QAI LABORATORIES
CERTIFICATION TESTING INSPECTION

1325 North 108th East Avenue
Tulsa, OK 74116
918.437.8333 ph. 918.437.8487 fx.

CLIENT: **Crane Composites**
8015 Dixon Dr.
Florence KY 41042

Test Report No: TJ2392-2	Date: September 12, 2014

SAMPLE ID: The client identified the following test material as **"STDSP.090"**

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

DATE OF RECEIPT: Samples were received at QAI facilities on September 3, 2014

TESTING PERIOD: September 5, 2014

AUTHORIZATION: Signed work order FB-2014-020702.

TEST REQUESTED: Perform standard flame spread and smoke density developed classification tests on the sample supplied by the Client in accordance with ASTM Designation E84-13, "Standard Method of Test for Surface Burning Characteristics of Building Materials". The foregoing test procedure is comparable to UL 723, ANSI/NFPA No. 255, and UBC No. 8-1.

TEST RESULTS:

Flame Spread	Smoke Developed
70	400

CLASSIFICATION: The material resulted in a class "B". Detailed test results are presented in the subsequent pages of this report

Prepared By

Jeff Foster
Fire Test Technician

Signed for and on behalf of
QAI Laboratories, Inc.

J. Brian McDonald
Operations Manager

PREPARATION AND CONDITIONING: The sample was submitted in six panels approximately 4 feet long measuring 24 inches wide and approximately .090 inches thick. The sample material was placed into conditioning at 73ºF (±5ºF) and 50% (±5%) relative humidity until day of testing.

E 84 TEST DATA SHEET:

MOUNTING METHOD: The sample was supported during testing by 2" hexagonal mesh poultry netting running the length of the test chamber and ¼" round metal rods placed at 2' intervals across the width of the test chamber, with cement board place between the sample and tunnel lid.

CLIENT: Crane Composites **DATE:** September 12, 2014

SAMPLE: STDSP.090

IGNITION: 1 minute, 11 seconds

FLAME FRONT: 19 feet maximum

TIME TO MAXIMUM SPREAD: 5 minutes, 00 seconds

TEST DURATION: 10 minutes, 00 seconds

SUMMARY: FLAME SPREAD: 70 (68.8 unrounded) **SMOKE DEVELOPED:** 400 (407 unrounded)

OBSERVATIONS:

Sustained ignition began at 1 minute 11 seconds, with charring shortly after at 1 minute 15 seconds. Slow flame propagation until 3 minutes 30 seconds, when flame moved down the tunnel to 19 feet, with very heavy smoke. There was after burn witnessed at the conclusion of the 10 minute test.

CALIBRATION DATA:

Time to Ignition of Last Red Oak (sec):	54
Red Oak Smoke Area (%A* Min):	109.7
Total Fuel Burned (ft^3)	50.21

SUMMARY OF ASTM E84 RESULTS:

Because of the possible variations in reproducibility, the results are adjusted to the nearest figure divisible by 5. Smoke Density values over 200 are rounded to the nearest figure divisible by 50.

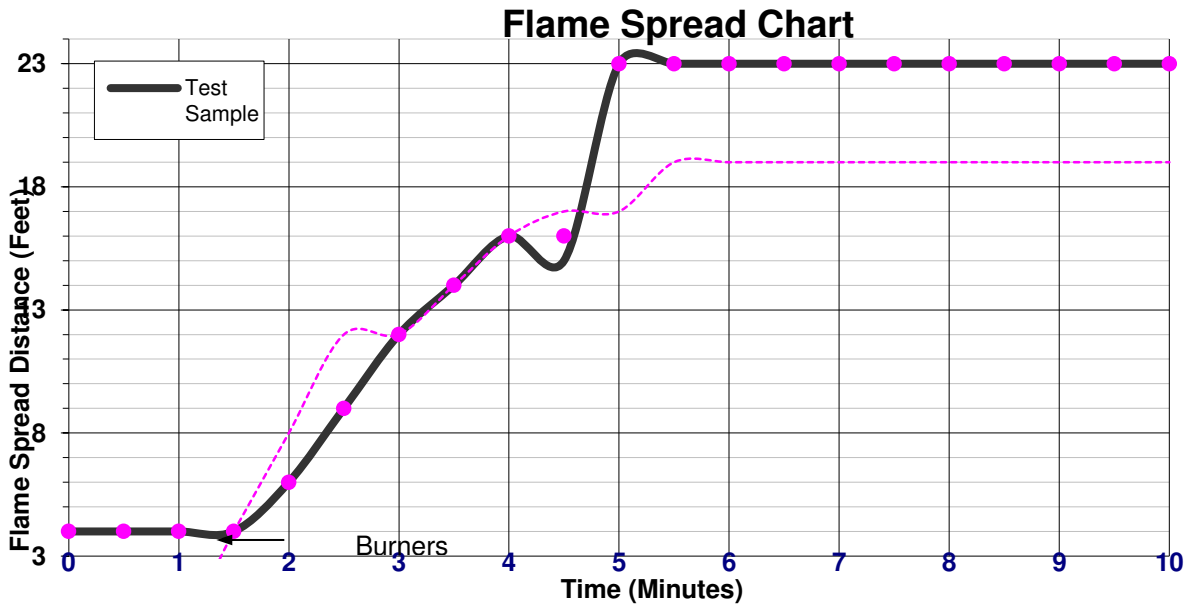
In order to obtain the Flame Spread Classification, the above results should be compared to the following table:

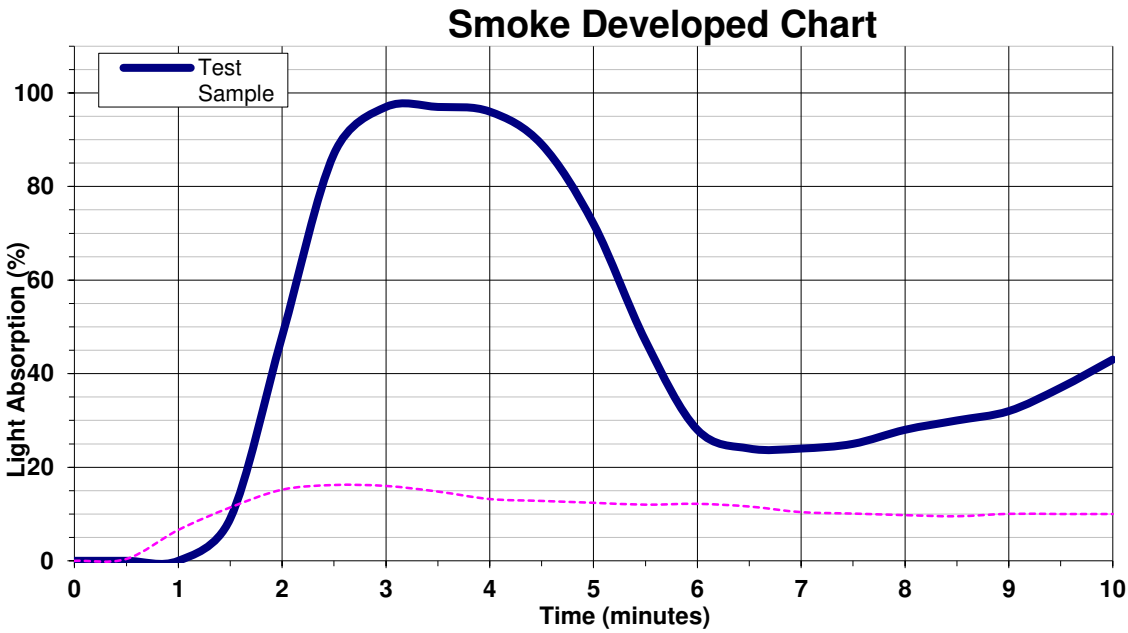
NFPA CLASS	IBC CLASS	FLAME SPREAD	SMOKE DEVELOPED
A	A	0 through 25	Less than or equal to 450
B	B	26 through 75	Less than or equal to 450
C	C	76 through 200	Less than or equal to 450

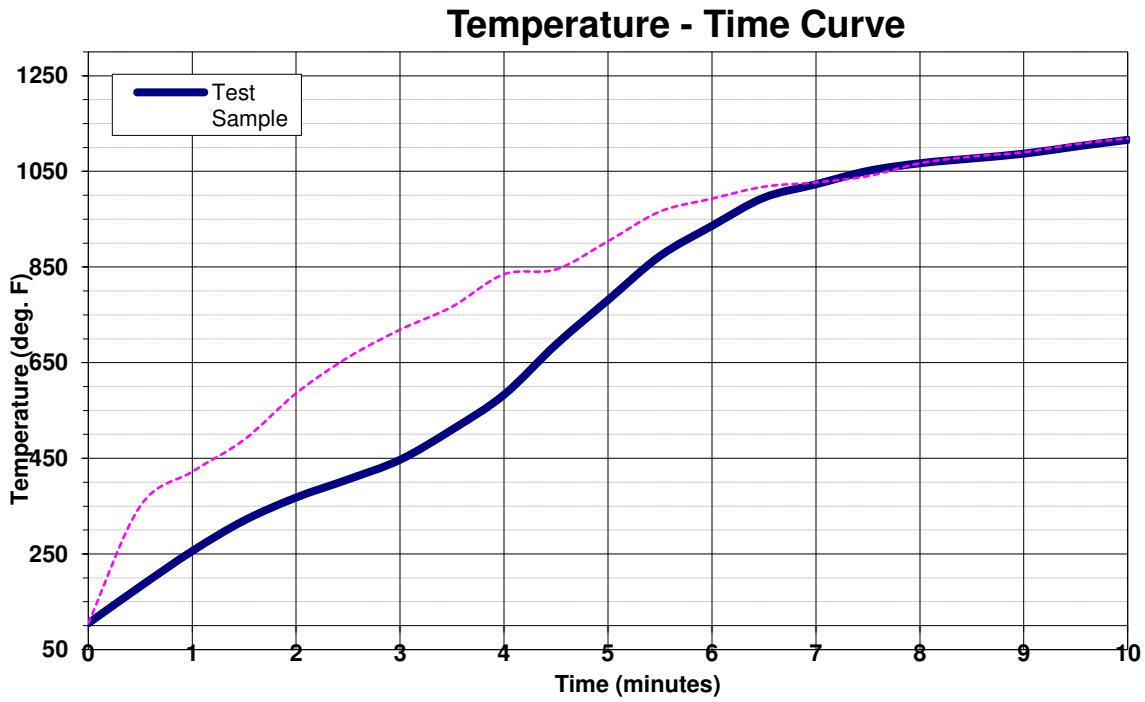
BUILDING CODES CITED:

1. National Fire Protection Association, ANSI/NFPA No. 101, "Life Safety Code", 2006 Edition.

2. International Building Code, 2006 Edition, Chapter 8, Interior Finishes, Section 803.







END OF TEST REPORT