

lichtgitter

 lichtgitter
USA



Planking



FRP



Press-locked grating



Welded grating



LICHTBITTER
- EVERYTHING FROM ONE SOURCE -



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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

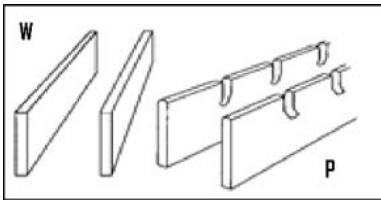
Metal floors are grouped into two distinct categories, gratings (welded and press-locked gratings) and perforated metal planks.

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.

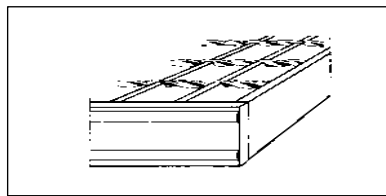
Perforated metal planks are C-profiles formed from sheets with an assortment of pre-formed patterns on their surfaces.

1. Bearing bars



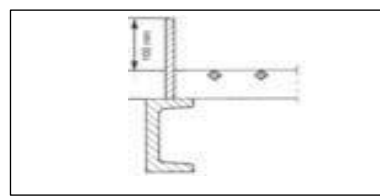
These are the bars that bear the load, they lie parallel to each other between two grating supports.

3. Banding



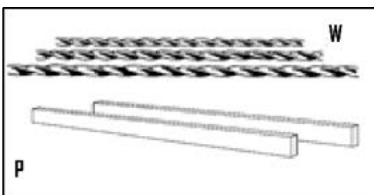
The banding can consist of a bar section to the edge of the gratings, a flush with the tops of bearing bars (in direction of bearing bar = banding alongside: cross to bearing bar = cross banding).

5. Kick flat (toe plate)



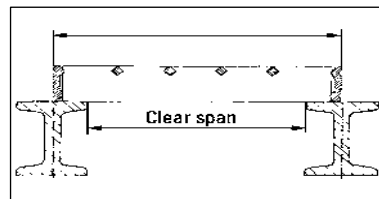
A kick plate or toe plate is a welded bar projecting above the top surface of the bearing bars by at least 4" (upward).

2. Cross rods & cross bars



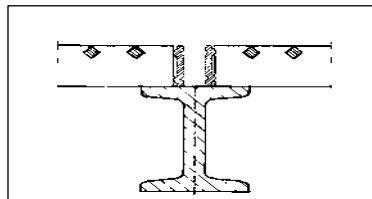
The connecting bars that are positioned transversely across bearing bars, either welded or pressed into them at their intersecting points to provide lateral restraint.

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 shall 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

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

- the static layout of gratings and perforated metal planks

- 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

- data transmission, in collaboration with our technical department

- layout drawings available as data sets

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

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

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

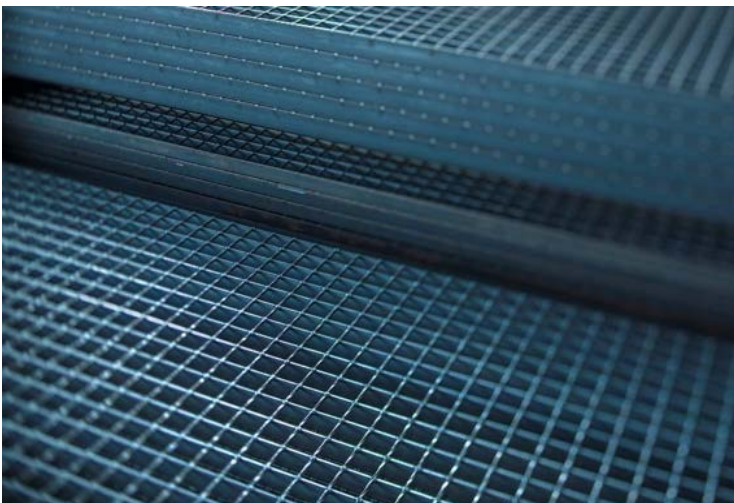




Steel Bar Grating

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

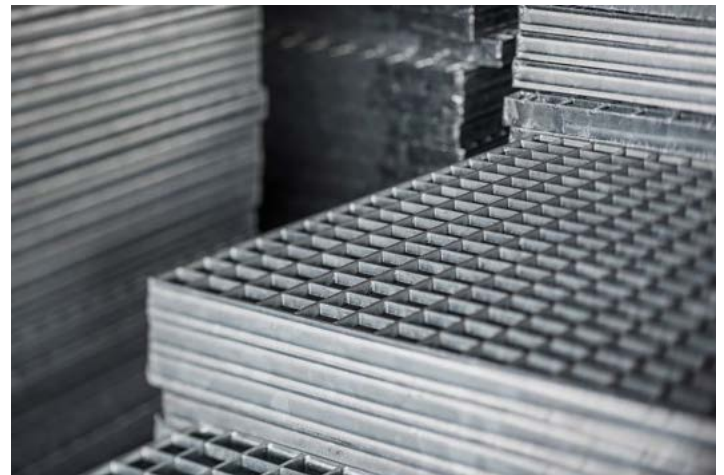


gratings are available either galvanized or mill finished and either smooth or serrated.

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

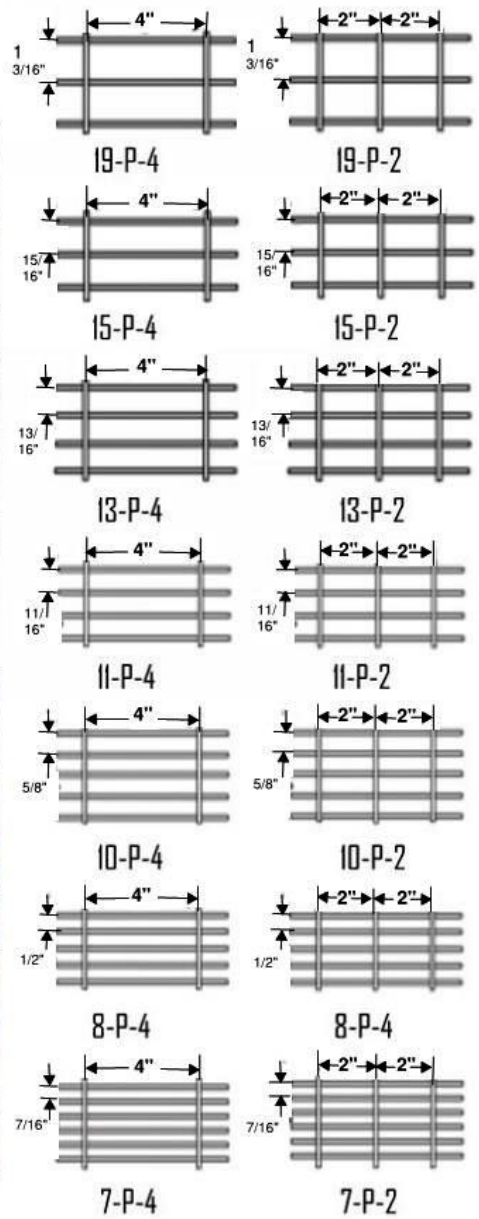
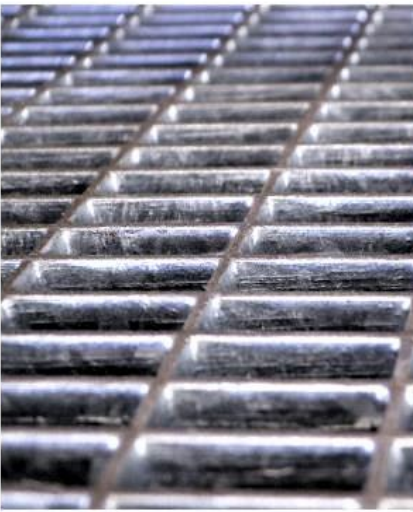
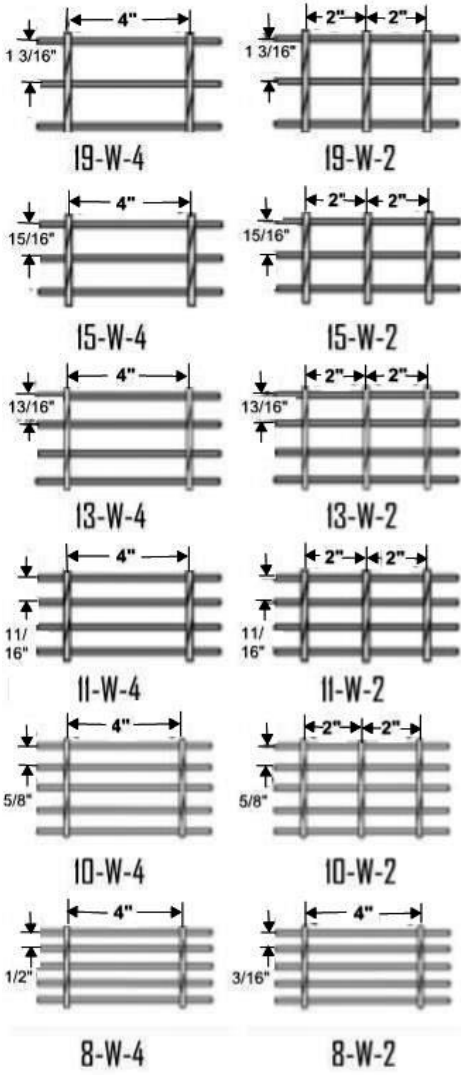


from 1" to 3" in depth and are predominantly between 15 GA to 3/16" thick. The bearing bar spacing ranges from 2 5/8" to 7/16".

