

CLIENT: **Armstrong Flooring, Inc.**
 1827 Freedom Rd, Suite 102
 Lancaster, PA 17601

Test Report Number :	TJ8381-2R1	Date:	December 21, 2021
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SAMPLE ID: The client identified the following test material as:
 Heterogenous PVC Sheet Flooring (Domestic), 80 mil thickness. Product Category: Heterogeneous Sheet.
 Production Date 08/04/21. Lot Number 08167682. Compostion: PVC sheet flooring. 80 mil thickness. Adhesive:

SAMPLING DETAIL: Test samples were submitted to the laboratory directly by the client. No sampling or sample preparation were observed by QAI staff.

DATE OF RECEIPT: Samples were received at QAI facilities on: November 11, 2021

TESTING PERIOD: November 29, 2021 to: November 30, 2021

AUTHORIZATION: Testing was authorized by Capital Testing and Certification Services for proposal 21DB110501 signed November 11, 2021.

TEST REQUESTED: Perform standard flame spread and smoke density developed classification tests on the sample supplied by the Client in accordance with CAN ULC S102.2 - 10 "STANDARD METHOD OF TEST FOR SURFACE BURNING CHARACTERISTICS OF FLOORING, FLOOR COVERINGS, AND MISCELLANEOUS MATERIALS AND ASSEMBLIES".

	<u>Flame Spread</u>	<u>Smoke Developed</u>
TEST 1 RESULTS:	58 *UNROUNDED	175 *UNROUNDED
TEST 2 RESULTS:	50 *UNROUNDED	155 *UNROUNDED
TEST 3 RESULTS:	82 *UNROUNDED	269 *UNROUNDED
AVERAGE ROUNDED:	65	200

Prepared By



Michael Lowry
 Lab Manager - Fire / Project Manager

Signed for and on behalf of
QAI Laboratories, Inc.

Anthony Penaloza
 Sr. Project Engineer / Project Manager



SCOPE: This fire-test-response standard(CAN/ULC S102.2)used for the comparative surface burning behavior of building materials is applicable to exposed surfaces such as walls and ceilings. The test is conducted with the specimen in the floor position with the surface to be evaluated exposed face up to the ignition source. The material, product, or assembly shall be capable of being mounted in the test position during the test. Thus, the specimen shall either be self-supporting by its own structural quality, held in place by added supports along the test surface, or secured from the back side. The purpose of this test method is to determine the relative burning behavior of the material by observing the flame spread along the specimen. Flame spread and smoke developed index are reported. However, there is not necessarily a relationship between these two measurements.

USE: This standard is used to measure and describe the response of materials, products, or assemblies to heat and flame under controlled conditions, but does not by itself incorporate all factors required for fire-hazard or fire-risk assessment of the materials, products, or assemblies under actual fire conditions.

PROCEDURE: A brief overview of the method is as follows: When tested to CAN/ULC-S102.2 the specimen is tested on the chamber floor. The inside dimensions are 17 3/4 inches +/- 1/4" wide by 12 inches +/- 1/2" deep by 25 feet long. The fire test chamber is a rectangular horizontal duct with a removable lid. The sides and base of the chamber are lined with an insulated firebrick with pressure tight observation windows down one side for a technician to observe flame progression during the duration of the 10-minute test period. The chamber lid is lowered into test position with non combustible concrete board placed between the specimen and chamber lid. A draft of 240 feet per minute which is maintained inside the test chamber throughout the test period by the means of an electronic fan afterburner and an electronically controlled damper door system located downstream of the test chamber in the exhaust ducting. The test is started when the test flame is ignited at the front of the test chamber. An electronic photocell system located in the exhaust system downstream from the test chamber is used to plot the smoke developed for use in calculating the smoke developed index while a technician plots the flame spread distance used in determining the flame spread index. The test is run for the 10 minute duration in accordance to the method.

(See Diagrams in the Appendix of this report.)



