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CAN/ULC-S102 Surface Burning Characteristics of "Uniboard Fire Rated MDF with 0.8mm Finsa HPL"

A Report To:	**Weston Premium Woods - Division of Richelieu Hardware** 25 Automatic Road Brampton, ON, Canada L6S 5N8
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Submitted by:	Element Fire Testing
Report No.	21-002-255 6 Pages
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1.0 ACCREDITATION To ISO/IEC 17025 for a defined Scope of Testing by the International Accreditation Service

2.0 SPECIFICATIONS OF ORDER

Determine Flame Spread Rating and Smoke Developed Classification based upon triplicate testing conducted in accordance with CAN/ULC-S102-2018, as per Element Quotation No. 21-002-255429 RV1 dated May 25, 2021.

2.1 History of Report Revision

This is the original.

3.0 SAMPLE IDENTIFICATION (Element sample identification number 21-002-S0255)

Panel system described as, "Uniboard Fire rated MDF pressed 2 sides with high pressure laminate produced in Spain by Finsa", and identified as:
"Uniboard Fire Rated MDF with 0.8mm Finsa HPL"

4.0 TEST PROCEDURE

The method, designated as CAN/ULC-S102-2018, "*Standard Method of Test for Surface Burning Characteristics of Building Materials and Assemblies*", is designed to determine the relative surface burning characteristics of materials under specific test conditions. Results of less than three identical specimens are expressed in terms of Flame Spread Value (FSV) and Smoke Developed Value (SDV). Results of three or more replicate tests on identical samples produce average values expressed as Flame Spread Rating (FSR) and Smoke Developed Classification (SDC).
Although the procedure is applicable to materials, products and assemblies used in building construction for development of comparative surface spread of flame data, the test results may not reflect the relative surface burning characteristics of tested materials under all building fire conditions.

5.0 SAMPLE PREPARATION

Specimens were supplied in large sheets, from which suitable test speicmens were cut (by Element). Each test specimen consisted of a total of three sections of material, each approximately 21 mm in thickness by 559 mm in width by 2464 mm in length. The sections were butted together to create the specimen length. Prior to testing, each specimen was conditioned to constant weight at a temperature of 23 ± 3°C and a relative humidity of 50 ± 5%. At the time of test initiation, the specimens were self-supporting.

Testing was performed on: Test #1: 2021-07-07 Test #2: 2021-07-07 Test #3: 2021-07-07

6.0 SUMMARY OF TEST PROCEDURE

The tunnel is preheated to 85°C, as measured by the backwall-embedded thermocouple located 7090 mm downstream of the burner ports, and allowed to cool to 40°C, as measured by the backwall-embedded thermocouple located 4000 mm from the burners. At this time the tunnel lid is raised and the test sample is placed along the ledges of the tunnel so as to form a continuous ceiling 7315 mm long, 305 mm above the floor. The lid is then lowered into place.

Upon ignition of the gas burners, the flame spread distance is observed and recorded every second. Flame spread distance versus time is plotted. Calculations ignore all flame front recessions and the Flame Spread Values (FSV) are determined by calculating the total area under the curve for each test sample. If the total area under the curve (AT) is less than or equal to 29.7 m·min, FSV = 1.85·AT; if greater, FSV = 1640/(59.4-AT).

The Smoke Developed Value is determined by comparing the area under the obscuration curve for the test sample to that of inorganic reinforced cement board and red oak, established as 0 and 100, respectively. The Smoke Developed Value (SDV) is determined by dividing the total area under the obscuration curve by that of red oak and multiplying by 100.

7.0 TEST RESULTS

SAMPLE: "Uniboard Fire Rated MDF with 0.8mm Finsa HPL"

Test	Approx. Time to Ignition (s)	Maximum Flame Front Distance (m)	Time to Maximum Flame Front (s)	Maximum Air Temperature (°C)	Flame Spread Value (FSV)	Smoke Developed Value (SDV)
1	32	1.52	235	354	**21**	**73**
2	33	2.01	515	375	**23**	**73**
3	38	1.73	307	374	**25**	**74**
				Average:	23	73
				Rounded Average Flame Spread Rating **(FSR)**:	**25**	-
				Rounded Average Smoke Developed Classification **(SDC)**:	-	**75**

7.1 Observations of Burning Characteristics

The specimens ignited approximately 32 to 38 seconds after exposure to the test flame. Surface spalling and partial delamination of the facer material was observed.

