Fiberglass

Safety Grating, Structurals and Specialty Items

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⚠ **WARNING**: These products can potentially expose you to chemicals including, 4-Dioxane, Acetaldehyde, Acrylonitrile, Bisphenol-A, Carbon Black, Chromium, Cumene, Dichloromethane, Ethyl Acrylate, Ethylbenzene, Ethylene Glycol, Formaldehyde, Glass Fibers, Hexachlorobenzene, Lead, Methanol, Nickel, Polyvinyl Chloride, Silica-crystalline, Styrene, Tetrafluoroethylene, Titanium Dioxide, and Toluene, which are known to the state of California to cause cancer and/or birth defects or other reproductive harm. For more information, visit **www.P65Warnings.ca.gov**

Fiberglass Grating - Pultruded

Duradek® (standard) **and Duragrid®** (custom)

Duradek® and Duragrid® are high strength pultruded bar type gratings that can be designed and used like traditional metal grates but have inherent benefits of fiberglass. These problem solving products are ideal replacements for steel or aluminum gratings in corrosive environments or anywhere frequent grating and walkway replacements costs are unacceptable.

Duradek® is a standard product made by Strongwell and stocked by Alro Plastics. It is available with individual bearing bars in either 1" or 1-1/2" thick "I" shapes or a 2" thick "T" shape. Duradek® is a flame retardant product utilizing a polyester or vinyl ester resin. The bearing bars are assembled into 12 panel sizes 3-, 4-, 5- foot widths in each of 8-, 10-, 12-, and 20- foot lengths. Standard panels come with cross-rod spacings of 8" on center.

Duragrid® custom grid or grating systems are designed to accomodate specific applications that cannot effectively be met by standard fiberglass grating. Duragrid® offers the customer options such as selection of open space, bar shape, cross-rod replacement, custom fabrication, custom resin and color. Because Duragrid® is a custom grid, there is a lead time involved in designing and running it. Alro Plastics does stock Duragrid® I-6000 with 6" cross rods as our standard. Please contact Alro Plastics for your custom run inquiries.

Why use Duradek® or Duragrid® grating? Duradek® and Duragrid® are lightweight, which saves on freight and makes installation easier. The unique cross-bar construction of Duradek® and Duragrid® allows the grating panels to be easily cut and modified to fit almost any plant requirment.

Typical Features:

- High impact and fatigue strength
- Cracking and chipping resistant
- Low thermal conductivity
- Low electrical conductivity
- Easy to fabricate and install
- Structurally strong
- Corrosion resistant
- Skid resistant
- Low maintenance
- Lightweight

Product Industries:

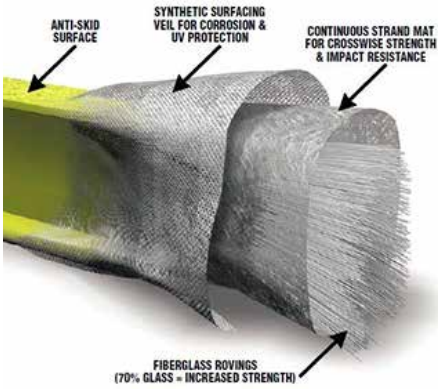
- Mining / Processing
- Chemical & Power plants
- Oil and Gas facilities
- Building construction
- Fire equipment
- Wastewater plants
- Agricultural
- Food and beverage
- Metal finishing
- Railroad / Transportation
- Pollution control
- Marine / Offshore
- Pulp and paper
- Electrical / Radar

Fiberglass Grating - Pultruded

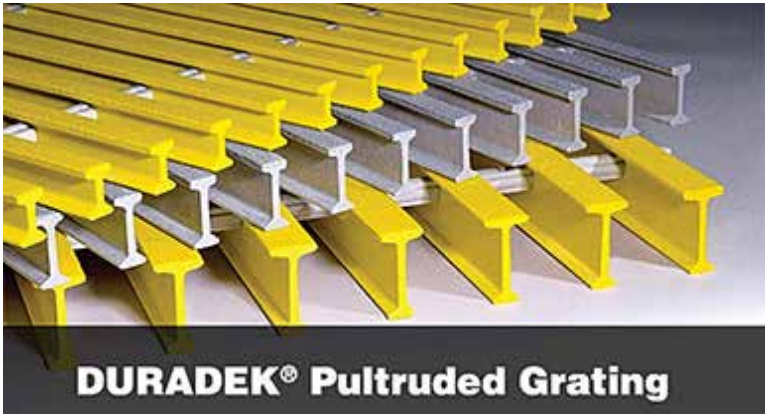
Duradek® (standard) **and Duragrid®** (custom)

Duradek® and Duragrid® fiberglass gratings are a composite of fiberglass reinforcements (fibers and mat) and a thermosetting resin system, produced by the poltrusion process. The poltrusion manufacturing process produces many of the outstanding characteristics of the product.

