

TEST REPORT

REACTION TO FIRE TEST

Test Sponsor:

Panel Technology Factory (Technopanel)
Al-Mashael
Riyadh, Saudi Arabia
T: +966 920006292
Website: www.technopanel.com.sa

Test Material / Assembly:

4mm Thick Aluminium Composite Panel- FR A2

Test Standard:

ASTM E84 – 21a: Standard Test Method for Surface Burning Characteristics of Building Materials



**THOMAS BELL-WRIGHT
INTERNATIONAL CONSULTANTS**

Test Date: 2-Aug-22

Issue Date: 08-Feb-23

Test Reference No: WC029-5 (Rev.01)

PO BOX 26385, DUBAI UAE

T +971 (0)4 821 5777

fire@bell-wright.com

www.bell-wright.com

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1. INTRODUCTION

Determination of the flame spread index and the smoke developed index of 4mm Thick Aluminium Composite Panel- FR A2 as per ASTM E84 – 21a; Standard Test Method for Surface Burning Characteristics of Building Materials.

2. SPONSOR

Name: Panel Technology Factory (Technopanel)
Address: Al-Mashaal
Riyadh, Saudi Arabia
T: +966 920006292
Website: www.technopanel.com.sa

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: 27-Jul-22
Test date: 02-Aug-22

The test has not been witnessed by the sponsor.

7. METHOD OF TEST

7.1. Placing of test specimen

The test specimen consisted of three (3) panels of 4mm Thick Aluminium Composite Panel- FR A2. The dimension per panel was 2440 x 600 x 4.3 mm (l x w x t) and was butt jointed end-to-end. The total dimension of the specimen was 7320 x 600 x 4.3 mm (l x w x t).

Several sections of cement board butt jointed end-to-end with overall dimensions of 7350 x 600mm (l x w), were placed at the back of the sample to protect the furnace lid assembly.

7.2. Test Method

The specimen was placed in the ceiling position, supported horizontally on the ledges of the Steiner Tunnel. The top surface (fire side) was exposed face down to the ignition source during the 10-minute test duration.

Flame Spread and Smoke Density were measured, and the results were compared against standard calibration materials (fiber-cement board, heptane and red oak flooring).

7.3. Conditioning

After delivery on 27-Jul-22, the specimen was placed in a conditioned space where temperature and humidity were maintained between $23 \pm 2.8^{\circ}\text{C}$ and $50 \pm 5\%$ respectively, until constant weight was attained.

Note: There were deviations observed in the temperature and relative humidity in 4 separate probes of thermo-hygrometer in our conditioning room, however the average values were within the limit.



8. OBSERVATION

Test Data and Observation

Observations	Result
Ignition Time (min:sec)	1:30
Time to maximum flame front advance (min:sec)	9:37
Maximum flame spread (ft)	4.7
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)	594/312
Dripping (min:sec)	None
Flaming on the floor (min:sec)	None
After flame on the top (min:sec)	Extinguished
After flame on the floor (min:sec)	None
Delamination (min:sec)	8:10
Sagging (min:sec)	None
Shrinkage (min:sec)	None
Fallout (min:sec)	None
FS*Time Area (ft*min)	13.92
Smoke Area (%A*min)	17.92
Heptane Smoke Area (%A*min)	85.7

9. SUMMARY OF RESULTS

The test specimen has been evaluated in accordance with ASTM E84 – 21a; Standard Test Method for Surface Burning Characteristics of Building Materials.

The test results are:

FLAME SPREAD INDEX (FSI)	5
SMOKE DEVELOPED INDEX (SDI)	20

10. CLASSIFICATIONS

Results are valid for the tested configuration only.

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 2021, Section 803.1.2 requires that:

Interior wall and ceiling finish materials shall be classified in accordance with ASTM E84 or UL 723-11th Ed. 2021. Such interior finish materials shall be grouped in the following classes in accordance with their flame spread and smoke-developed indices.

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.



11. 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

Tested By:

Prepared By:

Malak Megly
Junior Fire Testing Engineer

Fredilyn Paragoso
Fire Testing Support Engineer

Reviewed & Approved By:

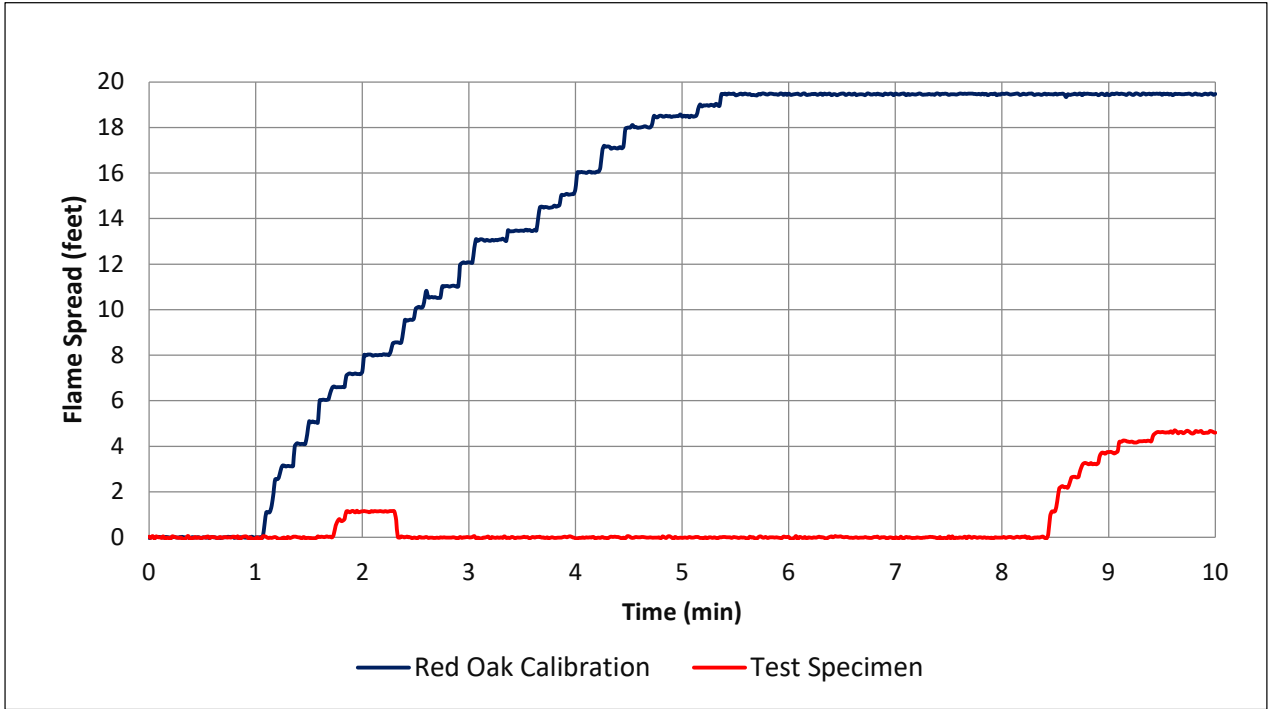
Suketa Tyagi
Reaction to Fire - Manager



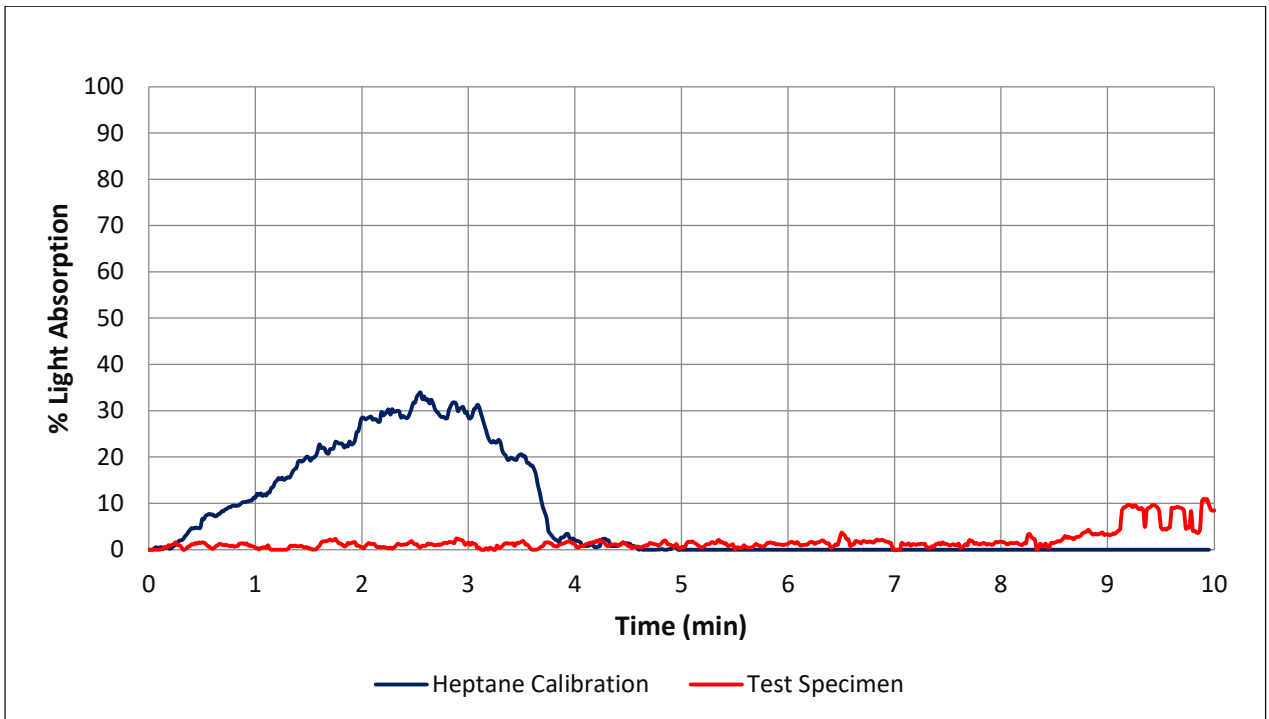
Report Revision Tracking		
Revision No.	Date Issued	Notes & Amendments
Rev. 00	30-Jan-23	This is the first issue of the report. No revisions are included.
Rev. 01	08-Feb-23	The reference name and the manufacturer's name have been revised



12. APPENDIX 1 – GRAPHS



Graph 1: Flame Spread Index (FSI)



Graph 2: Smoke Developed Index (SDI)



13. 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 -----