8.0 RESULTS INTERPRETATION

CAN/ULC-S102 contains no performance criteria of its own. The National Building Code of Canada (NBCC) or other jurisdictional documentation should be referenced to determine the FSR and/or SDC performance criteria that is applicable to the material, for the intended application.

9.0 STATEMENT ON MEASUREMENT UNCERTAINTY (MU)

In CAN/ULC-S102, individual test data is reported in the form of indices (Flame Spread Value, Smoke Developed Value). As such, measurement uncertainty (MU) cannot be calculated.

Francis Williams,
Technician.

Ian Smith,
Technical Manager.

10.0 TEST CHARTS

10.1 Test 1 Charts Test 1: "Uniboard Fire Rated MDF with 0.8mm Finsa HPL"

Chart 1. FLAME SPREAD (Specimen #1)

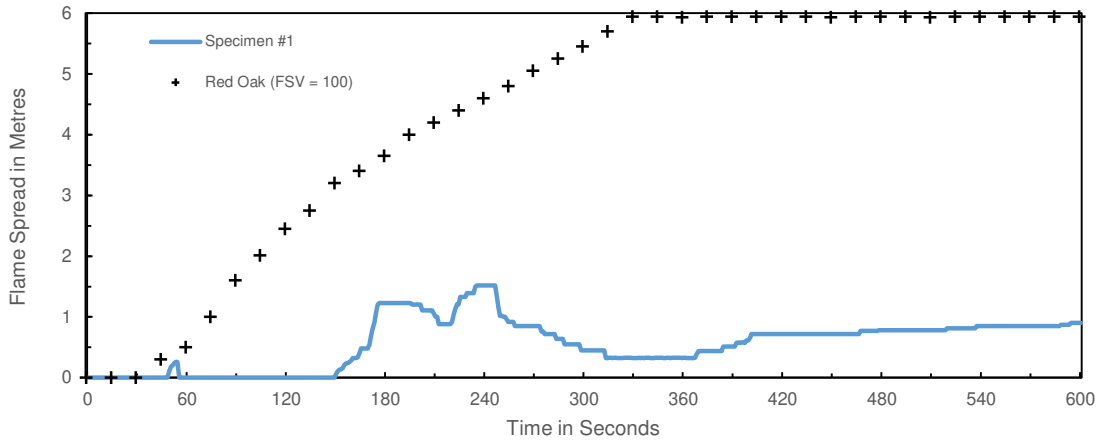


Chart 2. SMOKE DEVELOPED (Specimen #1)

