# STRUCTURAL PRODUCTS from Fiberman



# www.fiberman.ca





## STRUCTURAL PRODUCT LINES

### PROForms<sup>®</sup> Structural Components

Our standard structural inventory includes angles, beams, deck board, building panels, columns, tubes, rods and more. See page 12 for a complete listing.

### PROPlate<sup>®</sup> Flat Sheet

Typically used for gusset plates, splice plates and base plates, as well as round and square washers, our flat sheet offers the same durability as our other FRP products.

### Custom Profiles

Need a special profile? We can manufacture custom pultrusions to your specifications. Contact us for a complete FRP solution including structural shapes, decking, handrail, ladders and cages and fabricated structures such as stairways and platforms.



### APPLICATIONS

Stair Structures Walkways Pedestrian Bridges Structural Framing Handrail Systems Caged and Fixed Ladders Decking Boat Docks Pipe Supports Cross Bracing Concrete Embedment Tank and Hatch Covers Display Racks MARKETS Architectural Solutions Agriculture Cooling Towers Military Mining Oil and Gas Pedestrian Bridges Plant and Chemical Processing Pulp and Paper Theme and Water Parks Utilities Wastewater/Water Treatment

**Standard Resin Systems** 

PROForms<sup>®</sup> and PROPlate<sup>®</sup> products are offered in three resin series to meet the requirements of different applications

# THE SMART ALTERNATIVE TO WOOD, STEEL AND ALUMINUM

Fiberglass reinforced polymer (FRP) is one of the strongest, most durable building materials available today. It's nonconductive, dimensionally stable and extremely low maintenance. It offers the strength of steel at a fraction of the weight for efficient transportation and installation. And unlike traditional materials like wood, steel and aluminum, FRP won't rust, corrode, warp, rot, decay or attract insect damage — so it's ideal for harsh environments.

In short, it's a different way to solve your design challenges — one that can reduce costs and improve long-term performance. To maximize these benefits, however, it's best to design with the properties of FRP in mind from the start. Our engineers and fabricators can help, so contact us with your questions.

### **Features and Benefits**

- Corrosion resistant. Won't rot, rust or corrode.
- Strong yet lightweight. Helps save on transportation.
- Virtually maintenance-free. Durable and weather-resistant for a longer life cycle.
- Fire-retardant and nonconductive. Helps create a safer environment.
- Dimensionally stable. Won't shrink, swell, warp or bow.
- Highly consistent. Strength, appearance and quality are the same from piece to piece.
- Easy to fabricate and install. FRP can be cut, drilled and assembled with standard tools.
- Non-leaching. Does not require environmentally hazardous preservatives.
- Fast turnaround. Most in-stock orders are shipped within the next business day.
- Backed by a 25-Year Limited Warranty\*
- Made in U.S.A.



### FR — FIRE RETARDANT POLYESTER

and environments.

A general-purpose fire-retardant isophthalic resin system with a UV inhibitor, offering good corrosion resistance. Colors: Dark Gray and Yellow

resistance. Color: Olive Green



A premium vinylester resin system with a UV inhibitor. It's fire retardant and highly corrosion resistant. Colors: Beige and Yellow



5033 Regent St. Burnaby, BC V5C 4H4 1-877-984-7788

# BEFORE

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# FRP vs. Traditional Materials

Traditional building materials have their place. But for harsh, corrosive environments, FRP is a smart choice. Here's how FRP compares to several traditional options.

