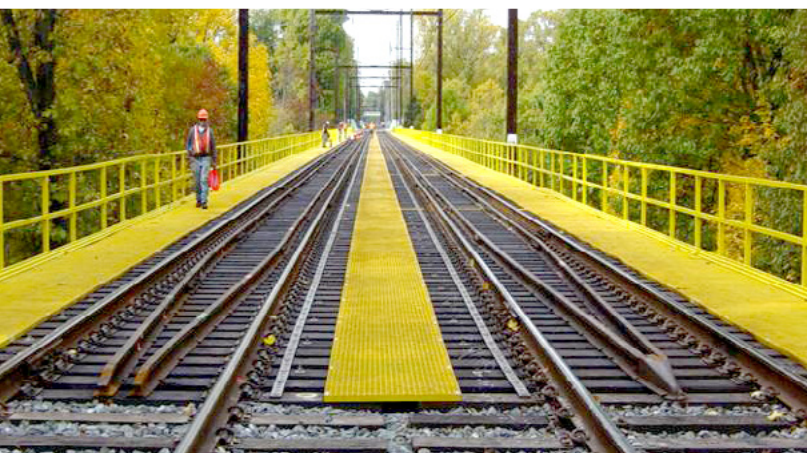
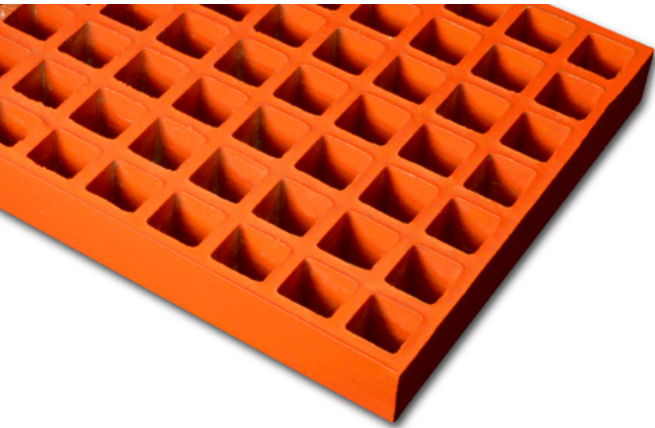


**DURA GRATE**®

**MOLDED FIBERGLASS GRATING**



# MOLDED FIBERGLASS GRATING



## Fiberglass Grating Manufacturers Council (FGMC)

All DURAGRATE® molded fiberglass grating is manufactured in accordance with FGMC standards. 1" thick DURAGRATE® panels are tested to meet the mechanical properties of FGMC protocols. All DURAGRATE® panels greater than 1" thick are tested and exceed the mechanical properties of FGMC protocols.



## NSF International

DURAGRATE® can be manufactured to meet NSF-61 certification for hot and cold upon request (VE or PP resin systems).



## American Bureau of Shipping

Approved for use on a variety of ABS Class ships using GP resin.



## Americans with Disabilities Act

DURAGRATE® Mini Mesh panels meet all ADA requirements for both mesh size (1/2" open mesh) and slip resistance, regardless of direction of travel.



Corrosion resistant DURAGRATE® installed around the solvent extraction electrowinning (SXEW) process of a copper refinery in Piedras Verdes, Mexico.

## What is DURAGRATE®?

DURAGRATE® molded fiberglass grating is a premium-quality mesh grating panel made exclusively in the U.S.A. While molded grating is a chemical resistant flooring choice for many industrial applications, DURAGRATE® offers performance and quality superior to imported suppliers.

DURAGRATE® panels are molded in one piece and feature a concave non-slip walking surface. The panels allow for efficient on-site cutting to minimize grating waste. Load bearing bars in both directions allow for use without continuous side support.

DURAGRATE® molded fiberglass grating weighs significantly less than metal gratings while a high resin content provides excellent corrosion resistance which requires very little maintenance. A high glass content offers greater stiffness and strength resulting in a higher safety factor.