Test Number 1 of 3

PREPARATION AND CONDITIONING:

The sample board material was delivered to QAI in 17 inch wide X 4 feet long X 0.0625 inch thick pieces. 6 of these pieces were used for the test. (See Photos in Appendix of this report). The specimen was placed in the conditioning room (maintained at 70 ± 5° F and a relative humidity of 50 ± 5%) for a minimum of 72 hours prior to testing.

MOUNTING METHOD:

The test ready sample consisting of 6 pieces measuring 17 inch wide X 4 feet long and an overall test thickness of 0.0625 inches were placed end to end on the Chamber Floor to fulfill the chamber requirements for testing with 1/4 inch cement board on the tunnel ledge.

Test Number 1 of 3

CAN ULC S102.2 TEST RESULTS:

CLIENT NAME: Armstrong Flooring, Inc.

TEST DATE: 11/29/2021

SAMPLE ID: Heterogenous PVC Sheet Flooring (Domestic), 80 mil thickness. Product Category: Heterogeneous Sheet.

SAMPLE IGNITION: 02:00 Minutes / Seconds

MAX FLAME FRONT: 15.2 Feet

TIME TO MAXIMUM SPREAD: 04:22 Minutes / Seconds

TEST DURATION: 10:01 Minutes / Seconds

SUMMARY: FLAME SPREAD: 58 *UNROUNDED
SMOKE DEVELOPED: 175 *UNROUNDED

OBSERVATIONS:

Ignition Time on the sample was observed at 02:00. Floor Burning was observed at 02:00. Shrinking was observed at 02:20. Melting was observed at 02:20.



Test Number 2 of 3

PREPARATION AND CONDITIONING:

The sample board material was delivered to QAI in 17 inch wide X 4 feet long X 0.0625 inch thick pieces. 6 of these pieces were used for the test. (See Photos in Appendix of this report). The specimen was placed in the conditioning room (maintained at 70 ± 5° F and a relative humidity of 50 ± 5%) for a minimum of 72 hours prior to testing.

MOUNTING METHOD:

The test ready sample consisting of 6 pieces measuring 17 inch wide X 4 feet long and an overall test thickness of 0.0625 inches were placed end to end on the chamber Floor to fulfill the chamber requirements for testing with 1/4 inch cement board on the tunnel ledge.

Test Number 2 of 3

CAN ULC S102.2 TEST RESULTS:

CLIENT NAME:	Armstrong Flooring, Inc.	TEST DATE:	11/30/2021
SAMPLE ID:	Heterogenous PVC Sheet Flooring (Domestic), 80 mil thickness. Product Category: Heterogeneous Sheet.		
SAMPLE IGNITION:	02:00	Minutes / Seconds	
MAX FLAME FRONT:	14.6	Feet	
TIME TO MAXIMUM SPREAD:	05:00	Minutes / Seconds	
TEST DURATION:	10:01	Minutes / Seconds	
SUMMARY:	FLAME SPREAD:	50	<i>*UNROUNDED</i>
	SMOKE DEVELOPED:	155	<i>*UNROUNDED</i>

OBSERVATIONS:

Ignition Time on the sample was observed at 02:00. Floor Burning was observed at 02:00. Melting was observed at 02:00. Shrinking was observed at 02:20. Afterburn was observed at 10:01.



Test Number 3 of 3

PREPARATION AND CONDITIONING:

The sample board material was delivered to QAI in 17 inch wide X 4 feet long X 0.0625 inch thick pieces. 6 of these pieces were used for the test. (See Photos in Appendix of this report). The specimen was placed in the conditioning room (maintained at 70 ± 5° F and a relative humidity of 50 ± 5%) for a minimum of 72 hours prior to testing.

MOUNTING METHOD:

The test ready sample consisting of 6 pieces measuring 17 inch wide X 4 feet long and an overall test thickness of 0.0625 inches were placed end to end on the chamber Floor to fulfill the chamber requirements for testing with 1/4 inch cement board on the tunnel ledge.