	FRP Composites Pultruded GFRP	<b>Steel</b> A 709 Grade 50	Aluminum 6061-T651 & 6061-T6	<b>Wood</b> Douglas Fir
CORROSION, Rot and insect Resistance	Resists a broad range of chemicals and is unaffected by moisture or immersion in water. Resists insect damage. Painting is only suggested when exposed to UV rays/direct sunlight.	Subject to oxidation and corrosion. Requires painting or galvanizing for many applications.	Can cause galvanic corrosion. (Anodizing and other coatings increase corrosion resistance.)	Can warp, rot and decay when exposed to moisture, water and chemicals. Susceptible to attack by insects such as termites and marine borers.
STRENGTH	Has greater flexural strength than timber and pound-for-pound is often stronger than steel and aluminum in the lengthwise direction. Ultimate flexural strength (F <sub>v</sub> ): LW = $30,000 \text{ psi}$ (30 ks) CW = $10,000 \text{ psi}$ (10 ks) Compression strength: LW = $30,000 \text{ psi}$ (30 ks) CW = $15,000 \text{ psi}$ (10 ksi)	Homogeneous material. Yield strength (Fr) = 36 ksi	Homogeneous material. Flexural strength (Fi) = 35 ksi	Modulus of rupture is 12,000 psi
WEIGHT	Weighs 75% less than steel and 30% less than aluminum.	Could require lifting equipment to move and place. 1/2-in. thick plate = 20.4 lbs/sq ft	Lightweight – about a third of the weight of copper or steel.	Specific gravity 0.48
ELECTRICAL CONDUCTIVITY	Nonconductive. High dielectric capability.	Conducts electricity. Grounding potential.	Conducts electricity. Grounding potential.	Can be conductive when wet.
THERMAL PROPERTIES	$\label{eq:coord} \begin{array}{l} \mbox{Good insulator with low thermal} \\ \mbox{conductivity} \\ = 4 (BU in . /(hr ft^\circ  ^\circ F) \\ \mbox{Low thermal coefficient of} \\ \mbox{expansion.} \\ = 7 - 8 (in ./in . / ^\circ F)  10^{-4} \end{array}$	Conducts heat. Thermal conductivity = 260-460 (BTU/sf/ hr/°F/in.) Thermal coefficient of expansion. = 6 - 8 (in./in./°F) 10 <sup>-6</sup>	Conducts heat. Thermal conductivity = 150 (BTU/sf/hr/°F/in.) Thermal coefficient of expansion. = 13 (in./in./°F) 10 <sup>-6</sup>	Low thermal conductivity. Thermal conductivity = .8 (BTU/sf/hr/°F/in.) Thermal coefficient of expansion. = 1.7 - 2.5 (in./in./°F) 10 <sup>-6</sup>

	FRP Composites Pultruded GFRP	Steel A 709 Grade 50	Aluminum 6061-7651 & 6061-76	<b>Wood</b> Douglas Fir
STIFFNESS	Up to 3.3 times as rigid as timber. Will not permanently deform under working load. Modulus of elasticity: 2.8 x 10 <sup>6</sup> psi	Modulus of elasticity: 29 x 10 <sup>6</sup> psi	Modulus of elasticity: 10 x 10 <sup>6</sup> psi	Modulus of elasticity: up to 1.6-1.8 x 10 <sup>6</sup> psi <sup>*</sup>
IMPACT RESISTANCE	Will not permanently deform under impact. Glass mat in pultruded parts distributes impact load to prevent surface damage, even in subzero temperatures.	Can permanently deform under impact.	Easily deforms under impact.	Can permanently deform or break under impact.
ENVIRONMENTAL Impact	Not hazardous to the environment.	Not hazardous.	Not hazardous.	May be treated with hazardous preservatives or coatings to increase corrosion/rot/insect resistance. Contributes to depletion of forest systems.
COLOR	Color is molded through; no painting required. Variety of colors available.	Must be painted for color, and may require repainting over time.	Colors require prefinishes, anodic coatings and paints. Mechanical, chemical and electroplated finishes can be applied.	Must be primed and painted for color, and may require repainting over time.
COST	Lower installation costs, less maintenance and longer product life allow for a lower lifecycle cost.	Lower initial material cost.	Part price comparable to FRP.	Has a lower initial cost, but usually requires more maintenance and replacement.
EMI/RFI Transparency	Transparent to radio waves and EMI/RFI transmissions. Used for radar and antennae enclosures and supports.	Can interfere with EMI/RFI transmissions.	Highly reflective to EMI/RFI transmissions.	Transparent.
FABRICATION	Can be field-fabricated using simple carpenter's tools with carbon or diamond tip blades – no torches or welding required. Light weight allows easier transport and installation.	Often requires welding and cutting torches. Heavier material requires special equipment to erect and install.	Good machinability (welding, brazing, soldering or mechanical joining).	Can be field-fabricated using simple carpenter's tools.