DURAGRATE® molded fiberglass grating is:

- Corrosion Resistant
- Easy To Fabricate
- Fire Retardant
- Impact Resistant
- Low in Maintenance
- Low in Conductivity
- Lightweight
- Bidirectional Load Bearing
- Easy To Install
- Cost Effective
- Uniform in Appearance
- The Only Molded Grating Made Exclusively in the U.S.A.

## Materials of Construction

DURAGRATE® molded fiberglass grating is composed of fiberglass rovings combined with a thermosetting resin. Standard resins are Orthophthalic Polyester, Isophthalic Polyester, and Vinyl Ester. Special resins for additional fire retardancy, lower smoke, and high temperature are also available upon special request. All of the resins contain a UV inhibitor.

Standard DURAGRATE® grating has a concave profile on the upper surface for skid resistance. Grit tops are available upon request.

## Resin Systems Available\*

	Resin Code	Description	Resin Base	Corrosion Resistance	Flame Spread Index**	Smoke-Developed Index**
Standard	VE	Chemical Proof Fire Retardant	Vinyl Ester	Excellent	Class A, 25 or less	Class A, 450 or less
	PP	Industrial Grade Fire Retardant	Isophthalic	Very Good	Class A, 25 or less	Class A, 450 or less
	GP	Architectural Grade Fire Retardant	Orthophthalic	Good	Class A, 25 or less	Class A, 450 or less
	FF	Food Grade Fire Retardant	Isophthalic	Very Good	Class A, 25 or less	Class A, 450 or less

\*Strongwell's standard colors are dark gray, green, yellow, orange, red, and light gray. Custom colors are available upon request.

\*\* Per ASTM E-84 Tunnel Test

# TECHNICAL DATA

## Shapes, Sizes and Availability

Standard DURAGRATE® Panels									
THICKNESS	MESH PATTERN	PANEL SIZE			A	I	S	OPEN AREA	APPROX. WEIGHT
					(PER FT. OF WIDTH)	(PER FT. OF WIDTH)	(PER FT. OF WIDTH)		
1"	1-1/2" Square	4' x 8'	3' x 10'	4' x 12'	1.71 in. <sup>2</sup>	0.14 in. <sup>4</sup>	0.29 in. <sup>3</sup>	70%	2.6 lbs/ft. <sup>2</sup>
1"	1" x 4" Rectangular		3' x 10'	4' x 12'	2.57 in. <sup>2</sup>	0.22 in. <sup>4</sup>	0.43 in. <sup>3</sup>	69%	2.8 lbs/ft. <sup>2</sup>
1-1/2"	1-1/2" Square	4' x 8'	3' x 10'	4' x 12'	2.85 in. <sup>2</sup>	0.51 in. <sup>4</sup>	0.65 in. <sup>3</sup>	70%	3.8 lbs/ft. <sup>2</sup>
			5' x 10'	5' x 12'					
1-1/2" Mini Mesh	3/4" x 3/4" on Center (Top), 1-1/2" x 1-1/2" on Center (Bottom)			4' x 12'	3.77 in. <sup>2</sup>	0.71 in. <sup>4</sup>	0.79 in. <sup>3</sup>	44%	4.5 lbs/ft. <sup>2</sup>
2"	2" Square			4' x 12'	2.88 in. <sup>2</sup>	0.96 in. <sup>4</sup>	0.94 in. <sup>3</sup>	72%	4.0 lbs/ft. <sup>2</sup>

NOTE: Custom panel sizes and resins are available upon request. Descriptions of available resin systems are located on the previous page.

### How to Specify

The molded fiberglass grating shall be DURAGRATE® as supplied by Strongwell. Grating panels shall be manufactured in the U.S.A. according to the standards set by the Fiberglass Grating Manufacturers Council (FGMC). Grating panels shall be (pick one from chart for thickness, mesh pattern, resin code) molded grid pattern. The grating shall be one-piece construction with the tops of the bearing bars and cross bars in the same plane. Surface shall be concave top or gritted.

