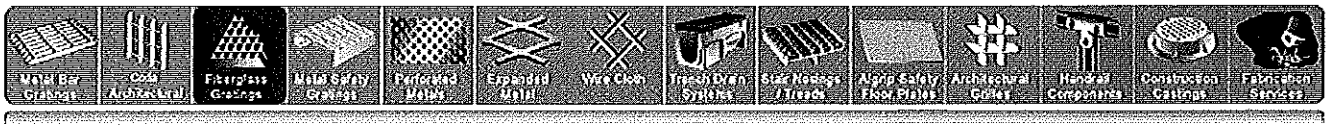


FIBERGLASS GRATINGS

- Fiberglass Grating Introduction
- Molded Fiberglass Grating
- Pultruded Fiberglass Grating
- Grating Embed Angle
- Stair Solutions and Tread Panels
- High Load Capacity Gratings
- Grating Pedestals
- Fiberglass Floor Plate
- Handrail And Ladder Systems
- Fiberglass Structural Shapes
- Fabrication And Fasteners
- Chemical Resistance Chart
- Engineering Notes

Load/Deflection Tables Information

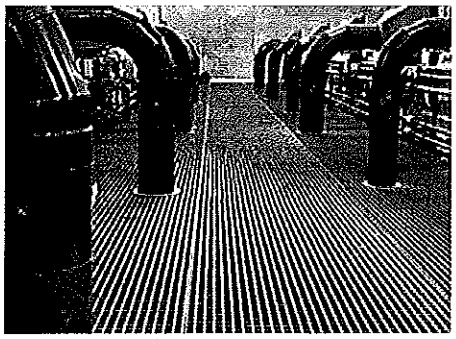
LOAD/DEFLECTION TABLES INFORMATION
Fiberglass grating load and deflection tables are designed to be user friendly by separating uniform load information from concentrated load information.

SIMPLE BEAM SUPPORT: All data in our tables are based on simple beam support. Load and deflection for other types of beams, i.e., cantilever, fixed end support, continuous support, etc. can be estimated by using standard beam formulas.

LOAD VS. DEFLECTION: Load vs. Deflection is approximately proportional for a given span (i.e. if a concentrated 400 lb load deflects a 30" span 1/4", an 800 lb load would deflect the same span 1/2").

ULTIMATE CAPACITY
Fibergrate has tested its molded and pultruded grating product lines to their ultimate capacities. ULTIMATE CAPACITY represents a complete and total failure of the grating and is presented to illustrate the reserve strength of the grating at a given span. Ultimate capacities are not to be used for design: functionality of the grating is limited to Maximum Recommended Load. The designer should not exceed the MAX RECOMMENDED LOAD at any given span. MAX RECOMMENDED LOAD represents a 2:1 factor of safety on ULTIMATE CAPACITY.

LOADS
Walking loads, typically 50-65 PSF maximum, are recommended for pedestrian traffic. Deflections for personnel comfort are typically limited to the lesser of 3/8" or CLEAR SPAN divided by 125. For a firmer feel, limit deflection to the lesser of 1/4" or CLEAR SPAN divided by 200. The allowable loads in this table are for STATIC LOAD CONDITIONS at ambient temperatures only. Allowable loads for impact or dynamic conditions should be a minimum of ONE-HALF the values shown. Long-term loads will result in added deflection due to creep in the material and will also require higher safety factors to ensure acceptable performance. For applications at elevated temperatures, consult Grating Pacific. The designer is further referenced to ASCE Structural Plastics Design Manual.



Engineering Notes

The strength and corrosion resistance of FRP grating are related to the glass content, resin content, resin type and method of construction. Fibergrate molded products provide an outstanding balance of corrosion resistance, slip resistance and strength. There are three frequently used methods of support for molded fiberglass grating:
1) two continuous edge supports with bearing bars perpendicular to the supports;
2) continuous support around all sides;
3) four-corner support, or point support. (For example, pedestals are provided to support the grating a few inches above the existing floor when large volumes of liquids are flowing onto the floor and where a slip-resistant drainable floor surface is required because of operating requirements.)
Panels are normally supported around the perimeter to assure panel-to-panel alignment. In using Fibergrate's grating, the principles are similar to metal grating usage, but you must keep in mind that the flexural modulus of elasticity of reinforced fiberglass bars is lower than that of steel. As a result, the allowable deflection is often the limiting consideration.

