

# FORTRESS DECK PRODUCTS FIRE TEST REPORT

**SCOPE OF WORK**

SFM 12-7A-4 TESTING ON APEX GROOVED DECK BOARDS

**REPORT NUMBER**

K2354.01-121-24-R1

**TEST DATE(S)**

11/04/19 - 11/07/19

**ISSUE DATE**

11/18/19

**REVISION DATE**

02/27/20

**RECORD RETENTION END DATE**

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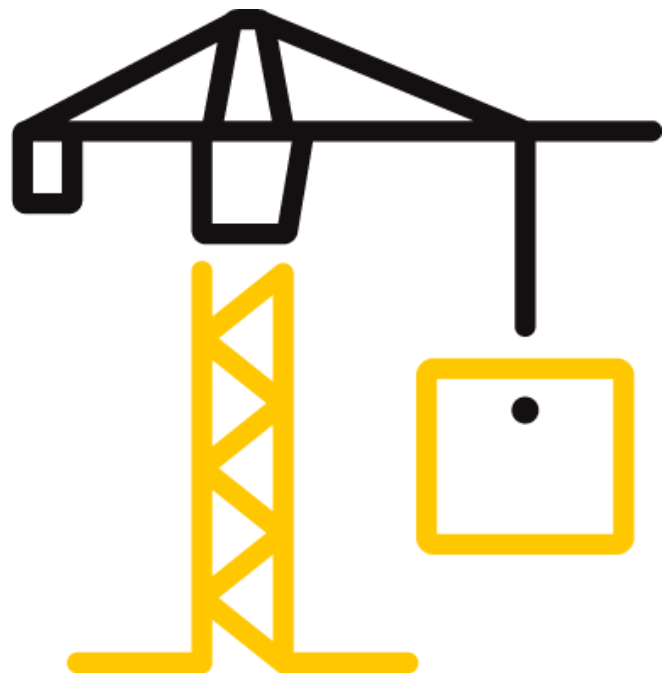
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RT-R-AMER-Test-3480

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## TEST REPORT FOR FORTRESS DECK PRODUCTS

Report No.: K2354.01-121-24-R1

Date: 11/18/19

Revision Date: 2/27/20

### REPORT ISSUED TO FORTRESS BUILDING PRODUCTS

1720 North First Street  
Garland, Texas 75040

### SECTION 1 SCOPE

Intertek Building & Construction (B&C) was contracted by Fortress Building Products, 1720 North First Street Garland, Texas 75040 to evaluate the performance of APEX grooved deck boards when exposed to direct flames. Testing was conducted at the Intertek B&C test facility in York, Pennsylvania. Results obtained are tested values and were secured by using the designated test method(s). A summary of test results and the complete graphical test data is reported herein.

This report does not constitute certification of this product nor an opinion or endorsement by this laboratory.

### SECTION 2 SUMMARY OF TEST RESULTS

**Product Type:** Exterior Decking  
**Series/Model:** APEX grooved deck board

#### SFM 12-7A-4A Test Results

The assembly described and tested in this report **did** meet the Conditions of Acceptance of SFM 12-7A-4A. Construction of the full assembly is summarized in Section 7 of this test report.

For INTERTEK B&C:

<b>COMPLETED BY:</b>	Scott Gingrich	<b>REVIEWED BY:</b>	Ethan Grove
<b>TITLE:</b>	Technician Team Lead– Fire Testing	<b>TITLE:</b>	Manager – Fire Testing
<b>SIGNATURE:</b>		<b>SIGNATURE:</b>	
<b>DATE:</b>	02/27/20	<b>DATE:</b>	02/27/20

SDG:ddr

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### SECTION 3

#### TEST METHOD

The assembly was evaluated in accordance with the following:

**California Referenced Standards Code (Chapter 12-7A), *Materials and Construction Methods for Exterior Wildfire Exposure***

**SFM Standard 12-7A-4A, *Decking***

### SECTION 4

#### MATERIAL SOURCE/INSTALLATION

The sampled product(s) were selected by Intertek B&C personnel. The specimen(s) were witnessed during production and tagged prior to shipment on 10/07/19, (Reference Intertek B&C Test Specimen Selection Report No. K2354.03-103-15, dated 10/07/19. The remaining components of the test assembly were provided by the client except simulated floor joists which were acquired and assembled by Intertek B&C personnel.