\*12% moisture content

## Compare the Numbers ...

Property	FRP Cor Pultrud	nposites ed GFRP	Steel A 709 Grade 50	Aluminum 6061-7651 & 6061-76	Wood Douglas Fir
Density (lb/ft <sup>3</sup> )	107	-120	490	169	30
Tensile Strength (psi)	30,000 (LW)	7,000 (CW)	65,000	45,000	-
Tensile Modulus (x 106 psi)	2.8 (LW)	1 (CW)	30	10	_
Flexural Strength (psi)	30,000 (LW)	10,000 (CW)	65,000	45,000	12,000
Flexural Modulus (x 10 <sup>6</sup> psi)	1.8 (LW)	0.8 (CW)	30	10	1.6 - 1.8
Thermal Conductivity (BTU in. /(hr ft <sup>2</sup> °F))		4	323	1,160	0.8
Thermal Expansion (x 10 <sup>-6</sup> in./in./°F)	7 t	0 8	6 to 8	13	1.7 to 2.5

LW = Lengthwise / CW = Crosswise

References:

1. Datasheets from www.matweb.com

2. Wood Handbook: Wood as an Engineering Material



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# **Typical Coupon Properties**

The following table shows test results for typical coupon properties of PROForms<sup>®</sup> and PROPlate<sup>®</sup> structural fiberglass profiles (Standard, Fire Retardant and Vinylester shapes). Properties are derived per the ASTM test method shown. Synthetic surfacing veil and ultraviolet inhibitors are standard.

