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ENDURAFLOOD TECHNOLOGIES, LLC.
FIRE TEST REPORT

SCOPE OF WORK
NFPA 286 TESTING ON ENDURAFLOOD FLOODPROOF DRYWALL SYSTEM WHEN INSTALLED TO AN INTERIOR WALL.

REPORT NUMBER
P5021.01-121-24 r0

TEST DATE(S)
11/23/22

ISSUE DATE
12/06/22

PAGES
16

DOCUMENT CONTROL NUMBER
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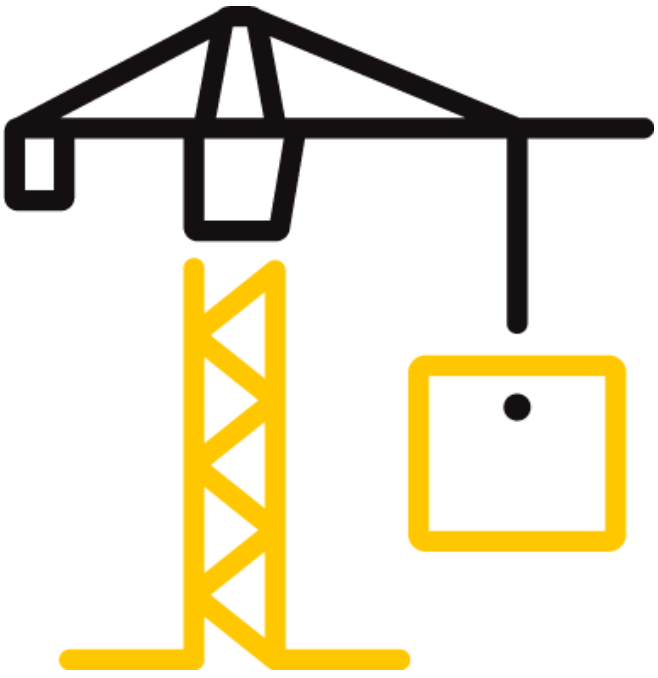
RT-R-AMER-Test-3476



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TEST REPORT FOR ENDURAFLOOD TECHNOLOGIES, LLC.
Report No.: P5021.01-121-24 R0
Date: 12/06/22

REPORT ISSUED TO

EnduraFlood Technologies, LLC.
331 US 22 West
Suite 200
Bridgewater, New Jersey 08807

SECTION 1

SUMMARY

Intertek Building & Construction (B&C) was contracted by EnduraFlood Technologies, LLC, Bridgewater, New Jersey to evaluate the contribution of a wall interior finish to room fire growth of an assembly containing EnduraFlood FloodProof Drywall system. Results obtained are tested values and were secured by using the designated test method(s). A summary of test results is reported herein, and the complete graphical test data is included in this report.

Product Type: PVC Wainscoting
Series/Model: FloodProof Drywall system

Summary of NFPA 286 Test Results
The assembly described and tested in this report **did** meet the requirements of acceptance criteria for interior wall or ceiling finishes of 2021 International Building Code Section 803.1.1.1 and NFPA 286 Annex C. Construction summary of the full assembly is located in Section 5 of this test report.

For INTERTEK B&C:

COMPLETED BY:	Timothy Feltman	**REVIEWED BY:**	Ethan Grove
TITLE:	Technician – Fire Testing	**TITLE:**	Manager – Fire Testing
SIGNATURE:	Digitally Signed by: Timothy Feltman	**SIGNATURE:**	Digitally Signed by: Ethan Grove
DATE:	12/06/22	**DATE:**	12/06/22

TRF:ddr

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SECTION 2
TEST METHOD

The assembly was evaluated in accordance with the following:

NFPA 286-19, *Standard Methods of Fire Tests for evaluating Contribution of Wall and Ceiling Interior Finish to Room Fire Growth*