Test Number 3 of 3

CAN ULC S102.2 TEST RESULTS:

CLIENT NAME: Armstrong Flooring, Inc.

TEST DATE: 11/30/2021

SAMPLE ID: Heterogenous PVC Sheet Flooring (Domestic), 80 mil thickness. Product Category: Heterogeneous Sheet.

SAMPLE IGNITION: 01:30 Minutes / Seconds

MAX FLAME FRONT: 19.2 Feet

TIME TO MAXIMUM SPREAD: 05:47 Minutes / Seconds

TEST DURATION: 10:00 Minutes / Seconds

SUMMARY:	FLAME SPREAD:	82	*UNROUNDED
	SMOKE DEVELOPED:	269	*UNROUNDED

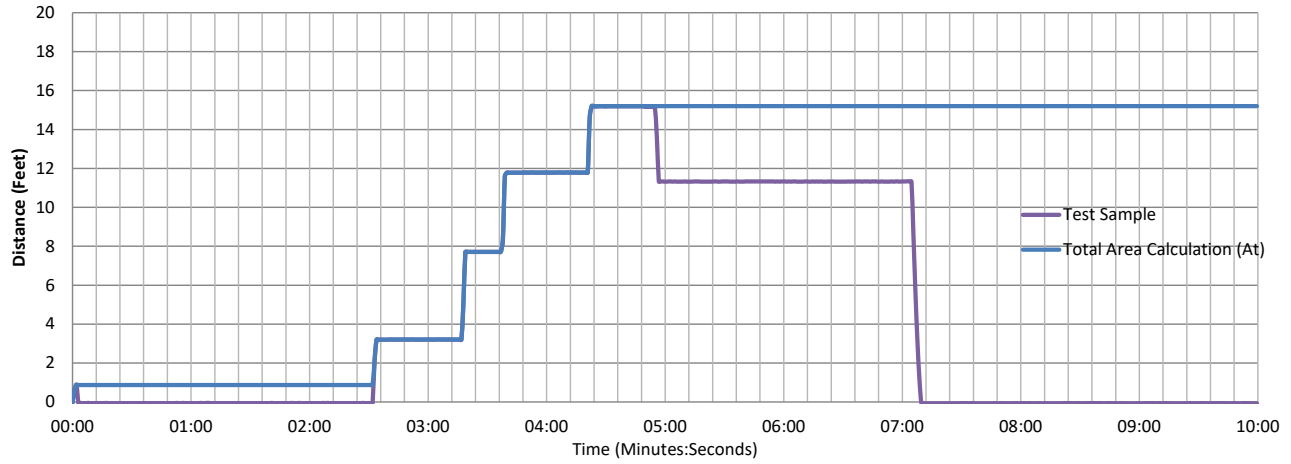
OBSERVATIONS:

Ignition Time on the sample was observed at 01:30. Floor Burning was observed at 01:30. Melting was observed at 01:30. Peeling was observed at 01:30. Shrinking was observed at 01:45. Afterburn was observed at 10:01.