TEST METHOD  UNITS  ESTER SHAPES  ESTER SHAPES  ESTER BAR  ESTER BAR  1/8"  3/46"  3/46"  1/8"  1/8"  1/8"  1/8"  1/8"  1/8"  1/8"  1/8"  1/8"  1/8"  1/8"  1/8"  1/4"  1/8  1/8		ASTM		POLY-	POLY- VINYL-		POLYESTER PLATE		VINYLESTER PLATE			
MLECHANICAL PROPERTIES (enformed attinue)  Prist  30,000  30,000  20,000  <		TEST METHOD	UNITS	ESTER SHAPES	ESTER SHAPES	ROD & BAR	1/8"	3/16"- 1/4"	3/8"- 1"	1/8"	3/16"- 1/4"	3/8"- 1"
periodppi30,00030,000100,00020,000	MECHANICAL PROPERTIES	S (minimum ultii	mate)									
Initial Sites, I.II  D-030  N/mm <sup>2</sup> 206.8  208.8  689  137.9 <td>Tancila Strace, LW</td> <td>D 629</td> <td>psi</td> <td>30,000</td> <td>30,000</td> <td>100,000</td> <td>20,000</td> <td>20,000</td> <td>20,000</td> <td>20,000</td> <td>20,000</td> <td>20,000</td>	Tancila Strace, LW	D 629	psi	30,000	30,000	100,000	20,000	20,000	20,000	20,000	20,000	20,000
Persent Present	Tensile Suess, Lw	D-036	N/mm <sup>2</sup>	206.8	206.8	689	137.9	137.9	137.9	137.9	137.9	137.9
Jensin Subs, LW  D-63a  N/mm²  48.2  48.2  51.7  68.9  68.9  51.7  68.9  68.9    Tensile Modulus, LW  D-638  10° psi  2.5  2.6  6.0  1.8 </td <td>Tanaila Strang, CW</td> <td>D 620</td> <td>psi</td> <td>7,000</td> <td>7,000</td> <td></td> <td>7,500</td> <td>10,000</td> <td>10,000</td> <td>7,500</td> <td>10,000</td> <td>10,000</td>	Tanaila Strang, CW	D 620	psi	7,000	7,000		7,500	10,000	10,000	7,500	10,000	10,000
Inferie  10 <sup>6</sup> psi  1.5  2.6  6.0  1.8  1.8  1.8  1.8  1.8  1.8  1.8  1.8  1.8  1.8  1.1    Tensile Modulus, CW  De33  Permit  17.0  17.0  41.3  10.0  1.4  1.0  1.4  1.0  1.4  1.0  1.4  1.0  1.4  1.0  1.4  1.0  1.4  1.0  1.4  1.0  1.4  1.0  1.4  1.0  1.4  1.0  1.0  1.4  1.0	ienslie Suess, Gw	D-036	N/mm <sup>2</sup>	48.2	48.2		51.7	68.9	68.9	51.7	68.9	68.9
International basis  Index parameter  Index	Tanaila Madulua 1W	D 620	10 <sup>6</sup> psi	2.5	2.6	6.0	1.8	1.8	1.8	1.8	1.8	1.8
Interpart (Note)  De38  10° psi (N/m <sup>2</sup> )  0.8  0.8  0.7  0.9  1.4  1.0  1.4    Compressive Stress, LW Compressive Stress, LW Compressive Stress, LW Compressive Stress, LW Compressive Modulus, LM Compressive Modulus	iensile wouulus, Lw	D-036	KN/mm <sup>2</sup>	17.2	17.9	41.3	12.4	12.4	12.4	12.4	12.4	12.4
Heinsine Modulus, CW  D-635  KN/mm²  5.5  5.5  4.8  6.2  9.6  6.9  9.6    Compressive Stress, LW  D-695  psi  30,000  30,000  60,000  24,000 </td <td>Tanaila Madulua, CW</td> <td>D 620</td> <td>10<sup>6</sup> psi</td> <td>0.8</td> <td>0.8</td> <td></td> <td>0.7</td> <td>0.9</td> <td>1.4</td> <td>1.0</td> <td>1.0</td> <td>1.4</td>	Tanaila Madulua, CW	D 620	10 <sup>6</sup> psi	0.8	0.8		0.7	0.9	1.4	1.0	1.0	1.4
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	iensile wodulus, Gw	D-036	KN/mm <sup>2</sup>	5.5	5.5		4.8	6.2	9.6	6.9	6.9	9.6
Confighesive Suess, LVI  D-695  N/mm <sup>2</sup> 206.8  206.8  413.6  165.4  16	Compressive Stress IW	D COF	psi	30,000	30,000	60,000	24,000	24,000	24,000	24,000	24,000	24,000
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	Compressive Stress, Lw	D-090	N/mm <sup>2</sup>	206.8	206.8	413.6	165.4	165.4	165.4	165.4	165.4	165.4
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$	Compressive Stress CW	D COE	psi	15,000	16,000		15,500	16,500	20,000	16,500	17,500	20,000
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	compressive stress, cw	D-090	N/mm <sup>2</sup>	103.4	110.3		106.8	113.7	137.9	113.79	120.6	137.9
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	· · · · · · · · · · · · · · · · · · ·	D 005	10 <sup>6</sup> psi	2.5	2.6		1.8	1.8	1.8	1.8	1.8	1.8
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	Compressive Modulus, LW	D-695	KN/mm <sup>2</sup>	17.2	17.9		12.4	12.4	12.4	12.4	12.4	12.4
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	Compressive Modulus,		10 <sup>6</sup> psi	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	CW	D-695	KN/mm <sup>2</sup>	6.9	6.9		6.9	6.9	6.9	6.9	6.9	6.9
