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[140-T24] CO-EXTRUDED COMPOSITE DECKING TECHNICAL MANUAL

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SUMMARY

Product Name

Britedeck Co-Extruded Wood-Plastic Composite Outdoor Weather Shield Decking Board [140-T24]

Substance Info

ASA (Styrene, Acrylonitrile, Acrylic Acid), Calcium Carbonate, Poly Vinyl Chloride, Wood fibre, other agents and additives.

Characteristics

The appearance of the product resembles natural wood textures but it has overcome the limitations of natural woods such as decay, biocorrosion and flammability. The product is for outdoor installation and all weather use. The product is slip, thermal, water, frost, fatigue and decay resistant. Its properties such as bending strength, impact resistance and dent resistance are superior to anticorrosive woods. Its key indicators see notable improvements compared to common wood-plastic composite decking products in the market.

Features

The product is multi-layer co-extruded decking board. Its embossed pattern resembles natural wood texture and development. Its surface has excellent slip resistance.

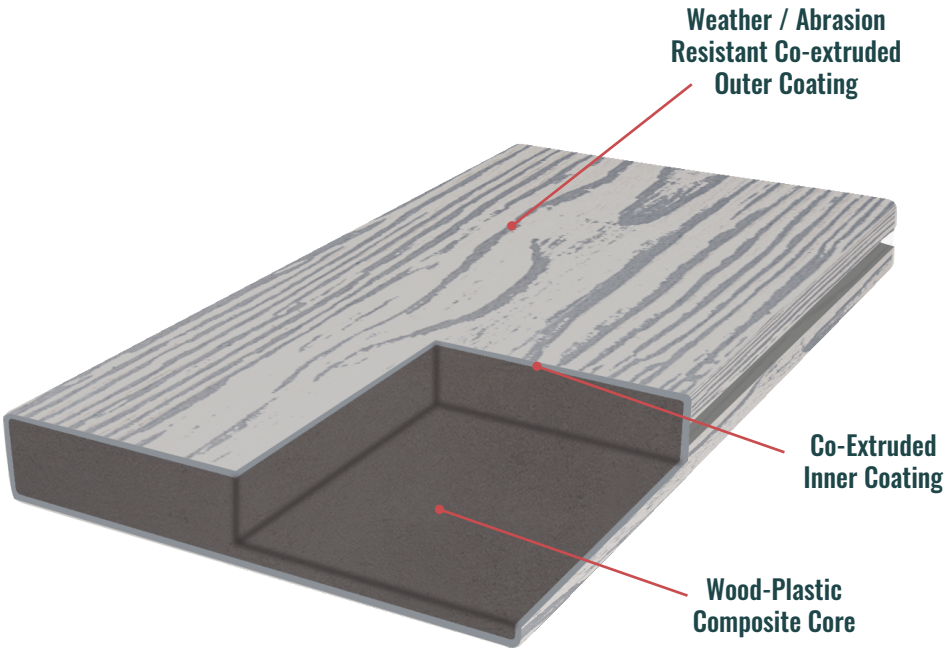
Applications

Outdoor floor or footpath of public or commercial parks or leisure spaces, private yards or gardens; footpaths by water such as lakes, reservoirs, rivers or pools; floor installation for scenic spots, bridges, hiking trails or resorts.

APPERANCE

Sectional illustration as shown

Width: 140.00mm
Thickness: 24.00mm



Surface

The surface of the board comprises two layers of coatings with different colours and properties. The surface has gone through processes such as embossing and sanding/brushing, which not only enrich the appearance with textures, but also enhance the product's slip resistance and abrasion resistance.

The back surface can be made into one-layer co-extruded coating with anti-static material, or two-layer co-extruded coatings with enhanced bending strength.

Colour

Different colour options available for the weather resistant coatings.

