



REPORT NUMBER: 100095979COQ-004

ORIGINAL ISSUE DATE: June 10, 2010

EVALUATION CENTER

Intertek Testing Services NA Ltd.
1500 Brigantine Drive
Coquitlam, B.C. V3K 7C1

RENDERED TO

Korolite Engineered Panel Structures Ltd
19402 -56 Street
Surrey BC
V3S 6K4

PRODUCT EVALUATED: K-Lock Insulated Panel

EVALUATION PROPERTY: Surface Burning Characteristics

Report of testing K-Lock Insulated Panel for compliance with the applicable requirements of the following criteria: CAN/ULC S102-07, Method of Test for Surface Burning Characteristics of Building Materials and Assemblies.

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TEST REPORT

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2 Introduction

Intertek Testing Services NA Ltd. (Intertek) has conducted testing for Korolite Engineered Panel Structures Ltd. to evaluate the surface burning characteristics of 4 in. thick K lock insulated EPS panels. Testing was conducted in accordance with the standard methods of CAN/ULC S102-07, *Method of Test for Surface Burning Characteristics of Building Materials and Assemblies*.

This evaluation began June 10, 2010 and was completed the same day.

3 Test Samples

3.1. SAMPLE SELECTION

Samples were selected and submitted by Intertek representative Teresa Jiang at the Korolite Engineered Panel Structures Ltd. facility at 19402 – 56 Ave Surrey BC on May 5, 2010. The sample materials were received at the Evaluation Center on May 7, 2010.

SAMPLE AND ASSEMBLY DESCRIPTION

Upon receipt of the samples at the Intertek Coquitlam laboratory they were placed in a conditioning room where they remained in an atmosphere of $23 \pm 3^{\circ}\text{C}$ ($73.4 \pm 5^{\circ}\text{F}$) and $50 \pm 5\%$ relative humidity.

The samples consisted of steel skinned expanded polystyrene panels measuring 22 in. wide by 8 ft long by 4 in thick. The product was identified by the client as “K Lock Insulated Panels”

For each trial run, three panels were butted together to form the required 24 ft. sample length. A layer of 6mm reinforced cement board was placed on the upper ledges of the tunnel, the tunnel lid was lowered into place, and the samples were then tested in accordance with CAN/ULC S102-07.

4 Testing and Evaluation Methods

4.1. TEST STANDARD

The results of the tests are expressed by indexes, which compare the characteristics of the sample under tests relative to that of select grade red oak flooring and asbestos-cement board.

(A) Flame Spread Classification:

This index relates to the rate of progression of a flame along a sample in the 25 foot tunnel. A natural gas flame is applied to the front of the sample at the start of the test and drawn along the sample by a draft kept constant for the duration of the test. An observer notes the progression of the flame front relative to time.

The test apparatus is calibrated such that the flame front for red oak flooring passes out the end of the tunnel in five minutes, thirty seconds (plus or minus 15 seconds).

Calculations: (CAN/ULC S102-07)

According to the test standard, the flame spread classification is equal to $\frac{5363}{195 - A_t}$

when A_t is the total area beneath the flame spread curve, if this area exceeds 97.5 minute feet. If the area beneath the curve is less than or equal to 97.5 minute feet the classification becomes $0.564 \times A_t$.

(B) Smoke Developed:

A photocell is used to measure the amount of light, which is obscured by the smoke passing down the tunnel duct. When the smoke from a burning sample obscures the light beam, the output from the photocell decreases. This decrease with time is recorded and compared to the results obtained for red oak, which is defined to be 100.

Calculations:

Unrounded Smoke Developed Index = $\frac{10,000 - \text{SmokeIntegration}}{1076} \times 100$

5 Testing and Evaluation Results

5.1. RESULTS AND OBSERVATIONS

(A) Flame Spread

The resultant flame spread classifications are as follows:
(classification rounded to nearest 5)

K lock Insulated Panels	Flame Spread	Flame Spread Classification
Run 1	0	5
Run 2	8	
Run 3	3	

(B) Smoke Developed

The areas beneath the smoke developed curve and the related classifications are as follows:
(classification rounded to nearest 5)

K lock Insulated Panels	Smoke Developed	Smoke Developed Classification
Run 1	127	175
Run 2	212	
Run 3	180	

(C) Observations

After ignition the flame proceeded slowly to approximately 6 ft past the original position of the flame front and remained there until the test was completed. This was the case for two of the three tests.

