SFM 12-7A-4 (Class B Brand)

PERFORMANCE TEST REPORT

Report No.: F3849.01-121-24
Test Date: December 16th & 22th, 2015

Rendered to:

DASSO USA, LLC
Atlanta, Georgia

PRODUCT TYPE: Deck Boards
SERIES/MODEL: dasso.XTR Bamboo Decking

This report contains in its entirety:

Cover Page:	1 page
Report Body:	9 pages
Graphical Data:	4 pages
Photographs:	4 pages

1.0 Report Issued To: Dasso USA, LLC
6060 Boat Rock Boulevard SW
Atlanta, Georgia 30336

2.0 Test Laboratory: Architectural Testing, Inc., an Intertek company ("Intertek-ATI")
130 Derry Court
York, Pennsylvania 17406-8405
717-764-7700

3.0 Test Method Information:

3.1 Introduction: The purpose of this testing is to evaluate the performance of decks when exposed to direct flames and brands. The under-deck flame exposure test is to determine the heat release rate (HRR) and degradation modes of decks when exposed to a burner flame simulating combustibles beneath the deck. The burning brand exposure test is intended to determine degradation modes of the deck when exposed to a burning brand on the upper surface.

It is important for the user of fire standards and data generated from them to understand the method only exposes the system to one standard exposure. The standard does not address every possible scenario or hazard associated with an actual fire.

3.2 Ignition Source: The ignition source for the under-deck test is a gas burner with a 12 inch by 12 inch diffusion adapter filled with a minimum 4-inch layer of Ottawa sand. The top surface of the burner through which the gas is applied is centered and positioned 27 inches below the surface of the deck.

The gas supply to the burner is C.P. grade propane (99 percent purity). The burner is set to produce a gross heat output of 80 ±4 kW for three minutes. The flow rate is metered throughout the test. The gas burners are controlled with mass flow meters to control the volume of gas to match the heat outputs of the standard.

For the burning brand exposure test, 6 inch by 6 inch brands are oven conditioned at 105 to 120°F for a minimum of 24 hours prior to testing and weight verified to be within 500 ±50 grams. Brands consist of three layers of twelve 1 inch by 1 inch by 12 inch strips of Douglas Fir forming a grid of 6 inch square by 2-1/4 inch thick. Brands are ignited by exposing each 6 inch by 6 inch face for 30 seconds, each 2-1/4 inch by 6 inch face for 30 seconds, and the 6 inch by 6 inch faces again for 30 seconds into the a gas burner with flame temperatures in the range of 1630 ±50°F.

3.0 Test Method Information: (continued)

3.3 Procedure: A burner verification test is run prior to the under-deck test. Verification test involves using oxygen consumption calorimeter to confirm the output. This test is performed for 3 minutes. After the verification test, the specimen is installed into the fixture and the diffusion burner is placed. The collection hood exhaust duct blower is turned on and an initial flow is established. Burner is centered underneath the test deck and then ignited at a fuel flow rate that is known to produce 80 kW of heat output and maintained for 3 minutes. When the burner is shut off, post-test observations are documented for 40 minutes.

For the brand exposure test, a wind tunnel generating air speeds of 12 mph is calibrated according to the procedures of ASTM E108. The test deck is placed 60 inches (from the center of the deck) in front of the wind generator and the brand described under the Section 3.2 is ignited and placed 2.5 inches from the center leading edge of the deck. Exposure is continued until all signs of combustion have ceased or 40 minute period ends.

4.0 Project Summary:

4.1 Product Type: Deck Board

4.2 Model/Series: dasso.XTR Bamboo Decking

4.3 Compliance Statement: Results obtained are tested values and were secured by using the designated test method(s). The specimen(s) were tested and evaluated against the requirements of the standard. A summary of the results is listed in the Test Results section and the complete graphical test data is included in Appendix A of this report.

4.4 Test Date:

Part A: 12/16/2015

Part B: 12/22/2015

4.5 Ambient Conditions:

Part A: 79°F & 68% RH

Part B: 62°F & 59% RH

4.6 Moisture Content: Prior to testing, all materials (deck boards and joist material) were conditioned to a constant weight. The deck components were measured for moisture content and were recorded on the data sheets previous to testing. The results are included in the observations in section 5.