## STAIR TREADS & COVERS

DURAGRATE® molded fiberglass stair treads are available in a 1-1/2" thick 1-1/2" x 6" rectangular mesh pattern. The standard panel size is 22-1/2" x 10'. Stair treads can be produced in any of the standard DURAGRATE® resin systems. The stair tread panel comes complete with anti-slip nosing.

### DURAGRATE® Stair Tread

THICKNESS	MESH	PANEL SIZE	MAXIMUM SPAN FOR 300 LBS. AT MID-SPAN		OPEN AREA	PANEL WEIGHT
			1/8" OR LESS DEFLECTION	1/4" OR LESS DEFLECTION		
			1-1/2"	1-1/2" x 6"		

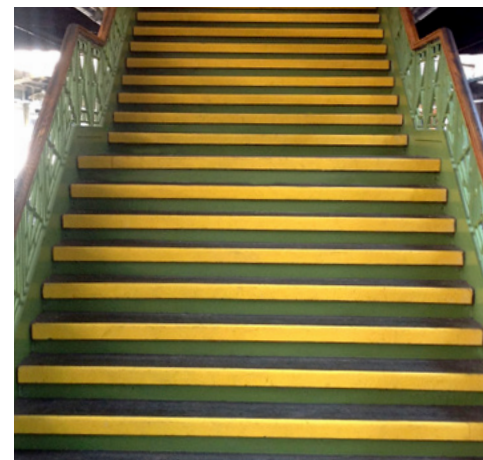
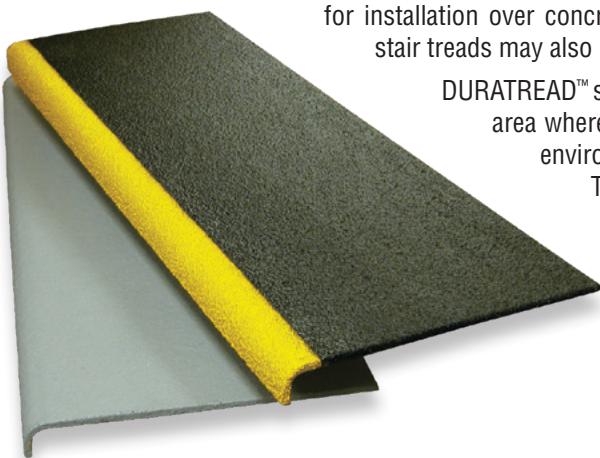


### DURATREAD™ Stair Tread Covers

DURATREAD™ molded fiberglass stair tread covers provide an easy, cost-effective way to increase the safety of stairways. The covers are intended for installation over concrete, metal or wood steps. Fiberglass stair treads may also be covered with DURATREAD™ covers.

DURATREAD™ stair tread covers are ideal for use in any area where frequent use or exposure to slippery environments increases the risk of accidents.

The ADA-compliant covers feature a durable gritted surface and a highly visible nosing to ensure years of safe, maintenance-free service. DURATREAD™ covers can be customized with various colors and stenciled safety messages.



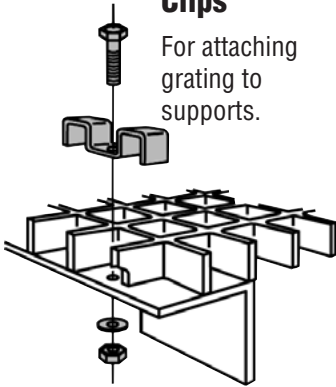
Stair Tread Covers | Baltimore, MD

# ACCESSORIES

## Panel Installation

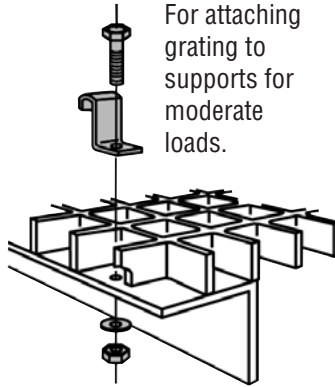
### Type M Clips

For attaching grating to supports.