DIMENSION

WIDTH	THICKNESS	DENSITY	MASS	AREA PER LM	LM PER M²
Millimetre	Millimetre	N/A	Grams/Metre	M²	Metre
140.00	24.00	0.85	2,760	0.140	7.14

Note: LM per m2 is a theoretical calculation considering zero gap between boards. In actual installation, 5mm to 6mm gap between boards may be required, in which case the actual LM required should be the theoretical figure multiplied by a coefficient of 0.958.

PHYSICAL & CHEMICAL PROPERTIES

ITEMS	PHYSICAL PROPERTIES	UNIT	RESULT	NOTE
1	Bending Failure Load	N	3,908	Spans 336mm
2	Falling Ball Impact (Room Temp)	mm	＜5.5	GB/T18102-2007
3	Falling Ball Impact (Low Temp)	—	NO crack	-10°C, 800g, Hight = 1m
4	Density	g/cm^3	0.85	Coating included
5	Shore Hardness	D	84D	Frontside
6	Water Absorption	%	1.09%	ASTM D570 7.1
7	Water Absorption Dimension Change (Length)	%	0.01%	GB/T24508-2009 6.5.7
	Water Absorption Dimension Change (Width)	%	0.04%	GB/T24508-2009 6.5.7
	Water Absorption Dimension Change (Thickness)	%	0.21%	GB/T24508-2009 6.5.7
8	Dimensional Changes after Heat Treatment (Frontside)	%	＜0.13%	GB/T24508-2009 6.5.8
	Dimensional Changes after Heat Treatment (Backside)	%	＜0.10%	GB/T24508-2009 6.5.8
	Difference	%	＜0.03%	GB/T24508-2009 6.5.8
9	Dimension Changes after Thermal Cycle (Frontside)	%	0.09%	23°C for 1h -› -29°C for 6h -› 23°C for 1h -› 52°C for 16h, 3 Cycles
	Dimension Changes after Thermal Cycle (Backside)	%	0.08%	
	Difference	%	0.01%	
10	Freeze-Thaw Resistance	%	102%	GB/T24508,6.5.10

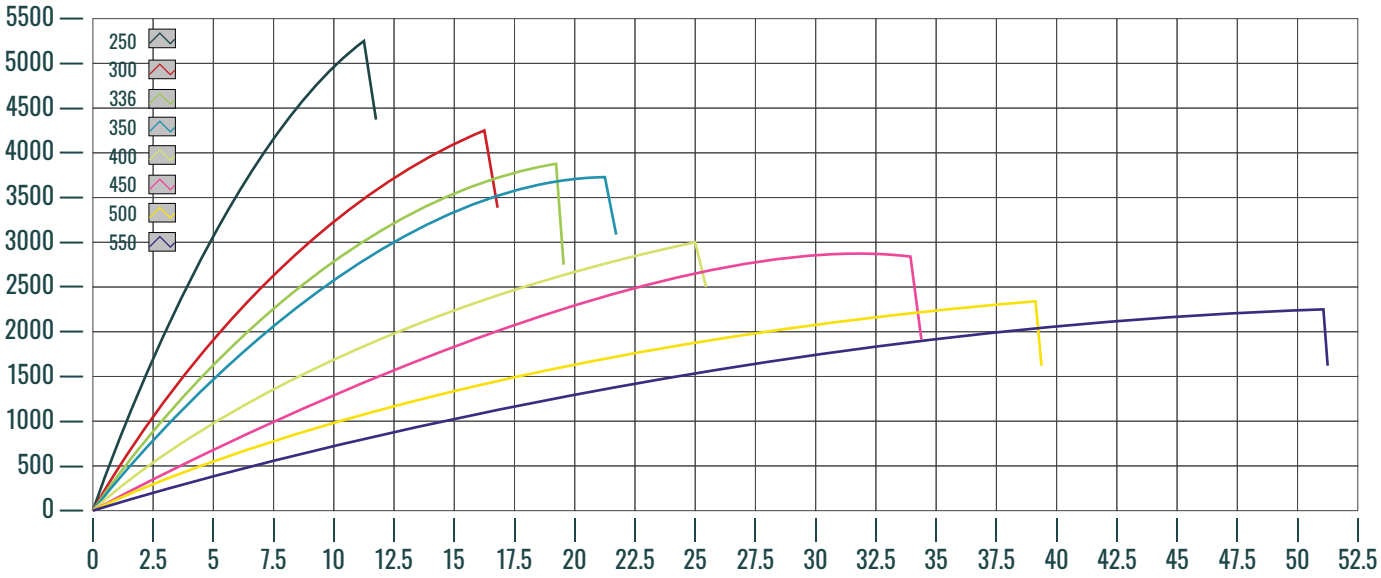
ITEMS	PHYSICAL PROPERTIES	UNIT	RESULT	NOTE
11	Stain Resistance	N	No stain	GB/T17657,4.37
12	Scratch Resistance	N	No visible	GB/T18102,6.3.8
13	Slip resistance (Sanded after embossment)	-	80	
	Slip Resistance (Sanded)	-	75	
	Slip Resistance (rough brushed)	-	56	
14	Abrasion Resistance (smooth surfaced)	N	＜62mg	Wear Index 62mg/1000revolution
15	Creep Recovery	%	94.6%	Load 1000N 24h
16	Colour Fastness to Light (Gray Scale)	Grade	4.5	