International Building Code (2021), *Chapter 8, Section 803.1.1.1*

SECTION 3
TEST PROCEDURE

A calibration test is run within 30 days of testing any material as specified in the standard. All instrumentation is zeroed, spanned, and calibrated prior to testing. Testing was performed on 11/23/2022 in accordance with NFPA 286 test method. Ambient conditions prior to the initiation of the test were 68°F and 19% relative humidity. The specimen is installed, and the ignition source is placed in a corner adjacent to the room opening. The ignition source for the test is a gas burner with a nominal 12 in. by 12 in. porous top surface of a refractory material. The burner used at this laboratory is filled with a minimum 4-inch layer of Ottawa sand. The collection hood exhaust blower is turned on and an initial flow is established. The gas sampling pump is turned on and the flow rate is adjusted. When all instruments are reading steady state conditions, the computer data acquisition system and video equipment is started. The gas supply to the burner is C.P. grade propane (99 percent purity). The burner is capable of producing a gross heat output of 40±1 kW for five minutes followed by a 160±5 kW for ten 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. Ambient data is taken then the burner is ignited at a fuel flow rate that is known to produce 40 kW of heat output. This level is maintained for five minutes at which time the fuel flow is increased to the 160 kW level for a 10-minute period. During the burn period, all temperature, heat release and heat flux data is being recorded every 5 seconds. Physical flame propagation observations are recorded by the technician in conjunction with the test data. At the end of the fifteen minute burn period, the burner is shut off and all instrument readings are stopped. Post-test observations are made, and this concludes the test. All observations are recorded in the table located in Section 6.

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SECTION 3 (Continued)
TEST PROCEDURE

Material Source/Installation

The components of the test assembly were provided by the client except for the core wall components that were acquired and assembled by Intertek-ATI personnel.

SECTION 4
LIST OF OFFICIAL OBSERVERS

NAME	COMPANY
Ethan Grove	Intertek B&C
Mark Dluzeski	Intertek B&C
Colby Linhart	Intertek B&C
Alex Italiano	Intertek B&C
Isaiah Gingrich	Intertek B&C
Ryan Mendicino	Intertek B&C

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SECTION 5
TEST ASSEMBLY DESCRIPTION

The interior dimensions of the floor of the fire room, when the specimens are in place, measures 8 feet, by 12 feet. The finished ceiling is 8 feet ± 0.5 inches above the floor. The four walls are at right angles defining the compartment. The compartment contains a 30 inches wide (± ¼ inch) by 80 inches high (± ¼ inch) doorway in the center of the 8 feet by 8 feet wall on the edge of the hood calorimeter apparatus. No other openings are present to allow ventilation. Below is a detailed description of the assembly:

Gypsum Cladding

The full interior surface of the wall assemblies were clad with 5/8 in. thick National Gypsum Gold Bond® Fire-Shield® gypsum board meeting ASTM C 1396. The gypsum board was fastened to the wall framing with #6 x 1-1/4 in. long, bugle head, self-drilling screws with a nominal spacing of 8 in. around the board perimeter and 12 in. in the field. Drywall orientation was with the run edge running parallel with the framing and the cut edge perpendicular to the framing. All joints were taped with USG Sheetrock® Brand paper joint tape and spackled with USG Sheetrock® Brand joint compound. All fastener heads were spackled with USG Sheetrock® Brand joint compound.

Framing

The test room walls, and ceiling were constructed with 20 gauge galvanized steel, 3-5/8 in. wide structural studs spaced every 24 inches. The studs were fastened to 20 gauge, 3-5/8 in. wide galvanized steel track with #6 x 1/2 in. long self-drilling fasteners in each flange. The orientation of the ceiling framing was with the ceiling framing studs running across the 8 ft. dimension of the test room.

Interior Finish

An additional layer of 5/8 in. gypsum board measuring 59 ½ in. was applies to the interior gypsum clad walls from the ceiling down. All joints and fastener heads were finished in the same manner as stated above. EnduraFlood FloodProof Drywall system was then installed below the second layer of gypsum according to the manufacturers installation instructions, which can be found at www.enduraflood.com.