4.7 Test Location: Intertek-ATI test facility in York, Pennsylvania

4.8 Test Sample Source: The test material was supplied to Intertek-ATI from Dasso USA.

4.9 Test Method(s), Practices and/or Classifications:

4.9.1 SFM 12-7A-4, *Materials and Construction Methods for Exterior Wildfire Exposure: Decking* modified to meet San Diego County Code Section 26.3.6.2.1 requirements

4.9.2 ASTM E108-11, *Standard Test Methods for Fire Tests of Roof Coverings*

4.10 List of Official Observers:

Name	Company
Scott Gingrich	Intertek-ATI
Ben Green	Intertek-ATI
Robert George	Intertek-ATI

5.0 Testing & Results:

5.1 Test Assembly: The overall dimensions of the test deck are 24 inches by 28 inches. Below is a detailed description of the components in the assembly:

Test Deck – The ¾ inch by 5-3/4 inch grooved dasso.XTR bamboo deck boards were cut to 24 in. lengths in preparation for the test. Five full width boards were installed with a 1/8 inch spacing between each board. The first full width board was mounted flush with the framing members. The last board was overhung the framing by 1 in.

Framing – Two Douglas Fir 2 in. thick x 6 in. wide x 27 in. long were used as the framing for each test deck.

Fastening System – TigerClaw® TC-120 grooved board hidden deck fasteners were used to attach the decking to the joists. Stainless steel 1-5/8 inch long #6 fasteners were used with the stainless steel TC-120 clips to secure the deck boards to the joists.

Part A – Under-deck Exposure:

Deck #1

Time (min:sec)	Observations
00:00	Moisture of deck boards was 5.0% and joists were 6.6%
00:00	Ignition of burner. Heat output set at 80kW.
01:07	Ignition of Underdeck
03:00	Gas off.
03:05	Smoke and burning continues.
40:00	End Test. No signs of combustion.

5.0 Testing & Results: (continued)

Deck #2

Time (min:sec)	Observations
00:00	Moisture of deck boards was 5.5% and joists were 9.0%
00:00	Ignition of burner. Heat output set at 80kW.
01:11	Ignition of Underdeck
03:00	Gas off.
03:01	Smoke and burning continues.
40:00	End Test. No signs of combustion.

Deck #3

Time (min:sec)	Observations
00:00	Moisture of deck boards was 5.8% and joists were 6.8%
00:00	Ignition of burner. Heat output set at 80kW.
01:00	Ignition of Underdeck
03:00	Gas off.
03:01	Smoke and burning continues.
40:00	End Test. No signs of combustion.

Part B - Burning Brand Exposure using Class "B" Brands:

Deck #1

Time (min:sec)	Event	Observations
0:00	Calibration	Air Speed 11.7 mph / MC Decking 5.7% / MC Joists 7.1%
00:01	Brand Placed on Deck	Start of test
00:20	Ignition	Ignition of test specimen.
14:51	Brand Consumed	Flaming and smoke emits from specimen.
40:00	End Test	No signs of combustion observations stopped.

5.0 Testing & Results: (continued)

Deck #2

Time (min:sec)	Event	Observations
0:00	Calibration	Air Speed 11.7 mph / MC Decking 6.6% / MC Joists 8.5%
00:01	Brand Placed on Deck	Start of test
00:29	Ignition	Ignition of test specimen.
15:06	Brand Consumed	Flaming and smoke emits from the specimen.
40:00	End Test	No signs of combustion observations stopped.

Deck #3

Time (min:sec)	Event	Observations
0:00	Calibration	Air Speed 11.7 mph / MC Decking 7.2% / MC Joists 7.0%
00:01	Brand Placed on Deck	Start of test
00:23	Ignition	Ignition of test specimen.
15:27	Brand Consumed	Flaming and smoke emits from the specimen.
40:00	End Test	No signs of combustion observations stopped.