MECHANICAL BENDING PROPERTIES

The test is according to GB/T 176578、GB/T24508、EN14041:2018、EN15534:2014、ASTM D7031 standard test methods. Three-point bending test results are shown in the table below.

No.	Test Span (mm)	Maximum Rupture Force (N)	Deflection at Max Force (mm)	Deflection at 500N (mm)	Bending Strength (MPa)
1	250	5176	11.76	0.78	42.35
2	300	4159	15.91	1.05	42.00
3	336	3908	19.29	1.58	40.42
4	350	3689	21.47	1.86	39.06
5	400	2961	25.08	2.44	38.51
6	450	2718	33.67	3.76	36.99
7	500	2430	39.00	4.85	35.19
8	550	2273	50.60	6.58	34.21

Force-Deflection curve



Britedeck recommends maximum net spacing between joists be no more than 400mm (16in). Such installation is compliant with regulations in countries/regions such as China, EU and the USA, and also is economically efficient.

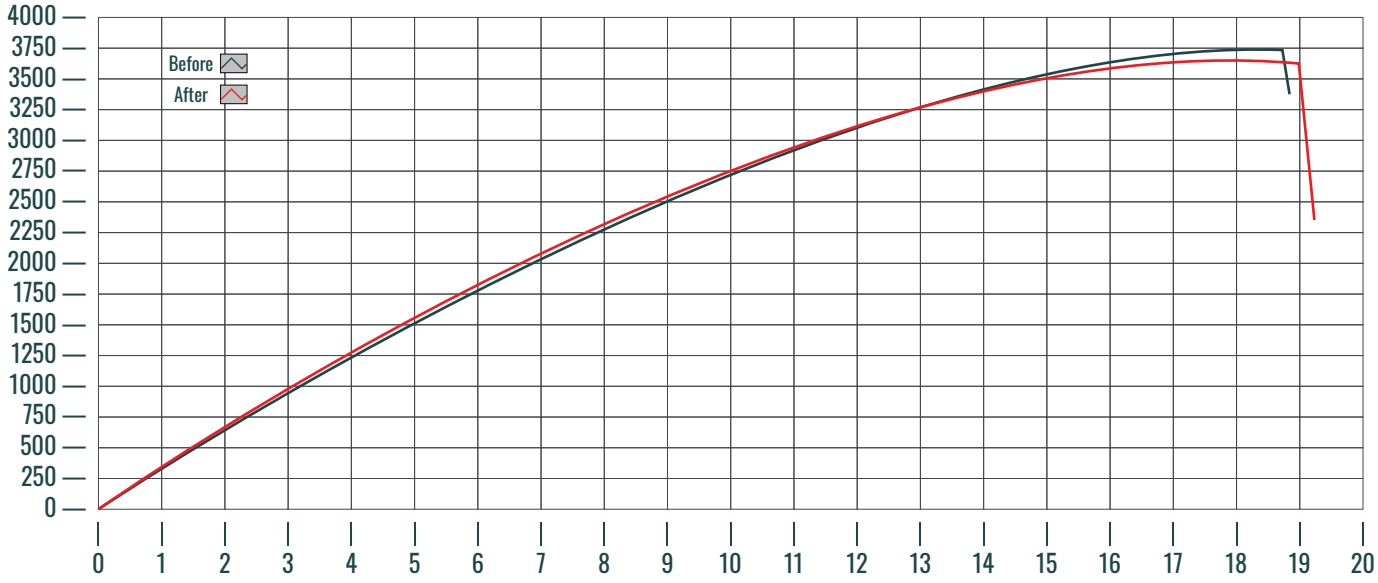
FREEZE-THAW RESISTANCE TEST

According to GB/T24508-2009 6.5.10, one freeze-thaw cycle is specified as: in water of room temperature for 24 hours, in -29°C environment for 24 hours, then in room temperature environment for 24 hours. The product was treated with three freeze-thaw cycles and its bending strength comparison is shown in table below:

Before and after test comparison: bending strength and deflection

	Span Edge-Edge (mm)	Bending Failure Load (N)	Deflection at Rupture (mm)
Before test	336	3,699	19.35
After test	336	3,766	18.91

Note: After freeze-thaw test, the retention rate of the product's bending failure load is 102%, indicating the bending strength of the product is almost not affected by multiple freeze-thaw treatments. The before-test and after-test bending failure load were tested on two different boards. Although we have chosen almost identical boards for the test, the test result difference is not significant enough to show improvement in bending strength after freeze-thaw test. +-5% error is commonly accepted for such test.



BIOLOGICAL RESISTANCE & SALT SPRAY TEST

- The product is insect and termite resistant for its lifespan.
- The product is effectively mould/mildew resistant.