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.

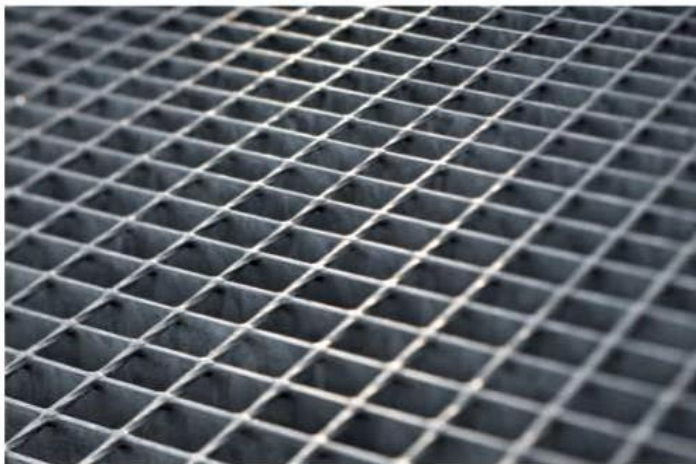
These gratings are available with a serrated or with a smooth surface. They are especially suitable for pedestrian and vehicle traffic on platforms, walkways, stairs, landings and stair treads. They provide excellent light and air transmission. Press-locked gratings also aid fire suppression systems.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

Steel Bar Grating

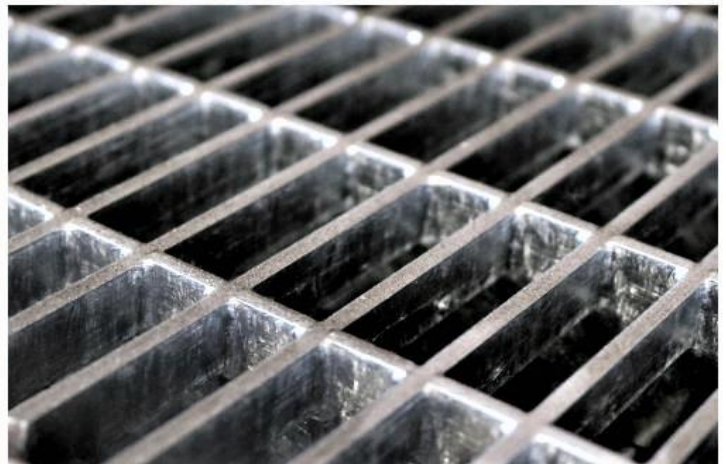


Standard panel widths are 2' - 0 and 3' - 0.

WELDED STEEL BAR GRATING



PRESS-LOCKED STEEL BAR GRATING





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"	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				
3/4" x 1/8" Non-Serrated Only	13-W-4	5.3 5.8 6.7	0.173	U	519	332	231	170	130	103	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	0.099	0.155	0.223	0.304	0.397	0.503					
				C	519	415	346	297	260	231					
				D	0.079	0.124	0.179	0.243	0.318	0.402					
3/4" x 3/16" Non-Serrated Only	13-W-4	7.8 8.6 10.1	0.260	U	779	498	346	254	195	154	125	66"	72"	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	
				D	0.099	0.155	0.223	0.304	0.397	0.503	0.621				
				C	779	623	519	445	389	346	312				
				D	0.079	0.124	0.179	0.243	0.318	0.402	0.497				
1" x 1/8"	13-W-4	6.5	0.308	U	923	591	410	301	231	182	148	122	103		
	13-W-2	7.5		D	0.074	0.116	0.168	0.228	0.298	0.377	0.466	0.563	0.670		
		7.4		C	923	738	615	527	462	410	369	336	308		
		8.3		D	0.060	0.093	0.134	0.182	0.238	0.302	0.372	0.451	0.536		
1" x 3/16"	13-W-4	10.2	0.462	U	1385	886	615	452	346	274	222	183	154		
	13-W-2	10.8		D	0.074	0.116	0.168	0.228	0.298	0.377	0.466	0.563	0.670		
		11.0		C	1385	1108	923	791	692	615	554	503	462		
		12.4		D	0.060	0.093	0.134	0.182	0.238	0.302	0.372	0.451	0.536		
1-1/4" x 1/8"	13-W-4	8.5	0.481	U	1442	923	641	471	361	285	231	191	160		
	13-W-2	9.1		D	0.060	0.093	0.134	0.182	0.238	0.302	0.372	0.451	0.536		
		9.3		C	1442	1154	962	824	721	641	577	524	481		
		10.5		D	0.048	0.074	0.107	0.146	0.191	0.241	0.298	0.360	0.429		
1-1/4" x 3/16"	13-W-4	12.6	0.721	U	2163	1385	962	706	541	427	346	286	240		
	13-W-2	13.2		D	0.060	0.093	0.134	0.182	0.238	0.302	0.372	0.451	0.536		
		13.9		C	2163	1731	1442	1236	1082	962	865	787	721		
		15.8		D	0.048	0.074	0.107	0.146	0.191	0.241	0.298	0.360	0.429		
1-1/2" x 1/8"	13-W-4	10.1	0.692	U	2077	1329	923	678	519	410	332	275	231		
	13-W-2	10.7		D	0.050	0.078	0.112	0.152	0.199	0.251	0.310	0.376	0.447		
		10.9		C	2077	1662	1385	1187	1038	923	831	755	692		
		12.1		D	0.040	0.062	0.089	0.122	0.159	0.201	0.248	0.300	0.358		
1-1/2" x 3/16"	13-W-4	15.0	1.038	U	3115	1994	1385	1017	779	615	498	412	346		
	13-W-2	15.6		D	0.050	0.078	0.112	0.152	0.199	0.251	0.310	0.376	0.447		
		16.3		C	3115	2492	2077	1780	1558	1385	1246	1133	1038		
		18.2		D	0.040	0.062	0.089	0.122	0.159	0.201	0.248	0.300	0.358		
1-3/4" x 3/16"	13-W-4	17.4	1.413	U	4240	2714	1885	1385	1060	838	678	561	471		
	13-W-2	18.0		D	0.043	0.067	0.096	0.130	0.170	0.215	0.266	0.322	0.383		
		18.7		C	4240	3392	2827	2423	2120	1885	1696	1542	1413		
		20.6		D	0.034	0.053	0.077	0.104	0.136	0.172	0.213	0.257	0.306		
2" x 3/16"	13-W-4	19.8	1.846	U	5538	3545	2462	1808	1385	1094	886	732	615		
	13-W-2	20.4		D	0.037	0.058	0.084	0.114	0.149	0.189	0.233	0.282	0.335		
		21.1		C	5538	4431	3692	3165	2769	2462	2215	2014	1846		
		23.0		D	0.030	0.047	0.067	0.091	0.119	0.151	0.186	0.225	0.268		

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	15/16	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 1/16	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												



