



May 22, 2013

Mr. Herbert Wheeler  
Railtech Ltd.  
325 Ave. Lee  
Baie-D'urf, QX 3S3  
Canada



Our Reference: R26549/13CA21763

Subject: Report Of Surface Burning Characteristics Tests On Samples As  
Submitted By Railtech Ltd.

Dear Mr. Wheeler:

This is a Report summarizing the results of a test conducted under a preliminary investigation identified as Assignment No. 13CA21763.

#### GENERAL:

Preliminary investigations are initiated to obtain information with respect to a product or products prior to submittal to UL LLC (UL) for Investigation, Classification and Follow-Up Service. This Report does not constitute evidence of such a submittal to UL. The results relate only to items tested.

#### METHOD:

Each test was conducted in accordance with Standard ANSI/UL723, Tenth Edition, dated September 13, 2010, "Test for Surface Burning Characteristics of Building Materials", (ASTM E84-11).

The test determines the Surface Burning Characteristics of the material, specifically the flame spread and smoke developed indices when exposed to fire.

The maximum distance the flame travels along the length of the sample from the end of the igniting flame is determined by observation. The Flame Spread Index of the material is derived by plotting the progression of the flame front on a time-distance basis, ignoring any flame front recession, and using the equations described below:

- A.  $CFS = 0.515 A_T$  when  $A_T$  is less than or equal to 97.5 minute-foot.
- B.  $CFS = 4900/(195-A_T)$  when  $A_T$  is greater than 97.5 minute-foot.

Where  $A_T$  = total area under the time distance curve expressed in minute-foot.

The Smoke Developed Index (SDI) is determined by rounding the Calculated Smoke Developed (CSD) as described in UL 723. The CSD is determined by the output of photoelectric equipment operating across the furnace flue pipe. A curve is developed by plotting the values of light absorption (decrease in cell output) against time. The CSD is derived by expressing the net area under the curve for the material tested as a percentage of the area under the curve for untreated red oak.

The CSD is expressed as:

$$CSD = (A_m/A_{ro}) \times 100$$

Where:

CSD = Calculated Smoke Developed

$A_m$  = The area under the curve for the test material.

$A_{ro}$  = The area under the curve for untreated red oak.

#### SAMPLES:

The samples utilized in this investigation were neither prepared nor selected by a Laboratories' representative such that no verification of composition can be provided.



#### Sample Description

| Test No. | System                       |
|----------|------------------------------|
| 1        | Skyfold NRC Panels No Finish |

Due to the rigidity of the test samples, supplementary means of support was not required.

#### RESULTS:

The results are tabulated below are considered applicable only to the specific samples tested.

Data sheets and graphical plots of flame travel versus time and smoke developed versus time are also enclosed.

Table 1: Test Summary



| Test No. | Test Code | Sample Description           | CFS Calculated Flame Spread | FSI Flame Spread Index | CSD Calculated Smoke Developed | SDI Smoke Developed Index |
|----------|-----------|------------------------------|-----------------------------|------------------------|--------------------------------|---------------------------|
| 1        | 05171306  | Skyfold NRC Panels No Finish | 19.03                       | 20                     | 13.7                           | 15                        |

The Classification Marking of UL on the product is the only method provided by UL to identify products which have been produced under its Classification and Follow-Up Service. No use of a Classification Marking has been authorized as a result of this investigation.

Since the anticipated work has been completed, we have instructed our Accounting Department to terminate the investigation and invoice you for the charges incurred to date.

Should you have any questions, please contact the undersigned.

Very truly yours

A handwritten signature in black ink, appearing to read 'James F. Smith', written over a light grey circular stamp.

James Smith (ext. 42666)  
Staff Engineering Associate  
Fire Protection Division

Reviewed by:

A handwritten signature in black ink, appearing to read 'R. K. Laymon', written over a light grey circular stamp.

Randall Laymon (ext. 42687)  
Senior Staff Engineer  
Fire Protection Division

Project: 13CA21763  
Tested by: SCOTT KNIGHTON

File: R26549  
Engineer: JAMES SMITH

TestCode: 05171306  
Date: 2013-05-17

TEST METHOD: The test was conducted in accordance with UL 723, Tenth Edition.

Client Name: Railtech Ltd.

