide a comfortable walking surface.

**SKYWALK** has larger diamond openings for maximum passage of air and light. There's also less chance for buildup of snow and ice. Lighter and less rigid than Walkway.

3, 4, 5, 6.25 and 7 LB. GRATING all have the same size elongated hexagonal mesh, but with varying strand thicknesses and widths. Mesh openings are narrow . . . safe, from drop-through of all but the smallest tools.

2 LB. ALUMINUM GRATING is the best choice for light weight and resistance to atmospheric corrosion and other corrosives.

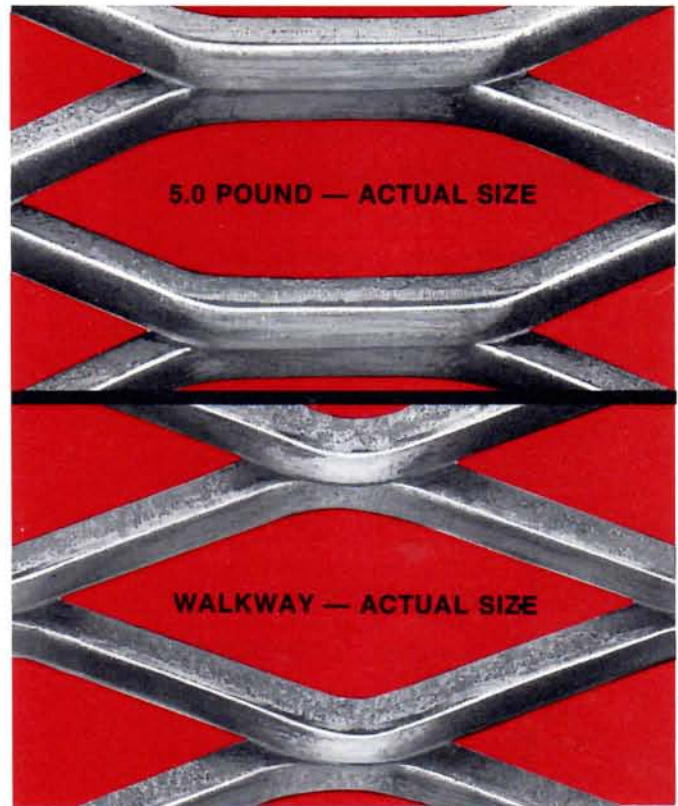
### SIZES AVAILABLE

Grating	Weight per Sq. Ft.	Approx. Strand Size, Inches Thickness & Width	Size of Opening in Inches Width & Length	Center to Center of Bridges in Inches Width & Length	Standard Sizes in Feet
Walkway	4.27	.250x.300	1x2 7/8	1.41 4.00	4 and 6x8 and 10
Skywalk	3.14	.250x.312	1 5/8 x 4 7/8	2.00 6.00	4 and 6x10
3.0 LB.	3.00	.183x.264	1 5/16 x 3 3/16	1.33 5.33	4 and 6x8, 10, 12 and 12 1/2
4.0 LB.	4.00	.215x.300	1 5/16 x 3 3/16	1.33 5.33	4, 5 and 6x 8 and 10
5.0 LB.	5.00	.250x.331	1 3/16 x 3 3/8	1.33 5.33	4 and 5x 8 and 10
6.25 LB.	6.25	.312x.350	1 3/16 x 3 3/8	1.41 5.33	4 and 6x 4, 8 and 12
7.00 LB.	7.00	.312x.391	1 3/16 x 3 3/8	1.33 5.33	4x8' and 8'4"
Aluminum	2.00	.250x.400	.914x3 1/4	1.41 5.33	5x10 and 12

### STANDARD LOAD TABLE\*

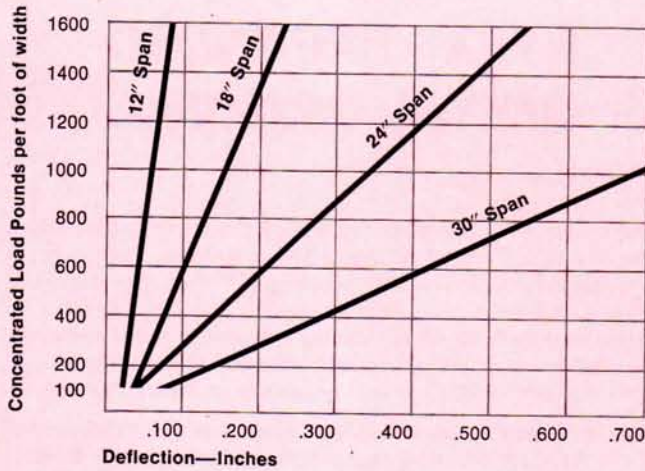
CONCENTRATED LOAD	RECOMMENDED STYLES FOR CLEAR SPANS						
	23"	30"	35"	42"	47"	54"	60"
50 LB. Light or Occasional Pedestrian Traffic	3.0 3.14	3.0 3.14	3.0 3.14	3.0 3.14	3.0 3.14	4.0 4.27	5.0 6.25
100 LB. Normal or Frequent Pedestrian Traffic	3.0 3.14	3.0 3.14	3.0 3.14	4.0 4.27	5.0 6.25	7.0	7.0
150 LB. Heavy or Constant Pedestrian Traffic	3.0 3.14	4.0 4.27	4.0 4.27	5.0 6.25	6.25	7.0	
200 LB. Pedestrian Traffic with Light Equipment	3.0 3.14	4.0 4.27	4.27 5.0	6.25	7.0	7.0	
250 LB.	4.0 4.27	5.0	5.0 6.25	7.0			
300 LB.	4.0 4.27	5.0 6.25	6.25				
350 LB.	4.0 4.27	6.25	7.0				

\*applies to steel only.

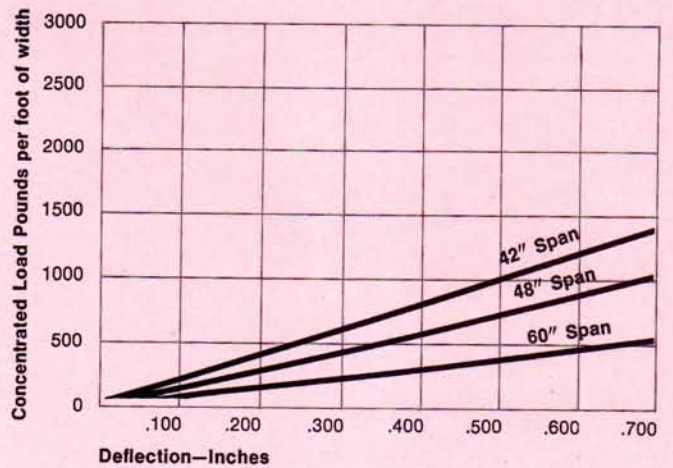
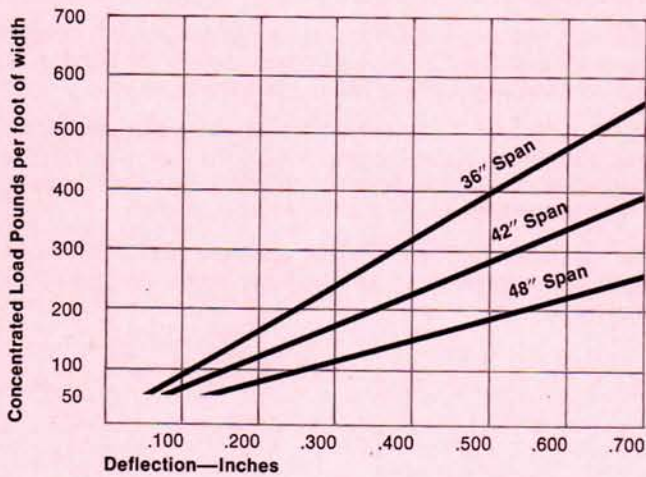




