

lichtgitter

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USA





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The Company

Lichtgitter GmbH was established in 1929, in order to fulfill the specialized manufacturing needs and requirements for gratings. Continuous performance and quality development, innovation in manufacturing techniques, and a progressive market driven spirit of business development have ensured Lichtgitter's place among the leading manufacturers of gratings, perforated metal planks, and spiral staircases worldwide. With grating having so many different application potentials, our customers continue to provide new challenges and opportunities for us every day. To meet the growing demands of our international customer base, Lichtgitter has grown our locations to include 28 subsidiaries in seven countries. This has been the driving factor for this family owned company to create a global network of manufacturing, distribution and

fabrication facilities.

Our most recent expansion into North America began in Houston, Texas. This facility enables Lichtgitter to provide a domestic product offering in one of the largest grating markets in the world and allow Lichtgitter to continue our core philosophy to provide quality grating products with the shortest delivery times and provide our clients with access to a world class single source grating solutions provider. Production procedures and machines (many protected by patent) were specially designed for the Lichtgitter production process. Gratings for normal and special loadings are produced with highly integrated welding and fabrication processes which require a high level of technical expertise. The manufacturing processes cover gratings and perforated metal planks fabricated from steel, stainless steel and aluminum, which use electro forging, punching, or mechanical locking

processes to make a rigid panel that allows light, air, sound, heat, and water to travel between multilevel structures.

Our product range allows countless applications for platforms and walkways, storage racking, security fencing, façade gratings, sun screens, ceiling tiles and lighting fixtures and patterns, serving the industrial market as well as architectural and aesthetic purposes. Apart from the production of our standard panels and gratings, special and custom-made gratings and perforated metal planks constitute a permanent and welcome challenge to our professional staff. Lichtgitter USA is committed to carry forward Lichtgitter's long and ongoing story of success by meeting and maintaining consistently high standards and ensuring the best quality possible for our customers, just as the company has for now over 80 years.

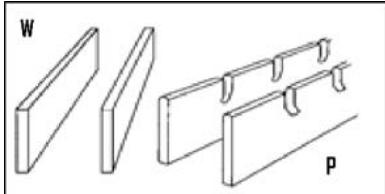
Technical terms

Metal floors are grouped into two distinct categories, gratings (welded and press-locked gratings) and perforated metal planks. Gratings consist of multiple vertically aligned flat bearing bars, held upright, apart and parallel to each other at regular spacing. A plurality of cross bars is fixed transversely into them, also at regular spacing. The arrangement of bars as described would normally provide a free space area in excess of 70% of the plan area.

All cut edges are bound with either a binding bar, a kick plate (toe plate), or, in some instances, a deep bar. Press-locked gratings are bound on all sides, whereas welded gratings are normally only bound at the ends of the loadbearing bars.

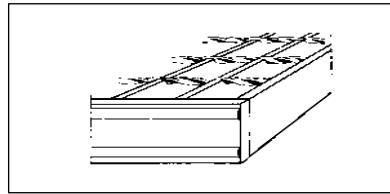
Perforated metal planks are C-profiles formed from sheets with an assortment of pre-formed patterns on their surfaces.

1. Bearing bars



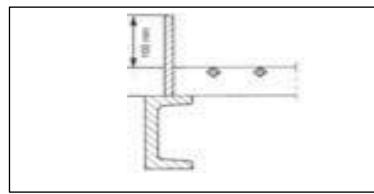
These are the bars that bear the load, they lie parallel to each other between two grating supports.

3. Banding



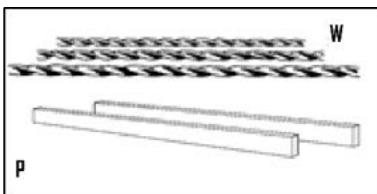
The banding can consist of a bar section to the edge of the gratings, a flush with the tops of bearing bars (in direction of bearing bar = banding alongside: cross to bearing bar = cross banding).

5. Kick flat (toe plate)



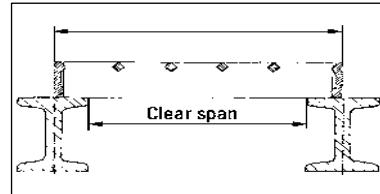
A kick plate or toe plate is a welded bar projecting above the top surface of the bearing bars by at least 4" (upward).

2. Cross rods & cross bars



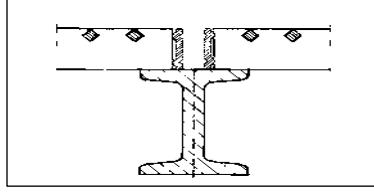
The connecting bars that are positioned transversely across bearing bars, either welded or pressed into them at their intersecting points to provide lateral restraint.

4. Span



Distance between center-to-center of support. The clear span (effective span) is the clear distance between two supports.

6. Support



Metal shall be used for all grating supports and shell provide a 1" (25 mm) minimum bearing surface for depths up to 2 1/4". A 2" (51 mm) minimum bearing surface for 2 1/2" and over is required at each end of span.

Service

To us, "Service" means

"Everything for the client".

In other words, we continuously focus on our clients' requirements on every job and in all details.

Our working procedure includes:

- the acceptance and completion of inquiries and orders with professional and technical know-how
- competent, project and product related advice

- technical advisory services regarding calculation and determination of dimensions and fixings, choice of material and surface treatment

- data transmission, in collaboration with our technical department

- layout drawings available as data sets

- the fulfilment of quotations according to project related demands and valid standards and instructions

- production planning and control through a complete integrated data processing system.

- the static layout of gratings and perforated metal planks

- an understanding of national and international classing bodies to determine standards and instructions

- a close co-operation with engineers and architects during the realization of plans, e.g. regarding the selection of proper gratings and perforated metal planks as construction elements

- incorporate pertinent client information with respect to standards and their publication

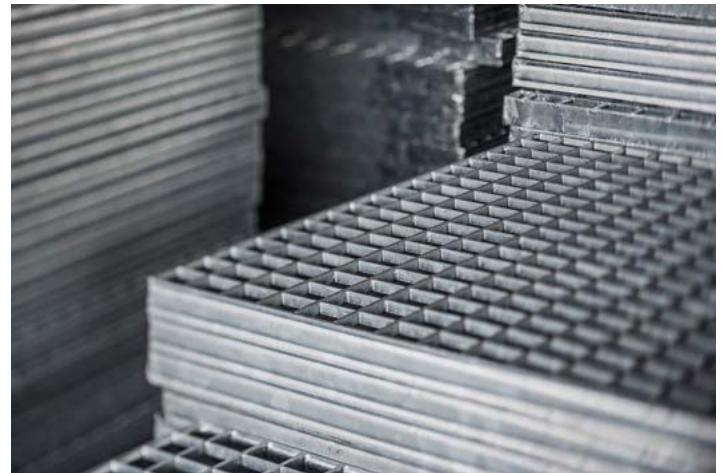


Steel Bar Grating

Welded gratings

Welded gratings excel in their strength, are economical in their production and easy to install. This makes them one of the most popular and versatile gratings. They consist of a rugged, one-piece constructed panel which is resistance welded. The standard widths are 2' and 3' and the standard lengths are 20' or 24'. The bearing bar spaces range from 2-3/8" (38 space) to 11/16" (11 space), with the standard bar thicknesses ranging from 1/8" to 3/8". We offer the fabrication of gratings in specific widths, lengths and curved shapes, incorporating hinged panels and offering different finishes to meet our customers' requirements. Our

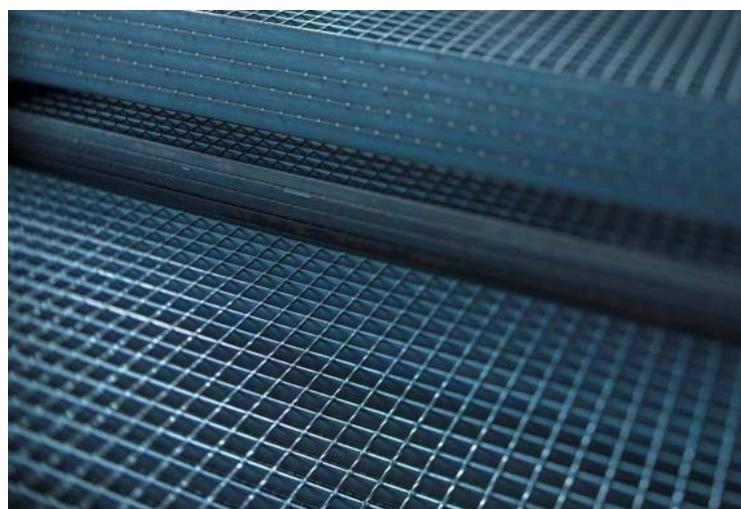
gratings are available either galvanized or mill finished and either smooth or serrated.



Press-locked gratings

Press-locked grating supports the same loads as welded grating. In comparison to welded grating, it possesses a rather smooth and clean look. Press-locked grating is formed by using hydraulic pressure and bonding the two close-tolerance slotted bars together, thereby permanently locking the cross bars into the notched bearing bars.

Standard lengths start at 19 11/16" and go up to a maximum possible length of 9' - 10 1/16". The widths range between 7 7/8" up to 6' - 6 3/4". The bearing bars range

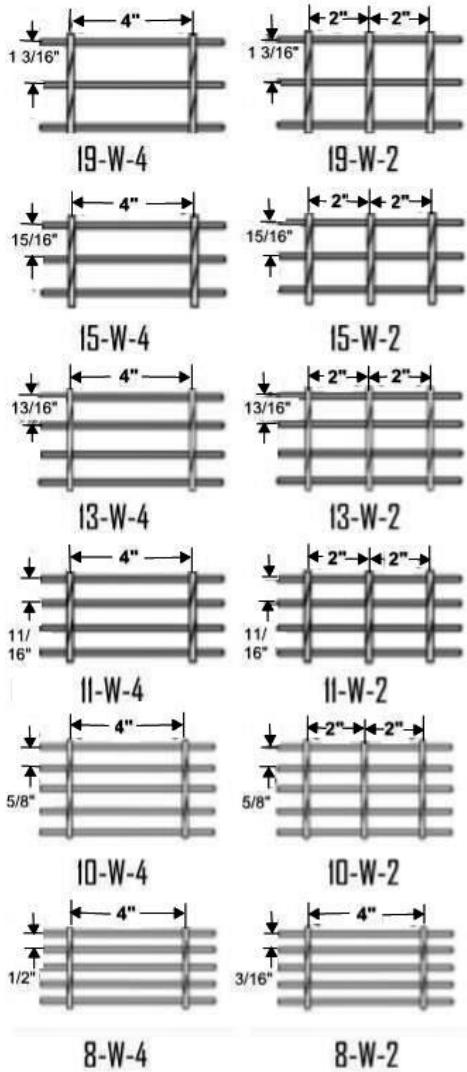


from 1" to 3" in depth and are predominantly between 15 GA to 3/16" thick. The bearing bar spacing ranges from 2 5/8" to 7/16".

Press-locked grating is extremely versatile. Their possible applications range from architectural and aesthetic purposes to platforms, walkways, building facades, basement shafts, decking for palette racking and numerous others.

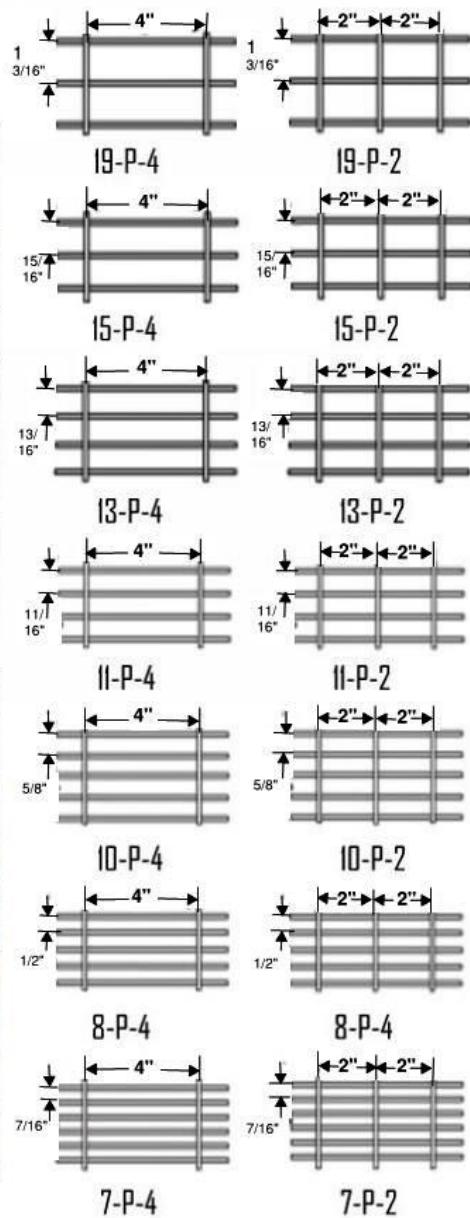
These gratings are available with a serrated or with a smooth surface.

They are especially suitable for pedestrian and vehicle traffic on platforms, walkways, stairs, landings and stair treads. They provide excellent light and air transmission. Press-locked gratings also aid fire suppression systems. Furthermore, they excel in their high strength and are easy to assemble and disassemble.



Standard panel widths are 2' - 0 and 3' - 0.

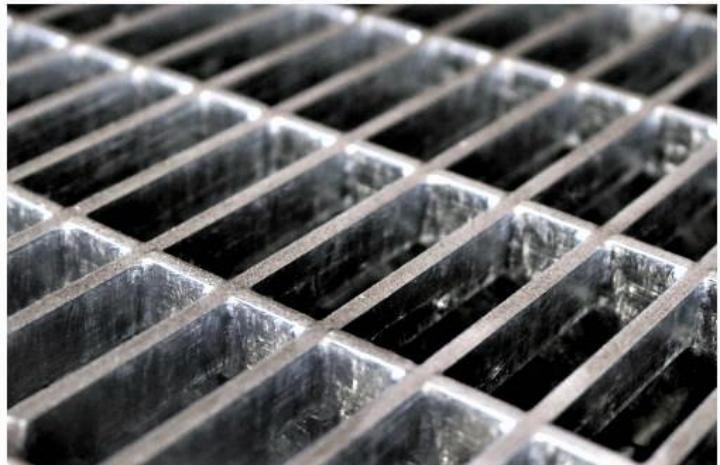
Steel Bar Grating



WELDED STEEL BAR GRATING



PRESS-LOCKED STEEL BAR GRATING



Welded grating

19-W-4, 19-W-2



Bar Size	Symbol	Approx. Weight psf	Sec. Mod. Of Width	SPAN (Direction of Bearing Bar)								Material: ASTM A-1011 standard Deflection: Spans and loads highlighted in bright blue exceed 1/4" deflection for uniform load of 100 psf which provides safe pedestrian comfort. These can be exceeded for other types of loads with engineer's approval. Serrated Bars: For serrated grating, the depth of grating required for a specified load is 1/4" deeper than shown in the table.				
				24"	30"	36"	42"	48"	54"							
3/4" x 1/8" Non-Serrated Only	19-W-4	3.9	0.118	U 355 D 0.099 C 355 D 0.079	227 0.155 284 0.124	158 0.223 237 0.179	116 0.304 203 0.243	89 0.397 178 0.318	70 0.503 158 0.402							
3/4" x 3/16" Non-Serrated Only	19-W-4	5.6	0.178	U 533 D 0.099 C 533 D 0.079	341 0.155 426 0.124	237 0.223 355 0.179	174 0.304 305 0.243	133 0.397 266 0.318	105 0.503 237 0.402	60"	66"	U= Allowable uniform load, psf. D= Deflection due to U, inches C = Allowable concentrated load per ft. of grating width, lbs. D = Deflection due to C, inches				
1" x 1/8"	19-W-4 19-W-2	5.0 5.5 5.4 6.3	0.211	U 632 D 0.074 C 632 D 0.060	404 0.116 505 0.093	281 0.168 421 0.134	206 0.228 361 0.182	158 0.298 316 0.238	125 0.377 281 0.302	101 0.466 253 0.372	84 0.563 230 0.451					
1" x 3/16"	19-W-4 19-W-2	7.2 7.8 8.1 9.5	0.316	U 947 D 0.074 C 947 D 0.060	606 0.116 758 0.093	421 0.168 632 0.134	309 0.228 541 0.182	237 0.298 474 0.238	187 0.377 421 0.302	152 0.466 379 0.372	125 0.563 344 0.451	72" 78" 84"				
1-1/4" x 1/8"	19-W-4 19-W-2	6.1 6.6 6.8 8.1	0.329	U 987 D 0.060 C 987 D 0.048	632 0.093 789 0.074	439 0.134 658 0.107	322 0.182 564 0.146	247 0.238 493 0.191	195 0.302 439 0.241	158 0.372 395 0.298	130 0.451 359 0.360	110 0.536 329 0.429	93 0.629 304 0.504	81 0.730 282 0.584		
1-1/4" x 3/16"	19-W-4 19-W-2	8.9 9.5 10.2 12.1	0.493	U 1480 D 0.060 C 1480 D 0.048	947 0.093 1184 0.074	658 0.134 846 0.107	483 0.182 740 0.146	370 0.238 592 0.191	292 0.302 538 0.241	237 0.372 298 0.298	196 0.451 360	164 0.536 455 0.429	140 0.629 423 0.504	121 0.730 282 0.584		
1-1/2" x 1/8"	19-W-4 19-W-2	7.2 7.7 7.9 9.2	0.474	U 1421 D 0.050 C 1421 D 0.040	909 0.078 1137 0.062	632 0.112 947 0.089	464 0.152 812 0.122	355 0.199 711 0.159	281 0.251 632 0.201	227 0.310 568 0.248	188 0.376 517 0.300	158 0.447 474 0.358	135 0.524 437 0.420	116 0.608 406 0.487	89 0.794 355 0.636	70 1.006 316 0.804
1-1/2" x 3/16"	19-W-4 19-W-2	10.5 11.2 11.8 13.8	0.711	U 2132 D 0.050 C 2132 D 0.040	1364 0.078 1705 0.062	947 0.112 1421 0.089	696 0.152 1218 0.122	533 0.199 1066 0.159	421 0.251 947 0.201	341 0.310 853 0.248	282 0.376 775 0.300	237 0.447 711 0.358	202 0.524 656 0.420	174 0.608 609 0.487	133 0.794 533 0.636	105 1.006 474 0.804
1-3/4" x 3/16"	19-W-4 19-W-2	12.2 12.8 13.5 15.4	0.967	U 2901 D 0.043 C 2901 D 0.034	1857 0.067 2321 0.053	1289 0.096 1934 0.077	947 0.130 1658 0.104	725 0.170 1451 0.136	573 0.215 1161 0.172	464 0.266 1055 0.257	384 0.322 967 0.257	322 0.383 893 0.206	275 0.450 829 0.360	237 0.521 725 0.417	181 0.681 645 0.545	143 0.862 645 0.689
2" x 3/16"	19-W-4 19-W-2	13.9 14.5 15.2 17.1	1.263	U 3789 D 0.037 C 3789 D 0.030	2425 0.058 3032 0.047	1684 0.084 2526 0.067	1237 0.114 2165 0.091	947 0.149 1895 0.119	749 0.189 1684 0.151	606 0.233 1516 0.186	501 0.282 1378 0.186	421 0.335 1263 0.225	359 0.393 1166 0.215	309 0.456 1083 0.215	237 0.596 842 0.365	187 0.754 842 0.603
2-1/4" x 3/16"	19-W-4 19-W-2	15.5 16.1 16.8 18.7	1.599	U 4796 D 0.033 C 4796 D 0.026	3069 0.052 3837 0.041	2132 0.074 3197 0.060	1566 0.101 2741 0.081	1199 0.132 2398 0.106	947 0.168 2132 0.134	767 0.207 1918 0.166	634 0.250 1744 0.200	533 0.298 1599 0.238	454 0.350 1476 0.280	392 0.406 1370 0.280	300 0.530 1199 0.424	237 0.670 1066 0.536
2-1/2" x 3/16"	19-W-4 19-W-2	17.2 17.8 18.5 20.4	1.974	U 5921 D 0.030 C 5921 D 0.024	3789 0.047 4737 0.037	2632 0.067 3947 0.054	1933 0.091 2741 0.073	1480 0.119 2398 0.095	947 0.151 2132 0.121	783 0.186 2632 0.149	658 0.225 2368 0.180	561 0.268 2153 0.180	483 0.315 1974 0.215	370 0.477 1822 0.252	292 0.603 1480 0.381	

Width table 19-W-4, 19-W-2

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

15-W-4 15-W-2



Bar Size	Symbol	Approx. Weight psf	Sec. Mod Per Ft. Of Width	SPAN (Direction of Bearing Bar)						F = fiber stress, 18,000 psi Material: ASTM A-1011 Deflection: Spans and loads highlighted in bright blue exceed 1/4" deflection for uniform load of 100 psf which provides safe pedestrian comfort. These can be exceeded for other types of loads with engineer's approval.			
				24"	30"	36"	42"	48"	54"				
3/4" x 1/8" Non-Serrated Only	15-W-4	4.7 5.1 6.1	0.150	U D C D	450 0.099 450 0.079	288 0.155 360 0.124	200 0.223 300 0.179	147 0.304 257 0.243	113 0.397 225 0.318	89 0.503 200 0.402	60"	Serrated Bars: For serrated grating, the depth of grating required for a specified load is 1/4" deeper than that shown in the table. U= Allowable uniform load, psf. D= Deflection due to U, inches C= Allowable concentrated load per ft. of grating width, lbs. D = Deflection due to C, inches	
3/4" x 3/16" Non-Serrated Only	15-W-4	6.9 7.7 9.1	0.225	U D C D	675 0.099 675 0.079	432 0.155 540 0.124	300 0.223 450 0.179	220 0.304 386 0.243	169 0.397 338 0.318	133 0.503 300 0.402	108 0.621 270 0.497		
1" x 1/8"	15-W-4 15-W-2	6.1 6.7 6.5 7.5	0.267	U D C D	800 0.074 800 0.060	512 0.116 640 0.093	356 0.168 533 0.134	261 0.228 457 0.182	200 0.298 400 0.238	158 0.377 356 0.302	128 0.466 320 0.372	106 0.563 291 0.451	89 0.670 267 0.536
1" x 3/16"	15-W-4 15-W-2	8.9 9.6 9.8 11.2	0.400	U D C D	1200 0.074 1200 0.060	768 0.116 960 0.093	533 0.168 800 0.134	392 0.228 686 0.182	300 0.298 600 0.238	237 0.377 533 0.302	192 0.466 480 0.372	159 0.563 436 0.451	133 0.670 400 0.536
1-1/4" x 1/8"	15-W-4 15-W-2	7.5 8.1 8.2 9.5	0.417	U D C D	1250 0.060 1250 0.048	800 0.093 1000 0.074	556 0.134 833 0.107	408 0.182 714 0.146	313 0.238 625 0.146	247 0.302 556 0.241	200 0.372 500 0.298	165 0.451 455 0.360	139 0.536 417 0.429
1-1/4" x 3/16"	15-W-4 15-W-2	11.0 11.6 12.3 14.2	0.625	U D C D	1875 0.060 1875 0.048	1200 0.093 1500 0.074	833 0.134 1250 0.107	612 0.182 1071 0.146	469 0.238 938 0.191	370 0.302 833 0.241	300 0.372 750 0.298	248 0.451 682 0.360	208 0.536 625 0.429
1-1/2" x 1/8"	15-W-4 15-W-2	8.9 9.4 9.6 10.9	0.600	U D C D	1800 0.050 1800 0.040	1152 0.078 1440 0.062	800 0.112 1200 0.089	588 0.152 1029 0.122	450 0.199 900 0.159	356 0.251 800 0.201	288 0.310 720 0.248	238 0.376 655 0.300	200 0.447 600 0.358
1-1/2" x 3/16"	15-W-4 15-W-2	13.1 13.7 14.4 16.3	0.900	U D C D	2700 0.050 2700 0.040	1728 0.078 2160 0.062	1200 0.112 1800 0.089	882 0.152 1543 0.122	675 0.199 1350 0.159	533 0.251 1200 0.201	432 0.310 1080 0.248	357 0.376 982 0.300	300 0.447 900 0.358
1-3/4" x 3/16"	15-W-4 15-W-2	15.2 15.8 16.5 18.4	1.225	U D C D	3675 0.043 3675 0.034	2352 0.067 2940 0.053	1633 0.096 2450 0.077	1200 0.130 2100 0.104	919 0.170 1838 0.136	726 0.215 1633 0.172	588 0.266 1470 0.213	486 0.322 1336 0.257	408 0.383 1225 0.306
2" x 3/16"	15-W-4 15-W-2	17.3 17.9 18.6 20.5	1.600	U D C D	4800 0.037 4800 0.030	3072 0.058 3840 0.047	2133 0.084 3200 0.067	1567 0.114 2743 0.091	1200 0.149 2133 0.151	948 0.189 1920 0.186	768 0.233 1745 0.186	635 0.282 1745 0.225	533 0.335 1600 0.268
2-1/4" x 3/16"	15-W-4 15-W-2	19.4 20.0 20.7 22.6	2.025	U D C D	6075 0.033 6075 0.026	3888 0.052 4860 0.041	2700 0.074 4050 0.060	1984 0.101 3471 0.081	1519 0.132 3038 0.106	1200 0.168 2700 0.134	972 0.207 2430 0.200	803 0.250 2209 0.238	675 0.298 2025 0.238
2-1/2" x 3/16"	15-W-4 15-W-2	21.4 22.0 22.7 24.7	2.500	U D C D	7500 0.030 7500 0.024	4800 0.047 6000 0.037	3333 0.067 5000 0.054	2449 0.091 4286 0.073	1875 0.119 3750 0.095	1481 0.151 3333 0.095	1200 0.186 2727 0.149	992 0.225 2500 0.180	833 0.268 2500 0.215

Width table 15-W-4, 15-W-2

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

13-W-4, 13-W-2



Bar Size	Symbol	Approx. Weight psf	Sec. Mod Per Ft. Of Width	SPAN (Direction of Bearing Bar)						F = fiber stress, 18,000 psi Material: ASTM A-1011	
				24"	30"	36"	42"	48"	54"		
3/4" x 1/8" Non-Serrated Only	13-W-4	5.3 5.8 6.7	0.173	U	519 0.099	332 0.155	231 0.223	170 0.304	130 0.397	103 0.503	Deflection: Spans and loads highlighted in bright blue exceed 1/4" deflection for uniform load of 100 psf which provides safe pedestrian comfort. These can be exceeded for other types of loads with engineer's approval
				D	519 0.124	415 0.179	346 0.243	297 0.243	260 0.318	231 0.402	
				C							
				D							
3/4" x 3/16" Non-Serrated Only	13-W-4	7.8 8.6 10.1	0.260	U	779 0.099	498 0.155	346 0.223	254 0.304	195 0.397	154 0.503	60" Serrated Bars: For serrated grating, the depth of grating required for a specified load is 1/4" deeper than that shown in the table.
				D	779 0.124	623 0.179	519 0.243	445 0.243	389 0.318	346 0.402	
				C							
				D							
1" x 1/8"	13-W-4 13-W-2	6.5 7.5 7.4 8.3	0.308	U	923 0.074	591 0.116	410 0.168	301 0.228	231 0.298	182 0.377	148 0.466 122 0.563 103 0.670
				D	923 0.060	738 0.093	615 0.134	527 0.182	462 0.238	410 0.302	
				C							
				D							
1" x 3/16"	13-W-4 13-W-2	10.2 10.8 11.0 12.4	0.462	U	1385 0.074	886 0.116	615 0.168	452 0.228	346 0.298	274 0.377	222 0.466 183 0.563 154 0.670
				D	1385 0.060	1108 0.093	923 0.134	791 0.182	692 0.238	615 0.302	
				C							
				D							
1-1/4" x 1/8"	13-W-4 13-W-2	8.5 9.1 9.3 10.5	0.481	U	1442 0.060	923 0.093	641 0.134	471 0.182	361 0.238	285 0.302	231 0.372 191 0.451 160 0.536
				D	1442 0.048	1154 0.074	962 0.107	824 0.146	721 0.191	641 0.241	
				C							
				D							
1-1/4" x 3/16"	13-W-4 13-W-2	12.6 13.2 13.9 15.8	0.721	U	2163 0.060	1385 0.093	962 0.134	706 0.182	541 0.238	427 0.302	346 0.372 286 0.451 240 0.536
				D	2163 0.048	1731 0.074	1442 0.107	1236 0.146	1082 0.191	962 0.241	
				C							
				D							
1-1/2" x 1/8"	13-W-4 13-W-2	10.1 10.7 10.9 12.1	0.692	U	2077 0.050	1329 0.078	923 0.112	678 0.152	519 0.199	410 0.251	332 0.310 275 0.376 231 0.447
				D	2077 0.040	1662 0.062	1385 0.089	1187 0.122	1038 0.159	923 0.201	
				C							
				D							
1-1/2" x 3/16"	13-W-4 13-W-2	15.0 15.6 16.3 18.2	1.038	U	3115 0.050	1994 0.078	1385 0.112	1017 0.152	779 0.199	615 0.251	498 0.310 412 0.376 346 0.447
				D	3115 0.040	2492 0.062	2077 0.089	1780 0.122	1558 0.159	1385 0.201	
				C							
				D							
1-3/4" x 3/16"	13-W-4 13-W-2	17.4 18.0 18.7 20.6	1.413	U	4240 0.043	2714 0.067	1885 0.096	1385 0.130	1060 0.170	838 0.215	678 0.266 561 0.322 471 0.383
				D	4240 0.034	3392 0.053	2827 0.077	2423 0.104	2120 0.136	1885 0.172	
				C							
				D							
2" x 3/16"	13-W-4 13-W-2	19.8 20.4 21.1 23.0	1.846	U	5538 0.037	3545 0.058	2462 0.084	1808 0.114	1385 0.149	1094 0.189	886 0.233 732 0.282 615 0.335
				D	5538 0.030	4431 0.047	3692 0.067	3165 0.091	2769 0.119	2462 0.151	
				C							
				D							

Width table 13-W-4, 13-W-2

No. of Bars	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1/8" Bar	15 1/16	1 3/4	2 9/16	3 3/8	4 3/16	5	5 13/16	6 5/8	7 7/16	8 1/4	9 1/16	9 7/8	10 11/16	11 1/2	12 5/16	13 1/8	13 15/16	14 3/4	15 9/16
3/16" Bar	1	1 13/16	2 5/8	3 7/16	4 1/4	5 1/16	5 7/8	6 11/16	7 1/2	8 5/16	9 1/8	9 15/16	10 3/4	11 9/16	12 3/8	13 3/16	14	14 13/16	15 5/8
No. of Bars	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	
1/8" Bar	16 3/8	17 3/16	18	18 13/16	19 5/8	20 7/16	21 1/4	22 1/16	22 7/8	23 11/16	24 1/2	25 5/16	26 1/8	26 15/16	27 3/4	28 9/16	29 3/8	30 3/16	
3/16" Bar	16 7/16	17 1/4	18 1/16	18 7/8	19 11/16	20 1/2	21 5/16	22 1/8	22 15/16	23 3/4	24 9/16	25 3/8	26 3/16	27	27 13/16	28 5/8	29 7/16	30 1/4	
No. of Bars	39	40	41	42	43	44	45												
1/8" Bar	31	31 13/16	32 5/8	33 7/16	34 1/4	35 1/16	35 7/8												
3/16" Bar	31 1/16	31 7/8	32 11/16	33 1/2	34 5/16	35 1/8	35 15/16												