### SECTION 5

#### LIST OF OFFICIAL OBSERVERS

NAME	COMPANY
Scott Gingrich	Intertek B&C
Logan Chronister	Intertek B&C
Nate Brillhart	Intertek B&C
Mark Dluzeskie	Intertek B&C

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### SECTION 6

#### TEST PROCEDURE

##### Part A – Under-deck Flame Test

For the under-deck flame test, 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). A burner verification test is run prior to the under-deck test. Verification test involves using oxygen consumption calorimeter to confirm the output. The burner is set to produce a gross heat output of  $80 \pm 4$  kW for three minutes. The gas burners are controlled with mass flow meters to control the volume of gas to match the heat outputs of the standard. 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.

Prior to testing, all materials (deck boards and joist material) shall be conditioned to a constant weight of for a minimum of 30 days at  $73 \pm 4$  °F ( $23 \pm 2$  °C) and  $50 \pm 5$  % relative humidity, whichever occurs first. Constant weight shall be defined as occurring when the change in the test material weight is less than or equal to 2 percent in a 24-hour period. The tested material maintained a constant weight in a 24 hr. period.

### SECTION 7

#### TEST ASSEMBLY DESCRIPTION

The overall dimensions of the test assembly are 4 feet wide by 84 inches high. Below is a detailed description of the components in the assembly:

##### Framing

2 x 6 Douglas fir dimensional lumber was cut to 27-1/4 in. long. Two identical pieces were cut to simulate two joists for the deck boards to attached to.

##### Decking

APEX grooved PVC deck boards were cut to 24 in. lengths. 5 deck boards per deck were used. The Hulk Fastener System was utilized to secure the deck boards to the simulated wood joists. The Hulk Fastener System uses a hidden clip made of 304 stainless steel and is coated. A Torpedo tip nano black stainless-steel screw measuring M4.2 x 40 mm stainless steel fasteners were used to secure the clip to the board and wood joist.

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### SECTION 8

#### TEST OBSERVATIONS

**Test Date: 11-01-19**

**Lab Temperature: 65°F**

**Lab Relative Humidity: 32%**

##### Under-deck Test #1

TIME (Min:Sec)	OBSERVATIONS
00:00	Ignition of burner. Heat output set at 80 kW
01:01	Ignition of the underdeck surface.
03:00	Burner extinguished.
13:15	No signs of combustion. End of test.

**Test Date: 11-04-19**

**Lab Temperature: 63°F**

**Lab Relative Humidity: 33%**

##### Under-deck Test #2

TIME (Min:Sec)	OBSERVATIONS
00:00	Ignition of burner. Heat output set at 80 kW
01:09	Ignition of the underdeck surface.
03:00	Burner extinguished.
03:31	Flames stop emitting from surface.
11:30	No signs of combustion. End of test.

##### Under-deck Test #3

TIME (Min:Sec)	OBSERVATIONS
00:00	Ignition of burner. Heat output set at 80 kW
01:02	Ignition of the underdeck surface.
03:00	Burner extinguished.
03:35	Flames stop emitting from surface.
11:00	No signs of combustion. End of test.

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**SECTION 8**

**TEST RESULTS**

**Part A – Under-deck Flame Tests**

TEST REQUIREMENTS	TEST RESULTS	PASS/FAIL
Effective net peak heat release rate of less than or equal to 25 kW/ft <sup>2</sup> (269 kW/m <sup>2</sup> )	Effective net peak heat release rate of: Sample #1: 134.1 kW/m <sup>2</sup> Sample #2: 188.6 kW/m <sup>2</sup> Sample #3: 120.6 kW/m <sup>2</sup>	<b>PASS</b>
Absence of sustained flaming or glowing combustion of any kind at the conclusion of the 40-minute observation period.	Sustained flaming or glowing combustion of any kind at the conclusion of the 40-minute observation period was not present.	<b>PASS</b>
Absence of falling particles that are still burning when reaching the burner or floor.	Falling particles that are still burning when reaching the burner or floor was not evident.	<b>PASS</b>

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### SECTION 9 PHOTOGRAPHS



**Photo No. 1**  
**Sampling Identification**



**Photo No. 2**  
**Complete Assembly (Above Deck)**

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### SECTION 10 (Continued)

#### PHOTOGRAPHS



**Photo No. 3**  
**Complete Assembly (Below Deck)**



**Photo No. 4**  
**Test Assembly (Pre-test)**



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### SECTION 10 (Continued)