### DEFLECTION . . . 1" Compression Molded Firmaline



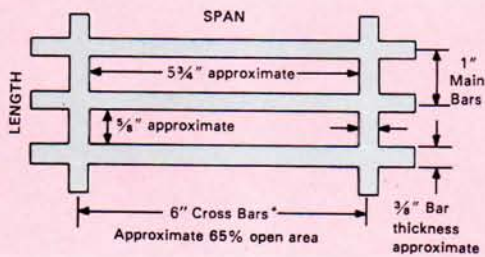
### DEFLECTION . . . 1½" Compression Molded Firmaline



### STOCK SIZES\*

Thickness (inches)	Panel Size	
	span x length (inches)	Approx. Panel wt. in lbs.
1	108 x 36	80
1½	108 x 36	120

\*On special order, grating ½" through 1½" thick, produced by the hand lay-up method, is available in panel sizes 60x84, 64x64 and 72x84.



### SAFE LOADS . . . Compression Molded Firmaline

Span (inches)	SAFE LOADS	
	Concentrated Per Ft. of Width	Uniform Per Sq. Ft.
<b>1" Thick</b>		
12	1650 lbs.	3300 lbs.
18	1000	1310
24	700	700
30	640	500
36	440	290
42	350	190
48	310	155
<b>1½" Thick</b>		
12	2678 lbs.	5356 lbs.
18	1830	2439
24	1448	1448
30	1301	1039
36	1076	716
42	981	561
48	931	465
60	672	268

5 to 1 safety factor on safe loads.



## FIRMALINE® FIBER GLASS GRATING

- Resists corrosion
- Electrically non-conductive
- Non-rusting, non-magnetic
- Long in-service life
- Light weight, easily installed
- Fire resistant, non-sparking

A good answer to the problem of open flooring in difficult environments — that's Firmaline grating. We make it from continuous strands of fiber glass stretched many layers deep through a matrix of polyester resin. Our patented process for prestressing the fiber glass increases grating strength and minimizes deflection. To help identify this uncommon grating, Firmaline's polyester resin is dyed a bright safety yellow.

### APPLICATIONS

As the safe load tables show, Firmaline grating, in reasonably short spans, meets the strength requirements of most open flooring applications. Wheeled traffic presents no problems if the wheels are rubber, plastic or composition, *but steel wheels should be avoided.*

Firmaline grating is widely used, for its corrosion resistance, on offshore oil rigs and in chemical processing operations. Its non-conductive, non-magnetic properties are useful around electrical equipment, especially in wet atmospheres. And in hazardous atmospheres, Firmaline's non-sparking characteristics are important.

### CORROSION RESISTANCE

Firmaline grating is designed to resist the attack of hundreds of commonly encountered chemical compounds. If you would like to make your own immersion tests we will be glad to furnish sample pieces.

### FIRE RATING

Firmaline grating meets the self-extinguishing requirements of ASTM D-635. It has a ASTM E-84 flame-spread rating (tunnel test) of 25 or less and its fuel contribution is zero.

### FLEXURAL STRENGTH

(ASTM D-790 test procedure)	
72° F.	57,700 PSI
125° F.	34,200 PSI
150° F.	21,800 PSI
200° F.	11,800 PSI

### FLEXURAL MODULUS

(ASTM D-790 test procedure)	
72° F.	2.28 x 10 <sup>6</sup> PSI
125° F.	1.89 x 10 <sup>6</sup> PSI
150° F.	1.38 x 10 <sup>6</sup> PSI
200° F.	1.02 x 10 <sup>6</sup> PSI

### IZOD IMPACT STRENGTH

(ASTM D-256 test procedure)	
	Ft./lbs. per inch of notch
-20° F.	88.7
0° F.	56.7
73° F.	51.1
150° F.	67.4
200° F.	67.4

### DIELECTRIC BREAKDOWN

(ASTM D-229 test procedure)  
parallel—step by step > 60 KV

### ARC RESISTANCE

(ASTM D-495 test procedure)  
86 SEC.

### FABRICATION AND INSTALLATION

Firmaline can be cut to size or shape using an abrasive cut-off wheel (diamond impregnated and gulleted at 10,000 ft./min.), or a band saw (10-12 pitch hack set blade, 100 ft./min.), a vibrating saw, or hand hack saw. If a solid band is desired on the outside edges, cuts across the span should be in multiples of 6" plus 1/2". Supporting the grating on stub ends does not affect the strength or deflection. When possible, stubs on the ends of a panel should be of equal length. Cut ends should be resin coated for corrosion resistance.

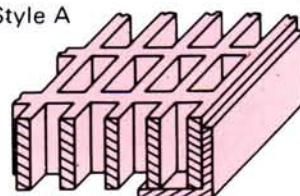
When installing Firmaline, a minimum 1" lip and wall the same thickness as the grate should be provided to prevent shifting. No fasteners are required. Stair treads and raised grates should be supported on corrosion protected metal or fiberglass shapes with a minimum 1 1/2" resting area. T, U or J bolts may be used to fasten grating to supports.

On special order, vinylester resin (dyed green) can be supplied instead of polyester resin (dyed yellow). Vinylester is not fire retardent. Marineline fiber glass grating, gray in color and designed for shipboard use, is also available in two thicknesses. U.S. Coast Guard approved.

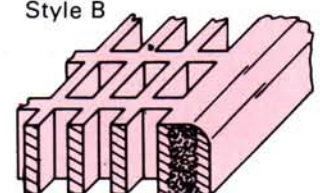
### STAIR TREADS

Style A requires an angle support on the front edge. Style B, with the first grating section cast solid, eliminates the need for a front support. Both styles are 1 1/2" thick and available in widths from 8" to 12", in lengths of 18", 24", 30", 36", 48". The 36" and 48" long treads should have a center support. Non-slip tread surfaces may be specified.

Style A



Style B



# Ry-Weld and Ry-Wedg bar grating

## HOW RYERSON BAR GRATING IS DESIGNATED

### 19-W-4

Ryerson bar grating is designated by a combination of numbers and letters. Each designation gives the key to type of construction and helps determine the most suitable grating for particular requirements. Here is how it works:

### 19-W-4

The first numbers shows the number of sixteenths of an inch between the center of one bearing bar and the center of the next.

### 19-W-4

The letter or letters following the first number tell what type of grating it is.

**W** Ry-Weld (welded steel grating)

**AP** Ry-Wedg (pressure-locked aluminum grating)

### 19-W-4

The last number designates the center-to-center distance between cross bars in inches.

The designation 19-W-4 shows that grating has bearing bars on  $1\frac{3}{16}$ " centers, cross bars on 4" centers, and Ry-Weld construction.