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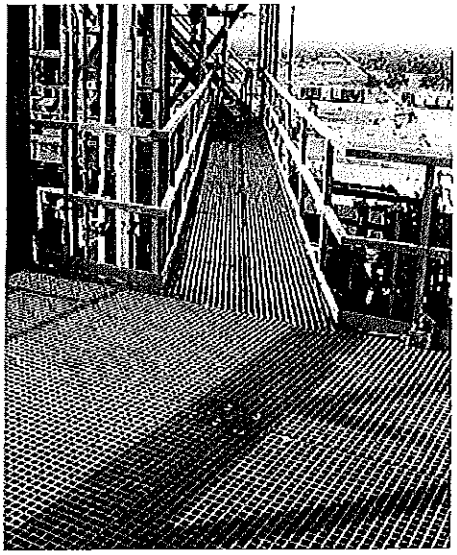
FIBERGLASS GRATINGS

Products

Fibergrate Molded FRP Grating

Fibergrate Fiberglass Reinforced Plastic (FRP) Molded Grating sets the standard in FRP products for corrosion resistance, strength, long life and safety. Fibergrate is proud to offer more than 10 custom resins that deliver years of service in the most demanding conditions regardless of your application requirements.



Molded Grating Characteristics

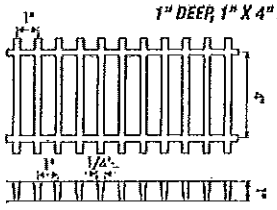
- **CORROSION RESISTANCE:**
  Ten premium-grade resin systems
- **SLIP RESISTANCE:**
  Meniscus or applied grit surfaces
- **LOW MAINTENANCE:**
  No scraping, sandblasting or painting required
- **FIRE RETARDANT:**
  Flame spread rating of 25 or less (per ASTM E-84), meets extinguishing requirements of ASTM D-635
- **HIGH STRENGTH-TO-WEIGHT RATIO:**
  Less than half the weight of steel grating
- **ELECTRICALLY AND THERMALLY NON-CONDUCTIVE**
- **IMPACT RESISTANT:**
  Withstands common impacts with little structural damage and no failure
- **EASILY FABRICATED:**
  Easy to cut in the field, easy to lift and install
- **ELECTRONICALLY TRANSPARENT:**
  Does not affect electromagnetic or radio wave frequencies

Fibergrate Patterns & Details

The following details present our most popular Fibergrate products. In addition to the products illustrated, alternative depths and non-stock panel sizes are available on special order.