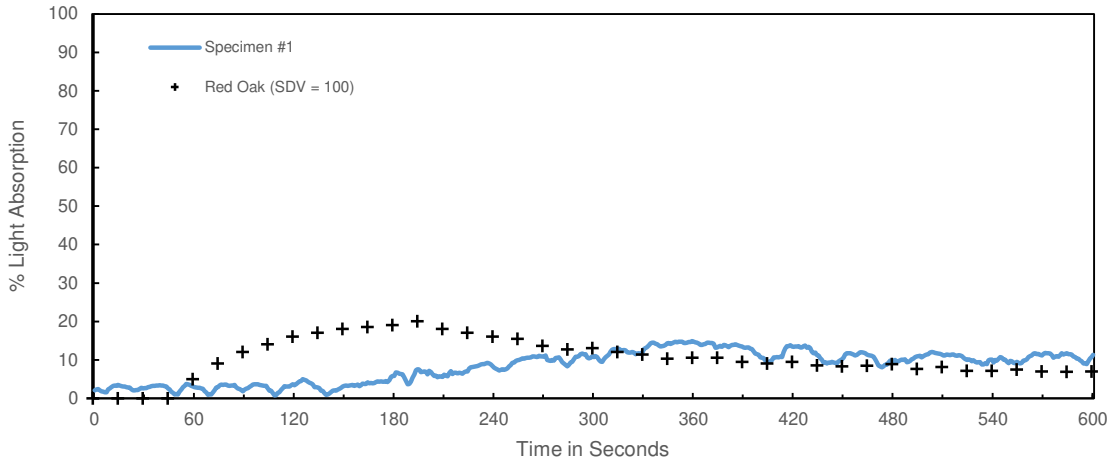
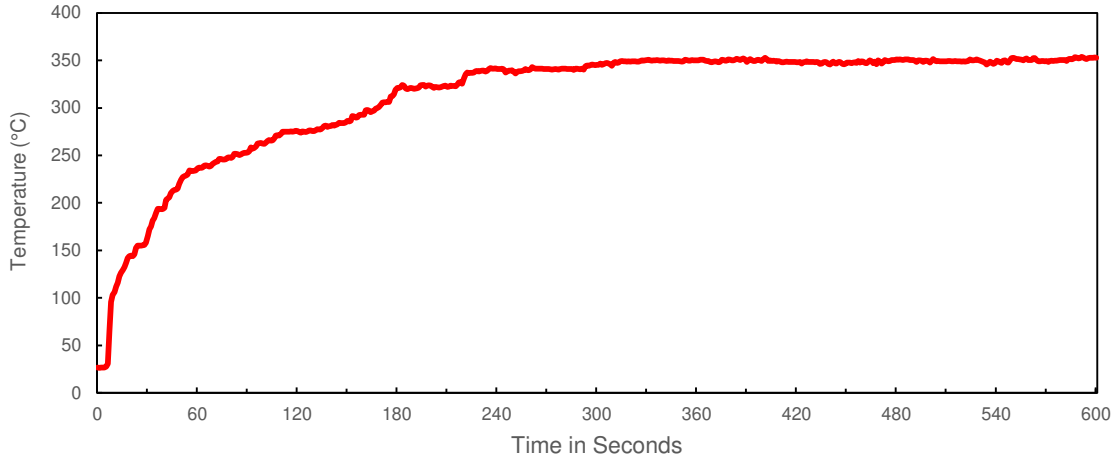


Chart 3. TEMPERATURE (Specimen #1)



Flame Spread Value (FSV)	Smoke Developed Value (SDV)	Maximum Air Temperature (°C)
21	**73**	354

10.2 Test 2 Charts

Test 2: "Uniboard Fire Rated MDF with 0.8mm Finsa HPL"

Chart 4. FLAME SPREAD (Specimen #2)

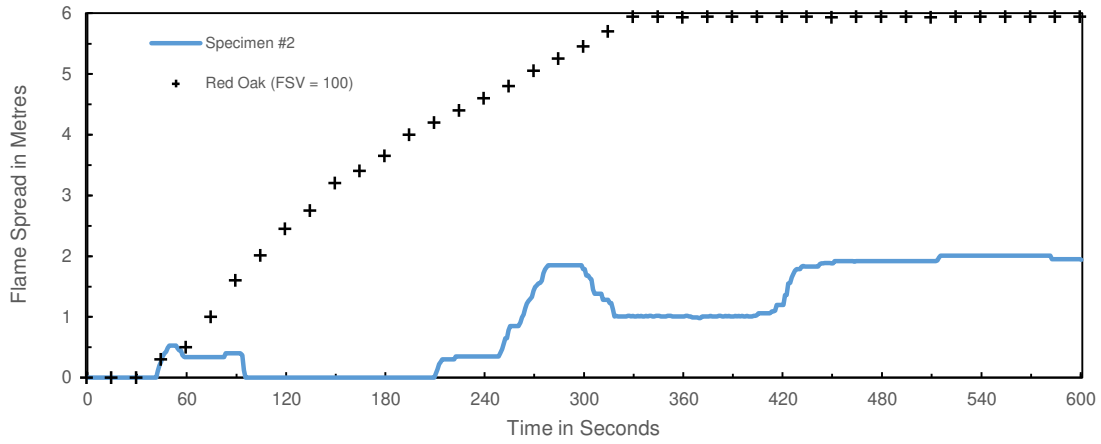


Chart 5. SMOKE DEVELOPED (Specimen #2)

