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TEST REPORT

Clients Mark	Brindle Blend	Date Received	15.10.07
Your Reference	Order N ^o : 24924	Date Tested	05.11.07
Lab Reference	BT07/749/TAS	Date Issued	16.01.08

EN 539-2 CLAY ROOFING TILES FOR DISCONTINUOUS LAYING DETERMINATION OF PHYSICAL CHARACTERISTICS – PART 2: TEST FOR FROST RESISTANCE

Method E (Single European Method)

1. SAMPLES

6 Clay Roofing Tiles: Brindle Blend

2. TEST PROCEDURE

2.1 Saturation of Tiles

The samples were dried at 110°C, weighed and examined for existing defects. Then progressively immersed in water at ambient temperature over a period of 5 days. After the tiles are fully immersed they are then left to soak for a further 72 hours, then they are removed and weighed. The water absorption results are given in Table 2.

2.2 Freeze/Thaw Tests

The tiles were tested according to the method described in method EN 539-2, Test Method E using the apparatus illustrated in that standard. An extra 400 cycles were performed at the request of the client.

2.3 Assessment of Freeze/Thaw Resistance

The tiles are assessed for damage using the criteria stated in Table 1.

Table 1 – (Example)

		Front	Back
1	Pit	-	-
2	Hair crack	-	-
3	Nascent crack	-	-
4	Surface crack	X	X
5	Surface damage (chip, peeling, flaking)	X	X
6	Structural	X	X
7	Loss of interlocking ribs	X	X
8	Break	X	X
9	Delamination	X	X
X = unacceptable - = acceptable			

2.4 Results

Table 2

Tile N°	Water Absorption (%)	Frost Damage							
		30 Cycles		90 Cycles		150 Cycles		250 Cycles	
		Front	Back	Front	Back	Front	Back	Front	Back
1	3.2	ND	ND	ND	ND	ND	ND	ND	ND
2	3.1	ND	ND	ND	ND	ND	ND	ND	ND
3	2.3	ND	ND	ND	ND	ND	ND	ND	ND
4	3.9	ND	ND	ND	ND	ND	ND	ND	ND
5	3.4	ND	ND	ND	ND	ND	ND	ND	ND
6	3.4	ND	ND	ND	ND	ND	ND	ND	ND
MEAN	3.2	ND	ND	ND	ND	ND	ND	ND	ND

Note: for reporting purposes 'ND' indicates no damage.

Tile N°	Frost Damage			
	350 Cycles		400 Cycles	
	Front	Back	Front	Back
1	ND	ND	ND	ND
2	ND	ND	ND	ND
3	ND	ND	ND	ND
4	ND	ND	ND	ND
5	ND	ND	ND	ND
6	ND	ND	ND	ND
MEAN	ND	ND	ND	ND

Note: for reporting purposes 'ND' indicates no damage.

2.4 Results (continued)

The tiles were examined after 30, 90, 150, 250, 350 and 400 cycles for signs of damage due to the action of frost.

No damage was observed between 90 and 150 cycles as per the standard.

3. SUMMARY AND CONCLUSIONS

EN539-2, Test Method E requires that when tiles are tested by the method described they shall withstand 150 cycles without damage before they can be regarded as frost resistant for use in the UK and Ireland.

As the tiles achieved 150 cycles before damage occurred, they meet the requirements for the UK and Ireland.

(End of Test Report)

C. Mullington
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