

Evaluation of flexural properties of WPC-Decking according to EN 15534-4

Scope

The main impact to decking boards is bending caused by humans or heavy objects. This behaviour is evaluated by measuring the flexural properties. Bending behaviour of decking boards made from WPC is evaluated according to EN 15534-4 and EN 15534-1. The standard EN 15534-4 requires a minimum force and a maximum strain in a 3-point bending test.

Client

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Material:

Material is a WPC-decking board in form of a hollow profile. Product name declared from IDECK is "DURO".



Figure 1: Example of WPC decking profile DURO.

Methods:

Test is designed according to EN 15534-4 chapter 4.5.2 for decking boards and carried out according to EN 15534-1 Annex A. General principle is a 3-point bending test. Distance of supporters is 400 mm. Length of boards is 1000 mm. Climate during test is 20°C and 65% relative humidity. Crosshead speed is 11,84 mm/min. 10 replicates are used.

Results:

Results are summarised in table 1. All replicates exhibited higher bending forces and lower bending strain at 500 N as required from EN 15534-4. Therefore the material passes the test regarding flexural properties. Mean values and single value are within the required limitations.

Table 1: Flexural properties of WPC decking boards.

	bending force [N]	bending strain at 500 N [mm]
mean value	3889	0,54
minimal single value	3784	
maximal single value		0,55
requirement (single)	≥ 3300 (≥ 3000)	$\leq 2,0$ ($\leq 2,5$)
evaluation	pass	pass