11-W-2 11-W-4

Bar Size	Symbol	Approx. Weight psf	Sec. Mod Per Ft. Of Width	SPAN (Direction of Bearing Bar)								E = modulus of elasticity, 29,000,000 psi F = fiber stress, 18,000 psi Material: ASTM A-1011							
				24"	30"	36"	42"	48"	54"	66"	72"	78"	84"	D = Deflection due to C, inches					
3/4" x 1/8" Non-Serrated Only	11-W-4	6.2	0.205	U 614 D 0.099 C 614 D 0.079	393 0.155 491 0.124	273 0.223 409 0.179	200 0.304 351 0.243	153 0.397 307 0.318	121 0.503 273 0.402	98 0.621 245 0.497									
	11-P-4	6.6		U 920 D 0.099 C 920 D 0.079	589 0.155 736 0.124	409 0.223 614 0.179	301 0.304 526 0.243	230 0.397 460 0.318	182 0.503 409 0.402	147 0.621 368 0.497									
	11-P-2	7.6																	
3/4" x 3/16" Non-Serrated Only	11-W-4	9.1	0.307	U 920 D 0.099 C 920 D 0.079	589 0.155 736 0.124	409 0.223 614 0.179	301 0.304 526 0.243	230 0.397 460 0.318	182 0.503 409 0.402	147 0.621 368 0.497									
		9.9																	
		11.3																	
1" x 1/8"	11-W-4	8.1	0.364	U 1091 D 0.074 C 1091 D 0.060	698 0.116 873 0.093	485 0.168 727 0.134	356 0.228 623 0.182	273 0.298 545 0.238	215 0.377 485 0.302	175 0.466 436 0.372	144 0.563 397 0.451	121 0.670 364 0.536							
	11-W-2	8.6																	
		8.5																	
		9.4																	
1" x 3/16"	11-W-4	11.9	0.545	U 1636 D 0.074 C 1636 D 0.060	1047 0.116 1309 0.093	727 0.168 1091 0.134	534 0.228 935 0.182	409 0.298 818 0.238	323 0.377 727 0.302	262 0.466 655 0.372	216 0.563 595 0.451	182 0.670 545 0.536	155 0.787 503 0.629						
	11-W-2	12.5																	
		12.7																	
		14.2																	
1-1/4" x 1/8"	11-W-4	10.0	0.568	U 1705 D 0.060 C 1705 D 0.048	1091 0.093 1364 0.074	578 0.134 1136 0.107	557 0.238 974 0.146	426 0.302 852 0.191	337 0.372 758 0.241	273 0.451 682 0.298	225 0.536 620 0.360	189 0.629 568 0.429	161 0.730 524 0.504	139 0.730 487 0.584					
	11-W-2	10.5																	
		10.7																	
		12.0																	
1-1/4" x 3/16"	11-W-4	14.7	0.852	U 2557 D 0.060 C 2557 D 0.048	1636 0.093 2045 0.074	1136 0.134 1705 0.107	835 0.238 1461 0.146	639 0.298 1278 0.191	505 0.302 1136 0.241	409 0.372 1023 0.298	338 0.451 930 0.360	284 0.536 852 0.429	242 0.629 787 0.504	209 0.730 731 0.584	160 0.730 639 0.584			108"	
	11-W-2	15.3																	
		16.0																	
		17.9																	
1-1/2" x 1/8"	11-W-4	11.9	0.818	U 2455 D 0.050 C 2455 D 0.040	1571 0.078 1964 0.062	1091 0.112 1636 0.089	801 0.152 1403 0.122	614 0.199 1227 0.159	485 0.251 1091 0.201	393 0.310 982 0.248	325 0.376 893 0.300	273 0.447 818 0.358	232 0.524 755 0.420	200 0.608 701 0.487	153 0.794 614 0.636	121 1.006 545 0.804			
	11-W-2	12.4																	
		12.6																	
		13.9																	
1-1/2" x 3/16"	11-W-4	17.5	1.227	U 3682 D 0.050 C 3682 D 0.040	2356 0.078 2945 0.062	1636 0.112 2455 0.089	1202 0.152 2104 0.122	920 0.199 1841 0.159	589 0.251 1136 0.201	409 0.310 1023 0.248	487 0.376 1023 0.300	409 0.447 1339 0.358	349 0.524 1227 0.420	301 0.608 1133 0.487	230 0.794 920 0.636	182 1.006 818 0.804			
	11-W-2	18.1																	
		18.8																	
		20.7																	
1-3/4" x 3/16"	11-W-4	20.4	1.670	U 5011 D 0.043 C 5011 D 0.034	3207 0.067 4009 0.053	1571 0.096 3341 0.077	1091 0.130 2864 0.104	801 0.170 2506 0.136	614 0.215 2227 0.172	485 0.266 2005 0.172	393 0.322 1822 0.213	325 0.383 1542 0.257	273 0.450 1670 0.306	232 0.521 1432 0.417	200 0.608 1253 0.360	153 0.862 1114 0.545	121 1.114 1114 0.545		
	11-W-2	21.0																	
		21.7																	
		23.6																	
2" x 3/16"	11-W-4	23.2	2.182	U 6545 D 0.037 C 6545 D 0.030	4189 0.058 5236 0.047	2909 0.084 3740 0.067	2137 0.114 3273 0.091	1636 0.149 2909 0.119	1293 0.189 2618 0.151	1047 0.233 2182 0.186	866 0.282 2380 0.125	727 0.335 2182 0.268	620 0.393 2014 0.215	534 0.456 1870 0.280	409 0.596 1636 0.324	323 0.754 1455 0.424			
	11-W-2	23.8																	
		24.5																	
		26.4																	
2-1/4" x 3/16"	11-W-4	26.0	2.761	U 8284 D 0.033 C 8284 D 0.026	5302 0.052 6627 0.041	3682 0.074 5523 0.060	2705 0.101 4734 0.081	2071 0.132 4142 0.106	1636 0.168 3682 0.134	1325 0.207 3314 0.166	1095 0.250 3012 0.200	920 0.298 2761 0.238	784 0.350 2549 0.280	676 0.406 2367 0.324	518 0.530 2071 0.424	409 0.670 1841 0.536	409 0.754 1841 0.536		
	11-W-2	26.6																	
		27.3																	
		29.2																	
2-1/2" x 3/16"	11-W-4	28.8	3.409	U 10227 D 0.030 C 10227 D 0.024	6545 0.047 8182 0.037	4545 0.067 6818 0.054	3340 0.091 5844 0.073	2557 0.119 5114 0.095	2020 0.151 4545 0.121	1636 0.186 4091 0.149	1352 0.225 3719 0.180	1136 0.268 3409 0.215	968 0.315 3147 0.252	835 0.365 2922 0.292	639 0.477 2557 0.381	505 0.603 2273 0.483			
	11-W-2	29.4																	
		30.1																	
		32.0																	

Width table 11-W-4, 11-W-2

No. of Bars	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1/8" Bar	13 1/16	1 1/2	2 3/16	2 7/8	3 9/16	4 1/4	4 15/16	5 5/8	6 5/16	7	7 11/16	8 3/8	9 1/16	9 3/4	10 7/16	11 1/8	11 13/16	12 1/2	13 3/16
3/16" Bar	7/8	1 9/16	2 1/4	2 15/16	3 5/8	4 5/16	5	5 11/16	6 3/8	7 1/16	7 3/4	8 7/16	9 1/8	9 13/16	10 1/2	11 3/16	11 7/8	12 9/16	13 1/4
No. of Bars	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39
1/8" Bar	13 7/8	14 9/16	15 1/4	15 15/16	16 5/8	17 5/16	18	18 11/16	19 3/8	20 1/16	20 3/4	21 7/16	22 1/8	22 13/16	23 1/2	24 3/16	24 7/8	25 9/16	26 1/4
3/16" Bar	13 15/16	14 5/8	15 5/16	16	16 11/16	17 3/8	18 1/16	18 3/4	19 7/16	20 1/8	20 13/16	21 1/2	22 3/16	22 7/8	23 9/16	24 1/4	24 15/16	25 5/8	26 5/16
No. of Bars	40	41	42	43	44	45	46	47	48	49	50	51	52	53					
1/8" Bar	26 15/16	27 5/8	28 5/16	29	29 11/16	30 3/8	31 1/16	31 3/4	32 7/16	33 1/8	33 13/16	34 1/2	35 3/16	35 7/8					
3/16" Bar	27	27 11/16	28 3/8	29 1/16	29 3/4	30 7/16	31 1/8	31 13/16											

10-W-4 10-W-2

Bar Size	Symbol	Approx. Weight psf	Sec. Mod Per Ft. Of Width	SPAN (Direction of Bearing Bar)										E = modulus of elasticity, 29,000,000 psi F = fiber stress, 18,000 psi Material: ASTM A-1011 Deflection: Spans and loads highlighted in bright blue exceed 1/4" deflection for uniform load of 100 psf which provides safe pedestrian comfort 66" These can be exceeded for other types of loads with engineer's approval. Serrated Bars: For serrated grating, the depth of grating required for a specified load is 1/4" deeper than that shown in the table. 72" C = Allowable concentrated load per ft. of grating width, lbs.					
				24"	30"	36"	42"	48"	54"	60"									
3/4" x 1/8" Non-Serrated Only	10-W-4	6.8 7.2 8.1	0.225	U D C D	675 0.099 675 0.079	432 0.155 540 0.124	300 0.223 450 0.179	220 0.304 386 0.243	169 0.397 338 0.318	133 0.503 300 0.402	108 0.621 270 0.497								
3/4" x 3/16" Non-Serrated Only	10-W-4	9.9 10.7 12.2	0.338	U D C D	1013 0.099 1013 0.079	648 0.155 810 0.124	450 0.223 675 0.179	331 0.304 243 0.243	253 0.397 318 0.318	200 0.503 405 0.402	162 0.621 405 0.497	134 0.751 368 0.601							
1" x 1/8"	10-W-4 10-W-2	8.8 9.4 9.2 10.2	0.400	U D C D	1200 0.074 1200 0.060	768 0.116 960 0.093	533 0.168 800 0.134	392 0.228 686 0.182	300 0.298 600 0.238	237 0.377 533 0.302	192 0.466 480 0.372	159 0.563 436 0.451	133 0.670 400 0.536						
1" x 3/16"	10-W-4 10-W-2	13.0 13.6 13.8 15.3	0.600	U D C D	1800 0.074 1800 0.060	1152 0.116 1440 0.093	800 0.168 1200 0.134	588 0.228 1029 0.182	450 0.298 900 0.238	356 0.377 800 0.302	288 0.466 720 0.372	238 0.563 655 0.451	200 0.670 600 0.536	170 0.787 554 0.629					
1-1/4" x 1/8"	10-W-4 10-W-2	10.9 11.4 11.6 12.9	0.625	U D C D	1875 0.060 1875 0.048	1200 0.093 1500 0.074	833 0.134 1250 0.107	612 0.182 1071 0.146	469 0.238 938 0.191	370 0.302 833 0.241	300 0.372 750 0.298	248 0.451 682 0.360	208 0.536 625 0.429	178 0.629 577 0.504	153 0.730 536 0.584				
1-1/4" x 3/16"	10-W-4 10-W-2	16.1 16.7 17.4 19.3	0.938	U D C D	2813 0.060 2813 0.048	1800 0.093 2250 0.074	1250 0.134 1875 0.107	918 0.182 1607 0.146	703 0.238 1406 0.191	556 0.302 1250 0.241	450 0.372 1125 0.298	372 0.451 1023 0.360	313 0.536 938 0.429	266 0.629 865 0.504	230 0.730 804 0.584	176 0.953 703 0.763		108"	
1-1/2" x 1/8"	10-W-4 10-W-2	13.0 13.5 13.7 15.0	0.900	U D C D	2700 0.050 2700 0.040	1728 0.078 2160 0.062	1200 0.112 1800 0.089	882 0.152 1543 0.122	675 0.199 1350 0.159	533 0.251 1200 0.201	432 0.310 1080 0.248	357 0.376 982 0.300	300 0.447 900 0.358	256 0.524 831 0.420	220 0.608 771 0.487	169 0.794 675 0.636	133 1.006 600 0.804		
1-1/2" x 3/16"	10-W-4 10-W-2	19.2 19.8 20.5 22.4	1.350	U D C D	4050 0.050 4050 0.040	2592 0.078 3240 0.062	1800 0.112 2700 0.089	1322 0.152 2314 0.122	1013 0.199 2025 0.159	800 0.251 1800 0.201	648 0.310 1620 0.248	536 0.376 1473 0.300	450 0.447 1350 0.358	383 0.524 1246 0.420	331 0.608 1157 0.487	253 0.794 1013 0.636	200 1.006 900 0.804		
1-3/4" x 3/16"	10-W-4 10-W-2	22.3 22.9 23.6 25.5	1.838	U D C D	5513 0.043 5513 0.034	3528 0.067 4410 0.053	2450 0.096 3675 0.077	1800 0.130 3150 0.104	1378 0.170 2756 0.136	1089 0.215 2450 0.172	882 0.266 2205 0.173	729 0.322 2005 0.257	613 0.383 1838 0.306	522 0.450 1696 0.360	450 0.521 1575 0.417	345 0.681 1378 0.545	272 0.862 1225 0.689		
2" x 3/16"	10-W-4 10-W-2	25.4 26.0 26.7 28.6	2.400	U D C D	7200 0.037 7200 0.030	4608 0.058 5760 0.047	3200 0.084 4800 0.067	2351 0.114 4114 0.091	1800 0.149 3600 0.119	1422 0.189 3200 0.151	1152 0.233 2880 0.186	952 0.282 2618 0.225	800 0.335 2400 0.268	682 0.393 2215 0.315	588 0.456 2057 0.365	450 0.596 1800 0.477	356 0.754 1600 0.603		
2-1/4" x 3/16"	10-W-4 10-W-2	28.5 29.1 29.8 31.7	3.038	U D C D	9113 0.033 9113 0.026	5832 0.052 7290 0.041	4050 0.074 6075 0.060	2976 0.101 5207 0.081	2278 0.132 4556 0.106	1800 0.168 2450 0.134	1458 0.207 3645 0.166	1205 0.250 3314 0.200	1013 0.298 3038 0.238	863 0.350 2804 0.280	744 0.406 2604 0.324	570 0.530 2278 0.424	450 0.670 2025 0.536		
2-1/2" x 3/16"	10-W-4 10-W-2	31.6 32.2 32.9 34.8	3.750	U D C D	11250 0.030 11250 0.024	7200 0.047	5000 0.054	3673 0.067	2813 0.091	2222 0.119	1800 0.151	1488 0.225	1250 0.268	1065 0.315	918 0.365	703 0.477	556 0.603		

Width table 10-W-4, 10-W-2

No. of Bars	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1/8" Bar	3/4	1 3/8	2	2 5/8	3 1/4	3 7/8	4 1/2	5 1/8	5 3/4	6 3/8	7	7 5/8	8 1/4	8 7/8	9 1/2	10 1/8	10 3/4	11 3/8	12
3/16" Bar	13/16	1 7/16	2 1/16	2 11/16	3 5/16	3 15/16	4 9/16	5 3/16	5 13/16	6 7/16	7 1/16	7 11/16	8 5/16	8 15/16	9 9/16	10 3/16	10 13/16	11 7/16	12 1/16
No. of Bars	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39
1/8" Bar	12 5/8	13 1/4	13 7/8	14 1/2	15 1/8	15 3/4	16 3/8	17	17 5/8	18 1/4	18 7/8	19 1/2	20 1/8	20 3/4	21 3/8	22	22 5/8	23 1/4	23 7/8
3/16" Bar	12 11/16	13 5/16	13 15/16	14 9/16	15 3/16	15 13/16	16 7/16	17 1/16	17 11/16	18 5/16	18 15/16	19 9/16	20 3/16	20 13/16	21 7/16	22 1/16	22 11/16	23 5/16	23 15/16
No. of Bars	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58
1/8" Bar	24 1/2	25 1/8	25 3/4	26 3/8	27	27 5/8	28 1/4	28 7/8	29 1/2	30 1/8	30 3/4	31 3/8	32	32 5/8	33 1/4	33 7/8	34 1/2	35 1/8	35 3/4
3/16" Bar	24 9/16	25 3/16	25 13/16	26 7/16	27 1/16	27 11/16	28 5/16	28 15/16	29 9/16	30 3/16	30 13/16	31 7/16	32 1/16	32 11/16	33 5/16	33 15/16	34 9/16	35 3/16	35 13/16

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8-W-4 8-W-2



Bar Size	Symbol	Approx. Weight psf	Sec. Mod Per Ft. Of Width	SPAN (Direction of Bearing Bar)								E = modulus of elasticity, 29,000,000 psi F = fiber stress, 18,000 psi, Material: ASTM A-1011 Deflection: Spans and loads highlighted in bright blue exceed 1/4" deflection for uniform load of 100 psf which provides safe pedestrian comfort.							
				24"	30"	36"	42"	48"	54"	60"	66"	72"	78"	84"	These can be exceeded for other types of loads with engineer's approval.				
3/4" x 1/8" Non-Serrated Only	8-W-4	8.3 8.7 9.6	0.281	U	844	540	375	276	211	167	135	66"	72"	78"	Serrated Bars: For serrated grating, the depth of grating required for a specified load is 1/4" deeper than that shown in the table.				
				D	0.099	0.155	0.223	0.304	0.397	0.503	0.621								
				C	844	675	563	482	422	375	338								
				D	0.079	0.124	0.179	0.243	0.318	0.402	0.497								
3/4" x 3/16" Non-Serrated Only	8-W-4	10.9 13.0 14.4	0.422	U	1266	810	563	413	316	250	203	167	72"	78"	Serrated Bars: For serrated grating, the depth of grating required for a specified load is 1/4" deeper than that shown in the table.				
				D	0.099	0.155	0.223	0.304	0.397	0.503	0.621	500	536	78"					
				C	1266	1013	844	723	633	563	506	497							
				D	0.079	0.124	0.179	0.243	0.318	0.402	0.497								
1" x 1/8"	8-W-4	10.9 11.3 12.2	0.500	U	1500	960	667	490	375	296	240	198	167	72"	78"	Serrated Bars: For serrated grating, the depth of grating required for a specified load is 1/4" deeper than that shown in the table.			
				D	0.074	0.116	0.168	0.228	0.298	0.377	0.466	0.563	500	536	78"				
				C	1500	1200	1000	857	750	667	600	545	500	536	78"				
				D	0.060	0.093	0.134	0.182	0.238	0.302	0.372	0.451	0.536	500	536	78"			
1" x 3/16"	8-W-4	16.0 16.9 18.3	0.750	U	2250	1440	1000	735	563	444	360	298	250	213	72"	78"	Serrated Bars: For serrated grating, the depth of grating required for a specified load is 1/4" deeper than that shown in the table.		
				D	0.074	0.116	0.168	0.228	0.298	0.377	0.466	0.563	500	536	78"				
				C	2250	1800	1500	1286	1125	1000	900	818	750	692	629	78"			
				D	0.060	0.093	0.134	0.182	0.238	0.302	0.372	0.451	0.536	500	536	78"			
1-1/4" x 1/8"	8-W-4	13.4 14.2 15.4	0.781	U	2344	1500	1042	765	586	463	375	310	260	222	191				
				D	0.060	0.093	0.134	0.182	0.238	0.302	0.372	0.451	0.536	500	536	78"			
				C	2344	1875	1563	1339	1172	1042	938	852	781	721	670	721	670	78"	
				D	0.048	0.074	0.107	0.146	0.191	0.241	0.298	0.360	0.429	0.504	0.584	500	536	78"	
1-1/4" x 3/16"	8-W-4	19.9 21.2 23.1	1.172	U	3516	2250	1563	1148	879	694	563	465	391	333	287	220	174		
				D	0.060	0.093	0.134	0.182	0.238	0.302	0.372	0.451	0.536	500	536	78"			
				C	3516	2813	2344	2009	1758	1563	1406	1278	1172	1082	1004	879	879	781	
				D	0.048	0.074	0.107	0.146	0.191	0.241	0.298	0.360	0.429	0.504	0.584	500	536	78"	
1-1/2" x 1/8"	8-W-4	16.0 16.7 18.2	1.125	U	3375	2160	1500	1102	844	667	540	446	375	320	276	211	167		
				D	0.050	0.078	0.112	0.152	0.199	0.251	0.310	0.376	0.447	0.524	0.608	0.794	1.006		
				C	3375	2700	2250	1929	1688	1500	2025	1227	1125	1038	964	1266	1266	750	
				D	0.040	0.062	0.089	0.122	0.159	0.201	0.248	0.300	0.358	0.420	0.487	0.636	0.804	78"	
1-1/2" x 3/16"	8-W-4	23.8 25.1 27.0	1.688	U	5063	3240	2250	1653	1266	1000	810	669	563	479	413	316	250		
				D	0.050	0.078	0.112	0.152	0.199	0.251	0.310	0.376	0.447	0.524	0.608	0.794	1.006		
				C	5063	4050	3375	2893	2531	2250	2025	1841	1688	1558	1446	1266	1266	1125	
				D	0.040	0.062	0.089	0.122	0.159	0.201	0.248	0.300	0.358	0.420	0.487	0.636	0.804	78"	

Width table 8-W-4, 8-W-2

No. of Bars	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
1/8" Bar	5/8	1 1/8	1 5/8	2 1/8	2 5/8	3 1/8	3 5/8	4 1/8	4 5/8	5 1/8	5 5/8	6 1/8	6 5/8	7 1/8	7 5/8	8 1/8	8 5/8	9 1/8	9 5/8	10 1/8
3/16" Bar	11/16	1 3/16	1 11/16	2 3/16	2 11/16	3 3/16	3 11/16	4 3/16	4 11/16	5 3/16	5 11/16	6 3/16	6 11/16	7 3/16	7 11/16	8 3/16	8 11/16	9 3/16	9 11/16	10 3/16
No. of Bars	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	
1/8" Bar	10 5/8	11 1/8	11 5/8	12 1/8	12 5/8	13 1/8	13 5/8	14 1/8	14 5/8	15 1/8	15 5/8	16 1/8	16 5/8	17 1/8	17 5/8	18 1/8	18 5/8	19 1/8	19 5/8	
3/16" Bar	10 11/16	11 3/16	11 11/16	12 3/16	12 11/16	13 3/16	13 11/16	14 3/16	14 11/16	15 3/16	15 11/16	16 3/16	16 11/16	17 3/16	17 11/16	18 3/16	18 11/16	19 3/16	19 11/16	
No. of Bars	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	
1/8" Bar	20 1/8	20 5/8	21 1/8	21 5/8	22 1/8	22 5/8	23 1/8	23 5/8	24 1/8	24 5/8	25 1/8	25 5/8	26 1/8	26 5/8	27 1/8	27 5/8	28 1/8	28 5/8	29 1/8	
3/16" Bar	20 3/16	20 11/16	21 3/16	21 11/16	22 3/16	22 11/16	23 3/16	23 11/16	24 3/16	24 11/16	25 3/16	25 11/16	26 3/16	26 11/16	27 3/16	27 11/16	28 3/16	28 11/16	29 3/16	
No. of Bars	60	61	62	63	64	65	66	67	68	69	70	71	72	73						
1/8" Bar	29 5/8	30 1/8	30 5/8	31 1/8	31 5/8	32 1/8	32 5/8	33 1/8	33 5/8	34 1/8	34 5/8	35 1/8	35 5/8	36 1/8						
3/16" Bar	29 11/16	30 3/16	30 11/16	31 3/16	31 11/16	32 3/16	32 11/16	33 3/16	33 11/16	34 3/16	34 11/16	35 3/16	35 11/16	36 3/16						

7-W-4, 7-W-2

Bar Size	Symbol	Approx. Weight psf	Sec. Mod Per Ft. Of Width	SPAN (Direction of Bearing Bar)								E = modulus of elasticity, 29,000,000 psi F = fiber stress, 18,000 psi Material: ASTM A-1011 Deflection: Spans and loads highlighted in bright blue exceed 1/4" deflection for uniform load of 100 psf which provides safe pedestrian comfort. These can be exceeded for other types of loads with engineer's approval.					
				24"	30"	36"	42"	48"	54"	60"	66"						
3/4" x 1/8" Non-Serrated Only	7-W-4	9.3 9.8 10.7	0.321	U 964 D 0.099 C 964 D 0.079	617 0.155 771 0.124	429 0.223 643 0.179	315 0.304 551 0.243	241 0.397 482 0.318	190 0.503 429 0.402	154 0.621 386 0.497	66"	191 0.751 526 0.601	162 0.787 527 0.629	84"	210 0.912 735 0.730	198 0.953 893 0.765	
3/4" x 3/16" Non-Serrated Only	7-W-4	13.7 14.6 16.1	0.482	U 1446 D 0.099 C 1446 D 0.079	926 0.155 1157 0.124	643 0.223 964 0.179	472 0.304 827 0.243	362 0.397 723 0.318	286 0.503 402 0.497	231 0.621 579 0.402	191 0.751 526 0.601	162 0.787 527 0.629	84"	210 0.912 735 0.730	198 0.953 893 0.765		
1" x 1/8"	7-W-4	12.3 12.7 13.7	0.571	U 1714 D 0.074 C 1714 D 0.060	1097 0.116 1371 0.093	762 0.168 1143 0.134	560 0.228 980 0.182	429 0.298 857 0.238	339 0.377 762 0.302	274 0.466 686 0.372	227 0.563 623 0.451	190 0.670 571 0.536	162 0.787 527 0.629	84"	210 0.912 735 0.730	198 0.953 893 0.765	
1" x 3/16"	7-W-4	18.1 19.0 20.5	0.857	U 2571 D 0.074 C 2571 D 0.060	1646 0.116 2057 0.093	1143 0.168 1714 0.134	840 0.228 1469 0.182	643 0.298 1286 0.238	508 0.377 1143 0.302	411 0.466 1029 0.372	340 0.563 935 0.451	286 0.670 857 0.360	243 0.787 791 0.429	210 0.912 735 0.730	198 0.953 893 0.765		
1-1/4" x 1/8"	7-W-4	15.3 16.0 17.3	0.893	U 2679 D 0.060 C 2679 D 0.048	1714 0.093 2143 0.074	1190 0.134 1786 0.107	875 0.182 1531 0.146	670 0.238 1339 0.191	529 0.302 1190 0.241	429 0.372 1071 0.298	354 0.451 974 0.360	286 0.536 893 0.429	243 0.629 824 0.360	219 0.730 670 0.504	210 0.912 735 0.730	198 0.953 893 0.765	
1-1/4" x 3/16"	7-W-4	22.5 23.9 25.8	1.339	U 4018 D 0.060 C 4018 D 0.048	2571 0.093 3214 0.074	1786 0.134 2679 0.107	1312 0.182 2296 0.146	1004 0.238 2009 0.191	794 0.302 1786 0.241	643 0.372 1607 0.298	531 0.451 1461 0.360	446 0.536 1339 0.429	380 0.629 1236 0.504	328 0.730 1148 0.584	251 0.953 1004 0.584	198 1.207 893 0.765	
1-1/2" x 1/8"	7-W-4	18.1 18.9 20.2	1.286	U 3857 D 0.050 C 3857 D 0.040	2469 0.078 3086 0.062	1714 0.112 2571 0.089	1259 0.152 2204 0.122	964 0.199 1929 0.159	762 0.251 0.201	617 0.310 0.248	510 0.376 1543 0.300	429 0.447 1403 0.358	365 0.524 1286 0.420	315 0.608 1187 0.487	241 0.794 1102 0.487	190 1.006 964 0.636	198 1.207 893 0.804
1-1/2" x 3/16"	7-W-4	26.9 28.3 30.2	1.929	U 5786 D 0.050 C 5786 D 0.040	3703 0.078 4629 0.062	2571 0.112 3857 0.089	1889 0.152 3306 0.122	1446 0.199 2893 0.159	1143 0.251 2571 0.201	926 0.310 2314 0.248	765 0.376 2104 0.201	643 0.447 1929 0.300	548 0.524 2104 0.358	472 0.608 1929 0.420	362 0.794 1780 0.487	286 1.006 1653 0.636	198 1.207 893 0.804

Width table 7-W-4

No. of Bars	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1/8" Bar	9 ₁₆	1	1 7 ₁₆	1 7 ₈	2 5 ₁₆	2 3 ₄	3 3 ₁₆	3 5 ₈	4 1 ₁₆	4 1 ₂	4 15 ₁₆	5 3 ₈	5 13 ₁₆	6 1 ₄	6 11 ₁₆	7 1 ₈	7 9 ₁₆	8	8 7 ₁₆	8 7 ₈	9 5 ₁₆	9 3 ₄
3/16" Bar	5 ₈	1 1 ₁₆	1 1 ₂	1 15 ₁₆	2 3 ₈	2 13 ₁₆	3 1 ₄	3 11 ₁₆	4 1 ₈	4 9 ₁₆	5	5 7 ₁₆	5 7 ₈	6 5 ₁₆	6 3 ₄	7 3 ₁₆	7 5 ₈	8 1 ₁₆	8 1 ₂	8 15 ₁₆	9 3 ₈	9 13 ₁₆
No. of Bars	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43		
1/8" Bar	10 3 ₁₆	10 5 ₈	11 1 ₁₆	11 1 ₂	11 15 ₁₆	12 3 ₈	12 13 ₁₆	13 1 ₄	13 11 ₁₆	14 1 ₈	14 9 ₁₆	15	15 7 ₁₆	15 7 ₈	16 5 ₁₆	16 3 ₄	17 3 ₁₆	17 5 ₈	18 1 ₁₆	18 1 ₂		
3/16" Bar	10 1 ₄	10 11 ₁₆	11 1 ₈	11 9 ₁₆	12	12 7 ₁₆	12 7 ₈	13 5 ₁₆	13 3 ₄	14 3 ₁₆	14 5 ₈	15 1 ₁₆	15 1 ₂	15 15 ₁₆	16 3 ₈	16 13 ₁₆	17 1 ₄	17 11 ₁₆	18 1 ₈	18 9 ₁₆		
No. of Bars	44	45	46	47	48	49	50	51	50	53	54	55	56	57	58	59	60	61	62	63		
1/8" Bar	18 15 ₁₆	19 3 ₈	19 13 ₁₆	20 1 ₄	20 11 ₁₆	21 1 ₈	21 9 ₁₆	22	22 7 ₁₆	22 7 ₈	23 5 ₁₆	23 3 ₄	24 3 ₁₆	24 5 ₈	25 1 ₁₆	25 1 ₂	25 15 ₁₆	26 3 ₈	26 13 ₁₆	27 1 ₄		
3/16" Bar	19	19 7 ₁₆	19 7 ₈	20 5 ₁₆	20 3 ₄	21 3 ₁₆	21 5 ₈	22 1 ₁₆	22 1 ₂	22 15 ₁₆	23 3 ₈	23 1 ₁₆	24 1 ₄	24 11 ₁₆	25 1 ₈	25 9 ₁₆	26	26 7 ₁₆	26 7 ₈	27 5 ₁₆		
No. of Bars	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83		
1/8" Bar	27 11 ₁₆	28 1 ₈	28 9 ₁₆	29	29 7 ₁₆	29 7 ₈	30 5 ₁₆	30 3 ₄	31 3 ₁₆	31 5 ₈	32 1 ₁₆	32 1 ₂	32 15 ₁₆	33 3 ₈	33 13 ₁₆	34 1 ₄	34 11 ₁₆	35 1 ₈	35 9 ₁₆	36		
3/16" Bar	27 3 ₄	28 3 ₁₆	28 5 ₈	29 1 ₁₆	29 1 ₂	29 15 ₁₆	30 3 ₈	30 13 ₁₆	31 1 ₄	31 11 ₁₆	32 1 ₈	32 9 ₁₆	33	33 7 ₁₆	33 7 ₈	34 5 ₁₆	34 3 ₄	35 3 ₁₆	35 5 ₈	36 1 ₁₆		