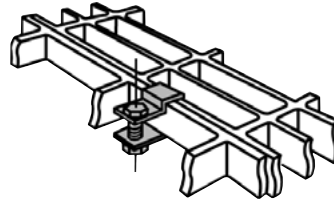
### Type J Clips

For attaching grating to supports for moderate loads.



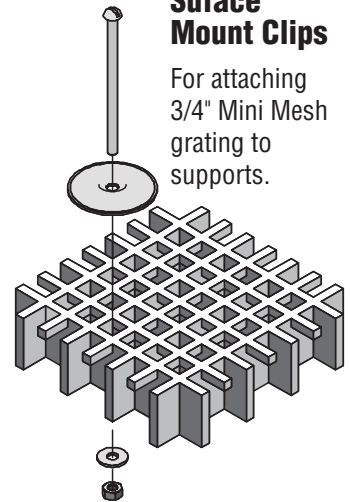
### Type C Clips

For joining two unsupported edges if needed.



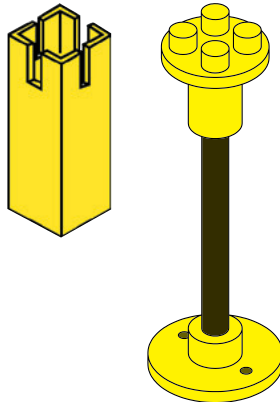
### Surface Mount Clips

For attaching 3/4" Mini Mesh grating to supports.



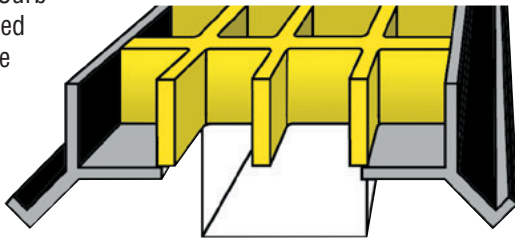
## Elevated Floor System

Fixed and adjustable legs for molded grating are available to provide sturdy support for elevated flooring. Contact Strongwell with your exact requirements.



## Curb Angle

Strongwell's pultruded fiberglass Curb Angle provides a strong, firm base for bearing bars. Standard Curb Angle is produced using a gray, fire retardant vinyl ester resin system and is available in three sizes.



## Sealing Kits

To maintain corrosion resistance and structural integrity, standard resin sealing kits are available to protect the exposed ends of cut panels and other components.

## Solid Surface

DURAGRATE® is available with an integral cover bonded to the top surface with a slip resistant grit surface.



# STATISTICAL REPORTING METHODS

## Minimum Value

A value that is a specified distance from the average. The most common specified distance is three standard deviations.

## Characteristic Value

As defined by ASTM D7290, a value that is normally between two and three standard deviations from the average.

## Average Value

The sum of a list of values divided by the number of values in the list, without consideration for standard deviations.

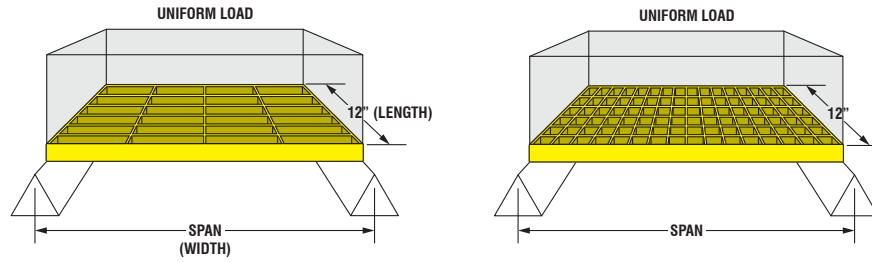
## Typical Value

No definition. Not recommended for use by Professional Engineers. Can be any value the manufacturer chooses.