10-W-4 10-W-2



Bar Size	Symbol	Approx. Weight psf	Sec. Mod Per Ft. Of Width	U	SPAN (Direction of Bearing Bar)										E = modulus of elasticity, 29,000,000 psi F = fiber stress, 18,000 psi		
					24"	30"	36"	42"	48"	54"	60"	66"	72"	78"	84"	96"	108"
3/4" x 1/8" Non-Serrated Only	10-W-4	6.8	0.225	U	675	432	300	220	169	133	108						
		7.2		D	0.099	0.155	0.223	0.304	0.397	0.503	0.621						
		8.1		C	675	540	450	386	338	300	270						
				D	0.079	0.124	0.179	0.243	0.318	0.402	0.497						
3/4" x 3/16" Non-Serrated Only	10-W-4	9.9	0.338	U	1013	648	450	331	253	200	162						
		10.7		D	0.099	0.155	0.223	0.304	0.397	0.503	0.621						
		12.2		C	1013	810	675	579	506	450	405						
				D	0.079	0.124	0.179	0.243	0.318	0.402	0.497						
1" x 1/8"	10-W-4	8.8	0.400	U	1200	768	533	392	300	237	192						
	10-W-2	9.4		D	0.074	0.116	0.168	0.228	0.298	0.377	0.466						
		9.2		C	1200	960	800	686	600	533	480						
		10.2		D	0.060	0.093	0.134	0.182	0.238	0.302	0.372						
1" x 3/16"	10-W-4	13.0	0.600	U	1800	1152	800	588	450	356	288						
	10-W-2	13.6		D	0.074	0.116	0.168	0.228	0.298	0.377	0.466						
		13.8		C	1800	1440	1200	1029	900	800	720						
		15.3		D	0.060	0.093	0.134	0.182	0.238	0.302	0.372						
1-1/4" x 1/8"	10-W-4	10.9	0.625	U	1875	1200	833	612	469	370	300						
	10-W-2	11.4		D	0.060	0.093	0.134	0.182	0.238	0.302	0.372						
		11.6		C	1875	1500	1250	1071	938	833	750						
		12.9		D	0.048	0.074	0.107	0.146	0.191	0.241	0.298						
1-1/4" x 3/16"	10-W-4	16.1	0.938	U	2813	1800	1250	918	703	556	450						
	10-W-2	16.7		D	0.060	0.093	0.134	0.182	0.238	0.302	0.372						
		17.4		C	2813	2250	1875	1607	1406	1250	1125						
		19.3		D	0.048	0.074	0.107	0.146	0.191	0.241	0.298						
1-1/2" x 1/8"	10-W-4	13.0	0.900	U	2700	1728	1200	882	675	533	432						
	10-W-2	13.5		D	0.050	0.078	0.112	0.152	0.199	0.251	0.310						
		13.7		C	2700	2160	1800	1543	1350	1200	1080						
		15.0		D	0.040	0.062	0.089	0.122	0.159	0.201	0.248						
1-1/2" x 3/16"	10-W-4	19.2	1.350	U	4050	2592	1800	1322	1013	800	648						
	10-W-2	19.8		D	0.050	0.078	0.112	0.152	0.199	0.251	0.310						
		20.5		C	4050	3240	2700	2314	2025	1800	1620						
		22.4		D	0.040	0.062	0.089	0.122	0.159	0.201	0.248						
1-3/4" x 3/16"	10-W-4	22.3	1.838	U	5513	3528	2450	1800	1378	1089	882						
	10-W-2	22.9		D	0.043	0.067	0.096	0.130	0.170	0.215	0.266						
		23.6		C	5513	4410	3675	3150	2756	2450	2205						
		25.5		D	0.034	0.053	0.077	0.104	0.136	0.172	0.213						
2" x 3/16"	10-W-4	25.4	2.400	U	7200	4608	3200	2351	1800	1422	1152						
	10-W-2	26.0		D	0.037	0.058	0.084	0.114	0.149	0.189	0.233						
		26.7		C	7200	5760	4800	4114	3600	3200	2880						
		28.6		D	0.030	0.047	0.067	0.091	0.119	0.151	0.186						
2-1/4" x 3/16"	10-W-4	28.5	3.038	U	9113	5832	4050	2976	2278	1800	1458						
	10-W-2	29.1		D	0.033	0.052	0.074	0.101	0.132	0.168	0.207						
		29.8		C	9113	7290	6075	5207	4556	4050	3645						
		31.7		D	0.026	0.041	0.060	0.081	0.106	0.134	0.166						
2-1/2" x 3/16"	10-W-4	31.6	3.750	U	11250	7200	5000	3673	2813	2222	1800						
	10-W-2	32.2		D	0.030	0.047	0.067	0.091	0.119	0.151	0.186						
		32.9		C	11250	9000	7500	6429	5625	5000	4500						
		34.8		D	0.024	0.037	0.054	0.073	0.095	0.121	0.149						

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

8-W-4 8-W-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"	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.					
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						
				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	66"	These can be exceeded for other types of loads with engineer's approval.				
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					
				D	0.099	0.155	0.223	0.304	0.397	0.503	0.621	0.670					
				C	1266	1013	844	723	633	563	506	500					
				D	0.079	0.124	0.179	0.243	0.318	0.402	0.497	0.536	72"	Serrated Bars: For serrated grating, the depth of grating required for a specified load is 1/4" deeper than that shown in the table.			
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				
				D	0.074	0.116	0.168	0.228	0.298	0.377	0.466	0.563	0.670				
				C	1500	1200	1000	857	750	667	600	545	500				
				D	0.060	0.093	0.134	0.182	0.238	0.302	0.372	0.451	0.536	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			
				D	0.074	0.116	0.168	0.228	0.298	0.377	0.466	0.563	0.670	0.787			
				C	2250	1800	1500	1286	1125	1000	900	818	750	692			
				D	0.060	0.093	0.134	0.182	0.238	0.302	0.372	0.451	0.536	0.629	84"		
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	0.629	0.730		
				C	2344	1875	1563	1339	1172	1042	938	852	781	721	670		
				D	0.048	0.074	0.107	0.146	0.191	0.241	0.298	0.360	0.429	0.504	0.584	96"	108"
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	0.629	0.730	0.953	1.207
				C	3516	2813	2344	2009	1758	1563	1406	1278	1172	1082	1004	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	0.763	0.965
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	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
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	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

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				
				24"	30"	36"	42"	48"	54"	60"								
3/4" x 1/8" Non-Serrated Only	7-W-4	9.3 9.8 10.7	0.321	U	964	617	429	315	241	190	154	66"	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	0.099	0.155	0.223	0.304	0.397	0.503	0.621							
				C	964	771	643	551	482	429	386							
				D	0.079	0.124	0.179	0.243	0.318	0.402	0.497							
3/4" x 3/16" Non-Serrated Only	7-W-4	13.7 14.6 16.1	0.482	U	1446	926	643	472	362	286	231	191	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	0.751						
				C	1446	1157	964	827	723	643	579	526						
				D	0.079	0.124	0.179	0.243	0.318	0.402	0.497	0.601						
1" x 1/8"	7-W-4	12.3 12.7 13.7	0.571	U	1714	1097	762	560	429	339	274	227	190	162	84"	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	0.670	0.787				
				C	1714	1371	1143	980	857	762	686	623	571	527				
				D	0.060	0.093	0.134	0.182	0.238	0.302	0.372	0.451	0.536	0.629				
1" x 3/16"	7-W-4	18.1 19.0 20.5	0.857	U	2571	1646	1143	840	643	508	411	340	286	243	210	96"		
				D	0.074	0.116	0.168	0.228	0.298	0.377	0.466	0.563	0.670	0.787	0.912			
				C	2571	2057	1714	1469	1286	1143	1029	935	857	791	735			
				D	0.060	0.093	0.134	0.182	0.238	0.302	0.372	0.451	0.536	0.629				
1-1/4" x 1/8"	7-W-4	15.3 16.0 17.3	0.893	U	2679	1714	1190	875	670	529	429	354	298	254	219	167	108"	
				D	0.060	0.093	0.134	0.182	0.238	0.302	0.372	0.451	0.536	0.629	0.730	0.953		
				C	2679	2143	1786	1531	1339	1190	1071	974	893	824	765	670		
				D	0.048	0.074	0.107	0.146	0.191	0.241	0.298	0.360	0.429	0.504	0.584	0.763		
1-1/4" x 3/16"	7-W-4	22.5 23.9 25.8	1.339	U	4018	2571	1786	1312	1004	794	643	531	446	380	328	251	198	
				D	0.060	0.093	0.134	0.182	0.238	0.302	0.372	0.451	0.536	0.629	0.730	0.953	1.207	
				C	4018	3214	2679	2296	2009	1786	1607	1461	1339	1236	1148	1004	893	
				D	0.048	0.074	0.107	0.146	0.191	0.241	0.298	0.360	0.429	0.504	0.584	0.763	0.965	
1-1/2" x 1/8"	7-W-4	18.1 18.9 20.2	1.286	U	3857	2469	1714	1259	964	762	617	510	429	365	315	241	190	
				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	3857	3086	2571	2204	1929	1714	1543	1403	1286	1187	1102	964	857	
				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	
1-1/2" x 3/16"	7-W-4	26.9 28.3 30.2	1.929	U	5786	3703	2571	1889	1446	1143	926	765	643	548	472	362	286	
				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	5786	4629	3857	3306	2893	2571	2314	2104	1929	1780	1653	1446	1286	
				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	

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 13/16	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		

Press-locked grating



Bearing bar depth (in inches)	Ped Span, Inches	Wt. Lbs. Sq. Ft.	Sec. Prop S_x^* , in ³	SPAN (Direction of Bearing Bar)												
				2'- 0"	2'- 6"	3'- 0"	3'- 6"	4'- 0"	4'- 6"	5'- 0"	5'- 6"	6'- 0"	6'- 6"	7'- 0"	8'- 0"	
				24	30	36	42	48	54	60	66	72	78	84	90	
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
			0.072	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
			0.118	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
			0.140	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
			0.189	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
			0.242	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
			0.283	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
			0.398	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
			0.575	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)
 S_x = section modulus, in³
 t_x = 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 S_x^* , in ³	SPAN (Direction of Bearing Bar)												
				2'- 0"	2'- 6"	3'- 0"	3'- 6"	4'- 0"	4'- 6"	5'- 0"	5'- 6"	6'- 0"	6'- 6"	7'- 0"	8'- 0"	
				24	30	36	42	48	54	60	66	72	78	84	90	
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)

S_x = section modulus, in³

t_x = 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.





