



REPORT NUMBER: 100135813SAT-001A
ORIGINAL ISSUE DATE: July 28, 2010
REVISED DATE: N/A

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RENDERED TO

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Report of Testing "Flexible Duct Connector" for compliance with the applicable requirements of the following criteria: UL 723 TEST FOR SURFACE BURNING CHARACTERISTICS OF BUILDING MATERIALS (ASTM E84-10, UBC 8-1, NFPA 255)

TEST REPORT

ABSTRACT

Specimen I. D. "Flexible Duct Connector"

Test Standard: UL 723 TEST FOR SURFACE BURNING
CHARACTERISTICS OF BUILDING MATERIALS (ASTM
E84-10, UBC 8-1, NFPA 255)

Test Date: July 26, 2010

Client: AFS Boru Sanayi A.S.

Test Results:

FLAME SPREAD INDEX	10
SMOKE DEVELOPED INDEX	400

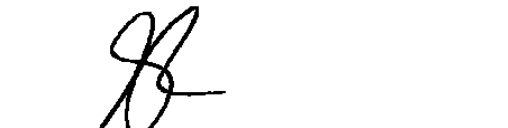
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July 28, 2010

Reviewed and approved:



Servando Romo
Project Manager

July 28, 2010

I. INTRODUCTION

This report describes the results of the UL 723 TEST FOR SURFACE BURNING CHARACTERISTICS OF BUILDING MATERIALS a method for determining the comparative surface burning behavior of building materials. This test is applicable to exposed surfaces, such as ceilings or walls, provided that the material or assembly of materials, by its own structural quality or the manner in which it is tested and intended for use, is capable of supporting itself in position or being supported during the test period.

The purpose of the method is to determine the relative burning behavior of the material by observing the flame spread along the specimen. Flame spread and smoke density developed are reported, however, there is not necessarily a relationship between these two measurements.

“The use of supporting materials on the underside of the test specimen may lower the flame spread index from that which might be obtained if the specimen could be tested without such support... This method may not be appropriate for obtaining comparative surface burning behavior of some cellular plastic materials... Testing of materials that melt, drip, or delaminate to such a degree that the continuity of the flame front is destroyed, results in low flame spread indices that do not relate directly to indices obtained by testing materials that remain in place.”

This test method is also published under the following designations:

NFPA 255

UL 723

UBC 8-1

This standard should be used to measure and describe the properties of materials, products, or assemblies in response to heat and flame under controlled laboratory conditions and should not be used to describe or appraise the fire hazard or fire risk of materials, products, or assemblies under actual fire conditions. However, results of this test may be used as elements of a fire risk assessment which takes into account all of the factors which are pertinent to an assessment of the fire hazard of a particular end use.

II. PURPOSE

The UL 723 (25 foot tunnel) test method is intended to compare the surface flame spread and smoke developed measurements to those obtained from tests of mineral fiber cement board and select grade red oak flooring. The test specimen surface (18 inches wide and 24 feet long) is exposed to a flaming fire exposure during the 10 minute test duration, while flame spread over its surface and density of the resulting smoke are measured and recorded. Test results are presented as the computed comparisons to the standard calibration materials.

The furnace is considered under calibration when a 10 minute test of red oak decking will pass flame out the end of the tunnel in five minutes, 30 seconds, plus or minus 15 seconds. Mineral fiber cement board forms the zero point for both flame spread and smoke developed indexes, while the red oak flooring smoke developed index is set as 100.

III. TEST PROCEDURE

The tests were conducted in accordance with the procedures outlined in the UL 723. The specimens are placed directly on the tunnel ledges. As required by the standard, one or more layers of 0.25 inch thick reinforced concrete board are placed on top of the test sample between the sample and the tunnel lid. After the test, the samples are removed from the tunnel, examined and disposed of.