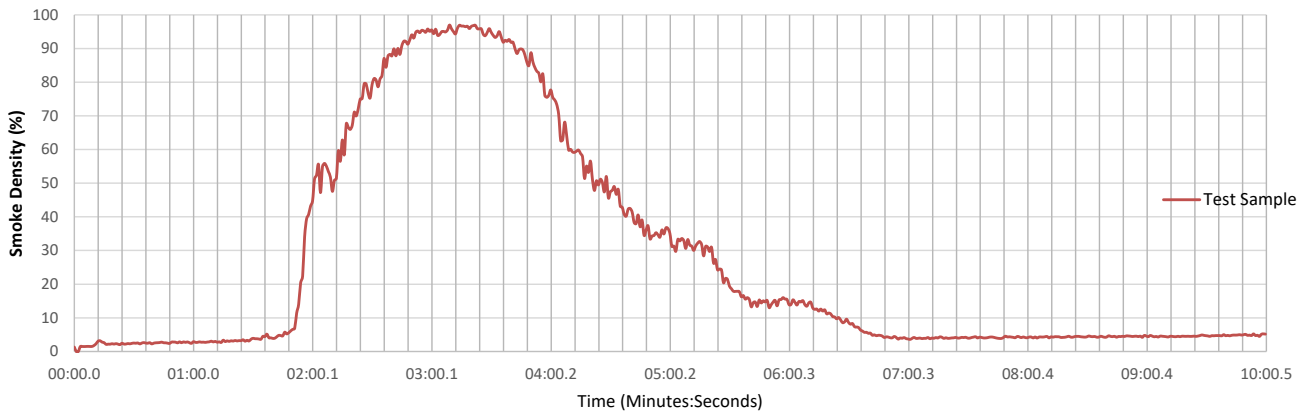


RESULTS CONTINUED: Test Number 1 of 3

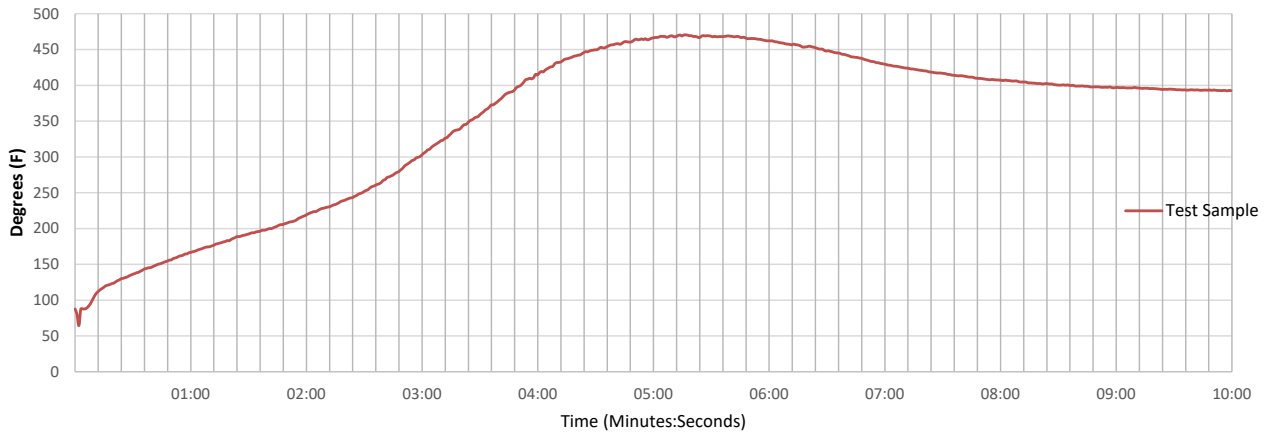
Flame Spread



Smoke Readings



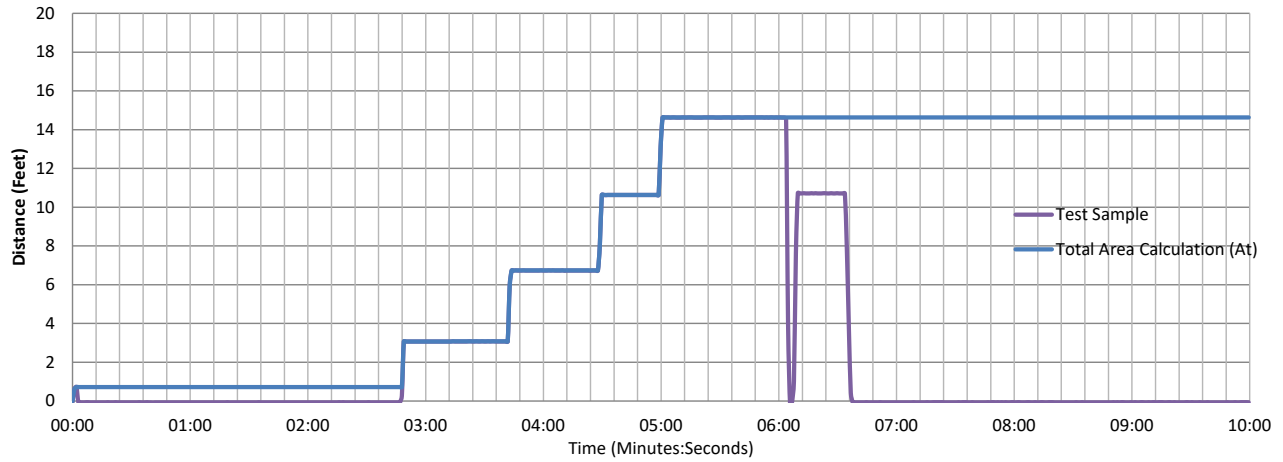