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

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



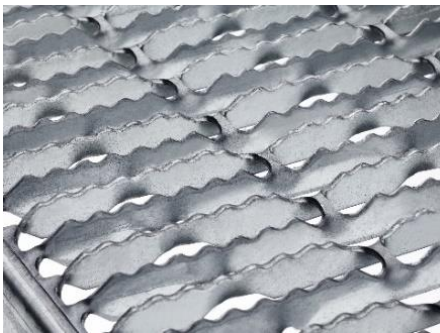
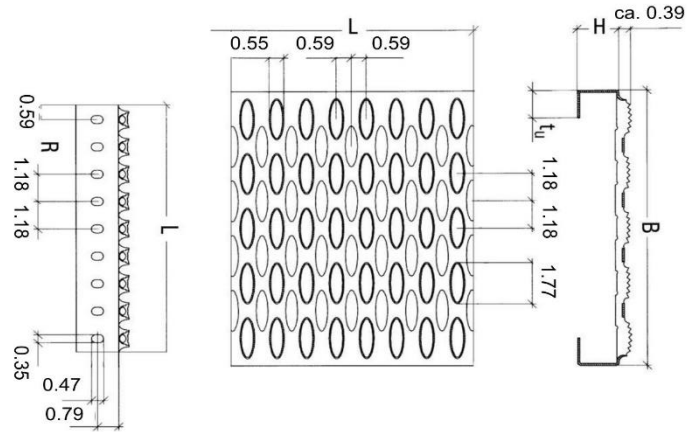
Types



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.

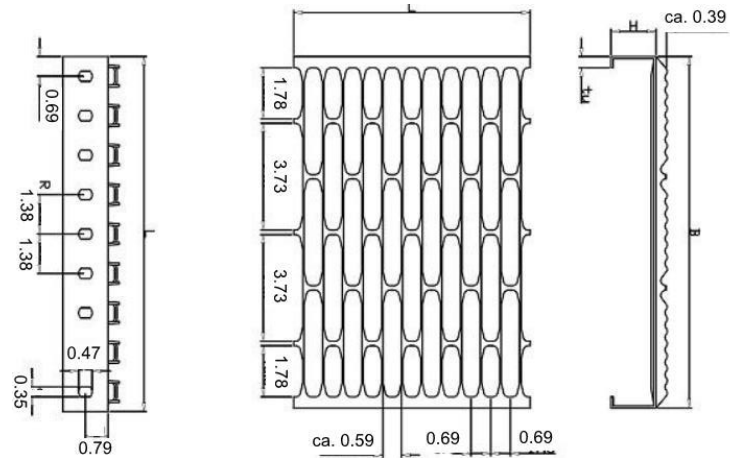


BZ-G

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.

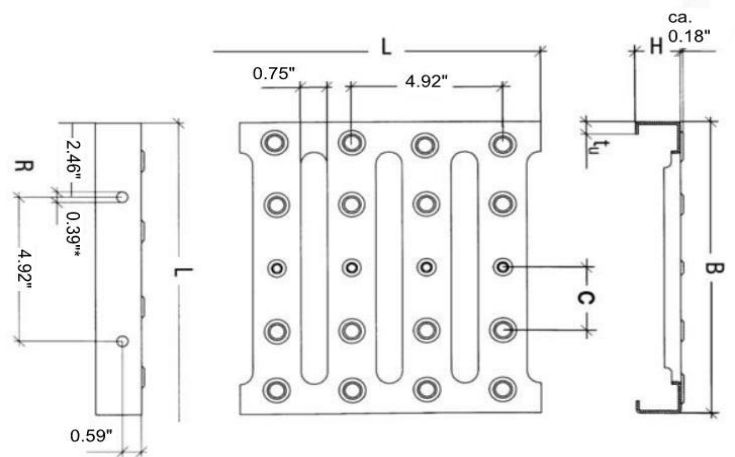


BP

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

Therefore, this type of

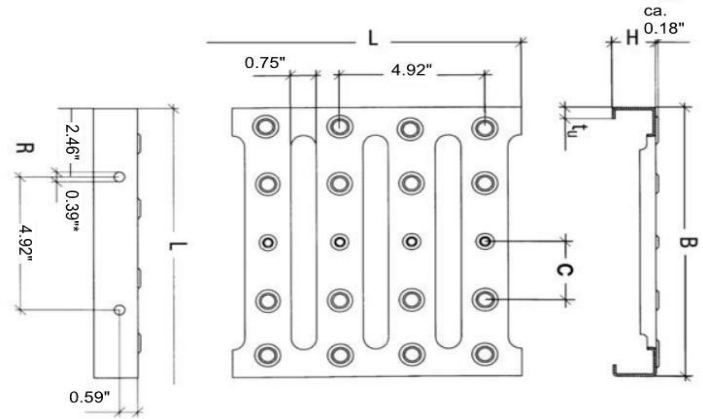
perforated metal grating is often employed in industrial areas where there are large areas and where there are high demands concerning the load-bearing capacity. The type BP can also be delivered without punched holes and is therefore especially suitable for the use in the shelf construction segment.





BP-UE

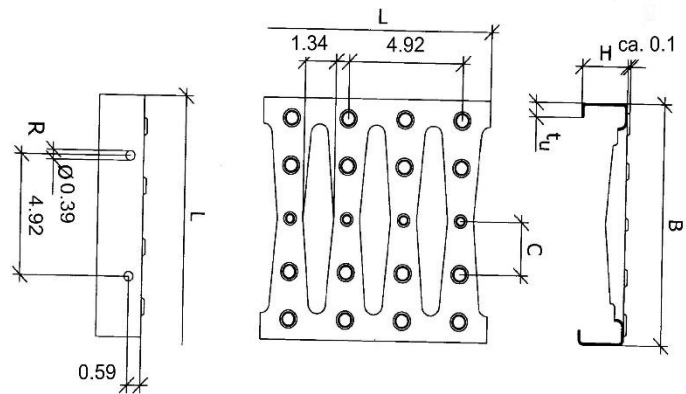
The perforated metal plank type BP-UE is comparable to the type BP, but is characterized by a greater slip resistance due to the raised punching.



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.

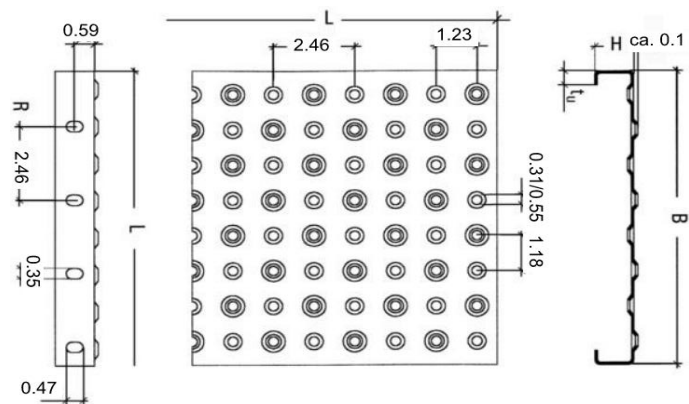


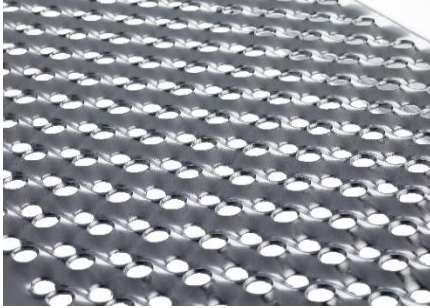
BN-O / BN-OL

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".