The bearing bars use both longitudinal (glass roving) and multidirectional (glass mat) reinforcements as well as a synthetic surfacing veil to provide unequaled strength and corrosion resistance. The densley packed core of continuous glass rovings gives the bar strength and stiffness in the longitudinal direction while the continuous glass mat provides stength in the transverse direction and prevents chipping, cracking and lineal fracturing. The synthetic surfacing veil provides a 100% pure resin surface for added corrosion resistance and UV protection.



The patented 3-piece cross-rod assembly used in Duradek® and Duragrid® grating forms a strong, unified panel that can be cut and fabricated like a solid sheet. This unique system consists of two continuous, pultruded spacer bars and a center core wedge. The spacers are notched at each bearing bar so that the bars are both mechanically locked and chemically bonded to the web of each bearing bar. This seperates and affixes the bearing bars firmly in position and distributes concentrated loads to adjacent bars. The resulting panel can be easily fabricated with standard carpenters' tools with abrasive cutting edges. Ask your Alro Plastics Sales representative for the Grating Field Farbication Guide for further details.



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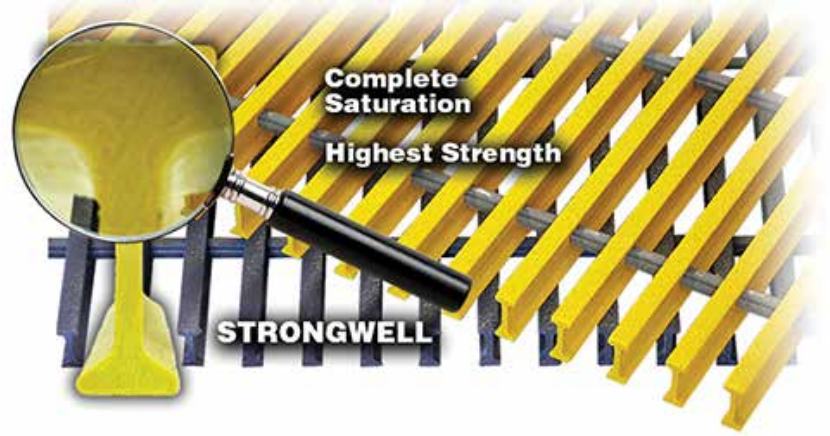
Fiberglass Grating - Pultruded

Duradek® (standard) **and Duragrid®** (custom)

Custom Grating Options

A wide variety of bearing bar shapes along with various bearing bar and cross-rod spacings are available depending on the design requirements. The traditional "I" bar shape provides maximum flexibility in design. It is available in 1", 1-1/4" and 1-1/2" depths. The "T" bar shape provides a more solid walking surface and prevents catching high heels and other objects between the bars. It is available in 1", 1-1/2" and 2" depths. The Economy series offers a lighter weight bearing bar.

Strongwell's Duragrid® Heavy Duty (HD) solid bar grating has been designed to take heavy wheel traffic such as forklifts, tow motor and truck traffic. Because of a variety of wheel types and loading, please contact Alro Plastics or Stongwell's engineering department to determine the series of heavy duty grating to use. It is available in 1", 1-1/4", 1-1/2", 1-3/4", 2", 2-1/4" and 2-1/2" depths.



Fiberglass grating panels can be made to exact sizes to eliminate waste and fabrication costs in the field. The maximum panel weight is 500 lbs. and the maximum panel size is 60" x 240".

The bearing bars can be UV coated for added protection and color stability for outdoor applications. Grids can be ordered with or without an anti-skid grit surface. A variety of grit material and textures can be ordered.

The two standard colors are Gray and Yellow. Other colors can be quoted upon request. A small inventory is also maintained of 1" thick "I" and "T" bars in White non-fire retardant polyester resin.

The standard polyester resin used in Duradek® is fire retardant and meets the requirements for a Class 1 flame rating of 25 or less per ASTM E-84 and meets the self-extinguishing requirements of ASTM D-635. The resin also contains a UV inhibitor. Duragrid® offers a wide selection of resin options including polyester, vinyl ester, phenolic, modar, etc. Other choices include fire retardant, UV inhibitors, colors and specialized additives.

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Fiberglass Grating - Pultruded

Duradek® (standard) **and Duragrid®** (custom)

How to Specify Duradek® and Duragrid®

Fiberglass grating shall be (select one of the following...)

