BEDFORD TECHNOLOGY

Experience the Bedford Difference...

"The Environmental Choice"

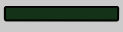
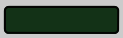
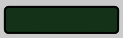
100% RECYCLED PLASTIC LUMBER BOARDWALKS

A boardwalk is more than just a path you walk on. It's your way to work, walking or jogging path, memory from a vacation or first representation of your company and community. Why use products that require continual maintenance and repair, when you can use Bedford plastic products designed to outlast any wood or wood plastic composites. Our products are maintenance-free, need zero care, and because they do not deteriorate in extreme environments the ongoing cost of treating and repairing materials becomes a thing of the past. Bedford plastic products are durable, versatile, come in various strength grades manufactured using 100% recycled high density polyethylene.

With a choice between a natural or embossed wood-grain finish and an array of UV-stabilized colors, boardwalk designers and builders can be confident that their structures will stay looking good for decades to come – no cracking or chipping, no corrosion, no mold or decay. And, if that still is not enough to convince you to use Bedford's recycled plastic products for your next boardwalk project, then maybe our 50 year limited warranty will.

Visit us at www.plasticboards.com

Decking Profile Span Chart

Profile	Nominal (h x w)	Actual Dimension (h x w)	Longest length Available	Product Grade	Manufacturing Process	OC Span @ 85 PSF
	5/4 x 4, 6, 8	1.13" x 3.5", 5.5", 7.5"	12'	FiberForce®	Molded	24"
	5/4 x 6	1.0" x 5.5"	24'	FiberForce®	Extruded	16"
	6/4 x 6	1.25" x 5.5"	24'	FiberForce®	Extruded	19"
	2 x 6, 8, 10, 12	1.5 x 5.5", 7.5", 9.375", 11.25"	16'	FiberForce®	Molded	24"
	2 x 6, 8	1.5 x 5.5", 7.5"	24'	FiberForce®	Extruded	24"

Spans are figured based on perpendicular decking installation to joist and use of 2x joist material. Add wood grain texture for increased co-efficient of friction. For specific specifications please contact a Bedford sales representative.

Material Comparison

SELECT FORCE FIBER FORCE

Plastic Composite Lumber
Bedford Plastic Products are made from recycled polyethylene, reinforced with chopped glass fiber. It doesn't rot, split or chip, and is ideal for long term immersion in water.

Wood Plastic Composite Lumber
Wood Plastic Composites are wood in a plastic matrix. They overcome some disadvantages of natural timber, but composites will still decay and rot over time, particularly when damp.

Wood
All woods suffer environmental attack, sometimes reduced by periodic chemical treatments. Wood can crack, split and splinter, is eaten by borers and suffers fungal and bacterial decay.

	Wood	Composite	SELECTFORCE® FIBERFORCE®
50-year warranty			✓✓
Insect and borer resistant			✓✓
Rot and decay resistant	*	✓*	✓✓
Load bearing and structural	✓✓		✓✓
Non-splintering		✓	✓✓
Maintenance free			✓✓
Color stability			✓✓
Non-leaching/toxin-free			✓✓
100% recycled feedstock			✓✓
Recyclable	✓		✓✓
Long-term aesthetics			✓✓

** Chemical treatments required*

Bedford's Technology's Green Mission

Diverting plastic from today's landfills

Using recycled products support sustainability of our environment for future generations. Consider 1 pound of Bedford recycled plastic product removes roughly 8 milk jugs from entering our landfills.

Bedford utilized roughly 20 million pounds of plastic in 2012 which equates to roughly 160 million milk jugs. Recycled Plastic Composite lumber is a product that qualifies in LEED design certification.

