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CAN/ULC-S102.2 Surface Burning Characteristics of "ReindeerMoss Panel"

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Report No.	23-002-130 6 Pages
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1.0 ACCREDITATION

ISO/IEC 17025 for a defined Scope of Testing by the American Association for Laboratory Accreditation (A2LA), Certificate Number: 6524.03.

2.0 SPECIFICATIONS OF ORDER

Determine the Flame Spread Rating and Smoke Developed Classification based upon triplicate testing conducted in accordance with CAN/ULC-S102.2-2018, as per Element Quotation No. 23-002-431370 R1 dated March 20, 2023.

2.1 History of Report Revision

This is the original.

3.0 SAMPLE IDENTIFICATION (Element sample identification number 23-002-S0130)

Live moss wall system described by client as, "Reindeer moss panel assembly on 5mm coroplast", identified as: "ReindeerMoss Panel"

4.0 TEST PROCEDURE

The method, designated as CAN/ULC-S102.2-2018, "*Standard Method of Test for Surface Burning Characteristics of Flooring, Floor Covering and Miscellaneous Materials*", is designed to determine the relative 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

Each test specimen consisted of a total of eight panel sections, each approximately 25 mm in thickness by 445 mm in width by 914 mm in length. The sections were butted together to form the requisite specimen length. Prior to testing, each specimen was conditioned at a temperature of 23 ± 3°C and a relative humidity of 50 ± 5% and in all cases, the moss surface was exposed to the test flame.

Testing was performed on: Test #1: 2023-06-14 Test #2: 2023-06-14 Test #3: 2023-06-14

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 floor of the tunnel so as to form a continuous surface and then the lid is lowered.

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 Value (FSV) is determined by calculating the total area under the curve for the 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: "ReindeerMoss Panel"

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	202	3.25	580	380	**16**	**142**
2	189	4.65	592	408	**17**	**155**
3	195	3.66	580	383	**21**	**321**
				Average:	18	206
				Rounded Average Flame Spread Rating **(FSR)**:	**20**	-
				Rounded Average Smoke Developed Classification **(SDC)**:	-	**205**

7.1 Observations of Burning Characteristics

The specimens ignited approximately 189 to 202 seconds after exposure to the test burner flame.

8.0 RESULTS INTERPRETATION

CAN/ULC-S102.2 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 product under test for the intended application.

Francis Williams,
Technician.

Ian Smith,
Technical Manager.

Notes: This report is related only to the sample identified and shall not be reproduced, except in full, without approval. It is covered under Element Materials Technology Canada Inc. Standard Terms and Conditions of Contract, which are accessible at www.element.com, or by calling 1-866-263-9268. CAN/ULC-S102.2 reports test results in the form of indices. As such, measurement uncertainty cannot be calculated.

9.0 TEST CHARTS

9.1 Test 1

Test #1: "ReindeerMoss Panel"

Chart 1. FLAME SPREAD (Specimen #1)