- The product is effectively resistant to the erosion caused by algae
- No abnormality detected on the surface of the product after 96-hour salt spray test.
  The product can be used as ship deck, coastal walkways and flooring of scenic viewpoints or bridges.

FIRE RESISTANCE PROPERTIES

Britedeck products are not flammable. However, persistent high temperature will cause the release of toxic fumes.

The material will start softening under high temperature, and its bearing capacity will notably decrease. In the case of 600°C heat source placed 1000mm directly above the material, it MOE will decrease by 60% and 80% after 60 seconds and 100 seconds respectively.

The fire resistance level of Britedeck material is classified as B-1, according to BS EN 476 standard. This indicates the material is applicable for use in building decorative material.

HAZARDOUS SUBSTANCES INFORMATION

The product is produced with co-extrusion process for wood-plastic material. As a socially and environmentally responsible enterprise, we refuse the use of any toxic or harmful substances through the whole production process from formula design to raw material procurement. Hazardous substances information of the product is shown below:

- Lead (Pb) - Must not exceed 200ppm for both coating and core. The test result is [Undetectable].
- Formaldehyde Emission - The test result for BettoWood's material is [Undetectable], according to BS EN 14041:2018 standard.
- Pentachlorophenol (PCP) - The test result is [Undetectable].

PLEASE NOTE: The indicators mentioned in this manual are lab test values of samples of this product, and shall not be viewed as Britedeck's guarantee for product specifications. This manual is for reference purpose only for design or construction entities. Please contact our product engineering department for any advice on compliance with regulatory requirements. We do not guarantee the time-applicability of this manual. Please contact your CS manager for the latest version.

BRITE
COMPOSITE DECKING SOLUTIONS

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