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SECTION 6
TEST RESULTS

Test Date: 11/23/2022
Lab Temperature: 68°F
Lab Relative Humidity: 19%

TEST OBSERVATIONS	
Time (Min:Sec)	**Observations**
00:00	Ignition of the burner. Heat output set at 40kW
00:12	Ignition of the product at the corner with the burner.
00:35	Observed dark smoke emitting from the product.
01:06	Smoke exiting the doorway.
01:27	Vertical flame propagation to 3 feet in the corner with the burner.
03:26	Vertical flame propagation below 3 feet in the corner with the burner.
04:28	Ash falling into the room burner.
04:40	Flaming pieces falling to the floor and continues to burn at the corner with the burner.
05:00	Heat output of the burner increased to 160 kW.
05:36	Vertical flame propagation to 4 feet in the corner with the burner.
08:17	Smoke turning light grey in color.
09:06	Horizontal flame propagation to 1 foot on the back and side wall.
12:39	Horizontal flame propagation to 2 feet on the back wall and smoke turning dark grey in color.
15:00	Gas to the burner is shut off. Burner Extinguished; test concluded
16:47	All flaming on the product self-extinguished.

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SECTION 6 (Continued)
TEST RESULTS

2015 IBC SECTION 803.1.2.1 & NFPA 286 ANNEX C PERFORMANCE CRITERIA	TEST OBSERVATIONS	PASS/FAIL
During 40 kW exposure, flames should not spread to the ceiling.	Flames did not spread to the ceiling during the 40kW exposure.	**PASS**
During the 160 kW exposure, the interior finish should not spread to the outer extremity of the sample on any wall or ceiling	Flames propagation to the outer extremities did not occur during the 160kW exposure.	**PASS**
During the 160 kW exposure, the interior finish should not flashover as defined by NFPA 286. •Peak Heat Release > 1 MW •Floor Heat Flux > 20 kW/m² •Average Upper Layer Temperature > 1,112°F •Flames exiting doorway •Auto ignition of Paper Target Flashover is considered to have occurred when any two of the above criteria were met during the test.	•Peak Heat Release = 218.4 kW •Max Floor Heat Flux = 2.25 kW/m² •Max Average Upper Layer Temperature = 533°F •No Flames exited doorway •The flashover indicators did not ignite.	**PASS**
The peak rate of heat release throughout the NFPA 286 test should not exceed 800 kW.	The peak heat release rate was 218.4 kW	**PASS**
The total smoke released throughout the NFPA 286 test should not exceed 1,000 m^2.	The total smoke released during the entirety of the test was 602.7 m²	**PASS**

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SECTION 7
PHOTOGRAPHS

Photo No. 1
Completed Room

Photo No. 2
Complete Room Pre-test

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SECTION 7 (Continued)

PHOTOGRAPHS

Photo No. 3
Start of Test

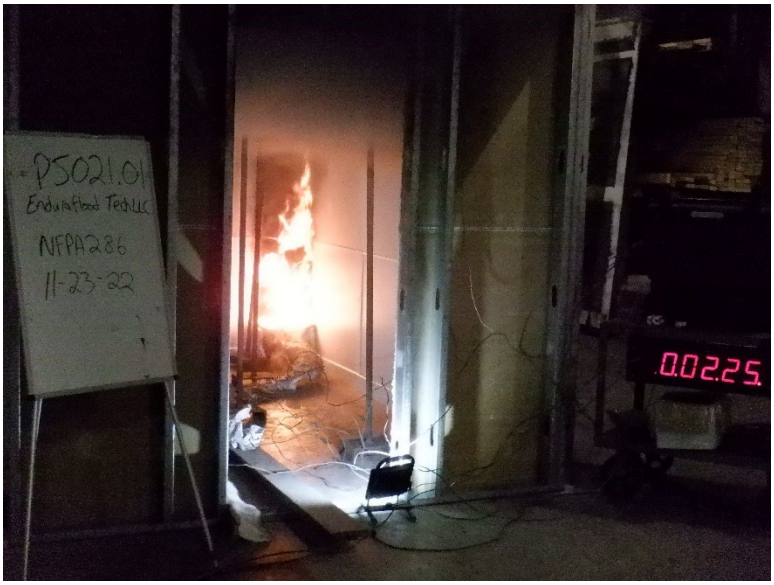

Photo No. 4
Dark Grey Smoke Accumulating in Test Room

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SECTION 7(Continued)
PHOTOGRAPHS

