TEST REPORT

REPORT NUMBER: 100582856SAT-001A
ORIGINAL ISSUE DATE: December 29, 2011
REVISED DATE:

EVALUATION CENTER
Intertek Testing Services NA Inc.
16015 Shady Falls Road
Elmendorf, TX 78112

RENDERED TO

Andek Corporation
850 Glen Avenue
PO Box 392
Morrestown, NJ 08057

Report of Testing "Andek Firegard" for compliance with the applicable requirements of the following criteria: ASTM E84-11b (30 Minute Test) TEST FOR SURFACE BURNING CHARACTERISTICS OF BUILDING MATERIALS (UL 723, UBC 8-1, NFPA 255)

ABSTRACT

Specimen I. D.	**"**Andek Firegard**"**
Test Standard:	ASTM E84-11b (30 Minute Test) TEST FOR SURFACE BURNING CHARACTERISTICS OF BUILDING MATERIALS (UL 723, UBC 8-1, NFPA 255)
Test Date:	December 22, 2011
Client:	Andek Corporation

Test Results:

FLAME SPREAD INDEX	**5**
SMOKE DEVELOPED INDEX	**95**
MAXIMUM FLAME FRONT	**6 ft. Beyond Burners Centerline**

Darrell Gonzales — December 29, 2011
Technician 3

Reviewed and approved:

Servando Romo — December 29, 2011
Project Manager

I. INTRODUCTION

This report describes the results of the ASTM E84-11b (30 Minutes) TEST FOR SURFACE BURNING CHARACTERISTICS OF BUILDING MATERIALS a method for determining the comparative surface burning behavior of building materials, extended to a total of 30 minutes. 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 ASTM E84 (30 Minutes) (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 American Society for Testing and Materials ASTM E84 (30 Minutes) except the test was continued for a total of 30 minutes. The self-supporting specimens were placed directly on the tunnel ledges. As required by the standard, one or more layers of 0.25 inch thick reinforced concrete board was placed on top of the test sample between the sample and the tunnel lid. After the tests, the samples were removed from the tunnel, examined and disposed of.

IV. REVISION SUMMARY

DATE	SUMMARY
December 29, 2011	Original

V. DESCRIPTION OF TEST SPECIMENS

Date Received:	12/14/11
Date placed in the conditioning room:	12/14/11
Date Prepared:	12/19/11
Conditioning (73°F & 50% R.H.):	3 days
Specimen Width (in):	24
Specimen Length (ft):	24
Specimen Thickness (in):	0.25 (coating and cement board)
Total Specimen Weight (lbs):	83 (cement board/coating)
Adhesive or coating application rate:	1 coat at 120 sq. ft. per gallon

Mounting Method:
The specimen was self-supporting. If the sample has two different sides, indicate which side is facing down towards the flame. The coating was exposed to the flames.

Specimen Description:
The specimen was described by the client as “Fire Retardant Coating”.

The 24-ft. long test specimen consisted of a fire retardant coating applied to three 8-ft. long x 24-in. wide x 0.25-in. thick cement board at 120 sq. ft. per gallon.

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
"Andek Firegard"	5	95

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
4:08	A steady ignition was applied.

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

Distance (FEET)	Damage Descriptions
0 - 6	The coating was heavily charred and bleached.
6 - 24	The coating was heavily discolored.