## OPEN AREA OF RYERSON BAR GRATING

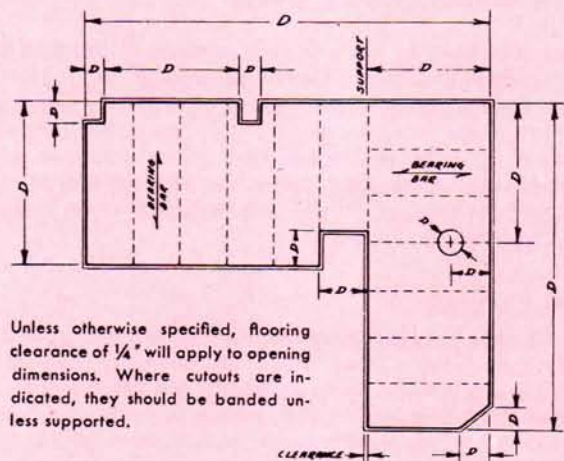
Type	$\frac{3}{16}$ " Bearing Bars	$\frac{1}{2}$ " Bearing Bars
19-W-4	75.8%	81.2%
19-W-2	67.8	73.5
15-W-4	71.2	78.7
15-W-2	63.1	70.5
19-AP-4	78.1	85.4
19-AP-2	76.5	83.8
15-AP-4	73.4	82.3
15-AP-2	71.8	80.7
11-AP-4	67.2	78.1
11-AP-2	65.1	76.5

## HOW TO ORDER RYERSON BAR GRATING

When you're ordering Ryerson bar grating, the following steps will assure prompt handling. Just specify:

1. Type of grating.
2. Depth and thickness of bearing bars.
3. Span (direction of bearing bars).
4. Dimensions of areas to be covered.
5. Type of fasteners — if required.
6. Finish — painted, unpainted, or galvanized.
7. Complete shipping instructions.
8. Drawing or sketch showing grating area and supports is desirable.

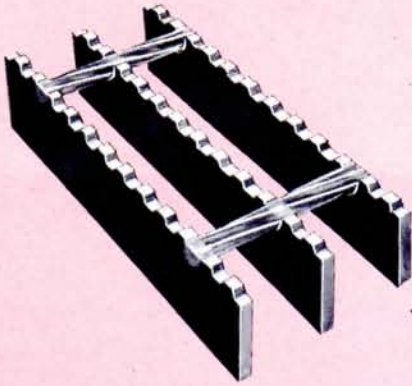
## TYPICAL OPEN STEEL FLOORING LAYOUT



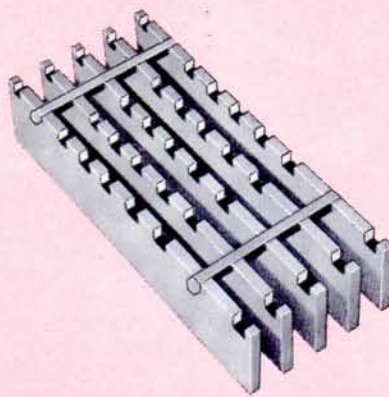
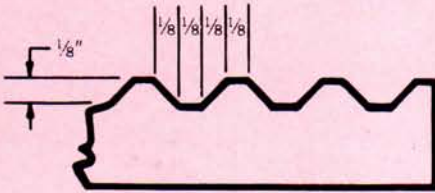
# SERRATED BAR GRATING

Both Ry-Weld steel and Ry-Wedg aluminum grating can be furnished with serrated bearing bars for hazardous areas where sure footing and safety are of vital importance.

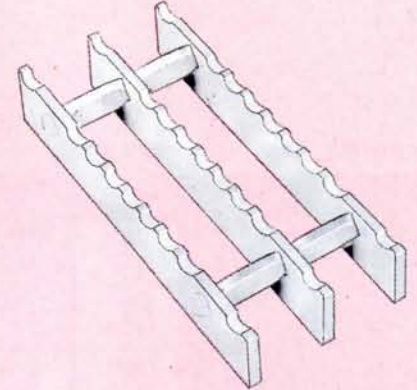
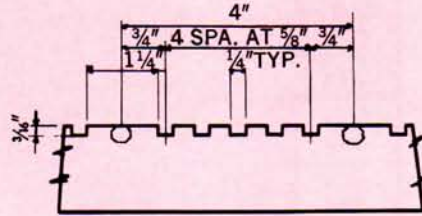
Serrated grating retains all advantages of standard Ry-Weld and Ry-Welg types — maximum light, ventilation, minimum weight, permanent strength and rigidity — and in addition provides the non-slip safety feature.



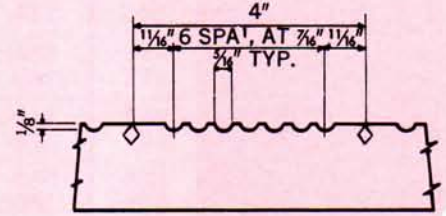
**RY-WELD GRATING**



**RY-WELD HEAVY-DUTY GRATING**



**RY-WEDG ALUMINUM GRATING**

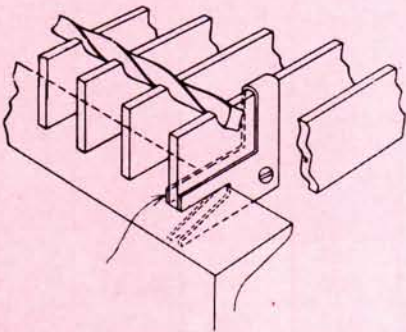


# BAR GRATING FASTENERS

To obtain full load-carrying capacity, Ryerson bar grating should be secured with positive fasteners or welded to supporting members.

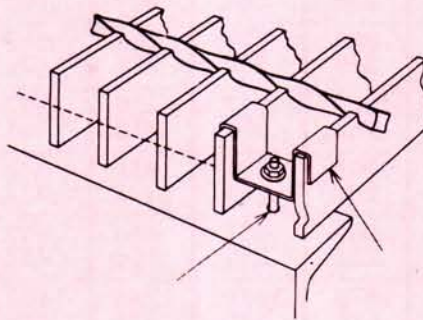
Before welding or installing fasteners, it is important to align bearing bars and cross bars with adjacent panels of grating.

**R-1 STANDARD FASTENER**



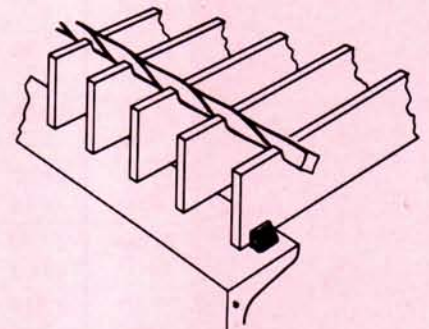
For removable panels. Does not require field holes or welding. Clips for all sizes of grating in stock (furnished if requested at no charge.)

**R-2 SPECIAL FASTENER**



Special bent-clip type fastener for removable panels.

**TACK-WELD**



Positive fastening method—grating is welded to supporting steel.

