

Molded Lumber (ML)

Structural Grade Recycled Plastic Lumber

TECHNICAL MANUAL

Note: This product was previously marketed under the trade name SelectForce[®]

Tangent Technologies, LLC
1001 Sullivan Rd.
Aurora, IL 60506
630.264.1110
tangentmaterials.com



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1. Molded Lumber (ML) Product Summary

PRODUCT DESCRIPTION

Tangent Molded Lumber recycled plastic product utilizes high quality recycled HDPE (High Density Polyethylene) and color stabilizers to manufacture a high performance product. The material used to manufacture our product comes primarily from post consumer waste such as milk jugs and detergent bottles. This material is shredded and blended with additives to create a strong end product.

PROFILES, LENGTHS AND COLORS

Tangent Molded Lumber is available in a wide range of profiles which are detailed below. Molded Lumber can be ordered in custom lengths up to a maximum length which is set by tooling and is detailed in the profile offering below. In addition to our standard color offering, custom colors are available. Pigments are UV stabilized and packaged with antioxidants which minimize fading.

BENEFITS

Tangent Molded Lumber is a cost effective alternative to products such as wood or composite materials due to low maintenance costs. It does not have to be painted, stained or treated and will not rot or splinter. Cleans easily with soap and water for low maintenance care. The cost savings only increase over time.



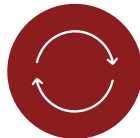
CONFIDENTLY DURABLE

No rotting, splintering or peeling with materials that stand the test of time. Our products can withstand year round weather and endure the harshest of environments.



LASTING BEAUTY

Our boards are manufactured with UV stabilizers throughout so they will never require painting, staining or sealing.



SUSTAINABLY MADE

Our boards don't need to be treated like wood and are environmentally-friendly. Made from recycled materials, our lumber won't leach chemicals into our environment.



EASE OF CARE

Our products are resistant to marine borers and insects. Also impervious to moisture, Tangent materials are truly a low-maintenance product.



MADE IN THE USA

Our products are made in the United States. With quality that is second to none, our quality and engineering teams test our products against over 15 ASTM standards.

COMMON APPLICATIONS

Tangent Molded Lumber is an excellent wood replacement. Especially in ground contact applications, or in wet, moist environments. Common uses include benches, dunnage, cribbing, equipment pads, playground equipment, signs, rub rails, parking curbs, and rustic outdoor furniture. For applications requiring greater stiffness or less thermal dimensional stability, we recommend Fiber Reinforced Molded Lumber (MF).

2. Molded Lumber Specifications

TEST	ASTM TEST	VALUE (ENGLISH)	VALUE (METRIC)
Flexural Strength	D6109	1,355 psi	95 kg/cm ²
Flexural Modulus Secant @ 1% strain	D6109	95,939 psi	6,744 kg/cm ²
Compression Strength (parallel to grain)	D6108	1,420 psi	100 kg/cm ²
Compression Modulus (parallel to grain)	D6108	51,000 psi	3,585 kg/cm ²
Compression Strength (perpendicular to grain)	D6108	650 psi	45 kg/cm ²
Specific Gravity	D6111	0.861 g/cc	0.861 g/cc
Flash Point		644°F	340°C
Moisture Absorption		0.06 % by weight	0.06 % by weight
Thermal Expansion	D6341	0.000055 inch/inch/°F	0.000099cm/cm/°C
Average Screw pull out	D6117	646 lbs	293 kg
Static coefficient of Friction - Dry	D2047	0.85	
Static coefficient of Friction - Wet	D2047	0.97	

Dimensional Tolerances:

Width Tolerance: 4" +/- 3/32", 6" +/- 1/8", 8" +/- 3/16", 10" +/- 1/4", 12" +/- 1/4"












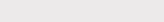




Cup/Bulge:

Deviation in the face from a straight line from edge to edge of piece.

Length Tolerance: +3"/ -0" at 70°F








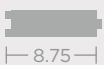






*The technical data on this page represents only average values and not minimum values. Safety factors must be added into the design.