Photo No. 5
Initiation of 160 kW

Photo No. 6
Horizontal Flame Propagation to 2 feet on Back Wall

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SECTION 7(Continued)
PHOTOGRAPHS

Photo No. 7
Post Test

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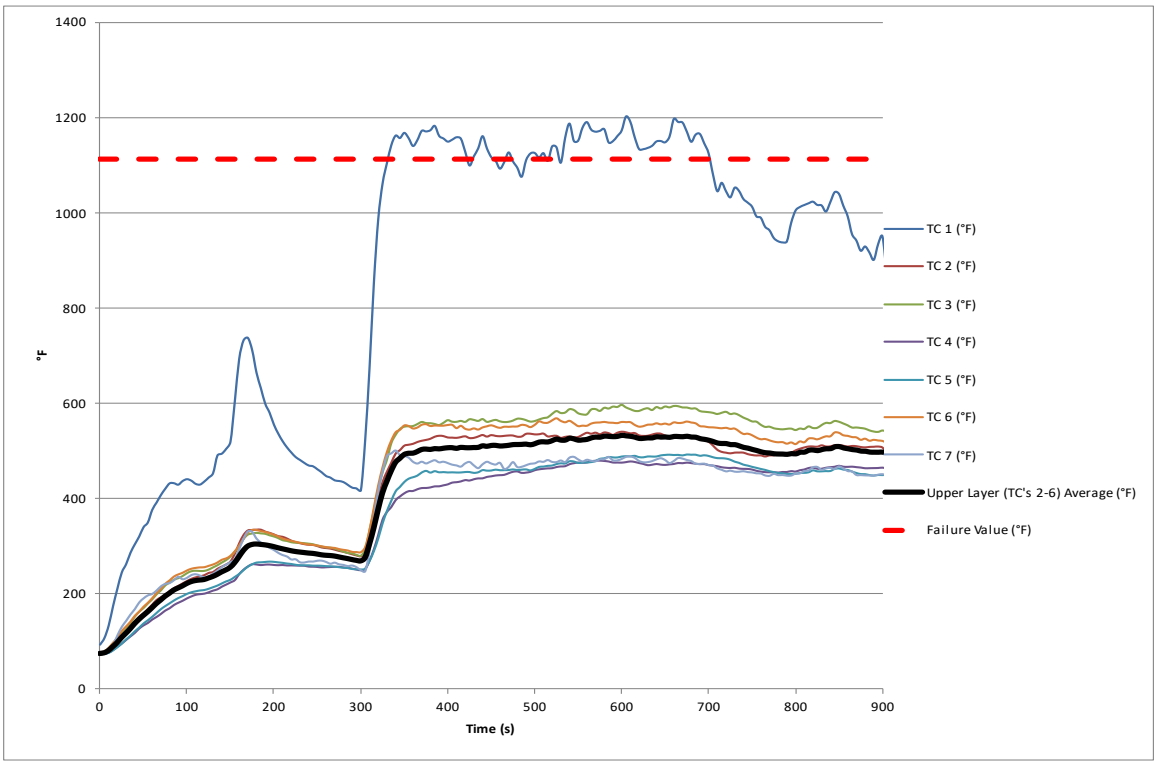
SECTION 8
GRAPHS