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Press-locked grating



Bearing bar depth (in inches)	Ped Span, Inches	Wt. Lbs. Sq. Ft.	Sec. Prop Sx*, in³	SPAN (Direction of Bearing Bar)											
				2'- 0" 24	2'- 6" 30	3'- 0" 36	3'- 6" 42	4'- 0" 48	4'- 6" 54	5'- 0" 60	5'- 6" 66	6'- 0" 72	6'- 6" 78	7'- 0" 84	8'- 0" 90
			Ix*, in⁴												
1	46	5.313	0.144	U 431	276	192	141	108	85	69	57	48	41	35	31
			D 0.074	0.116	0.168	0.228	0.298	0.377	0.466	0.563	0.670	0.787	0.912	1.047	
			C 431	345	287	246	215	192	172	157	144	133	123	115	
			D 0.060	0.093	0.134	0.182	0.238	0.302	0.372	0.451	0.536	0.629	0.730	0.838	
1.18	52	6.151	0.200	U 600	384	267	196	1650	119	96	79	67	57	49	43
			D 0.063	0.099	0.142	0.193	0.252	0.320	0.395	0.477	0.568	0.667	0.773	0.888	
			C 600	480	400	343	300	267	240	218	200	185	171	160	
			D 0.050	0.079	0.114	0.155	0.202	0.256	0.316	0.382	0.454	0.533	0.619	0.710	
1.25	55	6.46	0.224	U 673	431	299	220	168	133	108	89	75	64	55	48
			D 0.060	0.093	0.134	0.182	0.238	0.302	0.372	0.451	0.536	0.629	0.730	0.838	
			C 673	539	449	385	337	299	269	245	224	207	192	180	
			D 0.048	0.074	0.107	0.146	0.191	0.241	0.298	0.360	0.429	0.504	0.584	0.670	
1.38	59	7.055	0.274	U 821	525	365	268	205	162	131	109	91	78	67	58
			D 0.054	0.084	0.121	0.165	0.216	0.273	0.337	0.408	0.486	0.570	0.661	0.759	
			C 821	657	547	469	410	365	328	298	274	253	234	219	
			D 0.043	0.067	0.097	0.132	0.173	0.219	0.270	0.327	0.389	0.456	0.529	0.607	
1.5	63	7.606	0.323	U 970	621	431	317	242	192	155	128	108	92	79	69
			D 0.050	0.078	0.112	0.152	0.199	0.251	0.310	0.376	0.447	0.524	0.608	0.698	
			C 970	776	646	554	485	431	388	353	323	298	277	259	
			D 0.040	0.062	0.089	0.122	0.159	0.201	0.248	0.300	0.358	0.420	0.487	0.559	
1.58	65	7.981	0.359	U 1076	689	478	351	269	213	172	142	120	102	88	77
			D 0.047	0.074	0.106	0.144	0.189	0.239	0.295	0.357	0.424	0.498	0.577	0.663	
			C 1076	861	717	615	538	478	430	391	359	331	307	287	
			D 0.038	0.059	0.085	0.115	0.151	0.191	0.236	0.285	0.339	0.098	0.462	0.530	
1.77	71	8.863	0.450	U 1350	864	600	441	338	267	216	179	150	128	110	96
			D 0.042	0.066	0.095	0.129	0.168	0.213	0.263	0.318	0.379	0.444	0.515	0.592	
			C 1350	1080	900	772	675	600	540	491	450	415	386	360	
			D 0.034	0.053	0.076	0.103	0.136	0.170	0.210	0.255	0.303	0.356	0.412	0.473	
2	78	9.921	0.575	U 1724	1103	766	563	431	341	276	228	192	163	141	123
			D 0.037	0.058	0.084	0.114	0.149	0.189	0.233	0.282	0.335	0.393	0.456	0.524	
			C 1724	1379	1149	985	862	766	690	627	575	530	493	460	
			D 0.030	0.047	0.067	0.091	0.119	0.151	0.186	0.225	0.268	0.315	0.365	0.419	

Our load tables for press-locked grating are based on a bar thickness of 12 gauge. The bar heights range from 1" - 3". Loads are calculated on 21PL spacing for the bearing bar or 1-5/16 center to center.

*pedestrian span = max. recommended free span for pedestrian traffic acc. To NAAMM MBG 531

** galvanized weight per ft² (for cross bar pitch of 1,312 in)

Sx = section modulus, in³

tx = moment of inertia, in⁴

U = uniform load, psf.

D_u = deflection under concentrated load, in

C = concentrated load at midspan per ft. of grating width, lbs.

Material	ASTM A1011 CS Type B
Elasticity	F 2900000 psi
design stress	F 18000 psi
deflection	D ¼ in
concentrated load at midspan	C 100 pfw
uniform load	U 100 psf
bearing bar thickness	0.075 in
bearing bar pitch	1.312 in
reduction factor	v 0.9 in
bearing bars under Load	K 9.145

14 gauge



Bearing bar depth (in inches)	Ped Span, Inches	Wt. Lbs. Sq. Ft.	Sec. Prop Sx*, in ³	SPAN (Direction of Bearing Bar)												
				2'- 0" 24	2'- 6" 30	3'- 0" 36	3'- 6" 42	4'- 0" 48	4'- 6" 54	5'- 0" 60	5'- 6" 66	6'- 0" 72	6'- 6" 78	7'- 0" 84	8'- 0" 90	
				Ix*, in ⁴												
1	42	4.2	0.103	U	309	198	137	101	77	61	49	41	34	29	25	22
				D	0.074	0.116	0.168	0.228	0.298	0.377	0.466	0.563	0.670	0.787	0.912	1.047
			0.051	C	309	247	206	176	154	137	123	112	103	95	88	82
				D	0.060	0.093	0.134	0.182	0.238	0.302	0.372	0.451	0.536	0.629	0.730	0.838
1.18	48	4.916	0.143	U	430	275	191	140	107	85	69	57	48	41	35	31
				D	0.063	0.099	0.142	0.193	0.252	0.320	0.395	0.477	0.568	0.667	0.773	0.888
			0.085	C	430	344	287	246	215	191	172	156	143	132	123	115
				D	0.050	0.079	0.114	0.155	0.202	0.256	0.316	0.382	0.454	0.533	0.619	0.710
1.25	50	5.18	0.161	U	482	309	214	157	121	95	77	64	54	46	39	34
				D	0.060	0.093	0.134	0.182	0.238	0.302	0.372	0.451	0.536	0.629	0.730	0.838
			0.100	C	482	386	322	276	241	214	193	175	161	148	138	129
				D	0.048	0.074	0.107	0.146	0.191	0.241	0.298	0.360	0.429	0.504	0.584	0.670
1.38	54	5.644	0.196	U	588	376	261	192	147	116	94	78	65	56	48	42
				D	0.054	0.084	0.121	0.165	0.216	0.273	0.337	0.408	0.486	0.570	0.661	0.759
			0.135	C	588	470	392	336	294	261	235	214	196	181	168	157
				D	0.043	0.067	0.097	0.132	0.173	0.219	0.270	0.327	0.389	0.456	0.529	0.607
1.5	58	6.063	0.231	U	694	444	309	227	174	137	111	92	77	66	57	49
				D	0.050	0.078	0.112	0.152	0.199	0.251	0.310	0.376	0.447	0.524	0.608	0.698
			0.174	C	694	556	463	397	347	309	278	253	231	214	198	185
				D	0.040	0.062	0.089	0.122	0.159	0.201	0.248	0.300	0.358	0.420	0.487	0.559
1.58	60	6.349	0.257	U	770	493	342	252	193	152	123	102	86	73	63	55
				D	0.047	0.074	0.106	0.144	0.189	0.239	0.295	0.357	0.424	0.498	0.577	0.663
			0.203	C	770	616	514	440	385	342	308	280	257	237	220	205
				D	0.038	0.059	0.085	0.115	0.151	0.191	0.236	0.285	0.339	0.398	0.462	0.530
1.77	66	7.033	0.322	U	967	619	430	316	242	191	155	128	107	92	79	69
				D	0.042	0.066	0.095	0.129	0.168	0.213	0.263	0.318	0.379	0.444	0.515	0.592
			0.285	C	967	774	645	553	483	430	387	352	322	298	276	258
				D	0.034	0.053	0.076	0.103	0.135	0.170	0.210	0.255	0.303	0.356	0.412	0.473
2	72	7.848	0.412	U	1235	790	549	403	309	244	198	163	137	117	101	88
				D	0.037	0.058	0.084	0.114	0.149	0.189	0.233	0.282	0.335	0.393	0.456	0.524
			0.412	C	1235	988	823	705	617	549	494	449	412	380	353	329
				D	0.030	0.047	0.067	0.091	0.119	0.151	0.186	0.225	0.268	0.315	0.365	0.419

*pedestrian span = max. recommended free span for pedestrian traffic acc. To NAAMM MBG 531

** galvanized weight per ft² (for cross bar pitch of 1,312 in)

Sx = section modulus, in³

tx = moment of inertia, in⁴

U = uniform load, psf.

D_u = deflection under concentrated load, in

C = concentrated load at midspan per ft. of grating width, lbs.

Material	ASTM A1011 CS Type B	
Elasticity	F	2900000 psi
design stress	F	18000 psi
deflection	D	¼ in
concentrated load at midspan	C	100 pfw
uniform load	U	100 psf
bearing bar thickness		0.075 in
bearing bar pitch		1.312 in
reduction factor	v	0.9 in
bearing bars under Load	K	9.145

Heavy duty grating

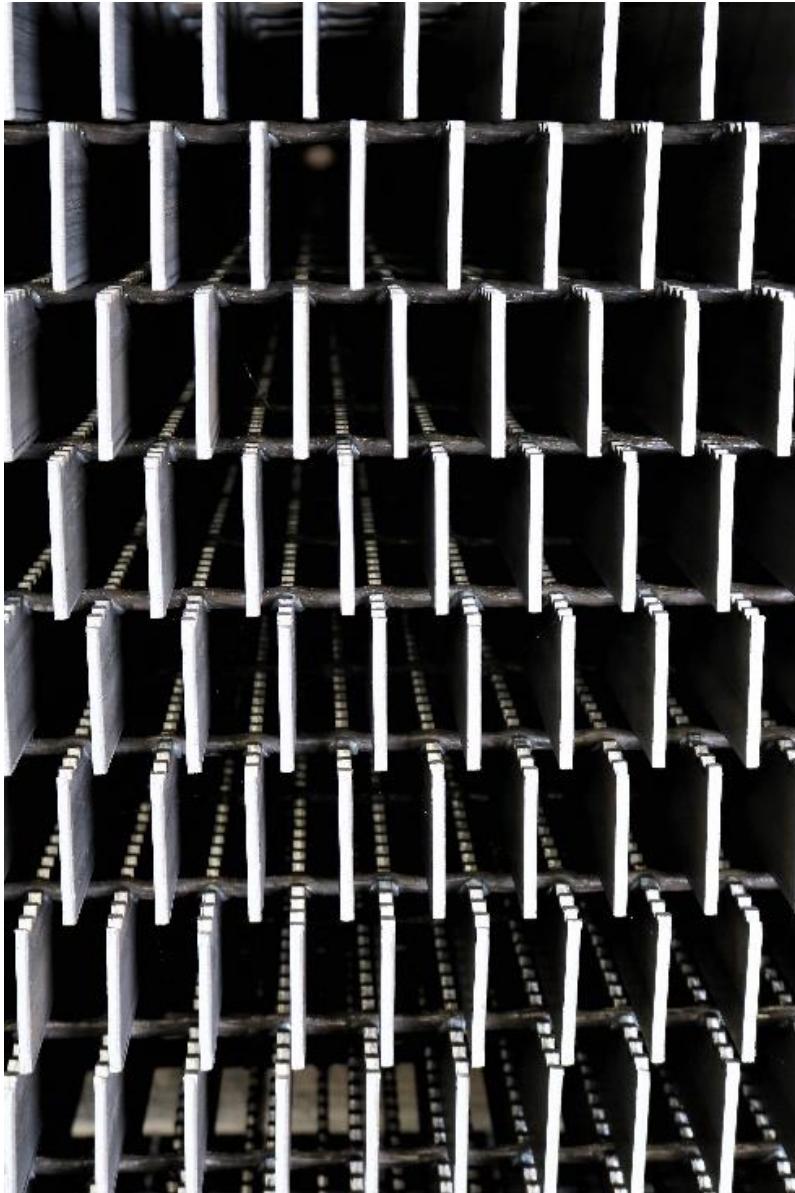
Welded gratings are particularly suitable as heavy duty grating. By pressing and welding to form a homogeneous unit of all intersection points, high shear forces can be absorbed. Depending on static or dynamic loading, heavy duty gratings can be provided for many applications, depending on the clear span. We recommend that you allow our experienced structural engineers

who are familiar with these products to calculate special loading requirements.

Heavy duty gratings are especially sturdy, able to carry heavy loads and maintain high levels of use over many years. They excel in their durability, strength and safety factor. The standard widths are 2' and 3'. Standard lengths are 20' and 24'. Standard bearing bars are 1/4", 5/16" and 3/8" thick. The bars

are ranging from a 1" through 8" depth allowing the fabrication of unique shapes and sizes for trench drains to large expanses where gratings are required to support heavy rolling-equipment. Typical heavy duty load areas are, for example, airfields, industrial plants, truck and bus terminals, parking lots and railroad yards. Among the numerous possible applications are flooring driveways, subway and tunnel ventilation grilles, curb inlet grates, ramps, docks, etc.

Serration on heavy duty welded gratings is available on bars with a thickness of up to 3/8" to provide additional traction for rolling loads.





15-H-4, 15-H-2

Bar Size	Symbol	Approx. Weight psf	Sec. Mod Per Ft. Of Width	SPAN (Direction of Bearing Bar)												
					24"	30"	36"	42"	48"	54"	60"	66"	72"			
1" x 1/4"	15-H-4	11.7	0.533	U	1,778	1,138	790	580	444	351	284	235	198	145	111	444
	15-H-2	12.4		C	1,778	1,422	1,185	1,016	889	790	711	646	593	508	444	
1" x 5/16"	15-H-4	14.9	0.667	U	2,222	1,422	988	726	556	439	356	294	247	181	139	556
	15-H-2	16.1		C	2,222	1,778	1,481	1,270	1,111	988	889	808	741	635	556	
1" x 3/8"	15-H-4	17.7	0.800	U	2,667	1,707	1,185	871	667	527	427	353	296	218	167	667
	15-H-2	18.8		C	2,667	2,133	1,778	1,524	1,333	1,185	1,067	970	889	762	667	
1-1/4" x 1/4"	15-H-4	14.5	0.833	U	2,778	1,778	1,235	907	694	549	444	367	309	227	174	694
	15-H-2	15.1		C	2,778	2,222	1,852	1,587	1,389	1,235	1,111	1,010	926	794	694	
1-1/4" x 5/16"	15-H-4	18.4	1.042	U	3,472	2,222	1,543	1,134	868	686	556	459	386	283	217	868
	15-H-2	19.6		C	3,472	2,778	2,315	1,984	1,736	1,543	1,389	1,263	1,157	992	868	
1-1/4" x 3/8"	15-H-4	21.9	1.250	U	4,167	2,667	1,852	1,361	1,042	823	667	551	463	340	260	1,042
	15-H-2	22.9		C	4,167	3,333	2,778	2,381	2,083	1,852	1,667	1,515	1,389	1,190	1,042	
1-1/2" x 1/4"	15-H-4	17.3	1.200	U	4,000	2,560	1,778	1,306	1,000	790	640	529	444	327	250	1,000
	15-H-2	17.9		C	4,000	3,200	2,667	2,286	2,000	1,778	1,600	1,455	1,333	1,143	1,000	
1-1/2" x 5/16"	15-H-4	21.9	1.500	U	5,000	3,200	2,222	1,633	1,250	988	800	661	556	408	313	1,250
	15-H-2	23.1		C	5,000	4,000	3,333	2,857	2,500	2,222	2,000	1,818	1,667	1,429	1,250	
1-1/2" x 3/8"	15-H-4	26.0	1.800	U	6,000	3,840	2,667	1,959	1,500	1,185	960	793	667	490	375	1,500
	15-H-2	27.1		C	6,000	4,800	4,000	3,429	3,000	2,667	2,400	2,182	2,000	1,714	1,500	
1-3/4" x 1/4"	15-H-4	20.1	1.633	U	5,444	3,484	2,420	1,778	1,361	1,075	871	720	605	444	340	1,361
	15-H-2	20.7		C	5,444	4,356	3,630	3,111	2,722	2,420	2,178	1,980	1,815	1,556	1,361	
1-3/4" x 5/16"	15-H-4	25.3	2.042	U	6,806	4,356	3,025	2,222	1,701	1,344	1,089	900	756	556	425	1,701
	15-H-2	26.8		C	6,806	5,444	4,537	3,889	3,403	3,025	2,722	2,475	2,269	1,944	1,701	
1-3/4" x 3/8"	15-H-4	30.1	2.450	U	8,167	5,227	3,630	2,667	2,042	1,613	1,307	1,080	907	667	510	2,042
	15-H-2	31.3		C	8,167	6,533	5,444	4,667	4,083	3,630	3,267	2,970	2,722	2,333	2,042	
2" x 1/4"	15-H-4	22.8	2.133	U	7,111	4,551	3,160	2,322	1,778	1,405	1,138	940	790	580	444	1,778
	15-H-2	23.5		C	7,111	5,689	4,741	4,063	3,556	3,160	2,844	2,586	2,370	2,032	1,778	
2" x 5/16"	15-H-4	28.8	2.667	U	8,889	5,689	3,951	2,902	2,222	1,756	1,422	1,175	988	726	556	2,222
	15-H-2	29.9		C	8,889	7,111	5,926	5,079	4,444	3,951	3,556	3,232	2,963	2,540	2,222	
2" x 3/8"	15-H-4	34.2	3.200	U	10,667	6,827	4,741	3,483	2,667	2,107	1,707	1,410	1,185	871	667	2,667
	15-H-2	35.4		C	10,667	8,533	7,111	6,095	5,333	4,741	4,267	3,879	3,556	3,048	2,667	
2-1/4" x 1/4"	15-H-4	25.6	2.700	U	9,000	5,760	4,000	2,939	2,250	1,778	1,440	1,190	1,000	735	563	2,250
	15-H-2	26.3		C	9,000	7,200	6,000	5,143	4,500	4,000	3,600	3,273	3,000	2,571	2,250	
2-1/4" x 5/16"	15-H-4	32.3	3.375	U	11,250	7,200	5,000	3,673	2,813	2,222	1,800	1,488	1,250	918	703	2,813
	15-H-2	33.4		C	11,250	9,000	7,500	6,429	5,625	5,000	4,500	4,091	3,750	3,214	2,813	
2-1/4" x 3/8"	15-H-4	38.4	4.050	U	13,500	8,640	6,000	4,408	3,375	2,667	2,160	1,785	1,500	1,102	844	3,375
	15-H-2	39.6		C	13,500	10,800	9,000	7,714	6,750	6,000	5,400	4,909	4,500	3,857	3,375	
2-1/2" x 1/4"	15-H-4	28.4	3.333	U	11,111	7,111	4,938	3,628	2,778	2,195	1,778	1,469	1,235	907	694	2,778
	15-H-2	29.1		C	11,111	8,889	7,407	6,349	5,556	4,938	4,444	4,040	3,704	3,175	2,778	
2-1/2" x 5/16"	15-H-4	35.7	4.167	U	13,889	8,889	6,173	4,535	3,472	2,743	2,222	1,837	1,543	1,134	868	3,472
	15-H-2	36.9		C	13,889	11,111	9,259	7,937	6,944	6,173	5,556	5,051	4,630	3,968	3,472	
2-1/2" x 3/8"	15-H-4	42.6	5.000	U	16,667	10,667	7,407	5,442	4,167	3,292	2,667	2,204	1,852	1,361	1,042	4,167
	15-H-2	43.7		C	16,667	13,333	11,111	9,524	8,333	7,407	6,667	6,061	5,556	4,762	4,167	
2-3/4" x 1/4"	15-H-4	31.2	4.033	U	13,444	8,604	5,975	4,390	3,361	2,656	2,151	1,778	1,494	1,098	840	3,361
	15-H-2	31.8		C	13,444	10,756	8,963	7,683	6,722	5,975	5,378	4,889	4,481	3,841	3,361	
2-3/4" x 5/16"	15-H-4	39.6	5.042	U	16,806	10,756	7,469	5,488	4,201	3,320	2,689	2,222	1,867	1,372	1,050	4,201
	15-H-2	41.1		C	16,806	13,444	11,204	9,603	8,403	7,469	6,722	6,111	5,602	4,802	4,201	
2-3/4" x 3/8"	15-H-4	47.1	6.050	U	20,167	12,907	8,963	6,585	5,042	3,984	3,227	2,667	2,241	1,646	1,260	5,042
	15-H-2	48.7		C	20,167	16,133	13,444	11,524	10,083	8,963	8,067	7,333	6,722	5,762	5,042	
Bar Size	Symbol	Approx. Weight psf	Sec. Mod Per Ft. Of Width	SPAN (Direction of Bearing Bar)												
					24"	30"	36"	42"	48"	54"	60"	66"	72"	84"	96"	
3" x 1/4"	15-H-4	34.4	4.800	U	16,000	10,240	7,111	5,224	4,000	3,160	2,560	2,116	1,778	1,306	1,000	4,000
	15-H-2	35.5		C	16,000	12,800	10,667	9,143	8,000	7,111	6,400	5,818	5,333	4,571	4,000	
3" x 5/16"	15-H-4	43.1	6.000	U	20,000	12,800	8,889	6,531	5,000	3,951	3,200	2,645	2,222	1,633	1,250	5,000
	15-H-2	44.6		C	20,000	16,000	13,333	11,429	10,000	8,889	8,000	7,273	6,667	5,714	5,000	
3" x 3/8"	15-H-4	51.3	7.200	U	24,000	15,360	10,667	7,837	6,000	4,741	3,840	3,174	2,667	1,959	1,500	6,000
	15-H-2	52.8		C	24,000	19,200	16,000	13,714	12,000	10,667	9,600	8,727	8,000	6,857	6,000	

U = Allowable uniform load, psf.

C = Allowable concentrated load per ft. of grating width, lbs.

Allowable stress = 20,000 psi

Material: ASTM A-36

Serrated Bars: For serrated grating, the depth of grating required for a specified load is 1/4" deeper than that shown in the table.

General: Loads and deflections are theoretical and based on static loading.

Deflection: Spans and loads highlighted in bright blue exceed 1/4" deflection for uniform loads of 100 psf which provides maximum pedestrian comfort. These can be exceeded for other types of loads with engineer's approval.

For deflections of uniform, concentrated and vehicular loads, consult Lichtgitter's engineering departments.

	15-H-2																
3-1/4" x 1/4"	15-H-4	37.2	5.633	U	18,778	12,018	8,346	6,132	4,694	3,709	3,004	2,483	2,086	1,533	1,174		
	15-H-2	38.3		C	18,778	15,022	12,519	10,730	9,389	8,346	7,511	6,828	6,259	5,365	4,694		
3-1/4" x 5/16"	15-H-4	46.5	7.042	U	23,472	15,022	10,432	7,664	5,868	4,636	3,756	3,104	2,608	1,916	1,467		
	15-H-2	48.1		C	23,472	18,778	15,648	13,413	11,736	10,432	9,389	8,535	7,824	6,706	5,868		
3-1/4" x 3/8"	15-H-4	55.4	8.450	U	28,167	18,027	12,519	9,197	7,042	5,564	4,507	3,725	3,130	2,299	1,760		
	15-H-2	56.9		C	28,167	22,533	18,778	16,095	14,083	12,519	11,267	10,242	9,389	8,048	7,042		
3-1/2" x 1/4"	15-H-4	39.9	6.533	U	21,778	13,938	9,679	7,111	5,444	4,302	3,484	2,880	2,420	1,778	1,361		
	15-H-2	41.1		C	21,778	17,422	14,519	12,444	10,889	9,679	8,711	7,919	7,259	6,222	5,444		
3-1/2" x 5/16"	15-H-4	49.9	8.167	U	27,222	17,422	12,099	8,889	6,806	5,377	4,356	3,600	3,025	2,222	1,701		
	15-H-2	51.5		C	27,222	21,778	18,148	15,556	13,611	12,099	10,889	9,899	9,074	7,778	6,806		
3-1/2" x 3/8"	15-H-4	59.5	9.800	U	32,667	20,907	14,519	10,667	8,167	6,453	5,227	4,320	3,630	2,667	2,042		
	15-H-2	61.1		C	32,667	26,133	21,778	18,667	16,333	14,519	13,067	11,879	10,889	9,333	8,167		
4" x 1/4"	15-H-4	45.5	8.533	U	28,444	18,204	12,642	9,288	7,111	5,619	4,551	3,761	3,160	2,322	1,778		
	15-H-2	46.6		C	28,444	22,756	18,963	16,254	14,222	12,642	11,378	10,343	9,481	8,127	7,111		
4" x 5/16"	15-H-4	56.9	10.667	U	35,556	22,756	15,802	11,610	8,889	7,023	5,689	4,702	3,951	2,902	2,222		
	15-H-2	58.4		C	35,556	28,444	23,704	20,317	17,778	15,802	14,222	12,929	11,852	10,159	8,889		
4" x 3/8"	15-H-4	67.8	12.800	U	42,667	27,307	18,963	13,932	10,667	8,428	6,827	5,642	4,741	3,483	2,667		
	15-H-2	69.4		C	42,667	34,133	28,444	24,381	21,333	18,963	17,067	15,515	14,222	12,190	10,667		
4-1/2" x 1/4"	15-H-4	51.1	10.800	U	36,000	23,040	16,000	11,755	9,000	7,111	5,760	4,760	4,000	2,939	2,250		
	15-H-2	52.2		C	36,000	28,800	24,000	20,571	18,000	16,000	14,400	13,091	12,000	10,286	9,000		
4-1/2" x 5/16"	15-H-4	63.8	13.500	U	45,000	28,800	20,000	14,694	11,250	8,889	7,200	5,950	5,000	3,673	2,813		
	15-H-2	65.3		C	45,000	36,000	30,000	25,714	22,500	20,000	18,000	16,364	15,000	12,857	11,250		
4-1/2" x 3/8"	15-H-4	76.1	16.200	U	54,000	34,560	24,000	17,633	13,500	10,667	8,640	7,140	6,000	4,408	3,375		
	15-H-2	77.7		C	54,000	43,200	36,000	30,857	27,000	24,000	21,600	19,636	18,000	15,429	13,500		
5" x 1/4"	15-H-4	56.6	13.333	U	44,444	28,444	19,753	14,512	11,111	8,779	7,111	5,877	4,938	3,628	2,778		
	15-H-2	57.7		C	44,444	35,556	29,630	25,397	22,222	19,753	17,778	16,162	14,815	12,698	11,111		
5" x 5/16"	15-H-4	70.7	16.667	U	55,556	35,556	24,691	18,141	13,889	10,974	8,889	7,346	6,173	4,535	3,472		
	15-H-2	72.3		C	55,556	44,444	37,037	31,746	27,778	24,691	22,222	20,202	18,519	15,873	13,889		
5" x 3/8"	15-H-4	84.4	20.000	U	66,667	42,667	29,630	21,769	16,667	13,169	10,667	8,815	7,407	5,442	4,167		
	15-H-2	85.9		C	66,667	53,333	44,444	38,095	33,333	29,630	26,667	24,242	22,222	19,048	16,667		
6" x 1/4"	15-H-4	67.7	19.200	U	64,000	40,960	28,444	20,898	16,000	12,642	10,240	8,463	7,111	5,224	4,000		
	15-H-2	68.8		C	64,000	51,200	42,667	36,571	32,000	28,444	25,600	23,273	21,333	18,286	16,000		
6" x 5/16"	15-H-4	84.6	24.000	U	80,000	51,200	35,556	26,122	20,000	15,802	12,800	10,579	8,889	6,531	5,000		
	15-H-2	86.1		C	80,000	64,000	53,333	45,714	40,000	35,556	32,000	29,091	26,667	22,857	20,000		
6" x 3/8"	15-H-4	100.9	28.800	U	96,000	61,440	42,667	31,347	24,000	18,963	15,360	12,694	10,667	7,837	6,000		
	15-H-2	102.5		C	96,000	76,800	64,000	54,857	48,000	42,667	38,400	34,909	32,000	27,429	24,000		