- **Duradek®** Series (I-6500 1"thk) (I-6500 1-1/2"thk) (T-5800 2" thk)
- **Duragrid®** Grating panels shall be made of (1") (1-1/4") (1-1/2") (2") deep pultruded (T) (I) bars.
- **Duragrid®** Heavy Duty grating panels shall be made of (1") (1-1/4") (1-1/2") (1-3/4") (2") (2-1/4") (2-1/2") deep pultruded (HD) bars.

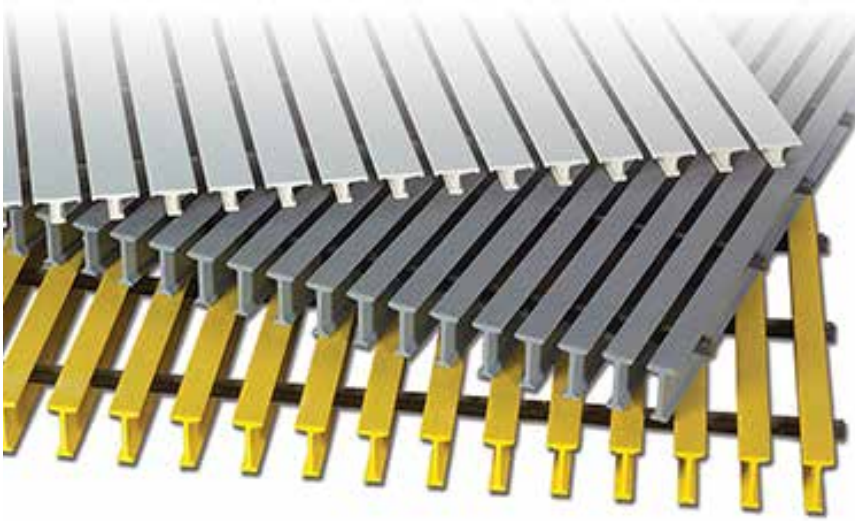
The resin shall be fire retardant (polyester) (vinyl ester) meeting the requirements of a Class 1 rating of 25 or less per ASTM E-84 and meets the self-extinguishing requirements of ASTM D-635. The color shall be (Gray) (Yellow). Resin shall be UV inhibited and the composite shall include a veil on all exposed surfaces. Panels shall be assembled into the sizes ordered using a 3-piece pultruded cross-rod system.

The cross-rods shall consist of a center core wedge and 2 spacer bars that are notched at each bearing bar so that each bearing bar is both mechanically locked and chemically bonded to the web of each bearing bar. The spacer bars shall be continually bonded to the center core wedge. The cross-rods shall be spaced a maximum of (6", 8" or 12") in the panel. The top of the panels (shall) (shall not) be covered with a bonded grit anti-skid surface.

NOTE: If special options are required that are not stated in the above specification, fill in your special requirement in the appropriate section.

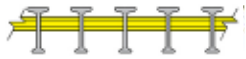
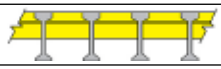
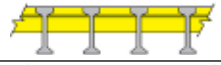
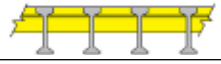
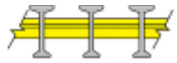
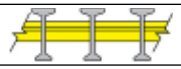
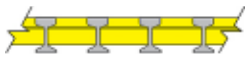
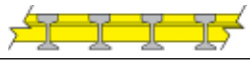
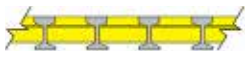
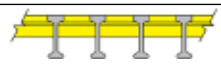
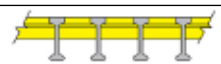
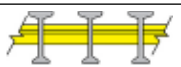
When ordering **Duradek®** or **Duragrid®**, make sure the bearing bars in the panel are oriented in the correct direction for the application. Bearing bars should traverse from support to support. Cross-rods are not intended to be applied in the span direction.

NOTE: Width is the measurement from end to end of the cross-rods. Length is ALWAYS the bearing bar length.



Fiberglass Grating - Pultruded

Typical Properties

END VIEW	SERIES	OPEN AREA %	DEPTH, INCHES	WIDTH OF TOP FLANGE INCHES
	I-6500	65%	1"	0.60
	I-6500	65%	1-1/2"	0.60
	T-5800	58%	2"	1.00
	I-4000	40%	1"	0.40
	I-4000	40%	1-1/4"	0.40
	I-4000	40%	1-1/2"	0.40
	T-1800	18%	1"	1.63
	T-3300	33%	2"	1.00
	HD-6000	60%	1"	0.60
	HD-6000	60%	1-1/4"	0.60
	HD-6000	60%	1-1/2"	0.60
	HD-6000	60%	1-3/4"	0.60
	HD-6000	60%	2"	0.60
	HD-6000	60%	2-1/4"	0.60
	HD-6000	60%	2-1/2"	0.60

COLORS
Standard colors are safety yellow and gray for all isophthalic and vinylester products. Special colors will be quoted upon request.