\*Strongwell recommends the use of minimum or characteristic values for design calculations.

# LOAD TABLES FOR STANDARD RESIN SYSTEMS

## Molded Grating - Uniform Load (Deflection in Inches)



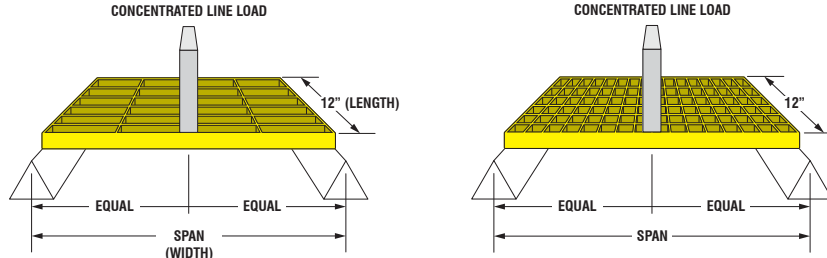
LOAD in LB / SQUARE FOOT (PSF)

SPAN INCHES	STYLE		60	100	150	200	250	500	1000	2000	MAXIMUM RECOMMENDED LOAD (PSF)	APPARENT EI (10 <sup>6</sup> LB-IN <sup>2</sup> ) / FT of WIDTH
	DEPTH	MESH										
<b>12</b>	1"	1-1/2" x 1-1/2"	<0.01	0.01	0.01	0.02	0.02	0.04	0.09		1800	0.3
	1"	1" x 4"	<0.01	0.01	0.01	0.01	0.02	0.04	0.07		1960	0.3
	1-1/2"	1-1/2" x 1-1/2"	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	0.03	0.06	3720	0.7
	1-1/2"	3/4" x 3/4"	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	0.03	0.06	3720	0.8
	2"	2" x 2"	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	0.02	0.04	4280	1.0
<b>18</b>	1"	1-1/2" x 1-1/2"	0.02	0.04	0.06	0.08	0.10				760	0.3
	1"	1" x 4"	0.02	0.03	0.05	0.06	0.08	0.15			950	0.4
	1-1/2"	1-1/2" x 1-1/2"	<0.01	0.01	0.01	0.02	0.02	0.05	0.11		1900	1.0
	1-1/2"	3/4" x 3/4"	<0.01	0.01	0.01	0.02	0.02	0.05	0.10		1900	1.1
	2"	2" x 2"	<0.01	<0.01	0.01	0.01	0.02	0.04	0.08	0.16	2400	1.4
<b>24</b>	1"	1-1/2" x 1-1/2"	0.07	0.12	0.18	0.24	0.31				410	0.3
	1"	1" x 4"	0.06	0.09	0.14	0.19	0.23				534	0.4
	1-1/2"	1-1/2" x 1-1/2"	0.01	0.03	0.04	0.06	0.08	0.16			1190	1.1
	1-1/2"	3/4" x 3/4"	0.01	0.03	0.04	0.06	0.07	0.15			1190	1.2
	2"	2" x 2"	0.01	0.02	0.03	0.04	0.05	0.11	0.22		1450	1.6
<b>30</b>	1"	1-1/2" x 1-1/2"	0.18	0.29							256	0.3
	1"	1" x 4"	0.13	0.22							336	0.4
	1-1/2"	1-1/2" x 1-1/2"	0.04	0.07	0.11	0.15	0.19				760	1.1
	1-1/2"	3/4" x 3/4"	0.04	0.07	0.11	0.15	0.18				760	1.2
	2"	2" x 2"	0.03	0.05	0.07	0.10	0.12	0.25			900	1.7
<b>36</b>	1"	1-1/2" x 1-1/2"	0.34								180	0.3
	1"	1" x 4"	0.27								236	0.4
	1-1/2"	1-1/2" x 1-1/2"	0.09	0.15	0.22						490	1.2
	1-1/2"	3/4" x 3/4"	0.08	0.14	0.21						490	1.3
	2"	2" x 2"	0.05	0.09	0.14	0.19	0.23				600	1.9
<b>42</b>	1-1/2"	1-1/2" x 1-1/2"	0.18	0.30							330	1.1
	1-1/2"	3/4" x 3/4"	0.17	0.28							330	1.2
	2"	2" x 2"	0.10	0.16	0.25	0.33					440	2.0
<b>48</b>	1-1/2"	1-1/2" x 1-1/2"	0.34								220	1.0
	1-1/2"	3/4" x 3/4"	0.29								220	1.2
	2"	2" x 2"	0.17	0.28	0.43						340	2.0
<b>54</b>	1-1/2"	1-1/2" x 1-1/2"	0.55								158	1.0
	1-1/2"	3/4" x 3/4"	0.46								158	1.2
	2"	2" x 2"	0.27	0.46							260	2.0
<b>60</b>	2"	2" x 2"	0.42								210	2.0