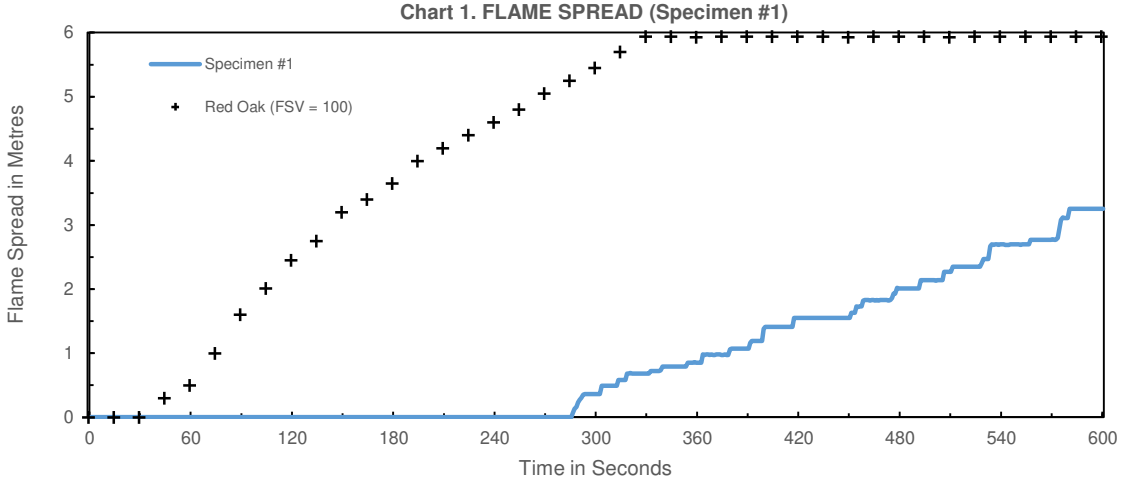


Chart 2. SMOKE DEVELOPED (Specimen #1)

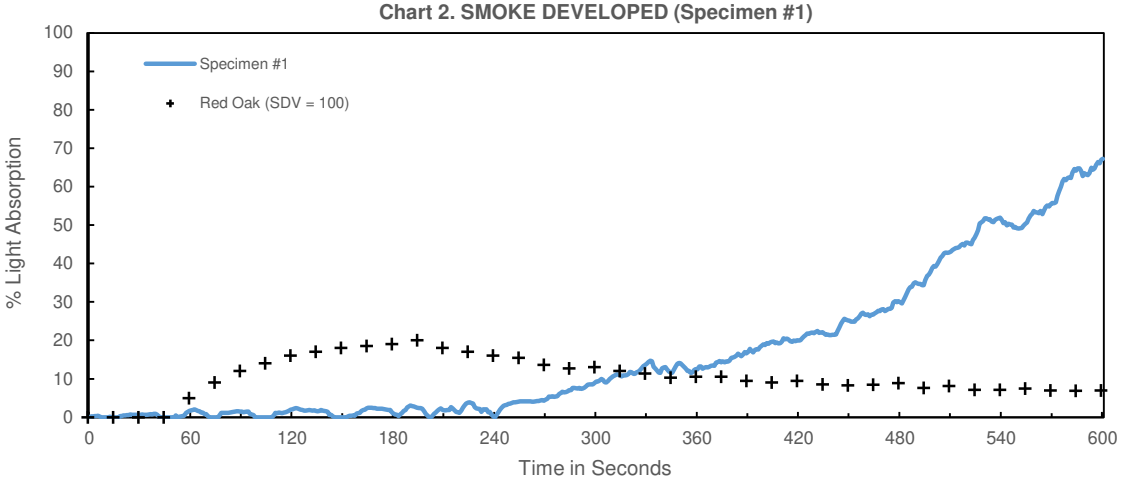
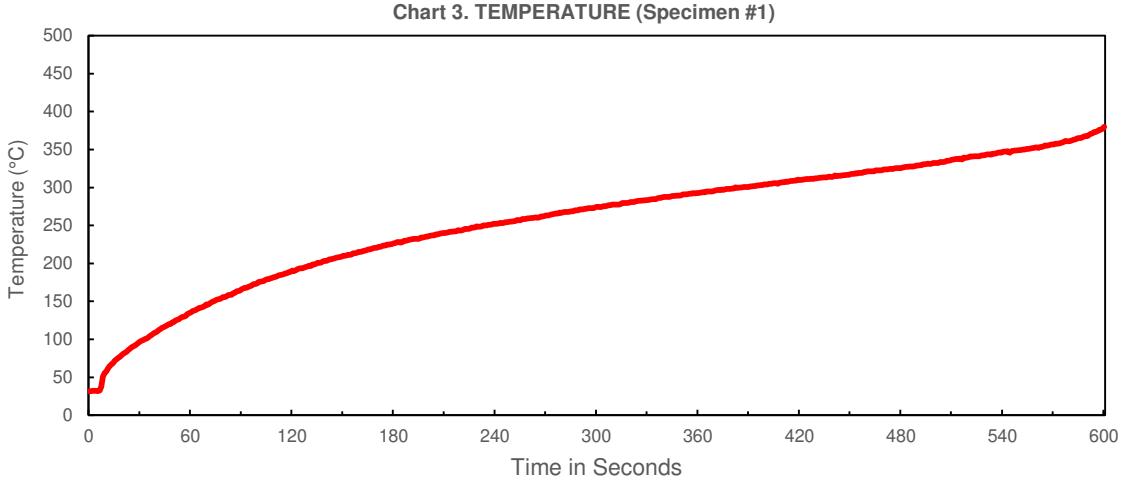