STANDARD PANEL SIZE (feet)

3'-0 x 20'-0	4'-0 x 20'-0	*4'-0 x 8'-0
3'-0 x 10'-0	4'-0 x 10'-0	*4'-0 x 12'-0

Two page chart, continues on the next page

Fiberglass Grating - Pultruded

Typical Properties

FLUSH TOP	WIDTH OF OPEN SPACE INCHES	BEARING BARS PER FOOT	APPROX. WEIGHT SQFT.	RESIN	COLOR Y=YELLOW G=GRAY
YES	0.90	---	2.40	ISO FR VE FR	Y & G
YES	0.90	---	2.92	ISO FR VE FR	Y & G
NO	1.00	---	3.00	ISO FR VE FR	Y & G
YES	0.40	---	3.40	ISO FR VE FR	Y & G
YES	0.40	---	3.85	ISO FR VE FR	Y & R
YES	0.40	---	4.20	ISO FR VE FR	Y & G
NO	0.38	6	2.61	ISO FR VE FR	Y & G
NO	0.50	8	3.94	ISO FR VE FR	Y & G
YES	0.90	---	4.90	ISO FR VE FR	Y & G
YES	0.90	---	5.90	ISO FR VE FR	Y & G
YES	0.90	12	7.00	ISO FR VE FR	Y & G
YES	0.90	8	8.00	ISO FR VE FR	Y & G
YES	0.90	10	9.00	ISO FR VE FR	Y & R
YES	0.90	12	10.10	ISO FR VE FR	Y & G
YES	0.90	6	11.10	ISO FR VE FR	Y & G

CUSTOM SIZES AVAILABLE

Two page chart, continued from previous page

Fiberglass Grating - Molded

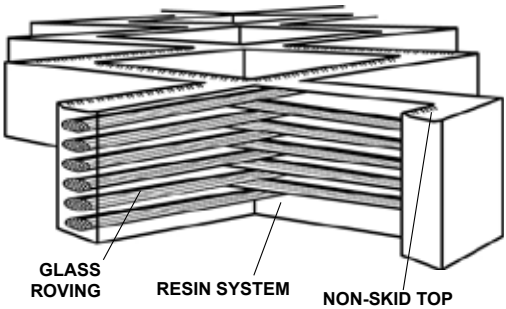
Duragrate® (standard)

Duragrate® molded fiberglass grating is a strong mesh grating panel that is the chemical resistant flooring choice for many industrial applications. Duragrate® panels are molded in one piece and feature a concave non-slip walking surface. The cost-effective panels allow for efficient on-site cutting to minimize grating waste and load bearing bars in both directions allow for use without continuous side support.

Duragrate® molded fiberglass grating is significantly lighter in weight than metallic gratings and the high resin content (65%) provides long, virtually maintenance-free performance. A higher safety is achieved by designing in a higher glass content at the bottom of the grating for greater tensile strength.

Typical Features:

- Bidirectional load bearing
- Uniform in appearance
- Low in conductivity
- Low maintenance
- Easy to fabricate and install
- Good impact resistance
- Corrosion resistant
- Cost effective
- Fire retardant
- Lightweight



Product Industries:

- Mining / Processing
- Chemical & Power plants
- Oil and Gas facilities
- Building construction
- Fire equipment
- Wastewater plants
- Agricultural
- Food and beverage
- Metal finishing
- Railroad / Transportation
- Pollution control
- Marine / Offshore
- Pulp and paper
- Electrical / Radar

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Fiberglass Grating - Molded

Duragrate® (standard)

Duragrate® molded fiberglass grating is composed of fiberglass rovings combined with a choice of five thermosetting resin systems. Standard Duragrate® grating has a concave profile on the upper surface for skid resistance. Grit tops are available upon request.

