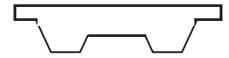


Specifications and Installation Instructions

Dimensions of plank:

Timber grain finish: 195mm wide x 50mm thick x up to 3.0 metres long, weight 5.50 Kg per metre.
 Grooved surface finish: 195mm wide x 55mm thick x up to 3.6 metres long, weight 5.80 Kg per metre.



"W" cross section

Installation:

The material can be handled and machined using the same equipment used for handling timber components. Tools must be sharp and eye and hearing protection worn together with a dust mask. Installation DVD is available on the website www.replas.com.au.

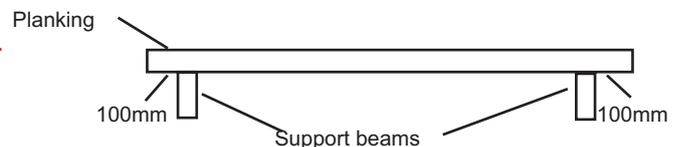
Cutting is best done with a circular saw using a blade with as few teeth per inch as is available. A handsaw can also be used. When cutting, care must be taken to avoid overheating the material and clogging the cutting blade with melted plastic. When this occurs it is usually caused by using blunt tools or cutting too slowly. The material can easily be routed but cutting tools must be sharp.

The planking can be bolted, nailed or screwed to the supporting structure but in the case of nailing or screwing, a pilot hole must be drilled of slightly larger diameter than the fastener. Bolts must have a clearance hole drilled to accept the size of bolt being used.

Enduroplanks™ are not rectangular but are a "W" cross section as shown above. The planks are 195mm wide and must be fastened with a 5mm gap between planks; this gives an effective coverage of 200mm per board. No shrinkage will occur so no allowance need be made.

Supporting Structure. The supporting structure must be designed to cause the planking to span no more than 700mm. The recommended span is 600mm or less. A span of 700mm will give adequate support but slight flexing will occur which may be disconcerting to some users of the structure.

Overhang of the planking at each side should not be more than 100mm.



Slip Resistance:

Both the timber finish and the grooved planking have been tested for slip resistance to AS/NZS 4586 - 1999 Slip resistance Classification of New Pedestrian Surface Materials, Appendices A-D

The testing was performed by AdvancedTechnology Testing and Research, a division of Engineering Materials Evaluation Pty Ltd, and Sustainable Slip resistance and Tiling Services, a division of CSIRO.

The following is a test report summary issued by the testing body. Full test results are available on request.

Specimen	Test Direction	Test	Result	Class
Timber Finish	Parallel	Dry Floor Friction	0.60	F
Grooved Finish	Perpendicular	Dry Floor Friction	0.60	F
Timber finish	Parallel	Wet pendulum	33	Y
Timber Finish	Perpendicular	Wet pendulum	40	X
Grooved Finish	Diagonal	Wet pendulum	29	Y
Grooved Finish	Perpendicular	Wet pendulum	45	W
Timber Finish	Parallel	Wet/barefoot ramp	17 degrees	A
Timber Finish	Perpendicular	Wet/barefoot ramp	28 degrees	B
Grooved Finish	Parallel	Wet/barefoot ramp	25 degrees	B
Grooved Finish	Perpendicular	Wet/barefoot ramp	35 degrees	C
Timber Finish	Parallel	Oil-Wet ramp	11.6 degrees	R10
Timber finish	Perpendicular	Oil-Wet ramp	14.4 degrees	R10
Grooved Finish	Parallel	Oil-Wet ramp	11.2 degrees	R10
Grooved Finish	Perpendicular	Oil-Wet ramp	15.1 degrees	R10

U.V. Stability. It has been determined that weathering of an exposed plastic surface occurs at a maximum rate of 0.003 inches per year and that the mechanical properties of the plastic actually increase over time.

(Weathering Effects on Mechanical Properties of Recycled HDPE Based Plastic Lumber, Jennifer K. Lynch, et al. Rutgers university ANTEC 2001p. 2738-2740)

Finish of Enduroplank™

Polymer Knots

Due to the plank being made from a range of mixed recycled polymers the finish may contain polymer knots. Polymer knots are caused by the mould running chilled or by not enough polymer in one spot. Planks that have polymer knots bigger than a 50 cent piece and have 2 or more in the one plank are considered rejects. Just like wood has knots plastic also may contain polymer knots. Polymer knots are when the fins on the grooved planks look unfinished on several fins. Please see the picture below which gives an example of a polymer knot.