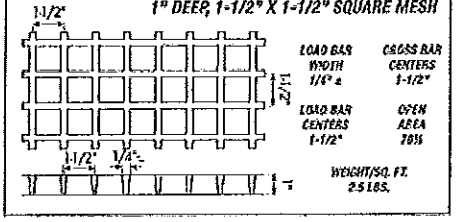
1" DEEP RECTANGULAR MESH

1" DEEP, 1" X 4" RECTANGULAR MESH



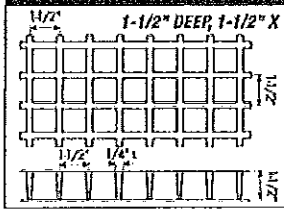
1" DEEP SQUARE MESH

1" DEEP, 1-1/2" X 1-1/2" SQUARE MESH



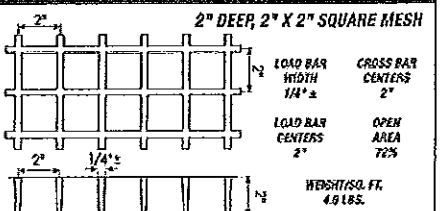
1-1/2" DEEP SQUARE MESH

1-1/2" DEEP, 1-1/2" X 1-1/2" SQUARE MESH



2" DEEP SQUARE MESH

2" DEEP, 2" X 2" SQUARE MESH



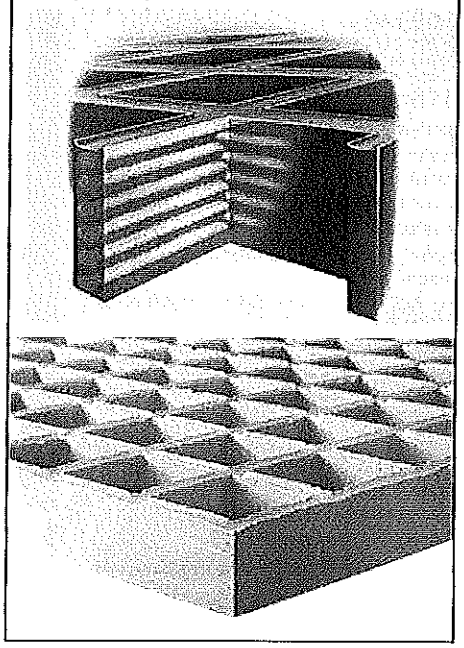
STOCK PANEL SIZES			
1" DEEP RECTANGULAR MESH	1" DEEP SQUARE MESH	1-1/2" DEEP SQUARE MESH	2" DEEP SQUARE MESH
3'-0" x 10'-0" 4'-0" x 8'-0"	3'-0" x 10'-0" 4'-0" x 8'-0" 4'-0" x 12'-0"	3'-0" x 10'-0" 4'-0" x 8'-0" 4'-0" x 12'-0" 5'-0 x 10'-0"	4'-0" x 12'-0"

ALL MATERIAL IS READILY AVAILABLE CUT TO SIZE WITH ENDS PROPERLY RESIN SEALED.

Fibergrate Surface Options

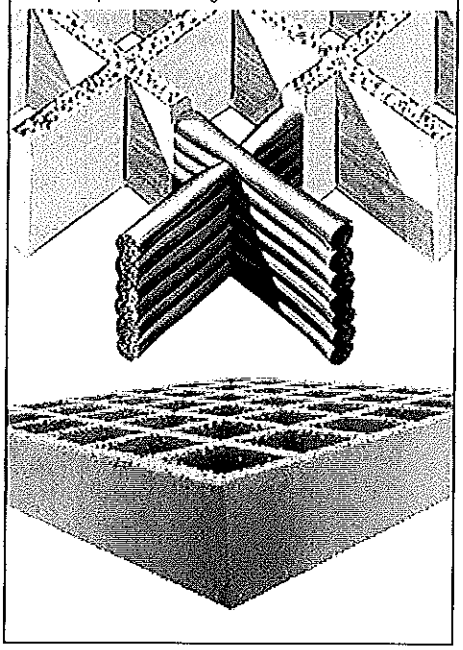
Meniscus Surface

The concave surface of Fibergrate's standard meniscus top provides excellent slip-resistant footing in most environments including wet or oily conditions.



Applied Grit Surface

Fibergrate's optional grit top grating has a quartz grit which is secondarily applied, cured and sealed onto the surface providing excellent slip-resistant footing.



Resin Systems

CORVEX© - An economy polyester grating, Corvex outperforms a number of competitive fiberglass and metal products and meets the requirements for corrosion resistance found in light industrial and water/wastewater applications. Color: yellow, dark gray or dark green. Flame Spread: ASTM E84 rating of 25 or less. Certifications: DNV Type Approval No. F-16856.

VI-CORR® - A superior vinyl ester resin developed for reliable performance in the toughest environments. It offers outstanding resistance to a wide range of highly corrosive situations, ranging from caustic to acidic. In fact, no other resin system can match Vi-Corr's performance in highly acidic environments. Color: orange or dark gray. Flame spread: ASTM E84 rating of 25 or less. Certifications: UL Classification available; DNV Type Approval No. F-16856; USCG Accepted; ABS Type Approval No. 01-HS34733-X).