TECHNICAL DATA

FIBERFORCE® Extruded Plastic Lumber

Test Methods		English Units		Metric Units	
Test	ASTM Test	Value	Units	Value	Units
Flexural Strength	D6109	1791	PSI	125	kg/cm²
Flexural Modulus	D6109	137,600	PSI	9674	kg/cm²
Specific Gravity	D6111	45.1	Lbs./ft³	0.72	g/cc
Flash Point		644	° F	340	° C
Thermal Expansion	D6341	0.000058	In/In/°F	0.000104	m/m/°C
Friction - Dry	C1028	0.37		0.37	
Friction - Wet	C1028	0.46		0.46	
Friction - Embossed Dry	C1028	0.51		0.51	
Friction - Embossed Wet	C1028	0.55		0.55	
Average Screw Pull Out	D6117	511	Lbs.	231	kg
Average Nail Pull Out	D6117	145	Lbs.	66	kg

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

Chemical Resistance

High-Density Polyethylene has a high resistance to most acids and chemicals. Bedford Plastic Lumber has a high tolerance to exposure by most substances.

Ultraviolet Weathering

An ultraviolet stabilizer is added at the time of manufacture to help protect against ultraviolet degradation of the plastic surface in exterior applications.

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FIBERFORCE® EXTRUDED PLASTIC LUMBER
SPAN TABLES 120°F

DECKING MODE

60 LBS/SQ FOOT LIVE LOAD

ACTUAL SIZE		MAXIMUM SPAN	
SIZE	THICKNESS	INCHES	FT
0.5x1.5,2.5,8,9.5	0.5	8.6	0.7
0.75x2.75,3.5,5.5	0.75	12.8	1.1
1x5.5,7.5	1.0	16.9	1.4
1.125x5.5,9.5	1.125	19.0	1.6
2x2,3,4,**6**,8,10,12	1.5	25.1	2.1
3x4,6	2.4	39.5	3.3

150 LBS/SQ FOOT LIVE LOAD

ACTUAL SIZE		MAXIMUM SPAN	
SIZE	THICKNESS	INCHES	FT
0.5x1.5,2.5,8,9.5	0.5	6.4	0.5
0.75x2.75,3.5,5.5	0.75	9.5	0.8
1x5.5,7.5	1.0	12.6	1.1
1.125x5.5,9.5	1.125	14.2	1.2
2x2,3,4,**6**,8,10,12	1.5	18.9	1.6
3x4,6	2.4	30.0	2.5

100 LBS/SQ FOOT LIVE LOAD

ACTUAL SIZE		MAXIMUM SPAN	
SIZE	THICKNESS	INCHES	FT
0.5x1.5,2.5,8,9.5	0.5	7.3	0.6
0.75x2.75,3.5,5.5	0.75	10.8	0.9
1x5.5,7.5	1.0	14.4	1.2
1.125x5.5,9.5	1.125	16.2	1.3
2x2,3,4,**6**,8,10,12	1.5	21.5	1.8
3x4,6	2.4	33.9	2.8

200 LBS/SQ FOOT LIVE LOAD

ACTUAL SIZE		MAXIMUM SPAN	
SIZE	THICKNESS	INCHES	FT
0.5x1.5,2.5,8,9.5	0.5	5.8	0.5
0.75x2.75,3.5,5.5	0.75	8.6	0.7
1x5.5,7.5	1.0	11.5	1.0
1.125x5.5,9.5	1.125	12.9	1.1
2x2,3,4,**6**,8,10,12	1.5	17.2	1.4
3x4,6	2.4	27.4	2.3

Profiles in **Bold** denote present tooling
Chart for ambient 120° F
For use with live load only; for dead loads please consult factory

FiberForce® Plastic Lumber
Installation Guide

1. Structural Ability

FiberForce® plastic lumber is recommended for structural use but care needs to be used in the design of the structure. In most cases the deflection will control the needed size of boards. We have span charts that can be used to determine the correct size for normal decking applications. If you have other applications please consult with us or a qualified engineer or architect so he can take into account the long term creep and deflection issues with FiberForce® plastic lumber.

2. Expansion/Contraction

FiberForce® plastic lumber expands and contracts along its length based on temperature. A calculation of change in length in inches, can be done by using 0.000034 IN/IN/deg F multiplied by its length in inches and the temperate change of the board.
This expansion and contraction on short lengths is minimum but if you are using longer lengths and in a climate with large temperature changes you need to take in account the expansion / contraction of the board in the design.