Temperature



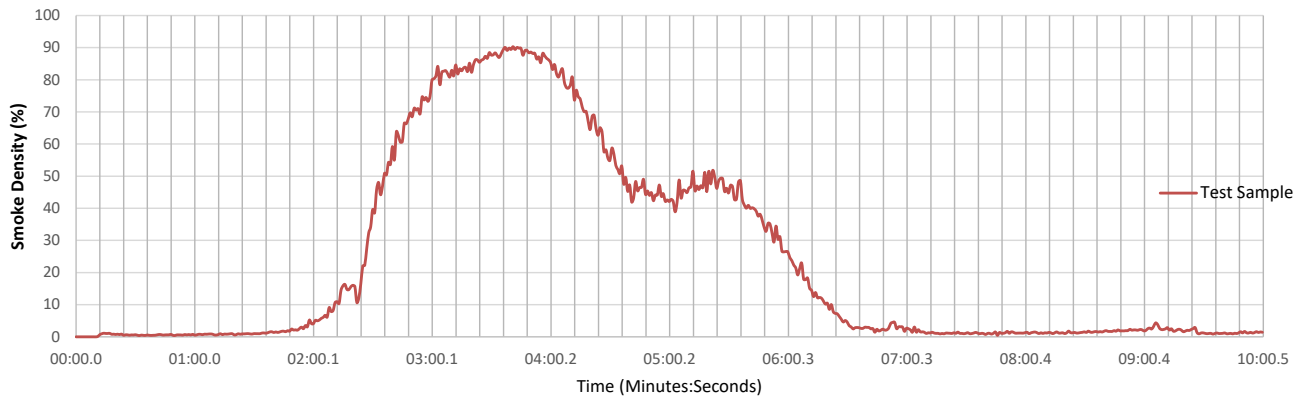


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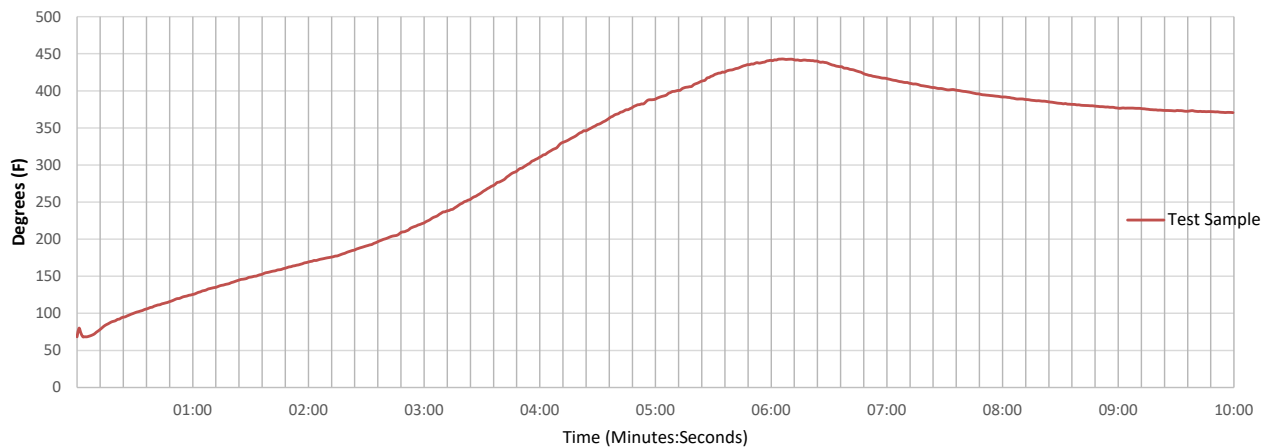
Flame Spread



