

TEST REPORT

REACTION TO FIRE TEST

Test Sponsor:

Polyphen International Pty Ltd
44 Leveson St, North Melbourne
Victoria Australia 3051
Tel: +61407040041
Website: www.polyphen.com

Test Material/Assembly:

50mm thick Polyphen®

Test Standard:

ASTM E84-18: Standard Test Method for Surface Burning Characteristics of Building Materials



**THOMAS BELL-WRIGHT
INTERNATIONAL CONSULTANTS**

Test Date: 17-Mar-19
Issue Date: 31-Mar-19
Test Reference No: SL041

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DUBAI

ABU DHABI

DOHA



Accreditation

ISO/IEC 17025: General requirements for the competence of testing and calibration laboratories with:

United Kingdom Accreditation Service (UKAS) – Testing Laboratory: **4439**
www.ukas.com



GCC Accreditation Center (GAC) – Testing Laboratory: **ATL-0017**
www.GCC-accreditation.org



Memberships

Members of European Group of Organization for Fire Testing, Inspection and Certification

www.egolf.org.uk

Member of International Trade Council

www.thetradecouncil.com

Member of Association for Specialist Fire Protection

www.asfp.org.uk

Member of Centre for Window and Cladding Technology

www.cwct.co.uk



The work which is the subject of this report falls wholly or partly under the accreditations of **ISO 17025 UKAS and ISO 17025 GAC**.



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1. INTRODUCTION

Determination of the flame spread index and the smoke developed index of 50mm thick Polyphen® as per ASTM E84; Standard Test Method for Surface Burning Characteristics of Building Materials.

2. SPONSOR

Name: Polyphen International Pty Ltd
Address: 44 Leveson St, North Melbourne
Victoria Australia 3051
Tel: +61407040041
Website: www.polyphen.com

3. TESTING LABORATORY

Name: Thomas Bell-Wright International Consultants (TBWIC)
Address: Corner of 46th and 47th streets, Jebel Ali Industrial Area 1
P.O. Box 26385, Dubai, U.A.E.
T: +971 (0) 4 821 5777
www.bell-wright.com

4. DATE OF TEST

Sample received: 10-Mar-19
Test date: 17-Mar-19

The test had been witnessed by:

Name	Company	Contact number
Mr. Nicholas Hughes	Polyphen International Pty Ltd	+61407040041

5. SPECIMEN DESCRIPTION

Note: The testing laboratory does not hold any responsibility for the information that has been provided by the test sponsor which could not be verified by the testing laboratory, as this could affect the validity of the test result. All information that could not be verified will be indicated by an asterisk (*) mark.

The description of the specimen given below has been prepared from information provided by the Sponsor.

Description	Combination of Expanded Polystyrene and Phenolic
Product reference	Polyphen®
Manufacturer	Polyphen International Pty Ltd
Total density	Refer to Note 1
No. of panels	6
Total dimension	7320 x 600 x 50mm, l x w x thk. (measured by TBWIC)
Specimen placement	The six 1220 x 600 x 50mm Polyphen® panels were butt jointed end-to-end and were placed directly to the tunnel ledges with the top smooth surface towards the flame source.

Note 1: The client does not want to disclose the information.



Neither TBWIC testing laboratory nor any certification body were involved in the selection of the materials and the test results apply to the sample as received. The choice and design and the definition of the specimen have been made by Polyphen International Pty Ltd.

6. METHOD OF TEST

6.1. Placing of test specimen

The test specimen consisted of six Polyphen® panels. The total dimensions of the specimen were 7320 x 600 x 50mm (l x w x thk.).

Three cement boards of size of 2450 x 600mm butt jointed end-to-end were placed at the back of the sample to protect the furnace lid assembly from direct fire exposure.

6.2. Test Method

The specimen was installed horizontally in the Steiner Tunnel and supported by the ledges. The top smooth surface was subjected to a flaming exposure during the 10minute test duration.

Flame spread and density of the smoke are measured and recorded while the results are computed against the standard calibration materials (cement board and red oak flooring).

6.3. Conditioning

After delivery on 10-Mar-19, the specimen was stored in room temperature for 7 days prior to the test ranging from 20.2 to 25.8°C and 45 to 55% relative humidity.

