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November 20, 2015

Project #G102336314  
Letter Report #102336314COQ-002

Dasso USA  
6060 Boat Rock Boulevard SW  
Atlanta, GA 30336  
USA

**Subject: Findings Letter Report 102336314COQ-002**

Dear Avery Chua,

Intertek has conducted non-standard testing for Dasso USA on their XTR Fused Bamboo decking product in accordance with CAN/ULC S107-10 "Standard Methods of Fire Tests of Roof Coverings". Intertek conducted one Spread of Flame, Intermittent Flame Exposure, and Burning Brand Test as requested for research and development purposes.

The samples were received at the evaluation center on the week of the November 9<sup>th</sup>, 2015.

**Test Setup and Equipment:**

The test apparatus was setup on November 13<sup>th</sup>, 2015 and calibrated. Details of the test equipment and calibration can be found in Table 1.1.

A constant air current, was applied uniformly over the top surface of the calibration deck prior to testing and was calibrated at 5.31m/s. The average temperature of the flame was measured with a 1.6mm Type K wire thermocouple located 25mm above the surface and 13mm towards the source of the flame from the test deck. The incline of the test deck was maintained at a 5:12 slope for the calibration; however, this incline was reduced to a 1:12 slope during testing. The ambient conditioning and testing conditions are described in Table 1.2.

**Table 1.1**

Equipment	Intertek ID	Calibration Due Date
Stopwatch	P60626	January 14, 2016
Alnor Anemometer	D6932	September 28, 2016
Fluke Temperature Meter	P51295	April 1, 2016

**Table 1.2**

Test Lab Temperature	12.4°C
Average Flame Temperature	759.77°C
Avg. Test Apparatus Air Velocity	5.31m/s

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**Sample Construction and Conditioning:**

The test decks were constructed in accordance with CAN/ULC-S107-10 Section 5 – Preparation of Samples (for Class A test Decks).

Hardie Board was installed onto the deck surface (to simulate a non-combustible base) with construction screws placed 24 inches on center. Generic underlayment #30 complying with ASTM D4869 Type II was applied on top of the Hardie Board and fastened using cap nails with spacing at 12 inches (304.8mm) on center. Dasso XTR Fused Bamboo roofing product was installed onto 2x2 SPF white lumber battens spaced 16 inches (406.4mm) on center. Battens were installed four inches in from each edge and at the center of the test deck (see installation photos). Dasso XTR Fused Bamboo roofing product was installed in accordance with the manufacturers' installation instructions.

**Testing:**

- A. The test apparatus was set up for the Spread of Flame Test and the observations of the test are described in Table 2.1

**Table 2.1**

Time (min:sec)	Distance (ft)	Observations
0:00	N/A	Start of test
3:22	N/A	Wrinkling on first panel
7:00	N/A	Minor wrinkles forming on second and third panel. Slight discolouration (darkening) on first panel.
10:00	N/A	Specimen stable. End of test.

**Acceptance Level: Class "A" – No flaming beyond deck extents or past 1830mm during the Spread of Flame Test.**



B. The test apparatus was set up for the Intermittent Flame Exposure Test and the observations of the test are described in table 2.2

Table 2.2

Cycle		TIME (min:sec)		Observations/Comments Include on and off cycles
No.	MIn	Ignition Min:Sec	Flame out Min:Sec	
1	Start	NI	NFO	1:40 – wrinkling on first panel No smoke or flaming after flame stopped.
2	4 (3)	NI	NFO	No change to surface or underside No smoke or flaming after flame stopped.
3	8 (6)	NI	NFO	9:58 – Minor wrinkling on second panel No smoke or flaming after flame stopped.
4	12	NI	NFO	Discolouration of first panel at same previous wrinkled location No smoke or flaming after flame stopped.
5	16	NI	NFO	No change No smoke or flaming after flame stopped.
6	20	NI	NFO	No change No smoke or flaming after flame stopped.
7	24	NI	NFO	No change No smoke or flaming after flame stopped.
8	28	NI	NFO	No change No smoke or flaming after flame stopped.
9	32	NI	NFO	No change No smoke or flaming after flame stopped.
10	36	NI	NFO	No change No smoke or flaming after flame stopped.
11	40	NI	NFO	No change No smoke or flaming after flame stopped.
12	44	NI	NFO	No change No smoke or flaming after flame stopped.
13	48	NI	NFO	No change No smoke or flaming after flame stopped.
14	52	NI	NFO	No change No smoke or flaming after flame stopped.
15	56	NI	NFO	No change No smoke or flaming after flame stopped. 58:00 - end of test declared

After Test Observations: No smoke, glow or flaming on test deck. Sample is stable with no reactions.

