

Test report no. 091542.1 - Hv

ENGLISH VERSION

Principal Argeton GmbH  
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Date of commission 13.05.2009 - Herr Gummels

Commission Determining the dimensions and bending strength of ArGeTon-Terracotta Rainscreen  
Size l x b x h = 1200 x 300 x 30 mm (colour red)

The test report covers five pages.

The testing material has been consumed.

In case of dispute, the original German version is decisive.

Der Prüfbericht darf nur ungekürzt veröffentlicht werden. Die auszugsweise Wiedergabe bedarf der schriftlichen Zustimmung der Prüfanstalt. Die Ergebnisse beziehen sich nur auf das geprüfte Probenmaterial.

## 1. Introduction

The MPA BAU HANNOVER was commissioned to determine the dimensions and surface quality according to DIN EN ISO 10545-2 and the bending strength according to DIN EN 538 for 10 ARGETON-rainscreen plates.

## 2. Delivery of test samples

Delivered on 13th May 2009 by the Principal:

- about 15 rainscreen plates, red, l x b x d = 1200 x 300 x 30 mm

## 3. Test results

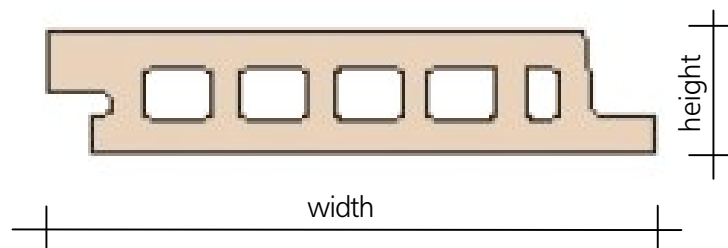
### 3.1 Determining the dimensions and surface quality

The test was carried out according to EN ISO 10545-2 on 10 rainscreen plates. The results are given in tables 2 to 4.

Table 2: Dimensions

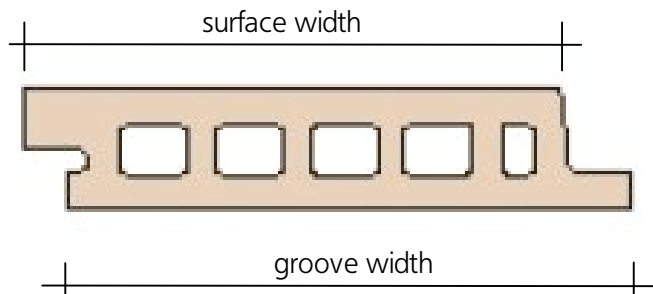
sample no.	length			width			height				
	1 mm	2 mm	mean mm	1 mm	2 mm	mean mm	1 mm	2 mm	3 mm	4 mm	mean mm
1	1192.0	1192.0	1192.0	312.5	312.4	312.5	29.7	29.9	29.6	29.5	29.7
2	1192.5	1192.0	1192.3	312.8	312.2	312.5	29.5	29.6	29.6	29.5	29.5
3	1192.0	1192.0	1192.0	313.4	312.9	313.2	29.7	29.6	29.6	29.5	29.6
4	1192.0	1192.5	1192.3	312.4	313.9	313.1	29.8	29.4	29.5	29.5	29.5
5	1192.0	1192.0	1192.0	313.1	313.5	313.3	29.5	29.6	29.5	29.5	29.5
6	1192.0	1192.5	1192.3	313.9	313.6	313.7	29.8	30.0	29.6	29.7	29.7
7	1192.0	1192.0	1192.0	312.8	313.1	313.0	29.8	29.8	29.6	29.7	29.7
8	1192.0	1192.0	1192.0	312.9	313.1	313.0	29.8	29.8	29.6	29.6	29.7
9	1192.0	1192.5	1192.3	312.9	313.4	313.1	29.8	29.7	29.5	29.6	29.6
10.	1192.0	1192.0	1192.0	313.2	313.5	313.3	29.6	29.8	29.6	29.6	29.6
mean	---	---	1192.1	---	---	313.1	---	---	---	---	29.6

length in third dimension



**Table 2: dimensions (continued)**

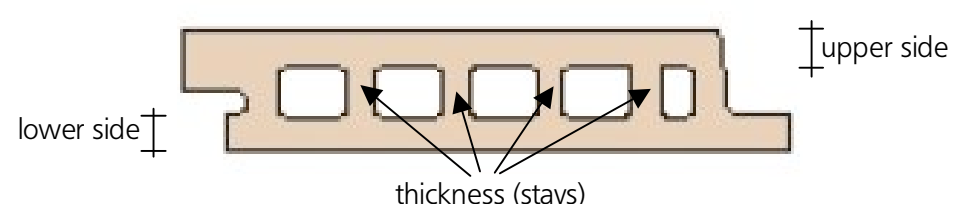
specimen no. ---	Groove width				Surface width			
	1 mm	2 mm	3 mm	mean mm	1 mm	2 mm	3 mm	mean mm
1	294.1	294.4	293.9	294.1	287.8	288.0	288.3	288.1
2	293.8	294.1	294.1	294.0	287.8	288.0	287.9	287.9
3	294.1	294.0	293.9	294.0	288.0	287.6	288.4	288.0
4	293.7	293.8	293.9	293.8	287.5	287.6	287.6	287.6
5	294.2	294.3	294.1	294.2	288.1	287.8	287.8	287.9
6	294.3	294.2	294.3	294.3	287.9	288.1	288.1	288.0
7	294.1	294.4	294.2	294.2	287.9	287.8	287.8	287.8
8	294.0	294.3	294.3	294.2	287.9	287.9	287.8	287.9
9	294.1	294.4	294.2	294.2	288.2	287.9	288.0	288.0
10	293.6	294.2	294.2	294.0	288.1	288.3	288.3	288.2
mean	---	---	---	294.1	---	---	---	287.9

The diagram shows a cross-section of a specimen with five rectangular grooves. A horizontal dimension line above the specimen is labeled 'surface width', and a horizontal dimension line below the specimen is labeled 'groove width'.