3. Molded Lumber Size Chart











Shape	Nominal Profile	Actual Dimensions (in x in)	Longest Length (ft)	Approx. Weight (lb/ft)	Actual Dimensions (cm x cm)	Longest Length (m)	Approx. Weight (kg/m)
	5/4 x 2 7/8	1.10 x 2.82	7.5	1.2	2.8 x 7.2	2.3	1.79
	5/4 x 4	1.10 x 3.51	8	1.4	2.8 x 8.9	2.4	2.08
	5/4 x 6	1.10 x 5.49	12	2.3	2.8 x 14.0	3.7	3.42
	5/4 x 8	1.10 x 7.40	12	3.0	2.8 x 18.8	3.7	4.46
	2 x 2	1.60 x 1.60	7.5	0.9	4.1 x 4.1	2.3	1.34
	2 x 3	1.60 x 2.56	7.5	1.5	4.1 x 6.5	2.3	2.23
	2 x 4	1.45 x 3.45	16	2.0	3.7 x 8.8	4.9	2.98
	2 x 4 BN	1.45 x 3.45	12	1.9	3.7 x 8.8	3.7	2.83
	2 x 6	1.46 x 5.36	16	3.2	3.7 x 13.6	4.9	4.76
	2 x 6 Sq. Corner	1.44 x 5.58	20	3.4	3.7 x 14.2	6.1	5.06
	2 x 8	1.48 x 7.40	18	4.1	3.8 x 18.8	5.5	6.10
	2 x 10	1.46 x 9.26	16	5.0	3.7 x 23.5	4.9	7.44
	2 x 10 T&G	1.46 x 9.09	16	5.0	3.7 x 23.1	4.9	7.44
	2 x 12	1.46 x 11.33	16	6.3	3.7 x 28.8	4.9	9.38
	2 x 5 1/2 True	1.95 x 5.46	16	4.0	5.0 x 13.9	4.9	5.95
	2 x 7 True	1.95 x 6.96	16	5.1	5.0 x 17.7	4.9	7.59

*T&G is Tongue & Groove










3. Molded Lumber Size Chart (cont.)

Shape	Nominal Profile	Actual Dimensions (in x in)	Longest Length (ft)	Approx. Weight (lb/ft)	Actual Dimensions (cm x cm)	Longest Length (m)	Approx. Weight (kg/m)
	2 x 24	1.95 x 23.98	10	17.5	5.0 x 60.9	3.1	26.04
	3 x 4	2.40 x 3.38	16	3.1	6.1 x 8.6	4.9	4.61
	3 x 4 BN	2.40 x 3.40	16	2.9	6.1 x 8.6	4.9	4.32
	3 x 6	2.44 x 5.40	16	4.8	6.2 x 13.7	4.9	7.14
	3 x 8	2.45 x 7.38	16	6.8	6.2 x 18.8	4.9	10.11
	3 x 8 BN	2.40 x 7.30	16	6.6	6.1 x 18.5	4.9	9.82
	3 x 10	2.43 x 9.30	16	8.4	6.1 x 23.6	4.9	12.50
 — 8.75 —	3 x 10 T&G	2.44 x 8.75	20	8.6	6.2 x 22.2	6.1	12.80
	3 x 12	2.44 x 11.36	16	10.1	6.2 x 28.9	4.9	15.03
	3 x 3 3/4 True	2.91 x 3.64	16	4.0	7.4 x 9.3	4.9	5.95
	3 x 24 True	2.95 x 23.92	10	25.7	7.5 x 60.8	3.1	38.25
	4 x 4	3.44 x 3.44	20	4.4	8.7 x 8.7	6.1	6.55
	4 x 4 True	3.94 x 3.94	16	5.6	10.0 x 10.0	4.9	8.33
	4 x 6	3.44 x 5.44	20	6.8	8.7 x 13.8	6.1	10.12


3. Molded Lumber Size Chart (cont.)

Shape	Nominal Profile	Actual Dimensions (in x in)	Longest Length (ft)	Approx. Weight (lb/ft)	Actual Dimensions (cm x cm)	Longest Length (m)	Approx. Weight (kg/m)
	4 x 8	3.44 x 7.38	20	9.3	8.7 x 18.7	6.1	13.84
	4 x 10	3.44 x 9.40	20	11.6	8.7 x 23.9	6.1	17.26
	4 x 12	3.44 x 11.25	20	13.9	8.7 x 28.6	6.1	20.69
	4 1/2 x 10 True	4.48 x 9.95	16	16.6	11.4 x 25.3	4.9	24.70
	5 x 5	4.40 x 4.40	16	7.2	11.2 x 11.2	4.9	10.71
	6 x 6	5.38 x 5.38	20	10.3	13.7 x 13.7	6.1	15.33
	6 x 6 True	5.88 x 5.88	16	12.9	14.9 x 14.9	4.9	19.19
	6 x 8	5.40 x 7.38	16	14.9	13.7 x 18.7	4.9	22.17
	6 x 10	5.40 x 9.38	32	19.2	13.7 x 23.8	9.7	28.57
	6 x 12	5.40 x 11.25	20	22.6	13.7 x 28.6	6.1	33.63