7. OBSERVATION

Test Data and Observation

Observations	Result
Ignition Time (min:sec)	0:02
Time to maximum flame front advance (min:sec)	9:29
Maximum flame spread (ft)	5.2
Time to end of tunnel reached (min:sec)	Not reached
Maximum temp recorded at the exposed thermocouple located near the end of the tunnel (°F / °C)	670/354
Dripping (min:sec)	None
Flaming on the floor (min:sec)	None
After flame on the top (min:sec)	0:39
After flame on the floor (min:sec)	None
Delamination (min:sec)	None
Sagging (min:sec)	None
Shrinkage (min:sec)	None
Fallout (min:sec)	None

FS x Time Area (ft x min)	47.58
Smoke Area (%A x min)	24.34
Red Oak Smoke Area (%A x min)	86.0



8. SUMMARY OF RESULTS

Note: The testing laboratory does not hold any responsibility for the information that has been provided by the test sponsor which could not be verified by the testing laboratory, as this could affect the validity of the test result. All information that could not be verified will be indicated by an asterisk (*) mark.

The test specimen has been evaluated in accordance with ASTM E84; Standard Test Method for Surface Burning Characteristics of Building Materials.

The test results are:

FLAME SPREAD INDEX (FSI)	25
SMOKE DEVELOPED INDEX (SDI)	30

Results are valid for the tested configuration only.

9. CLASSIFICATIONS

The following information is designed to help put these test results into context. Flame Spread Index and Smoke Developed Index results from an ASTM E84 test are often used by regulatory agencies to approve materials for various applications. For example, the International Building Code 2018, Section 803.1.2 requires that:

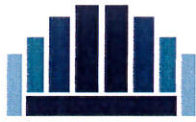
Interior wall and ceiling finish materials shall be classified in accordance with ASTM E84 or UL 723-10th Ed. 2008. Such interior finish materials shall be grouped in the following classes in accordance with their flame spread and smoke-developed indexes.

Class A: Flame spread index 0 - 25; smoke-developed index 0 - 450.

Class B: Flame spread index 26 - 75; smoke-developed index 0 - 450.

Class C: Flame spread index 76 - 200; smoke-developed index 0 - 450.

Note that the above example is the IBC requirement for interior wall and ceiling finishes only; the application of the tested specimen may differ.



10. LIMITATIONS

Testing of materials that melt, drip, or delaminate to such a degree that the continuity of the flame front is destroyed, results in low flame spread indices that do not relate directly to indices obtained by the testing materials that remain in place.

Thomas Bell-Wright International Consultants recommend that the relevance of test reports should be considered after a period of five years.

This test report is respectfully submitted by: Thomas Bell-Wright International Consultants.

Prepared/Tested By:



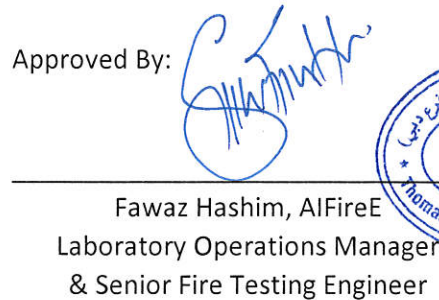
Rachel Marie Novelo
Fire Testing Engineer

Reviewed By:



Fredilyn Paragoso
Fire Testing Support Engineer

Approved By:

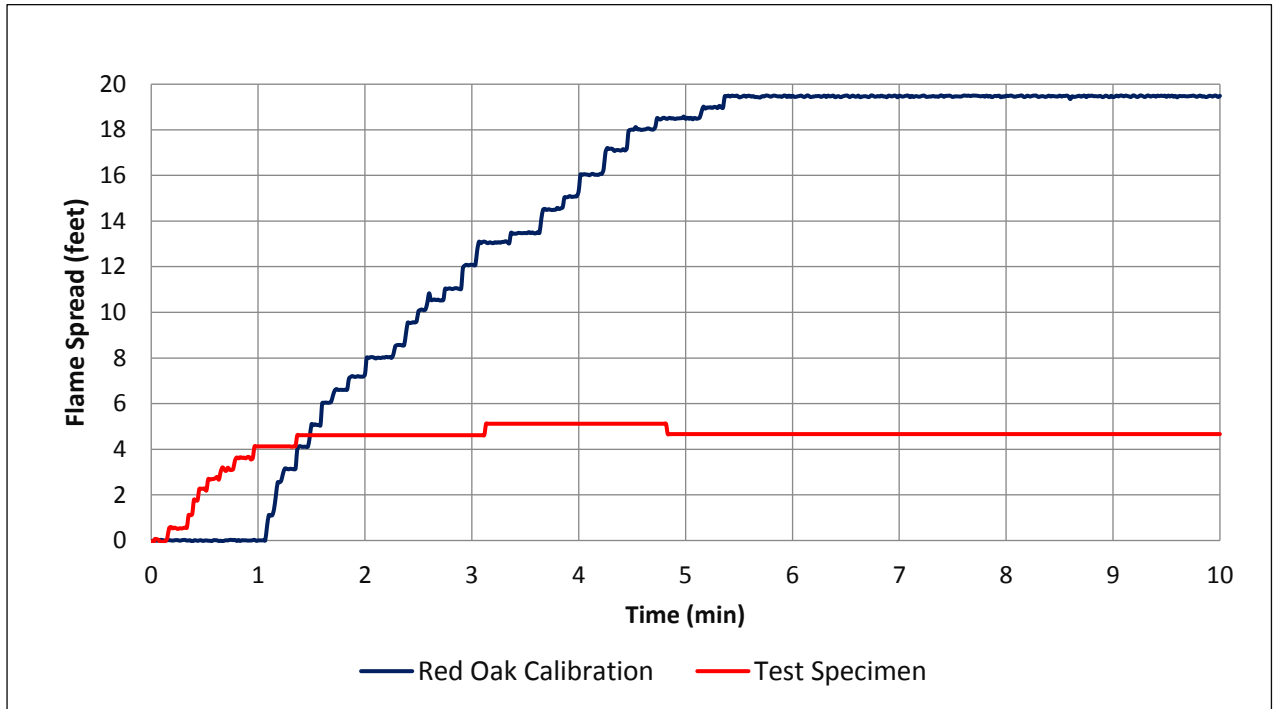


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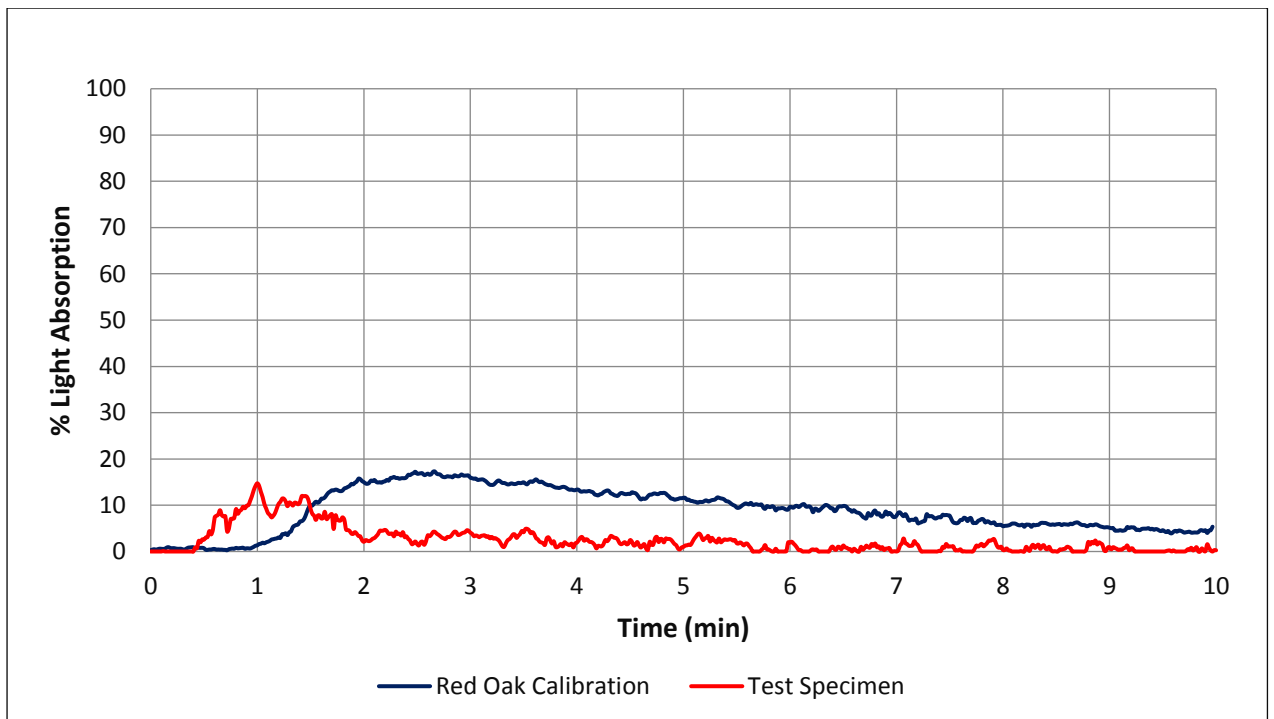




11. APPENDIX 1 – GRAPHS



Graph 1: Flame Spread Index (FSI)



Graph 2: Smoke Developed Index (SDI)



12. APPENDIX 2 – PICTURES



**Photo 1: Specimen before the test.
(Non-Fire Side)**



**Photo 2: Specimen before the test.
(Fire Side)**



**Photo 3: Specimen after the test.
(As seen from the fire-end)**



**Photo 4: Specimen after the test.
(As seen from the exhaust end)**

----- End of Test Report -----