3. Fastening

When fastening a size #10 screw or larger is recommended. Always predrill. Each deck board should be fastened with at least 2 screws per joist and should be at least ¾" from the edge or end of the board. Stainless steel fasteners are recommended.

4. Butt Joints

When butting FiberForce® plastic lumber against any wall, fixed surface or other boards (if necessary), they should be securely fastened to the nailer or double joist with a gap allowing for expansion. The size of gap should be determined based on weather conditions at the time of installation – the closer the temperature is to the usual high temperature for the year, the smaller the gap. (See chart below). The deck should be designed to minimize the butt joints. However, in the event that joints are required, a double joist underneath the butt joint should be used. Boards should be securely fastened with a row of screws on each side of the joint, 1" from end of the board. Always keep deck boards out 1/4" from permanent structure.

Temperature at time of installation	Gap between butt ends
Greater than or equal to 90° F	1/32" or less
70° F	1/16"
50° F	1/8"
Less than 30° F	3/16"

5. Rip Cutting

Rip cutting is not recommended on any plastic lumber. Much of the strength of the board is on the outside surface of the boards. Ripping boards can cause the boards to warp or curl.

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

*Failure to follow these instructions will void all warranties.

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TECHNICAL DATA

SelectForce® Extruded Plastic Lumber

Test Methods		English Units		Metric Units	
Test	ASTM Test	Value	Units	Value	Units
Flexural Strength	D6109	1350	PSI	125	kg/cm²
Flexural Modulus	D6109	79000	PSI	6982	kg/cm²
Compression Strength Parallel to Grain	D6108	1030	PSI	72	kg/cm²
Compression Strength Perpendicular to Grain	D6108	390	PSI	27	kg/cm²
Specific Gravity	D6111	41.5	Lbs./ft³	0.67	g/cc
Flash Point		644	° F	340	° C
Thermal Expansion	D6341	0.000058	In/In/° F		
Friction - Dry	C1028	0.37		0.37	
Friction - Wet	C1028	0.46		0.46	
Friction - Embossed Dry	C1028	0.51		0.51	
Friction - Embossed Wet	C1028	0.55		0.55	
Average Screw Pull Out	D6117	511	Lbs.	231	kg
Average Nail Pull Out	D6117	145	Lbs.	66	kg

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

Chemical Resistance

High-Density Polyethylene has a high resistance to most acids and chemicals. Bedford Plastic Lumber has a high tolerance to exposure by most substances.

Ultraviolet Weathering

An ultraviolet stabilizer is added at the time of manufacture to help protect against ultraviolet degradation of the plastic surface in exterior applications.

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SELECTFORCE® EXTRUDED PLASTIC LUMBER
SPAN TABLES 120°F

DECKING MODE

60 LBS/SQ FOOT LIVE LOAD

	ACTUAL SIZE	MAXIMUM SPAN	
SIZE	THICKNESS	INCHES	FT
0.5x1.5,2.5,6,8,9.5	0.5	7.2	0.6
0.62x12-3/16	0.62	8.9	0.7
0.75x2.75,3.5,5.5	0.75	10.7	0.9
1x3.5,5.5,7.5,9.5	1.0	14.2	1.2
1.125x5.5,9.5	1.125	15.9	1.3
2x2,3,4,6,8,10	1.5	21.0	1.8
3x4,10	2.4	33.0	2.8

150 LBS/SQ FOOT LIVE LOAD

	ACTUAL SIZE	MAXIMUM SPAN	
SIZE	THICKNESS	INCHES	FT
0.5x1.5,2.5,6,8,9.5	0.5	5.3	0.4
0.62x12-3/16	0.62	6.6	0.5
0.75x2.75,3.5,5.5	0.75	7.9	0.7
1x3.5,5.5,7.5,9.5	1.0	10.6	0.9
1.125x5.5,9.5	1.125	11.9	1.0
2x2,3,4,6,8,10	1.5	15.8	1.3
3x4,10	2.4	25.1	2.1