Standard Resin Systems Available* :

RESIN CODE	DESCRIPTION	RESIN BASE	CORROSION RESISTANCE	FLAME SPREAD RATING**
VE	Chemical Proof Fire Retardant	Vinyl Ester	Excellent	Class 1 25 or Less
XVE	Chemical Proof Fire Retardant	Vinyl Ester	Excellent	Class 1 10 or Less
PP	Industrial Grade Fire Retardant	Isophthalic	Very Good	Class 1 25 or Less
GP	Architectual Grade Fire Retardant	Orthophthalic	Good	Class 1 25 or Less
FF	Food Grade Fire Retardant	Isophthalic	Very Good	Class 2 30 or Less

** Strongwell's standard colors are Dark Gray, Green, Yellow, Orange and Light Gray. Please contact Customer Service for resin system and color requirements. Custom colors are available upon request.*
*** Flame Spread Rating per ASTM E-84 Tunnel Test*

How to Specify - The molded fiberglass grating shall be **Duragrate®** as supplied by Strongwell. Grating panels shall be (pick one from chart below 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.

Color shall be (green, orange, yellow, dark gray or light gray). The surface shall be (concave top, gritted).

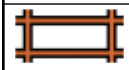
Shapes, Sizes and Availability :

THICKNESS	MESH PATTERN	PANEL SIZES
1"	1-1/2" Square	3' x 10', 4' x 8', 4' x 12'
1"	2" Square	4' x 12'
1"	3/4" x 4" Rectangular	4' x 12'
1"	1" x 4" Rectangular	3' x 10', 4' x 12'
1-1/2"	3/4" x 3/4" Micro Mesh	4' x 12'
1-1/2"	1-1/2" x 6" Rectangular	4' x 12'
1-1/2"	1-1/2" Square	3' x 10', 4' x 8', 4' x 12', 5' x 10'
2"	2" Square	4' x 12'

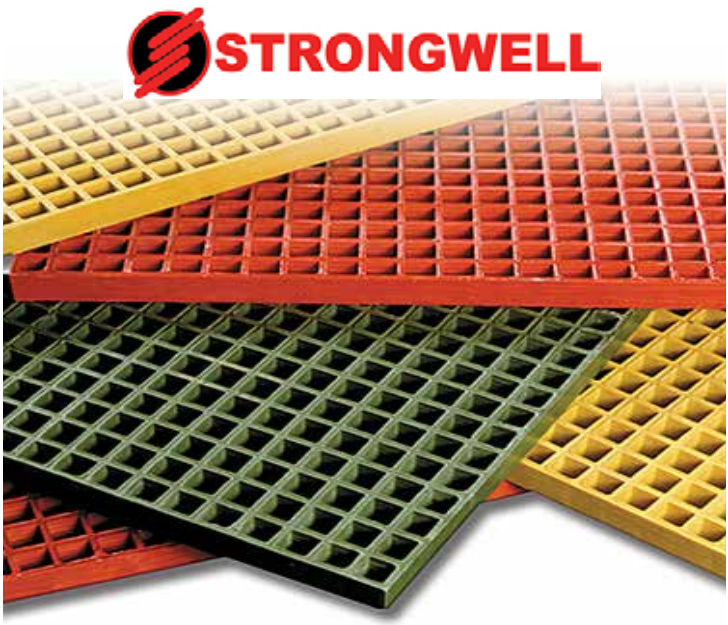
NOTE: All panel sizes available in VE, XVE, PP, GP or FF resin systems. Custom panel sizes and resins available upon request.

Fiberglass Grating - Molded

Duragrate® - Standard Grating Offerings

TOP VIEW	OPEN AREA	DEPTH	PATTERN	MESH SIZE	APPROX WGT. PER SQFT
	70%	1"	SQUARE MESH	1-1/2" x 1-1/2"	2.6 lbs
	70%	1-1/2"	SQUARE MESH	1-1/2" x 1-1/2"	3.8 lbs
	72%	2"	SQUARE MESH	2" x 2"	4.0 lbs
	44%	1-1/2"	RECT. MESH	3/4" x 1-1/2"	4.4 lbs
	69%	1"	RECT. MESH	1" x 4"	2.8 lbs
	67%	1-1/2"	RECT. MESH	1" x 6"	3.5 lbs

**Standard and Heavy Duty grades are available, please inquire with Sales Department*



A close up photo of the Duragrate molded grating. Alro Plastics can cut the grating to size for you, save yourself some time and whole lot of mess by letting Alro do the processing.

Fiberglass Structurals

Extren® - Standard Fiberglass Structural Shapes

A wide variety of standard shapes and custom composite shapes can be produced in a choice of standard resin systems. Fiberglass grating products are impervious to most industrial and environmental corrosives, non-conductive, electromagnetically transparent, provide thermal insulation and are less costly to maintain over the life of the product. Manufactured via the pultrusion process, these structural shapes are strong, flexible, dimensionally stable, and are inexpensive to install and remove with simple hand tools.