#### PHOTOGRAPHS



**Photo No. 5**  
**Ignition of Burner**



**Photo No. 6**  
**Ignition on Top of Deck**

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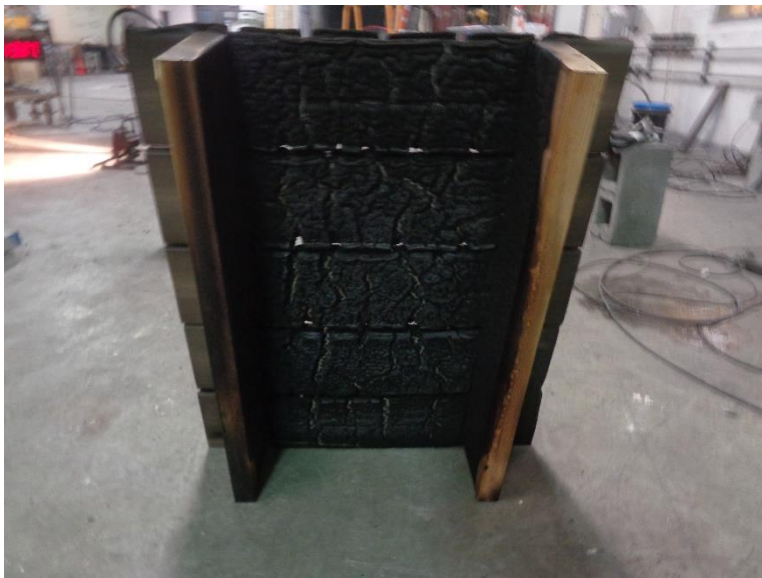
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### SECTION 10 (Continued)

#### PHOTOGRAPHS



**Photo No. 7**  
**Post-test Above Deck**



**Photo No. 8**  
**Post-test Below Deck**

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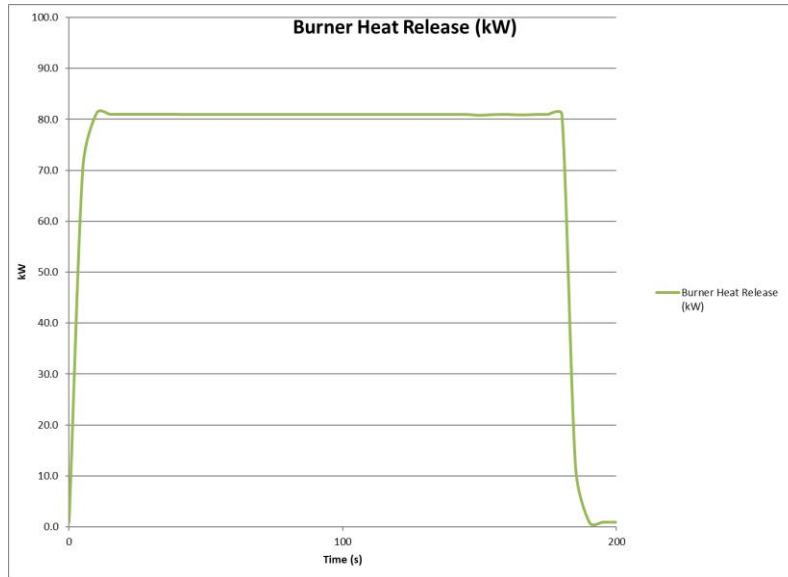
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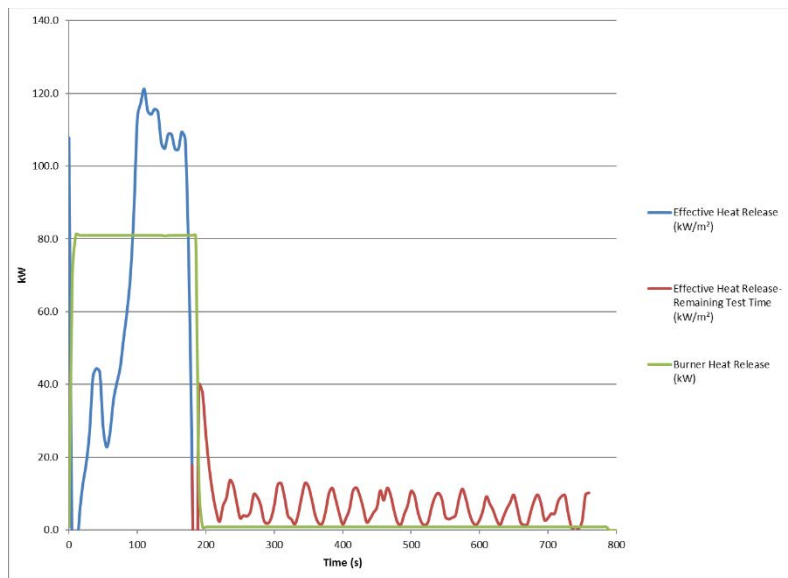
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### SECTION 10