100 LBS/SQ FOOT LIVE LOAD

	ACTUAL SIZE	MAXIMUM SPAN	
SIZE	THICKNESS	INCHES	FT
0.5x1.5,2.5,6,8,9.5	0.5	6.1	0.5
0.62x12-3/16	0.62	7.5	0.6
0.75x2.75,3.5,5.5	0.75	9.1	0.8
1x3.5,5.5,7.5,9.5	1.0	12.0	1.0
1.125x5.5,9.5	1.125	13.5	1.1
2x2,3,4,6,8,10	1.5	18.0	1.5
3x4,10	2.4	28.4	2.4

200 LBS/SQ FOOT LIVE LOAD

	ACTUAL SIZE	MAXIMUM SPAN	
SIZE	THICKNESS	INCHES	FT
0.5x1.5,2.5,6,8,9.5	0.5	4.8	0.4
0.62x12-3/16	0.62	6.0	0.5
0.75x2.75,3.5,5.5	0.75	7.2	0.6
1x3.5,5.5,7.5,9.5	1.0	9.6	0.8
1.125x5.5,9.5	1.125	10.8	0.9
2x2,3,4,6,8,10	1.5	14.4	1.2
3x4,10	2.4	22.9	1.9

Chart for ambient 120° F
For use with live load only; for dead loads please consult factory
Maximum Span indicated is Clear Span, not joist center to center span.

Select™ Plastic Lumber
Deck Installation Guide

1. Structural Ability

Select™ plastic lumber is not recommended for structural use; therefore, the substructure must be constructed of FiberForce®, or some other structural grade material.

2. Joist Spacing

Due to its increased flexibility (as compared to wood), Select™ plastic lumber requires more support than a traditional deck. Please use the following chart to determine the joist spacing.

Select™ Plastic Lumber Thickness	Recommended Joist Spacing
1" (5/4 board)	12"
1-1/2" (2 x board)	16"

3. Expansion/Contraction

Select™ plastic lumber expands and contracts along its length. A 10' length will expand and contract up to 3/8". Due to this fact, Select™ plastic lumber should be run along the shortest length of the deck with the joists running the long direction. Example: An 8' x 16' deck should use 8' Select™ plastic lumber over joists running the 16' length. These joists are normally divided into 2 – 8' x 8' sections with a header between them. Also, lighter colors do not heat up as much in sunlight and are therefore preferable when installing a deck in a very sunny location.

4. Fastening

To withstand the expansion and contraction as well as to maintain a long lasting, beautiful looking deck, stainless steel deck screws should be used, preferably #10 x 2 ½ or 3" long, square drive stainless steel deck screws. Each deck board should be fastened with at least 2 screws per joist. 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 ¾" from the edge or end of the board.

5. Butt Joints

When butting Select™ plastic lumber against any wall, fixed surface or other boards (if necessary), they should be securely fastened to the nailer or double joist with a gap allowing for expansion. The size of gap should be determined based on weather conditions at the time of installation – the closer the temperature is to the usual high temperature for the year, the smaller the gap. (See chart below). The deck should be

designed to minimize the butt joints. However, in the event that joints are required, a double joist underneath the butt joint should be used. Boards should be securely fastened with a row of screws on each side of the joint 1" from end of the board. Always keep deck boards out 3/8" from permanent structure.

Temperature at time of installation	Gap between butt ends
Greater then or equal to 90^{o} F	1/16" or less
70^{o} F	1/8"
50^{o} F	¼"
Less than 30^{o} F	3/8"

6. Rip Cutting

Two cuts must be taken in the event that a board must be ripped down. This is due to the difference in tension between the outer "skin" of the board and board's center. For example, if a 4" board is needed, ¾" should be ripped off of both sides of a 5-1/2" board.

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

*Failure to follow these instructions will void all warranties.