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	FI 1.01 1111	D 700	psi	30,000	30,000	100,000	35,000	35,000	30,000	35,000	35,000	30,000
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	Flexural Stress, LW	D-790	N/mm <sup>2</sup>	206.8	206.8	689	241.3	241.3	206.8	241.3	241.3	206.8
$\begin{array}{c c c c c c c c c c c c c c c c c c c $			psi	10,000	10,000		13,000	15,000	18,000	13,000	15,000	18,000
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	Flexural Stress, CW	D-790	N/mm <sup>2</sup>	68.9	68.9		89.6	103.4	124.1	89.6	103.4	124.1
Flexural Modulus, LW  D-790  KN/mm²  11.0  11.0  41.9  12.4  13.8  13.8  12.4  13.8  1			10 <sup>6</sup> psi	1.8	2.2	6.0	1.8	2.0	2.0	1.8	2.0	2.0
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	Flexural Modulus, LW	D-790	KN/mm <sup>2</sup>	11.0	11.0	41.9	12.4	13.8	13.8	12.4	13.8	13.8
Flexural Modulus, CW  D-790  KN/mm²  5.5  5.5  6.2  7.6  9.6  6.2 </td <td></td> <td></td> <td>10<sup>6</sup> psi</td> <td>0.8</td> <td>0.8</td> <td></td> <td>0.9</td> <td>1.1</td> <td>1.4</td> <td>1.0</td> <td>1.1</td> <td>1.4</td>			10 <sup>6</sup> psi	0.8	0.8		0.9	1.1	1.4	1.0	1.1	1.4
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	Flexural Modulus, CW	D-790	KN/mm <sup>2</sup>	5.5	5.5		6.2	7.6	9.6	6.2	7.6	9.6
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $		Full	10 <sup>6</sup> psi	2.6	2.8							
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	Modulus of Elasticity, E	Section	KN/mm <sup>2</sup>	17.9	19.3							
(W & I Shapes > 4")  Section  KN/mm <sup>2</sup> 17.2 <th< td=""><td>Modulus of Elasticity. E</td><td>Full</td><td>10<sup>6</sup> psi</td><td>2.5</td><td>2.5</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></th<>	Modulus of Elasticity. E	Full	10 <sup>6</sup> psi	2.5	2.5							
Shear Modulus, LW  Full Section  10° psi KN/mm²  0.425 2.9  0.425 2.9  0.425 2.9  0.425 2.9  0.425 2.9  0.425 2.9  0.425 2.9  0.425  0.200  0.2000  0.2000  0.2000  0.2000  0.2000  0.2000  0.2000  0.2000  0.2000  0.2000  0.2000  0.2000  0.200  0.200  0.200 <th0< td=""><td>(W &amp; I Shapes &gt; 4")</td><td>Section</td><td>KN/mm<sup>2</sup></td><td>17.2</td><td>17.2</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></th0<>	(W & I Shapes > 4")	Section	KN/mm <sup>2</sup>	17.2	17.2							
Shear Modulus, LW  Section  KN/mm²  2.9  2.9  2.9  c <thc< th="">  c  <thc< th="">  &lt;</thc<></thc<>		Full	10 <sup>6</sup> psi	0.425	0.425							
Short Beam Shear, LW  D-2344  psi N/mm <sup>2</sup> 4,500 31.0  4,500 31.0  8,000 55.2	Shear Modulus, LW	Section	KN/mm <sup>2</sup>	2.9	2.9							
Short Beam Shear, LW  D-2344  N/mm²  31.0  31.0  55.2  Image: Constraint of the constraint			psi	4,500	4.500	8.000						
Ultimate Bearing Stress, LW & CW  D-953  psi N/mm <sup>2</sup> 30,000  30,000  32,000  31,001  0.31  0.31  0.31  0.31  0.31  0.31	Short Beam Shear, LW	D-2344	N/mm <sup>2</sup>	31.0	31.0	55.2						
D-953  N/mm²  206.8  200.6 <th< td=""><td>Illtimate Rearing Stress</td><td></td><td>psi</td><td>30,000</td><td>30,000</td><td></td><td>32.000</td><td>32.000</td><td>32.000</td><td>32.000</td><td>32.000</td><td>32.000</td></th<>	Illtimate Rearing Stress		psi	30,000	30,000		32.000	32.000	32.000	32.000	32.000	32.000
Poisson's Ratio, LW  D-3039  In,/in.  0.33  0.33  0.33  0.31  0	LW & CW	D-953	N/mm <sup>2</sup>	206.8	206.8		220.6	220.6	220.6	220.6	220.6	220.6
Poisson's Ratio, LW  D-3039  mm/mm  0.33  0.33  0.31  0.3			in./in.	0.33	0.33		0.31	0.31	0.31	0.31	0.31	0.31
Minimum  Onco	Poisson's Ratio, LW	D-3039	mm/mm	0.33	0.33		0.31	0.31	0.31	0.31	0.31	0.31
Notched Izod Impact, LW  D-256  J/mm  1.28  1.28  2.04  0.94  1.02  1			ftlbs./in	25	25	40	18.5	20	20	18.5	20	20
Symmetric  Alexant and the sy	Notched Izod Impact, LW	D-256	l/mm	1.28	1.28	2.04	0.94	1.02	1.02	0.94	1.02	1.02
Notched Izod Impact, CW D-256 1/mm 0.2 0.2 0.2 0.2 0.2 0.2 0.2 0.2 0.2 0.2			ft -lbs /in	4	4	2.04	5	5	5	5	5	5
	Notched Izod Impact, CW	D-256	1/mm	0.2	0.2		0.26	0.26	0.26	0.26	0.26	0.26