FGI-AM* - This improved food-grade isophthalic polyester resin system offers antimicrobial properties to inhibit the growth of mold on the surface of the composite to protect the product itself along with the necessary corrosion resistance to meet the requirements of the food and beverage industry.Color: light gray. Flame Spread: ASTM E84 rating of 25 or less. Certifications: USDA accepted.

IFR - This isophthalic polyester fire-retardant resin formulation is designed for industrial and chemical processing applications where corrosion resistance is important. Color: green or dark gray. Flame Spread: ASTM E84 rating of 25 or less. Certifications: UL Classification available.

*This product is intended only for non-public health uses.

XFR - This extra fire-retardant vinyl ester resin is recommended for use where the fire potential is high. Color: dark gray. Flame Spread: ASTM E84 rating of 10 or less, a level exceeded by no other resin system. Certifications: DNV Type Approval No. F-16856.

ELS - This Extremely Low Smoke resin is an acrylic-modified polyester system that is ideal for tunnel, offshore, mass transit and other confined space applications. ELS exhibits low ignitability, low smoke generation and extremely low smoke toxicity. Color: light gray. Flame Spread: ASTM E84 rating of 25, a smoke density index of 100 and Fuel Contribution of 0. Certifications: DNV Type Approval No. F-16856.

SUPER VI-CORR® - This family of resin systems consists of more than 30 custom formulas engineered to provide corrosion control solutions in applications that are too severe for conventional FRP and other building materials. Each Super Vi-Corr resin was engineered for the best possible performance in specific chemical and/or elevated temperature environments. These systems exist for aggressive chemical service in reagents like solvents, acidic oxidizers, chlorine dioxide, sodium hypochlorite and liquid desiccants. Certain formulas are also suited for elevated temperature applications up to 400° F. Super Vi-Corr gratings are typically used for packing hold-downs and support in environmental and process scrubber applications. Color: natural - tan to beige. Flame Spread: non fire retardant, unless specified.

HOW TO SPECIFY MOLDED GRATING

Fiberglass Grating shall be one piece construction, Fibergrate Molded Fiberglass by Grating Pacific, 3651 Sausalito Street, Los Alamitos, CA 90720, (800) 321-4314. Molded grating shall be fire retardant, ___1-1/2"___ deep (1", 1-1/2" or 2"), ___SQUARE___ mesh (square or rectangular for 1" deep, square for 1-1/2" or 2" deep), manufactured with ___VCORR PREMIUM VINYL ESTER___ resin (VCorr Premium Vinyl Ester, IFR Isophtalic Polyester, XFR, FGI Isophtalic Polyester or Correx Polyester). Grating shall be supplied with ___CONCAVE___ (standard concave or optional grit surface) skid-resistant walking surface. All cut or sanded surfaces shall be sealed with resin prior to installation. Grating shall be fastened to supporting structure with type ___"M"___ fasteners

CLICK HERE FOR FIBERGRATE LOAD TABLES

CLICK HERE FOR CHEMICAL RESISTANCE CHART

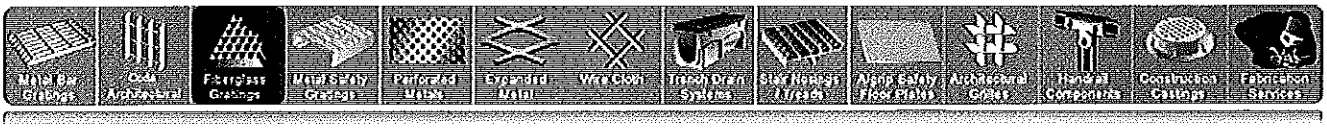
CLICK HERE FOR FABRICATION AND FASTENERS

CLICK HERE FOR FIBERGLASS ENGINEERING NOTES

CLICK HERE FOR STAIR SOLUTIONS AND TREAD PANELS

Los Alamitos, CA 800-321-4314 • Tracy, CA 800-491-7999 • Woodburn, OR 800-942-4041 • Kent, WA 800-243-3939 • Phoenix, AZ, 888-936-9201 • Madera, CA 559-664-0709

