



COMPOSITE DECKING

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Logical Decking

Overview



The Composite Decking board from Logical Plastic Industries is no ordinary deck board. Made with both PVC and wood, this product provides you with their unique properties rolled into one single base material with the low maintenance and durability of PVC and the appearance and strength of wood. The result of this is a decking product of extremely high quality, which exhibits excellent slip resistant properties tested against the Health and Safety Executive's grading system, as well as excellent resistance to organic growth matter. An accelerated weathering test further strengthens the view that our composite decking provides the perfect performance criteria. Composite is a material that is strong, resilient, water resistant, low maintenance, slip resistant, combined with an option for an attractive ribbed or brushed finish, as well as a range of colours to suit your particular application.

Decking that is Safe, Durable and Carefree

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Easy To Clean

No Chemical Cleaners required, just soap, water, a non abrasive cloth, or simply a jet wash.



Resistant to Water

Designed for use in Marine applications



Colourfast

No treatment required to maintain the colour. Does not 'grey' with age as experienced with unprotected timber.



Environmentally Friendly

All deck board are 100% recyclable, with a natural appearance.



Slip Resistant

Whether wet or dry, non-splinter, concealed fixings.



Low Maintenance

No staining, painting or sealing required.



Rot Resistant

No wood preservative required to extend life.



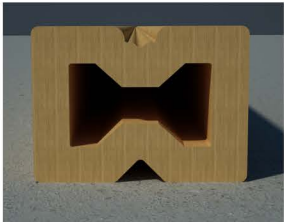


Fire Resistant

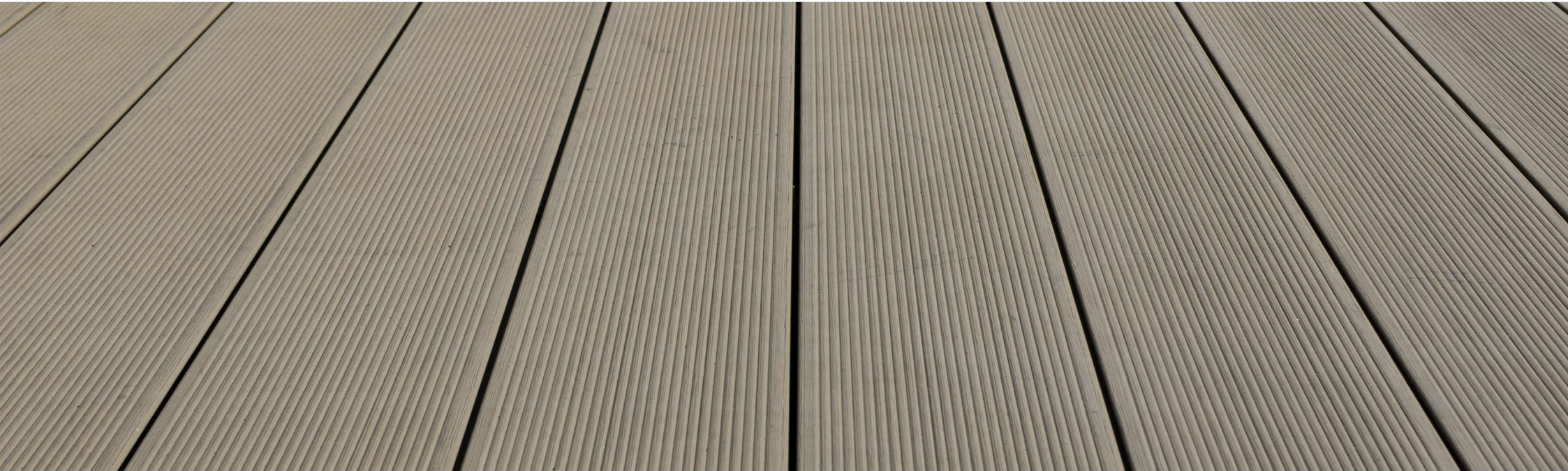
When exposed to flame, our product will self extinguish.

Decking that is Safe, Durable and Carefree

Add a beautiful composite deck to your home and add years of carefree outdoor enjoyment. This low maintenance decking is safe and extremely durable. Made of recycled material, Logical Decking doesn't need paint, stain or sealer. It resists mildew, rotting and warping. And unlike traditional wood, this handsome surface is splinter-free. Great for kids, pets and your own bare feet. Our Decking has all the warmth and feel of wood without the associated maintenance problems, making it more durable and easier to live with, it is ideal for the home, hotels, beach clubs and marina markets.

Decking
Data Table

Deck Board	Joist	Starter Clip	Screw	Finishing Angle	Hidden Deck Fastener
					
WPC PVC	WPC VPC	Stainless Steel	Stainless Steel	WPC PVC	PVC
146 x 23mm	41 x 30mm	1x 30mm	4 x 30mm	48 x 48mm	50 x 17mm
4000mm	4000mm	N/A	N/A	4000mm	N/A



Logical Composite Decking is the result of two years' research, development and product evaluation. During the development cycle, Logical Plastics evaluated products and materials currently on the market. Concerns were expressed with regard to the variability found with some recycled materials. Unable to satisfy ourselves that consistent product quality could be achieved with the samples tested, Logical Plastics made the decision to work exclusively with 80% virgin polymers.