	ASTM		POLY- VINYL-			POLYESTER PLATE			VINYLESTER PLATE		
	TEST METHOD	UNITS	ESTER SHAPES	ESTER SHAPES	ROD & BAR	1/8"	3/16"- 1/4"	3/8"- 1"	1/8"	3/16"- 1/4"	3/8"- 1"
PHYSICAL PROPERTIES											
Barcol Hardness	D-2583	-	45	45	50	40	40	40	40	40	40
24-Hour Water Absorption	D-570	% max., by wt.	0.60	0.60	0.25	0.60	0.60	0.60	0.60	0.60	0.60
Density	D 700	lbs./in.3	.062070	.062070	.072076	0.60- 0.68	0.60- 0.68	0.60- 0.68	0.60- 0.68	0.60- 0.68	0.60- 0.68
Density	D-192	10 <sup>-3</sup> g/mm <sup>3</sup>	1.72-1.94	1.72-1.94	1.99-2.10	1.66- 1.88	1.66- 1.88	1.66- 1.88	1.66- 1.88	1.66- 1.88	1.66- 1.88
Coefficient of Thermal	D. 000	10 <sup>-6</sup> in./in./°F	7.0	7.0	5.0	8.0	8.0	8.0	8.0	8.0	8.0
Expansion (Typical), LW	D-696	10 <sup>.6</sup> mm/mm/°C	1.2	1.2	5.45	14.5	14.5	14.5	14.5	14.5	14.5
Thermal Conductivity	0.177	BTU/sf/hr/°F/in.	4	4	4	4	4	4	4	4	4
mermai conductivity	6-177	W-m/m <sup>2</sup> / °C	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58
ELECTRICAL PROPERTIES	(based on polye	ester and vinylester resin	systems)								
Arc Resistance, LW	D-495	seconds	120								
Dielectric Strength, LW	D-149	kv/in.	35								
Dielectric Strength, PF	D-149	volts/mil.	200								
Dielectric Strength, PF	D-150	@60hz	5								
FLAMMABILITY PROPERTI	<b>ES</b> (based on f	ire retardant polyester an	d fire retardant	vinylester resin :	systems)						
Flammability Classification (1/8")	UL 94	VO									
Tunnel Test	E-84	25 max.									
NBS Smoke Chamber E-662	E-662	600-700									
Flammability	D-635	Self Extinguishing									

