

PolyForce™ Structural Recycled Plastic Lumber shapes are manufactured from purified blends of post consumer, pre consumer and/or virgin HDPE (high density polyethylene) resins. Additional proprietary additives and strengthening reinforcements are compounded into each product.

FEATURES

- Manufactured to exacting specifications.
- Essentially maintenance free due to exceptional resistance to moisture, fading, insects, splintering, warping and other common outcomes from environmental stress that one observes with common wood or wood fiber / plastic composite products.
- Requires no waterproofing, staining, or other common reoccurring maintenance other than the occasional washing with soap and water to remove dirt and debris if desired.
- Very color stable due to UV pigment systems which resist breakdown from prolonged sun and weather exposure.
- Tangent Technologies LLC has over one hundred custom shapes in house to meet your requirements or we can customize a unique shape to meet your needs.
- The Standard colors for **PolyForce™** in the popular wood tones are: Cedar, Sand, Gray, Redwood, Mahogany, Light Oak, and Tudor Brown. Custom colors can be matched and made available.

It is possible that the material may fade very slightly over the entire service life of the product. However, most wood and wood composite products will fade quickly to a weathered grey look due to the wood fiber content inherent in the products.

BASIC USES

PolyForce™ Products are perform very well for exterior applications where reinforcing properties, resistance to weathering and minimal maintenance are required along with maintaining appearance such as color stability and surface finish over the useful service life.

Used in municipal and commercial applications **PolyForce™** is well suited for marine, boardwalks dock & deck planks to name just a few fresh and salt water shoreline applications where strength, stiffness and low maintenance are required.

Property	ASTM Method	Units	Value
Specific Gravity	D6111-13	lbs/in ³	0.0216-0.030*
Water Absorption	D570-05	%	< 0.1
Secant Modulus @ 1% Strain** <i>Flexural Property</i>	D6109-05	psi	137,861***
Stress @ 3% Strain** <i>Flexural Property</i>	D6109-05	psi	2,114***
Screw Withdrawal	D6117-97	lbf	703
Coefficient of Thermal Expansion	D6341-98	in/in/°f	0.0000281

*Lower density may occur in larger cross sections.

**Testing performed on samples of 2" x 6" nominal size.

***Stiffness & strengths can be increased by adjusting reinforcement and processing conditions – Contact for additional data.

ASTM D6109-05, Standard Tests Methods for Flexural Properties of Unreinforced and Reinforced Plastic Lumber is a 4-point flexural test which gives a measure of the stiffness of the beam (secant modulus at 1% strain) and a flexural strength (stress @ 3% strain).

Hygrothermal Cycling Test (ASTM D6662-01) was performed on a flexural test sample to water immersion for 24 hour periods until water absorption reaches equilibrium. The samples are then frozen at -20° F for 24 hours and then immersed in water again for a total of three cycles. The modulus and strength values were determined by ASTM D6109 and when compared to baseline values exhibited very little change.

TANGENT

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SUITABILITY AND LIMITATIONS

These products have greater impact resistance than wood but conversely less rigidity and therefore prior to use a thorough design engineering study must be performed to determine the suitability of **PolyForce™** in any critical application.

Fabrication is similar to wood and normal woodworking tools can be used. One should be advised that by transforming the product by drilling holes and routing edges the integrity and strength of the part can be altered. Eye protective wear, dust masks, gloves and normal safety precautions must be used when handling and fabricating the product. (See MSDS sheet for more details)

Inherent in **PolyForce™** Products you will observe a greater coefficient of thermal expansion than stiffer wood products. Therefore when designing your application an accommodation must be made to properly allow for expected expansion and contraction over the length of the product.

Static electricity is a naturally occurring phenomenon to all resin based products. On extremely dry days there is the potential to experience a small static shock if you walk across a **PolyForce™** product and touch a conducting surface such as a metal fixture. This is comparable to walking across your carpet and receiving a static shock when you touch the door handle. We do not warranty against static electricity as it is a natural occurring phenomenon and is not a manufacturing defect.

During winter conditions, you might find any surface made from **PolyForce™** to be slippery in snow, wet and frost conditions. Unlike most other surfaces you can easily spread rock salt or calcium chloride to restore decent traction and melt the frost or ice layer with no harmful effect to the **PolyForce™** products.

WARRANTY

Tangent Technologies LLC the manufacturer of the **PolyForce™** product offers a limited warranty that this product will not rot, splinter, decay or suffer structural damage directly from termites or fungal decay under normal use. Tangent Technologies LLC does not recommend or approve this product for all end use applications. The appropriate national and local code authorities should be consulted for safety, suitability and applicability for intended use prior to purchasing product. (See Full Warranty Details)

This guideline and summary is intended to provide the distributor, installer and end user with basic guidelines and technical specifications for designing and properly installing the **PolyForce™** products. However, the installer and/or purchaser of any **PolyForce™** product is solely responsible for interpreting specific job conditions, and determining the engineering design and suitability of end use and application of any **PolyForce™** product. Adherence to applicable building and safety codes for specific locations and applications of this product are the sole responsibility of the installer and/or purchaser. In no event shall Tangent Technologies LLC the manufacturer of the **PolyForce™** products be liable for labor, installation, reinstallation or for any indirect, punitive, exemplary or consequential damages of any kind whatsoever from the provisions of this information.

This revision 1.5 [12/21/15] supersedes all other PolyForce™ technical data sheets.

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