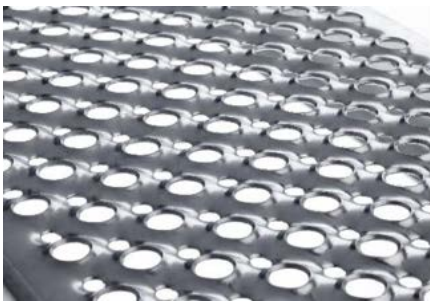
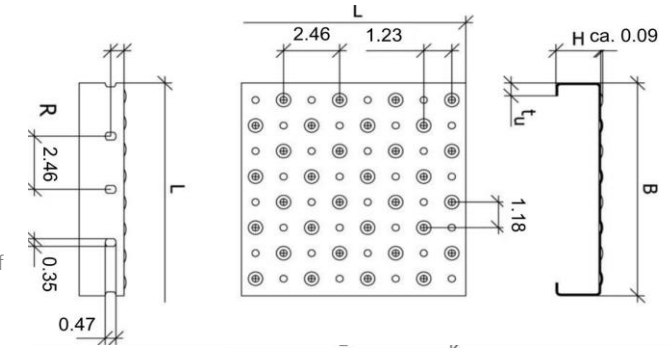




BN-OP

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

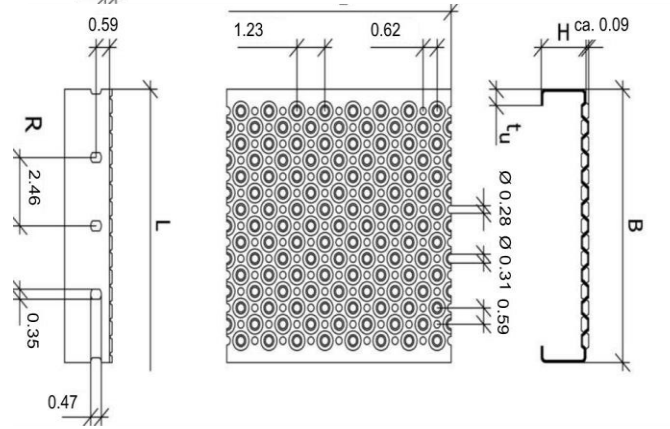
drainage action and the light and air permeability.



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

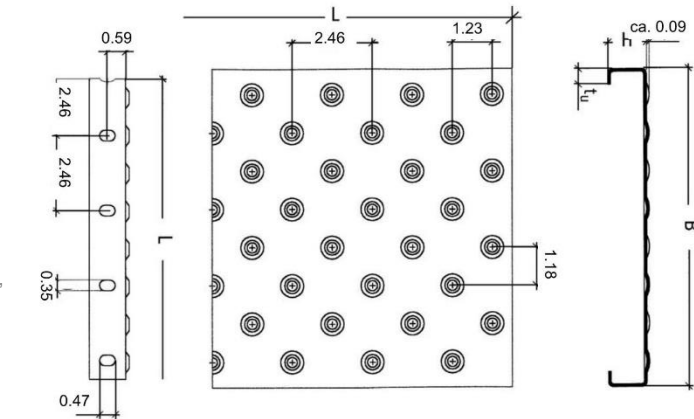
diameter of 0.28".



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

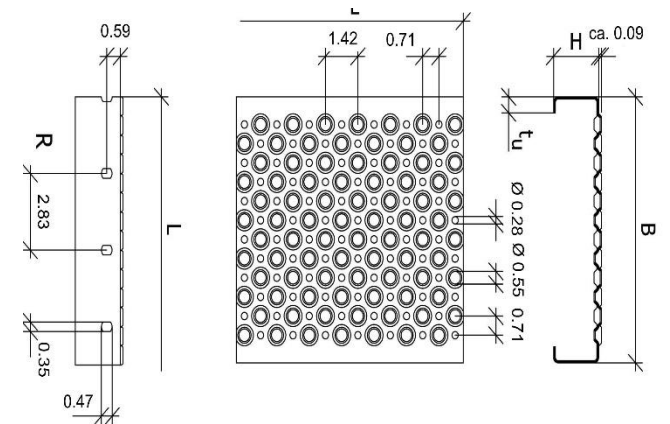
surface is desired and on the other, good accessibility must be ensured.



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

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

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

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 ¼" 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"										
14 Gauge	1 ½"	4.8	U												
			D												
			C												
			D												
	2"	5.0	U												
			D												
			C												
			D												
	2 ½"	5.3	U	48											
			D	0.48											
			C	246											
			D	0.40											
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										

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 (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"													
14 Gauge	1 ½"	5.4	U														
			D														
			C														
			D														
	2"	5.7	U														
			D														
			C														
			D														
	2 ½"	5.9	U	41													
			D	0.48													
			C	246													
			D	0.40													
12 Gauge	1 ½"	6.8	U														
			D														
			C														
			D														
	2"	7.1	U														
			D														
			C														
			D														
	2 ½"	7.4	U														
			D														
			C														
			D														

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 (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 ½"	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 ½"	6.6	U	587	375	261	191	146	116	93	77	65	55	47	41
			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	1233	924	739	616	528	462	411	369	336	308	284	264
			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
12 Gauge	1 ½"	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	34
			D	0.04	0.06	0.08	0.11	0.15	0.18	0.24	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"	8.3	U	710	454	315	232	177	140	113	94	79	67	58	50
			D	0.03	0.05	0.07	0.09	0.12	0.15	0.19	0.23	0.27	0.31	0.37	0.42
			C	1491	1118	895	745	639	559	497	447	406	373	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"	9'-0"										
14 Gauge	1 ½"	6.0	U												
			D												
			C												
			D												
	2"	6.3	U												
			D												
			C												
			D												
	2 ½"	6.6	U	36											
			D	0.48											
			C	246											
			D	0.40											
12 Gauge	1 ½"	6.8	U												
			D												
			C												
			D												
	2"	7.9	U	30											
			D	0.59											
			C	203											
			D	0.50											
	2 ½"	8.3	U	44	35										
			D	0.48	0.60										
			C	298	263										
			D	0.44	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



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 ½"	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 ½"	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 ½"	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 ½"	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 ½"	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 ½"	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 ½"	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 ½"	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 ¼" 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 ½"	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 ½"	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 ½"	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 ½"	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"
14 Gauge	1 ½"	3.0	U					
			D					
			C					
			D					
	2"	3.3	U	84				
			D	0.63				
			C	235				
			D	0.53				
	2 ½"	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 ½"	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 ½"	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	

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



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 ½"	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 ½"	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 ½"	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 ½"	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"
14 Gauge	1 ½"	3.6	U					
			D					
			C					
			D					
	2"	3.8	U	67				
			D	0.63				
			C	235				
			D	0.53				
	2 ½"	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 ½"	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 ½"	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	

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



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 ½"	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 ½"	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 ½"	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 ½"	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"
14 Gauge	1 ½"	4.1	U					
			D					
			C					
			D					
	2"	4.4	U	67				
			D	0.63				
			C	235				
			D	0.53				
	2 ½"	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 ½"	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 ½"	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	

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)

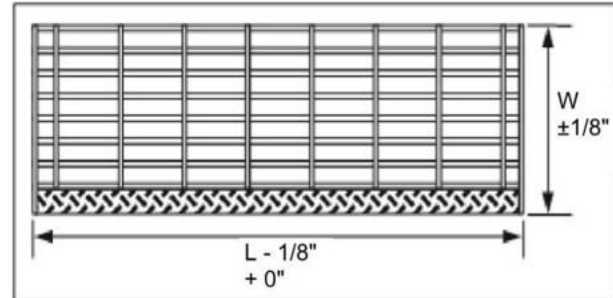
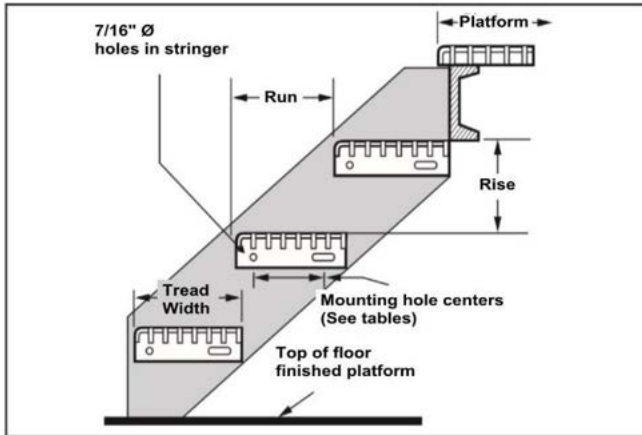
C= Concentrated load (lb.) stamp 1 ft x 1 ft