LW=Lengthwise CW=Crosswise PF=Perpendicular to Laminate Face



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# **PROForms® Availability**



	11-1-1-1



	CHANNEL	
LBS./LIN. FT.	SIZE IN INCHES	LBS./LIN. FT.
0.19	2 x 1/16 x 1/8	0.28
0.23	3 x 1/8 x 1/4	0.80
0.46	3 x 1 x ¼	0.85
0.54	3 x 1½ x ¾	0.81
0.75	3 x 1½ x ¼	1.03
1.16	3½ x 1½ x ¾	0.90
1.62	4 x 11% x 1/4	1.14
2.09	4 x 1% x 1/16	0.93
1.50	5 x 1% x ¼	1.37
2.21	5½ x 1½ x ¼	1.55
2.92	6 x 1 <sup>5</sup> / <sub>8</sub> x <sup>1</sup> / <sub>4</sub>	1.69
3.35	6 x 1 <sup>1</sup> / <sub>16</sub> x <sup>3</sup> / <sub>8</sub>	2.41
4.55	8 x 2 <sup>3</sup> / <sub>16</sub> x <sup>1</sup> / <sub>4</sub>	2.31
3.63	8 x 2 <sup>3</sup> / <sub>16</sub> x <sup>3</sup> / <sub>8</sub>	3.24
	10 x 2¾ x ½	5.55
	12 x 3 x ½	6.24
	14 x 3½ x ¾	10.97
	18 x 2 <sup>1</sup> / <sub>2</sub> x <sup>3</sup> / <sub>8</sub>	6.50



PROPLATE° FLAT SHEET

IDC /UN ET	SIZE IN INCHES	IRS /SO FT
LDS./LIN. FI.	SIZE IN INCHES	LD3./ 3Q. FI.
0.34	2½ X 1/16	0.37
0.74	3 x ¼	0.57
0.53	3 x ¾	0.93
0.97	3 x ½	1.06
0.58	4 x 1/8	0.39
1.09	4 x 1⁄4	0.76
0.71	4 x 3/8	1.15
1.35	4 x ½	1.53
0.71	6 x ¼	1.24
0.86	6 x ½	2.25
1.67	9 x ¼	1.86
1.76	10 x ¼	2.02
1.09	11 x ¼	2.26
2.11	12 x ¼	2.46
2.99	20 x ¼	4.01
2.60	24 x ¼	4.87
2.96	36 x ¼	7.49
4.32	48 x 1/8	1.30
4.35	48 x ¾	1.88
6.54	48 x ¼	2.49
	48 x ¾	3.51
	48 x ½	4.87
	48 x %	5.86
	48 x ¾	6.72
	48 x 1	8.65



ROUND TUBE

SIZE IN INCHES

1 x .100

1 x ½

1½ x ½

1% x %

1¾ x ½

1¾ x ¼

2 x 1/8

2 x ¼

3 x ¼ 3 x ½ 4.89 x ½

6 x ¼

3 x .100

4.89 x .195



2.13

1.72



	I-BEAM	
LBS./LIN. FT.	SIZE IN INCHES	LBS./LIN. FT.
0.25	3 x 1½ x ¼	1.10
0.28	3½ x 1½ x ¾	0.97
0.38	4 x 2 x ¼	1.56
0.79	5½ x 2 x ½ x ¼	1.58
0.54	6 x 3 x ¼	2.34
0.97	6 x 3 x ¾	3.65
0.57	8 x 4 x 3/8	4.42
1.03	8 x 4 x ½	5.70
0.70	10 x 5 x 3/8	5.67
1.72	10 x 5 x ½	7.39
3.13	12 x 6 x ½	8.91
1.81	18 x 4½ x 12	8.51

24 x 7½ x ¾



SIZE IN INCHES

3 x 3 x ¼

4 x 4 x ¼

6 x 6 x ¼

6 x 6 x ¾

8 x 8 x 3/8

8 x 8 x ½

10 x 10 x 3/8

10 x 10 x ½

12 x 12 x ½

15.49

WIDE FLANGE (WF) BEAM

LBS./LIN. FT.