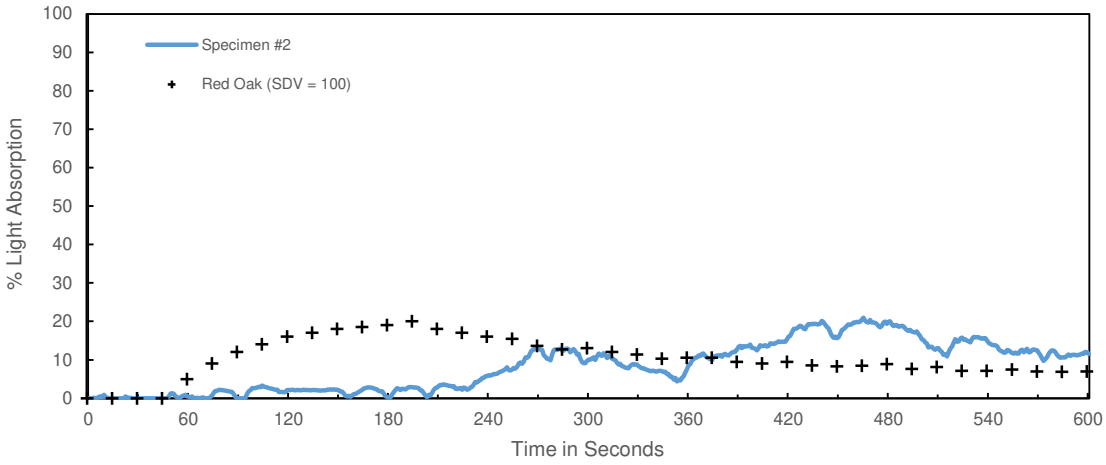
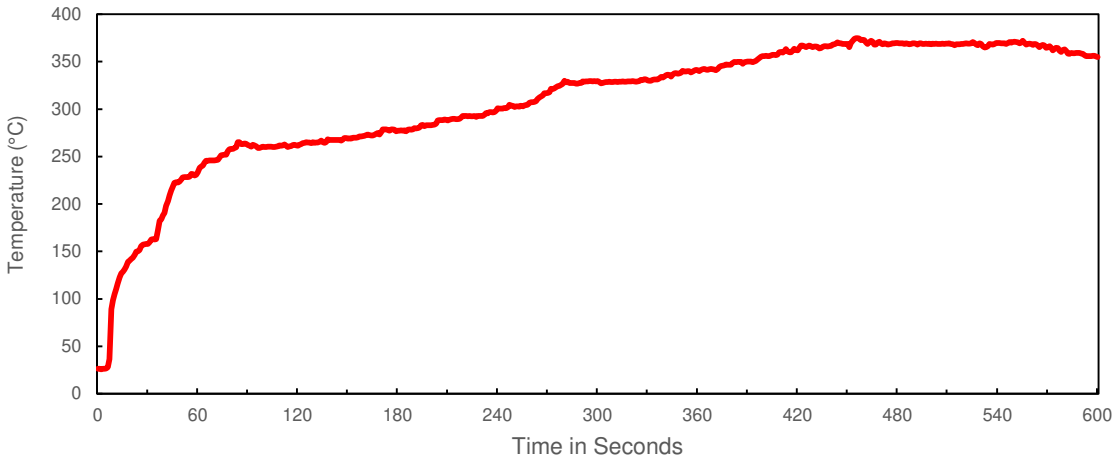


Chart 6. TEMPERATURE (Specimen #2)



Flame Spread Value (FSV)	Smoke Developed Value (SDV)	Maximum Air Temperature (°C)
23	**73**	375

10.3 Test 3 Charts

Test 3: "Uniboard Fire Rated MDF with 0.8mm Finsa HPL"

Chart 7. FLAME SPREAD (Specimen #3)