Extren® is a proprietary combination of fiberglass reinforcements and thermosetting polyester or vinyl ester resin systems. It is produced in more than 100 standard shapes. All Extren® shapes have a surface veil to protect against glass fibers penetrating the resin surface in service and to increase corrosion and UV resistance.

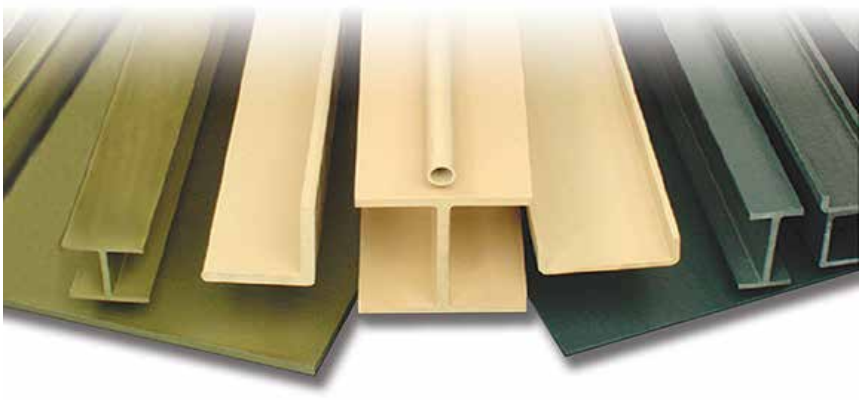
Extren® 500 - An all-purpose series utilizing an isophthalic polyester resin system with a UV inhibitor. Color: Olive Green

Extren® 525 - An all-purpose series utilizing a fire retardant isophthalic polyester resin system with a UV inhibitor. Color: Slate Gray (plus certain handrail and fixed-ladder components in yellow.)

Extren® 625 - A premium series, both fire retardant and highly corrosion resistant, utilizing a vinyl ester resin system with a UV inhibitor. Color: Beige

Typical Features:

- Corrosion resistant
- Dimensionally stable
- Low maintenance
- Custom colors
- Low thermal & electrical conductivity
- Nonmagnetic (electromagnetic transparency)
- High strength
- Lightweight



Extren® Product Logo - A product logo identification program has been implemented by Strongwell after designers and specifiers of Extren® learned that problems were occuring becuase of sellers or contractors were substituting look-alike shapes. Since July 1, 1993, Extren® fiberglass structural shapes and plate have been imprinted with the Extren® logo every 3 feet down the length of the part. Square and round tubes have the logo imprinted inside the shape. Small and unobtrusive, the logo assures customers that they are getting Extren® properties backed by corrosion, mechanical and structural testing as conducted by Strongwell.

Fiberglass Structurals

Extren® - Standard Fiberglass Structural Shapes

Product Industries:

- Chemical processing
- Cellular communication
- Building construction
- Food and Beverage
- Transportation
- Oil and Gas
- Air pollution control
- Electrical / Electrical Utility
- Water / Wasterwater
- Aeronautical defense
- Appliance / Equipment
- Consumer / Recreation
- Pulp and paper
- Agricultural

Product Shapes and Sizes:

ANGLES	CHANNELS	WIDE FLANGE BEAMS	ROUND TUBE	THERMAL CURED CLEAR ROD
1" x 1/8"	2" x 9/16" x 1/8"	3" x 1/4"	1"dia x 1/8"	1/4"dia.
1-1/4" x 3/16"	3" x 7/8" x 1/4"	4" x 1/4"	1-1/4"dia x 1/8"	3/8"dia.
1-1/2"x 1/8"	4" x 1-3/8" x 3/16"	6" x 1/4"	1-1/2"dia x 1/8"	1/2"dia.
1-1/2" x 3/16"	4" x 1-1/8" x 1/4"	6" x 3/8"	1-1/2"dia x 1/4"	5/8"dia.
1-1/2"x 1/4"	5" x 1-3/8" x 1/4"	8" x 3/8"	2"dia x 1/8"	3/4"dia.
2" x 3/16"	6" x 1-5/8" x 1/4"	10" x 3/8" (32'lg)	2"dia x 1/4"	13/16"dia
2" x 1/4"	*6" x 1-11/16" x 3/8"		2-1/2"dia x 1/4"	7/8"dia.
3" x 1/4"	*8" x 2-3/16" x 1/4"	THERMAL CURED CLEAR SQUARE BAR	3"dia x 1/4"	1"dia.
3" x 3/8"	8" x 2-3/16" x 3/8"	1/2" x 1/2"	SQUARE TUBE	1-1/8"dia
4" x 1/4"	10"x 2-3/4"x 1/2" (24'lg)	5/8" x 5/8"	1" x 1/8"	1-1/4"dia
4" x 3/8"	RECT. TUBE	3/4" x 3/4"	1-1/2" x 1/8"	1-1/2"dia
4" x 1/2"	4"x 1/8" x 2" x 1/4"	1" x 1"	2" x 1/8"	1-7/8"dia
6" x 1/2"		1-1/4" x 1-1/4"	2" x 1/4"	2"dia
SHEETS	I-BEAMS	1-1/2" x 1-1/2"	**2" x 1/4"	
1/8" thick	3" x 1-1/2" x 1/4"		3" x 1/4"	
3/16" thick	4" x 2" x 1/4"		4" x 1/4"	
1/4" thick	8" x 4" x 3/8"			
3/8" thick				
1/2" thick				
3/4" thick				