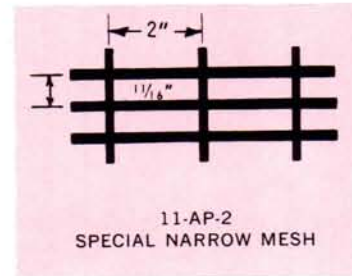
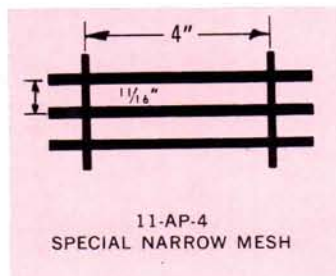
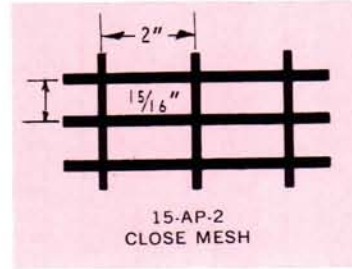
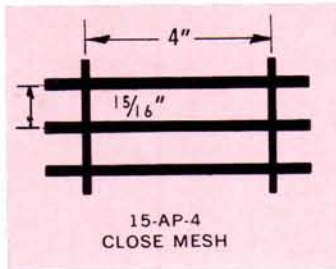
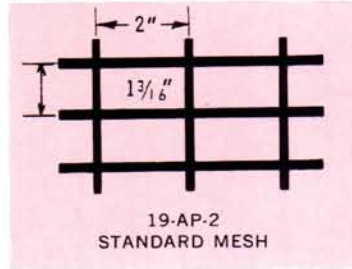
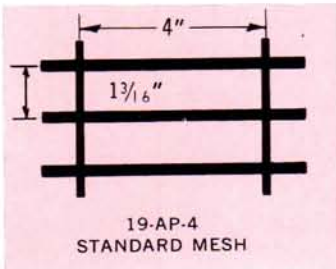
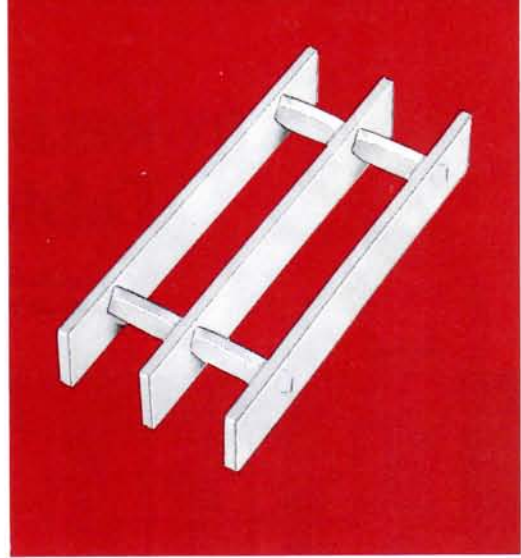
# RY-WEDG ALUMINUM GRATING

## Table of Safe Loads

BEARING BAR Size and Wt.	LOAD AND DEFLECTIONS	SPANS						<p style="text-align: center;"><b>CONVERSION FACTORS</b></p> <p>Spans to right of heavy line NOT RECOMMENDED. This table based on types 19-AP-4 and 19-AP-2. To determine safe loads for other types multiply tabulated load by following factors:</p> <p>Types 11-AP-4 and 11-AP-2 ..... 1.71 Types 15-AP-4 and 15-AP-2 ..... 1.28 Types 30-AP-4 and 30-AP-2 ..... .67 Types 38-AP-4 and 38-AP-2 ..... .52 Types 57-AP-4 and 57-AP-2 ..... .35</p> <p>U Uniform Load in pounds per sq. ft. C Concentrated Load per ft. of width D Deflection in inches Max. allow. Fibre Stress—12,000 lbs. sq. in.</p> <p>Deflections shown based on tabulated loadings. For lesser design loads reduce deflection in direct proportion.</p>					
		2'-0"	2'-6"	3'-0"	3'-6"	4'-0"	4'-6"						
3/4" x 1/8" 1.53 lbs.	U	258	165	115	84	64	51						
	D	.192	.301	.434	.590	.764	.975						
3/4" x 3/16" 2.12 lbs.	U	258	206	172	147	129	114						
	D	.154	.240	.347	.470	.614	.775						
1" x 1/8" 1.92 lbs.	U	387	248	172	126	97	76						
	D	.192	.301	.434	.590	.764	.975						
1" x 3/16" 2.72 lbs.	U	387	310	258	222	194	172						
	D	.154	.240	.347	.470	.614	.775						
1 1/4" x 1/8" 2.31 lbs.	U	458	293	203	149	114	90						
	D	.144	.224	.324	.440	.573	.723						
1 1/4" x 3/16" 3.31 lbs.	U	458	366	305	262	229	203						
	D	.115	.180	.260	.354	.462	.582						
1 1/2" x 1/8" 2.72 lbs.	U	688	441	306	225	172	136	5'-0"	5'-6"	6'-0"	6'-6"	7'-0"	8'-0"
	D	.144	.224	.324	.440	.573	.723						
1 1/2" x 3/16" 3.89 lbs.	U	688	552	459	394	345	306	114	95	80	68	58	45
	D	.115	.180	.260	.354	.462	.582	.720	.868	1.032	1.220	1.418	1.840
1 3/4" x 1/8" 4.48 lbs.	U	718	459	318	234	180	137	288	261	240	221	205	179
	D	.093	.144	.207	.282	.368	.467	.575	.695	.830	.975	1.131	1.475
1 3/4" x 3/16" 5.68 lbs.	U	718	575	479	410	359	319	428	390	357	330	307	268
	D	.093	.144	.207	.282	.368	.467	.574	.695	.830	.975	1.131	1.475
2" x 1/8" 2.72 lbs.	U	1075	688	477	351	269	212	172	142	119	102	88	67
	D	.115	.180	.258	.354	.460	.580	.720	.868	1.032	1.220	1.418	1.840
2" x 3/16" 5.08 lbs.	U	1075	858	714	613	537	477	428	390	357	330	307	268
	D	.093	.144	.207	.282	.368	.467	.574	.695	.830	.975	1.131	1.475
2 1/4" x 1/8" 5.68 lbs.	U	1032	662	460	337	258	204	165	136	115	98	84	65
	D	.096	.151	.216	.295	.384	.487	.603	.724	.865	1.030	1.173	1.540
2 1/4" x 3/16" 6.28 lbs.	U	1032	825	687	589	516	458	413	375	344	317	295	258
	D	.077	.120	.172	.235	.307	.386	.479	.579	.690	.825	.939	1.228
2 1/2" x 1/8" 6.28 lbs.	U	1550	990	687	505	387	306	248	204	172	146	126	97
	D	.096	.151	.216	.295	.384	.487	.603	.724	.865	1.030	1.173	1.540
2 1/2" x 3/16" 7.35 lbs.	U	1550	1238	1032	884	775	688	618	562	516	476	442	387
	D	.077	.120	.172	.235	.307	.386	.479	.579	.690	.825	.939	1.228
3" x 1/8" 7.35 lbs.	U	2110	1348	935	687	527	416	337	278	234	200	172	132
	D	.082	.127	.185	.252	.329	.416	.515	.621	.740	.868	1.005	1.316
3" x 3/16" 8.42 lbs.	U	2110	1690	1408	1205	1055	935	842	765	703	648	603	528
	D	.066	.103	.148	.202	.264	.333	.412	.497	.595	.696	.809	1.060
3 1/2" x 1/8" 8.42 lbs.	U	2750	1760	1223	898	687	543	440	364	306	260	224	172
	D	.072	.113	.161	.222	.289	.366	.451	.547	.650	.760	.881	1.155
3 1/2" x 3/16" 9.49 lbs.	U	2750	2200	1835	1570	1375	1223	1100	1002	917	845	786	688
	D	.057	.090	.129	.178	.230	.292	.360	.436	.517	.606	.703	.923
4" x 1/8" 9.49 lbs.	U	3482	2230	1549	1138	870	687	557	460	387	330	284	217
	D	.064	.100	.144	.196	.256	.324	.400	.483	.577	.677	.783	1.020
4" x 3/16" 10.56 lbs.	U	3482	2786	2320	1990	1740	1548	1393	1265	1160	1072	995	870
	D	.051	.080	.115	.156	.204	.258	.319	.387	.460	.540	.627	.817
4 1/2" x 1/8" 10.56 lbs.	U	4300	2753	1910	1405	1075	850	688	569	477	407	351	269
	D	.057	.090	.130	.177	.230	.292	.360	.435	.515	.605	.704	.919
4 1/2" x 3/16" 11.63 lbs.	U	4300	3440	2860	2455	2150	1910	1720	1562	1430	1320	1228	1075
	D	.046	.072	.103	.141	.184	.234	.288	.348	.413	.485	.562	.735

# RY-WEDG<sup>®</sup> ALUMINUM GRATING

Ry-Wedg aluminum grating is the pressure locked type. Special forming process prevents cross bars from turning, loosening or falling out. Exclusive design provides a high strength-to-weight ratio, minimum deflection, greater ease of installation, and maximum safety. Made from 6061T6 or 6063T6 and 6063T5 aluminum alloys, Ry-Wedg grating is rust-proof and corrosion resistant. Available in a variety of types, plain or serrated, or fabricated to your order. The six basic designs are illustrated below. Each can be furnished in standard bar sizes, providing a selection that is economical and practical.