D = Deflection (inches)

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

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	Serrated
3/4" x 3/16"	2"-4"	1"-11"	2"-8"	2"-2"
1" x 1/8"	2"-7"	2"-3"	3"-0"	2"-6"
1" x 3/16"	3"-5"	2"-10"	4"-0"	3"-4"
1-1/4" x 1/8"	3"-7"	3"-1"	4"-2"	3"-7"
1-1/4" x 3/16"	4"-8"	4"-2"	5"-1"	4"-6"
1-1/2" x 3/16"	5"-6"	5"-3"	5"-6"	5"-6"

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

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

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"
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

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"

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		
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

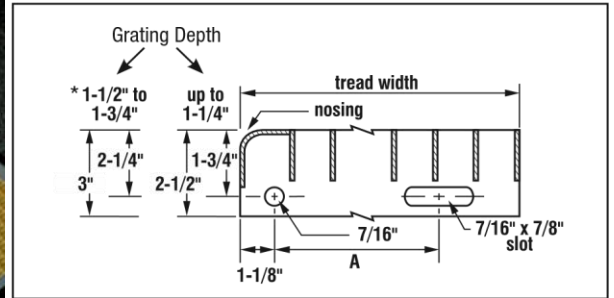
DP= Dimple Plate

** see drawings below

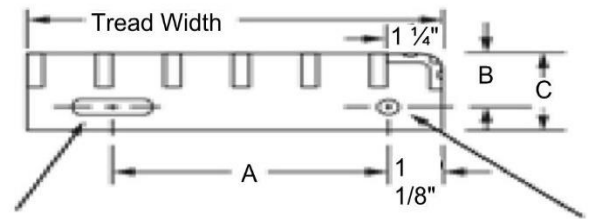
End plate dimensions

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"

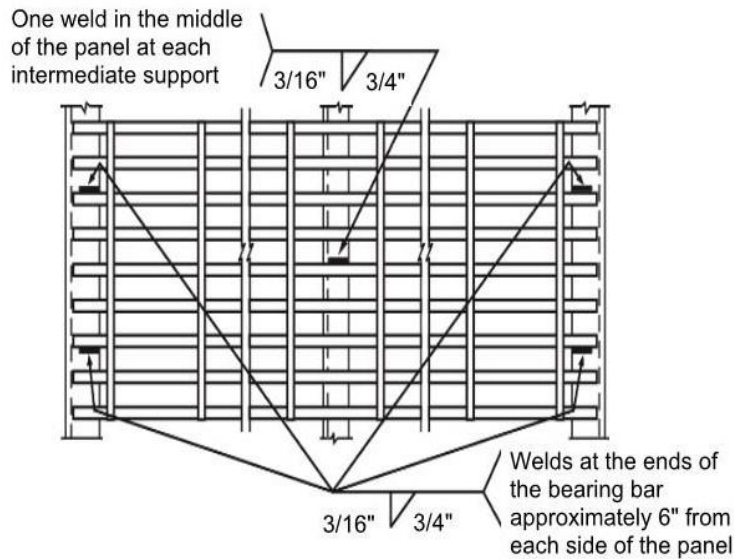




With Checkered Plate Nosing



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 vinylester (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 vinylester 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


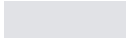

The two standard resin systems are:

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 – Vinylester 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")

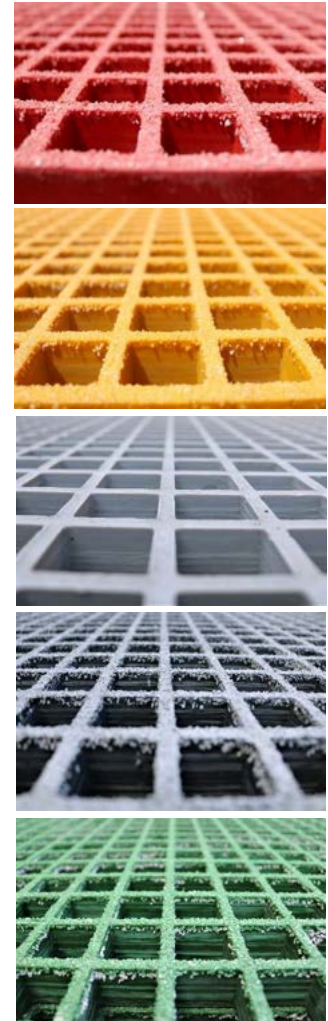
Clear Span	50	75	100	150	200	250	.250" Def	.375" Def
18"	0.018	0.028	0.037	0.055	0.073	0.092	695	1035
24"	0.058	0.087	0.116	0.174	0.232	0.290	0.220	0.330
36"	0.293	0.440	**	**	**	**	45	65
48"	**	**	**	**	**	**	15	20

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	2907
	D	0.032	0.065	0.097	0.129	0.194	0.258	0.323	0.387		
36	U	100	250	500	750	1000	1250	1500	2000	999	1499
	D	0.025	0.063	0.125	0.188	0.250	0.313	0.375	0.500		
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						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

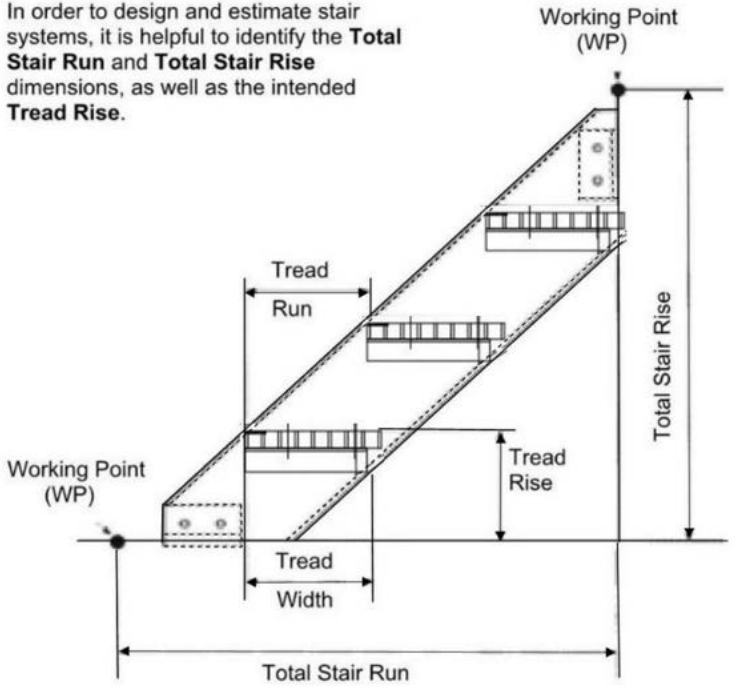
You can cut your own stair treads from Lichtgrid Stair Tread panels.

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 flow 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

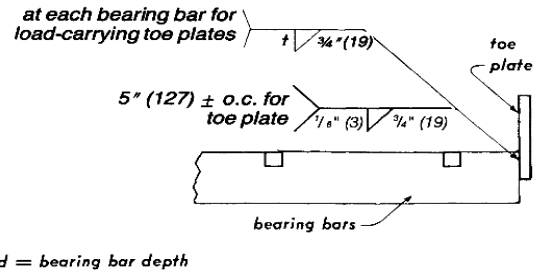
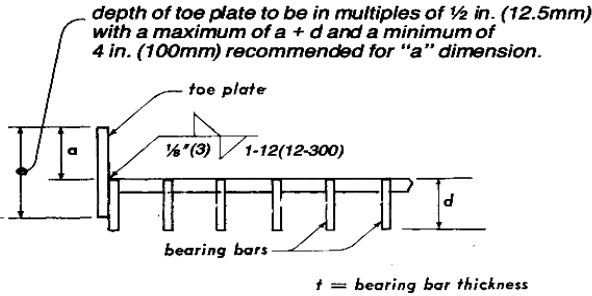


Tolerances according to NAAMM

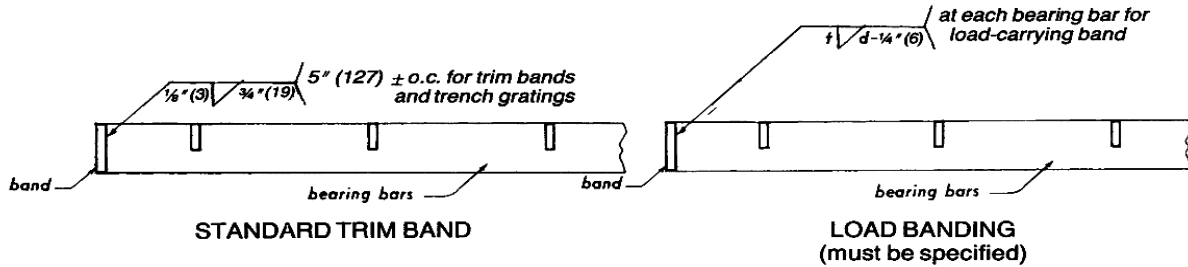
WELDING STANDARDS

The welding standards shown here apply to those gratings and treads having a clear opening of not less than 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.