** Stock Series 525 only*
*** Stock, Yellow Series 525 only*

NOTE: Unless otherwise noted, all dimensions are in inches and stocked lengths are 10 foot and 20 foot long. The flat sheets of Extren are stocked in 48" x 96" sheets as a standard. All Extren® Series 500 products can be produced to meet NSF potable water standards in minimum mill run quantities. Only products bearing the NSF logo are certified.

These are just a sample of the products that Strongwell stocks and are readily available. Other products and sizes may be available, just not stocked at this time. Please contact your Alro Plastics representative about any custom run products or nonstocked shapes and sizes that you are interested in.

Fiberglass Structurals

Extren® - Standard Fiberglass Structural Shapes

PROPERTY TESTED	ASTM	UNITS	SERIES 500/ 525 SHAPES	SERIES 625 SHAPES
MECHANICAL PROPERTIES				
Tensile Stress, LW	D638	psi	30,000	30,000
Tensile Stess, CW	D638	psi	7,000	7,000
Tensile Modulus, LW	D638	10^6 psi	2.5	2.6
Tensile Modulus, CW	D638	10^6 psi	0.8	0.8
Compressive Stress, LW	D695	psi	30,000	30,000
Compressive Stress, CW	D695	psi	15,000	16,000
Compressive Modulus, LW	D695	10^6 psi	2.5	2.6
Compressive Modulus, CW	D695	10^6 psi	1.0	1.0
Flexural Stress, LW	D790	psi	30,000	30,000
Flexural Stress, CW	D790	psi	10,000	10,000
Flexural Modulus, LW	D790	10^6 psi	1.6	1.6
Flexural Modulus, CW	D790	10^6 psi	0.8	0.8
Modulus of Elasticity (1)	full	10^6 psi	2.6	2.8
Modulus of Elasticity	full	10^6 psi	2.5	2.5
W & I shapes > 4" W & I shapes > 102mm				
Parallel Compressive Shear Stress, LW (2)(9)	D3846	psi	3,000	3,000
Shear Modulus, LW (3)	---	10^6 psi	0.425	0.425
Short Beam Shear, LW (8)(9)	D2344	psi	4,500	4,500
Bearing Stress, LW	D953	psi	30,000	30,000
Poisson's Ratio, LW (9)	D3039	in/in	0.33	0.33
Notched Izod Impact, LW	D256	ft•lbs/in	25	25
Notched Izod Impact, CW	D256	ft•lbs/in	4	4
PHYSICAL PROPERTIES				
Barcol Hardness	D2583	---	45 (4)	45 (4)
24 hr Water Absorption (7)	D570	% Max	0.6	0.6
Density	D792	lbs/in^3	.062-.070	.062-.070

*(1) This value is determined from full section simple beam bending of **Extren** structural shapes.*
(2) The shear stress test results will change radically if notched orientation is altered. The value in this chart represents the test configuration where the notches are machined parallel to the reinforcing mat. For notches machined perpendicular to the reinforcing mat, this value would be two to three times larger.
*(3) The Shear Modulus value has been determined from tests with full sections of **Extren** structural shapes.*
(4) Value would be 50 if the surfacing veil were not there.
(5) Plate compressive stress/modulus measured edgewise and flexural stress/modulus measured flatwise.
(6) Values apply to series 525 and 625.
(7) Measured as a percentage maximum by weight.
(8) Span to depth ratio of 3:1; Extren angles will have a minimum value of 4000 psi and the I/W shapes are tested in the web.
(9) Typical values because these are shape and composite dependent tests.

LW = Lenghtwise, CW = Crosswise, PF = Perpendicular to laminate face, N.T. = Not Tested

Fiberglass Products

Additional Fiberglass Safety Products

Strongwell offers a broad range of fiberglass industrial products. Two other products often used with **Extren®** are **Safplate®** and **Fibrebolt®**. A brief description of each is given here. Full-color literature is available for each product upon request.