6 Conclusion


The samples of 4 in thick "K Lock Insulated Panels" submitted by Korolite Engineered Panel Structures Ltd, exhibited the following flame spread characteristics when tested in accordance CAN/ULC S102.-07, *Method of Test for Surface Burning Characteristics of Building Materials and Assemblies*.

A series of three test runs was conducted to conform to the requirements of the National Building Code of Canada.

Sample Material	Flame Spread Classification	Smoke Developed Classification
K lock Insulated Panels	5	175

The conclusions of this test report may be used as part of the requirements for Intertek product certification. Authority to Mark must be issued for a product to become certified.

INTERTEK TESTING SERVICES NA LTD.

Tested and
Reported by: 
Greg Philp
Technician – Construction Products Testing

Reviewed by: 
Scott Leduc, EIT
Reviewer, Fire Testing

GP

APPENDIX A

DATA SHEETS

CAN/ULC S102-07 DATA SHEETS
Run 1

ULC S102

Page 1 of 2

Client: Korolite
Date: June 10, 2010
Project Number: 10095979
Test Number: 1
Operator: Greg Philp
Specimen ID: 4 in. thick steel skinned eps foam panels

TEST RESULTS

FLAMESPREAD INDEX: 0

SMOKE DEVELOPED INDEX: 125

SPECIMEN DATA . . .

Time to Ignition (sec): 0
Time to Max FS (sec): 0
Maximum FS (mm): 0.0
Time to 527 C (sec): Never Reached
Time to End of Tunnel (sec): Never Reached
Max Temperature (C): 293
Time to Max Temperature (sec): 591
Total Fuel Burned (cubic feet): 52.70

FS*Time Area 0.0
Smoke Area (%A*min): 136.9
Unrounded FSI: 0.0
Unrounded SDI: 127.3

CALIBRATION DATA . . .

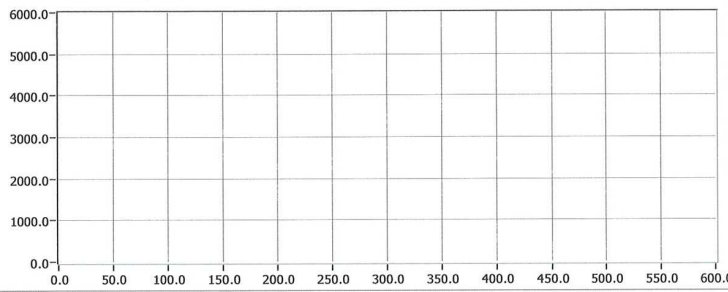
Time to Ignition of Last Red Oak (Sec): 40.0
Red Oak Smoke Area (%A*min): 107.6

