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TEST REPORT

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PROJECT CODE : D0114
PROJECT TITLE : GENERAL TESTING

SUBJECTS : 1) SLANT SHEAR BOND STRENGTH
2) TOTAL SOLID CONTENT

TEST STANDARDS : 1) ASTM C1042: 1999
2) ISO 124: 2014

JOB REF. : ADM/17/04005
CLIENT SAMPLE REFERENCE : WARRIOR W-1 CEMENT STRENGTHENER
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TESTING OF BONDING AGENT

Test Description :

1. Slant Shear Bond Strength

Sample Preparation:

a) Type I

The latex was brushed onto the diagonal face of the hardened half cylinder. Within 10 mins of applying the bonding agent, a 15 mm thick layer of the mortar was placed over the coated surface and the mortar was consolidated by using a tamping rod. The mortar was filled to the rim and compacted by a rod 10 times.

b) Type II

The cement and latex slurry were prepared by mixing Type I Portland cement with latex (approx. 50 ml of latex to 100g of cement). The slurry was applied to the diagonal face of the hardened half cylinders. Within 10 mins of applying the bonding agent, a 15 mm thick layer of the mortar was placed over the coated surface and consolidated by using a tamping rod. The mortar was filled to the rim and compacted by a rod 10 times.

Curing Conditions :

a) Type I : 14 days of air cure.

b) Type II : 7 days of air cure, 7 days of water cure

2. Solid Content Test

Sample Preparation:

2g of bonding agent was poured into a dish. The bonding agent was swirled to ensure that it covered the bottom of the dish. The dish was placed in an oven for 2 hours at 105 °C and removed to be cooled in a dessicator.

Test Results:

A summary of the test results is given in Table 1.

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Table 1. Summary of Test Results

NO.	TESTS		HDB'S ACCEPTANCE CRITERIA	TEST RESULTS	UNIT
1	Slant Shear Bond Strength	Type I	≥ 2.8 N/mm ²	4.7	N/mm ²
		Type II	≥ 8.7 N/mm ²	6.8	N/mm ²
2	Total Solid Content		-	47.6	%

TEST RESULTS:

1. Slant Shear Bond Strength (ASTM C1042: 1999)

SAMPLE REFERENCE		WARRIOR W-1 CEMENT STRENGTHENER			
TYPE OF LATEX	Age at Test: 14 days	TEST 1	TEST 2	TEST 3	AVERAGE
Type I	Bonding Area, mm ²	8541	8541	8541	-
	Slant Shear Bond Strength, N/mm ²	4.4	5.2	4.5	4.7
	Mode of Failure	C	C	C	-
Type II	Bonding Area, mm ²	8541	8541	8541	-
	Slant Shear Bond Strength, N/mm ²	6.1	6.9	7.4	6.8
	Mode of Failure	C	C	C	-

Remarks: a) Mode of Failure: C- in the interface between them
 b) Refer to Figure 2 for mode of failure.

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2. Total Solid Content (ISO 124: 2014)

SAMPLE REFERENCE	WARRIOR W-1 CEMENT STRENGTHENER			
	TEST 1	TEST 2	TEST 3	AVERAGE
TOTAL SOLID CONTENT, %	47.7	47.6	47.6	47.6

Remarks: The test was done by heating at atmospheric pressure, at 105 °C for 2 hours.



Figure 1. Sample as received

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Figure 2. Slant Shear Bond Strength- Mode of Failure (Top: Type I; Bottom: Type II)

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