

SECTION 06500

REINFORCED PLASTIC LUMBER

PART 1 - GENERAL

1.01 GENERAL

This section covers the furnishing and installing reinforced plastic lumber as shown on the plans and specified herein.

1.02 SUBMITTALS

The Contractor shall submit six (6) sets of the following for approval.

- A. Manufacturer's catalog data
- B. Shop drawings shall include the color, sizes, layout and connection details to be used to secure the reinforced plastic lumber to the bulkhead.
- C. Certified test reports and certificates of compliance furnished by the manufacturer's testing laboratory or independent testing agency attesting that the product and related materials meet or exceed the requirements specified herein, including material properties, structural properties, coefficient of thermal expansion, and UV/weathering performance characteristics.

PART 2 – MATERIALS

2.01 MATERIALS

- A. Reinforced plastic lumber shall be "TRIMAX Structural Lumber" manufactured out of recycled plastic, fiberglass, and additives by Renew Plastics; Fiber Reinforced Molded Lumber manufactured by Tangent Sustainable Lumber; or approved equal. All fiberglass reinforced plastic lumber shall be manufactured by the same manufacturer. The reinforced plastic lumber shall have the following material properties per the manufacturer of the product furnished. Where there is a difference between the values listed and another proposed product, the proposed material shall be equal or better in respects to the properties listed for "TRIMAX Structural Lumber."

TRIMAX Structural Lumber (reinforced plastic lumber) properties:

MECHANICAL PROPERTIES at 70°F	ASTM Standard	Average Value
Density, lbs / cu. in.	ASTM D6111-09	0.034
Water Absorption	D570-98	< 0.1
Modulus of Rupture (MOR)	D6109-05	4,134 psi
Modulus of Elasticity (MOE)	D6109-05	329,787 psi
Secant MOE @ 1% Strain	D6109-05	288,751 psi
Compression Parallel to Grain	D198-05	3,716 psi
Compression Perpendicular to Grain	D143-94	2,516 psi
Shear Strength	D143-94	1,828 psi
Tensile Strength	D198-05	3,076 psi
Durometer Hardness	D2240-05	68.2
Abrasion Resistance	D4060-10	42 mg
Chemical Resistance	D543-06	5%
Tensile Properties	D638-10	3660 psi
Coefficient of Friction (Dry)	D2047	0.95
Coefficient of Thermal Expansion	D6341-98	0.000021
Screw Withdrawal	D1761-06	938 lbf/in
Flame Spread	E84	Class C

TANGENT Sustainable Lumber (fiber reinforced molded lumber) properties:

MECHANICAL PROPERTIES	ASTM Test	Value
Flexural Strength	D6109	2,750 psi
Flexural Modulus Secant @ 1% Strain	D6109	306,080 psi
Compression Strain Parallel to Grain	D6108	2,842 psi
Compression Strength Perpendicular to Grain	D6108	1,482 psi
Compression Modulus Strength Parallel to Grain – Secant @ 1% Strain	D6108	159,576 psi
Compression Modulus Strength Perpendicular to Grain – Secant @ 1% Strain	D6108	54,119 psi
Specific Gravity	D6111	0.93 g/cc
Flash Point	-	644 °F
Moisture Absorption	-	0.06% by Weight
Thermal Expansion	D6341-98	0.000033 in/in/°F
Average Screw Pull Out	D6117	646 lb
Static Coefficient of Friction (Dry)	D2394	0.53
Static Coefficient of Friction (Wet)	D2394	0.51
Sliding Coefficient of Friction (Dry)	D2394	0.23
Sliding Coefficient of Friction (Wet)	D2394	0.51
Flame Spread	E84	62
Flame Speed Classification	E84	60
Smoke Developed	E84	230
Smoke Developed Classification	E84	250
Spontaneous Ignition	D1929	824°F
Tensile Test (skin)	D638	3,623 psi
Shear Strength	D2344	800 psi
Notched Impact Resistance Method A	D256	2.77 ft x lb/in
Abrasion Resistance	D4060	<0.02 oz – with 2.2 lb sample
Ultraviolet (skin)	D4329	<10% change in Type D durometer at 500 hours

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2.02 HARDWARE

All fender system, bull rail, and cleat anchor bolts, nuts, and washers shall be duplex 2205 stainless steel alloy.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. Reinforced plastic lumber shall be installed as shown on the plans with final adjustment (if any) required to fit snugly against the exterior face of the pier structure. Plastic lumber blockings and fillers of the same material shall be used as required to provide solid backing and shall be securely fastened.
- B. All surface bolts and nuts shall be recessed between 1/8" and 1/2" from the outboard face of pier to provide a smooth face for fendering.
- C. Reinforced plastic lumber boards shall be cut "square" and smooth to uniform lengths. End gaps shall be provided as recommended by the manufacturer to allow for thermal expansion and manufacturing tolerances. Boards shall be spaced 1/2" apart unless otherwise indicated. All exposed edges shall be smooth and slightly rounded. Corners shall be rounded to a minimum radius of 1/8".
- D. Handle plastic lumber as per manufacturer's recommendations. Provide personal protection from dust and flying debris as recommended by the manufacturer.

***** END OF SECTION *****