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Bedford Technology, LLC
Limited Warranty Select™ and FiberForce®

1) **Limited Warranty**. Bedford Technology LLC. (hereinafter 'BEDFORD TECHNOLOGY LLC") WARRANTS that its Select™ and FiberForc® plastic lumber products, will not suffer structural damage from termites or fungal decay, and will not split or splinter for the period of time beginning at the date of original consumer purchase of the products and extending through a period of fifty (50) years. Labor, installation, and/or, reinstallation and any related costs including but not limited to removal of product, shipping, fabrication and service time for on-site assessment of alleged defects are not included within this warranty and shall not be paid by BEDFORD TECHNOLOGY LLC. This warranty only applies to plastic lumber products produced and manufactured by BEDFORD TECHNOLOGY LLC which are returned during the warranty period with the transportation charges prepaid by the purchaser. THIS WARRANTY DOES NOT COVER ANY CLAIMS ARISING FROM EXPANSION OR CONTRACTION OF THE PRODUCT NOR ANY DIFFERENCES IN COLOR, FADING, OR SPOTTING AS SUCH IS INTRINSIC TO THE PRODUCT.

   PURCHASERS SOLE REMEDY FOR ANY CLAIM WHATSOEVER, WHETHER IN CONTRACT, WARRANTY, TORT, OR STRICT LIABILITY, ARISING OUT OF THE USE STORAGE OR POSSESSION OF PRODUCT INCLUDING WITHOUT LIMITATION ANY CLAIM THAT PRODUCT FAILED TO PERFORM AS WARRANTED, SHALL BE REPLACEMENT WITH SUBSTITUTE PRODUCT. LABOR, TRANSPORTATION, INSURANCE AND OTHER INCIDENTAL COSTS OF REPAIR OR REPLACEMENT SHALL BE THE RESPONSIBILITY OF THE PURCHASER. PURCHASER IS SOLELY RESPONSIBLE FOR DETERMINING THE SUITABILITY OF USE, APPLICATION, OR FITNESS FOR PARTICULAR PURPOSE, OR WHETHER PRODUCT MEETS THE REQUIREMENTS OF APPLICABLE BUILDING CODES OR SAFETY CODES FOR SPECIFIC APPLICATIONS.

   Notice of any claim under this warranty must be given promptly to BEDFORD TECHNOLOGY LLC in writing along with the original purchase invoice indicating the date of purchase and purchase price, pictures of the defective product and a detailed description of the defect. This notice shall be given within (I) thirty (30) days after receipt of the product if the claim is for nonconformity or breach which could be discovered by visual inspection or (II) thirty (3O) days after actual discovery of any nonconformity or breach. Any such claim shall be delivered personally or mailed postage prepaid, to BEDFORD TECHNOLOGY LLC, 2424 Armour Road PO Box 609 Worthington MN 56187, attention, Customer Service and shall be effective when personally delivered, or three (3) business days after mailing if mailed in the US, or when received by BEDFORD TECHNOLOGY LLC if not personally delivered or mailed in the US. Failure to give notice as required by this paragraph shall void any warranty and bar purchaser from any remedy.

   THE WARRANTIES AND REMEDIES PRINTED ABOVE ARE THE ONLY WARRANTIES AND REMEDIES VALID TO THE PRODUCT. ALL OTHER WARRANTIES, EXPRESS OP IMPLIED, INCLUDING BUT NOT LIMITED TO THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. NO PERSON, AGENT OR DEALER IS AUTHORIZED TO ASSUME OR GRANT ANY GREATER WARRANTY OBLIGATION OR LIABILITY FOR BEDFORD TECHNOLOGY LLC. THIS WARRANTY AND ANY AND ALL RIGHTS CREATED HEREIN ARE FULLY TRANSFERABLE AND SHALL NOT BE PRORATED DURING THE TERM OF THIS WARRANTY.