Note: 1" thick by 1" x 4" rectangular mesh grating panels are only available with a grit surface.

# LOAD TABLES FOR STANDARD RESIN SYSTEMS

## Molded Grating - Concentrated Line Load (Deflection in Inches)



LOAD in LB / FOOT of WIDTH

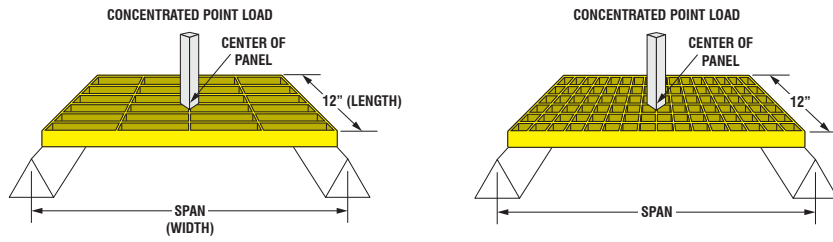
SPAN INCHES	STYLE		50	100	150	200	250	500	1000	2000	MAXIMUM RECOMMENDED LOAD (LB/FT)	APPARENT EI (10 <sup>6</sup> LB-IN <sup>2</sup> ) / FT of WIDTH
	DEPTH	MESH										
12	1"	1-1/2" x 1-1/2"	0.01	0.01	0.02	0.03	0.04	0.07			900	0.3
	1"	1" x 4"	<0.01	0.01	0.02	0.02	0.03	0.06	0.12		980	0.3
	1-1/2"	1-1/2" x 1-1/2"	<0.01	<0.01	<0.01	0.01	0.01	0.02	0.05	0.10	1860	0.7
	1-1/2"	3/4" x 3/4"	<0.01	<0.01	<0.01	0.01	0.01	0.02	0.05	0.09	1860	0.8
	2"	2" x 2"	<0.01	<0.01	<0.01	0.01	0.01	0.02	0.04	0.07	2140	1.0
18	1"	1-1/2" x 1-1/2"	0.02	0.04	0.07	0.09	0.11				570	0.3
	1"	1" x 4"	0.02	0.03	0.05	0.06	0.08	0.16			712	0.4
	1-1/2"	1-1/2" x 1-1/2"	<0.01	0.01	0.01	0.02	0.03	0.06	0.12		1425	1.0
	1-1/2"	3/4" x 3/4"	<0.01	0.01	0.01	0.02	0.03	0.06	0.11		1425	1.1
	2"	2" x 2"	<0.01	0.01	0.01	0.02	0.02	0.04	0.09	0.17	1800	1.4
24	1"	1-1/2" x 1-1/2"	0.05	0.10	0.15	0.20	0.24				410	0.3
	1"	1" x 4"	0.04	0.07	0.11	0.15	0.19				534	0.4
	1-1/2"	1-1/2" x 1-1/2"	0.01	0.02	0.04	0.05	0.06	0.13			1190	1.1
	1-1/2"	3/4" x 3/4"	0.01	0.02	0.04	0.05	0.06	0.12			1190	1.2
	2"	2" x 2"	<0.01	0.01	0.02	0.03	0.04	0.09	0.18		1450	1.6