Width table 15-H-4, 15-H-2

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



19-H-4, 19-H-2

Bar Size	Symbol	Approx. Weight psf	Sec. Mod Per Ft. Of Width	SPAN (Direction of Bearing Bar)												
					24"	30"	36"	42"	48"	54"	60"	66"	72"	84"	96"	
1" x 1/4"	19-H-4	9.5	0.421	U	1,404	898	624	458	351	277	225	186	156	115	88	
	19-H-2	10.1		C	1,404	1,123	936	802	702	624	561	510	468	401	351	
1" x 5/16"	19-H-4	12.1	0.526	U	1,754	1,123	780	573	439	347	281	232	195	143	110	
	19-H-2	13.3		C	1,754	1,404	1,170	1,003	877	780	702	638	585	501	439	
1" x 3/8"	19-H-4	14.3	0.632	U	2,105	1,347	936	687	526	416	337	278	234	172	132	
	19-H-2	15.4		C	2,105	1,684	1,404	1,203	1,053	936	842	766	702	602	526	
1-1/4" x 1/4"	19-H-4	11.7	0.658	U	2,193	1,404	975	716	548	433	351	290	244	179	137	
	19-H-2	12.3		C	2,193	1,754	1,462	1,253	1,096	975	877	797	731	627	548	
1-1/4" x 5/16"	19-H-4	14.3	0.822	U	2,741	1,754	1,218	895	685	541	439	362	305	224	171	
	19-H-2	16.0		C	2,741	2,193	1,827	1,566	1,371	1,218	1,096	997	914	783	685	
1-1/4" x 3/8"	19-H-4	17.6	0.987	U	3,289	2,105	1,462	1,074	822	650	526	435	365	269	206	
	19-H-2	18.7		C	3,289	2,632	2,193	1,880	1,645	1,462	1,316	1,196	1,096	940	822	
1-1/2" x 1/4"	19-H-4	13.9	0.947	U	3,158	2,021	1,404	1,031	789	624	505	418	351	258	197	
	19-H-2	14.5		C	3,158	2,526	2,105	1,805	1,579	1,404	1,263	1,148	1,053	902	789	
1-1/2" x 5/16"	19-H-4	17.8	1.184	U	3,947	2,526	1,754	1,289	987	780	632	522	439	322	247	
	19-H-2	18.8		C	3,947	3,158	2,632	2,256	1,974	1,754	1,579	1,435	1,316	1,128	987	
1-1/2" x 3/8"	19-H-4	20.9	1.421	U	4,737	3,032	2,105	1,547	1,184	936	758	626	526	387	296	
	19-H-2	22.0		C	4,737	3,789	3,158	2,707	2,368	2,105	1,895	1,722	1,579	1,353	1,184	
1-3/4" x 1/4"	19-H-4	16.1	1.289	U	4,298	2,751	1,910	1,404	1,075	849	688	568	478	351	269	
	19-H-2	16.7		C	4,298	3,439	2,865	2,456	2,149	1,910	1,719	1,563	1,433	1,228	1,075	
1-3/4" x 5/16"	19-H-4	20.4	1.612	U	5,373	3,439	2,388	1,754	1,343	1,061	860	710	597	439	336	
	19-H-2	21.5		C	5,373	4,298	3,582	3,070	2,686	2,388	2,149	1,954	1,791	1,535	1,343	
1-3/4" x 3/8"	19-H-4	24.2	1.934	U	6,447	4,126	2,865	2,105	1,612	1,274	1,032	853	716	526	403	
	19-H-2	25.3		C	6,447	5,158	4,298	3,684	3,224	2,865	2,579	2,344	2,149	1,842	1,612	
2" x 1/4"	19-H-4	18.3	1.684	U	5,614	3,593	2,495	1,833	1,404	1,109	898	742	624	458	351	
	19-H-2	18.9		C	5,614	4,491	3,743	3,208	2,807	2,495	2,246	2,041	1,871	1,604	1,404	
2" x 5/16"	19-H-4	23.1	2.105	U	7,018	4,491	3,119	2,291	1,754	1,386	1,123	928	780	573	439	
	19-H-2	24.6		C	7,018	5,614	4,678	4,010	3,509	3,119	2,807	2,552	2,339	2,005	1,754	
2" x 3/8"	19-H-4	27.5	2.526	U	8,421	5,389	3,743	2,750	2,105	1,663	1,347	1,114	936	687	526	
	19-H-2	28.6		C	8,421	6,737	5,614	4,812	4,211	3,743	3,368	3,062	2,807	2,406	2,105	
2-1/4" x 1/4"	19-H-4	20.5	2.132	U	7,105	4,547	3,158	2,320	1,776	1,404	1,137	940	789	580	444	
	19-H-2	21.1		C	7,105	5,684	4,737	4,060	3,553	3,158	2,842	2,584	2,368	2,030	1,776	
2-1/4" x 5/16"	19-H-4	25.9	2.664	U	8,882	5,684	3,947	2,900	2,220	1,754	1,421	1,174	987	725	555	
	19-H-2	27.0		C	8,882	7,105	5,921	5,075	4,441	3,947	3,553	3,230	2,961	2,538	2,220	
2-1/4" x 3/8"	19-H-4	30.8	3.197	U	10,658	6,821	4,737	3,480	2,664	2,105	1,705	1,409	1,184	870	666	
	19-H-2	31.9		C	10,658	8,526	7,105	6,090	5,329	4,737	4,263	3,876	3,553	3,045	2,664	
2-1/2" x 1/4"	19-H-4	22.7	2.632	U	8,772	5,614	3,899	2,864	2,193	1,733	1,404	1,160	975	716	548	
	19-H-2	23.3		C	8,772	7,018	5,848	5,013	4,386	3,899	3,509	3,190	2,924	2,506	2,193	
2-1/2" x 5/16"	19-H-4	28.6	3.289	U	10,965	7,018	4,873	3,580	2,741	2,166	1,754	1,450	1,218	895	685	
	19-H-2	29.8		C	10,965	8,772	7,310	6,266	5,482	4,873	4,386	3,987	3,655	3,133	2,741	
2-1/2" x 3/8"	19-H-4	34.1	3.947	U	13,158	8,421	5,848	4,296	3,289	2,599	2,105	1,740	1,462	1,074	822	
	19-H-2	35.2		C	13,158	10,526	8,772	7,519	6,579	5,848	5,263	4,785	4,386	3,759	3,289	
2-3/4" x 1/4"	19-H-4	24.9	3.184	U	10,614	6,793	4,717	3,466	2,654	2,097	1,698	1,404	1,179	866	663	
	19-H-2	25.6		C	10,614	8,491	7,076	6,065	5,307	4,717	4,246	3,860	3,538	3,033	2,654	
2-3/4" x 5/16"	19-H-4	31.8	3.980	U	13,268	8,491	5,897	4,332	3,317	2,621	2,123	1,754	1,474	1,083	829	
	19-H-2	33.3		C	13,268	10,614	8,845	7,581	6,634	5,897	5,307	4,825	4,423	3,791	3,317	
2-3/4" x 3/8"	19-H-4	37.8	4.776	U	15,921	10,189	7,076	5,199	3,980	3,145	2,547	2,105	1,769	1,300	995	
	19-H-2	39.3		C	15,921	12,737	10,614	9,098	7,961	7,076	6,368	5,789	5,307	4,549	3,980	
Bar Size	Symbol	Approx. Weight psf	Sec. Mod Per Ft. Of Width		SPAN (Direction of Bearing Bar)											
3" x 1/4"	19-H-4	27.8	3.789	U	12,632	8,084	5,614	4,125	3,158	2,495	2,021	1,670	1,404	1,031	789	
	19-H-2	28.7		C	12,632	10,105	8,421	7,218	6,316	5,614	5,053	4,593	4,211	3,609	3,158	
3" x 5/16"	19-H-4	34.5	4.737	U	15,789	10,105	7,018	5,156	3,947	3,119	2,526	2,088	1,754	1,289	987	
	19-H-2	36.1		C	15,789	12,632	10,526	9,023	7,895	7,018	6,316	5,742	5,263	4,511	3,947	

3" x 3/8"	19-H-4 19-H-2	41.1 42.6	5.684	U C	18,947 18,947	12,126 15,158	8,421 12,632	6,187 10,827	4,737 9,474	3,743 8,421	3,032 7,579	2,505 6,890	2,105 6,316	1,547 5,414	1,184 4,737
3-1/4" x 1/4"	19-H-4 19-H-2	29.8 30.9	4.447	U C	14,825 14,825	9,488 11,860	6,589 9,883	4,841 8,471	3,706 7,412	2,928 6,589	2,372 5,930	1,960 5,391	1,647 4,942	1,210 4,236	927 3,706
3-1/4" x 5/16"	19-H-4 19-H-2	37.3 38.8	5.559	U C	18,531 18,531	11,860 14,825	8,236 12,354	6,051 10,589	4,633 9,265	3,660 8,236	2,965 7,412	2,450 6,738	2,059 6,177	1,513 5,294	1,158 4,633
3-1/4" x 3/8"	19-H-4 19-H-2	44.4 45.9	6.671	U C	22,237 22,237	14,232 17,789	9,883 14,825	7,261 12,707	5,559 11,118	4,392 9,883	3,558 8,895	2,940 8,086	2,471 7,412	1,815 6,353	1,390 5,559
3-1/2" x 1/4"	19-H-4 19-H-2	31.9 33.1	5.158	U C	17,193 17,193	11,004 13,754	7,641 11,462	5,614 9,825	4,298 8,596	3,396 7,641	2,751 6,877	2,273 6,252	1,910 5,731	1,404 4,912	1,075 4,298
3-1/2" x 5/16"	19-H-4 19-H-2	40.0 41.6	6.447	U C	21,491 21,491	13,754 17,193	9,552 14,327	7,018 12,281	5,373 10,746	4,245 9,552	3,439 8,596	2,842 7,815	2,388 7,164	1,754 6,140	1,343 5,373
3-1/2" x 3/8"	19-H-4 19-H-2	47.6 49.2	7.737	U C	25,789 25,789	16,505 20,632	11,462 17,193	8,421 14,737	6,447 12,895	5,094 11,462	4,126 10,316	3,410 9,378	2,865 8,596	2,105 7,368	1,612 6,447
4" x 1/4"	19-H-4 19-H-2	36.4 37.5	6.737	U C	22,456 22,456	14,372 17,965	9,981 14,971	7,333 12,832	5,614 11,228	4,436 9,981	3,593 8,982	2,969 8,166	2,495 7,485	1,833 6,416	1,404 5,614
4" x 5/16"	19-H-4 19-H-2	45.3 47.1	8.421	U C	28,070 28,070	17,965 22,456	12,476 18,713	9,166 16,040	7,018 14,035	5,545 12,476	4,491 11,228	3,712 10,207	3,119 9,357	2,291 8,020	1,754 7,018
4" x 3/8"	19-H-4 19-H-2	54.2 55.8	10.105	U C	33,684 33,684	21,558 26,947	14,971 22,456	10,999 19,248	8,421 16,842	6,654 14,971	5,389 13,474	4,454 12,249	3,743 11,228	2,750 9,624	2,105 8,421
4-1/2" x 1/4"	19-H-4 19-H-2	40.8 41.9	8.526	U C	28,421 28,421	18,189 22,737	12,632 18,947	9,280 16,241	7,105 14,211	5,614 12,632	4,547 11,368	3,758 10,335	3,158 9,474	2,320 8,120	1,776 7,105
4-1/2" x 5/16"	19-H-4 19-H-2	51.0 52.6	10.658	U C	35,526 35,526	22,737 28,421	15,789 23,684	11,600 20,301	8,882 17,763	7,018 15,789	5,684 14,211	4,698 12,919	3,947 11,842	2,900 10,150	2,220 8,882
4-1/2" x 3/8"	19-H-4 19-H-2	60.8 62.4	12.789	U C	42,632 42,632	27,284 34,105	18,947 28,421	13,921 24,361	10,658 21,316	8,421 18,947	6,821 17,053	5,637 15,502	4,737 14,211	3,480 12,180	2,664 10,658
5" x 1/4"	19-H-4 19-H-2	45.2 46.3	10.526	U C	35,088 35,088	22,456 28,070	15,595 23,392	11,457 20,050	8,772 17,544	6,931 15,595	5,614 14,035	4,640 12,759	3,899 11,696	2,864 10,025	2,193 8,772
5" x 5/16"	19-H-4 19-H-2	56.5 58.1	13.158	U C	43,860 43,860	28,070 35,088	19,493 29,240	14,322 25,063	10,965 21,930	8,664 19,493	7,018 17,544	5,800 15,949	4,873 14,620	3,580 12,531	2,741 10,965
5" x 3/8"	19-H-4 19-H-2	67.4 68.9	15.789	U C	52,632 52,632	33,684 42,105	23,392 35,088	17,186 30,075	13,158 26,316	10,396 23,392	8,421 21,053	6,960 19,139	5,848 17,544	4,296 15,038	3,289 13,158
6" x 1/4"	19-H-4 19-H-2	54.0 55.2	15.158	U C	50,526 50,526	32,337 40,421	22,456 33,684	16,498 28,872	12,632 25,263	9,981 22,456	8,084 20,211	6,681 18,373	5,614 16,842	4,125 14,436	3,158 12,632
6" x 5/16"	19-H-4 19-H-2	67.5 69.1	18.947	U C	63,158 63,158	40,421 50,526	28,070 42,105	20,623 36,090	15,789 31,579	12,476 28,070	10,105 25,263	8,351 22,967	7,018 21,053	5,156 18,045	3,947 15,789
6" x 3/8"	19-H-4 19-H-2	80.9 82.1	22.737	U C	75,789 75,789	48,505 60,632	33,684 50,526	24,748 43,308	18,947 37,895	14,971 33,684	12,126 30,316	10,022 27,560	8,421 25,263	6,187 21,654	4,737 18,947

Width table 19-H-4, 19-H-2

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



22-H-4, 22-H-2

Bar Size	Symbol	Approx. Weight psf	Sec. Mod Per Ft. Of Width	SPAN (Direction of Bearing Bar)												
					24"	30"	36"	42"	48"	54"	60"	66"	72"	84"	96"	
1" x 1/4"	22-H-4 22-H-2	8.3 9.0	0.364	U C	1,212 1,212	776 970	539 808	396 693	303 606	239 539	194 485	160 441	135 404	99 346	76 303	
1" x 5/16"	22-H-4 22-H-2	10.7 11.8	0.455	U C	1,515 1,515	970 1,212	673 1,010	495 866	379 758	299 673	242 606	200 551	168 505	124 433	95 379	
1" x 3/8"	22-H-4 22-H-2	12.6 13.7	0.545	U C	1,818 1,818	1,164 1,455	808 1,212	594 1,039	455 909	359 808	291 727	240 661	202 606	148 519	114 455	
1-1/4" x 1/4"	22-H-4 22-H-2	10.2 10.9	0.568	U C	1,894 1,894	1,212 1,515	842 1,263	618 1,082	473 947	374 842	303 758	250 689	210 631	155 541	118 473	
1-1/4" x 5/16"	22-H-4 22-H-2	13.1 14.2	0.710	U C	2,367 2,367	1,515 1,894	1,052 1,578	773 1,353	592 1,184	468 1,052	379 947	313 861	263 789	193 676	148 592	
1-1/4" x 3/8"	22-H-4 22-H-2	15.4 16.5	0.852	U C	2,841 2,841	1,818 2,273	1,263 1,894	928 1,623	710 1,420	561 1,263	455 1,136	376 1,033	316 947	232 812	178 710	
1-1/2" x 1/4"	22-H-4 22-H-2	12.1 12.8	0.818	U C	2,727 2,727	1,745 2,182	1,212 1,818	891 1,558	682 1,364	539 1,212	436 1,091	361 992	303 909	223 779	170 682	
1-1/2" x 5/16"	22-H-4 22-H-2	15.4 16.8	1.023	U C	3,409 3,409	2,182 2,727	1,515 2,273	1,113 1,948	852 1,705	673 1,515	545 1,364	451 1,240	379 1,136	278 974	213 852	
1-1/2" x 3/8"	22-H-4 22-H-2	18.3 19.4	1.227	U C	4,091 4,091	2,618 3,273	1,818 2,727	1,336 2,338	1,023 2,045	808 1,818	655 1,636	541 1,488	455 1,364	334 1,169	256 1,023	
1-3/4" x 1/4"	22-H-4 22-H-2	14.0 14.7	1.114	U C	3,712 3,712	2,376 2,970	1,650 2,475	1,212 2,121	928 1,856	733 1,650	594 1,485	491 1,350	412 1,237	303 1,061	232 928	
1-3/4" x 5/16"	22-H-4 22-H-2	17.8 19.0	1.392	U C	4,640 4,640	2,970 3,712	2,062 3,093	1,515 2,652	1,160 2,320	917 2,062	742 1,856	614 1,687	516 1,547	379 1,326	290 1,160	
1-3/4" x 3/8"	22-H-4 22-H-2	21.4 22.3	1.670	U C	5,568 5,568	3,564 4,455	2,475 3,712	1,818 3,182	1,392 2,784	1,100 2,475	891 2,227	736 2,025	619 1,856	455 1,591	348 1,392	
2" x 1/4"	22-H-4 22-H-2	16.0 16.6	1.455	U C	4,848 4,848	3,103 3,879	2,155 3,232	1,583 2,771	1,212 2,424	958 2,155	776 1,939	641 1,763	539 1,616	396 1,385	303 1,212	
2" x 5/16"	22-H-4 22-H-2	20.2 21.3	1.818	U C	6,061 6,061	3,879 4,848	2,694 4,040	1,979 3,463	1,515 3,030	1,197 2,694	970 2,424	801 2,204	673 2,020	495 1,732	379 1,515	
2" x 3/8"	22-H-4 22-H-2	24.0 25.1	2.182	U C	7,273 7,273	4,655 5,818	3,232 4,848	2,375 4,156	1,818 3,636	1,437 3,232	1,164 2,909	962 2,645	808 2,424	594 2,078	455 1,818	
2-1/4" x 1/4"	22-H-4 22-H-2	17.9 18.5	1.841	U C	6,136 6,136	3,927 4,909	2,727 4,091	2,004 3,506	1,534 3,068	1,212 2,727	982 2,455	811 2,231	682 2,045	501 1,753	384 1,534	
2-1/4" x 5/16"	22-H-4 22-H-2	22.6 23.7	2.301	U C	7,670 7,670	4,909 6,136	3,409 5,114	2,505 4,383	1,918 3,835	1,515 3,409	1,227 3,068	1,014 2,789	852 2,557	626 2,192	479 1,918	
2-1/4" x 3/8"	22-H-4 22-H-2	26.9 28.0	2.761	U C	9,205 9,205	5,891 7,364	4,091 6,136	3,006 5,260	2,301 4,602	1,818 4,091	1,473 3,682	1,217 3,347	1,023 3,068	751 2,630	575 2,301	
2-1/2" x 1/4"	22-H-4 22-H-2	19.8 20.4	2.273	U C	7,576 7,576	4,848 6,061	3,367 5,051	2,474 4,329	1,894 3,788	1,496 3,367	1,212 3,030	1,002 2,755	842 2,525	618 2,165	473 1,894	
2-1/2" x 5/16"	22-H-4 22-H-2	25.0 26.1	2.841	U C	9,470 9,470	6,061 7,576	4,209 6,313	3,092 5,411	2,367 4,735	1,871 4,209	1,515 3,788	1,252 3,444	1,052 3,157	773 2,706	592 2,367	
2-1/2" x 3/8"	22-H-4 22-H-2	29.7 30.8	3.409	U C	11,364 11,364	7,273 9,091	5,051 7,576	3,711 6,494	2,841 5,682	2,245 5,051	1,818 4,545	1,503 4,132	1,263 3,788	928 3,247	710 2,841	
2-3/4" x 1/4"	22-H-4 22-H-2	21.7 22.3	2.750	U C	9,167 9,167	5,867 7,333	4,074 6,111	2,993 5,238	2,292 4,583	1,811 4,074	1,467 3,667	1,212 3,333	1,019 3,056	748 2,619	573 2,292	
2-3/4" x 5/16"	22-H-4 22-H-2	27.8 29.3	3.438	U C	11,458 11,458	7,333 9,167	5,093 7,639	3,741 6,548	2,865 5,729	2,263 5,093	1,833 4,583	1,515 4,167	1,273 3,819	935 3,274	716 2,865	
2-3/4" x 3/8"	22-H-4 22-H-2	33.0 34.5	4.125	U C	13,750 13,750	8,800 11,000	6,111 9,167	4,490 7,857	3,438 6,875	2,716 6,111	2,200 5,500	1,818 5,000	1,528 4,583	1,122 3,929	859 3,438	
Bar Size	Symbol	Approx. Weight psf	Sec. Mod Per Ft. Of Width		SPAN (Direction of Bearing Bar)											
3" x 1/4"	22-H-4 22-H-2	24.1 25.2	3.273	U C	10,909 10,909	6,982 8,727	4,848 7,273	3,562 6,234	2,727 5,455	2,155 4,848	1,745 4,364	1,443 3,967	1,212 3,636	891 3,117	682 2,727	

3" x 5/16"	22-H-4 22-H-2	30.2 31.7	4.091	U 13,636 8,727 6,061 C 13,636 10,909 9,091	4,453 7,792	3,409 6,818	2,694 6,061	2,182 5,455	1,803 4,959	1,515 4,545	1,113 3,896	852 3,409
3" x 3/8"	22-H-4 22-H-2	35.8 37.4	4.909	U 16,364 10,473 7,273 C 16,364 13,091 10,909	5,343 9,351	4,091 8,182	3,232 7,273	2,618 6,545	2,164 5,950	1,818 5,455	1,336 4,675	1,023 4,091
3-1/4" x 1/4"	22-H-4 22-H-2	26.0 27.1	3.841	U 12,803 8,194 5,690 C 12,803 10,242 8,535	4,181 7,316	3,201 6,402	2,529 5,690	2,048 5,121	1,693 4,656	1,423 4,268	1,045 3,658	800 3,201
3-1/4" x 5/16"	22-H-4 22-H-2	32.6 34.1	4.801	U 16,004 10,242 7,113 C 16,004 12,803 10,669	5,226 9,145	4,001 8,002	3,161 7,113	2,561 6,402	2,116 5,820	1,778 5,335	1,306 4,573	1,000 4,001
3-1/4" x 3/8"	22-H-4 22-H-2	38.7 40.2	5.761	U 19,205 12,291 8,535 C 19,205 15,364 12,803	6,271 10,974	4,801 9,602	3,793 8,535	3,073 7,682	2,539 6,983	2,134 6,402	1,568 5,487	1,200 4,801
3-1/2" x 1/4"	22-H-4 22-H-2	27.9 29.0	4.455	U 14,848 9,503 6,599 C 14,848 11,879 9,899	4,848 8,485	3,712 7,424	2,933 6,599	2,376 5,939	1,963 5,399	1,650 4,949	1,212 4,242	928 3,712
3-1/2" x 5/16"	22-H-4 22-H-2	34.9 36.5	5.568	U 18,561 11,879 8,249 C 18,561 14,848 12,374	6,061 10,606	4,640 9,280	3,666 8,249	2,970 7,424	2,454 6,749	2,062 6,187	1,515 5,303	1,160 4,640
3-1/2" x 3/8"	22-H-4 22-H-2	41.6 43.1	6.682	U 22,273 14,255 9,899 C 22,273 17,818 14,848	7,273 12,727	5,568 11,136	4,400 9,899	3,564 8,909	2,945 8,099	2,475 7,424	1,818 6,364	1,392 5,568
4" x 1/4"	22-H-4 22-H-2	31.7 32.9	5.818	U 19,394 12,412 8,620 C 19,394 15,515 12,929	6,333 11,082	4,848 9,697	3,831 8,620	3,103 7,758	2,564 7,052	2,155 6,465	1,583 5,541	1,212 4,848
4" x 5/16"	22-H-4 22-H-2	39.7 41.2	7.273	U 24,242 15,515 10,774 C 24,242 19,394 16,162	7,916 13,853	6,061 12,121	4,789 10,774	3,879 9,697	3,206 8,815	2,694 8,081	1,979 6,926	1,515 6,061
4" x 3/8"	22-H-4 22-H-2	47.3 48.8	8.727	U 29,091 18,618 12,929 C 29,091 23,273 19,394	9,499 16,623	7,273 14,545	5,746 12,929	4,655 11,636	3,847 10,579	3,232 9,697	2,375 8,312	1,818 7,273
4-1/2" x 1/4"	22-H-4 22-H-2	35.6 36.7	7.364	U 24,545 15,709 10,909 C 24,545 19,636 16,364	8,015 14,026	6,136 12,273	4,848 10,909	3,927 9,818	3,246 8,926	2,727 8,182	2,004 7,013	1,534 6,136
4-1/2" x 5/16"	22-H-4 22-H-2	44.5 46.0	9.205	U 30,682 19,636 13,636 C 30,682 24,545 20,455	10,019 17,532	7,670 15,341	6,061 13,636	4,909 12,273	4,057 11,157	3,409 10,227	2,505 8,766	1,918 7,670
4-1/2" x 3/8"	22-H-4 22-H-2	53.0 54.5	11.045	U 36,818 23,564 16,364 C 36,818 29,455 24,545	12,022 21,039	9,205 18,409	7,273 16,364	5,891 14,727	4,869 13,388	4,091 12,273	3,006 10,519	2,301 9,205
5" x 1/4"	22-H-4 22-H-2	39.4 40.5	9.091	U 30,303 19,394 13,468 C 30,303 24,242 20,202	9,895 17,316	7,576 15,152	5,986 13,468	4,848 12,121	4,007 11,019	3,367 10,101	2,474 8,658	1,894 7,576
5" x 5/16"	22-H-4 22-H-2	49.3 50.8	11.364	U 37,879 24,242 16,835 C 37,879 30,303 25,253	12,369 21,645	9,470 18,939	7,482 16,835	6,061 15,152	5,009 13,774	4,209 12,626	3,092 10,823	2,367 9,470
5" x 3/8"	22-H-4 22-H-2	58.7 60.2	13.636	U 45,455 29,091 20,202 C 45,455 36,364 30,303	14,842 25,974	11,364 22,727	8,979 20,202	7,273 18,182	6,011 16,529	5,051 15,152	3,711 12,987	2,841 11,364
6" x 1/4"	22-H-4 22-H-2	47.0 48.2	13.091	U 43,636 27,927 19,394 C 43,636 34,909 29,091	14,249 24,935	10,909 21,818	8,620 19,394	6,982 17,455	5,770 15,868	4,848 14,545	3,562 12,468	2,727 10,909
6" x 5/16"	22-H-4 22-H-2	58.8 60.3	16.364	U 54,545 34,909 24,242 C 54,545 43,636 36,364	17,811 31,169	13,636 27,273	10,774 24,242	8,727 21,818	7,213 19,835	6,061 18,182	4,453 15,584	3,409 13,636
6" x 3/8"	22-H-4 22-H-2	70.1 71.8	19.636	U 65,455 41,891 29,091 C 65,455 52,364 43,636	21,373 37,403	16,364 32,727	12,929 29,091	10,473 26,182	8,655 23,802	7,273 21,818	5,343 18,701	4,091 16,364

Width table 22-H-4, 22-H-2

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



30-H-4, 30-H-2

Bar Size	Symbol	Approx. Weight psf	Sec. Mod Per Ft. Of Width	SPAN (Direction of Bearing Bar)													
					24"	30"	36"	42"	48"	54"	60"	66"	72"				
1" x 1/4"	30-H-4	6.3		U	889	569	395	290	222	176	142	118	99	73	56		
	30-H-2	7.0	0.267	C	889	711	593	508	444	395	356	323	296	254	222		
1" x 5/16"	30-H-4	8.2		U	1,111	711	494	363	278	219	178	147	123	91	69		
	30-H-2	9.4	0.333	C	1,111	889	741	635	556	494	444	404	370	317	278		
1" x 3/8"	30-H-4	9.6		U	1,333	853	593	435	333	263	213	176	148	109	83		
	30-H-2	10.8	0.400	C	1,333	1,067	889	762	667	593	533	485	444	381	333		
1-1/4" x 1/4"	30-H-4	7.8		U	1,389	889	617	454	347	274	222	184	154	113	87		
	30-H-2	8.4	0.417	C	1,389	1,111	926	794	694	617	556	505	463	397	347		
1-1/4" x 5/16"	30-H-4	10.0		U	1,736	1,111	772	567	434	343	278	230	193	142	109		
	30-H-2	11.1	0.521	C	1,736	1,389	1,157	992	868	772	694	631	579	496	434		
1-1/4" x 3/8"	30-H-4	11.8		U	2,083	1,333	926	680	521	412	333	275	231	170	130		
	30-H-2	12.9	0.625	C	2,083	1,667	1,389	1,190	1,042	926	833	758	694	595	521		
1-1/2" x 1/4"	30-H-4	9.2		U	2,000	1,280	889	653	500	395	320	264	222	163	125		
	30-H-2	9.8	0.600	C	2,000	1,600	1,333	1,143	1,000	889	800	727	667	571	500		
1-1/2" x 5/16"	30-H-4	11.8		U	2,500	1,600	1,111	816	625	494	400	331	278	204	156		
	30-H-2	12.9	0.750	C	2,500	2,000	1,667	1,429	1,250	1,111	1,000	909	833	714	625		
1-1/2" x 3/8"	30-H-4	13.9		U	3,000	1,920	1,333	980	750	593	480	397	333	245	188		
	30-H-2	15.0	0.900	C	3,000	2,400	2,000	1,714	1,500	1,333	1,200	1,091	1,000	857	750		
1-3/4" x 1/4"	30-H-4	10.6		U	2,722	1,742	1,210	889	681	538	436	360	302	222	170		
	30-H-2	11.3	0.817	C	2,722	2,178	1,815	1,556	1,361	1,210	1,089	990	907	778	681		
1-3/4" x 5/16"	30-H-4	13.6		U	3,403	2,178	1,512	1,111	851	672	544	450	378	278	213		
	30-H-2	14.7	1.021	C	3,403	2,722	2,269	1,944	1,701	1,512	1,361	1,237	1,134	972	851		
1-3/4" x 3/8"	30-H-4	16.0		U	4,083	2,613	1,815	1,333	1,021	807	653	540	454	333	255		
	30-H-2	17.1	1.225	C	4,083	3,267	2,722	2,333	2,042	1,815	1,633	1,485	1,361	1,167	1,021		
2" x 1/4"	30-H-4	12.0		U	3,556	2,276	1,580	1,161	889	702	569	470	395	290	222		
	30-H-2	12.7	1.067	C	3,556	2,844	2,370	2,032	1,778	1,580	1,422	1,293	1,185	1,016	889		
2" x 5/16"	30-H-4	15.3		U	4,444	2,844	1,975	1,451	1,111	878	711	588	494	363	278		
	30-H-2	16.5	1.333	C	4,444	3,556	2,963	2,540	2,222	1,975	1,778	1,616	1,481	1,270	1,111		
2" x 3/8"	30-H-4	18.1		U	5,333	3,413	2,370	1,741	1,333	1,053	853	705	593	435	333		
	30-H-2	19.3	1.600	C	5,333	4,267	3,556	3,048	2,667	2,370	2,133	1,939	1,778	1,524	1,333		
2-1/4" x 1/4"	30-H-4	13.6		U	4,500	2,880	2,000	1,469	1,125	889	720	595	500	367	281		
	30-H-2	14.1	1.350	C	4,500	3,600	3,000	2,571	2,250	2,000	1,800	1,636	1,500	1,286	1,125		
2-1/4" x 5/16"	30-H-4	17.1		U	5,625	3,600	2,500	1,837	1,406	1,111	900	744	625	459	352		
	30-H-2	18.2	1.688	C	5,625	4,500	3,750	3,214	2,813	2,500	2,250	2,045	1,875	1,607	1,406		
2-1/4" x 3/8"	30-H-4	20.3		U	6,750	4,320	3,000	2,204	1,688	1,333	1,080	893	750	551	422		
	30-H-2	21.4	2.025	C	6,750	5,400	4,500	3,857	3,375	3,000	2,700	2,455	2,250	1,929	1,688		
2-1/2" x 1/4"	30-H-4	14.9		U	5,556	3,556	2,469	1,814	1,389	1,097	889	735	617	454	347		
	30-H-2	15.3	1.667	C	5,556	4,444	3,704	3,175	2,778	2,469	2,222	2,020	1,852	1,587	1,389		
2-1/2" x 5/16"	30-H-4	18.9		U	6,944	4,444	3,086	2,268	1,736	1,372	1,111	918	772	567	434		
	30-H-2	20.0	2.083	C	6,944	5,556	4,630	3,968	3,472	3,086	2,778	2,525	2,315	1,984	1,736		
2-1/2" x 3/8"	30-H-4	22.3		U	8,333	5,333	3,704	2,721	2,083	1,646	1,333	1,102	926	680	521		
	30-H-2	23.5	2.500	C	8,333	6,667	5,556	4,762	4,167	3,704	3,333	3,030	2,778	2,381	2,083		
2-3/4" x 1/4"	30-H-4	16.3		U	6,722	4,302	2,988	2,195	1,681	1,328	1,076	889	747	549	420		
	30-H-2	17.0	2.017	C	6,722	5,378	4,481	3,841	3,361	2,988	2,689	2,444	2,241	1,921	1,681		
2-3/4" x 5/16"	30-H-4	21.0		U	8,403	5,378	3,735	2,744	2,101	1,660	1,344	1,111	934	686	525		
	30-H-2	22.6	2.521	C	8,403	6,722	5,602	4,802	4,201	3,735	3,361	3,056	2,801	2,401	2,101		
2-3/4" x 3/8"	30-H-4	24.9		U	10,083	6,453	4,481	3,293	2,521	1,992	1,613	1,333	1,120	823	630		
	30-H-2	26.4	3.025	C	10,083	8,067	6,722	5,762	5,042	4,481	4,033	3,667	3,361	2,881	2,521		
Bar Size	Symbol	Approx. Weight psf	Sec. Mod Per Ft. Of Width		24"	30"	36"	42"	48"	54"	60"	66"	72"	84"	96"		
3" x 1/4"	30-H-4	18.2	2.400	U	8,000	5,120	3,556	2,612	2,000	1,580	1,280	1,058	889	653	500		
	30-H-2	19.3		C	8,000	6,400	5,333	4,571	4,000	3,556	3,200	2,909	2,667	2,286	2,000		
3" x 5/16"	30-H-4	22.8	3.000	U	10,000	6,400	4,444	3,265	2,500	1,975	1,600	1,322	1,111	816	625		
	30-H-2	24.4		C	10,000	8,000	6,667	5,714	5,000	4,444	4,000	3,636	3,333	2,857	2,500		