IV. REVISION SUMMARY

DATE	SUMMARY
n/a	

V. DESCRIPTION OF TEST SPECIMENS

Date Received:	July 9, 2010
Date Prepared:	July 26, 2010
Conditioning (73°F & 50% R.H.):	16 days
Specimen Width (in):	24
Specimen Length (ft):	24
Specimen Thickness (in):	0.019 for steel part and flexible plastic 0.016.
Material Weight:	N/A
Total Specimen Weight (lbs):	30
Adhesive or coating application rate:	N/A

Mounting Method:

The specimen was supported with 20-gage, 2-in. (51-mm) hexagonal galvanized steel netting and ¼" steel rods.

Specimen Description:

The specimen was described by the client as "Flexible Duct Connector".

The specimen consisted of (3) 24-ft. long x 9.50-in wide flexible duct connector material. Each flexible duct connector has a center flexible plastic material and steel sheet material on both sides. The flexible duct connector material was placed in the tunnel with the steel part over lapping each other so that the center flexible plastic material was exposed to the flames.

The product was received by our personnel in good condition.

VI. TEST RESULTS & OBSERVATIONS

The test results, computed on the basis of observed flame front advance and electronic smoke density measurements are presented in the following table.

Test Specimen	Flame Spread Index	Smoke Developed Index
"Flexible Duct Connector"	10	400

The data sheets are included in Appendix A. These sheets are actual print-outs of the computerized data system which monitors the tunnel furnace, and contain all calibration and specimen data needed to calculate the test results.

VII. OBSERVATIONS

During the test, the specimen was observed to behave in the following manner.

Time (min:sec)	Observations
0:07	Specimen had steady Ignition.
0:09	Specimen began to produce flaming drops.
0:10	Steady floor flames were observed.
10:00	The test burners were shut off.

After the test, the specimen was observed to be damaged as follows:

Distance (FEET)	Damage Descriptions
0 – 9	Specimen was Consumed
9 – 11	Specimen was Melted
11 – 24	Specimen was Discolored

APPENDIX A
UL 723
DATA SHEETS

Client: AFS Boru Sanayi

Date: 7/26/2010

Project Number: 100135813SAT-001

Test Number: 4

Operator: SR/DRG

Specimen ID:

"Flexible Duct Connector" The specimen was supported by rods and wire.

TEST RESULTS

FLAME SPREAD: 10

SMOKE DEVELOPED INDEX: 400

SPECIMEN DATA . . .

Time to ignition (sec): 7

Time to Max FS (sec): 43

Maximum FS (feet): 1.8

Time to 980 F (sec): NEVER REACHED

Time to End of Tunnel (sec): NEVER REACHED

Max Temperature (F): 482

Time to Max Temperature (sec): 523

Total Fuel Burned (cubic feet): 48.56

FS* Time Area (ft*min): 18.3

Smoke Area (%A*min): 393.1

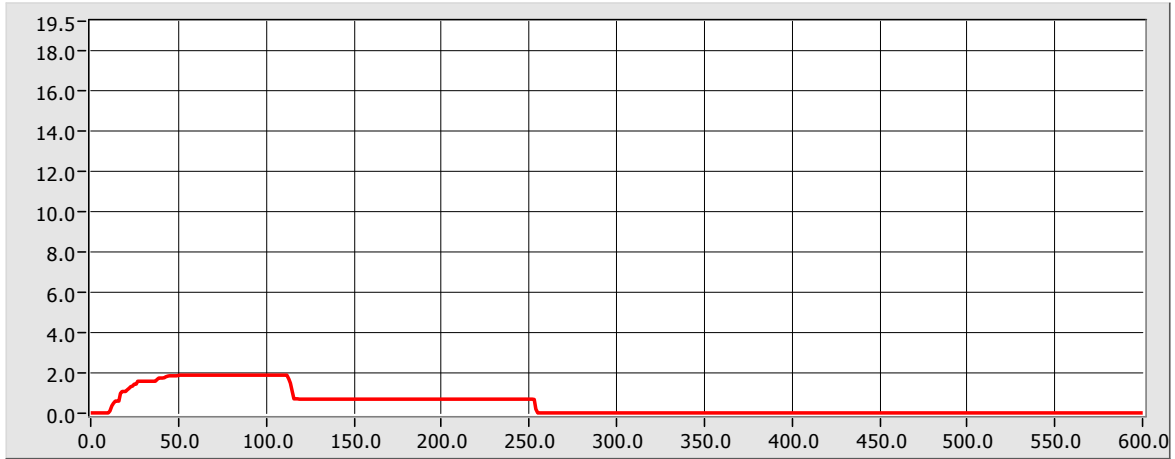
Unrounded FSI: 9.4

CALIBRATION DATA . . .