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

WEIGHT IN POUNDS PER SQ. FT.															
Bearing Bars	Cross Bars	19-AP-4	19-AP-2	15-AP-4	15-AP-2	11-AP-4	11-AP-2	Bearing Bars	Cross Bars	19-AP-4	19-AP-2	15-AP-4	15-AP-2	11-AP-4	11-AP-2
3/4 x 1/8	5/16"	1.53	1.88	1.87	2.22	2.38	2.72	1 1/2 x 1/8	5/16"	2.72	3.06	3.40	3.74	4.41	4.76
3/4 x 3/16	5/16"	2.12	2.46	2.63	2.97	3.39	3.73	1 1/2 x 3/16	5/16"	3.89	4.24	4.91	5.25	6.43	6.77
1 x 1/8	5/16"	1.92	2.27	2.37	2.72	3.05	3.39	1 3/4 x 3/16	5/16"	4.48	4.83	5.66	6.01	7.44	7.78
1 x 3/16	5/16"	2.72	3.06	3.40	3.74	4.41	4.76	2 x 3/16	5/16"	5.08	5.43	6.43	6.78	8.46	8.81
1 1/4 x 1/8	5/16"	2.31	2.65	2.87	3.21	3.71	4.06	2 1/4 x 3/16	5/16"	5.68	6.02	7.20	7.55	9.49	9.83
1 1/4 x 3/16	5/16"	3.31	3.65	4.15	4.50	5.42	5.77	2 1/2 x 3/16	5/16"	6.27	6.61	7.96	8.30	10.50	10.84

# RY-WELD HEAVY-DUTY GRATING

## Table of Safe Loads

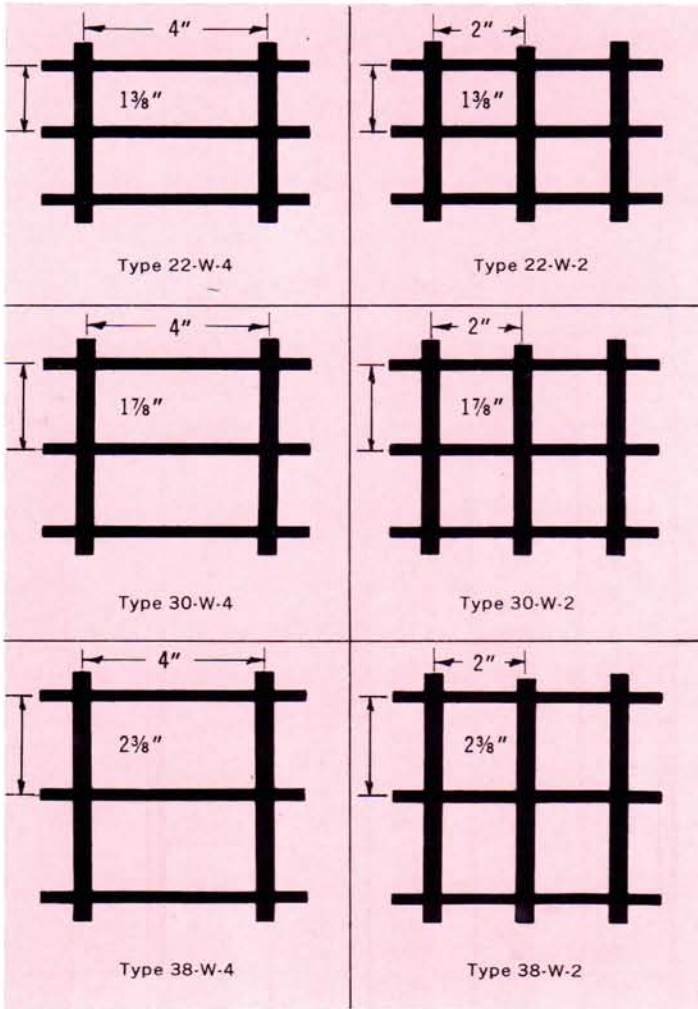
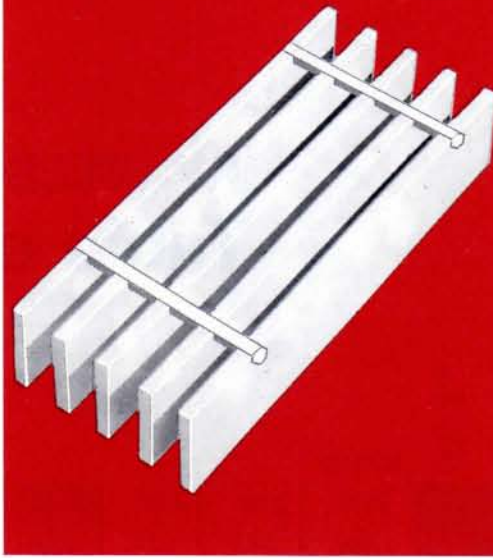
For Types 30-W-4 and 30-W-2, multiply tabulated values by .67.  
 For Types 38-W-4 and 38-W-2, multiply tabulated values by .52.