Locations

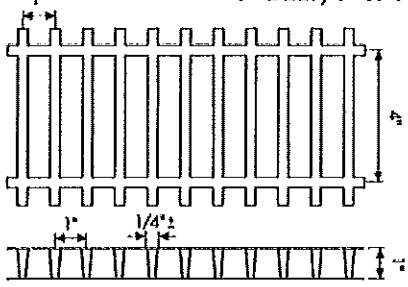


Molded Grating Load Tables

The following load tables were developed in strict conformance with the fiberglass load/deflection criteria presented on page 41 of this catalog. U – uniform in lbs. per sq. ft., C – concentrated line load in lbs. Per ft. Of width, P – concentrated point load-lbs., δu – uniform load deflection in inches, δc – concentrated line load deflection in inches, δp – concentrated point load defelection in inches.

1" DEEP RECTANGULAR MESH

1" DEEP, 1" X 4" RECTANGULAR MESH



LOAD BAR WIDTH 1/4" ± | CROSS BAR CENTERS 4"

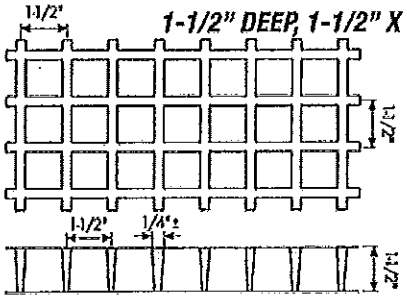
LOAD BAR CENTERS 1" | OPEN AREA 69%

WEIGHT/SQ. FT. 2.5 LBS.

CLEAR SPAN (INCHES)	UNIFORM, CONCENTRATED & POINT LOADS DEFLECTION IN INCHES LOAD = LBS./SQ. FT.								MAX. RECOMMENDED SPAN			ULTIMATE CAPACITY
		50	100	200	300	500	1000	2000	CORVEX	IFR/TGI	VI-CORR	
12"	ΔU	<.01	<.01	<.01	.01	.02	.05	.09	2367	2367	4628	10155
	ΔC	<.01	.01	.02	.02	.04	.08	–	1183	1183	2314	5350
18"	ΔU	.01	.02	.04	.07	.11	.22	.44	1052	1052	2057	4756
	ΔC	.01	.02	.05	.07	.12	.23	–	789	789	1543	3567
	ΔP	<.01	.01	.02	.03	.06	.11	.22	–	–	–	–
24"	ΔU	.04	.07	.15	.22	.37	.73	–	592	592	1157	2675
	ΔC	.03	.06	.12	.18	.30	.59	–	592	592	1157	2675
	ΔP	.01	.02	.05	.07	.12	.24	.49	–	–	–	–
30"	ΔU	.08	.17	.34	.51	.85	–	–	379	379	740	1712
	ΔC	.05	.11	.22	.32	.54	–	–	473	473	926	2140
	ΔP	.02	.05	.09	.14	.23	.45	–	–	–	–	–
36"	ΔU	.16	.32	.65	.97	1.61	–	–	263	263	514	1189
	ΔC	.09	.17	.34	.52	.86	–	–	394	394	771	1783
	ΔP	.04	.07	.14	.21	.35	.71	–	–	–	–	–
42"	ΔU	.33	.66	1.32	1.98	–	–	–	193	193	378	873
	ΔC	.15	.30	.60	.90	1.51	–	–	338	338	661	1529
	ΔP	.05	.11	.21	.32	.53	–	–	–	–	–	–

1-1/2" DEEP SQUARE MESH

1-1/2" DEEP, 1-1/2" X 1-1/2" SQUARE MESH



LOAD BAR WIDTH 1/4" ±

CROSS BAR CENTERS 1-1/2"

LOAD BAR CENTERS 1-1/2"

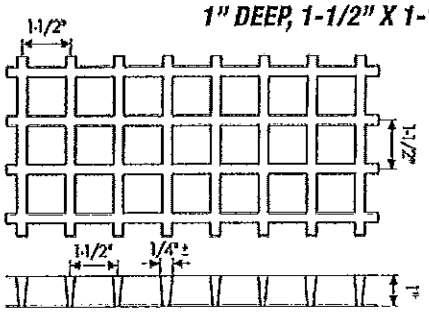
OPEN AREA 70%

WEIGHT/SQ. FT. 3.76 LBS.