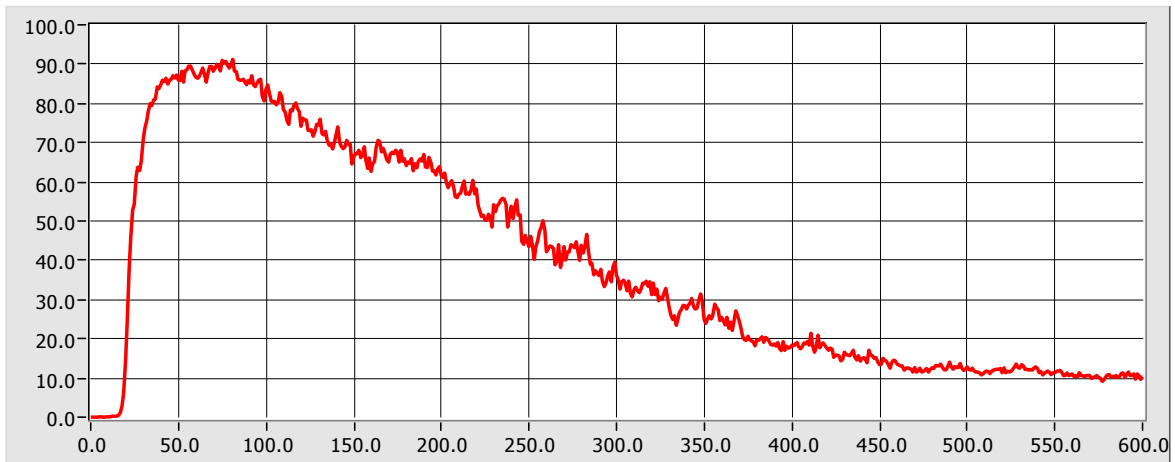
Time to ignition of last Red Oak (sec): 37.0

Red Oak Smoke Area (%A*min): 104.2

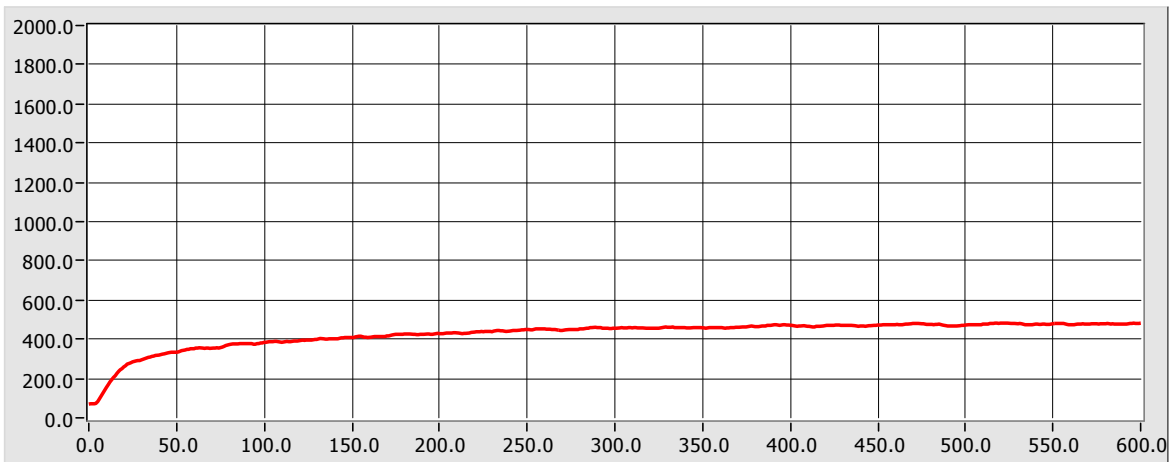
FLAME SPREAD (ft)



Smoke (%A)



Temperature (°F)



Time (sec)

600