CAN/ULC S102-07 DATA SHEETS Run 1

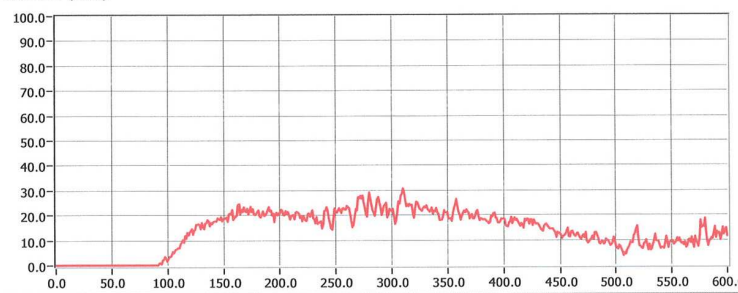
Project No: 10095979

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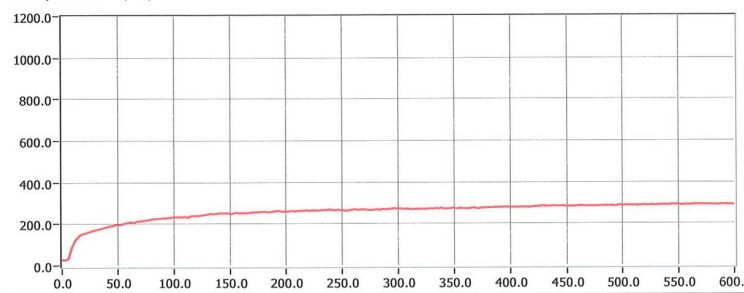
FLAME SPREAD (MM)



Smoke (%A)



Temperature (°C)



Time (sec)

600

CAN/ULC S102-07 DATA SHEETS Run 2

ULC S102

Page 1 of 2

Client: Korolite
Date: June 5 2010
Project Number: 100095979
Test Number: 2
Operator: Greg Philp
Specimen ID: 4 in. thick steel skinned EPS panel

TEST RESULTS

FLAMESPREAD INDEX: 10
SMOKE DEVELOPED INDEX: 210

SPECIMEN DATA . . .

Time to Ignition (sec): 0
Time to Max FS (sec): 284
Maximum FS (mm): 746.8
Time to 527 C (sec): Never Reached
Time to End of Tunnel (sec): Never Reached
Max Temperature (C): 293
Time to Max Temperature (sec): 415
Total Fuel Burned (cubic feet): 52.90

FS*Time Area 4.1
Smoke Area (%A*min): 228.3
Unrounded FSI: 7.5
Unrounded SDI: 212.2

CALIBRATION DATA . . .

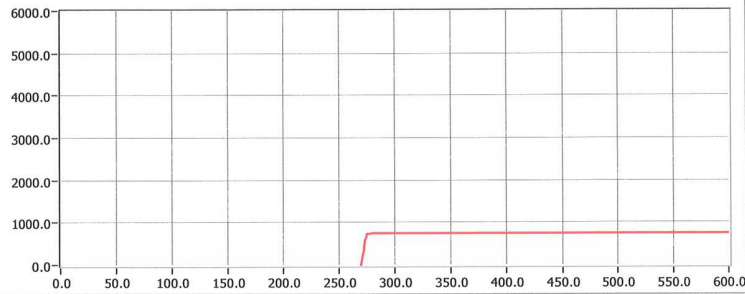
Time to Ignition of Last Red Oak (Sec): 40.0
Red Oak Smoke Area (%A*min): 107.6

CAN/ULC S102-07 DATA SHEETS Run 2

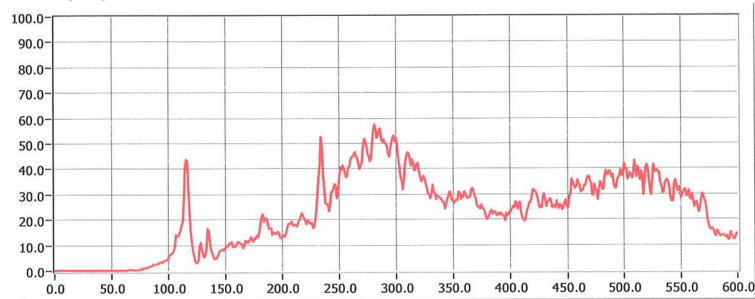
Project No: 100095979

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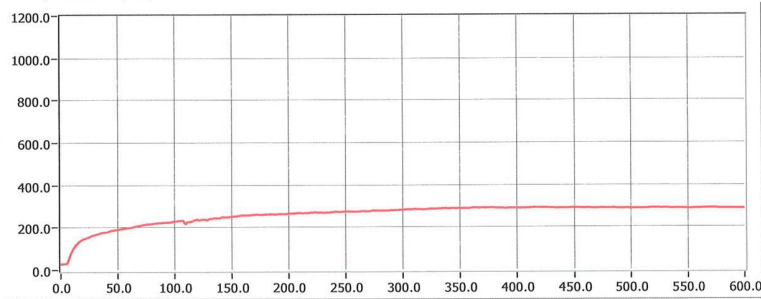
FLAME SPREAD (MM)