Smoke Readings



Temperature

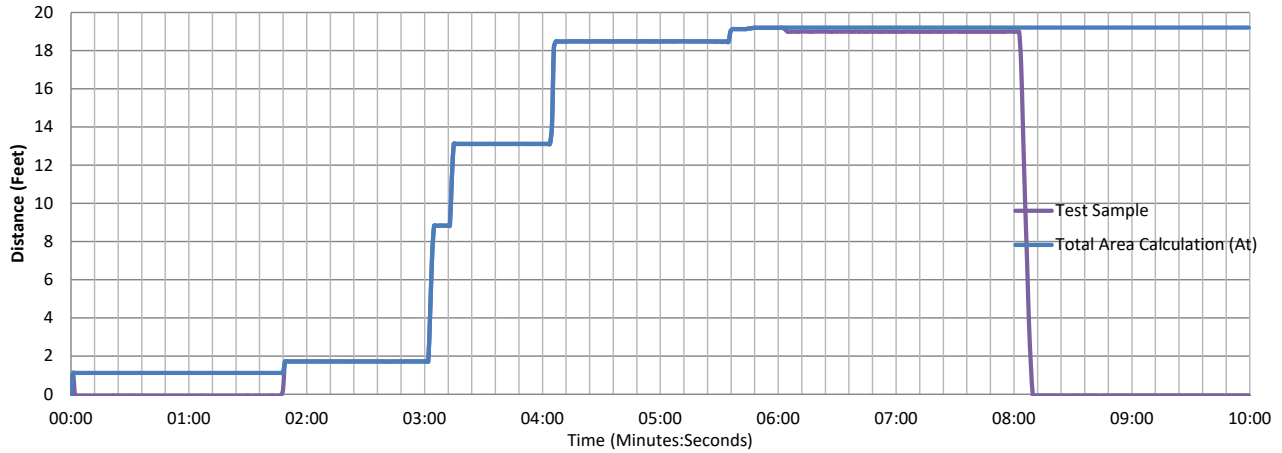


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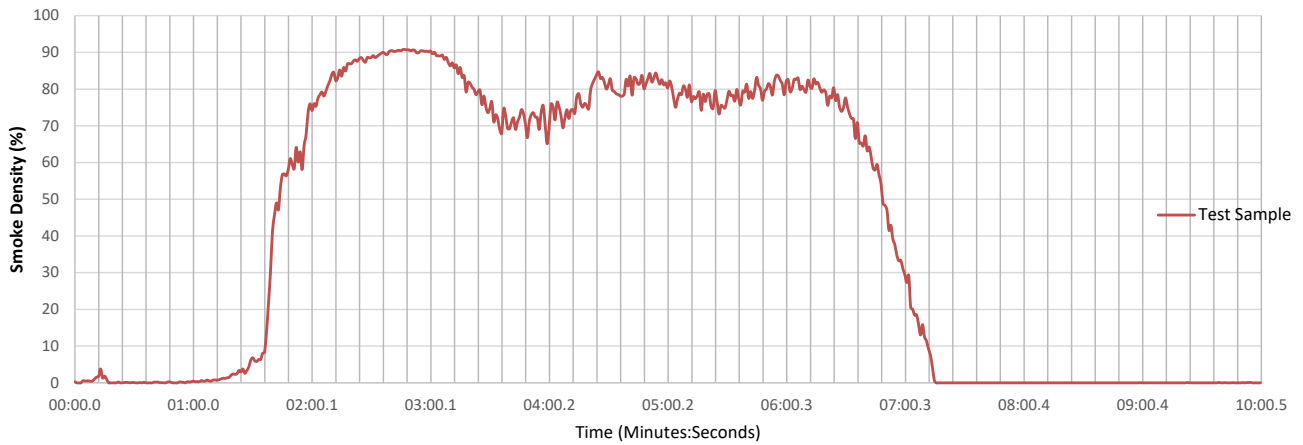