**Table 2: dimensions (continued)**

spec. Nr. ---	upper side			lower side			thickness of stays		
	1 mm	2 mm	mean mm	1 mm	2 mm	mean mm	min. mm	max. mm	mean mm
1	7.3	7.9	7.6	7.8	8.1	8.0	7.5	8.6	8.0
2	7.4	7.7	7.5	7.4	8.3	7.9	7.5	8.8	8.1
3	7.5	8.2	7.8	7.4	8.2	7.8	7.5	8.6	8.1
4	7.3	7.6	7.4	7.4	8.0	7.7	7.4	8.6	8.0
5	7.4	7.5	7.5	7.5	8.0	7.8	7.4	8.6	8.0
6	7.3	7.6	7.4	7.5	8.4	7.9	7.5	8.6	8.1
7	7.2	7.9	7.5	7.6	8.1	7.8	7.4	8.7	8.1
8	7.3	7.8	7.5	7.4	8.2	7.8	7.5	8.7	8.1
9	7.3	8.1	7.7	7.5	8.1	7.8	7.4	8.6	8.0
10	7.6	8.1	7.9	7.6	8.5	8.0	7.4	8.6	8.0
mean	---	---	7.6	---	---	7.9	---	---	8.0

The diagram shows a cross-section of a specimen with five rectangular grooves. Dimension lines indicate the 'upper side' and 'lower side' of the specimen. Arrows point to the grooves, with a label 'thickness (stays)' indicating the measurement of the groove depth.

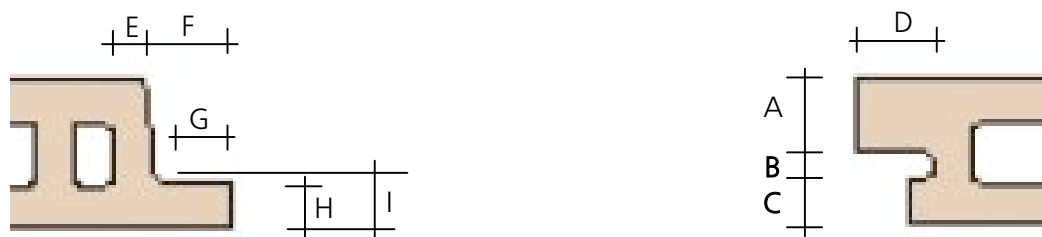
**Table 3: surface quality**

sample no. ---	curvature <sup>1)</sup>			state of surface (description)
	1 mm	2 mm	mean mm	
1	-1.6	-1.2	-1.4	uniform, very few small open pores
2	-1.4	-1.0	-1.2	uniform, very few small open pores
3	-1.4	-1.1	-1.3	uniform, very few small open pores
4	-1.2	-1.3	-1.2	uniform, very few small open pores
5	-1.3	-1.4	-1.3	uniform, very few small open pores
6	-1.4	-1.6	-1.5	uniform, very few small open pores
7	-1.4	-1.6	-1.5	uniform, very few small open pores and small pieces broken off
8	-1.4	-1.6	-1.5	uniform, very few small open pores
9	-1.4	-1.3	-1.4	uniform, very few small open pores and small pieces broken off
10	-1.3	-1.4	-1.4	uniform, very few small open pores and small pieces broken off

<sup>1)</sup> positive value = curvature downwards, negative value = curvature upwards

**Table 4: gauging points at stays**

spec. no.	A mm	B mm	C mm	D mm	E mm	F mm	G mm	H mm	I mm
1	14.8	6.0	8.1	25.0	9.5	11.7	23.2	8.2	11.5
2	14.9	6.6	8.1	24.8	9.0	11.6	23.3	8.2	11.8
3	15.0	6.6	8.1	24.9	9.0	11.1	23,2	8.2	11.7
4	14.7	6,6	8.0	24.9	9.3	11.8	23.5	8.1	11.9
5	14.7	6.7	8.1	25.0	9.1	11.5	23.6	8.2	11.3
6	14.7	6.3	8.1	24.9	9.1	11.8	23.3	8.3	11.9
7	14.7	6,5	8.1	24.7	9.0	11.4	23.9	8.3	12.0
8	14,8	6.6	8.2	24.9	9.0	11.0	23.4	8.3	11.3
9	14.7	6.5	8.4	25.0	9.1	11.7	23.9	8.4	11.8
10	14.7	6.7	8.0	24.9	9.0	11.1	23.1	8.6	11.3
mean	14.8	6.5	8.1	24.9	9.1	11.5	23.4	8.3	11.7



### 3.2 Determining the bending strength according to DIN EN 538

The bending strength was tested according to DIN EN 538 on 10 rainscreen plates. The test results are shown in Table 5.

**Table 5: bending strength according to DIN EN 538**

specimen no.	span mm	breaking load kN
1	800	3.30
2	800	3.05
3	800	3.21
4	800	3.19
5	800	3.03
6	800	2.97
7	800	3.15
8	800	3.19
9	800	3.23
10	800	3.41
Mean fracture load	—	<b>3.17</b>
Smallest fracture load	—	<b>2.97</b>

Hannover, 16th June 2009  
Head of the Testing Institute  
By Order

(Dr.-Ing. Höveling)