BEARING BAR	LOAD AND DEFLECTIONS	SPANS													Sec. Mod. Per Ft. of Width		
		1'-0"	1'-6"	2'-0"	2'-6"	3'-0"	3'-6"	4'-0"	4'-6"	5'-0"	5'-6"	6'-0"	7'-0"	8'-0"			
Size	U	4563	2028	1141	730	507	373	285	225	U = Uniform Load in pounds per sq. ft. C = Concentrated Load per ft. of width Fiber Stress = 18,000 lbs. per sq. in.					.380		
		2282	1521	1141	913	761	652	570	507								
1x1/4	C	5688	2528	1422	910	632	464	356	281						.474		
		2844	1896	1422	1138	948	813	711	632								
1 1/4 x 1/4	U	7125	3167	1781	1140	792	582	445	352	285	198				.594		
		3563	2375	1781	1425	1187	1018	891	792	712	648					594	
1 1/4 x 3/16	C	8886	3949	2222	1422	987	725	556	439	355	294	247			.741		
		4443	2962	2222	1777	1481	1269	1111	987	889	808	741					
1 1/2 x 1/4	U	10266	4563	2567	1642	1141	838	642	507	411	339	285	210			.856	
		5133	3422	2567	2053	1711	1467	1283	1141	1027	933	856	733				
1 1/2 x 3/16	C	12795	5687	3199	2047	1422	1044	799	632	512	423	355	261			1.066	
		6397	4265	3199	2559	2132	1828	1599	1422	1279	1163	1066	914				
1 1/2 x 3/8	U	15311	6805	3828	2450	1701	1250	957	756	612	506	425	312			1.276	
		7655	5104	3828	3062	2552	2187	1914	1702	1531	1392	1276	1094				
1 3/4 x 1/4	C	13964	6207	3491	2234	1552	1140	873	690	559	462	388	285	218			1.164
		6982	4655	3491	2793	2327	1995	1746	1552	1396	1270	1164	997	873			
1 3/4 x 3/16	U	17412	7739	4353	2786	1935	1421	1088	860	696	576	484	355	272			1.451
		8706	5804	4353	3482	2902	2487	2177	1935	1741	1583	1451	1244	1088			
1 3/4 x 3/8	C	20841	9263	5210	3335	2316	1701	1303	1029	834	689	579	425	326			1.737
		10421	6947	5210	4168	3474	2977	2605	2316	2084	1895	1737	1489	1303			
2x1/4	U	18243	8108	4561	2919	2027	1489	1140	901	730	603	507	372	285			1.520
		9122	6081	4561	3649	3041	2606	2280	2027	1824	1658	1520	1303	1140			
2x3/16	C	22740	10107	5685	3638	2527	1856	1421	1123	910	752	632	464	355			1.895
		11370	7580	5685	4548	3790	3249	2843	2527	2274	2067	1895	1624	1421			
2x3/8	U	27223	12099	6806	4356	3025	2222	1701	1344	1089	900	756	556	425			2.269
		13612	9074	6806	5445	4537	3889	3403	3025	2722	2475	2269	1945	1701			
2 1/4 x 1/4	C	23093	10263	5773	3695	2566	1885	1443	1140	924	763	641	471	361			1.924
		11546	7698	5773	4619	3849	3299	2887	2566	2309	2099	1924	1649	1443			
2 1/4 x 3/16	U	28788	12795	7197	4606	3199	2350	1799	1422	1152	952	800	588	450			2.399
		14394	9596	7197	5758	4798	4113	3599	3199	2879	2617	2399	2056	1799			
2 1/4 x 3/8	C	34453	15313	8613	5513	3828	2813	2153	1701	1378	1139	957	703	538			2.871
		17227	11484	8613	6891	5742	4922	4307	3828	3445	3132	2871	2461	2153			
2 1/2 x 1/4	U	28499	12666	7125	4560	3167	2326	1781	1407	1140	942	792	582	445			2.375
		14249	9500	7125	5700	4750	4071	3562	3167	2850	2591	2375	2036	1781			
2 1/2 x 3/16	C	35535	15793	8884	5686	3948	2901	2221	1755	1421	1175	987	725	555			2.961
		17767	11845	8884	7107	5922	5076	4442	3948	3553	3230	2961	2538	2221			
2 1/2 x 3/8	U	42534	18904	10634	6805	4726	3471	2658	2100	1701	1406	1182	868	665			3.545
		21267	14178	10634	8507	7089	6076	5317	4726	4253	3867	3545	3038	2658			
2 3/4 x 1/4	C	34485	15327	8621	5518	3832	2815	2155	1703	1379	1140	958	704	539			2.874
		17243	11495	8621	6897	5748	4926	4311	3832	3449	3135	2874	2463	2155			
2 3/4 x 3/16	U	43002	19112	10751	6880	4778	3510	2688	2124	1720	1422	1195	876	672			3.584
		21501	14334	10751	8600	7167	6143	5375	4778	4300	3909	3584	3072	2688			
2 3/4 x 3/8	C	51474	22877	12868	8236	5719	4202	3217	2542	2059	1702	1430	1051	804			4.290
		25737	17158	12868	10295	8579	7353	6434	5719	5147	4679	4290	3677	3218			
3x1/4	U	41041	18241	10260	6567	4560	3350	2565	2027	1642	1356	1140	838	641			3.420
		20520	13680	10260	8208	6840	5863	5130	4560	4104	3731	3420	2932	2565			
3x3/16	C		22741	12792	8187	5685	4177	3198	2527	2047	1691	1421	1044	800			4.264
			17056	12792	10234	8528	7310	6396	5685	5117	4652	4264	3655	3198			
3x3/8	U	27223	15313	9800	6806	5000	3828	3025	2450	2025	1701	1250	957	725			5.104
		20418	15313	12251	10209	8750	7657	6806	6125	5568	5104	4375	3828	3218			
3 1/4 x 1/4	C	21407	12041	7706	5352	3932	3010	2379	1927	1592	1338	983	753			4.014	
		16055	12041	9633	8028	6881	6021	5352	4817	4379	4014	3440	3010				
3 1/4 x 3/16	U	26691	15014	9609	6673	4902	3753	2966	2402	1985	1668	1226	938			5.005	
		20018	15014	12011	10009	8579	7507	6673	6005	5459	5005	4290	3753				
3 1/4 x 3/8	C	31951	17973	11502	7988	5869	4493	3550	2876	2377	1997	1467	1123			5.991	
		23964	17973	14378	11982	10270	8986	7988	7189	6536	5991	5135	4493				
3 1/2 x 1/4	U	24831	13967	8939	6208	4561	3492	2759	2235	1847	1552	1140	873			4.656	
		18623	13967	11174	9312	7981	6984	6208	5587	5079	4656	3991	3492				
3 1/2 x 3/16	C	30956	17413	11144	7739	5686	4353	3440	2786	2302	1935	1421	1088			5.804	
		23217	17413	13930	11608	9950	8706	7739	6965	6332	5804	4975	4353				
3 1/2 x 3/8	U	37053	20842	13339	9263	6806	5211	4117	3335	2756	2316	1701	1303			6.947	
		27790	20842	16674	13895	11910	10421	9263	8337	7579	6947	5955	5211				
3 3/4 x 1/4	C	28503	16033	10261	7126	5235	4008	3167	2565	2120	1781	1309	1002			5.344	
		21378	16033	12827	10689	9162	8017	7126	6413	5830	5344	4581	4008				
3 3/4 x 3/16	U	35536	19989	12793	8884	6527	4997	3948	3198	2643	2221	1632	1249			6.663	
		26652	19989	15991	13326	11422	9995	8884	7996	7269	6663	5711	4997				
3 3/4 x 3/8	C	42536	23927	15313	10634	7813	5982	4726	3828	3164	2659	1953	1495			7.976	
		31902	23927	19141	15951	13672	11963	10634	9571	8701	7976	6836	5982				
4x3/16	U	40432	22743	14555	10108	7426	5686	4492	3639	3007	2527	1857	1421			7.581	
		30324	22743	18194	15161	12996	11371	10108	9097	8270	7581	6498	5686				
4x3/8	C	48397	27223	17423	12099	8889	6806	5377	4356	3600	3025	2222	1701			9.074	
		36297	27223	21779	18149	15556	13612	12099	10889	9899	9074	7778	6806				

# RY-WELD HEAVY-DUTY STEEL GRATING

Ry-Weld heavy-duty steel grating is of all welded one-piece construction. Hexagonal shaped cross bars are electro-forged into top surface of bearing bars, insuring positive locked joints. This grating is widely used as covers for trenches, pits, floor openings or for other applications where heavy loadings demand exceptional strength.

Ry-Weld heavy-duty steel grating is available in three bearing bar thicknesses of  $\frac{1}{4}$ ",  $\frac{5}{16}$ ", and  $\frac{3}{8}$ " and in depths from 1" to 4". In addition to the three bearing bar centers shown below, other wide spacings, such as  $2\frac{3}{4}$ " and  $3\frac{3}{4}$ " are available. The six illustrated patterns are standard types.