Safplate®

Safplate® fiberglass gritted plate is a tough, corrosion resistant floor plate. The unique combination of pultruded fiberglass plate and an anti-skid grit surface makes Safplate® a textured solid sheet flooring that is ideal for both wet and dry applications. Used in a variety of applications such as trench covers to contain vapors and fumes or predestrian bridge walkways for sure footing, Safplate® provides a long-lasting, maintenance-free alternative to steel plate for severe and corrosive environments.

Safplate® is available as solid plate or bonded to Duradek® or Duragrid® grating. The grit surface can be fine, medium or coarse. It is available in 4' x 8' panels in all standard Extren® plate thicknesses: 1/8", 3/16", 1/4", 3/8", 1/2" and 3/4". The standard Safplate® is fiberglass reinforced polyester with fire retardant in a gray color. Other resin systems and custom colors are available upon request, minimum quantities may apply.

Fibrebolt®

Fibrebolt® fiberglass studs and nuts are ideal for applications requiring mechanical fasteners that must be noncorrosive, low in conductivity and/or transparent to electromagnetic waves. Fibrebolt® studs are machined from pultruded fiberglass vinyl ester rods. The hex shaped nut is thermoplastic. They are easily assembled with a standard six point socket wrench.

Fibrebolt® studs and hex nuts are available in diameters of 3/8", 1/2", 5/8", 3/4" and 1" for immediate delivery. Four foot bolt lengths are standard, with custom lengths and partial length threading available upon request. Brown in the standard color. The studs and nuts have UV inhibitors to provide resistance to ultraviolet degradation and corrosion.

Composolite®

Composolite® is an advanced composite building panel system suitable for major load bearing structural applications. The modular construction system consists of a small number of interlocking fiber reinforced polymer (FRP) structural components produced by the pultrusion process. The main building panel is an open ribbed, 3" thick x 24"wide nominal size. Panels can be connected using the 3-way connectors, 45 degree connectors, toggles and/or hangers.

This uniquely designed system of interlocking components makes it possible to design fiberglass structures at significantly lower costs for a broad range of construction applications. Composolite® structures can be designed in "kit form" and shipped flat to the job site.

Fiberglass Products

Additional Fiberglass Safety Products

Safplank®

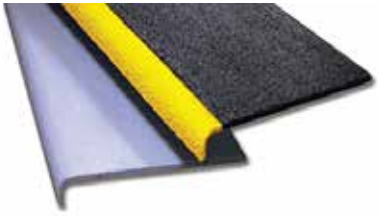
Safplank® is a high strength system of fiberglass planks designed to interlock to form a continuous solid surface. Safplank® is intended to replace wood, aluminum or steel planks in environments where corrosion or rotting creates costly maintenance problems or unsafe conditions.

Safplank® is available in 2" deep panels in both 12" and 24" widths to offer flexibility in design. All stock panels are gritted and are available in 20' and 24' lengths. Other lengths are available upon request. Safplank® may be ordered with a smooth surface for non-pedestrian applications.

Safdeck®

Safdeck® is a system of 24" wide fiberglass panels designed to overlap for a continuous solid surface. Safdeck® is intended to replace wood, aluminum or steel decking in environments where corrosion or rotting creates costly maintenance problems or unsafe conditions. Low in conductivity and nonsparking, Safdeck® provides safe walkways in applications near electrical lines.

Duratread™



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 and for over fiberglass stair treads.

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 also improve the appearance of warped, chipped and rotten steps and are perfect for use in commercial building applications where it is important to maintain an attractive appearance.

STRONGWELL

Fiberglass Products

Ballistic & Storm Panels

HS Armor Panels are designed for ballistics resistance, when struck by a bullet or projectile they delaminate and absorb the energy stopping the projectile. HS Amor panels can be installed and then covered with a variety of wall treatments and finished to imitate drywall making them ideal for classrooms, convenience stores and office buildings where protection is needed.

Typical Features:

- UL 94-VO flame rating
- Tested to UL 752
- Tested to NIJ Ballistic specifications
- Self-extinguishing

Product Industries:

- Judges benches
- Jury boxes
- Convenience stores
- Classrooms
- Bank Teller areas
- Panic rooms and safe rooms
- Storm shelters
- Office buildings

HS Armor Panels

Stock Thickness (inches) :	**1/4" up to 1-1/2"**
Stock Sheet Size (feet) :	**Widths: up to 4 foot** **Lengths: up to 20 foot**
Stock Panel Color :	**White**

STRONGWELL