3" x 3/8"	30-H-4 30-H-2	27.0 28.6	3.600	U C	12,000 12,000	7,680 9,600	5,333 8,000	3,918 6,857	3,000 6,000	2,370 5,333	1,920 4,800	1,587 4,364	1,333 4,000	980 3,429	750 3,000
3-1/4" x 1/4"	30-H-4 30-H-2	19.6 20.7	2.817	U C	9,389 9,389	6,009 7,511	4,173 6,259	3,066 5,365	2,347 4,694	1,855 4,173	1,502 3,756	1,242 3,414	1,043 3,130	766 2,683	587 2,347
3-1/4" x 5/16"	30-H-4 30-H-2	24.6 26.1	3.521	U C	11,736 11,736	7,511 9,389	5,216 7,824	3,832 6,706	2,934 5,868	2,318 5,216	1,878 4,694	1,552 4,268	1,304 3,912	958 3,353	734 2,934
3-1/4" x 3/8"	30-H-4 30-H-2	29.2 30.7	4.225	U C	14,083 14,083	9,013 11,267	6,259 9,389	4,599 8,048	3,521 7,042	2,782 6,259	2,253 5,633	1,862 5,121	1,565 4,694	1,150 4,024	880 3,521
3-1/2" x 1/4"	30-H-4 30-H-2	21.0 22.2	3.267	U C	10,889 10,889	6,969 8,711	4,840 7,259	3,556 6,222	2,722 5,444	2,151 4,840	1,742 4,356	1,440 3,960	1,210 3,630	889 3,111	681 2,722
3-1/2" x 5/16"	30-H-4 30-H-2	26.4 27.9	4.083	U C	13,611 13,611	8,711 10,889	6,049 9,074	4,444 7,778	3,403 6,806	2,689 6,049	2,178 5,444	1,800 4,949	1,512 4,537	1,111 3,889	851 3,403
3-1/2" x 3/8"	30-H-4 30-H-2	31.3 32.8	4.900	U C	16,333 16,333	10,453 13,067	7,259 10,889	5,333 9,333	4,083 8,167	3,226 7,259	2,613 6,533	2,160 5,939	1,815 5,444	1,333 4,667	1,021 4,083
4" x 1/4"	30-H-4 30-H-2	23.9 29.0	4.267	U C	14,222 14,222	9,102 11,378	6,321 9,481	4,644 8,127	3,556 7,111	2,809 6,321	2,276 5,689	1,881 5,172	1,580 4,741	1,161 4,063	889 3,556
4" x 5/16"	30-H-4 30-H-2	29.9 31.5	5.333	U C	17,778 17,778	11,378 14,222	7,901 11,852	5,805 10,159	4,444 8,889	3,512 7,901	2,844 7,111	2,351 6,465	1,975 5,926	1,451 5,079	1,111 4,444
4" x 3/8"	30-H-4 30-H-2	35.5 37.1	6.400	U C	21,333 21,333	13,653 17,067	9,481 14,222	6,966 12,190	5,333 10,667	4,214 9,481	3,413 8,533	2,821 7,758	2,370 7,111	1,741 6,095	1,333 5,333
4-1/2" x 1/4"	30-H-4 30-H-2	36.7 27.9	5.400	U C	18,000 18,000	11,520 14,400	8,000 12,000	5,878 10,286	4,500 9,000	3,556 8,000	2,880 7,200	2,380 6,545	2,000 6,000	1,469 5,143	1,125 4,500
4-1/2" x 5/16"	30-H-4 30-H-2	33.5 35.0	6.750	U C	22,500 22,500	14,400 18,000	10,000 15,000	7,347 12,857	5,625 11,250	4,444 10,000	3,600 9,000	2,975 8,182	2,500 7,500	1,837 6,429	1,406 5,625
4-1/2" x 3/8"	30-H-4 30-H-2	39.9 41.3	8.100	U C	27,000 27,000	17,280 21,600	12,000 18,000	8,816 15,429	6,750 13,500	5,333 12,000	4,320 10,800	3,570 9,818	3,000 9,000	2,204 7,714	1,688 6,750
5" x 1/4"	30-H-4 30-H-2	29.7 30.7	6.667	U C	22,222 22,222	14,222 17,778	9,877 14,815	7,256 12,698	5,556 11,111	4,390 9,877	3,556 8,889	2,938 8,081	2,469 7,407	1,814 6,349	1,389 5,556
5" x 5/16"	30-H-4 30-H-2	37.0 38.6	8.333	U C	27,778 27,778	17,778 22,222	12,346 18,519	9,070 15,873	6,944 13,889	5,487 12,346	4,444 11,111	3,673 10,101	3,086 9,259	2,268 7,937	1,736 6,944
5" x 3/8"	30-H-4 30-H-2	44.0 45.6	10.000	U C	33,333 33,333	21,333 26,667	14,815 22,222	10,884 19,048	8,333 16,667	6,584 14,815	5,333 13,333	4,408 12,121	3,704 11,111	2,721 9,524	2,083 8,333
6" x 1/4"	30-H-4 30-H-2	35.3 36.4	9.600	U C	32,000 32,000	20,480 25,600	14,222 21,333	10,449 18,286	8,000 16,000	6,321 14,222	5,120 12,800	4,231 11,636	3,556 10,667	2,612 9,143	2,000 8,000
6" x 5/16"	30-H-4 30-H-2	44.1 45.7	12.000	U C	40,000 40,000	25,600 32,000	17,778 26,667	13,061 22,857	10,000 20,000	7,901 17,778	6,400 16,000	5,289 14,545	4,444 13,333	3,265 11,429	2,500 10,000
6" x 3/8"	30-H-4 30-H-2	52.5 54.0	14.400	U C	48,000 48,000	30,720 38,400	21,333 32,000	15,673 27,429	12,000 24,000	9,481 21,333	7,680 19,200	6,347 17,455	5,333 16,000	3,918 13,714	3,000 12,000

Width table 30-H-4, 30-H-2

No. of Bars	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1/4" Bar	2 1/8	4	5 7/8	7 3/4	9 5/8	11 1/2	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	32 1/8	34	35 7/8
5/16" Bar	2 3/16	4 1/16	5 15/16	7 13/16	9 11/16	11 9/16	13 7/16	15 5/16	17 3/16	19 1/16	20 15/16	22 13/16	24 11/16	26 9/16	28 7/16	30 5/16	32 3/16	34 1/16	35 15/16
3/8" Bar	2 1/4	4 1/8	6	7 7/8	9 3/4	11 5/8	13 1/2	15 3/8	17 1/4	19 1/8	21	22 7/8	24 3/4	26 5/8	28 1/2	30 3/8	32 1/4	34 1/8	36



38-H-4, 38-H-2

Bar Size	Symbol	Approx. Weight psf	Sec. Mod Per Ft. Of Width	SPAN (Direction of Bearing Bar)											
					24"	30"	36"	42"	48"	54"	60"	66"	72"	84"	96"
1" x 1/4"	38-H-4	5.2		U	702	449	312	229	175	139	112	93	78	57	44
	38-H-2	5.9	0.211	C	702	561	468	401	351	312	281	255	234	201	175
1" x 5/16"	38-H-4	6.8		U	877	561	390	286	219	173	140	116	97	72	55
	38-H-2	7.9	0.263	C	877	702	585	501	439	390	351	319	292	251	219
1" x 3/8"	38-H-4	7.9		U	1,053	674	468	344	263	208	168	139	117	86	66
	38-H-2	9.1	0.316	C	1,053	842	702	602	526	468	421	383	351	301	263
1-1/4" x 1/4"	38-H-4	6.3		U	1,096	702	487	358	274	217	175	145	122	90	69
	38-H-2	7.0	0.329	C	1,096	877	731	627	548	487	439	399	365	313	274
1-1/4" x 5/16"	38-H-4	8.2		U	1,371	877	609	448	343	271	219	181	152	112	86
	38-H-2	9.4	0.411	C	1,371	1,096	914	783	685	609	548	498	457	392	343
1-1/4" x 3/8"	38-H-4	9.6		U	1,645	1,053	731	537	411	325	263	217	183	134	103
	38-H-2	10.8	0.493	C	1,645	1,316	1,096	940	822	731	658	598	548	470	411
1-1/2" x 1/4"	38-H-4	7.5		U	1,579	1,011	702	516	395	312	253	209	175	129	99
	38-H-2	8.1	0.474	C	1,579	1,263	1,053	902	789	702	632	574	526	451	395
1-1/2" x 5/16"	38-H-4	9.6		U	1,974	1,263	877	644	493	390	316	261	219	161	123
	38-H-2	10.8	0.592	C	1,974	1,579	1,316	1,128	987	877	789	718	658	564	493
1-1/2" x 3/8"	38-H-4	11.3		U	2,368	1,516	1,053	773	592	468	379	313	263	193	148
	38-H-2	12.5	0.711	C	2,368	1,895	1,579	1,353	1,184	1,053	947	861	789	677	592
1-3/4" x 1/4"	38-H-4	8.6		U	2,149	1,375	955	702	537	425	344	284	239	175	134
	38-H-2	9.3	0.645	C	2,149	1,719	1,433	1,228	1,075	955	860	781	716	614	537
1-3/4" x 5/16"	38-H-4	11.1		U	2,686	1,719	1,194	877	672	531	430	355	298	219	168
	38-H-2	12.2	0.806	C	2,686	2,149	1,791	1,535	1,343	1,194	1,075	977	895	768	672
1-3/4" x 3/8"	38-H-4	13.0		U	3,224	2,063	1,433	1,053	806	637	516	426	358	263	201
	38-H-2	14.2	0.967	C	3,224	2,579	2,149	1,842	1,612	1,433	1,289	1,172	1,075	921	806
2" x 1/4"	38-H-4	9.8		U	2,807	1,796	1,248	917	702	554	449	371	312	229	175
	38-H-2	10.4	0.842	C	2,807	2,246	1,871	1,604	1,404	1,248	1,123	1,021	936	802	702
2" x 5/16"	38-H-4	12.5		U	3,509	2,246	1,559	1,146	877	693	561	464	390	286	219
	38-H-2	13.6	1.053	C	3,509	2,807	2,339	2,005	1,754	1,559	1,404	1,276	1,170	1,003	877
2" x 3/8"	38-H-4	14.7		U	4,211	2,695	1,871	1,375	1,053	832	674	557	468	344	263
	38-H-2	15.9	1.263	C	4,211	3,368	2,807	2,406	2,105	1,871	1,684	1,531	1,404	1,203	1,053
2-1/4" x 1/4"	38-H-4	10.9		U	3,553	2,274	1,579	1,160	888	702	568	470	395	290	222
	38-H-2	11.5	1.066	C	3,553	2,842	2,368	2,030	1,776	1,579	1,421	1,292	1,184	1,015	888
2-1/4" x 5/16"	38-H-4	13.9		U	4,441	2,842	1,974	1,450	1,110	877	711	587	493	363	278
	38-H-2	15.0	1.332	C	4,441	3,553	2,961	2,538	2,220	1,974	1,776	1,615	1,480	1,269	1,110
2-1/4" x 3/8"	38-H-4	16.4		U	5,329	3,411	2,368	1,740	1,332	1,053	853	705	592	435	333
	38-H-2	17.6	1.599	C	5,329	4,263	3,553	3,045	2,664	2,368	2,132	1,938	1,776	1,523	1,332
2-1/2" x 1/4"	38-H-4	12.0		U	4,386	2,807	1,949	1,432	1,096	866	702	580	487	358	274
	38-H-2	12.7	1.316	C	4,386	3,509	2,924	2,506	2,193	1,949	1,754	1,595	1,462	1,253	1,096
2-1/2" x 5/16"	38-H-4	15.3		U	5,482	3,509	2,437	1,790	1,371	1,083	877	725	609	448	343
	38-H-2	16.5	1.645	C	5,482	4,386	3,655	3,133	2,741	2,437	2,193	1,994	1,827	1,566	1,371
2-1/2" x 3/8"	38-H-4	18.1		U	6,579	4,211	2,924	2,148	1,645	1,300	1,053	870	731	537	411
	38-H-2	19.3	1.974	C	6,579	5,263	4,386	3,759	3,289	2,924	2,632	2,392	2,193	1,880	1,645
2-3/4" x 1/4"	38-H-4	13.2		U	5,307	3,396	2,359	1,733	1,327	1,048	849	702	590	433	332
	38-H-2	13.8	1.592	C	5,307	4,246	3,538	3,033	2,654	2,359	2,123	1,930	1,769	1,516	1,327
2-3/4" x 5/16"	38-H-4	17.2		U	6,634	4,246	2,948	2,166	1,658	1,310	1,061	877	737	542	415
	38-H-2	18.7	1.990	C	6,634	5,307	4,423	3,791	3,317	2,948	2,654	2,412	2,211	1,895	1,658
2-3/4" x 3/8"	38-H-4	20.2		U	7,961	5,095	3,538	2,599	1,990	1,572	1,274	1,053	885	650	498
	38-H-2	21.8	2.388	C	7,961	6,368	5,307	4,549	3,980	3,538	3,184	2,895	2,654	2,274	1,990
Bar Size	Symbol	Approx. Weight psf	Sec. Mod Per Ft. Of Width	SPAN (Direction of Bearing Bar)											
					24"	30"	36"	42"	48"	54"	60"	66"	72"	84"	96"
3" x 1/4"	38-H-4	14.9	1.895	U	6,316	4,042	2,807	2,062	1,579	1,248	1,011	835	702	516	395
	38-H-2	15.9		C	6,316	5,053	4,211	3,609	3,158	2,807	2,526	2,297	2,105	1,805	1,579
3" x 5/16"	38-H-4	18.6	2.368	U	7,895	5,053	3,509	2,578	1,974	1,559	1,263	1,044	877	644	493
	38-H-2	20.1		C	7,895	6,316	5,263	4,511	3,947	3,509	3,158	2,871	2,632	2,256	1,974

3" x 3/8"	38-H-4 38-H-2	21.9 23.5	2.842	U 9,474 6,063 4,211 C 9,474 7,579 6,316	3,093 5,414	2,368 4,737	1,871 4,211	1,516 3,789	1,253 3,445	1,053 3,158	773 2,707	592 2,368
3-1/4" x 1/4"	38-H-4 38-H-2	15.9 17.1	2.224	U 7,412 4,744 3,294 C 7,412 5,930 4,942	2,420 4,236	1,853 3,706	1,464 3,294	1,186 2,965	980 2,695	824 2,471	605 2,118	463 1,853
3-1/4" x 5/16"	38-H-4 38-H-2	20.0 21.5	2.780	U 9,265 5,930 4,118 C 9,265 7,412 6,177	3,025 5,294	2,316 4,633	1,830 4,118	1,482 3,706	1,225 3,369	1,029 3,088	756 2,647	579 2,316
3-1/4" x 3/8"	38-H-4 38-H-2	23.6 25.2	3.336	U 11,118 7,116 4,942 C 11,118 8,895 7,412	3,631 6,353	2,780 5,559	2,196 4,942	1,779 4,447	1,470 4,043	1,235 3,706	908 3,177	695 2,780
3-1/2" x 1/4"	38-H-4 38-H-2	17.1 18.2	2.579	U 8,596 5,502 3,821 C 8,596 6,877 5,731	2,807 4,912	2,149 4,298	1,698 3,821	1,375 3,439	1,137 3,126	955 2,865	702 2,456	537 2,149
3-1/2" x 5/16"	38-H-4 38-H-2	21.4 22.9	3.224	U 10,746 6,877 4,776 C 10,746 8,596 7,164	3,509 6,140	2,686 5,373	2,123 4,776	1,719 4,298	1,421 3,907	1,194 3,582	877 3,070	672 2,686
3-1/2" x 3/8"	38-H-4 38-H-2	25.3 26.9	3.868	U 12,895 8,253 5,731 C 12,895 10,316 8,596	4,211 7,368	3,224 6,447	2,547 5,731	2,063 5,158	1,705 4,689	1,433 4,298	1,053 3,684	806 3,224
4" x 1/4"	38-H-4 38-H-2	19.3 20.5	3.368	U 11,228 7,186 4,990 C 11,228 8,982 7,485	3,666 6,416	2,807 5,614	2,218 4,990	1,796 4,491	1,485 4,083	1,248 3,743	917 3,208	702 2,807
4" x 5/16"	38-H-4 38-H-2	24.2 25.8	4.211	U 14,035 8,982 6,238 C 14,035 11,228 9,357	4,583 8,020	3,509 7,018	2,772 6,238	2,246 5,614	1,856 5,104	1,559 4,678	1,146 4,010	877 3,509
4" x 3/8"	38-H-4 38-H-2	28. 30.3	5.053	U 16,842 10,779 7,485 C 16,842 13,474 11,228	5,499 9,624	4,211 8,421	3,327 7,485	2,695 6,737	2,227 6,124	1,871 5,614	1,375 4,812	1,053 4,211
4-1/2" x 1/4"	38-H-4 38-H-2	21.6 22.7	4.263	U 14,211 9,095 6,316 C 14,211 11,368 9,474	4,640 8,120	3,553 7,105	2,807 6,316	2,274 5,684	1,879 5,167	1,579 4,737	1,160 4,060	888 3,553
4-1/2" x 5/16"	38-H-4 38-H-2	27.1 28.6	5.329	U 17,763 11,368 7,895 C 17,763 14,211 11,842	5,800 10,150	4,441 8,882	3,509 7,895	2,842 7,105	2,349 6,459	1,974 5,921	1,450 5,075	1,110 4,441
4-1/2" x 3/8"	38-H-4 38-H-2	32.1 33.7	6.395	U 21,316 13,642 9,474 C 21,316 17,053 14,211	6,960 12,180	5,329 10,658	4,211 9,474	3,411 8,526	2,819 7,751	2,368 7,105	1,740 6,090	1,332 5,329
5" x 1/4"	38-H-4 38-H-2	23.9 25.0	5.263	U 17,544 11,228 7,797 C 17,544 14,035 11,696	5,729 10,025	4,386 8,772	3,465 7,797	2,807 7,018	2,320 6,380	1,949 5,848	1,432 5,013	1,096 4,386
5" x 5/16"	38-H-4 38-H-2	29.9 31.5	6.579	U 21,930 14,035 9,747 C 21,930 17,544 14,620	7,161 12,531	5,482 10,965	4,332 9,747	3,509 8,772	2,900 7,974	2,437 7,310	1,790 6,266	1,371 5,482
5" x 3/8"	38-H-4 38-H-2	35.5 37.1	7.895	U 26,316 16,842 11,696 C 26,316 21,053 17,544	8,593 15,038	6,579 13,158	5,198 11,696	4,211 10,526	3,480 9,569	2,924 8,772	2,148 7,519	1,645 6,579
6" x 1/4"	38-H-4 38-H-2	28.4 29.8	7.579	U 25,263 16,168 11,228 C 25,263 20,211 16,842	8,249 14,436	6,316 12,632	4,990 11,228	4,042 10,105	3,341 9,187	2,807 8,421	2,062 7,218	1,579 6,316
6" x 5/16"	38-H-4 38-H-2	35.6 37.1	9.474	U 31,579 20,211 14,035 C 31,579 25,263 21,053	10,311 18,045	7,895 15,789	6,238 14,035	5,053 12,632	4,176 11,483	3,509 10,526	2,578 9,023	1,974 7,895
6" x 3/8"	38-H-4 38-H-2	42.3 43.9	11.368	U 37,895 24,253 16,842 C 37,895 30,316 25,263	12,374 21,654	9,474 18,947	7,485 16,842	6,063 15,158	5,011 13,780	4,211 12,632	3,093 10,827	2,368 9,474

Width table 38-H-4, 38-H-2

No. of Bars	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1/4" Bar	2 5/8	5	7 3/8	9 3/4	12 1/8	14 1/2	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
5/16" Bar	2 11/16	5 1/16	7 7/16	9 13/16	12 3/16	14 9/16	16 15/16	19 5/16	21 11/16	24 1/16	26 7/16	28 13/16	31 3/16	33 9/16	35 15/16

Perforated Metal Planks

Perforated metal planks are C-shaped profiles. Perforated metal planks are manufactured on CNC-punching machines and roll formers. The application options of perforated metal planks are varied. Perforated metal planks are used as work platforms, ramps, façades, grandstands and much more. They are also used as walkways and supply routes, as well as extensive protection mats for workspaces below conveyor systems.

Characteristics

- Bridging of large spans
- Cost reduction on substructures
- High slip resistance
- Stable and safe walking and standing areas
- Different surface profiles
- Considerable production lengths up to 32'
- Fast and simple installation

Production

Perforated metal planks are manufactured in the following production steps:

- After an examination, the material supplied on coils is fed to the production line



- With modern presses and tools, the desired surface profiles are punched and the gratings are cut to length

- A CNC-controlled roll former rolls the die-cut sheets to the characteristic C-profile shape with the desired height and width

- Any necessary notches are inserted according to customer specification and usually banded with flat material

- The perforated metal planks are available galvanized or in mill finish

Material and Surface Treatment

The most economical corrosion protection for perforated metal planks is hot-dip galvanizing. Further surface treatments such as, e.g. powder coating are also possible.

Hot-dip galvanizing

The term "hot-dip galvanizing" applies to the process in which a zinc coating is applied by immersing the pretreated parts in molten zinc. The zinc coating adheres firmly to the surface, ensuring that it does not peel off or crack under normal mechanical stress, e.g. as during transport, when walking or even driving on it.

Galvanized and bituminized

Bitumen dipping is often used in acidic environments because bitumen (Inertol) offers a very high resistance to such media. The galvanization provides an excellent primer for the coating of bitumen, thereby increasing the lifespan of our products, even in highly loaded areas.

Galvanized and powder-coated

"Two is better than one!" applies to a special extent to our duplex special process for the protection duration of our

products. Galvanization and powder coating - the combined corrosion protection properties of both technologies offer a much longer effective system than the respective corrosion protection properties of each individual solution. The life expectancy can be increased in a range of 1.2 to 2.5, depending on the system. This increased solution is invaluable for external applications such as façades etc.

Pickled
Stainless steel is resistant to corrosion through an invisible passive layer. To counteract contamination from mechanical machining and to achieve an effective passive layer, a chemical surface treatment, pickling, is applied.

Anodized
The anodizing process is a method of surface technology for producing a protective oxide layer on aluminum. Anodizing is typically used in decorative areas to give the aluminum a uniform

appearance. Moreover, different color shades can be achieved according to the EURAS color fans.

Slip Resistance

When selecting a suitable floor covering, the issue of "anti-slip" should not be disregarded under certain framework conditions.

The correct anti-slip protection for the flooring should already be established in the planning phase.

Applications



Stair Treads

Customized and standard treads of perforated metal planks are made with the same surface profiling as the associated landings. Thereby, the staircase possesses a continuously consistent look. To achieve an optimal safety for stair treads, a slip-resistant nosing can be attached. Additionally, the treads are supplied with perforated side plates.



Transformer Coverings

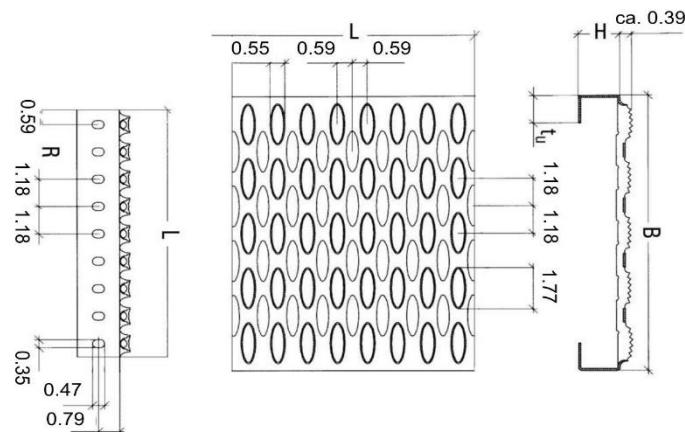
Energy operators use mineral oil for the cooling and insulation of aggregates in switching and transformer plants. To avoid the penetration of oil into the ground, oil catch pans are usually arranged below the aggregates. These fire-retardant covers are used to limit and reduce fires in the oil catch pans.

Types



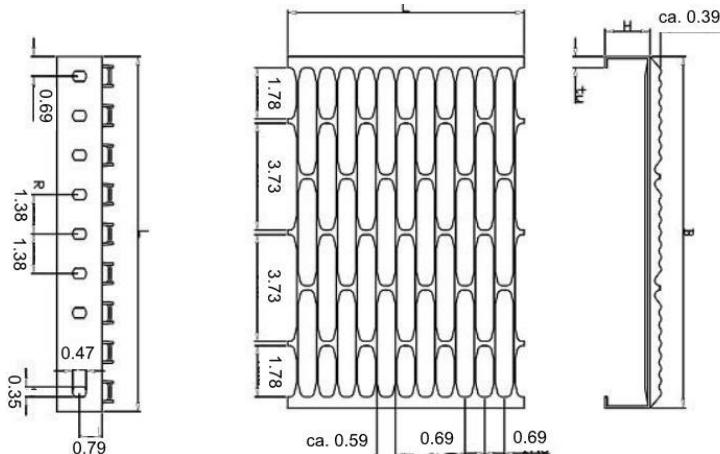
BZ (Diamonds)

The perforated metal plank type BZ offers a high degree of slip resistance due to its extremely distinctive surface profiling. Therefore, the BZ plank is especially suitable in those environments, in which fats and oils are used.



BZ-G

The perforated metal plank BZ-G offers a free cross section of at least 70%. It is therefore especially suitable for the use in intermediate levels. Due to the use of BZ-G



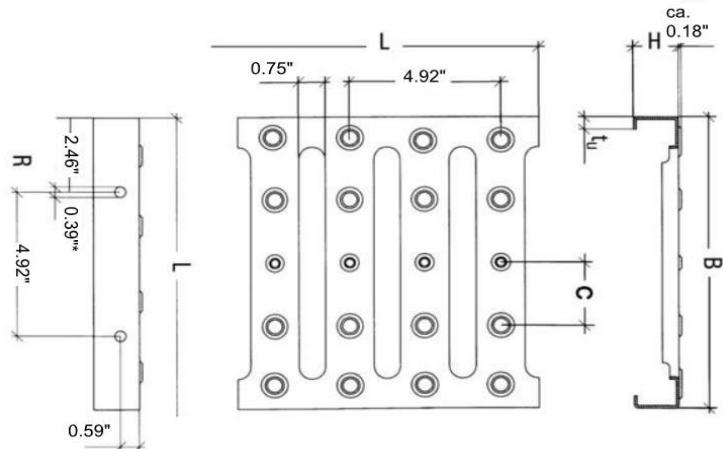
profiles, there is no need for a sprinkler system below these intermediate levels. Optimal flue exhaust and sprinkler suitability are hereby guaranteed.



BP

The perforated metal plank type BP is characterized by its quiet line profile and its high load capacity. Therefore, this type of

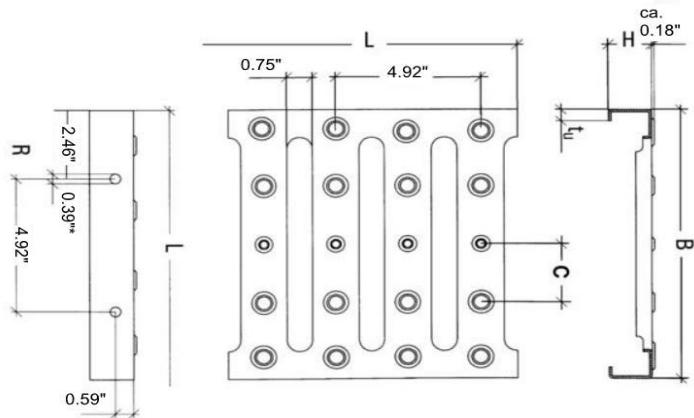
perforated metal grating is often employed in industrial areas where there are large areas and where there are high demands concerning the load-bearing capacity. The type BP can also be delivered without punched holes and is therefore especially suitable for the use in the shelf construction segment.





BP-UE

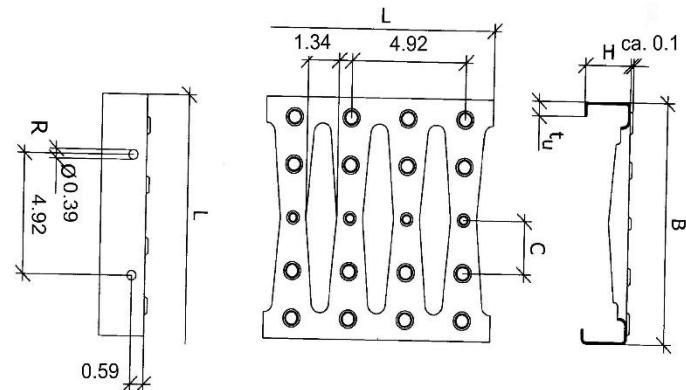
The perforated metal plank type BP-UE is comparable to the type BP, but is characterized by a greater slip resistance due to the raised punching.