3. Molded Lumber Size Chart (cont.)

Shape	Nominal Profile	Actual Dimensions (in x in)	Longest Length (ft)	Approx. Weight (lb/ft)	Actual Dimensions (cm x cm)	Longest Length (m)	Approx. Weight (kg/m)
	6 x 16 True	5.88 x 15.56	24	34.1	14.9 x 39.5	7.3	50.75
	7 x 10 True	6.96 x 9.95	17	26.1	17.7 x 25.3	5.2	38.84
	8 x 8	7.40 x 7.40	24	20.4	18.8 x 18.8	7.3	30.36
	1 3/8" Round	Ø 1.34	8	0.6	Ø 3.4	2.4	.89
	2" Round	Ø 1.95	10	1.1	Ø 5.0	3.1	1.64
	2 1/2" Round	Ø 2.30	10	1.6	Ø 5.8	3.1	2.38
	4" Round	Ø 3.88	16	4.4	Ø 9.8	4.9	6.55
	5" Round	Ø 4.85	16	6.9	Ø 12.3	4.9	10.27
	6" Round	Ø 5.82	16	10.2	Ø 14.8	4.9	15.18

3. Molded Lumber Size Chart (cont.)

Shape	Nominal Profile	Actual Dimensions (in x in)	Longest Length (ft)	Approx. Weight (lb/ft)	Actual Dimensions (cm x cm)	Longest Length (m)	Approx. Weight (kg/m)
	8" Round	Ø 7.52	34	17	Ø 19.1	10.4	25.30
	8 1/2" Round	Ø 8.25	20	20	Ø 21.0	6.1	29.76
	10" Round	Ø 9.8	24	28	Ø 24.9	7.3	41.67
	HD Parking Curb	4.48 x 6.40	8	9.1	11.4 x 16.3	2.4	13.54
	LD Parking Curb	4.0 x 5.88	8	7.4	10.2 x 14.9	2.4	11.01
	SM Parking Curb	3.19 x 4.38	8	5.0	8.1 x 11.1	2.4	7.44
	Speed Bump	2.0 tall x 9.8	8	5.3	5.1 tall x 24.9	2.4	7.89
	2.5 x 3.5 Stadium	2.50 x 3.50	16	3.0	6.3 x 8.9	4.9	4.46
	Octagon 5.5	5.32	17	8.7	13.5	5.2	12.95

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4. Molded Lumber Installation Guide

1. STRUCTURAL ABILITY

Tangent's Molded Lumber is a structural grade product in that it has greater stiffness and strength than unreinforced continuously extruded products like Tangent's Dimensional Lumber. Greater stiffness and strength and lower coefficient of thermal expansion are available through our Fiber and Bar Reinforced Molded Lumber product lines, although Molded Lumber exhibits a more ductile failure mode than Fiber Reinforced Molded Lumber, so is better suited to certain applications.

2. EXPANSION/CONTRACTION

Tangent Molded Lumber expands and contracts along its length. A 10' (3.048m) length will expand and contract up to 3/8" (1cm). Due to this fact, Molded Lumber should be run along the shortest length with the joist running the long direction.

3. FASTENING

Stainless steel fasteners are recommended. Screws must be pre-drilled and should be counter-sunk. Also, coating the screws with a lubricant, such as a silicone caulk, or soap will ease installation. All screws should be a minimum of 3/4" (2cm) from the edge or end of the board.

4. RIP CUTTING

Rip cutting is not recommended on any plastic lumber. In the event that rip cutting is needed please refer to the following example. Example, if a 4" (10cm) board is needed, 3/4" (2cm) should be ripped off of both sides of a 5-1/2" (14cm) board.

Should there be any questions regarding these instructions, please contact your sales representative for more details.

Tangent Technologies, LLC
1001 Sullivan Rd.
Aurora, IL 60506
630.264.1110

tangentmaterials.com

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TANGENT[®]
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or contact your sales representative.