5.0 Testing & Results: (continued)

Part A – Under-deck Exposure:

Deck #1

SD County Section 26.3.6.2.1 Performance Criteria	Test Observations	Pass/Fail
Effective net peak heat release rate of less than or equal to 25 kW/ft^2 (269 kW/m^2)	The effective net peak heat release rate was 147 kW/m^2	PASS
Absence of sustained flaming at the conclusion of the 40-minute observation period.	No Sustained flaming after 40 minutes of observation time.	PASS
Absence of structural failure of any deck board.	No structural failure	PASS
Absence of falling particles that are still burning when reaching the burner or floor.	No particles that were still burning fell to the floor.	PASS

5.0 Testing & Results: (continued)

Deck #2

SD County Section 26.3.6.2.1 Performance Criteria	Test Observations	Pass/Fail
Effective net peak heat release rate of less than or equal to 25 kW/ft^2 (269 kW/m^2)	The effective net peak heat release rate was 168 kW/m^2	PASS
Absence of sustained flaming or glowing combustion of any kind at the conclusion of the 40-minute observation period.	No sustained flaming after 40 minutes of observation time.	PASS
Absence of structural failure of any deck board.	No structural failure	PASS
Absence of falling particles that are still burning when reaching the burner or floor.	No particles that were still burning fell to the floor.	PASS

Deck #3

SD County Section 26.3.6.2.1 Performance Criteria	Test Observations	Pass/Fail
Effective net peak heat release rate of less than or equal to 25 kW/ft^2 (269 kW/m^2)	The effective net peak heat release rate was 156 kW/m^2	PASS
Absence of sustained flaming or glowing combustion of any kind at the conclusion of the 40-minute observation period.	No sustained flaming after 40 minutes of observation time.	PASS
Absence of structural failure of any deck board.	No structural failure	PASS
Absence of falling particles that are still burning when reaching the burner or floor.	No particles that were still burning fell to the floor.	PASS

Part B – Burning Brand Exposure:

Deck #1

SD County Section 26.3.6.2.1 Performance Criteria with Class B Brand	Test Observations	Pass/Fail
Absence of sustained flaming at the conclusion of the 40-minute observation period.	No Sustained flaming after 40 minutes of observation time.	PASS
Absence of structural failure of any deck board.	No structural failure	PASS
Absence of falling particles that are still burning when reaching the burner or floor.	No decking particles that were still burning fell to the floor.	PASS

Deck #2

SD County Section 26.3.6.2.1 Performance Criteria with Class B Brand	Test Observations	Pass/Fail
Absence of sustained flaming at the conclusion of the 40-minute observation period.	No Sustained flaming after 40 minutes of observation time.	PASS
Absence of structural failure of any deck board.	No structural failure	PASS
Absence of falling particles that are still burning when reaching the burner or floor.	No decking particles that were still burning fell to the floor.	PASS

Deck #3

SD County Section 26.3.6.2.1 Performance Criteria with Class B Brand	Test Observations	Pass/Fail
Absence of sustained flaming at the conclusion of the 40-minute observation period.	No Sustained flaming after 40 minutes of observation time.	PASS
Absence of structural failure of any deck board.	No structural failure	PASS
Absence of falling particles that are still burning when reaching the burner or floor.	No decking particles that were still burning fell to the floor.	PASS

5.1 Test Conclusion:

The material provided to Intertek-ATI from Dasso USA, LLC and tested to SFM 12-7A-4 procedures with the exception of using Class B instead of Class A brands **met** the acceptance criteria of San Diego County Code Section 26.3.6.2.1.

Intertek-ATI will service this report for the entire test record retention period. Test records that are retained such as detailed drawings, datasheets, representative samples of test specimens, or other pertinent project documentation will be retained by Intertek-ATI for the entire test record retention period.

This report does not constitute certification of this product nor an opinion or endorsement by this laboratory. It is the exclusive property of the client so named herein and relates only to the specimen(s) tested. This report may not be reproduced, except in full, without the written approval of Intertek-ATI.

For INTERTEK-ATI:

Scott Gingrich
Senior Technician – Fire Testing

Matthew Freeborn
Manager – Fire Testing

SDG:ddr

Attachments (pages): This report is complete only when all attachments listed are included.
Appendix A: Graphical Data (4)
Appendix B: Photographs (4)