BR

The perforated metal plank type BR is particularly suitable for areas with heavy loads on small contact areas due to its rhomb profile with extra high punching (punched holes 0.1"). Here, for example, vehicle navigability on

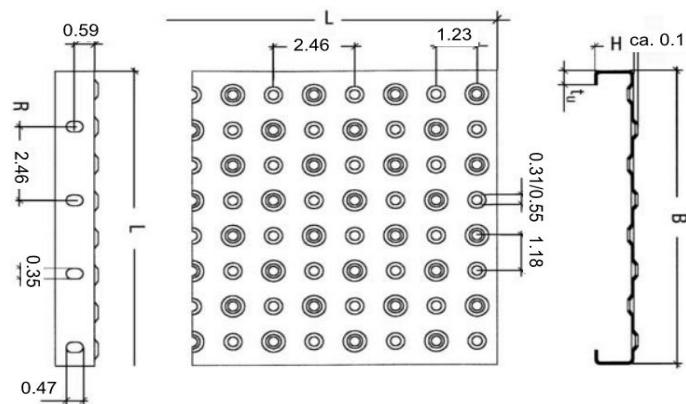
ramps or parking areas should be considered. A higher slip resistance is also achieved through the higher punching out of the punched holes.

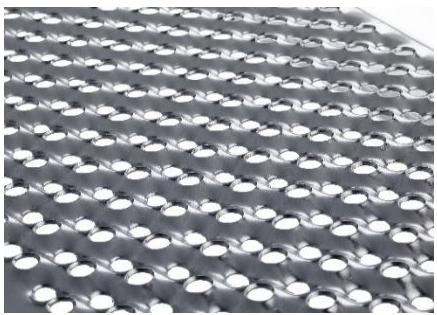


BN-O / BN-OL

With perforated metal plank type BN-O the punched holes pressed upwards offer an excellent standing stability. Furthermore, the drain holes with a diameter of 0.31" exhibit good drainage. The BN-O grating

guarantees a high stability for normal pedestrian traffic. The BN-OL type differs from the type BN-O only in the larger hole diameter of 0.55".

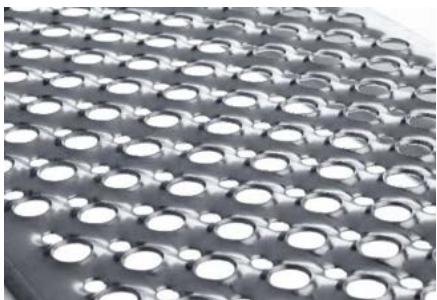




BN-OP

The perforated metal plank type, BN-OP corresponds with type BN-O in terms of the punching pattern but has twice the number of holes. The drain holes have a diameter of 0.28", thereby increasing the

drainage action and the light and air permeability.



BN-OD

The perforated metal plank type BN-OD is characterized by two different hole sizes. The holes punched upwards have a diameter of 0.55" and the holes punched downwards have a

diameter of 0.28".



BN-G

The perforated metal planks, type BN-G, the punched holes pressed upwards are closed and offer high slip resistance. BN-G gratings are often used in indoors and in areas, where, on the one hand, a closed

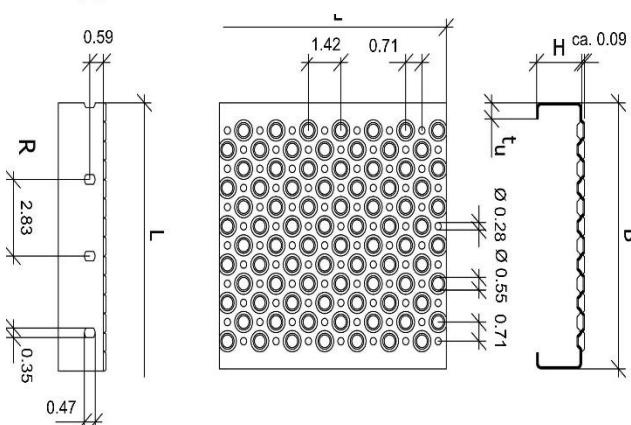
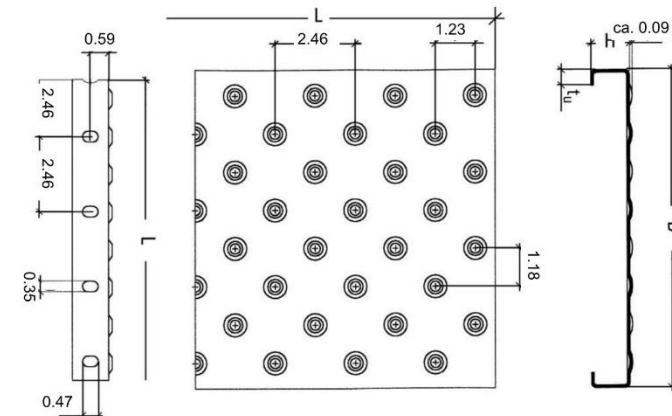
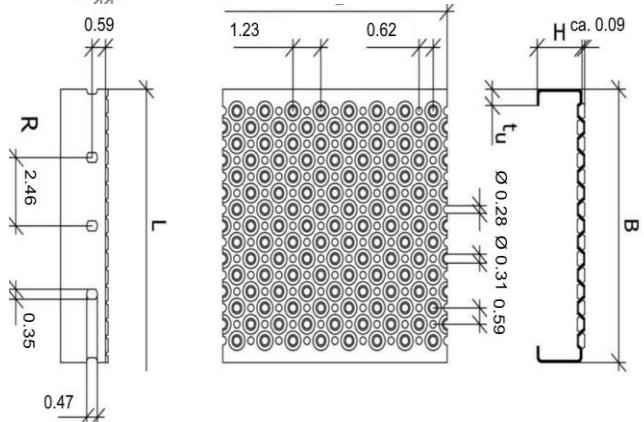
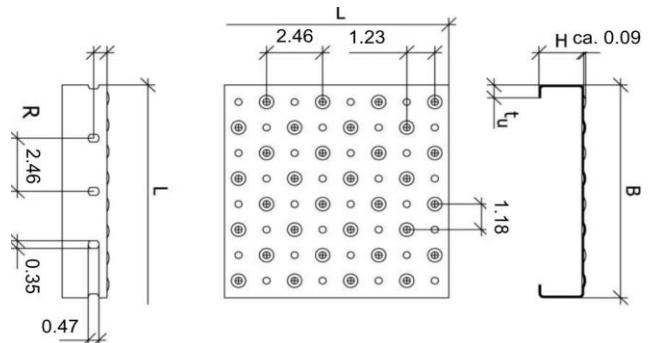
surface is desired and on the other, good accessibility must be ensured.



BN-GA

The surface of the plank type BN-GA is a mix of closed punched holes facing upwards and conical drain holes facing downwards. The grating doesn't have any sharp edges on top and can be walked

on easily, even without footwear. At the same time, any liquids can be quickly drained through the conical drain holes so that no hydroplaning can occur.



Load tables perforated metal planks

BZ (2 Diamonds)



Gauge	plank depth in inches	approx. gal. weight lb./ft. ²	Span												
			2'-0"	2'- 6"	3'- 0"	3'- 6"	4'-0"	4'-6"	5'-0"	5'-6"	6'-0"	6'-6"	7'-0"	7'-6"	
14 Gauge	1 ½"	2.3	U	1068	684	475	349	267	196	159	131				
			D	0.04	0.06	0.10	0.13	0.17	0.24	0.30	0.36				
			C	564	423	338	282	241	197	175	157				
			D	0.04	0.06	0.09	0.12	0.15	0.21	0.28	0.31				
	2"	2.6	U	1690	1082	751	552	422	334	270	223	187	160	138	120
			D	0.03	0.05	0.07	0.10	0.14	0.17	0.21	0.26	0.31	0.36	0.42	0.49
			C	892	669	535	446	382	335	297	267	243	223	205	191
			D	0.03	0.05	0.07	0.09	0.12	0.15	0.19	0.22	0.27	0.31	0.36	0.41
	2 ½"	2.8	U	2448	1566	1088	799	612	483	391	323	272	231	199	174
			D	0.02	0.04	0.06	0.08	0.11	0.14	0.17	0.21	0.25	0.30	0.35	0.40
			C	1292	969	775	646	553	484	430	387	352	323	298	276
			D	0.02	0.04	0.05	0.07	0.10	0.12	0.15	0.18	0.22	0.25	0.29	0.34
12 Gauge	1 ½"	3.2	U	1275	816	566	416	318	251	204	168	141	112	96	84
			D	0.04	0.06	0.10	0.13	0.17	0.22	0.27	0.33	0.40	0.51	0.59	0.68
			C	673	504	403	336	288	252	224	201	183	156	144	134
			D	0.04	0.06	0.09	0.12	0.15	0.19	0.24	0.29	0.34	0.44	0.50	0.58
	2"	3.6	U	1913	1224	850	624	478	377	306	253	212	181	156	136
			D	0.04	0.05	0.08	0.11	0.14	0.18	0.23	0.28	0.33	0.39	0.45	0.52
			C	1009	757	605	504	432	378	336	303	275	252	232	216
			D	0.04	0.05	0.07	0.10	0.13	0.16	0.20	0.24	0.29	0.33	0.39	0.44
	2 ½"	3.9	U	2826	1808	1256	922	706	558	452	373	314	267	230	200
			D	0.03	0.04	0.06	0.09	0.12	0.15	0.18	0.22	0.27	0.31	0.36	0.42
			C	1491	1118	895	745	639	559	497	447	406	372	344	319
			D	0.02	0.04	0.07	0.08	0.10	0.13	0.16	0.19	0.23	0.27	0.31	0.35
Gauge	plank depth in inches	approx. gal. weight lb./ft. ²	8'-0"	9'-0"	10'- 0"	11'- 0"	12'- 0"								
14 Gauge	1 ½"	2.3	U												
			D												
			C												
			D												
	2"	2.6	U	105	83										
			D	0.56	0.70										
			C	178	157										
			D	0.47	0.59										
	2 ½"	2.8	U	153	120	97	80	68							
			D	0.45	0.57	0.71	0.86	1.3							
			C	258	228	204	184	168							
			D	0.38	0.48	0.59	0.80	0.85							
12 Gauge	1 ½"	3.2	U	74											
			D	0.78											
			C	125											
			D	0.66											
	2"	3.6	U												
			D												
			C												
			D												
	2 ½"	3.9	U	176	139	113	93	78							
			D	0.48	0.60	0.75	0.90	1.0							
			C	298	263	235	213	194							
			D	0.40	0.51	0.62	0.75	0.90							

Multiplication factor for other materials

Material	load	deflection
Stainless steel 1.4301	0.82	0.84
Stainless steel 1.4571	0.88	0.90
Aluminum AlMg 3G22	0.54	1.61

Data

Material stress (permissible tension):

1.798 tonf/0.155inch² (material S 235 JR = St 37-3)

Safety factor to yield point: 1.63

Allowable loads and deflections:

U = Uniform load (lb./ft²)

C= Concentrated load (lb.) stamp 1 ft x 1 ft

D = Deflection (inches)

Spans in highlighted blue sections produce a deflection of $\frac{1}{4}$ " or less under a uniform load of 100 lb./ft²

BZ (3 Diamonds)



Gauge	plank depth in inches	approx. gal. weight lb./ft. ²	Span											
			2'-0"	2'- 6"	3'- 0"	3'- 6"	4'-0"	4'-6"	5'-0"	5'-6"	6'-0"	6'-6"	7'-0"	7'-6"
14 Gauge	1 ½"	3.7	U 797	510	354	260	199	157	127	105				
			D 0.04	0.07	0.10	0.14	0.19	0.24	0.30	0.37				
			C 625	469	375	312	268	234	208	187				
			D 0.04	0.07	0.10	0.13	0.17	0.21	0.26	0.32				
	2"	4.1	U 1295	828	575	423	324	255	207	171	144	122	105	92
			D 0.03	0.06	0.08	0.11	0.14	0.18	0.23	0.28	0.33	0.39	0.45	0.52
			C 1016	762	609	508	435	381	338	304	277	254	234	217
			D 0.03	0.05	0.07	0.10	0.13	0.16	0.20	0.24	0.29	0.33	0.39	0.44
	2 ½"	4.5	U 1901	1216	844	620	475	375	304	251	211	180	254	135
			D 0.03	0.05	0.07	0.09	0.12	0.15	0.18	0.22	0.27	0.31	0.33	0.42
			C 1491	1118	895	745	639	559	497	447	406	372	344	319
			D 0.02	0.04	0.06	0.08	0.10	0.13	0.16	0.19	0.23	0.27	0.31	0.36
12 Gauge	1 ½"	4.7	U 911	583	405	297	227	180	145	120	101	86		
			D 0.04	0.07	0.11	0.14	0.19	0.24	0.30	0.36	0.44	0.51		
			C 715	536	429	357	306	268	238	214	195	178		
			D 0.04	0.07	0.10	0.13	0.17	0.22	0.26	0.32	0.37	0.44		
	2"	3.6	U 1613	1032	716	526	403	318	258	213	179	152	131	114
			D 0.03	0.05	0.07	0.10	0.13	0.17	0.21	0.26	0.30	0.36	0.42	0.48
			C 1265	949	759	632	542	474	422	379	345	316	292	271
			D 0.03	0.04	0.07	0.09	0.12	0.15	0.18	0.22	0.26	0.31	0.35	0.41
	2 ½"	5.4	U 2207	1412	981	720	551	436	353	291	245	208	180	156
			D 0.03	0.04	0.07	0.09	0.12	0.15	0.18	0.22	0.27	0.31	0.36	0.42
			C 1732	1299	1039	866	742	649	577	519	472	433	399	371
			D 0.02	0.04	0.06	0.08	0.10	0.13	0.16	0.19	0.23	0.27	0.31	0.35
Gauge	plank depth in inches	approx. gal. weight lb./ft. ²	8'-0"	9'-0"	10'- 0"	11'- 0"								
14 Gauge	1 ½"	3.7	U											
			D											
			C											
			D											
	2"	4.1	U 81	64										
			D 0.59	0.75										
			C 203	179										
			D 0.50	0.63										
	2 ½"	4.5	U 118	93	76	63								
			D 0.48	0.60	0.75	0.90								
			C 298	263	235	213								
			D 0.40	0.51	0.63	0.75								
12 Gauge	1 ½"	4.7	U											
			D											
			C											
			D											
	2"	3.6	U 100											
			D 0.55											
			C 253											
			D 0.46											
	2 ½"	5.4	U 137	109	88									
			D 0.48	0.60	0.75									
			C 346	305	273									
			D 0.40	0.51	0.62									

Data**Material stress (permissible tension):**1.798 tonf/0.155inch² (material S 235 JR = St 37-3)**Safety factor to yield point: 1.63****Allowable loads and deflections:**U = Uniform load (lb./ft²)

C= Concentrated load (lb.) stamp 1 ft x 1 ft

D = Deflection (inches)

Spans in highlighted blue sections produce a deflection of ¼" or less under a uniform load of 100 lb./ft²

BZ (4 Diamonds)



Gauge	plank depth in inches	approx. gal. weight lb./ft. ²		Span											
				2'-0"	2'- 6"	3'- 0"	3'- 6"	4'-0"	4'-6"	5'-0"	5'-6"	6'-0"	6'-6"	7'-0"	7'-6"
14 Gauge	1 ½"	3.7	U	499	319	221	163	124	98	79					
			D	0.04	0.07	0.11	0.15	0.19	0.24	0.30					
			C	523	392	314	261	224	196	174					
			D	0.04	0.07	0.10	0.13	0.17	0.21	0.26					
	2"	4.0	U	806	516	358	263	201	159	129	106	89	76	65	
			D	0.03	0.06	0.08	0.11	0.14	0.18	0.23	0.28	0.33	0.39	0.45	
			C	845	634	507	423	362	317	282	253	230	254	195	
			D	0.03	0.05	0.07	0.10	0.13	0.16	0.20	0.24	0.28	0.33	0.38	
	2 ½"	4.3	U	1176	752	522	384	294	232	188	155	130	180	96	83
			D	0.03	0.04	0.06	0.09	0.12	0.15	0.18	0.22	0.27	0.31	0.36	0.42
			C	1233	924	739	616	528	462	411	369	336	372	284	264
			D	0.02	0.04	0.06	0.08	0.10	0.13	0.16	0.19	0.23	0.27	0.31	0.36
12 Gauge	1 ½"	4.5	U	594	380	264	194	148	117	95	78	66	86	48	
			D	0.04	0.07	0.11	0.15	0.19	0.24	0.30	0.37	0.44	0.51	0.59	
			C	623	467	373	311	267	233	207	186	169	178	143	
			D	0.04	0.07	0.10	0.13	0.17	0.21	0.26	0.32	0.37	0.44	0.51	
	2"	4.7	U	969	620	430	316	242	191	155	128	107	152	79	68
			D	0.03	0.06	0.08	0.11	0.14	0.18	0.23	0.28	0.33	0.36	0.45	0.52
			C	1016	762	609	508	435	381	338	304	277	316	234	217
			D	0.03	0.05	0.07	0.10	0.13	0.16	0.20	0.24	0.28	0.31	0.38	0.44
	2 ½"	5.4	U	1422	910	632	464	355	261	227	188	158	208	116	101
			D	0.03	0.04	0.06	0.09	0.12	0.15	0.18	0.22	0.27	0.31	0.36	0.42
			C	1491	1118	895	745	639	559	497	447	406	433	344	319
			D	0.02	0.04	0.06	0.08	0.10	0.13	0.16	0.19	0.23	0.27	0.31	0.35
Gauge	plank depth in inches	approx. gal. weight lb./ft. ²		8'-0"	9'-0"										
14 Gauge	1 ½"	3.7	U												
			D												
			C												
			D												
	2"	4.0	U												
			D												
			C												
			D												
	2 ½"	4.3	U												
			D												
			C												
			D												
12 Gauge	1 ½"	4.5	U												
			D												
			C												
			D												
	2"	4.7	U												
			D												
			C												
			D												
	2 ½"	5.4	U	88	70										
			D	0.48	0.60										
			C	298	263										
			D	0.40	0.51										

Data

Material stress (permissible tension):

1.798 tonf/0.155inch² (material S 235 JR = St 37-3)

Safety factor to yield point: 1.63

Allowable loads and deflections:

U = Uniform load (lb./ft²)

C= Concentrated load (lb.) stamp 1 ft x 1 ft

D = Deflection (inches)

Spans in highlighted blue sections produce a deflection of ¼" or less under a uniform load of 100 lb./ft²

BZ (5 Diamonds)



Gauge	plank depth in inches	approx. gal. weight lb./ft. ²		Span											
				2'-0"	2'- 6"	3'- 0"	3'- 6"	4'-0"	4'-6"	5'-0"	5'-6"	6'-0"	6'-6"	7'-0"	7'-6"
14 Gauge	1 ½"	4.2	U	400	256	177	130	100	79	64	52				
			D	0.04	0.08	0.11	0.14	0.19	0.25	0.30	0.36				
			C	525	394	315	262	225	197	175	157				
			D	0.04	0.07	0.10	0.13	0.17	0.21	0.26	0.31				
	2"	4.4	U	644	412	286	210	161	127	103	85	71	61	52	
			D	0.04	0.06	0.08	0.11	0.14	0.18	0.23	0.28	0.33	0.39	0.45	
			C	845	634	507	422	362	317	281	253	230	211	195	
			D	0.03	0.05	0.07	0.10	0.13	0.16	0.20	0.24	0.28	0.33	0.38	
	2 ½"	4.7	U	939	752	417	306	234	185	150	124	104	89	76	66
			D	0.03	0.04	0.06	0.09	0.12	0.15	0.18	0.22	0.27	0.31	0.36	0.42
			C	1233	924	739	616	528	462	411	369	336	308	284	264
			D	0.02	0.04	0.05	0.08	0.10	0.13	0.16	0.19	0.23	0.27	0.31	0.35
12 Gauge	1 ½"	5.2	U	474	303	210	155	118	93	75	62	52	44	38	
			D	0.04	0.07	0.11	0.14	0.19	0.25	0.30	0.36	0.44	0.51	0.59	
			C	623	467	373	311	267	233	207	186	169	155	143	
			D	0.04	0.07	0.10	0.13	0.17	0.21	0.26	0.32	0.37	0.44	0.51	
	2"	4.7	U	969	495	344	252	193	153	123	102	86	73	63	55
			D	0.03	0.06	0.08	0.11	0.14	0.18	0.23	0.28	0.33	0.39	0.45	0.52
			C	1016	762	609	508	435	381	338	304	277	254	234	217
			D	0.03	0.05	0.07	0.10	0.13	0.16	0.20	0.24	0.28	0.33	0.38	0.44
	2 ½"	5.4	U	1422	727	505	371	284	224	181	150	126	107	92	80
			D	0.03	0.04	0.06	0.09	0.12	0.15	0.18	0.22	0.27	0.31	0.36	0.42
			C	1491	1118	895	745	639	559	497	447	406	372	344	319
			D	0.02	0.04	0.06	0.08	0.10	0.13	0.16	0.19	0.23	0.27	0.31	0.36
Gauge	plank depth in inches	approx. gal. weight lb./ft. ²		8'-0"	9'-0"										
14 Gauge	1 ½"	4.2	U												
			D												
			C												
			D												
	2"	4.4	U												
			D												
			C												
			D												
	2 ½"	4.7	U	58	46										
			D	0.48	0.60										
			C	246	217										
			D	0.40	0.46										
12 Gauge	1 ½"	5.2	U												
			D												
			C												
			D												
	2"	4.7	U												
			D												
			C												
			D												
	2 ½"	5.4	U	71	56										
			D	0.48	0.60										
			C	298	263										
			D	0.40	0.51										

Data**Material stress (permissible tension):**

1.798 tonf/0.155inch² (material S 235 JR = St 37-3)

Safety factor to yield point: 1.63**Allowable loads and deflections:**

U = Uniform load (lb./ft²)

C= Concentrated load (lb.) stamp 1 ft x 1 ft

D = Deflection (inches)

Spans in highlighted blue sections produce a deflection of $\frac{1}{4}$ " or less under a uniform load of 100 lb./ft²

BZ (6 Diamonds)



Gauge	plank depth in inches	approx. gal. weight lb./ft. ²	Span												
			2'-0"	2'- 6"	3'- 0"	3'- 6"	4'-0"	4'-6"	5'-0"	5'-6"	6'-0"	6'-6"	7'-0"	7'-6"	
14 Gauge	1 ½"	4.8	U 332	212	147	108	82	65	53						
			D 0.05	0.07	0.11	0.15	0.19	0.25	0.30						
			C 525	392	315	261	224	196	174						
			D 0.04	0.07	0.10	0.13	0.17	0.21	0.26						
	2"	5.0	U 536	343	238	175	134	106	85	70	59	50	43		
			D 0.03	0.06	0.08	0.11	0.14	0.18	0.23	0.28	0.33	0.39	0.45		
			C 845	634	507	422	382	317	281	253	230	211	195		
			D 0.03	0.05	0.07	0.10	0.13	0.16	0.20	0.24	0.28	0.33	0.38		
	2 ½"	5.3	U 782	500	417	255	195	154	125	103	86	74	63	55	
			D 0.03	0.05	0.06	0.09	0.12	0.15	0.18	0.22	0.27	0.31	0.36	0.42	
			C 1233	924	739	616	528	462	411	369	336	308	284	264	
			D 0.02	0.04	0.05	0.08	0.10	0.13	0.16	0.19	0.23	0.27	0.31	0.36	
12 Gauge	1 ½"	6.0	U 395	253	210	129	98	78	63	52	43				
			D 0.05	0.07	0.11	0.15	0.19	0.25	0.30	0.37	0.44				
			C 623	467	373	311	267	233	207	186	169				
			D 0.04	0.07	0.10	0.13	0.17	0.21	0.26	0.32	0.37				
	2"	6.3	U 644	412	344	210	161	127	103	85	71	61	52	45	
			D 0.03	0.06	0.08	0.11	0.14	0.18	0.23	0.28	0.33	0.39	0.45	0.52	
			C 1016	762	609	508	435	381	338	304	277	254	234	217	
			D 0.03	0.05	0.07	0.10	0.13	0.16	0.20	0.24	0.28	0.33	0.38	0.44	
	2 ½"	6.7	U 946	605	505	309	236	186	151	125	105	89	77	67	
			D 0.03	0.05	0.06	0.09	0.12	0.15	0.18	0.22	0.27	0.31	0.36	0.42	
			C 1491	1118	895	745	639	559	497	447	406	372	344	319	
			D 0.03	0.04	0.06	0.08	0.10	0.13	0.16	0.19	0.23	0.27	0.31	0.35	
Gauge	plank depth in inches	approx. gal. weight lb./ft. ²	8'-0"	9'-0"	Data										
14 Gauge	1 ½"	4.8	U		Material stress (permissible tension): 1.798 tonf/0.155inch ² (material S 235 JR = St 37-3)										
			D												
			C												
			D												
	2"	5.0	U		Safety factor to yield point: 1.63										
			D												
			C		Allowable loads and deflections:										
			D												
	2 ½"	5.3	U	48	U = Uniform load (lb./ft ²)										
			D	0.48	C= Concentrated load (lb.) stamp 1 ft x 1 ft										
			C	246	D = Deflection (inches)										
			D	0.40	Spans in highlighted blue sections produce a deflection of ¼" or less under a uniform load of 100 lb./ft ²										
12 Gauge	1 ½"	6.0	U												
			D												
			C												
			D												
	2"	6.3	U												
			D												
			C												
			D												
	2 ½"	6.7	U	59	46										
			D	0.48	0.60										
			C	298	263										
			D	0.40	0.51										

BZ (7 Diamonds)



Gauge	plank depth in inches	approx. gal. weight lb./ft. ²		Span											
				2'-0"	2'- 6"	3'- 0"	3'- 6"	4'-0"	4'-6"	5'-0"	5'-6"	6'-0"	6'-6"	7'-0"	7'-6"
14 Gauge	1 ½"	5.4	U	286	183	127	93	71	56						
			D	0.05	0.08	0.11	0.15	0.19	0.25						
			C	525	394	315	262	225	197						
			D	0.04	0.07	0.10	0.13	0.17	0.22						
	2"	5.7	U	460	294	204	150	115	90	73	60	51	43	37	
			D	4	0.06	0.08	0.11	0.15	0.18	0.23	0.28	0.33	0.39	0.45	
			C	845	634	507	422	362	317	281	253	230	211	195	
			D	0.03	0.05	0.07	0.10	0.13	0.16	0.20	0.24	0.28	0.33	0.39	
	2 ½"	5.9	U	671	429	298	219	168	132	107	88	74	63	54	47
			D	0.03	0.05	0.06	0.09	0.12	0.15	0.19	0.23	0.27	0.31	0.37	0.42
			C	1233	924	739	616	528	462	411	369	336	308	284	264
			D	0.03	0.04	0.05	0.08	0.10	0.13	0.16	0.20	0.23	0.27	0.31	0.36
12 Gauge	1 ½"	6.8	U	339	217	150	110	84	66	54	44	37			
			D	0.05	0.07	0.11	0.15	0.19	0.25	0.30	0.37	0.44			
			C	623	467	373	311	267	233	207	186	169			
			D	0.04	0.06	0.10	0.13	0.17	0.21	0.26	0.32	0.38			
	2"	7.1	U	553	354	245	180	138	109	88	73	61	52	45	39
			D	0.04	0.06	0.08	0.11	0.15	0.18	0.23	0.28	0.33	0.39	0.45	0.52
			C	1016	762	609	508	435	381	338	304	277	254	234	217
			D	0.03	0.05	0.07	0.10	0.13	0.16	0.20	0.24	0.29	0.33	0.38	0.44
	2 ½"	7.4	U	811	519	360	265	203	160	129	107	90	76	66	57
			D	0.03	0.05	0.07	0.09	0.12	0.15	0.18	0.22	0.27	0.31	0.36	0.42
			C	1491	1118	895	745	639	559	497	447	406	372	344	319
			D	0.03	0.04	0.06	0.08	0.10	0.13	0.16	0.19	0.23	0.27	0.31	0.36
Gauge	plank depth in inches	approx. gal. weight lb./ft. ²	8'-0"											Data	
14 Gauge	1 ½"	5.4	U											Material stress (permissible tension):	
			D											1.798 tonf/0.155inch ² (material S 235 JR = St 37-3)	
			C												
			D												
	2"	5.7	U											Safety factor to yield point: 1.63	
			D												
			C												
			D												
	2 ½"	5.9	U	41										Allowable loads and deflections:	
			D	0.48											
			C	246											
			D	0.40											
12 Gauge	1 ½"	6.8	U											$U = \text{Uniform load (lb./ft}^2\text{)}$	
			D											$C = \text{Concentrated load (lb.) stamp } 1 \text{ ft} \times 1 \text{ ft}$	
			C											$D = \text{Deflection (inches)}$	
			D											Spans in highlighted blue sections produce a deflection of $\frac{1}{4}$ " or less under a uniform load of 100 lb./ft. ²	
	2"	7.1	U												
			D												
			C												
			D												
	2 ½"	7.4	U												
			D												
			C												
			D												

BZ (8 Diamonds)

Gauge	plank depth in inches	approx. gal. weight lb./ft. ²		Span													
				2'-0"	2'- 6"	3'- 0"	3'- 6"	4'-0"	4'-6"	5'-0"	5'-6"	6'-0"	6'-6"	7'-0"	7'-6"		
14 Gauge	1 1/2"	6.0	U	249	159	110	81	62	49	39							
			D	0.05	0.07	0.11	0.15	0.19	0.25	0.30							
			C	523	392	314	261	224	196	174							
			D	0.04	0.06	0.10	0.13	0.17	0.22	0.27							
	2"	6.3	U	402	257	178	131	100	79	64	53	44	38	32			
			D	0.04	0.06	0.08	0.11	0.15	0.18	0.23	0.28	0.33	0.39	0.45			
			C	845	634	507	422	362	317	281	253	230	211	195			
			D	0.03	0.05	0.07	0.10	0.13	0.16	0.20	0.24	0.29	0.33	0.39			
	2 1/2"	6.6	U	587	375	261	191	146	116	93	77	65	55	47			
			D	0.03	0.05	0.07	0.09	0.12	0.15	0.18	0.22	0.27	0.31	0.36			
			C	1233	924	739	616	528	462	411	369	336	308	284			
			D	0.03	0.04	0.06	0.08	0.10	0.13	0.16	0.19	0.23	0.27	0.31			
12 Gauge	1 1/2"	6.8	U	296	189	131	97	74	58	47	39	32					
			D	0.05	0.08	0.11	0.15	0.19	0.25	0.30	0.37	0.44					
			C	623	467	373	311	267	233	207	186	169					
			D	0.04	0.07	0.10	0.13	0.17	0.21	0.27	0.32	0.37					
	2"	7.9	U	484	309	215	158	121	95	77	64	53	45	39			
			D	0.04	0.06	0.08	0.11	0.15	0.18	0.24	0.28	0.33	0.39	0.45			
			C	1016	762	609	508	435	381	338	304	277	254	234			
			D	0.03	0.05	0.07	0.10	0.13	0.16	0.20	0.24	0.28	0.33	0.38			
	2 1/2"	8.3	U	710	454	315	232	177	140	113	94	79	67	58			
			D	0.03	0.05	0.07	0.09	0.12	0.15	0.19	0.23	0.27	0.31	0.37			
			C	1491	1118	895	745	639	559	497	447	406	373	344			
			D	0.03	0.04	0.06	0.08	0.10	0.13	0.16	0.19	0.23	0.27	0.31			
Gauge	plank depth in inches	approx. gal. weight lb./ft.²	8'-0"	9'-0"	Data												
14 Gauge	1 1/2"	6.0	U			Material stress (permissible tension): 1.798 tonf/0.155inch ² (material S 235 JR = St 37-3)											
			D														
			C														
			D														
	2"	6.3	U			Safety factor to yield point: 1.63											
			D														
			C														
			D														
	2 1/2"	6.6	U	36		Allowable loads and deflections:											
			D	0.48													
			C	246													
			D	0.40													
12 Gauge	1 1/2"	6.8	U			U = Uniform load (lb./ft²) C= Concentrated load (lb.) stamp 1 ft x 1 ft D = Deflection (inches)											
			D														
			C														
			D														
	2"	7.9	U	30		Spans in highlighted blue sections produce a deflection of 1/4" or less under a uniform load of 100 lb./ft²											
			D	0.59													
			C	203													
			D	0.50													
	2 1/2"	8.3	U	44	35												
			D	0.48	0.60												
			C	298	263												
			D	0.44	0.51												