CLEAR SPAN (INCHES)		UNIFORM, CONCENTRATED & POINT LOADS DEFLECTION IN INCHES LOAD = LBS./SQ. FT. 50	100	200	300	500	1000	2000	MAX. RECOMMENDED SPAN CONVEX	IFR/TGI	VI-CORE	ULTIMATE CAPACITY
12"	ΔU	<.01	<.01	<.01	.01	.02	.04	.07	2067	2833	7700	10420
	ΔC	<.01	<.01	.01	.02	.03	.05	.11	1033	1417	3850	8000
18"	ΔU	<.01	.01	.03	.04	.07	.14	.28	919	1259	3422	6947
	ΔC	.01	.02	.03	.05	.08	.15	.30	889	944	2567	5333
	ΔP	<.01	<.01	.01	.02	.03	.06	.13	–	–	–	–
24"	ΔU	.02	.04	.08	.12	.21	.42	–	517	708	1925	4000
	ΔC	.02	.03	.07	.10	.17	.33	–	517	708	1925	4000
	ΔP	<.01	.01	.02	.03	.06	.12	.23	–	–	–	–
30"	ΔU	.05	.09	.18	.27	.46	.91	–	331	453	1232	2560
	ΔC	.03	.06	.12	.18	.29	.59	–	413	567	1540	3200
	ΔP	.01	.02	.04	.06	.10	.20	–	–	–	–	–
36"	ΔU	.10	.20	.40	.59	.99	–	–	230	315	858	1778
	ΔC	.05	.11	.21	.32	.53	1.06	–	344	472	1283	2667
	ΔP	.02	.03	.06	.09	.15	.30	–	–	–	–	–
42"	ΔU	.17	.34	.69	1.03	1.72	–	–	169	231	629	1306
	ΔC	.08	.16	.32	.47	.79	1.58	–	295	405	1100	2286
	ΔP	.02	.04	.09	.13	.22	.44	–	–	–	–	–
48"	ΔU	.28	.56	1.13	1.70	–	–	–	129	177	481	1000
	ΔC	.11	.23	.45	.68	1.13	–	–	258	354	963	2000
	ΔP	.03	.06	.12	.18	.29	.58	–	–	–	–	–
54"	ΔU	.42	.84	1.68	2.53	–	–	–	102	140	380	790
	ΔC	.15	.30	.60	.90	1.50	–	–	230	315	856	1778
	ΔP	.04	.07	.15	.22	.37	–	–	–	–	–	–

1" DEEP SQUARE MESH

1" DEEP, 1-1/2" X 1-1/2" SQUARE MESH



LOAD BAR WIDTH 1/4" ±

CROSS BAR CENTERS 1-1/2"

LOAD BAR CENTERS 1-1/2"

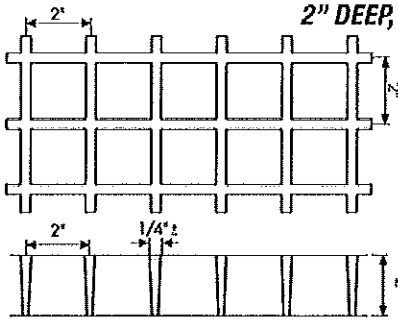
OPEN AREA 70%

WEIGHT/SQ. FT. 2.5 LBS.