APPENDIX A
ASTM E84 (30 Minutes)
DATA SHEETS

TEST RESULTS

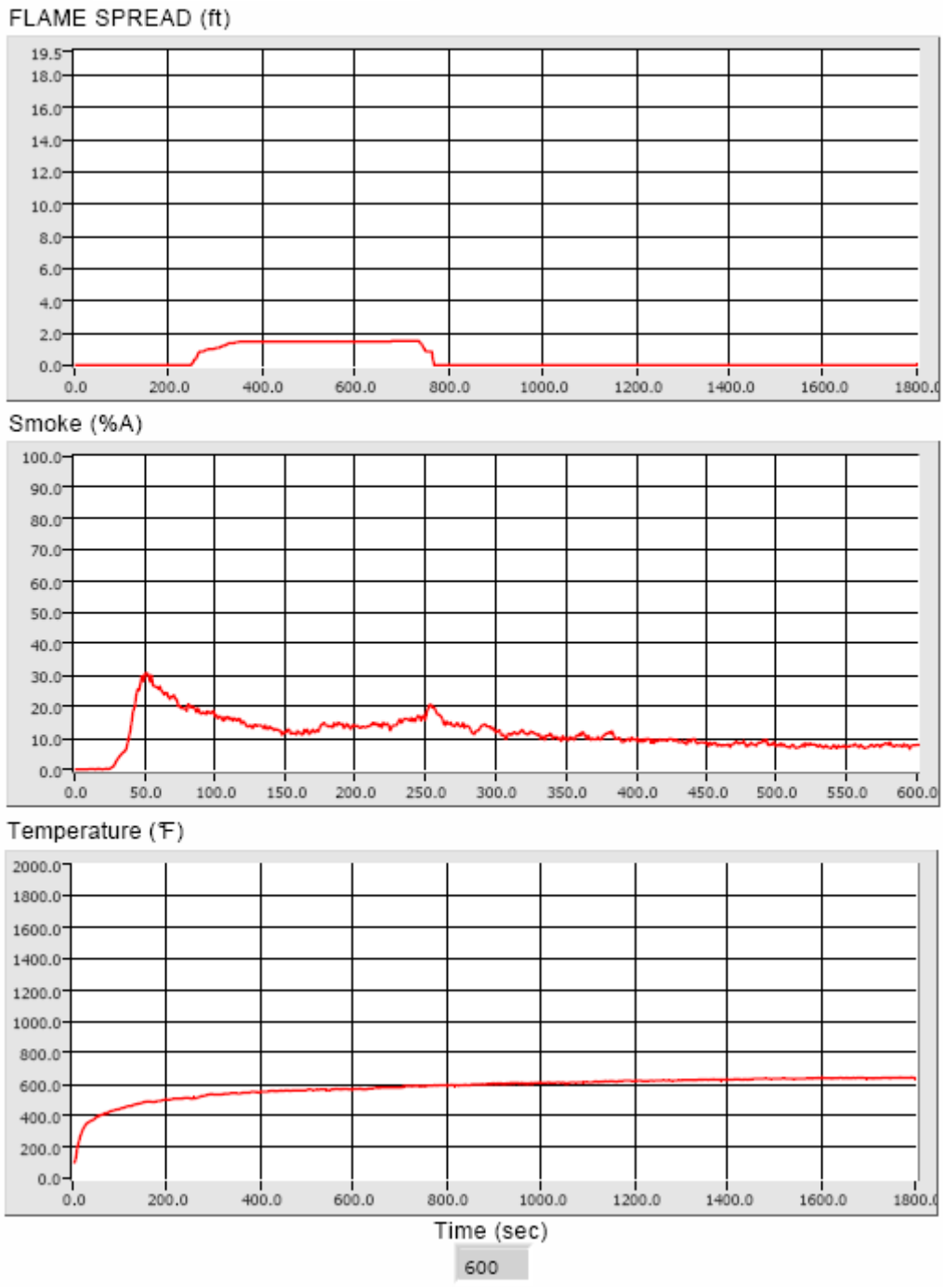
FLAMESPREAD INDEX:	**5**
SMOKE DEVELOPED INDEX:	**95**

SPECIMEN DATA . . .

Time to Ignition (sec):	248
Time to Max FS (sec):	353
Maximum FS (feet):	1.5
Time to 980 F (sec):	Never Reached
Time to End of Tunnel (sec):	Never Reached
Max Temperature (F):	643
Time to Max Temperature (sec):	1792
Total Fuel Burned (cubic feet):	147.82
FS*Time Area (ft*min):	7.8
Smoke Area (%A*min):	272.0
Unrounded FSI:	4.0

CALIBRATION DATA . . .

Time to Ignition of Last Red Oak (Sec):	46.0
Red Oak Smoke Area (%A*min):	119.1


FLAME SPREAD (ft)
19.5
18.0
16.0
14.0
12.0
10.0
8.0
6.0
4.0
2.0
0.0
0.0
200.0
400.0
600.0
800.0
1000.0
1200.0
1400.0
1600.0
1800.0
Smoke (%A)
100.0
90.0
80.0
70.0
60.0
50.0
40.0
30.0
20.0
10.0
0.0
0.0
50.0
100.0
150.0
200.0
250.0
300.0
350.0
400.0
450.0
500.0
550.0
600.0
Temperature (°F)
2000.0
1800.0
1600.0
1400.0
1200.0
1000.0
800.0
600.0
400.0
200.0
0.0
0.0
200.0
400.0
600.0
800.0
1000.0
1200.0
1400.0
1600.0
1800.0
Time (sec)
600