Revision Log

Rev. #	Date	Page(s)	Revision(s)
0	12/23/2015	N/A	Original Report Issue

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York, PA 17406

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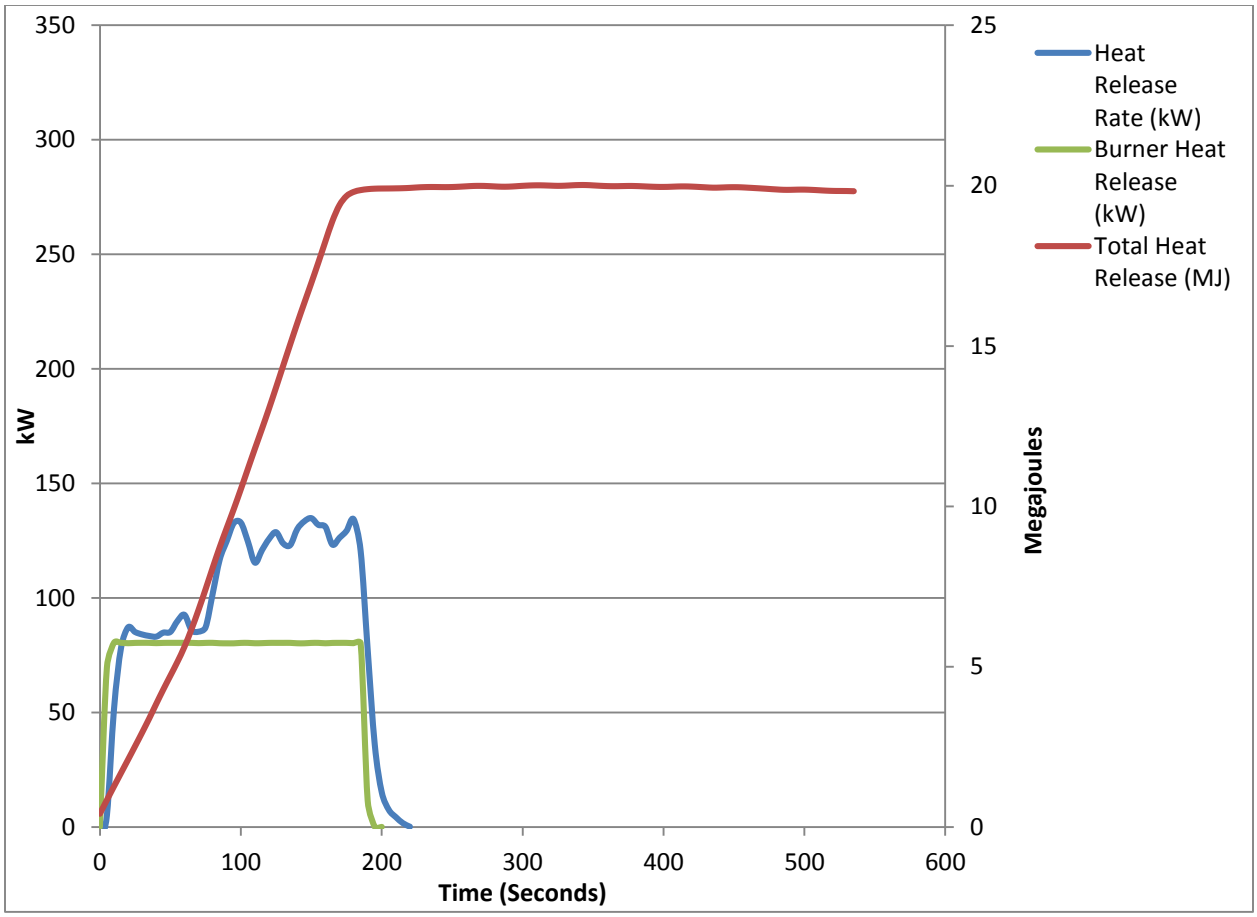
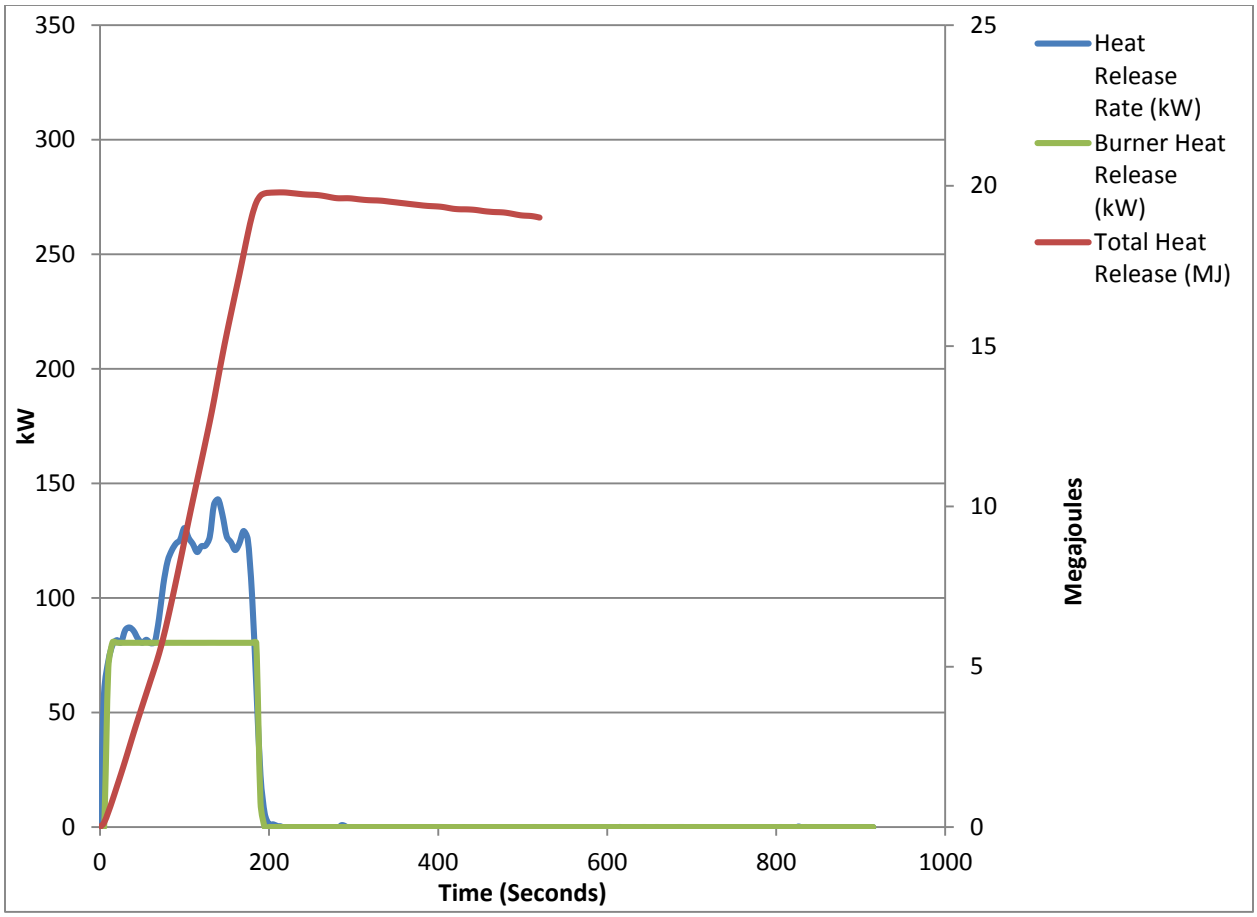
p. 717.764.7700
f. 717.764.4129