Expansion and Shrinkage

Due to shrinkage and expansion of the plastic the lines between the planks may not line up with other planks; care during the installation will minimize this problem. On some occasions even with the greatest care the lines will not line up as the gap between the lines can vary from one end to the other.

Color Variance

Due to the recycled content the color from plank to plank may be different



Polymer Knot



Line Variations

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Web Site www.replas.com.au Email: info@replas.com.au

Enduroplank™

Specifications and Installation Instructions

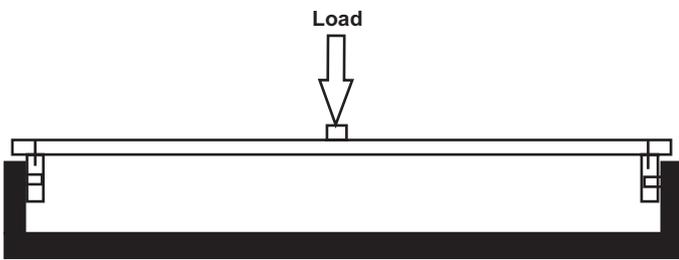
Structural Strength

Testing was carried out by the Monash University Centre for Advanced Materials Technology. Both timber finish and grooved finish planking were tested.

Test Description:

The planking was subjected to testing wherein a length of planking, supported over 795mm and fastened at each end to timber blocks, was loaded over a 50mm wide strip across the width of the plank.

The load was applied to the centre of the plank and increased at a rate of 100mm/min. Readings were taken of the deflection of the plank at various loads and the result recorded.



The timber blocks were prevented from rotating by being fastened to a rigid metal support. Planks were fastened to the timber supports by means of 75mm Bugle Screws.

Flexure Load kN	Flexure Extension mm
1.0	4.9
2.0	9.8
3.0	18
4.0	27
Load at Break	Extension at Break
4.8 kN	45mm

Table 1. Load - Elongation Curve for the sample with the wood grain surface texture which failed at the lowest load. Testing rate was 100mm/min. All three of the samples failed at this load or more. One sample failed at a load of more than 6 kN. This was the only sample to show any significant deformation at the screwed down ends, indicating that this means of fastening can withstand at least 4.5kN in this situation. One sample showed a “two step” failure curve with failure occurring in one web before the other web failed.

Enduroplank™

Specifications and Installation Instructions

Flexure Load kN	Flexure Extension mm
1.0	6
2.0	13
3.0	21
4.0	33
Load at Break	Extension at Break
4.7 kN	50mm

Table 2. Load - Elongation Curve for the sample with the geometric ribbed surface texture which failed at the lowest load. Testing rate was 100mm/min.
All three of the samples failed at this load or more.

The results showed good repeatability, indicating good material consistency, both within the sample sets and between batches used to produce the two different surface finishes.

Please note: The report has been paraphrased for the sake of clarity. A copy of the original report will be sent on request.

The test results were supplied in the form of graphs, these are reproduced on page 5 of this document.

Enduroplank™

Specifications and Installation Instructions

TESTING OF RECYCLED PLASTIC PLANKS: ADJUNCT Planks with Ends Constrained (Bolted)

Plastic Planks of width 195mm with a cross section that includes two stiffening ribs on the underside were supplied by Repeat Plastics, and were tested at Monash University on Monday, February 14, 2005.

The testing geometry had the load being applied centrally between two supports, and where the ends of the planks were each fastened to a pine block by two screws through the web. The pine blocks were prevented from rotating by being bolted to a rigid metal section. The load was applied through a 50mm wide strip of timber across the width of the plank. The span from the inner edges of pine blocks was 745mm and the distance between the screws along the plank was 790mm. The planks were of two types, one set of three having a wood grain like upper surface, the other three having a geometric ribbed type of surface.