CLEAR SPAN (INCHES)		UNIFORM, CONCENTRATED & POINT LOADS DEFLECTION IN INCHES LOAD = LBS./SQ. FT. 50	100	200	300	500	1000	2000	MAX. RECOMMENDED SPAN CONVEX	IFR/TGI	VI-CORE	ULTIMATE CAPACITY
12"	ΔU	<.01	<.01	.01	.02	.04	.08	.16	1580	1580	3065	6770
	ΔC	<.01	.01	.03	.04	.06	.13	–	790	790	1543	3567
18"	ΔU	.02	.04	.09	.11	.20	.38	–	702	702	1371	3170
	ΔC	.02	.04	.08	.12	.20	.41	–	527	527	1028	2378
	ΔP	<.01	.01	.03	.04	.07	.14	.27	–	–	–	–
24"	ΔU	.06	.12	.25	.37	.64	–	–	395	395	771	1783
	ΔC	.05	.10	.20	.30	.49	–	–	395	395	771	1783
	ΔP	.01	.03	.05	.08	.13	.26	.53	–	–	–	–
30"	ΔU	.14	.27	.55	.82	–	–	–	253	253	494	1141
	ΔC	.09	.18	.35	.53	.88	–	–	316	316	617	1427
	ΔP	.03	.05	.10	.15	.26	.52	–	–	–	–	–
36"	ΔU	.31	.62	1.24	1.85	–	–	–	176	176	343	793
	ΔC	.16	.33	.66	.99	1.65	–	–	263	263	514	1189
	ΔP	.03	.07	.14	.20	.34	.68	–	–	–	–	–
42"	ΔU	.49	.93	1.97	–	–	–	–	129	129	252	582
	ΔC	.23	.45	.90	1.35	–	–	–	226	226	441	1019
	ΔP	.06	.12	.23	.35	.59	–	–	–	–	–	–

2" DEEP SQUARE MESH

2" DEEP, 2" X 2" SQUARE MESH



LOAD BAR WIDTH 1/4" ±

CROSS BAR CENTERS 2"

LOAD BAR CENTERS 2"

OPEN AREA 72%

WEIGHT/SQ. FT. 4.0 LBS.

CLEAR SPAN (INCHES)		UNIFORM, CONCENTRATED & POINT LOADS DEFLECTION IN INCHES LOAD = LBS./SQ. FT.							MAX. RECOMMENDED SPAN			ULTIMATE CAPACITY
		50	100	200	300	500	1000	2000	CORVEX	VER/FGI	VI-CORR	
12"	ΔU	<.01	<.01	<.01	<.01	.01	.02	.04	2500	6267	6267	9624
	ΔC	<.01	<.01	<.01	.01	.02	.03	.06	1250	3133	3133	9624
24"	ΔU	.01	.02	.04	.06	.10	.20	–	625	1567	1567	4812
	ΔC	.01	.02	.03	.05	.08	.16	–	625	1567	1567	6225
	ΔP	<.01	<.01	.01	.02	.04	.07	.14	–	–	–	–
30"	ΔU	.02	.05	.09	.14	.23	.45	–	400	1003	1003	3344
	ΔC	.01	.03	.06	.09	.14	.29	–	500	1253	1253	4180
	ΔP	<.01	.01	.02	.03	.06	.12	.23	–	–	–	–
36"	ΔU	.04	.09	.18	.26	.44	–	–	278	696	696	2322
	ΔC	.02	.05	.09	.14	.23	.47	–	417	1044	1044	3483
	ΔP	<.01	.01	.03	.04	.07	.15	.29	–	–	–	–
42"	ΔU	.08	.16	.32	.47	.79	–	–	204	512	512	1706
	ΔC	.04	.07	.14	.22	.36	–	–	357	895	895	2986
	ΔP	.01	.02	.05	.08	.12	.25	.50	–	–	–	–
48"	ΔU	.14	.28	.56	.84	–	–	–	156	392	392	1306
	ΔC	.06	.11	.22	.33	.56	–	–	313	783	783	2613
	ΔP	.01	.03	.06	.09	.15	.30	.60	–	–	–	–
54"	ΔU	.21	.42	.84	1.26	–	–	–	123	309	309	1032
	ΔC	.07	.15	.30	.45	.75	–	–	278	696	696	2322
60"	ΔU	.37	.73	1.46	–	–	–	–	100	251	251	836
	ΔC	.12	.23	.47	.70	1.17	–	–	250	627	627	2090