30	1"	1-1/2" x 1-1/2"	0.09	0.19	0.28						320	0.3
	1"	1" x 4"	0.07	0.14	0.21	0.28					420	0.4
	1-1/2"	1-1/2" x 1-1/2"	0.02	0.05	0.07	0.10	0.12	0.25			950	1.1
	1-1/2"	3/4" x 3/4"	0.02	0.05	0.07	0.09	0.12	0.23			950	1.2
	2"	2" x 2"	0.01	0.03	0.05	0.06	0.08	0.16			1130	1.7
36	1"	1-1/2" x 1-1/2"	0.15	0.30							270	0.3
	1"	1" x 4"	0.12	0.24							356	0.4
	1-1/2"	1-1/2" x 1-1/2"	0.04	0.08	0.12	0.16	0.20				740	1.2
	1-1/2"	3/4" x 3/4"	0.04	0.07	0.11	0.15	0.19				740	1.3
	2"	2" x 2"	0.02	0.05	0.07	0.10	0.12	0.25			910	1.9
42	1"	1-1/2" x 1-1/2"	0.24								220	0.3
	1"	1" x 4"	0.19	0.39							304	0.4
	1-1/2"	1-1/2" x 1-1/2"	0.07	0.14	0.21	0.28	0.35				590	1.1
	1-1/2"	3/4" x 3/4"	0.06	0.13	0.19	0.26	0.32				590	1.2
	2"	2" x 2"	0.03	0.07	0.11	0.15	0.19				780	2.0
48	1-1/2"	1-1/2" x 1-1/2"	0.11	0.23	0.34	0.46					440	1.0
	1-1/2"	3/4" x 3/4"	0.10	0.19	0.29	0.38					440	1.2
	2"	2" x 2"	0.05	0.11	0.17	0.23	0.28				680	2.0
54	1-1/2"	1-1/2" x 1-1/2"	0.16	0.33							354	1.0
	1-1/2"	3/4" x 3/4"	0.14	0.27							354	1.2
	2"	2" x 2"	0.08	0.16	0.24	0.32	0.41				600	2.0
60	2"	2" x 2"	0.11	0.22	0.33	0.45					530	2.0

Note: 1" thick by 1" x 4" rectangular mesh grating panels are only available with a grit surface.

# LOAD TABLES FOR STANDARD RESIN SYSTEMS

## Molded Grating - Concentrated Point Load (Deflection in Inches)

Note: This loading criteria is not recognized by Fiberglass Composites Grating Manual