In an earlier report the load-displacement curves for the tests was given, and this in all cases was linear up to a load of 2.0kn, where the deflection was about 10mm. Due to the relatively small deflections involved, it is possible in this linear region to predict the deflections for given loads if the spans for the same planks are reduced. The following table gives such predictions.

SPAN (mm)	LOAD (kN)		
	1.0	1.5	2.0
800	4.9	7.4	9.8
600	2.1	3.1	4.1
400	0.6	0.9	1.2

Table: Deflections (mm) for a given load (kN) and span (mm) for the wood grain surface planks. The 800 mm deflections are experimentally determined, and the shorter span deflections calculated from these.

The table gives deflections expected for the given centrally applied loads, where the deflections for the 800mm span are taken directly from the experimental results, and the deflections for the shorter spans have been calculated from these. The results are determined for the wood grain finish, but are also applicable to the ribbed pattern surface planks.

It is not possible to reliably calculate failure loads for shorter spans, but it can be said that shorter span planks will fail at higher loads than the longer planks.

Associate Professor Graham Edward
Tuesday, March 8 2005

IMPORTANT NOTE:

REPEAT PLASTICS WILL NEED TO BE CONSULTED REGARDING THE PARTICULAR POLYMERS USED, BUT APPARENTLY ALL ARE POLYETHYLENE RECYCLED FROM DIFFERENT SOURCES.

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Specifications and Installation Instructions

The results of the tests are shown as Load – displacement curves for the two types of plank in Figures 3 and 4.

Reproductions of the graphs supplied with the original report.

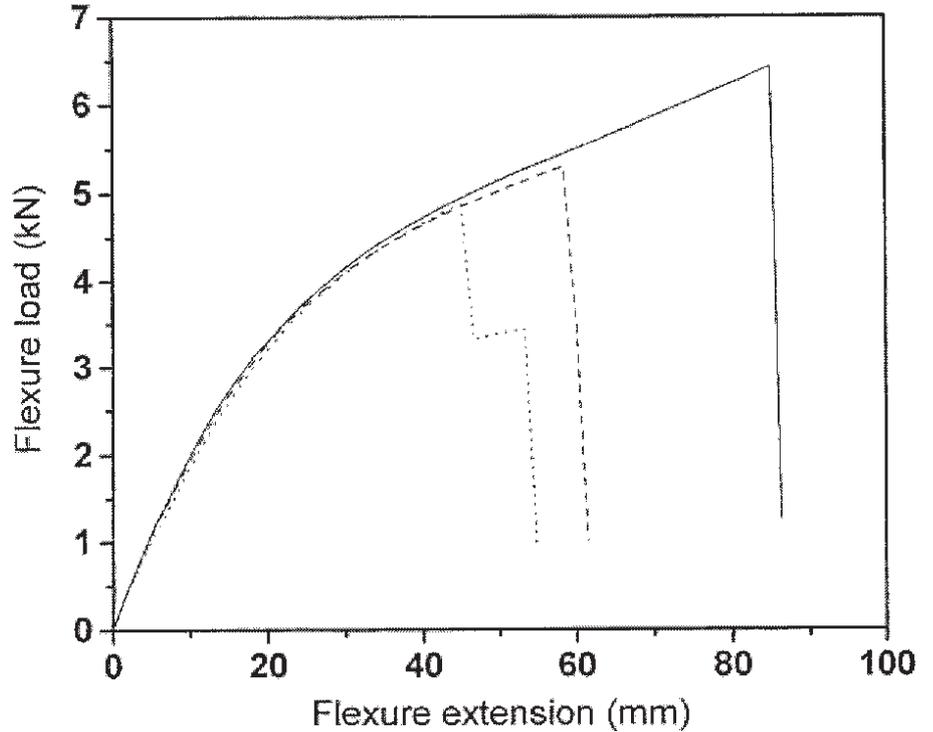


FIGURE 3: Load – elongation curves for the three samples with the wood-grain surface texture. The testing rate was 100mm/min.