## WEIGHT LBS. PER SQ. FT.

Bearing Bars	Cross Bar	22-W-4	30-W-4	38-W-4
1 x 1/4	3/8	9.0	7.2	5.9
1 x 5/16	1/2	11.9	9.6	8.0
1 1/4 x 1/4	3/8	10.9	8.7	7.1
1 1/4 x 5/16	1/2	14.3	11.5	9.5
1 1/2 x 1/4	3/8	12.9	10.2	8.3
1 1/2 x 5/16	1/2	16.7	13.4	11.0
1 1/2 x 3/8	1/2	19.6	15.6	12.7
1 3/4 x 1/4	3/8	14.8	11.7	9.4
1 3/4 x 5/16	1/2	19.1	15.2	12.4
1 3/4 x 3/8	1/2	22.5	17.8	14.5
2 x 1/4	3/8	16.7	13.1	10.6
2 x 5/16	1/2	21.5	17.1	13.8
2 x 3/8	1/2	25.4	20.1	16.2
2 1/4 x 1/4	3/8	18.7	14.6	11.8
2 1/4 x 5/16	1/2	23.9	18.9	15.3
2 1/4 x 3/8	1/2	28.3	22.3	17.9
2 1/2 x 1/4	3/8	20.6	16.1	12.9
2 1/2 x 5/16	1/2	26.3	20.8	16.7
2 1/2 x 3/8	1/2	31.3	24.5	19.6
2 3/4 x 1/4	3/8	22.6	17.6	14.1
2 3/4 x 5/16	1/2	28.7	22.7	18.2
2 3/4 x 3/8	1/2	34.2	26.7	21.4
3 x 1/4	3/8	24.5	19.1	15.3
3 x 5/16	1/2	31.1	24.5	19.7
3 x 3/8	1/2	37.1	29.0	23.1
3 1/4 x 1/4	3/8	26.4	20.6	16.4
3 1/4 x 5/16	1/2	33.5	26.4	21.1
3 1/4 x 3/8	1/2	40.0	31.2	24.9
3 1/2 x 1/4	3/8	28.4	22.1	17.6
3 1/2 x 5/16	1/2	36.0	28.2	22.6
3 1/2 x 3/8	1/2	42.9	33.4	26.6
3 3/4 x 1/4	3/8	30.3	23.6	18.8
3 3/4 x 5/16	1/2	38.4	30.1	24.0
3 3/4 x 3/8	1/2	45.8	35.7	28.4
4 x 5/16	1/2	40.8	32.0	25.5
4 x 3/8	1/2	48.7	37.9	30.1

## WIDTH OF PANELS FOR 1/4" GRATING\*

Type	8	9	10	11	12	13	14	15	16	17	18
22-W-4 & 2	9 7/8	11 1/4	12 5/8	14	15 3/8	16 3/4	18 1/8	19 1/2	20 7/8	22 1/4	23 5/8
30-W-4 & 2	13 3/8	15 1/4	17 1/8	19	20 7/8	22 3/4	24 5/8	26 1/2	28 3/8	30 1/4	
38-W-4 & 2	16 7/8	19 1/4	21 5/8	24	26 3/8	28 3/4	31 1/8	33 1/2	35 7/8		

\*For 5/16" bar grating add 1/8" and for 3/8" bar grating add 1/8" to tabulated dimensions.

NOTE: For grating with cross bars at 2" centers (types 22-W-2, 30-W-2, 38-W-2), increase tabulated weights 1.2 lbs. where cross bars are 3/8" thick and 2.1 lbs. for 1/2" cross bars.



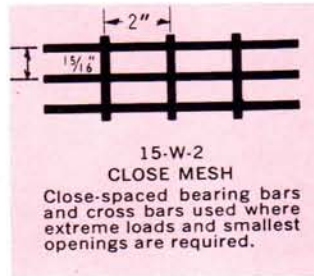
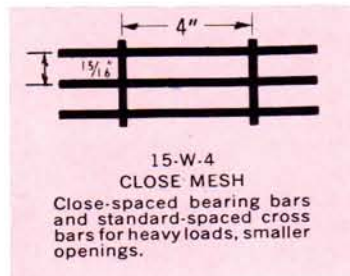
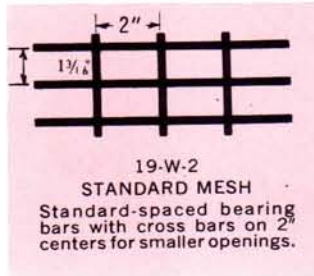
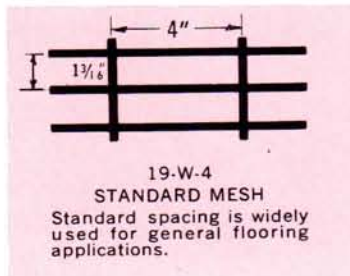
# RY-WELD STEEL GRATING

## Table of Safe Loads

BEARING BAR	LOAD AND DEFLECTIONS	SPANS							<p>Spans to right of heavy black line NOT RECOMMENDED. This table is based on Types 19-W-4 and 19-W-2. To determine safe loads for types 15-W-4 and 15-W-2, multiply by 1.25.</p> <p>Loads and deflections given are based on a maximum allowable fiber stress of 18,000 P.S.I.</p> <p>U—safe uniform load in pounds per square foot C—safe concentrated load in pounds per foot of width D—deflection in inches</p>						
		2'-0"	2'-6"	3'-0"	3'-6"	4'-0"	4'-6"	5'-0"							
Size	U														
	D														
¾ x ⅛	U	386	247	172	126	96	76								
	D	.095	.151	.216	.295	.374	.486								
¾ x ⅙	U	386	308	258	220	194	171								
	D	.076	.119	.173	.234	.308	.389								
¾ x ⅓	U	578	370	258	188	144	115								
	D	.095	.151	.216	.295	.374	.486								
1 x ⅛	U	578	462	386	331	289	257	SPAN							
	D	.076	.119	.173	.234	.308	.389	5'-0"	5'-6"	6'-0"					
1 x ⅙	U	686	439	304	224	171	135	109	91	76					
	D	.072	.111	.159	.219	.288	.366	.451	.547	.673					
1 x ⅓	U	686	549	457	392	343	305	275	250	228					
	D	.057	.090	.129	.176	.231	.293	.360	.434	.518					
1 x ⅔	U	1029	659	459	338	257	203	164	135	114					
	D	.072	.111	.159	.219	.288	.366	.451	.547	.673					
1 ¼ x ⅛	U	1029	824	686	587	514	458	412	375	343	SPAN				
	D	.057	.090	.129	.176	.231	.293	.360	.434	.518	6'-6"	7'-0"			
1 ¼ x ⅙	U	1072	686	476	350	268	212	172	142	119	101	87			
	D	.057	.090	.129	.176	.231	.291	.358	.433	.520	.608	.704			
1 ¼ x ⅓	U	1072	858	716	613	536	477	430	390	358	330	306			
	D	.046	.072	.104	.141	.183	.233	.288	.349	.416	.487	.565			
1 ¼ x ⅔	U	1608	1028	716	526	403	318	258	213	179	152	131			
	D	.057	.090	.129	.176	.231	.291	.358	.433	.520	.608	.704			
1 ½ x ⅛	U	1608	1285	1073	918	803	716	644	585	536	495	459	SPAN		
	D	.046	.072	.104	.141	.183	.233	.288	.349	.416	.487	.565	8'-0"	9'-0"	
1 ½ x ⅙	U	1544	987	686	505	387	306	248	205	172	149	128	96	75	
	D	.047	.075	.106	.147	.192	.243	.300	.365	.433	.506	.587	.774	.978	
1 ½ x ⅓	U	1544	1235	1029	883	772	687	619	563	515	475	441	386	342	
	D	.038	.059	.087	.117	.154	.195	.241	.289	.347	.406	.470	.614	.777	
1 ½ x ⅔	U	2321	1485	1031	758	581	458	371	307	260	222	191	145	115	
	D	.047	.075	.106	.147	.192	.243	.300	.365	.433	.506	.587	.774	.978	
1 ¾ x ⅛	U	2321	1856	1547	1325	1159	1031	928	844	773	714	663	581	551	
	D	.038	.059	.087	.117	.154	.195	.241	.289	.347	.406	.470	.614	.777	
1 ¾ x ⅙	U	3151	2016	1401	1029	788	622	505	416	351	299	259	197	155	
	D	.042	.064	.092	.126	.165	.208	.258	.310	.371	.435	.506	.664	.838	
1 ¾ x ⅓	U	3151	2521	2100	1800	1575	1400	1260	1145	1049	969	899	786	700	
	D	.033	.052	.074	.101	.132	.167	.206	.249	.297	.347	.403	.527	.667	
2 x ⅛	U	4116	2633	1829	1344	1029	813	659	546	460	393	339	258	204	
	D	.036	.056	.081	.111	.144	.183	.226	.273	.325	.384	.447	.580	.732	
2 x ⅙	U	4116	3292	2745	2351	2058	1828	1646	1496	1370	1266	1175	1027	914	
	D	.029	.045	.064	.088	.115	.145	.180	.217	.259	.303	.353	.460	.583	
2 ¼ x ⅛	U	5209	3332	2314	1670	1302	1028	835	689	583	496	428	327	239	
	D	.032	.050	.072	.098	.127	.162	.199	.241	.287	.338	.393	.512	.646	
2 ¼ x ⅙	U	5209	4167	3473	2916	2604	2314	2082	1892	1733	1601	1487	1301	1157	
	D	.026	.039	.057	.079	.102	.129	.160	.194	.230	.270	.314	.410	.518	
2 ½ x ⅛	U	6432	4115	2858	2099	1609	1271	1020	850	720	613	529	405	320	
	D	.028	.044	.064	.088	.116	.145	.180	.217	.260	.305	.354	.465	.586	
2 ½ x ⅙	U	6432	5147	4286	3673	3214	2858	2500	2338	2141	1977	1836	1607	1429	
	D	.023	.036	.051	.071	.092	.116	.100	.173	.207	.242	.282	.369	.467	