LOAD in LB

SPAN INCHES	STYLE		50	100	150	200	250	500	1000	2000	APPARENT EI (10 <sup>6</sup> LB-IN <sup>2</sup> ) / FT of WIDTH
	DEPTH	MESH									
<b>12</b>	1"	1-1/2" x 1-1/2"	<0.01	<0.01	<0.01	0.01	0.01	0.02	0.04	0.07	0.3
	1"	1" x 4"	<0.01	<0.01	<0.01	0.01	0.01	0.02	0.03	0.06	0.3
	1-1/2"	1-1/2" x 1-1/2"	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	0.02	0.7
	1-1/2"	3/4" x 3/4"	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	0.02	0.8
	2"	2" x 2"	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	1.0
<b>18</b>	1"	1-1/2" x 1-1/2"	<0.01	0.01	0.02	0.02	0.03	0.05	0.11	0.22	0.3
	1"	1" x 4"	<0.01	0.01	0.01	0.02	0.02	0.04	0.08	0.15	0.4
	1-1/2"	1-1/2" x 1-1/2"	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	0.03	0.06	1.0
	1-1/2"	3/4" x 3/4"	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	0.03	0.06	1.1
	2"	2" x 2"	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	0.02	0.04	1.4
<b>24</b>	1"	1-1/2" x 1-1/2"	0.01	0.02	0.04	0.05	0.06	0.12	0.24		0.3
	1"	1" x 4"	0.01	0.02	0.03	0.04	0.05	0.09	0.18	0.36	0.4
	1-1/2"	1-1/2" x 1-1/2"	<0.01	<0.01	<0.01	0.01	0.01	0.03	0.06	0.13	1.1
	1-1/2"	3/4" x 3/4"	<0.01	<0.01	<0.01	0.01	0.01	0.03	0.06	0.12	1.2
	2"	2" x 2"	<0.01	<0.01	<0.01	<0.01	0.01	0.02	0.04	0.09	1.6
<b>30</b>	1"	1-1/2" x 1-1/2"	0.02	0.05	0.07	0.09	0.12	0.23			0.3
	1"	1" x 4"	0.02	0.04	0.05	0.07	0.09	0.18	0.35		0.4
	1-1/2"	1-1/2" x 1-1/2"	<0.01	0.01	0.01	0.02	0.03	0.06	0.12		1.1
	1-1/2"	3/4" x 3/4"	<0.01	0.01	0.01	0.02	0.03	0.06	0.12		1.2
	2"	2" x 2"	<0.01	<0.01	0.01	0.01	0.02	0.04	0.08	0.16	1.7
<b>36</b>	1"	1-1/2" x 1-1/2"	0.04	0.08	0.11	0.15	0.19				0.3
	1"	1" x 4"	0.03	0.06	0.09	0.12	0.15	0.3			0.4
	1-1/2"	1-1/2" x 1-1/2"	0.01	0.02	0.03	0.04	0.05	0.10	0.20		1.2
	1-1/2"	3/4" x 3/4"	0.01	0.02	0.03	0.04	0.05	0.09	0.19		1.3
	2"	2" x 2"	<0.01	0.01	0.01	0.02	0.03	0.06	0.12	0.25	1.9
<b>42</b>	1"	1-1/2" x 1-1/2"	0.06	0.12	0.18	0.24					0.3
	1"	1" x 4"	0.05	0.1	0.14	0.19	0.24				0.4
	1-1/2"	1-1/2" x 1-1/2"	0.01	0.03	0.05	0.07	0.08	0.17	0.35		1.1
	1-1/2"	3/4" x 3/4"	0.01	0.03	0.05	0.06	0.08	0.16	0.32		1.2
	2"	2" x 2"	<0.01	0.01	0.02	0.03	0.04	0.09	0.19		2.0
<b>48</b>	1-1/2"	1-1/2" x 1-1/2"	0.02	0.05	0.08	0.11	0.14	0.28			1.0
	1-1/2"	3/4" x 3/4"	0.02	0.05	0.07	0.10	0.12	0.24			1.2
	2"	2" x 2"	0.01	0.02	0.04	0.05	0.07	0.14	0.28		2.0
<b>54</b>	1-1/2"	1-1/2" x 1-1/2"	0.04	0.08	0.12	0.16	0.20				1.0
	1-1/2"	3/4" x 3/4"	0.03	0.07	0.10	0.14	0.17				1.2
	2"	2" x 2"	0.02	0.04	0.06	0.08	0.10	0.20			2.0
<b>60</b>	2"	2" x 2"	0.02	0.05	0.08	0.11	0.14	0.28			2.0

Note: 1" thick by 1" x 4" rectangular mesh grating panels are only available with a grit surface.



**STRONGWELL**

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