Graph No. 1
Thermocouple Data

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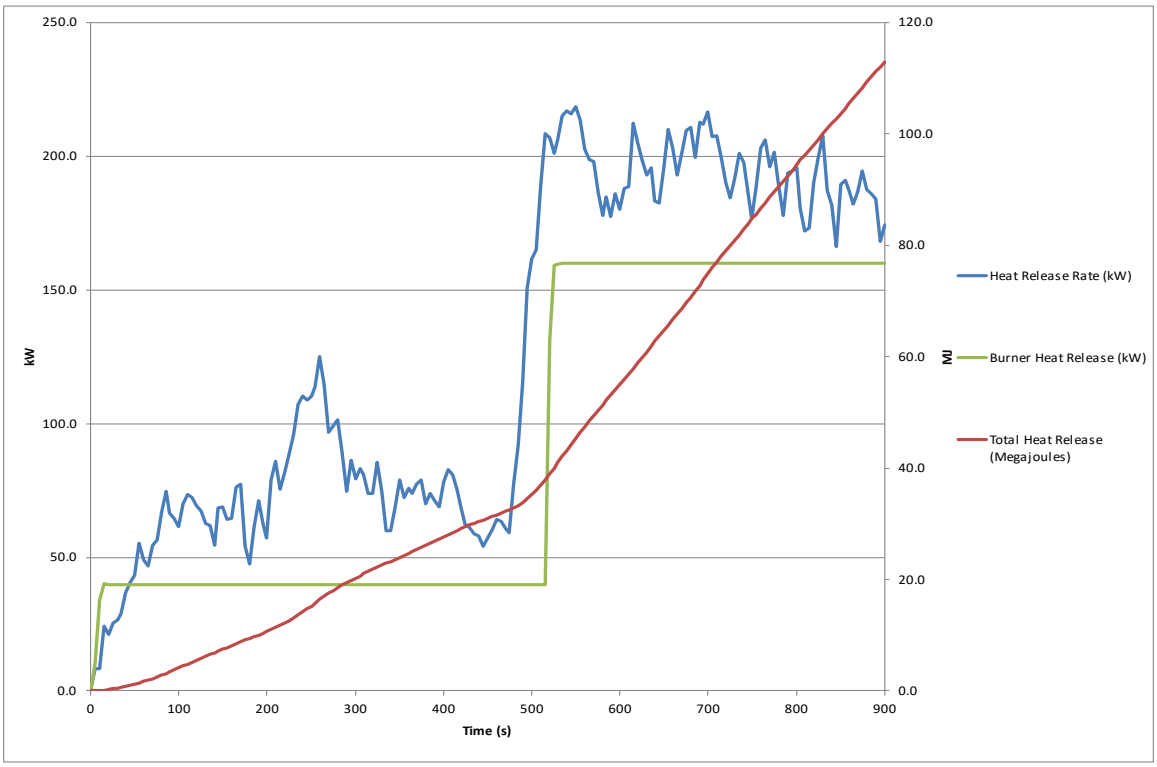
SECTION 8 (Continued)

GRAPHS



Graph No. 2
Heat Release Data

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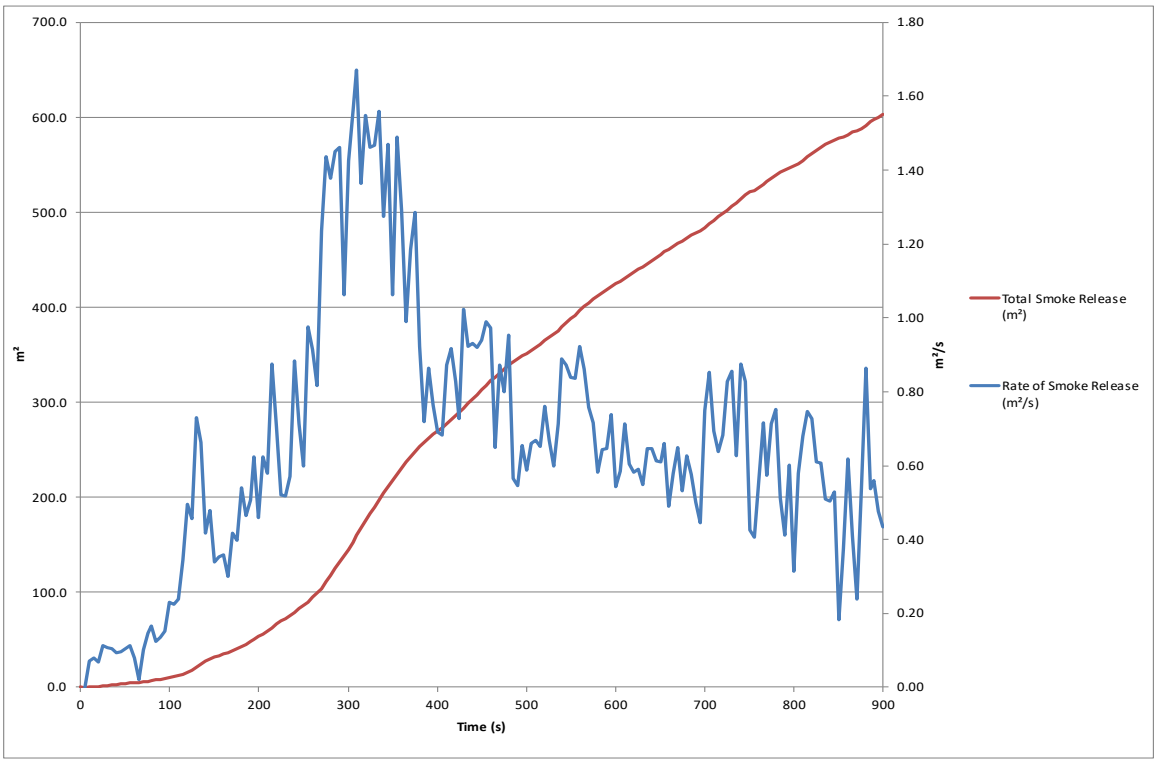
SECTION 8 (Continued)