# RY-WELD® STEEL GRATING

Ryerson Ry-Weld grating features strong, welded joints and a flush top surface. It is produced on automatic forge-welding machines with carefully controlled heat, pressure and electric current. In joining bearing bars and spiral-drawn cross bars, these machines produce grating of sturdy, one-piece construction that insures safe, nonskid footing. Ry-Weld is available plain, painted, galvanized or vinyl-grit coated.



WEIGHT IN POUNDS PER SQ. FT.					
Bearing Bars	Cross Bars	Type 19-W-4*	Type 19-W-2	Type 15-W-4	Type 15-W-2
3/4 x 1/8	1/4	3.99	4.63	4.95	5.59
3/4 x 3/16	1/4	5.67	6.31	7.11	7.75
1 x 1/8	1/4	5.15	5.79	6.44	7.08
1 x 3/16	1/4	7.35	7.99	9.27	9.91
1 1/4 x 1/8	1/4	6.20	6.84	7.79	8.43
1 1/4 x 3/16	1/4	9.03	9.67	11.43	12.07
1 1/2 x 1/8	1/4	7.35	7.99	9.27	9.91
1 1/2 x 3/16	3/16	10.94	11.80	13.82	14.68
1 3/4 x 3/16	5/16	12.62	13.48	15.98	16.84
2 x 3/16	5/16	14.30	15.16	18.14	19.00
2 1/4 x 3/16	5/16	15.87	16.74	20.16	21.03
2 1/2 x 3/16	5/16	17.55	18.42	22.32	23.19

WIDTH OF PANELS				
NO. BEARING BARS	TYPE 19-W-4 AND 19-W-2		TYPE 15-W-4 AND 15-W-2	
	BEARING BAR THICKNESS—in inches			
	3/16	1/8	3/16	1/8
5	4 15/16	4 7/8	.....	.....
6	6 1/8	6 1/16	.....	.....
7	7 7/16	7 1/4	.....	.....
8	8 1/2	8 7/16	6 3/4	6 11/16
9	9 11/16	9 5/8	7 11/16	7 5/8
10	10 7/8	10 13/16	8 3/8	8 9/16
11	12 1/16	12	9 9/16	9 1/2
12	13 1/4	13 3/16	10 1/2	10 7/16
13	14 7/16	14 3/8	11 7/16	11 3/8
14	15 5/8	15 5/16	12 3/8	12 3/16
15	16 13/16	16 3/4	13 3/16	13 1/4
16	18	17 15/16	14 1/4	14 3/16
17	19 3/16	19 1/8	15 3/16	15 1/8
18	20 3/8	20 7/16	16 1/8	16 1/16
19	21 1/16	21 1/2	17 1/16	17
20	22 3/4	22 11/16	18	17 15/16
*21	23 15/16	23 3/8	18 15/16	18 7/8
22	25 1/8	25 1/16	19 7/8	19 3/16
23	26 5/16	26 1/4	20 3/16	20 3/4
24	27 1/2	27 7/16	21 3/4	21 11/16
25	28 11/16	28 3/8	22 11/16	22 3/8
26	29 7/8	29 13/16	23 3/8	23 9/16*
27	31 1/16	31	24 9/16	24 1/2
28	32 1/4	32 3/16	25 1/2	25 1/16
29	33 7/16	33 3/8	26 7/16	26 3/8
30	34 3/8	34 7/16	27 3/8	27 1/16
*31	35 13/16	35 3/4	28 5/16	28 1/4
32	.....	.....	29 1/4	29 3/16
33	.....	.....	30 3/16	30 1/8
34	.....	.....	31 1/8	31 1/16
35	.....	.....	32 1/16	32
36	.....	.....	33*	32 15/16
37	.....	.....	33 15/16	33 3/8
38	.....	.....	34 3/8	34 13/16
39	.....	.....	35 13/16	35 3/4 *

\* Stock widths.

NOTE: Two or more panels are used to make up wider areas. Grating available with cross bars on top and bottom of panels. Ry-Weld grating complies with federal specifications RRG-661a.

## **You get complete service on any grating and flooring requirement . . . and practical help as well, when you call Ryerson.**

Our service starts with one of the most complete selections of grating and flooring available anywhere. But that's only the beginning. Add to this, engineering assistance in planning and floor layout, plus help in fabrication — everything required for a complete installation. Also available: flooring tailor made to fit your job — completely fabricated with all necessary cutouts and banding — ready for easy placement.

Ryerson's wide range of grating and flooring materials gives you unlimited combinations of advantages — simplicity of construction, permanent strength and rigidity, high skid resistance, corrosion resistance, easy maintenance, maximum openings for passage of light and air, etc. Most of the materials shown here are now being used by companies to provide a safe and healthy work environment that conforms to standards established by the Occupational Safety and Health Act.

We'll be happy to serve you whenever you need assistance.

### **Grating**

- Steel Bar Grating
- 4** Standard
- 6** Heavy Duty
- 10** Serrated
- Aluminum Bar Grating
- 8** Standard
- 10** Serrated
- 12** Fiber Glass Bar Grating
- 14** Expanded Metal Grating
- 16** Open-Grip Safety Grating
- 10** Fasteners
- 11** How To Order Grating

### **Flooring**

- 16** Tread-Grip Safety Surface
- 15** Steel 4-Way Safety Plate
- 18** Aluminum Floor Plate
- 18** Stainless Safety Floor Plate
- 20** Perforated Plate
- 19** Stair Treads & Stringers
- 20** How To Order Stair Treads