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BP-UE (150)



Gauge	plank depth in inches	approx. gal. weight lb./ft. ²	Span											
			2'-0"	2'- 6"	3'- 0"	3'- 6"	4'-0"	4'-6"	5'-0"	5'-6"	6'-0"	6'-6"	7'-0"	7'-6"
14 Gauge	1 1/2"	2.6	U 1136	727	504	370	284	224	181	150	126			
			D 0.05	0.08	0.12	0.16	0.21	0.27	0.33	0.41	0.48			
			C 745	559	447	372	319	279	248	223	203			
			D 0.05	0.07	0.11	0.14	0.19	0.24	0.29	0.35	0.42			
	2"	2.8	U 1744	1116	775	569	436	344	279	230	193	165	142	124
			D 0.04	0.06	0.09	0.12	0.16	0.20	0.25	0.30	0.36	0.42	0.49	0.56
			C 1144	858	686	572	490	429	381	343	312	286	264	245
			D 0.03	0.05	0.08	0.11	0.14	0.18	0.22	0.26	0.31	0.36	0.42	0.48
	2 1/2"	3.0	U 2451	1568	1089	800	612	484	392	324	272	232	200	174
			D 0.03	0.05	0.07	0.09	0.12	0.16	0.20	0.24	0.29	0.34	0.39	0.45
			C 1608	1206	964	804	689	603	536	482	438	402	371	344
			D 0.03	0.04	0.06	0.08	0.11	0.14	0.17	0.21	0.25	0.29	0.33	0.38
12 Gauge	1 1/2"	3.2	U 1360	870	604	444	340	268	217	179	151	128		
			D 0.05	0.08	0.12	0.16	0.21	0.27	0.33	0.41	0.48	0.57		
			C 892	669	535	446	382	334	297	267	243	223		
			D 0.05	0.07	0.11	0.15	0.19	0.24	0.29	0.35	0.42	0.49		
	2"	3.6	U 2106	1348	936	687	526	416	337	278	234	199	171	149
			D 0.04	0.06	0.09	0.12	0.16	0.20	0.25	0.30	0.36	0.42	0.49	0.56
			C 1382	1036	829	691	592	518	460	414	376	345	318	296
			D 0.03	0.05	0.08	0.11	0.14	0.18	0.22	0.26	0.31	0.36	0.42	0.48
	2 1/2"	3.8	U 2953	1890	1312	964	738	583	472	390	328	279	241	210
			D 0.03	0.05	0.07	0.10	0.13	0.16	0.20	0.24	0.29	0.34	0.39	0.45
			C 1937	1453	1162	968	830	726	645	581	528	484	447	415
			D 0.03	0.04	0.06	0.09	0.11	0.14	0.17	0.21	0.25	0.29	0.34	0.38
	3"	4.2	U 3858	2469	1714	1259	964	762	617	510	428	365	314	274
			D 0.03	0.04	0.06	0.08	0.11	0.13	0.17	0.20	0.24	0.29	0.33	0.38
			C 2531	1898	1519	1265	1085	949	843	759	690	632	584	542
			D 0.02	0.04	0.05	0.07	0.09	0.12	0.14	0.18	0.21	0.25	0.28	0.32
Gauge	plank depth in inches	approx. gal. weight lb./ft. ²	8'-0"	9'-0"	10'- 0"	11'- 0"	12'-0"							
14 Gauge	1 1/2"	2.6	U											
			D											
			C											
			D											
	2"	2.8	U 109	86										
			D 0.64	0.82										
			C 228	202										
			D 0.55	0.69										
	2 1/2"	3.0	U 153	121	98									
			D 0.51	0.65	0.80									
			C 321	283	253									
			D 0.43	0.55	0.67									
12 Gauge	1 1/2"	3.2	U											
			D											
			C											
			D											
	2"	3.6	U 131	104										
			D 0.64	0.82										
			C 276	243										
			D 0.54	0.69										
	2 1/2"	3.8	U 184	145	118	97								
			D 0.52	0.66	0.81	0.98								
			C 387	341	305	276								
			D 0.44	0.55	0.68	0.82								
	3"	4.2	U 241	190	154	127	107							
			D 0.44	0.55	0.68	0.83	0.98							
			C 506	446	399	361	330							
			D 0.37	0.46	0.57	0.69	0.82							

Data**Material stress (permissible tension):**1.798 tonf/0.155inch² (material S 235 JR = St 37-3)**Safety factor to yield point: 1.63****Allowable loads and deflections:**U = Uniform load (lb./ft²)

C= Concentrated load (lb.) stamp 1 ft x 1 ft

D = Deflection (inches)

Spans in highlighted blue sections produce a deflection of $\frac{1}{4}$ " or less under a uniform load of 100 lb./ft²

BP-UE (200)



Gauge	plank depth in inches	approx. gal. weight lb./ft. ²	Span											
			2'-0"	2'- 6"	3'- 0"	3'- 6"	4'-0"	4'-6"	5'-0"	5'-6"	6'-0"	6'-6"	7'-0"	7'-6"
14 Gauge	1 1/2"	3.0	U 878	562	390	286	219	173	140	116	97			
			D 0.05	0.08	0.12	0.16	0.21	0.27	0.33	0.40	0.47			
			C 768	576	461	384	329	288	256	230	209			
			D 0.05	0.07	0.10	0.14	0.19	0.23	0.29	0.34	0.41			
	2"	3.3	U 1347	862	598	439	336	266	215	178	149	127	109	95
			D 0.03	0.06	0.09	0.12	0.15	0.20	0.24	0.30	0.35	0.41	0.48	0.55
			C 1178	884	707	589	505	442	392	353	321	294	272	252
			D 0.03	0.05	0.08	0.10	0.14	0.17	0.21	0.26	0.30	0.35	0.41	0.47
	2 1/2"	3.6	U 1890	1209	840	617	472	373	302	249	210	178	154	134
			D 0.03	0.05	0.07	0.09	0.12	0.16	0.19	0.24	0.28	0.33	0.39	0.44
			C 1653	1240	992	826	708	620	551	496	451	413	381	354
			D 0.03	0.04	0.06	0.08	0.11	0.14	0.17	0.21	0.24	0.28	0.33	0.38
12 Gauge	1 1/2"	3.8	U 1052	673	467	343	263	207	168	139	116	99		
			D 0.05	0.08	0.12	0.16	0.21	0.26	0.33	0.40	0.47	0.56		
			C 921	690	552	460	394	345	307	276	251	230		
			D 0.05	0.07	0.11	0.14	0.19	0.23	0.29	0.35	0.41	0.47		
	2"	4.2	U 1627	1041	723	531	406	321	260	215	180	154	132	115
			D 0.04	0.06	0.09	0.12	0.16	0.20	0.24	0.30	0.35	0.41	0.48	0.56
			C 1424	1068	854	712	610	534	474	427	388	356	328	305
			D 0.03	0.05	0.08	0.11	0.14	0.17	0.21	0.26	0.30	0.35	0.41	0.47
	2 1/2"	4.5	U 2295	1469	1020	749	573	453	367	303	255	217	187	163
			D 0.03	0.05	0.07	0.09	0.12	0.16	0.19	0.24	0.28	0.33	0.38	0.44
			C 2008	1506	1205	1004	860	753	669	602	547	502	463	430
			D 0.03	0.04	0.06	0.08	0.11	0.14	0.17	0.20	0.24	0.28	0.33	0.38
	3"	4.9	U 2993	1915	1330	977	748	591	478	395	332	283	244	212
			D 0.03	0.04	0.06	0.08	0.10	0.13	0.16	0.20	0.24	0.28	0.32	0.37
			C 2619	1964	1571	1309	1122	982	873	785	714	654	604	561
			D 0.02	0.03	0.05	0.07	0.09	0.11	0.14	0.17	0.20	0.24	0.28	0.32
Gauge	plank depth in inches	approx. gal. weight lb./ft. ²	8'-0"	9'-0"	10'- 0"	11'- 0"	12'-0"	Data						
14 Gauge	1 1/2"	3.0	U											
			D											
			C											
			D											
	2"	3.3	U 84											
			D 0.63											
			C 235											
			D 0.53											
	2 1/2"	3.6	U 118	93	75									
			D 0.50	0.64	0.79									
			C 330	291	261									
			D 0.43	0.54	0.66									
12 Gauge	1 1/2"	3.8	U											
			D											
			C											
			D											
	2"	4.2	U 101	80										
			D 0.63	0.80										
			C 284	251										
			D 0.53	0.67										
	2 1/2"	4.5	U 143	113	91	75								
			D 0.50	0.64	0.79	0.96								
			C 401	354	317	286								
			D 0.43	0.54	0.66	0.80								
	3"	4.9	U 187	147	119	98	83							
			D 0.42	0.54	0.67	0.81	0.96							
			C 523	462	413	374	341							
			D 0.36	0.45	0.56	0.67	0.80							

BP-UE (250)



Gauge	plank depth in inches	approx. gal. weight lb./ft. ²	Span											
			2'-0"	2'- 6"	3'- 0"	3'- 6"	4'-0"	4'-6"	5'-0"	5'-6"	6'-0"	6'-6"	7'-0"	7'-6"
14 Gauge	1 1/2"	3.6	U 703	449	312	229	175	138	112	92	78			
			D 0.05	0.08	0.11	0.16	0.21	0.26	0.33	0.40	0.47			
			C 768	576	461	384	329	288	256	230	209			
			D 0.05	0.07	0.10	0.14	0.18	0.23	0.28	0.34	0.41			
	2"	3.8	U 1078	689	479	352	269	212	172	142	119	102	88	76
			D 0.04	0.06	0.09	0.12	0.15	0.20	0.24	0.30	0.35	0.41	0.48	0.55
			C 1178	884	707	589	505	442	392	353	321	294	272	252
			D 0.03	0.05	0.08	0.10	0.14	0.17	0.21	0.26	0.30	0.35	0.41	0.47
	2 1/2"	4.1	U 1512	967	672	493	378	298	241	199	168	143	123	107
			D 0.03	0.05	0.07	0.09	0.12	0.16	0.19	0.24	0.28	0.33	0.38	0.44
			C 1653	1240	992	826	708	620	551	496	451	413	381	354
			D 0.03	0.04	0.06	0.08	0.11	0.14	0.17	0.20	0.24	0.28	0.33	0.38
12 Gauge	1 1/2"	4.5	U 842	539	374	275	210	166	134	111	93	79		
			D 0.05	0.08	0.12	0.16	0.21	0.26	0.33	0.40	0.47	0.56		
			C 921	690	552	460	394	345	307	276	251	230		
			D 0.05	0.07	0.11	0.14	0.18	0.23	0.28	0.34	0.41	0.47		
	2"	4.9	U 1302	833	578	425	325	257	208	172	144	123	106	92
			D 0.04	0.06	0.09	0.12	0.16	0.20	0.24	0.30	0.35	0.41	0.48	0.55
			C 1424	1068	854	712	610	534	474	427	388	356	328	305
			D 0.03	0.05	0.08	0.10	0.14	0.17	0.21	0.26	0.30	0.35	0.41	0.47
	2 1/2"	5.1	U 1836	1175	816	599	459	362	293	242	204	173	149	130
			D 0.03	0.05	0.07	0.09	0.12	0.16	0.19	0.24	0.28	0.33	0.38	0.44
			C 2008	1506	1205	1004	860	753	669	602	547	502	463	430
			D 0.03	0.04	0.06	0.08	0.11	0.14	0.17	0.20	0.24	0.28	0.33	0.37
	3"	5.5	U 2395	1532	1064	782	598	473	383	316	266	226	195	170
			D 0.03	0.04	0.06	0.08	0.10	0.13	0.16	0.20	0.24	0.28	0.32	0.37
			C 2619	1964	1571	1309	1122	982	873	785	714	654	604	561
			D 0.02	0.03	0.05	0.07	0.09	0.12	0.14	0.17	0.20	0.24	0.28	0.32
Gauge	plank depth in inches	approx. gal. weight lb./ft. ²	8'-0"	9'-0"	10'- 0"	11'- 0"	12'-0"	Data						
14 Gauge	1 1/2"	3.6	U					Material stress (permissible tension): 1.798 tonf/0.155inch ² (material S 235 JR = St 37-3)						
			D					Safety factor to yield point: 1.63						
			C					Allowable loads and deflections:						
			D					U = Uniform load (lb./ft ²)						
	2"	3.8	U 67					C= Concentrated load (lb.) stamp 1 ft x 1 ft						
			D 0.63					D = Deflection (inches)						
			C 235					Spans in highlighted blue sections produce a deflection of 1/4" or less under a uniform load of 100 lb./ft ²						
			D 0.53											
	2 1/2"	4.1	U 94	74	60									
			D 0.50	0.64	0.79									
			C 330	291	261									
			D 0.43	0.54	0.66									
12 Gauge	1 1/2"	4.5	U											
			D											
			C											
			D											
	2"	4.9	U 81	64										
			D 0.63	0.80										
			C 284	251										
			D 0.53	0.67										
	2 1/2"	5.1	U 114	90	73	60								
			D 0.50	0.64	0.79	0.96								
			C 401	354	317	286								
			D 0.43	0.54	0.66	0.80								
	3"	5.5	U 149	118	95	79	66							
			D 0.43	0.54	0.67	0.81	0.96							
			C 523	462	413	374	341							
			D 0.36	0.45	0.56	0.67	0.80							

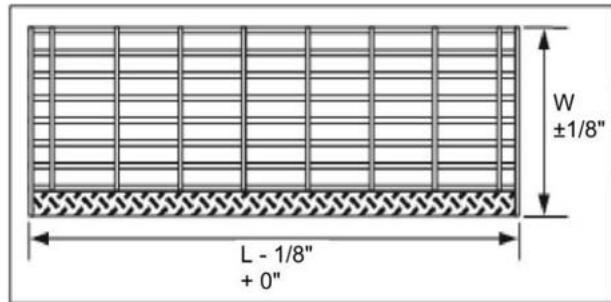
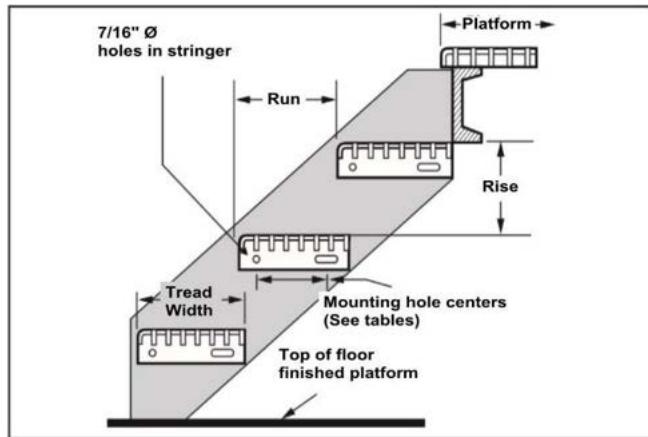
BP-UE (300)



Gauge	plank depth in inches	approx. gal. weight lb./ft. ²	Span											
			2'-0"	2'- 6"	3'- 0"	3'- 6"	4'-0"	4'-6"	5'-0"	5'-6"	6'-0"	6'-6"	7'-0"	7'-6"
14 Gauge	1 1/2"	4.1	U 585	374	260	229	175	138	112	92	78			
			D 0.05	0.08	0.11	0.16	0.21	0.26	0.33	0.40	0.47			
			C 768	576	461	384	329	288	256	230	209			
			D 0.05	0.07	0.10	0.14	0.18	0.23	0.28	0.34	0.41			
	2"	4.4	U 898	574	399	352	269	212	172	142	119	102	88	76
			D 0.04	0.06	0.09	0.12	0.15	0.20	0.24	0.30	0.35	0.41	0.48	0.55
			C 1178	884	707	589	505	442	392	353	321	294	272	252
			D 0.03	0.05	0.08	0.10	0.14	0.17	0.21	0.26	0.30	0.35	0.41	0.47
	2 1/2"	4.6	U 1260	806	560	493	378	298	241	199	168	143	123	107
			D 0.03	0.05	0.07	0.09	0.12	0.16	0.19	0.24	0.28	0.33	0.38	0.44
			C 1653	1240	992	826	708	620	551	496	451	413	381	354
			D 0.03	0.04	0.06	0.08	0.11	0.14	0.17	0.20	0.24	0.28	0.33	0.38
12 Gauge	1 1/2"	5.1	U 701	449	311	275	210	166	134	111	93	79		
			D 0.05	0.08	0.11	0.16	0.21	0.26	0.33	0.40	0.47	0.56		
			C 921	690	552	460	394	345	307	276	251	230		
			D 0.05	0.07	0.10	0.14	0.18	0.23	0.28	0.34	0.41	0.47		
	2"	5.5	U 1085	694	482	425	325	257	208	172	144	123	106	92
			D 0.04	0.06	0.09	0.12	0.16	0.20	0.24	0.30	0.35	0.41	0.48	0.55
			C 1424	1068	854	712	610	534	474	427	388	356	328	305
			D 0.03	0.05	0.08	0.10	0.14	0.17	0.21	0.26	0.30	0.35	0.41	0.47
	2 1/2"	5.8	U 1530	979	816	599	459	362	293	242	204	173	149	130
			D 0.03	0.05	0.07	0.09	0.12	0.16	0.19	0.24	0.28	0.33	0.38	0.44
			C 2008	1506	1205	1004	860	753	669	602	547	502	463	430
			D 0.03	0.04	0.06	0.08	0.11	0.14	0.17	0.20	0.24	0.28	0.33	0.37
	3"	6.2	U 1995	1277	1064	782	598	473	383	316	266	226	195	170
			D 0.03	0.05	0.06	0.08	0.10	0.13	0.16	0.20	0.24	0.28	0.32	0.37
			C 2619	1964	1571	1309	1122	982	873	785	714	654	604	561
			D 0.02	0.04	0.05	0.07	0.09	0.12	0.14	0.17	0.20	0.24	0.28	0.32
Gauge	plank depth in inches	approx. gal. weight lb./ft. ²	8'-0"	9'-0"	10'- 0"	11'- 0"	12'-0"	Data						
14 Gauge	1 1/2"	4.1	U					Material stress (permissible tension): 1.798 tonf/0.155inch ² (material S 235 JR = St 37-3)						
			D					Safety factor to yield point: 1.63						
			C					Allowable loads and deflections:						
			D					U = Uniform load (lb./ft ²)						
	2"	4.4	U 67					C = Concentrated load (lb.) stamp 1 ft x 1 ft						
			D 0.63					D = Deflection (inches)						
			C 235					Spans in highlighted blue sections produce a deflection of 1/4" or less under a uniform load of 100 lb./ft ²						
			D 0.53											
	2 1/2"	4.6	U 94	74	60									
			D 0.50	0.64	0.79									
			C 330	291	261									
			D 0.43	0.54	0.66									
12 Gauge	1 1/2"	5.1	U											
			D											
			C											
			D											
	2"	5.5	U 81	64										
			D 0.63	0.80										
			C 284	251										
			D 0.53	0.67										
	2 1/2"	5.8	U 114	90	73	60								
			D 0.50	0.64	0.79	0.96								
			C 401	354	317	286								
			D 0.43	0.54	0.66	0.80								
	3"	6.2	U 149	118	95	79	66							
			D 0.43	0.54	0.67	0.81	0.96							
			C 523	462	413	374	341							
			D 0.36	0.45	0.56	0.67	0.80							

Stair treads

Stair Tread Tolerances and Details



Tread Length and Width Tolerance

Available in welded steel & press-locked steel



Maximum Tread Lengths

Bearing Bar Spacing			
	1-3/16" (19 space)	15/16" (15 space)	
Bearing Bar Size	Plain	Serrated	Plain
3/4" x 3/16'	2"-4"	1"-11"	2"-8"
1" x 1/8"	2"-7"	2"-3"	3"-0"
1" x 3/16"	3"-5"	2"-10"	4"-0"
1-1/4" x 1/8"	3"-7"	3"-1"	4"-2"
1-1/4" x 3/16"	4"-8"	4"-2"	5"-1"
1-1/2" x 3/16"	5"-6"	5"-3"	5"-6"

Standard Tread Sizes

Bearing Bars: 1" x 3/16", 1 1/4" x 3/16", 1 1/2" x 3/16"
 Widths: 9 3/4", 10 15/16", 12 1/8"
 Lengths: 30" and 36"

Stair tread weights

19-W-4 and 19-P-4

15-W-4

No. of bearing bars	Nosing	Bearing Bar Size					
		1" x 1/8"	1-1/4" x 1/8"	3/4" x 3/16"	1" x 3/16"	1-1/4" x 3/16"	1-1/2" x 3/16"
5	CP DP	0.30	0.35	0.33	0.39	0.46	0.55
6	CP DP	0.35	0.40	0.38	0.46	0.53	0.65
7	CP DP	0.39	0.45	0.43	0.52	0.61	0.74
8	CP DP	0.44	0.51	0.48	0.53	0.69	0.84
9	CP DP	0.48	0.56	0.53	0.64	0.76	0.93
10	CP DP	0.53	0.62	0.58	0.71	0.84	1.02

No. of bearing bars	Nosing	Bearing Bar Size					
		1" x 1/8"	1-1/4" x 1/8"	3/4" x 3/16"	1" x 3/16"	1-1/4" x 3/16"	1-1/2" x 3/16"
6	CP DP	0.34	0.39	0.36	0.44	0.53	0.63
7	CP DP	0.38	0.44	0.41	0.51	0.60	0.72
8	CP DP	0.43	0.49	0.46	0.57	0.67	0.81
9	CP DP	0.47	0.55	0.51	0.63	0.75	0.91
10	CP DP	0.51	0.60	0.55	0.69	0.82	1.00
11	CP DP	0.55	0.65	0.60	0.75	0.89	1.09

Tread widths and bolt hole spacing

15-W-4

19-W-4 and 19-P-4

No. of Bearing Bars and Nosing	Bearing Bar		**Bolt hole Spacing "A"
	1/8"	3/16"	
Tread Width			
5	6-1/8"	6-3/16"	2-1/2"
6	7-5/16"	7-3/8"	4-1/2"
7	8-1/2"	8-9/16"	4-1/2"
8	9-11/18"	9-3/4"	7"
9	10-7/8"	10-15/16"	7"
10	12-1/16"	12-1/8"	7"

No. of Bearing Bars and Nosing	Bearing Bar		**Bolt hole Spacing "A"
	1/8"	3/16"	
Tread Width			
6	6-1/16"	6-1/8"	2-1/2"
7	7"	7-1/16"	4-1/2"
8	7-15/16"	8"	4-1/2"
9	8-7/8"	8-15/16"	4-1/2"
10	9-13/16"	9-7/8"	7"
11	10-3/4"	10-13/16"	7"

CP= Checkered Plate

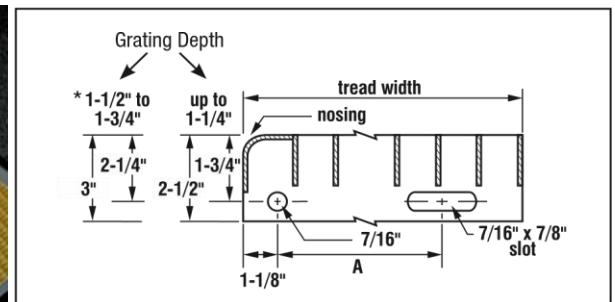
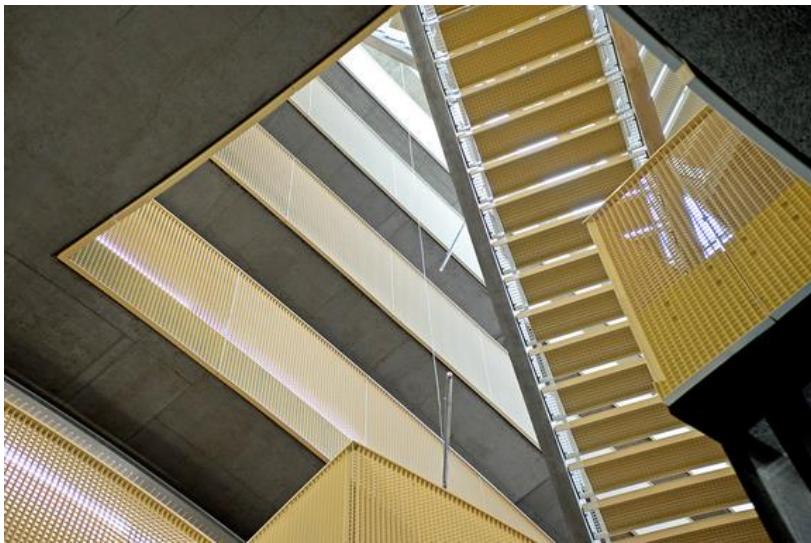
DP= Dimple Plate

** see drawings below

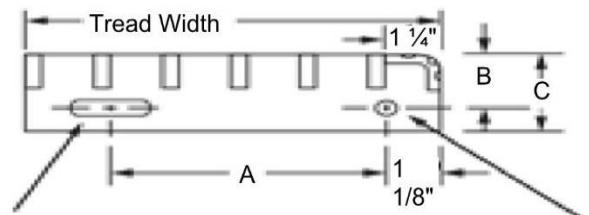
End plate dimensions

Grating Depth	"B" dimension	"C" dimension
up to 1-1/4"	1-3/4"	2-1/2"
1-1/2" to 1-3/4"	2-1/4"	3"

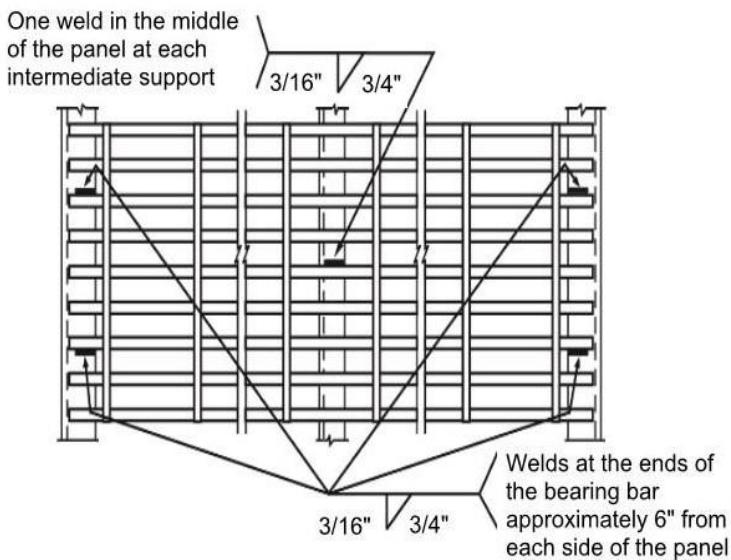




With Checkered Plate Nosing



Anchoring Details



The attachments should be placed at intermediate supports in the middle of the panels and at the four bearing bar ends, 6" from each side of the panel. The welds should be 3/16" fillet welds, 3/4" long. Heavy duty grating may require additional welding to meet the specific application needs.

FRP Grating

Gratings, Platforms, Ladders and Railings

Fiberglass excels in its versatility, high weathering and corrosion resistance, low weight, quick and easy installation on site and its long durability. It is electronically non-conductive, hygienic and resistant to bacteria. The material is maintenance-free since it doesn't rust and doesn't need painting. It can be used in place of or in conjunction with aluminum, steel or stainless steel, Furthermore, its advantages include slip-resistance, non-conductivity, fire retardancy, low thermal conductivity and UV-protection. FRP grating can be used in a multiplicity of industries, such as energy, industrial, commercial, water/ waste water treatment, municipal, mining/ refining, transportation, military/ government, chemical processing, pulp/paper, pharmaceutical and textile.

Open Molded Grating

Molded fiberglass grating is a one-piece grating made of reinforced polyester or vinyl ester (FRP). It is available in standard panels and sizes. FRP grating is manufactured by interweaving continuous, thoroughly wetted fiberglass roving with thermosetting resin systems.

The components resin, fiberglass, additives and dyes are the basis of the composite FRP, which is very versatile in its form and practicability. The resin used determines the chemical resistance, flexibility and UV resistance of the FRP product. Depending on the application, different types of resins are used. FRP products can be made from orthophthalic resin, isophthalic and vinyl ester resin (with extremely high chemical load), whereby Lichtgitter uses isophthalic resin as standard. The special feature of the phenolic resin is the high fire resistance and the very low smoke production. As reinforcement, continuous glass filaments are

woven in a plurality of layers. Additives such as flame retardants, hardeners, accelerators and UV stabilizers are further components. The standard color of the Lichtgitter FRP gratings is gray, similar to RAL 7035. Color pigments allow the coloring of the FRP product. This results in various architectural design options or warning and signal designations. The numerous possible applications include floor systems, walkways, work platforms, stairs, ramps, trench covers and catwalks.

Standard panel sizes

-	4'-0 x 12'-0
3'-0 x 10'-0	4'-0 x 10'-0
-	4'-0 x 8'-0

Standard Resin Systems

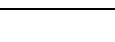
The two standard resin systems are:

IFR – Premium grade Isophthalic Polyester resin systems with Class 1 fire retardancy per ASTM E-84 and excellent corrosion resistance. Meets USDA standards for incidental food contact. Available in green, yellow, dark gray and light gray.

VEFR – Vinyl ester resin system with Class 1 fire retardancy, per ASTM E-84. For maximum corrosion resistance in Lichtgrid standard resin systems, specify VEFR. Available in red and dark gray.

(Other resin systems and colors are available on special order. All Lichtgrid resin systems incorporate an ultraviolet (UV) inhibitor.)