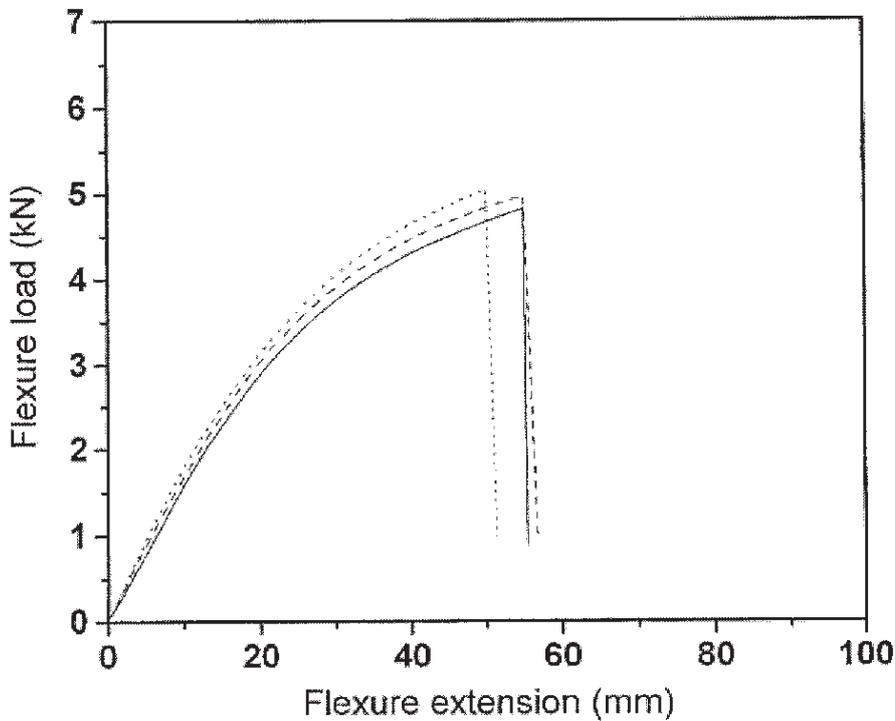
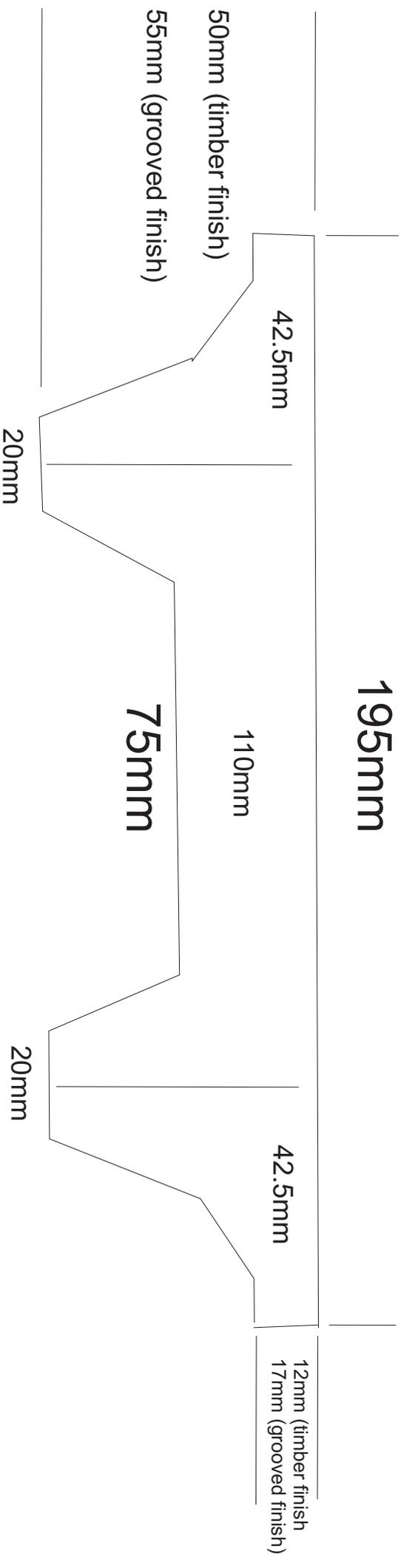


FIGURE 4: Load – elongation curves for the three samples with the geometric-ribbed surface texture. The testing rate was 100mm/min.

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Enduroplank™ cross section dimensions (nominal)