RESULTS CONTINUED: Test Number 3 of 3

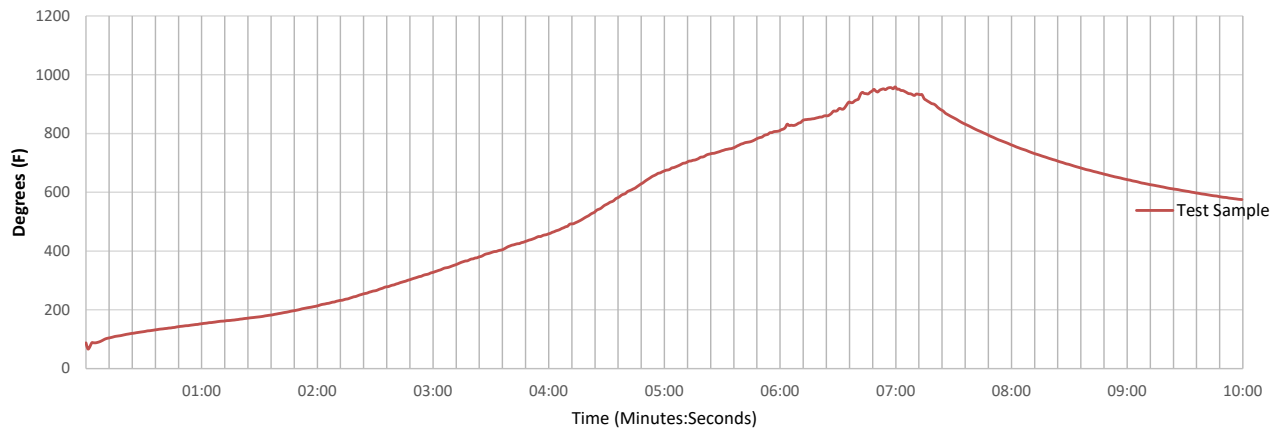
Flame Spread



Smoke Readings



Temperature



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APPENDIX

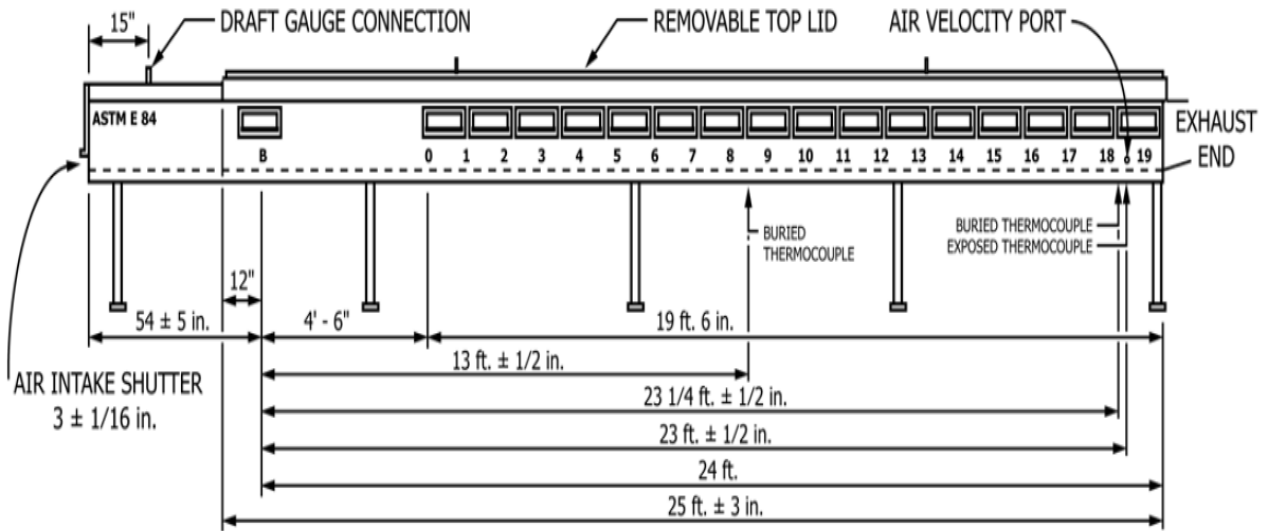


Diagram 1. Test Chamber side view showing critical dimensions.