Investigations led us to the conclusion that raw material selection was a vital consideration. Discussions ensued with potential customers and further concerns were raised that when in use, some of the composites were deflecting more than anticipated, with this deflection becoming permanent with time. We therefore, determined that flexural modulus and bend strength were the key design parameters.



Having established the core physical properties, we then focused on performance, in particular slip resistance, growth of organic matter on the deck surface and weather ability. Immersion tests showed that the Logical Composite Decking exhibited the least organic growth when compared with typical Recycled Polyethylene Decking filled with wood flour or rice hulls, thus improving the slip resistance in service. The form and finish of Logical Plastics decking exhibits excellent slip resistance when tested against the Health and Safety Executive's published grading system. Accelerated weathering results further reinforced the view that virgin PVC / WPC gives excellent performance, as would be anticipated, with the long history of PVC-U as an exterior product. When compared with hollow or solid recycled polyethylene decking, the Logical Plastics Deck outperformed all samples tested in terms of durability and LAB colour shift.

Slip Test Results (independently verified)

Dry Board: HSE Classification Extremely low slip potential

Wet Board: HSE Classification low slip potential

It has been reported that solid boards perform better than hollow boards. It should be noted though the case is made, “based on boards of similar dimensions and material make up.” The real debate should be based on the results achieved with firstly the base material and secondly the board itself, irrespective of design or material. Facts resulting from laboratory analysis comparing board for board, show significant differences in performance. Internal and external sources were used to conduct a range of tests, coupled with a comparison of published data.

Water Absorption: The below test results are based on a 24-hour test. In our laboratory we extended the water immersion test with the following findings after 14 days:

Logical Decking Board	4.5%
Hollow Recycled PE with Rice Hulls	9.5%
Hollow Recycled PE with Wood Flour	17%
Solid Recycled PE with Wood Flour	20%

The argument of hollow VS solid has far less relevance than material selection. The choice between recycled polyethylene as a feedstock or PVC should be made on performance criteria. If we consider the Flexural Modullus, Bend Strength, Burning Behaviour and Tensile Creep (a critical structural test rarely given for polyethylene), then PVC based Wood Plastic Composites become an obvious choice.



PVC and Sustainability

Many misconceptions exist in terms of the environmental credentials of PVC-U. Less than 50% of the feed stock used in the manufacture of PVC is oil-based derivatives, unlike other bulk polymers, such as Low Density Polyethylene and High Density Polyethylene, where oil derivatives are the major ingredient. PVC primary feed stocks are Common Salt (57%) and Ethylene (43%). In more recent times, the reliance on oil derived ethylene has been further reduced with the production of ethylene from sugar. With respect to PVC/WPC, the ethylene requirement is further reduced by the addition of 50% wood flour. In this regard, Logical has made a decision to use wood flour that carries certification, further enhancing the sustainability credentials. The recycling of WPC/PVC is handled directly through Logical, taking the benefit of our in-house recycling facility. Currently, very little WPC is entering the recycle market, however, as volumes grow, the industry will inevitably expand its recycling capabilities. The market requirement for recycled quality WPC is far greater than the current availability.



Slip Resistance Tests

Increasing Safety by reducing risk Test 1 TRRL 55

Customer Name:	Logical
Test Number:	BS-2345785
Date of Test:	12/09/2012
Date of Application:	N/A
On Site:	Lab Test
Pendulum Calibration Number:	Wessex - C1973
Pendulum Serial Number:	SK1595
Slide Type & Certificate No:	55 & 96
Contaminate Description:	Water
Surface:	Composite Decking

Wet A	54 53 52 52 51 51 50 51	51 PTV
Wet B	53 53 53 52 53 52 52 51	53 PTV
Dry	75 74 74 74 74 75 74 74	74 PTV

HSE Guidelines	0-24	High Risk For Slip Potential
	25-30	Medium Risk For Slip Potential
	36+	Low Risk For slip Potential
	60+	Extremely Low Risk



Density	ISO 1183-1	Method A	1,398	Kg/m3
HDT	ISO 75	Method A	1,80Mpa	77,8
		Method B	0,45Mpa	79
Tensile Properties	ISO 527/1B	E-Modulus	5841	Mpa
		Tensile Strength	35,45	Mpa
		Strain at Break	0,85	%
Brinell Hardness	EN 1534	3KN	171	Mpa
Water Absorption	EN 317	24 Hours	Thickness Swelling	1,47
			Weight Increase	1.1
Flexural Properties	ISO 178	E-Modulus	Extrusion Direction	5298
		Tensile Strength	Extrusion Direction	64,31
		Strain at Break	Extrusion Direction	1,24
Tensile Creep	ISO 899-11	30°C/9 Mpa	Elongation 480h	0,156
Resistance to soil inhabiting soft rotting microfungi	PRCEN/TS 15534-1 Annex D	Durability Class	1	Class
Linear Thermal Expansion	ISO 11359-2	Extrusion Direction	0,020	mm/m°C
Burning Behaviour	ISO 4589-2	LOI	26,0	%
Vicat Temperature	ISO 306	Method B50	89,7	°C
Reaction to Fire	NF P 92-501 NBN S21-203 DIN 4102-1	Epirator	M4	Class
		Epirator	A4	Class
		Kleinbrenner	B2	Class



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