Smoke (%A)



Temperature (°C)



Time (sec)

600

CAN/ULC S102-07 DATA SHEETS
Run 3

ULC S102

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Client: Korolite
Date: June 10 2010
Project Number: 100095979
Test Number: 3
Operator: Greg Philp
Specimen ID: 4 in. thick steel skinned EPS foam panels

TEST RESULTS

FLAMESPREAD INDEX: 5
SMOKE DEVELOPED INDEX: 180

SPECIMEN DATA . . .

Time to Ignition (sec): 0
Time to Max FS (sec): 412
Maximum FS (mm): 526.9
Time to 527 C (sec): Never Reached
Time to End of Tunnel (sec): Never Reached
Max Temperature (C): 279
Time to Max Temperature (sec): 600
Total Fuel Burned (cubic feet): 52.70

FS*Time Area 1.7
Smoke Area (%A*min): 193.3
Unrounded FSI: 3.2
Unrounded SDI: 179.7

CALIBRATION DATA . . .

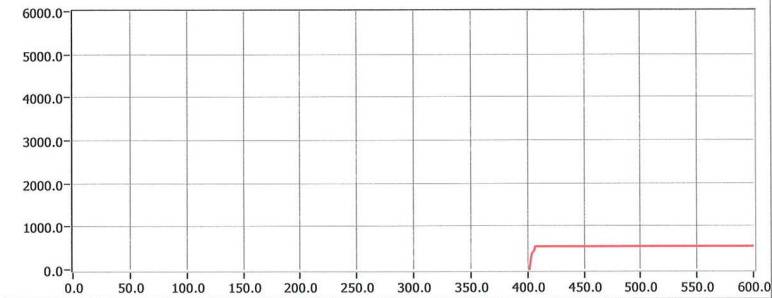
Time to Ignition of Last Red Oak (Sec): 40.0
Red Oak Smoke Area (%A*min): 107.6

CAN/ULC S102-07 DATA SHEETS Run 3

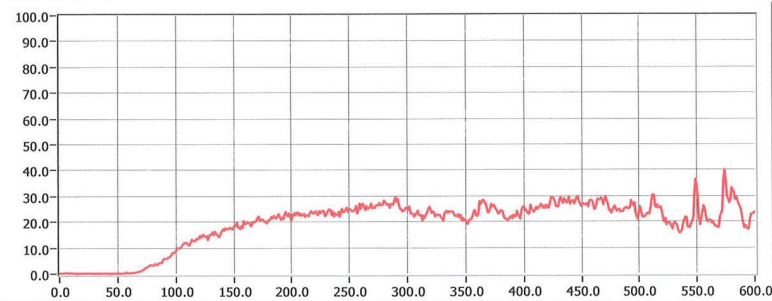
Project No: 100095979

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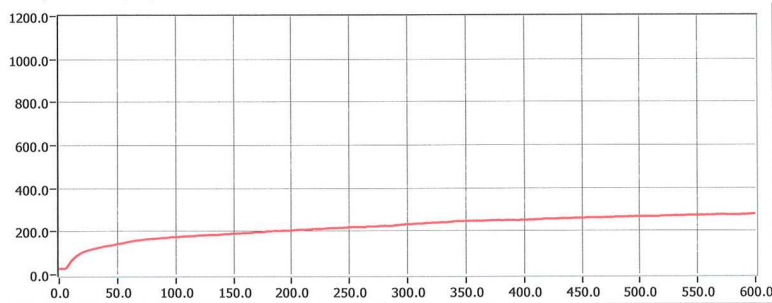
FLAME SPREAD (MM)



Smoke (%A)



Temperature (°C)



Time (sec)

600

REVISION SUMMARY

DATE	PAGE(S)	SUMMARY
June 10, 2010	--	Original Issue Date