2. **Voiding of Warranty**, BEDFORD TECHNOLOGY LLC will have no warranty obligation with respect to the product if any of the following events occur: a) repairs required as a result of normal wear and tear (b)the product is subjected to abuse, misuse, negligence, improper or abnormal use, failure to maintain, fire, or accident including without limitation, acts of God, or environmental pollutants (c) installation, fabrication, engineering service, maintenance or use of the product is not in accordance with the written installation requirement of BEDFORD TECHNOLOGY LLC as specified in BEDFORD TECHNOLOGY LLC literature, applicable laws and regulations or industry standards: (d) installation, fabrication, engineering service, maintenance or use of the product is performed improperly, negligently, or by unqualified or unauthorized personnel or without competent supervision (e) the movement and/or collapse of the ground or structure on which the assembly incorporating the product is installed: (f) any variations in the original color, including but not limited to fading, discoloration and spotting (g) the product is altered or modified without the prior written approval of BEDFORD TECHNOLOGY LLC; or (h) BEDFORD TECHNOLOGY LLC has not received full payment of the invoice price of the order containing the warranted Product.

3. **LIMITATION OF LIABILITY** PURCHASER AGREES THAT BEDFORD TECHNOLOGY LLC'S LIABILITY, UNDER ANY WARRANTY, WHETHER IN CONTRACT, IN NEGLIGENCE OR OTHERWISE SHALL NOT EXCEED THE AMOUNT OF THE PURCHASE PRICE PAID. UNDER NO CIRCUMSTANCES SHALL BEDFORD TECHNOLOGY LLC BE LIABLE FOR CONSEQUENTIAL, SPECIAL OR INCIDENTAL DAMAGES. THE PRICE STATED FOR THE PRODUCT IS BASED UPON AND IN CONSIDERATION FOR LIMITING BEDFORD TECHNOLOGY LLC LIABILITY. NEITHER BEDFORD TECHNOLOGY LLC NOR ITS REPRESENTATIVE(S) APPROVE, RECOMMEND, OR PERFORM DESIGN REVIEW FOR SPECIFIC APPLICATIONS OF THESE PRODUCTS. NO PERSON OR ENTITY IS AUTHORIZED BY BEDFORD TECHNOLOGY LLC TO MAKE, AND BEDFORD TECHNOLOGY LLC SHALL NOT BE BOUND BY ANY STATEMENT OR REPRESENTATION AS TO THE PERFORMANCE OF PRODUCT OTHER THAN WHAT IS CONTAINED IN THIS WARRANTY. THIS WARRANTY SHALL NOT BE AMENDED OR ALTERED EXCEPT IN A WRITTEN INSTRUMENT SIGNED BY BEDFORD TECHNOLOGY LLC AND PURCHASER.

4. **CHOICE OF LAWS/JURISDICTION/LEGAL FEES INCURRED** IF THE PURCHASER BRINGS ANY JUDICIAL PROCEEDING IN RELATION TO ANY MATTER ARISING UNDER THIS LIMITED WARRANTY, THE PURCHASER IRREVOCABLY AGREES THAT ANY SUCH MATTER MUST BE ADJUDGED OR DETERMINED IN A COURT OF COMPETENT JURISDICTION WITHIN THE STATE OF MINNESOTA IN THE COUNTY OF BEDFORD TECHNOLOGY LLC'S PRIMARY PLACE OF BUSINESS AND THAT SUCH MATTERS SHALL BE DETERMINED UNDER THE LAWS OF THE STATE OF MINNESOTA. THE PURCHASER IRREVOCABLY SUBMITS GENERALLY AND UNCONDITIONALLY TO THE JURISDICTION OF SAID COURT IN RELATION TO SUCH MATTERS. THE PURCHASER SHALL BE LIABLE TO BEDFORD TECHNOLOGY LLC FOR ANY COSTS, DISBURSEMENTS AND/OR REASONABLE LEGAL FEES INCURRED IN SUCCESSFULLY DEFENDING BEDFORD TECHNOLOGY LLC'S POSITION IN SUCH MATTERS.

Some states do not allow limitations of the duration of implied warranties or the exclusions or limitation of incidental or consequential damages. This warranty gives you specific legal rights and you may have other rights, which vary from State to State.

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