#### GRAPHS



**Graph No. 1**  
**Under-deck Burner Output Verification Data**



**Graph No. 2**  
**Under-deck Test #1 Heat Release Data**

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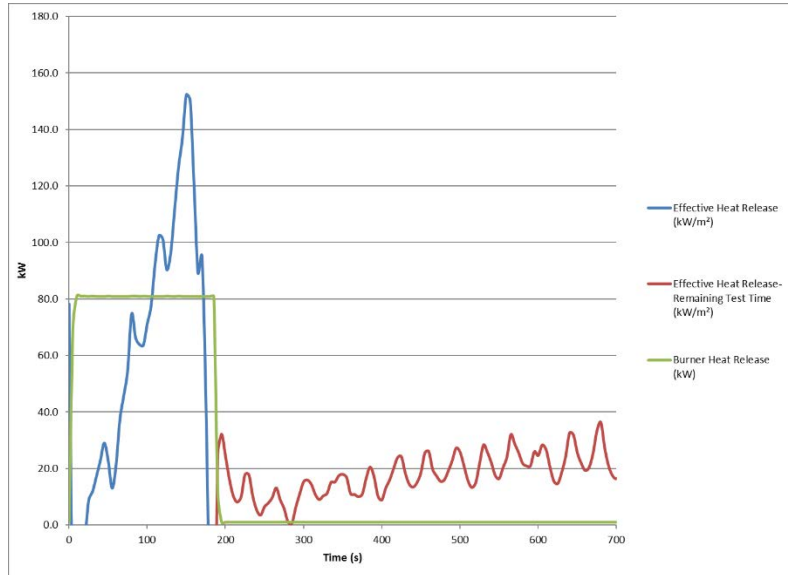
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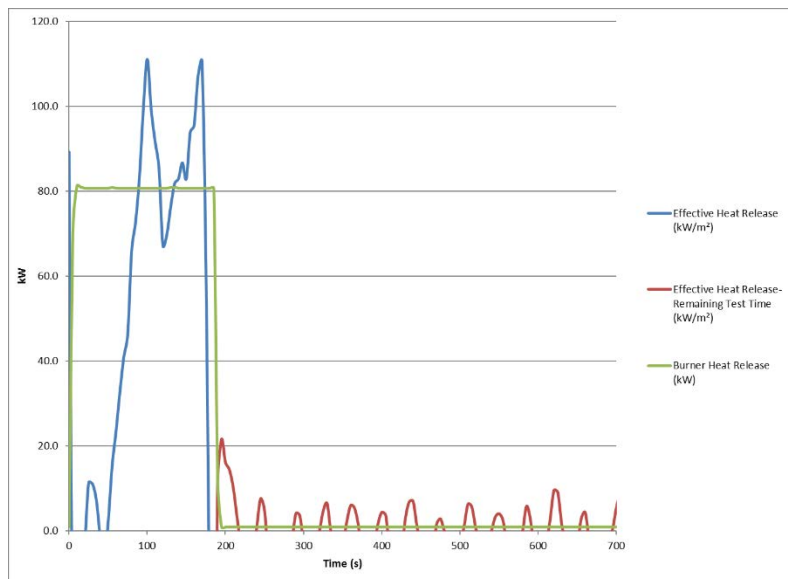
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### SECTION 11 (Continued)

#### GRAPHS



**Graph No. 3**  
**Under-deck Test #2 Heat Release Data**



**Graph No. 4**  
**Under-deck Test #3 Heat Release Data**



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### SECTION 12

#### REVISION LOG

REVISION #	DATE	PAGES	REVISION
0	11/18/19	N/A	Original Report Issue
1	02/27/2020	4	Added conditioning information as tested.