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Test Report

Fire Test (ASTM E84)

Prepared for

Unique Fiberglass LLC

Document No. CT-TWR-18-54 Rev 0

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Prepared for

Unique Fiberglass LLC

By

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Client:	Unique Fiberglass LLC
Address:	Unique Fiberglass & Composites L.L.C. Ras Al Khaimah, U.A.E.
Date Sample Received:	27th November 2018

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Signature			
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Date	3/1/2019	3/1/2019	3.1.19

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Revision History

Date of Revision	Revision	Reason for change

1. Introduction

A series of tests have been conducted to determine the performance of the product under testing scope of Fire Test (ASTM E84). This report is prepared for Unique Fiberglass LLC, which presents the methodology and results of the test.

2. Description of Test Item

Test	Quantity
Fire Test (ASTM E84)	1

3. Preparation of Test Specimen

Panel received on 27th November 2018 were packed and sealed in packaging.

4. Comment/Observation

No abnormalities found during the testing.

5. Appendix

5.1. Fire Testing – ASTM E84

Test Result Summary

No.	Test(s) Requested	Result(s)	Comments
1	ASTM E84-18b Standard Test Method for Surface Burning Characteristics of Building Materials	Class A	/

For further details, please refer to the following page(s)
(Unless otherwise stated the results shown in this test report refer only to the sample(s) tested)

Test Conducted:

ASTM E84-18b Standard Test Method for Surface Burning Characteristics of Building Materials

Introduction:

The method, designated as ASTM E84-18b, "Standard Method of Test for Surface Burning Characteristics of Building Materials", is designed to determine the relative surface burning characteristics of materials under specific test conditions. Results are expressed in terms of flame spread index (FSI) and smoke developed index (SDI).

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.

Test Procedure:

The tunnel is preheated to 150℉, as measured by the floor-embedded thermocouple located 23.25 feet downstream of the burner ports, and allowed to cool to 105℉, as measured by the floor-embedded thermocouple located 13 feet from the burners. At this time the tunnel lid is raised and the test sample is placed along the ledges of the tunnel so as to form a continuous ceiling 24 feet long, 12 inches above the floor. The lid is then lowered into place.

Upon ignition of the gas burners, the flame spread distance is observed and recorded every 15 seconds. Flame spread distance versus time is plotted ignoring any flame front recessions. If the area under the curve (A) is less than or equal to 97.5 min·ft, FSI = 0.515·A; if greater, FSI = 4900/(195-A). Smoke developed is determined by comparing the area under the obscuration curve for the test sample to that of inorganic reinforced cement board and red oak, arbitrarily established as 0 and 100, respectively.

Sample Description & Preparation:

Thickness	:	Approximately 7mm
Exposed face	:	One face
Preparation	:	Prior to testing, the specimen was conditioned to constant weight at a temperature of (73.4± 5)℉ (23 ± 2.8)℃ and a relative humidity of (50 ± 5)%.

The test specimen consisted of a total of 38 sections of material. The sections were butted together during testing to form the requisite specimen length. The specimen was self-supporting on the ledges of the test chamber.

Test Results:

Test data and observations:

Ignition time:	108 seconds.
Maximum flame spread (ft):	6.5
Time To Maximum Spread:	431 seconds.
Observations of the burning characteristics	Fall out
Test Duration:	10 minutes.
FS*Time area (ft*min):	43.7
Smoke area (%A*min):	206.6
Red oak smoke area (%A*min):	90.8

Summary of results:

Flame-spread Index (FSI)	Smoke-developed Index (SDI)
25	250

Rating:

The National Fire Protection Association Life Safety Code 101, "Interior Wall and Ceiling Finish Classification", has a means of classifying materials with respect to Flame Spread and Smoke Developed when tested in accordance with NFPA 255, (ASTM E84) "Method of Test of Surface Burning Characteristics of Building Materials".