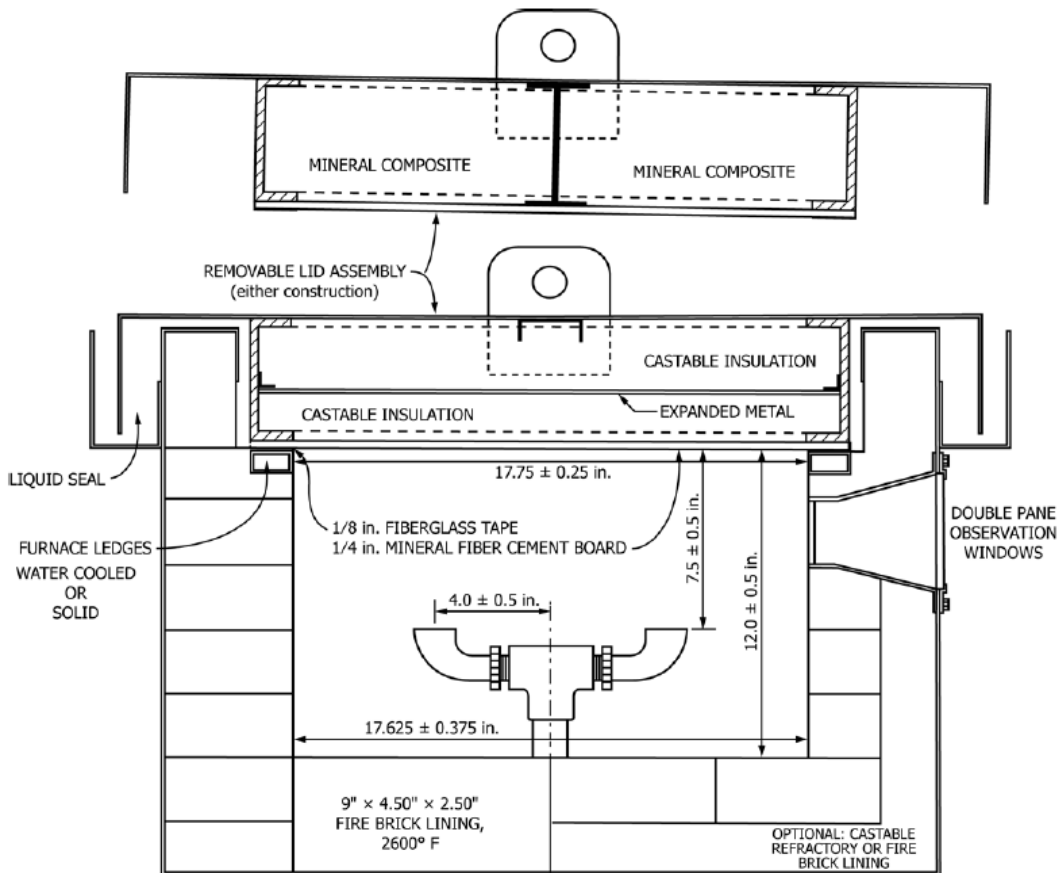


Diagram 2. Test Chamber looking down chamber showing critical dimensions.

APPENDIX



Photo's: Surface of Specimen's Tested

<<<END OF TEST REPORT>>>

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