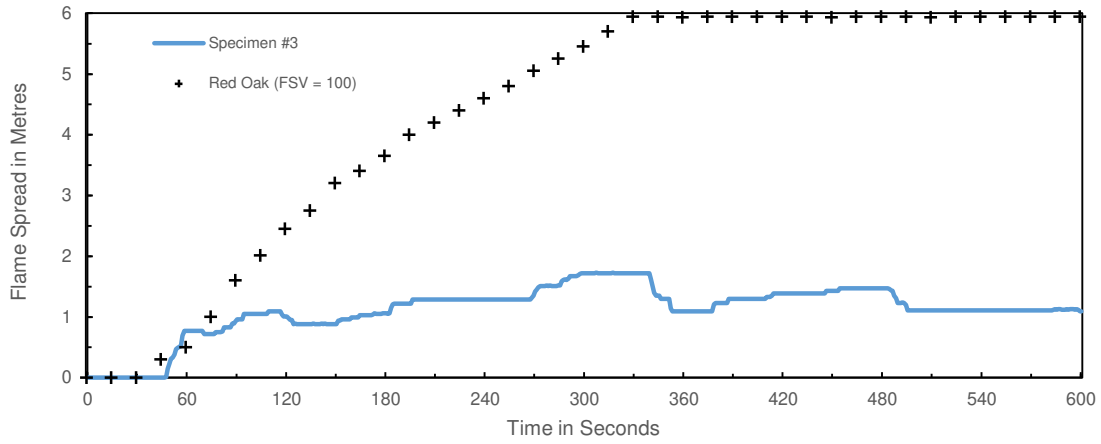


Chart 8. SMOKE DEVELOPED (Specimen #3)

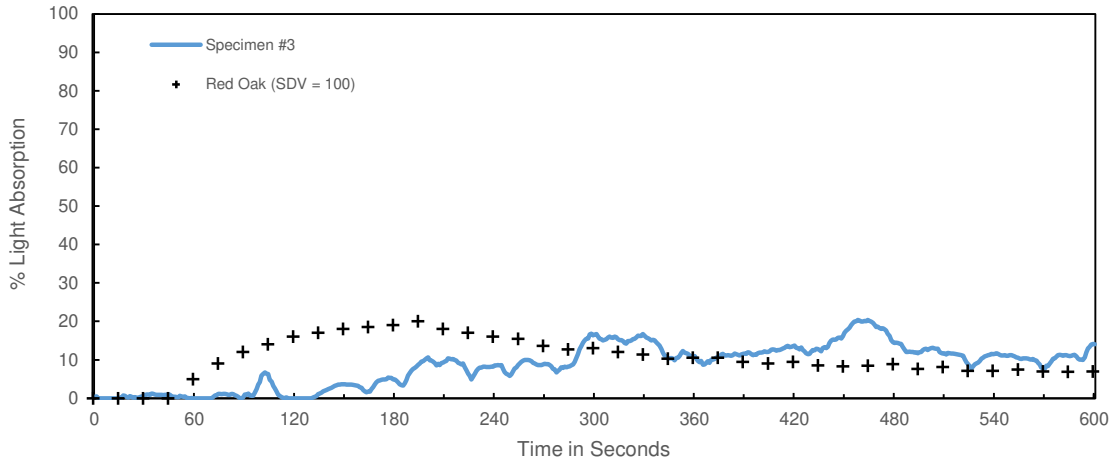
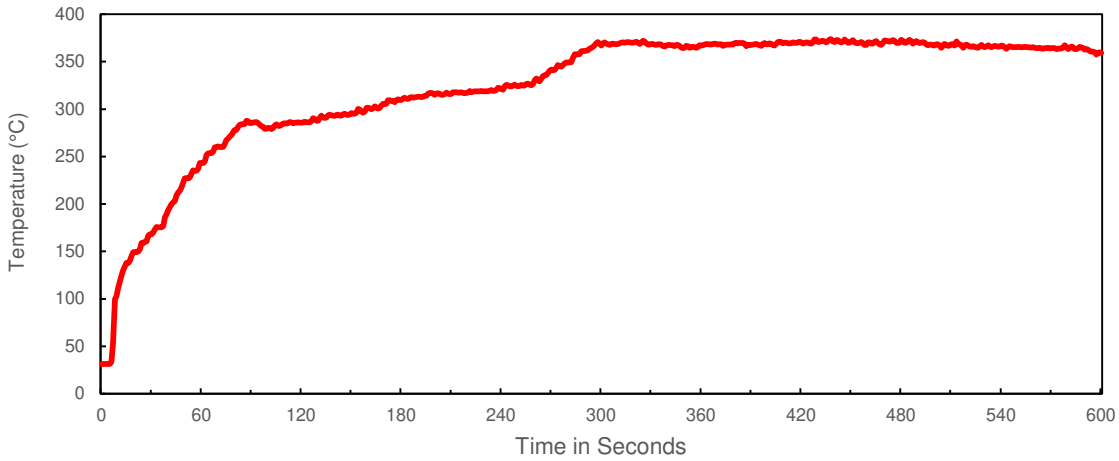


Chart 9. TEMPERATURE (Specimen #3)



Flame Spread Value (FSV)	Smoke Developed Value (SDV)	Maximum Air Temperature (°C)
25	**74**	374