TEST REPORT

REPORT NUMBER: 102625753COQ-003
ORIGINAL ISSUE DATE: August 28, 2016

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

RENDERED TO

Unience Co., Ltd.
8F S08 Garden Tool 282
Mujung-dong 1SEOUL 135- 884 KOR

PRODUCT EVALUATED:4 mm thick Alfirex Composite Panels
EVALUATION PROPERTY: Surface Burning Characteristics

Report of testing 4 mm thick Alfirex Composite Panels for compliance with the applicable requirements of the following criteria: CAN/ULC S102-10, *Standard Method of Test for Surface Burning Characteristics of Building Materials and Assemblies*

1 Table of Contents

2 Introduction

Intertek Testing Services NA Ltd. (Intertek) has conducted testing for Unience Co., Ltd. to evaluate the surface burning characteristics of 4 mm thick Alfirex Composite Panels. Testing was conducted in accordance with the standard methods of CAN/ULC S102-10, *Standard Method of Test for Surface Burning Characteristics of Building Materials and Assemblies*.

This evaluation began August 26, 2016 and was completed August 28, 2016.

3 Test Samples

3.1. SAMPLE SELECTION

Intertek representative, Roy Lee, sampled and witnessed the production of the test samples on July 6, 2016. The sampling and witnessing was conducted at Unience Co., Ltd. facility located at 46, Gwahaksaneop1-ro, Oksan-myeon, Cheongwon-gun, Chungcheongbuk-do, Korea.

The subject test specimens are traceable samples selected from the manufacturer's facilities. Intertek selected the specimens and has verified the composition, manufacturing techniques and quality assurance procedures. The sample panels were received at the Evaluation Center on July 16, 2016.

3.2. 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 ± 3°C (73.4 ± 5°F) and 50 ± 5% relative humidity.

The sample material consisted of 4 mm thick composite Aluminium panels. The samples were identified as 4 mm thick Alfirex Aluminium Composite Panels measuring 21 in. wide by 12 ft. long.

For each trial run, two 12 ft. panels were butted together end to end to form the required 24 ft. sample length, and then placed on the floor of the tunnel. 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 S102-10.

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 inorganic-cement board.

(A) Flame Spread Index:

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).

(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.

5 Testing and Evaluation Results

5.1. RESULTS AND OBSERVATIONS

(A) Flame Spread

The resultant flame spread Indexes are as follows:
(Index rounded to nearest 5)

4 mm thick Alfirex Composite Panels	Flame Spread	Flame Spread Index
Run 1	0	0
Run 2	1	
Run 3	2	

(B) Smoke Developed

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

4 mm thick Alfirex Composite Panels	Smoke Developed	Smoked Developed Classification
Run 1	3	5
Run 2	3	
Run 3	3	

(C) Observations

During the tests, there was no visible surface ignition.

6 Conclusion

The 4 mm thick Alfirex Composite Panels, submitted by.Unience Co., Ltd., exhibited the following flame spread characteristics when tested in accordance CAN/ULC S102-10, *Standard 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 Index	Smoke Developed Classification
4 mm thick Alfirex Composite Panels	0	5

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 – Building Products Testing

Reviewed by: _____
Riccardo DeSantis
Manager – Building Products