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## 2 Introduction

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Intertek Testing Services NA Ltd. (Intertek) has conducted testing for EasyRock Products Inc., to evaluate the temperature rise of 1-1/4 in. thick composite panels. Testing was conducted in accordance with CAN/ULC-S124-M85, *Standard Method of Test for the Evaluation of Protective Coverings for Foamed Plastic*. This evaluation began October 15, 2007 and was completed October 15, 2007.

Testing was witnessed by Mr. Tony Catena and Mr. Mike Nabey, representing EasyRock Products Inc.

## 3 Test Samples

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### 3.1. SAMPLE SELECTION

Samples were submitted to Intertek directly from the client and were not independently selected for testing. The sample material was received at the Evaluation Center on October 15, 2007.

### 3.2. SAMPLE AND ASSEMBLY DESCRIPTION

The test panel consisted of a 1-1/4 in. thick molded polyurethane coated with blended iron oxides and polymers. The panel measured 36 in. wide by 36 in. long.

## 4 Testing and Evaluation Methods

Backing material of 5/8 in. Type "X" gypsum wallboard was installed on the panel as required by the test standard. The test panel was placed on the horizontal furnace with a 27-1/2 in. by 27-1/2 in. prepared opening. Thermocouples were fastened at the interface between the gypsum wallboard and the sample panels, at five locations (the centre and the centre of each of the four quarters) as required by the test standard, see Appendix A – Photographs.

The thermocouples were connected to a Fluke "Hydra Data Bucket" automatic data recorder programmed to record temperatures every 15 seconds. This data is shown in Appendix B – Temperature Data. The furnace was fired and controlled to follow as closely as possible the standard time/temperature curve (see Appendix B).

### 4.1. ACCEPTANCE CRITERIA

#### Classification A

If the temperature rise at the interface of the protective cover and the foamed plastic at the end of 15 min. has not exceeded 140°C average or 180°C at any one of the thermocouples specified in Clause 4.6, the protective cover shall be accorded a Classification of A.

#### Classification B

If the temperature rise at the interface of the protective cover and the foamed plastic at the end of 10 min. has not exceeded 140°C average or 180°C at any one of the thermocouples specified in Clause 4.6, the protective cover shall be accorded a Classification of B.

#### Classification C

If the temperature rise at the interface of the protective cover and the foamed plastic at the end of 15 min. has not exceeded 195°C average or 250°C at any one of the thermocouples specified in Clause 4.6, the protective cover shall be accorded a Classification of C.

#### Classification D

If the temperature rise at the interface of the protective cover and the foamed plastic at the end of 10 min. has not exceeded 195°C average or 250°C at any one of the thermocouples specified in Clause 4.6, the protective cover shall be accorded a Classification of D.

## 5 Testing and Evaluation Results

### 5.1. RESULTS AND OBSERVATIONS

TIME (min.)	EXPOSED SIDE	UNEXPOSED SIDE
1:00	Sample ignition	
6:00		No flaming
10:00	Light flaming of sample	
15:00		Maximum temperature is 84°F (28°C)
16:00	Test discontinued	

Classification A Rating Achieved (15 min.)

The protection material therefore met the requirements for a Class A rating and exceeded the requirements of a Class B, C, and D rating, in accordance with CAN/ULC S124-M85.

## 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 S102-03)

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:

$$\text{Unrounded Smoke Developed Index} = \frac{10,000 - \text{SmokeIntegration}}{981} \times 100$$

## 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)

Nominal 1 in. Thickness Polyisocyanurate Composite Panels	Flame Spread	Flame Spread Classification
Run 1	16	15
Run 2	19	
Run 3	13	

#### (B) Smoke Developed

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

Nominal 1 in. Thickness Polyisocyanurate Composite Panels	Smoke Developed	Smoked Developed Classification
Run 1	342	350
Run 2	277	
Run 3	422	

#### (C) Observations

During the test the samples quickly ignited and the flame front spread to the maximum flame spread and remained there for the remainder of the test. After the test it was apparent that the panels sagged down into the tunnel approximately 2 in.

## 6 Conclusion

The samples of 1 in. thick polyisocyanurate composite panels, submitted by EasyRock Products Inc., exhibited the following flame spread characteristics when tested in accordance with CAN/ULC S102-03; *Method of Test for Surface Burning Characteristics of Building Materials and Assemblies*.

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

Sample Material	Flame Spread Classification	Smoke Developed Classification
Nominal 1 in. Thickness Polyisocyanurate Composite Panels	15	350

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.

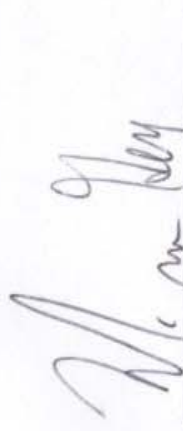
### INTERTEK TESTING SERVICES NA LTD.

Tested and  
Reported by:

  
Scott Leduc, EIT

Technician – Construction Products Testing

Reviewed by:

  
Michael van Geyn, A.Sc.T.

Manager – Fire Testing & Technical Programs

SL/bjm