GRAPHS



Graph No. 3
Smoke Release Data

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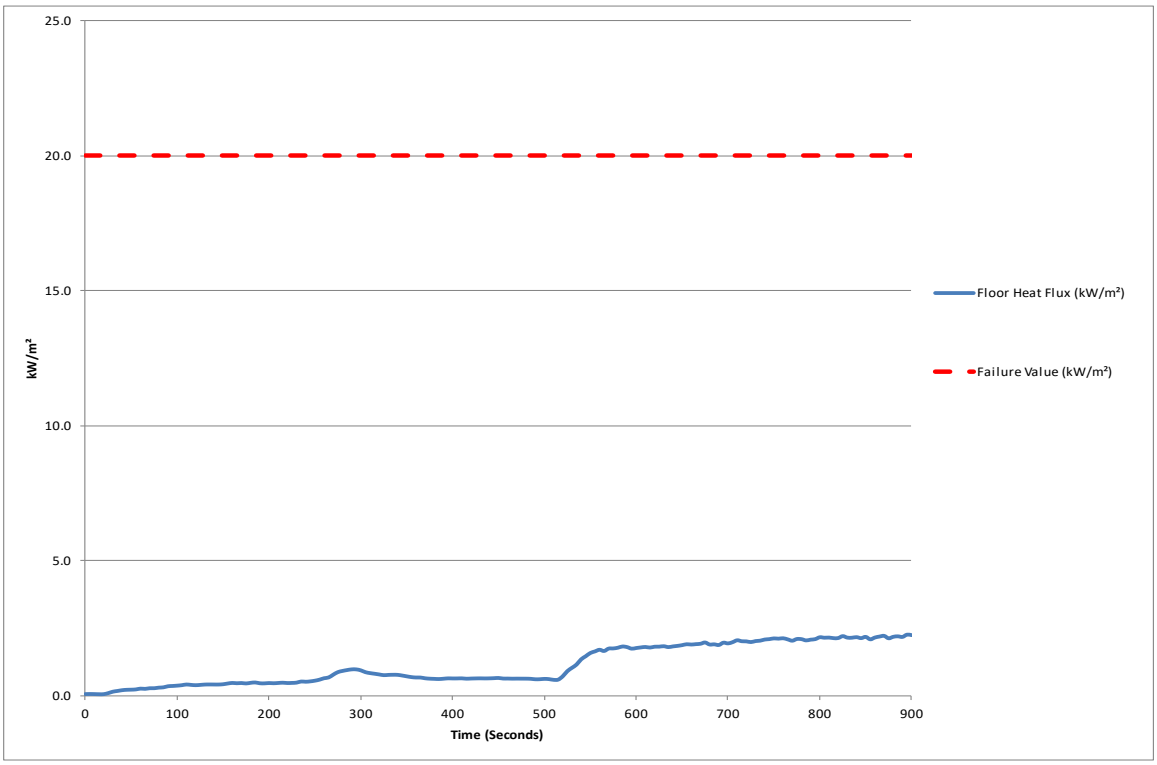
SECTION 8 (Continued)

GRAPHS



Graph No. 4
Floor Heat Flux

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SECTION 9
REVISION LOG

REVISION #	DATE	PAGES	REVISION
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