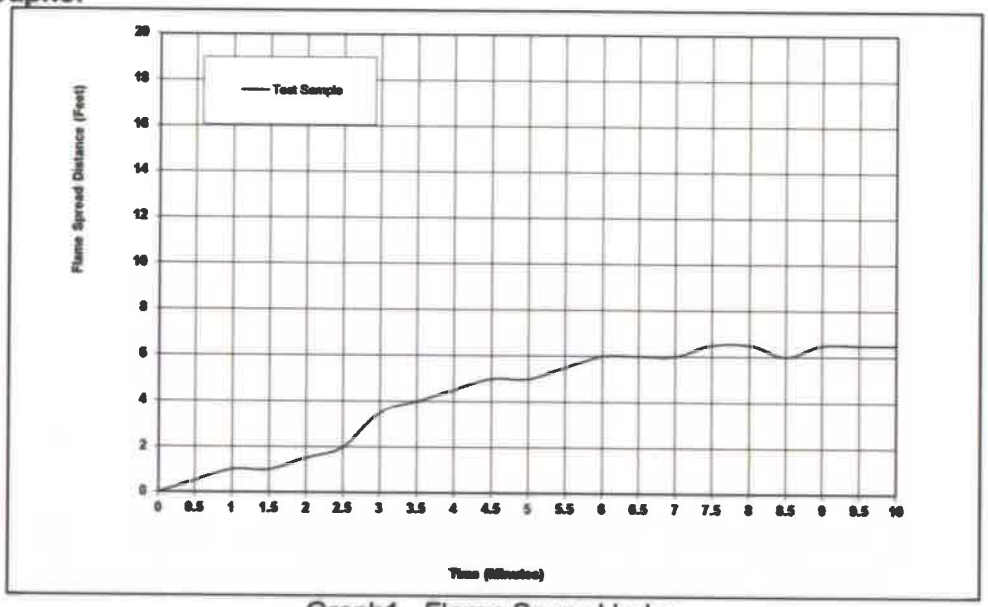
The classifications are as follows:

	Flame-Spread Index (FSI)	Smoke-developed Index(SDI)
Class A	0 - 25	0 - 450
Class B	26 - 75	0 - 450
Class C	76 - 200	0 - 450

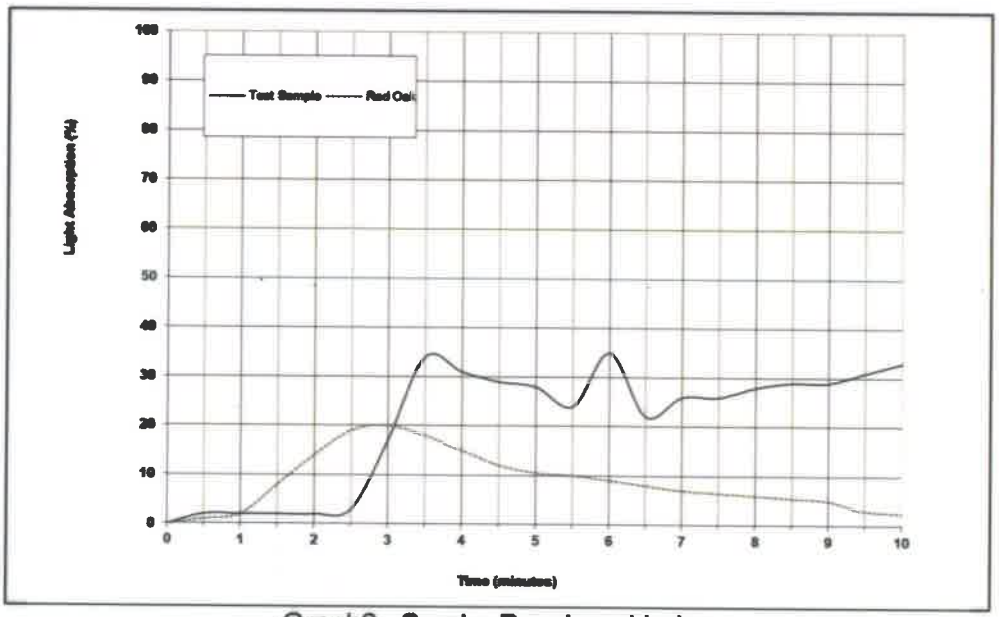
Conclusion:

Refer to the National Fire Protection Association Life Safety Code 101, "Interior Wall and Ceiling Finish Classification", the submitted sample meets the requirement of Class A.

Appendix 1-Graphs:

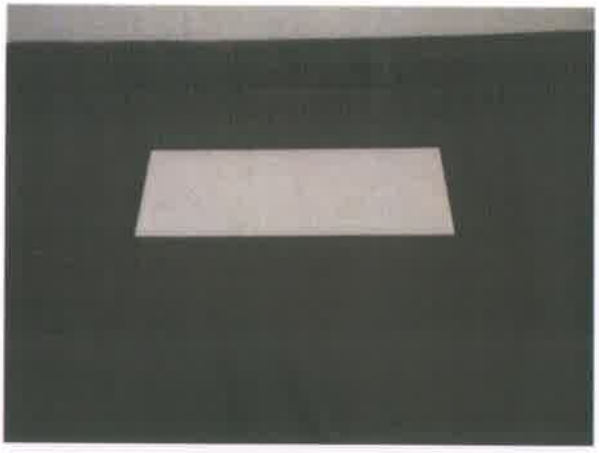


Graph1. Flame Spread Index



Graph2. **Smoke Developed Index**

Specimen photograph:



Sample picture

After test