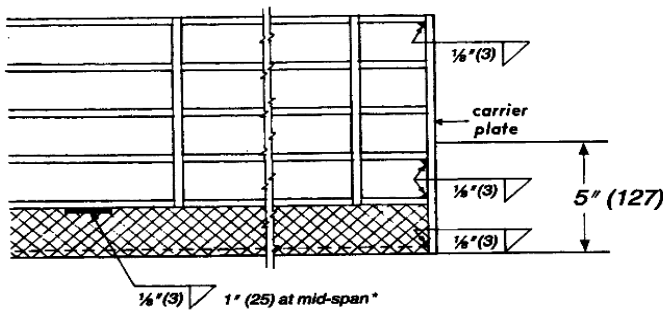
TOE PLATES



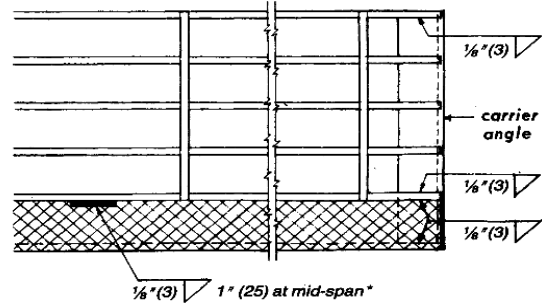
BANDING



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.

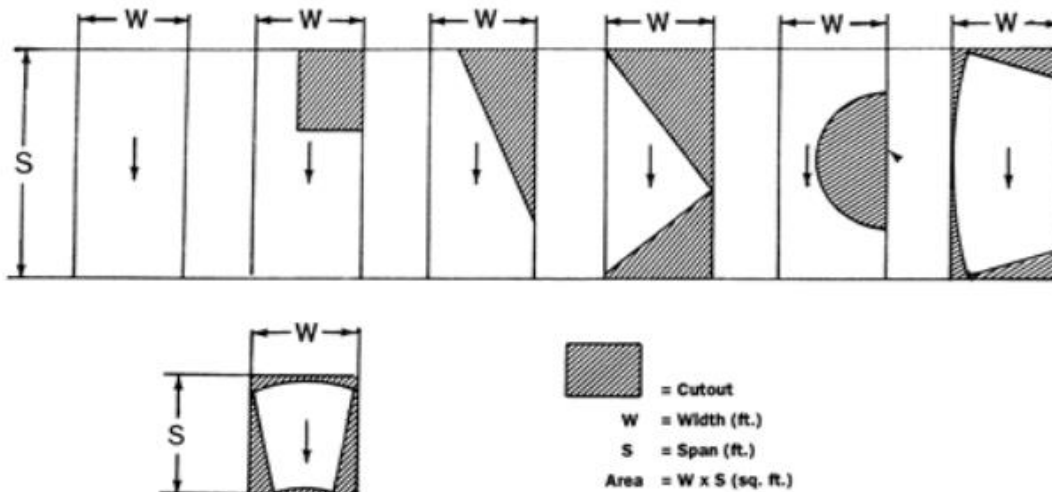


On treads over 9-3/4 in. (248) wide, weld end of center bar also.

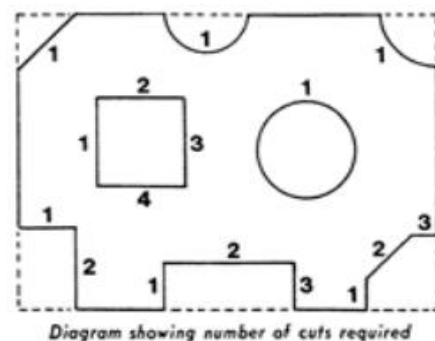
*Treads spanning 4 ft. (1.2 m) or more shall have two welds, located at the third points.

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.

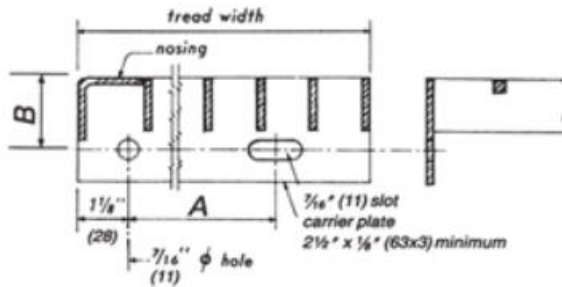


- 4.3 Measurement of cuts shall be on the basis of a minimum of one (1) lineal foot (0.3 m) per panel. Any cut in excess of one (1) lineal foot (0.3 m) shall be measured to the next higher lineal foot (0.3 m). (See diagram at the right.)
- 4.4 Measurement of bandings, toe plates and nosings shall be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





TREAD DIMENSIONS
RECOMMENDED DETAILS



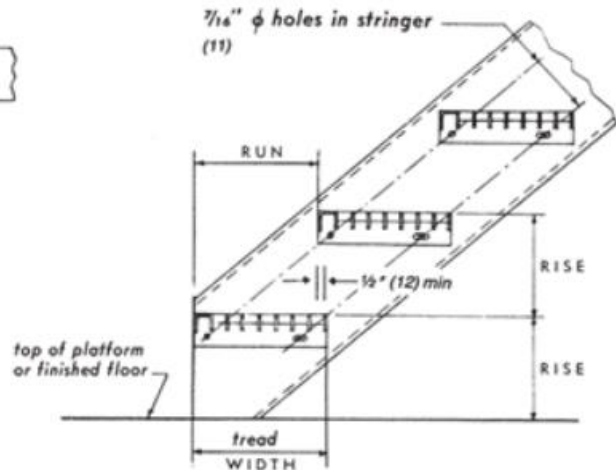
TREAD with carrier plate detail

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 3/16 (30)	1 5/16 (24)	
6 1/4 (159)	6 (152)	2 1/2 (63)
7 1/4 (184)	7 (178)	4 1/2 (114)
8 1/2 (216)	9 (229)	4 1/2 (114)
9 3/4 (248)	10 (254)	7 (178)
11 (279)	10 3/4 (273)	7 (178)
12 (305)	11 3/4 (298)	7 (178)

** 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 3/4 (44)
1 1/2 (38) and up	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 3/16 (30) o.c.		@ 1 5/16 (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 3/16 (30) o.c.		@ 1 5/16 (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)

