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## Technical Data

### Large Profiles- Trimax Structural Lumber

#### DESCRIPTION

Trimax Structural Lumber is a high-performance construction material consisting of a patented formula of recycled plastic, fiberglass, and selective additives. The plastic raw material utilized in Structural Lumber is derived from post-consumer bottle waste such as milk and detergent bottles. This material is compounded into a consistent, reinforced plastic timber product using reactive compatibilizers, creating a strong and stable plastic/fiber matrix.

Structural Lumber products are manufactured in many dimensional lumber and timber sizes, particularly in large cross sections. Deck and dock planks, sheet piling, wale timbers, camels, fenders, and piles are all available from Trimax Building Products. The product comes in almost any transportable length and is standard in Steel Gray. It can be special ordered in colors to complement HDPE.

#### BASIC USES

Structural Lumber products are used in a variety of commercial and marine applications and are often the product of choice for exterior applications where resistance to salt and fresh water, marine borers, and other environmentally harsh conditions is required. It is well suited for:

- Dock and deck planks
- Wale timbers
- Camels
- Channel markers
- Pilings
- Fenders

#### STRUCTURAL PROPERTIES

The furnished plastic lumber shall conform to the following properties

1. Plastic- The Plastic for the Structural Lumber shall consist of recycled plastic post consumer or industrial high density polyethylene. Furthermore, as to achieve the desired strength, our patented formulation of HDPE and 30% short strand fiberglass (by weight) will be utilized. In addition to the fiberglass and HDPE, the proper colorants, UV inhibitors and other additives will be added to meet the standards below.
2. Manufacturing- The product will be manufactured with a maximum finished length of 20'. Reinforcement rods are not needed. The product achieves the desired strengths need for most projects with the patented reinforcement method found below.
3. Reinforcement- The product will be manufactured with a homogenous cross section. The resulting product will have a consistent mixture of fiberglass and plastic that will result in the structural properties found below.
4. Structural Properties—The sizes found on the following pages will meet the minimum specs found in the table below by +/- 10%. Smaller sizes will meet the specs found in the Technical Data Sheet titled "Technical Data-Trimax Structural Lumber."

**Table 1: Plastic Material Properties**

	Test Method	Average Value
Density, lbs / cu. In.	ASTM D6111	.027 - .030
Water Absorption	ASTM D570	Less than 1% - 2 hour
Brittleness	ASTM D746	None at -40°C
Impact Resistance	ASTM D746	.2135 N-m/mm
Hardness	ASTM D2240	40 - 80
Abrasion	ASTM D4060	Does not exceed wood
Chemical Resistance	ASTM D543	Less than 5%
Tensile Properties	ASTM D638	276 Mpa
Coefficient of Friction	ASTM D6341	0.61 Dry
Nail Pull Out	ASTM D1761	10.5 N/m
Screw Withdrawal (N per 1mm of depth)	ASTM D1761	66.53

**Table 2: Structural Properties**

Mechanical Properties @ 21°C	Test Method	Average Value
Density, kg / m <sup>3</sup>	ASTM D6111	748-831
Modulus of rupture (ultimate)	ASTM D198	20 Mpa
	ASTM D6109	20 Mpa
Modulus of elasticity (chord modulus method)	ASTM D198	2896 Mpa
	ASTM D6109	2241 Mpa
Compression parallel to grain (ultimate)	ASTM 198	12 Mpa
Compression perpendicular to grain (ultimate)	ASTM D143	5 Mpa
Shear parallel to grain	ASTM D143	5.1 Mpa
Tension parallel to grain (ultimate)	ASTM 198	8.7 Mpa
Screw withdrawal (N per 1mm of depth)	ASTM D1761	66.53
Coef. Thermal expansion mm/mm/°C	ASTM D6341	0.0000612
Coef. Of friction	Tribometer (dry)	0.61
Flame Spread	ASTM E84	"Class C"

ASTM D6109- Standard method for calculating Modulus of Elasticity and Modulus of Rupture states that the testing span = 16 x thickness of sample in inches.

#### INSTALLATION

Structural Lumber can be fabricated and installed with the same tools used to work wood lumber. The product will cut and drill very cleanly, as there is no grain to split or chip, or knots to bind tools and bend fasteners. Pilings and sheet pilings products can be driven with pile-driving equipment such as vibratory hammers, land-based or barge-mounted drop hammers, or waterjets. Structural Lumber is used with conventional hardware such as stainless or galvanized bolts, tie rods, nuts, washers, and anchor systems.

#### SIZES

Maximum Length for the sizes below are 6.1m. Special lengths can be ordered but there may be up charges for these lengths. Please contact Trimax Building Products Customer Service for more details.

Actual Size (Inches)	Actual Size (mm)
5 ~ 1/2" x 5 ~ 1/2"	140 x 140
6x8	152 x 203
7x9	178 x 229
7 ~ 1/2" x 7 ~ 1/2"	191 x 191
9 ~ 1/2" x 9 ~ 1/2"	241 x 241
11 ~ 1/2" x 11 ~ 1/2"	292 x 292
7 1/2" Diameter	191
9 1/2" Diameter	241
11 1/2" Diameter	292

#### WARRANTY

Each user of Structural Lumber products is solely responsible for determining the suitability, safety, and effectiveness of any application or use of the product. Structural Lumber products come with a limited 25 year warranty. The product is warranted against termites, decay, mold or facial fractures. Contact Trimax Building Products for specific limited warranty coverage.

#### ADDITIONAL INFORMATION

Trimax Structural Lumber products have been tested under repeated hydrothermal conditions (freezing, thawing and wet conditions) as established by the ASTM and are proven to maintain their mechanical properties. Trimax® Structural Lumber has been submitted to and is under evaluation by International Code Council (ICC).

#### TECHNICAL SERVICES

Technical inquiries should be directed to Trimax Building Products at 1-800-666-5207, by fax at 920-845-2335, or visit our website at <http://www.trimaxbp.com>