Test Duration: 10 minutes

Test No.: 1

Hot Test: No

Mounting: Self

Test Type: Developmental

Burn-Out Required: No

**Test Sample:** Skyfold NRC Panels No Finish



**SKYFOLD**<sup>®</sup>  
classic NRC™



**SKYFOLD**  
zenith<sup>®</sup> NRC

#### FLAME SPREAD RESULTS

##### Flame Spread Data

| Distance (Feet) | Time (Sec) | Distance (Feet) | Time (Sec) |
|-----------------|------------|-----------------|------------|
| Ignition        | 66         | 2.5             | 110        |
| 0.5             | 92         | 3               | 114        |
| 1               | 98         | 3.5             | 120        |
| 1.5             | 100        | 4               | 126        |
| 2               | 104        | 4.5             | 136        |

**Calculated Flame Spread (CFS):** 19.03  
**Flame Spread Index (FSI):** 20  
**Time to Ignition (sec):** 66  
**Maximum Flame Spread (ft):** 4.5  
**Area Under the Flame Spread Curve (ft.-min.):** 37.0

#### SMOKE RESULTS

**Calculated Smoke Developed (CSD):** 13.7  
**Smoke Developed Index (SDI):** 15  
**Area Under the Smoke Curve (Obs-min.):** 10.37  
**Area Under Red Oak Curve (Obs-min.):** 75.47

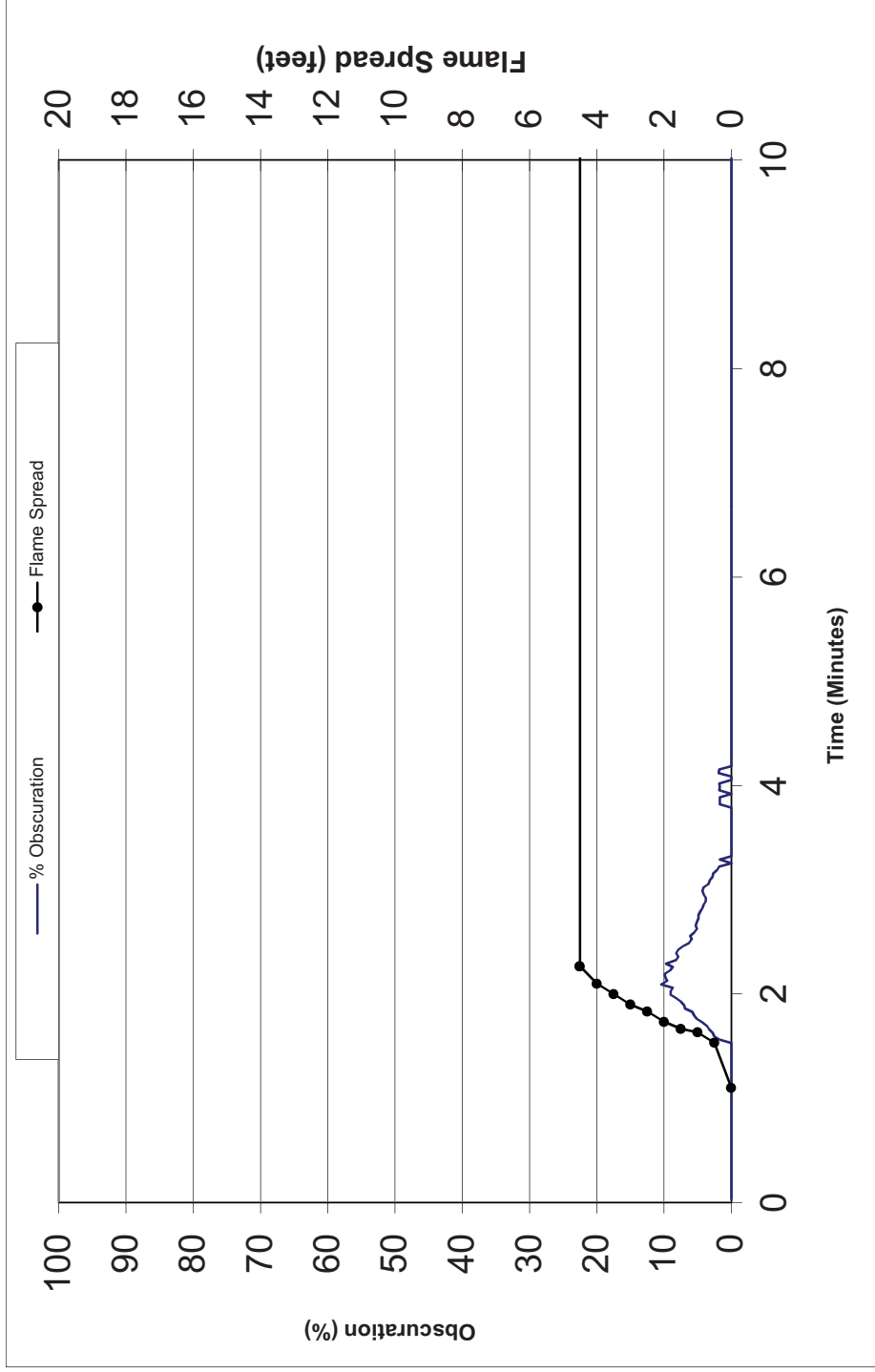
#### Post-Test Observations

**Discoloration (Feet From Burner):** 24  
**Char (Feet From Burner):** 9

# Flame Spread / Smoke Results

Railtech Ltd.

Skyfold NRC Panels No Finish



Test Num.: 1  
R26549 / 13CA21763  
05171306

Flame Spread Index: 20  
Smoke Developed Index: 15  
Max. Flame Spread (ft.): 4.5