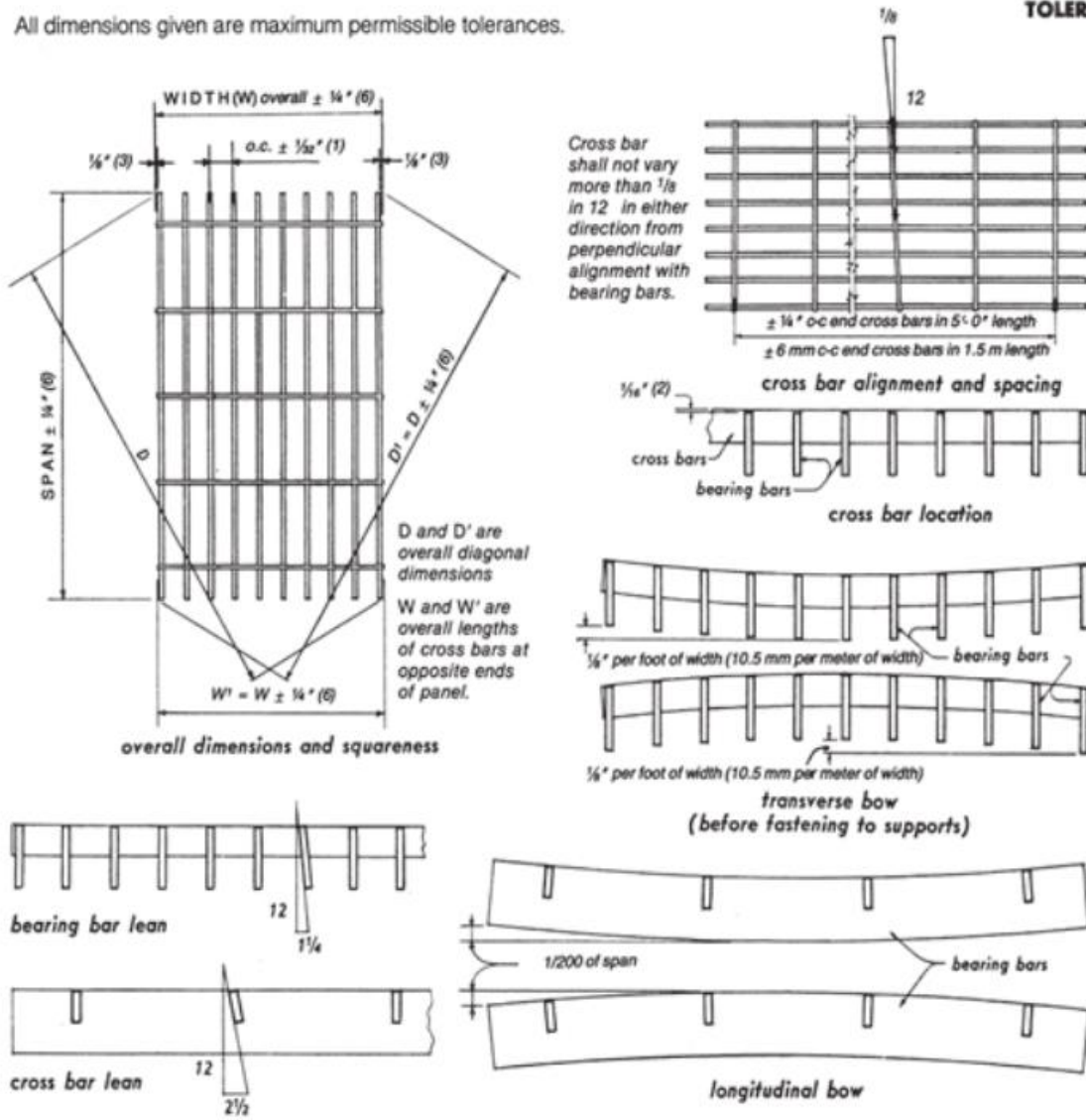
I Bars

Bearing Bar Size in. (mm)	Maximum Tread Length*	
	@ 1 3/16 (30) o.c.	@ 1 5/16 (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)

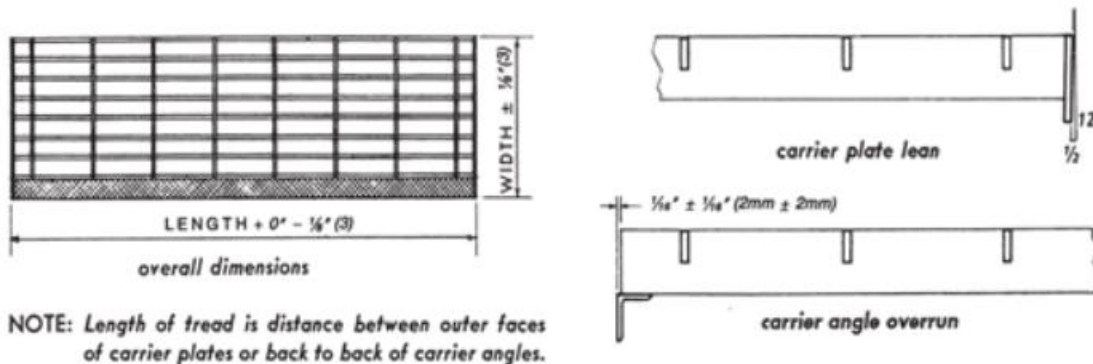


MANUFACTURING TOLERANCES

All dimensions given are maximum permissible tolerances.



STAIR TREAD TOLERANCES

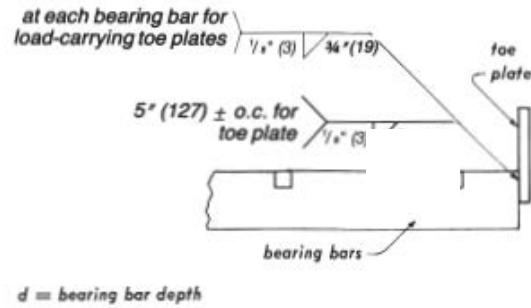
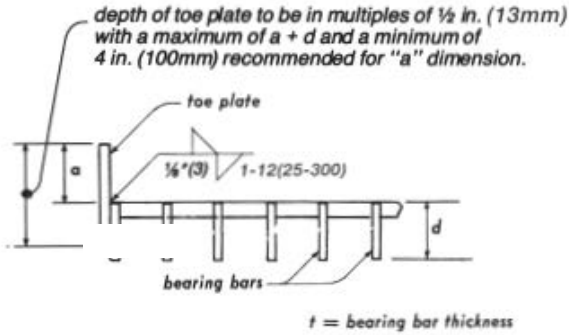




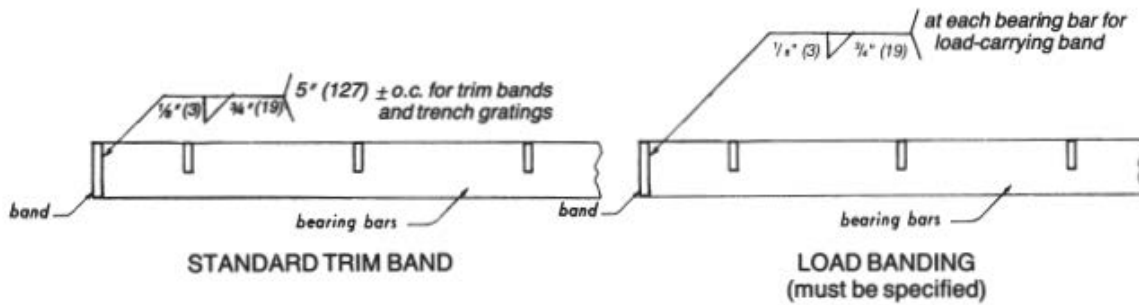
WELDING STANDARDS

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TOE PLATES

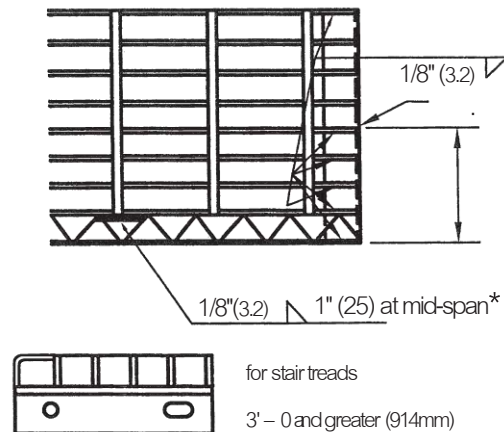
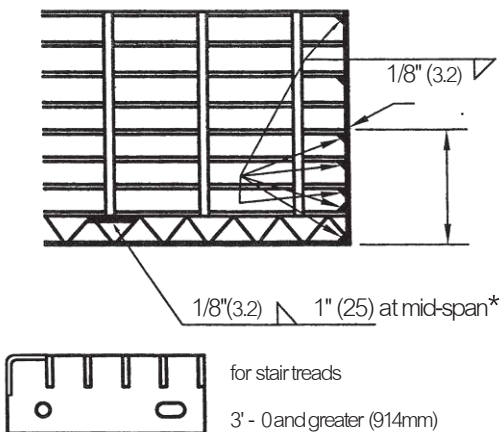


BANDING



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 9-3/4 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.



Lichtgitter USA Inc.

12818 North Lake Houston Parkway
Houston TX 77044

P: +1 (844) 548 – 7911

F: +1 (844) 548 – 7911

sales@lichtgitterusa.com

www.lichtgitterusa.com

Headquarters Stadtlohn

Lichtgitter GmbH

Siemensstrasse
48703 Stadtlohn

P: +49 2563 911 0

F: +49 3563 911 118

info@lichtgitter.com

www.lichtgitter.com

Subsidiaries

Germany

France

Bulgaria

Finland

Greece

United Kingdom

Qatar

The Netherlands

Austria

Romania

Sweden

Switzerland

Slovakia

Turkey

Czech Republic

North American Headquarters

Lichtgitter USA, Inc.

12818 North Lake Houston Parkway

Houston TX 77044

P: (844) 548 – 7911

F: (844) 548 – 7911

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