RAL-Colors

1003	Yellow	
7043	Dark Gray	
7047	Light Gray	
6010	Green	
2002	Red (VEFR)	

Square Mesh, 1" thick (1 ½ x 1 ½")

Clear Span	50	75	100	150	200	250	.250" Def	.375" Def
18"	0.018	0.028	0.037	0.055	0.073	0.092	695	1035
24"	0.058	0.087	0.116	0.174	0.232	0.290	0.220	0.330
36"	0.293	0.440	**	**	**	**	45	65
48"*	**	**	**	**	**	**	15	20

Square Mesh, 1 ½ thick (1 ½" x 1 ½")

Clear Span	50	75	100	150	200	250	.250" Def	.375" Def
18"	0.006	0.008	0.011	0.017	0.023	0.028	2170	3260
24"	0.018	0.027	0.036	0.054	0.071	0.089	685	1030
36"	0.090	0.135	0.181	0.271	0.361	0.451	135	205
48"*	0.285	0.428	**	**	**	**	45	65

Square Mesh, 2" thick (2" x 2")

Clear Span	50	75	100	150	200	250	.250" Def	.375" Def
18"	0.004	0.006	0.008	0.012	0.016	0.020	2840	4260
24"	0.011	0.016	0.021	0.032	0.043	0.054	1165	1745
36"	0.045	0.068	0.090	0.135	0.180	0.225	280	410
48"*	0.138	0.206	0.275	0.413	**	**	90	135
60"*	0.358	**	**	**	**	**	35	55

* The clear span is 2" less than the width of the grating.

** Deflections greater than 0.500" have been omitted



Pultruded Grating

Pultruded grating is manufactured by continuously molding a synthetic surface veil and glass roving and matting by "pulling" simultaneously through a flame-retardant polyester or vinylester resin bath. The desired grating shapes are formed and solidified by being pulled through a heated steel die. Lichtgrid pultruded grating stands out in its strength, corrosion resistance and structural integrity.

Standard Resin Systems

IFR is made with a premium-grade Isophthalic polyester flame-retardant resin system. The standard colors are yellow and gray for pultruded grating,

VEFR is made with a premium-grade vinylester flame-retardant resin system providing added corrosion-protection. The available standard colors for pultruded grating are yellow and gray.

Lichtgrid Pultruded Grating Selection

Series	Open Area	Depth	Top Flange Width	Bar Spacing	Bars/ Ft	Lbs/ Ft ²
I-6010	60%	1"	0.6"	1 ½"	8	2.35
I-4010	40%	1 "	0.6"	1"	12	3.41
I-6015	60%	1 ½"	0.6"	1 ½"	8	2.83
I-4015	40%	1 ½"	0.6"	1"	12	4.13
T-5020	50%	2"	1"	2"	6	3.1
T-3320	33%	2"	1"		8	4.1

Standard Panel Sizes

3'-0 x 24'-0	4'-0 x 24'-0
3'-0 x 20'-0	4'-0 x 20'-0

Custom panels are available up to 5' widths and 24' lengths. Call 855.548.7911 for details.

Span inches	Load Type									0.25-inch deflection	0.375-inch deflection
12	U D	250 0.002	500 0.003	1000 0.007	1500 0.010	2000 0.031	2500 0.016	3500 0.023	4500 0.029		
18	U D	250 0.008	500 0.015	1000 0.030	1500 0.045	2000 0.061	2500 0.076	3500 0.106	4500 0.136		
24	U D	250 0.023	500 0.046	1000 0.091	1500 0.137	2000 0.183	2500 0.228	3000 0.274	3500 0.320	2737	4106
30	U D	250 0.053	500 0.106	750 0.159	1000 0.212	1250 0.265	1500 0.318	1750 0.371	2000 0.424	1178	1768
36	U D	100 0.040	125 0.050	250 0.099	500 0.198	600 0.238	800 0.317	1000 0.396		631	947
42	U D	100 0.079	125 0.099	200 0.159	300 0.238	400 0.317	600 0.476			315	473
48	U D	100 0.127	125 0.159	200 0.254	250 0.317	400 0.508				197	195
54	U D	75 0.134	100 0.178	125 0.223	250 0.446					140	210
60	U D	50 0.142	50 0.213	75 0.284						88	132

Bearing Bar type: I-Bar
 Open Area: 60%
 Thickness: 1.0"
 Bearing Bar Centers: 1.5"
 Resin Systems: IFR, VEFR
 Available Colors: Yellow, Gray
 Approximate Weight: 2.35 lbs./sq. ft
 Other Bar Spacing Available: 40% and 50% open area

Span inches	Load Type									0.25-inch deflection	0.375-inch deflection
12	U D	250 0.005	500 0.010	1000 0.020	1500 0.029	2000 0.039	2400 0.047	2800 0.055	3200 0.063		
18	U D	100 0.008	250 0.021	500 0.042	750 0.062	1000 0.083	1200 0.100	1500 0.125	1800 0.149	3012	4518
24	U D	100 0.025	200 0.050	300 0.075	400 0.099	600 0.199	800 0.199	1000 0.249	1200 0.298	1005	1508
30	U D	100 0.058	200 0.115	300 0.173	400 0.231	500 0.288	600 0.346	800 0.461		434	650
36	U D	100 0.113	125 0.141	150 0.169	200 0.226	300 0.339	400 0.452			221	332
42	U D	75 0.135	100 0.179	125 0.224	150 0.269	250 0.449				139	209
48	U D	50 0.176	75 0.265	100 0.353	125 0.441					71	106

Bearing Bar type: I-Bar
 Open Area: 60%
 Thickness: 1.5"
 Bearing Bar Centers: 1.5"
 Resin Systems: IFR, VEFR
 Available Colors: Yellow, Gray
 Approximate Weight: 2.83 lbs./sq. ft
 Other Bar Spacing Available: 40% and 50% open area

Span inches	Load Type								0.25-inch deflection	0.375-inch deflection
24	U	500	750	1000	1250	1500	2000	3000	4000	
	D	0.025	0.038	0.050	0.063	0.075	0.100	0.150	0.200	
30	U	250	500	750	1000	1500	2000	2500	3000	1938
	D	0.032	0.065	0.097	0.129	0.194	0.258	0.323	0.387	2907
36	U	100	250	500	750	1000	1250	1500	2000	999
	D	0.025	0.063	0.125	0.188	0.250	0.313	0.375	0.500	1499
42	U	100	125	250	500	750	1000	1250	550	825
	D	0.045	0.057	0.114	0.227	0.341	0.454	0.568		
48	U	100	250	300	400	500	600		313	469
	D	0.080	0.200	0.240	0.320	0.400	0.480			
54	U	100	125	250	300	400			208	313
	D	0.120	0.150	0.300	0.360	0.480				
60	U	75	100	200	250				129	193
	D	0.146	0.195	0.389	0.486					
66	U	75	100	125	150				94	141
	D	0.200	0.267	0.333	0.400					
72	U	75	100	125	150				67	100
	D	0.281	0.375	0.469						
78	U	50	75						48	72
	D	0.260	0.390							

Bearing Bar type: T-Bar
 Open Area: 50%
 Thickness: 2.0"
 Bearing Bar Centers: 2.0"
 Resin Systems: IFR, VEFR
 Available Colors: Yellow, Gray
 Approximate Weight: 3.10 lbs./sq. ft
 Other Bar Spacing Available: 33% open area

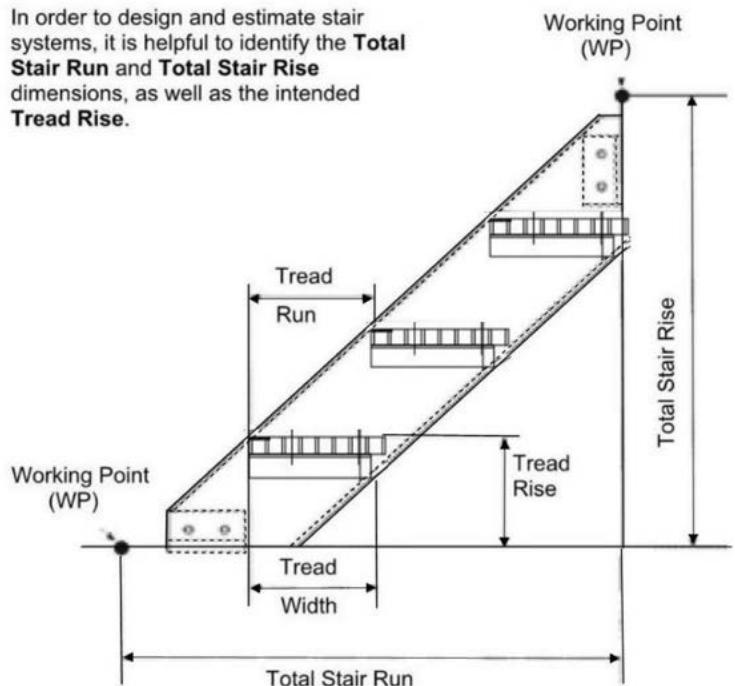
You can cut your own stair treads from Lichtgrid Stair Tread panels.

Easy cutting – inexpensive, accurate and quick thanks to the cutting of slots every six inches, which result in banded treads on both ends.

Economical – less wastage and less cost since the panel size (24-1/4" x 144") offers numerous combinations to maximize the number of treads.

Lichtgitter Fiberglass Stair Tread Covers provide an improved stairway-safety while being very cost-effective. They consist of corrosion resistant resin with a low flame spread rating. An integral grit top surface and a woven fiberglass mat are the components of the panels.

In order to design and estimate stair systems, it is helpful to identify the **Total Stair Run** and **Total Stair Rise** dimensions, as well as the intended **Tread Rise**.



Series	Flush Top	Resin	Color
I 1"	Yes	IFR / VEFR	Yellow / Green
I 1.5"	Yes	IFR / VEFR	Yellow / Green
T 2"	No	IFR / VEFR	Yellow / Green

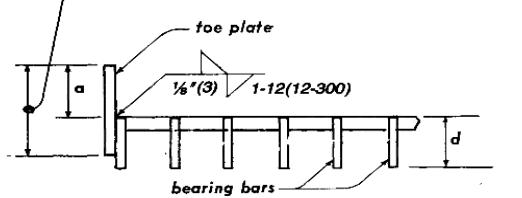
Tolerances according to NAAMM

WELDING STANDARDS

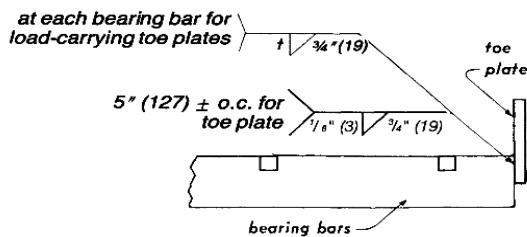
The welding standards shown here apply to those gratings and treads having a clear opening of not less than $\frac{5}{8}$ in. (16 mm) between bearing bars and those galvanized as per Specifications, page 23. See NAAMM STANDARD MBG 533 "Welding Specifications for Fabrication of Steel, Aluminum and Stainless Steel Bar Grating" for welding specifications and certification of welders.

TOE PLATES

depth of toe plate to be in multiples of $\frac{1}{2}$ in. (12.5mm) with a maximum of $a + d$ and a minimum of 4 in. (100mm) recommended for "a" dimension.

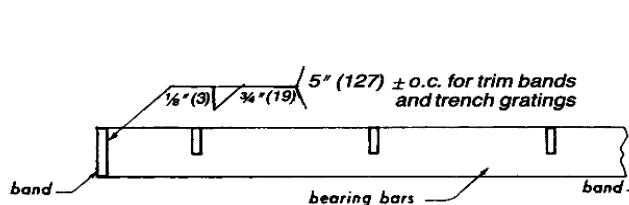


t = bearing bar thickness

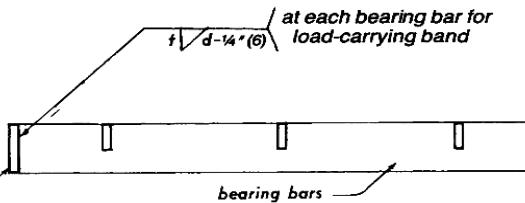


d = bearing bar depth

BANDING

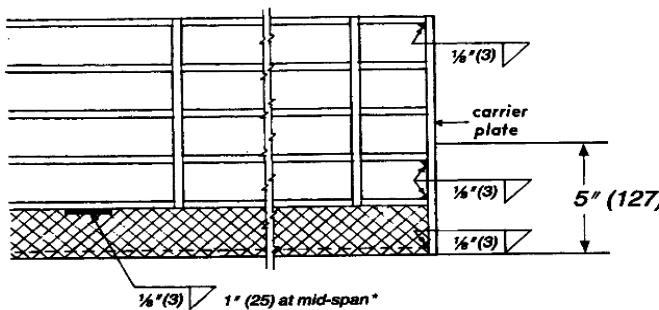


STANDARD TRIM BAND

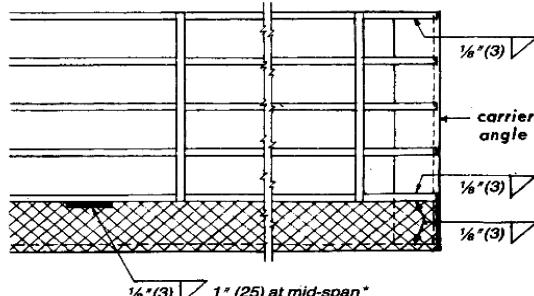


LOAD BANDING
(must be specified)

STAIR TREADS



When carrier plates are used, the bearing bars in the front five inches plus the nosing shall be welded to the carrier plate as shown.

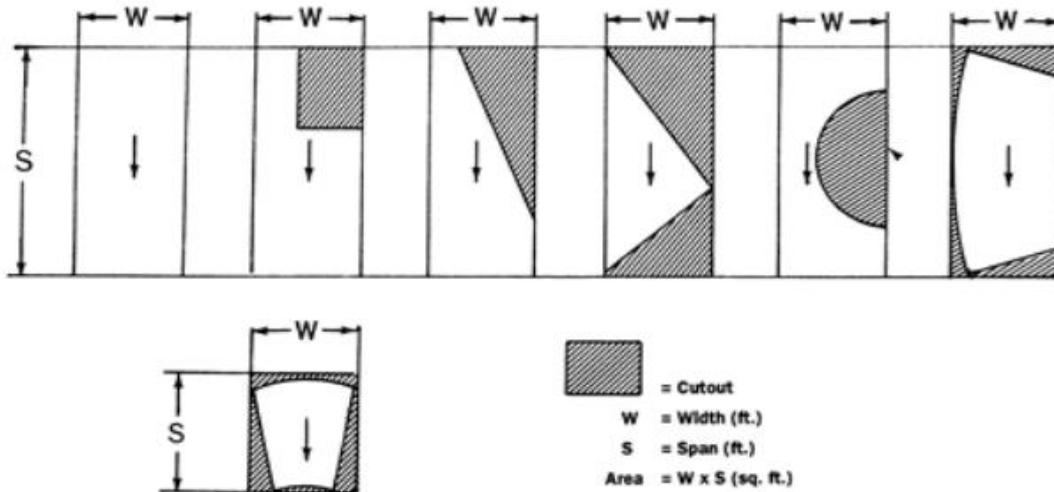


On treads over 9-3/4 in. (248) wide, weld end of center bar also.

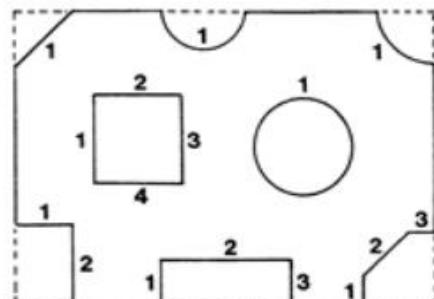
*Treads spanning 4 ft. (1.2 m) or more shall have two welds, located at the third points.

4. QUANTITY MEASUREMENTS

- 4.1 Quantity measurements for gratings ordered to specific dimensions without drawings, shall be based on span times width of each panel, with no deduction made for cutouts.
- 4.2 Final calculated grating quantities supplied from drawings shall be on the basis of gross area measured center-to-center of supports, or back to back of supporting angles or channels, or overall dimensions of grating, whichever is larger, with no deduction for clearances. Allowances for cutouts shall be determined as follows:
- Deductions in area for circular cutouts will be allowed only when the diameter of the cutout exceeds 3' 6" (1.1 m). The deduction allowance will be equal to one-half the square of the diameter of the cutout.
 - Deductions in area for cutouts other than circular will be allowed only when the cutout area exceeds nine (9) square feet (one (1) square meter).
 - No deductions will be allowed for any triangular segment or corners of gratings wasted in skew cuts.
 - For special applications, such as (but not limited to) containment areas in nuclear power plants, the final grating quantities shall be the total gross area of all the pieces furnished with no allowance for cutouts. See the following sketches.

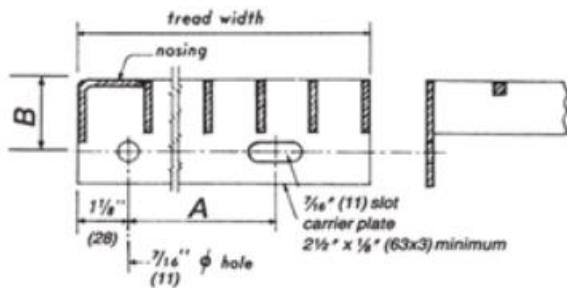


- 4.3 Measurement of cuts shall be on the basis of a minimum of one (1) lineal foot (0.3 m) per panel. Any cut in excess of one (1) lineal foot (0.3 m) shall be measured to the next higher lineal foot (0.3 m). (See diagram at the right.)
- 4.4 Measurement of bandings, toe plates and nosings shall be on the same basis as that of cuts, as defined in 4.3.



TREAD DIMENSIONS

RECOMMENDED DETAILS



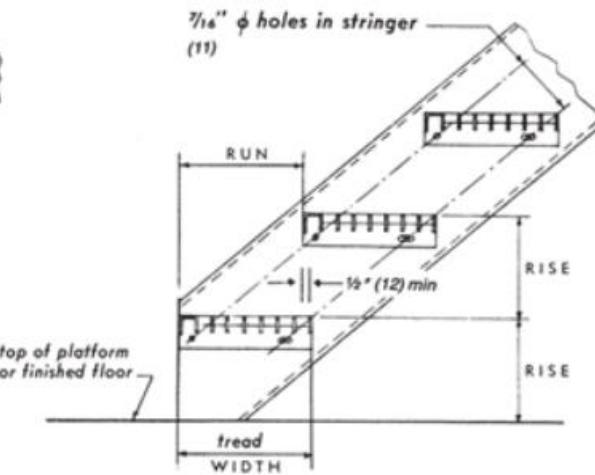
TREAD with carrier plate detail

TREAD with carrier angles available,
consult grating manufacturer for details

DIMENSION A in TREAD with carrier plate detail
in. (mm)

Nominal Tread Width (approximate)** Bearing Bar Centers	Dimension A
1 1/16 (30)	15 1/16 (24)
6 1/4 (159)	6 (152)
7 1/4 (184)	7 (178)
8 1/2 (216)	9 (229)
9 3/4 (248)	10 (254)
11 (279)	10 3/4 (273)
12 (305)	11 3/4 (298)

**Consult manufacturer for
exact dimension.



NOTE: Tread width should always be greater than tread run by 1/2 in. (12mm) minimum.

DIMENSION B in TREAD with carrier plate detail
in. (mm)

Grating Depth	Dimension B
3/4 (19) to 1 1/4 (32) 1 1/2 (38) and up	1 3/4 (44) 2 1/4 (57)
aluminum is usually 2 1/4 (57) regardless of depth	

RECOMMENDED BEARING BAR SIZES

STEEL TREADS

Bearing Bar Size in. (mm)	Maximum Tread Length*			
	@ 1 1/16 (30) o.c.		@ 15 1/16 (24) o.c.	
	Plain	Serrated	Plain	Serrated
3/4 x 3/16 (19 x 5)	2'-4" (.71m)	—	2'-8" (.81m)	—
1 x 3/16 (25 x 5)	3'-5" (1.04m)	2'-10" (.86m)	4'-0" (1.22m)	3'-4" (1.02m)
1 1/4 x 3/16 (32 x 5)	4'-8" (1.42m)	4'-2" (1.27m)	5'-1" (1.55m)	4'-6" (1.37m)
1 1/2 x 3/16 (38 x 5)	5'-6" (1.67m)	5'-3" (1.60m)	5'-6" (1.67m)	5'-6" (1.67m)

Note: When tread length exceeds 5'-6" (1.67m), design tread for 300 lb (1.33kN) concentrated loads at one-third points.

*Maximum tread length based on 300 lb (133 kN) concentrated load on front 5 in. (127 mm) of tread at center of tread length and deflection limitation of 1/240 of length. For maximum length under other loadings, consult the manufacturer.

ALUMINUM TREADS

Rectangular Bars

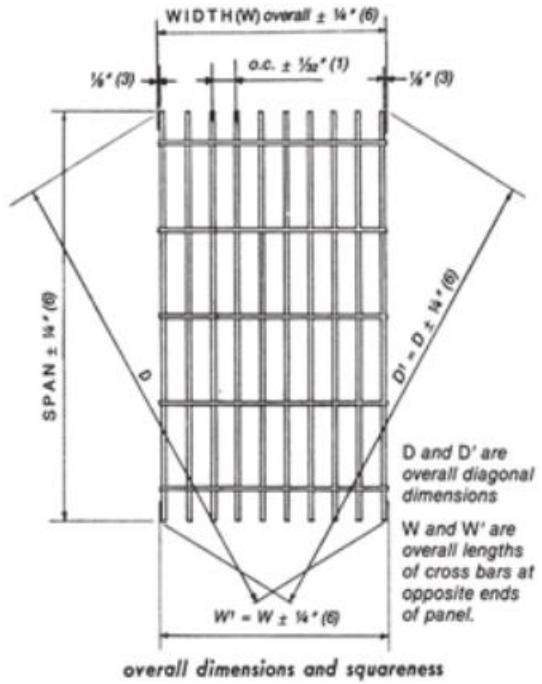
Bearing Bar Size in. (mm)	Maximum Tread Length*			
	@ 1 1/16 (30) o.c.		@ 15 1/16 (24) o.c.	
	Plain	Serrated	Plain	Serrated
1 x 3/16 (25 x 5)	2'-4" (.71m)	—	2'-6" (.76m)	—
1 1/4 x 3/16 (32 x 5)	2'-10" (.86m)	2'-7" (.79m)	3'-1" (.94m)	2'-9" (.84m)
1 1/2 x 3/16 (38 x 5)	3'-6" (1.07m)	3'-2" (.97m)	3'-10" (1.17m)	3'-6" (1.07m)
1 3/4 x 3/16 (44 x 5)	4'-3" (1.30m)	3'-10" (1.17m)	4'-8" (1.42m)	4'-3" (1.30m)

I Bars

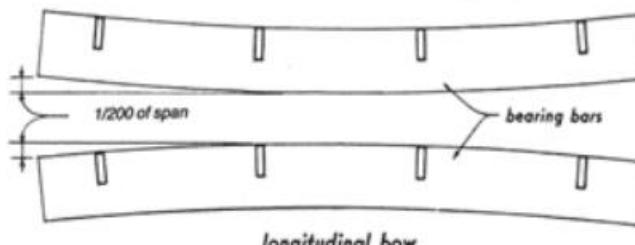
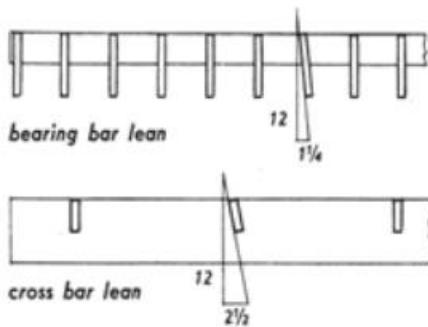
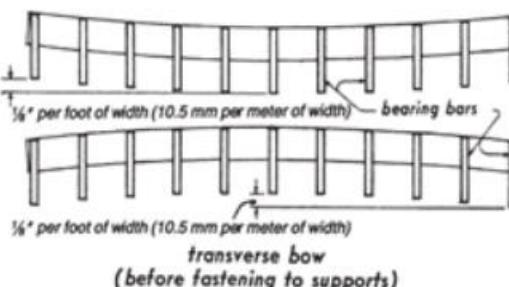
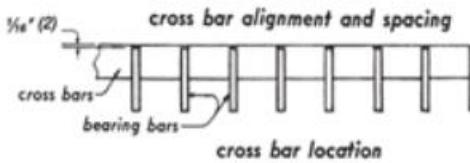
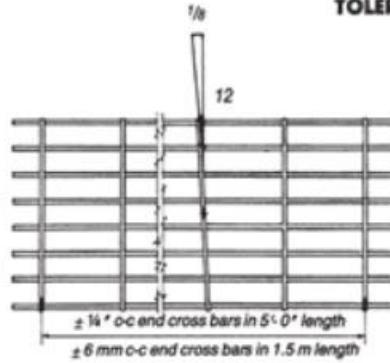
Bearing Bar Size in. (mm)	Maximum Tread Length*	
	@ 1 1/16 (30) o.c.	@ 15 1/16 (24) o.c.
1 (25) I	2'-4" (.71m)	2'-6" (.76m)
1 1/4 (32) I	2'-10" (.86m)	3'-1" (.94m)
1 1/2 (38) I	3'-6" (1.07m)	3'-10" (1.17m)
1 3/4 (44) I	4'-3" (1.30m)	4'-8" (1.42m)

MANUFACTURING TOLERANCES

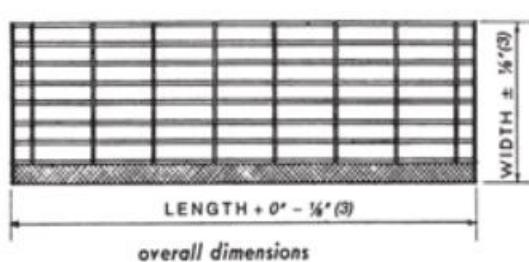
All dimensions given are maximum permissible tolerances.



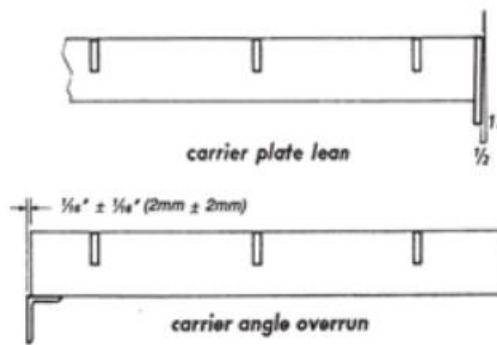
Cross bar shall not vary more than $\frac{1}{8}$ in 12 in either direction from perpendicular alignment with bearing bars.



STAIR TREAD TOLERANCES



NOTE: Length of tread is distance between outer faces of carrier plates or back to back of carrier angles.

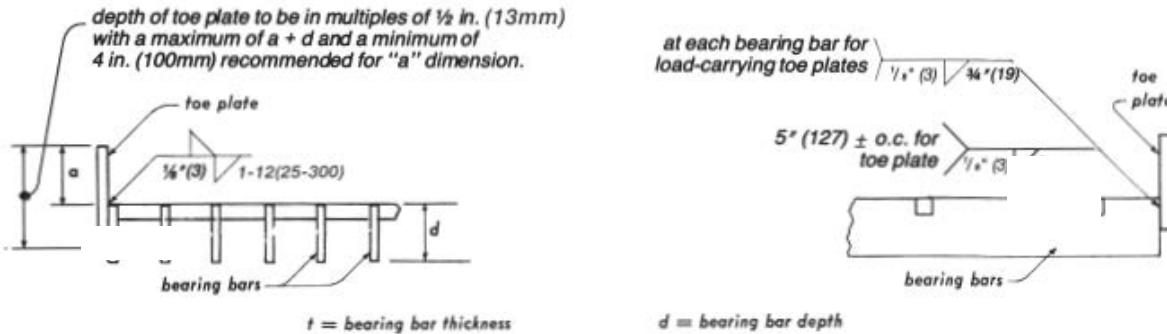


carrier angle overrun

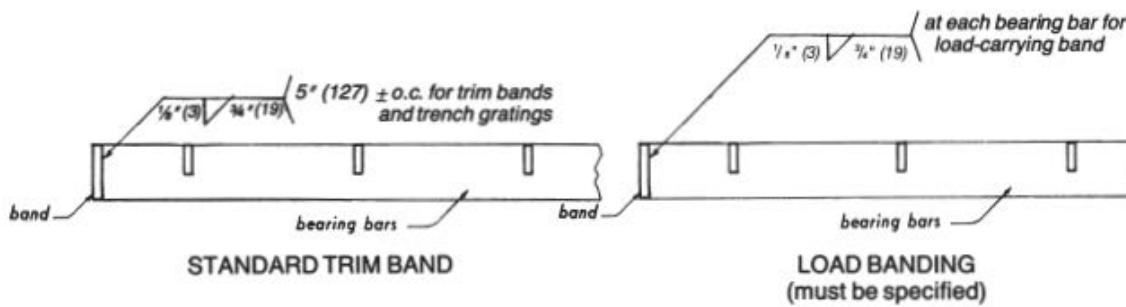
WELDING STANDARDS

The welding standards shown here apply to those gratings and treads having a clear opening of not less than $\frac{1}{2}$ in. (16 mm) between bearing bars and those galvanized as per Specifications, page 24. See NAAMM STANDARD MBG 533 "Welding Specifications for Fabrication of Steel, Aluminum and Stainless Steel Bar Grating" for welding specifications and certification of welders.

TOE PLATES

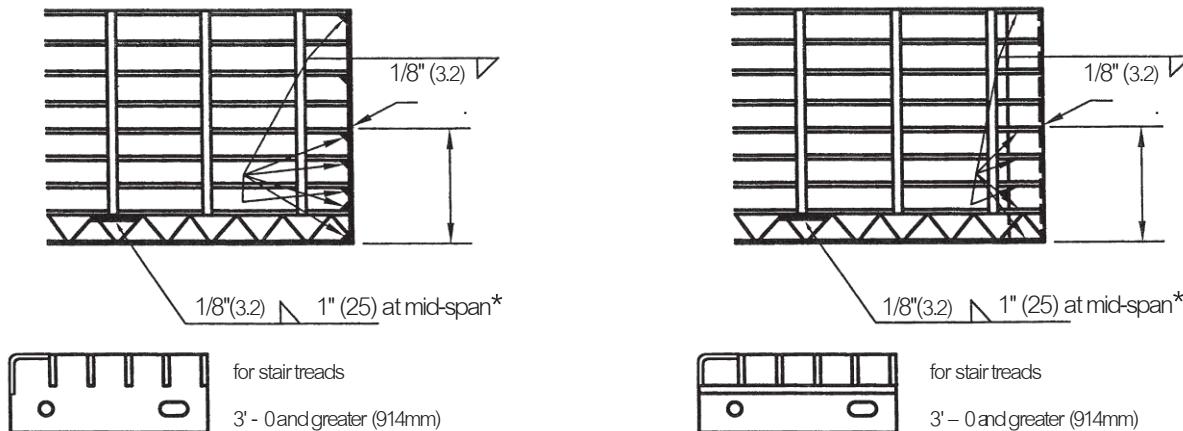


BANDING



STANDARD STAIR TREADS

(bearing bar thickness less than $1/4$ " (6.4mm) and bearing bar clear opening greater than or equal to $5/8$ " (16mm))



when carrier plates and carrier angles are used, the bearing bars in the front five inches, the back bearing bar, and the nosing shall be welded to the carrier plate or carrier angle as shown.

On treads over $9\frac{3}{4}$ in. (248) wide weld end of center bar also. * Treads spanning 4 ft. (1.2m) or more shall have welds located at the third points.



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