2.33

5.29

8.85

11.08

3.49

6.92

8.54

13.43

SQUARE TUBE

SIZE IN INCHES

1½ x 1½ x ½

1½ x 1½ x ¼

1¾ x 1¾ x ⅛

1¾ x 1¾ x ¼

2 x 2 x 1/8

2 x 2 x ¼

21/8 x 21/8 x 3/16

2<sup>1</sup>/<sub>4</sub> x 2<sup>1</sup>/<sub>4</sub> x <sup>1</sup>/<sub>4</sub>

2½ x 2½ x ½

3 x 3 x ½

3 x 3 x ¼

3 x 3 x ¾

4 x 4 x ¼

 $4 \times 4 \times \frac{3}{4}$ 

6 x 6 x ¼

6 x 6 x ¾

3½ x 3½ x ¼

1 x 1 x ½



WWW.FIBERMAN.CA

**RECTANGULAR TUBE** SIZE IN INCHES LBS./LIN. FT. 4 x 1 x ½ 0.92

4¾ x 1¾ x ⅓	1.16
4 x 11% x 2 x 1/4	2.21
4 x 2 x ¼	2.21
5 x 2 x 1/8	1.21
5½ x 3½ x ¼	3.09
6 x 4 x ¼	3.77
6½ x 2 x ½	3.56



ROUND ROD

SIZE IN INCHES

LBS./LIN. FT.



48" & 96" lengths. HEX NUTS

SIZE IN INCHES LBS./LIN. FT. 0.02 3/8-16 UNC ½-13 UNC 0.02 %-11 UNC 0.04 ¾-10 UNC 1/8 UNC 0.13

SLUDGE FLIGHTS SIZE IN INCHES LBS./LIN FT.





DECK BOARD

LBS./LIN. FT.

4.61

LBS./LIN. FT.

13.31

2.67

2.97

5.96

SIZE IN INCHES

12 x 21/8

24 x 11/8

24 x 1½

SIZE IN INCHES

12 x 1<sup>25</sup>/<sub>32</sub> x <sup>3</sup>/<sub>32</sub>

24 x 2½ x ¼

LBS./LIN. FT.

0.95

1.15

LBS./LIN. FT.

1.68

LBS./LIN. FT.

EMBEDMENT ANGLE

SIZE IN INCHES

1 x 1½ x ¼

1½ x 1½ x ¼

DOOR FRAME

SIZE IN INCHES

5 ¾ x 2½ x ¾

THRESHOLD

SIZE IN INCHES

3 x 6 (ANGLE)

3 x 8 (ANGLE)

3 x 6 (CHANNEL)

5½ x ¼

2 x 1½ x ¼

HANDRAIL CONNECTORS

LBS./PIECE

1.32

0.87

1.32

LBS./LIN. FT.

0.81

1.13

3.32

LBS./LIN. FT.

LBS./LIN. FT.

0.50

0.49

1.87

0.87

SIZE IN INCHES

1¼ 90° fixed

1½ 90° fixed

1¼ adjustable

1½ adjustable

SQUARE BAR

SIZE IN INCHES

1 x 1

2 x 2

TOE PLATE

SIZE IN INCHES

LADDER RUNG

SIZE IN INCHES

1¼ x .16

4 x ½ x ½

1¼ x 1¼



BUILDING PANEL - 12"/24"

**CORNER COLUMN** SIZE IN INCHES LBS./LIN. FT. 7¾ x 7¾ x ¾

8.81







LBS./LIN. FT. 10.68

		3 x 8 (CHANN
BOX BEAM - 1	6"	
SIZE IN INCHES	LBS./LIN. FT.	
16 - 1 - 3/	11.41	