**Acceptance Level: Class “A” – No flaming on underside of deck, and no reactions after test completion**

C. The test apparatus was set up for the Burning Brand Test and the observations of the test are described in table 2.3

**Table 2.3**

TIME (min:sec)	OBSERVATIONS
0:00	Start of test. Brand placed on deck.
3:17	Flaming between decking and underlayment.
3:46	Slight discolouration behind brand on decking.
4:28	Flaming beyond deck extents underneath decking.
6:14	Smoke escaping from horizontal joint on underside.
7:25	Brand approximately 80% consumed.
8:50	Increase in amount of smoke escaping from underside.
9:30	Increase in flaming beneath decking.
13:26	Brand almost completely consumed.
14:30	Increase in smoke from underside.
16:00	Charring on underside along horizontal and vertical joint.
18:40	Brand completely consumed. "crater-like" hole formed in brand's place.
19:21	Flaming and smoke continues on surface and beneath decking.
22:30	Increase in charring on underside. Approximately 16 inches in length
24:02	2x2s ignition. Flaming beyond deck extents.
25:03	Flaming on underside. End of test declared.

**Acceptance Level: Sample was unable to achieve class "A" rating – flaming on underside of deck.**

**Test Results:**

Intertek has conducted non-standard testing in accordance with CAN/ULC-S107-10 "Standard Methods of Fire Tests of Roof Coverings". For research and development purposes, the following tests were completed for a class "A" rating:

- (1) Spread of Flame Test
- (1) Intermittent Flame Exposure Test
- (1) Burning Brand Test

The results of each test can be found in the table below.

Test	Slope	Result	Class Rating Achieved
Spread of Flame Test	1:12	Pass	Class A
Intermittent Flame Exposure Test	1:12	Pass	Class A
Burning Brand Test	1:12	Fail	N/A

**Test Photos:**

**Decking Installation**



**Spread of Flame Test**

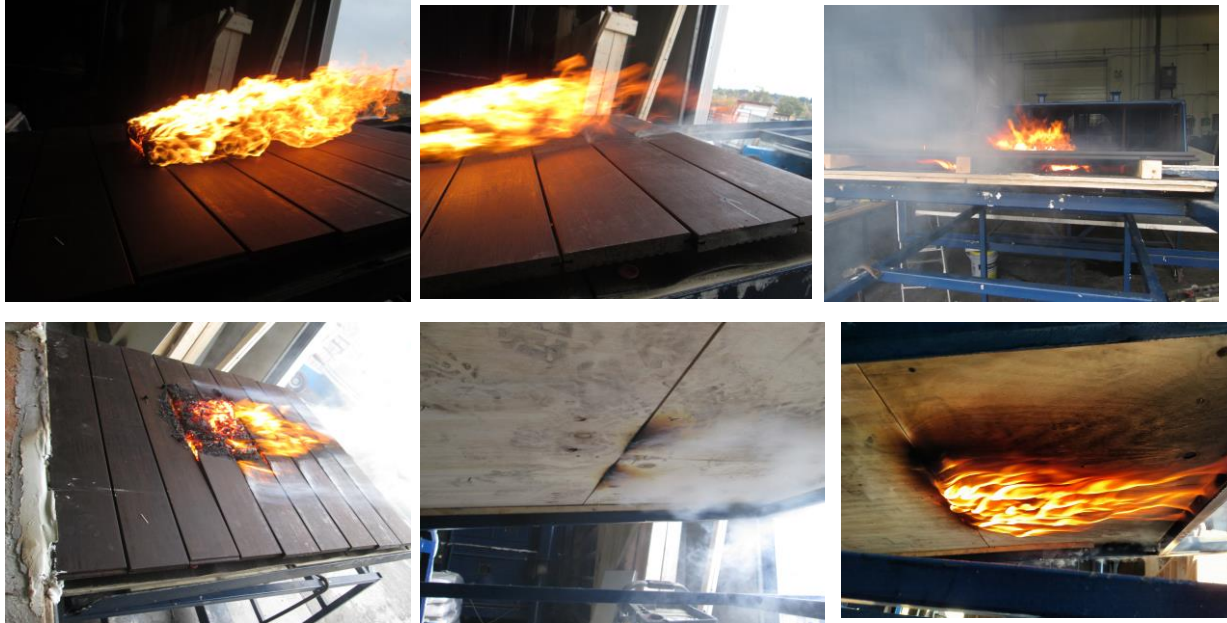


**Intermittent Flame Exposure Test**



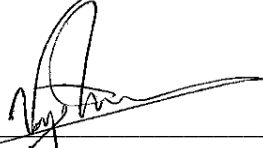


Burning Brand



If there are any questions regarding the results contained in this report, or any of the other services offered by Intertek, please do not hesitate to contact the undersigned.

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