Appendix A

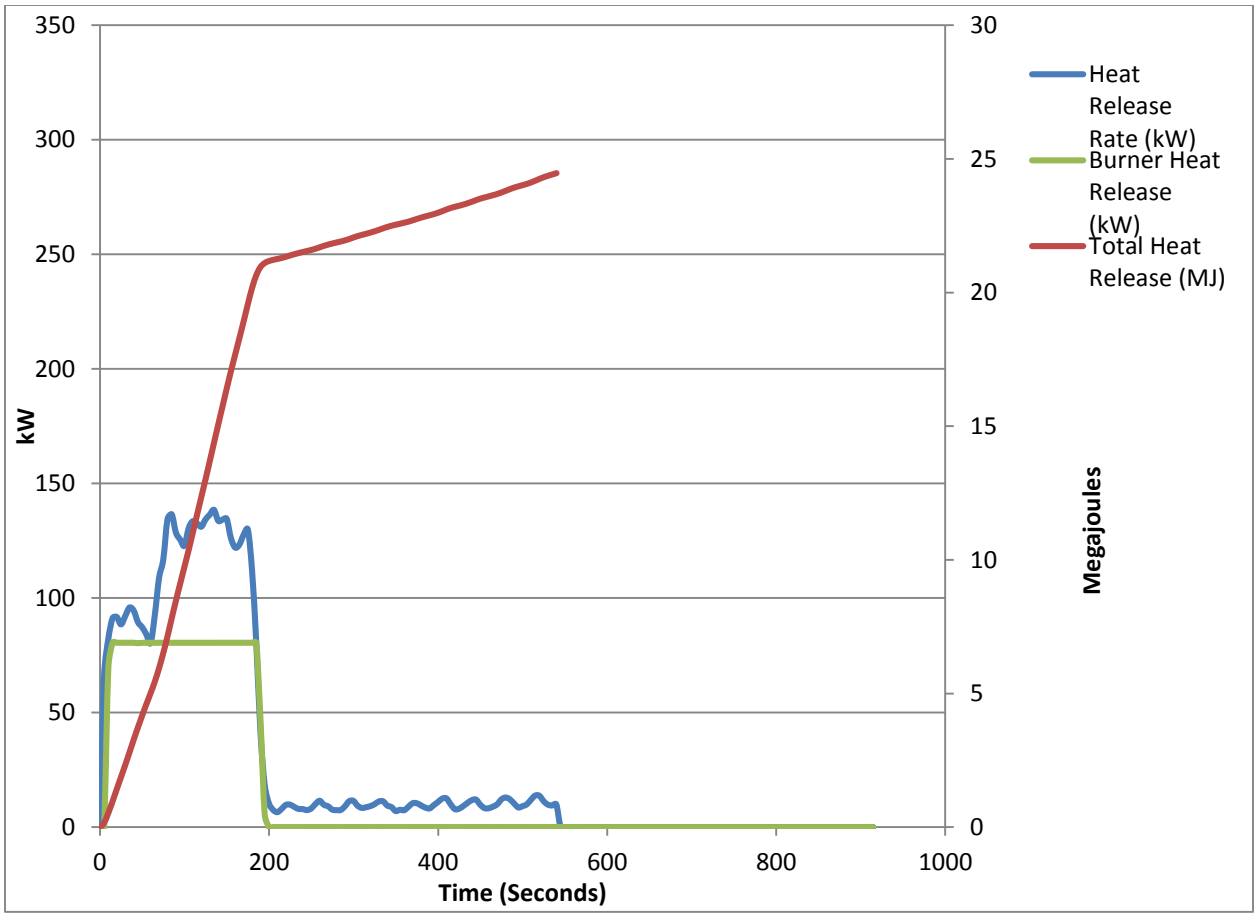
Graphical Data



Graph No. 1
Heat Release for Deck #1



Graph No. 2
Heat Release for Deck #2



Graph No. 3
Heat Release for Deck #3

Appendix B

Photographs

Photo No. 1
TC-120 Clip

Photo No. 2
dasso.XTR Bamboo Decking

Photo No. 3
Test Equipment

Photo No. 4
Underdeck Exposure

Photo No. 5
Ignition during Underdeck Test

Photo No. 6
Top of Underdeck Specimen (Post-test)

Photo No. 7
Bottom of Underdeck Specimen (Post-test)

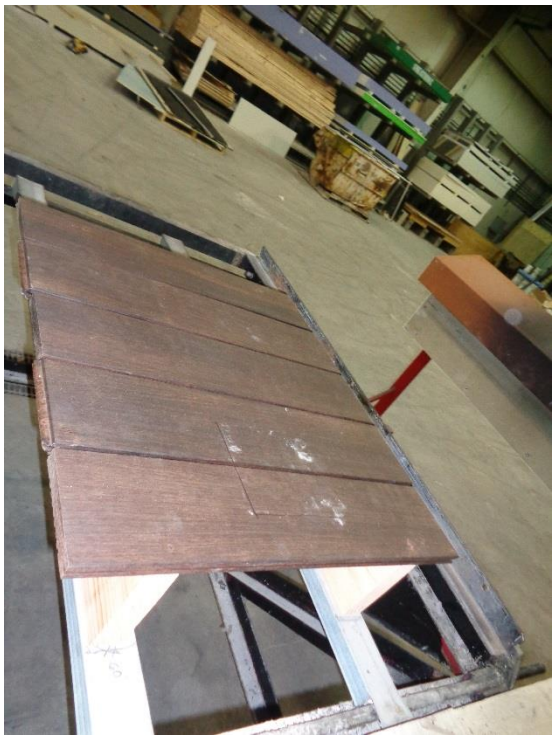


Photo No. 8
Class B Burning Brand Deck

Photo No. 9
Class B Burning Brand Exposure

Photo No. 10
Glowing Combustion during Testing

Photo No. 11
Top Surface of Burning Brand Deck (Post-test)

Photo No. 12
Bottom Surface of Burning Brand Deck (Post-test)