Chart 3. TEMPERATURE (Specimen #1)



Flame Spread Value (FSV)	Smoke Developed Value (SDV)	Maximum Air Temperature (°C)
16	**142**	380

9.2 Test 2

Test #2: "ReindeerMoss Panel"

Chart 4. FLAME SPREAD (Specimen #2)

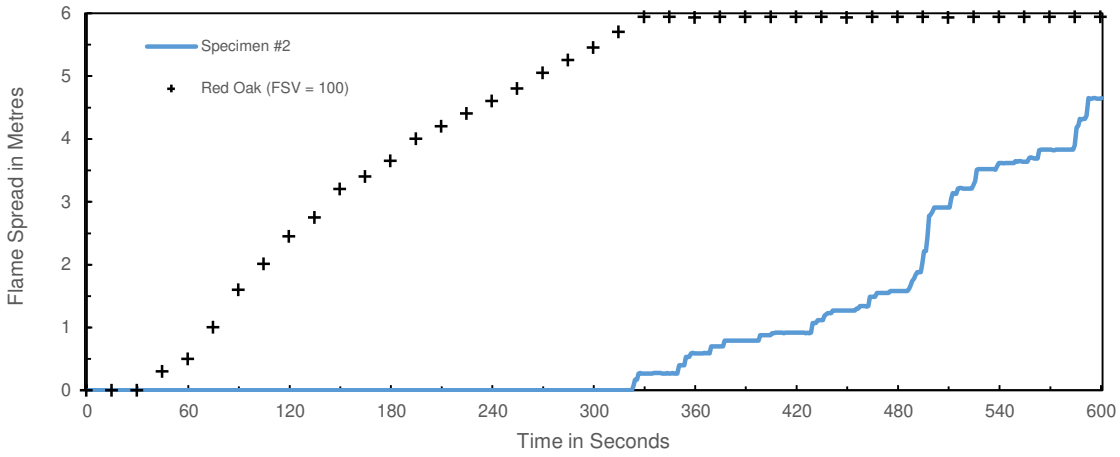


Chart 5. SMOKE DEVELOPED (Specimen #2)

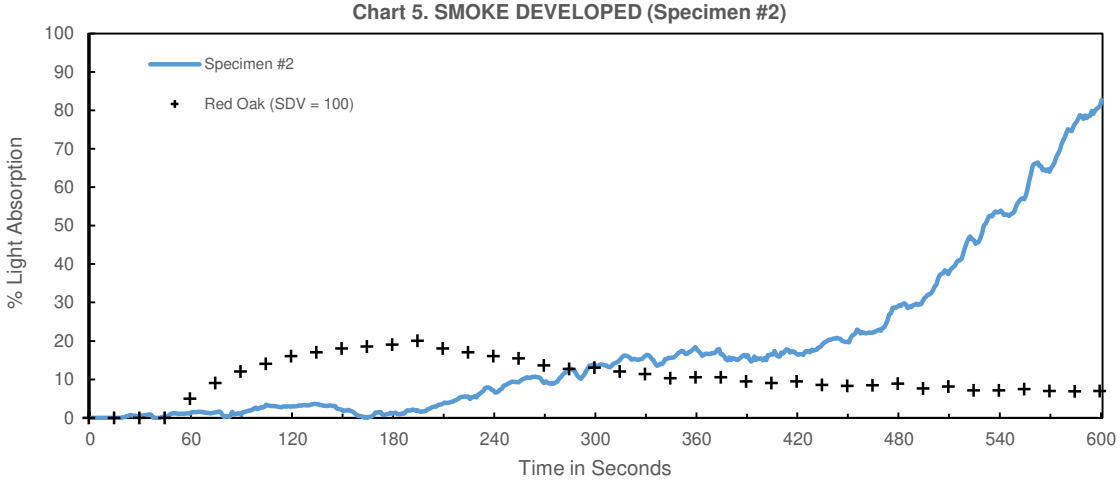
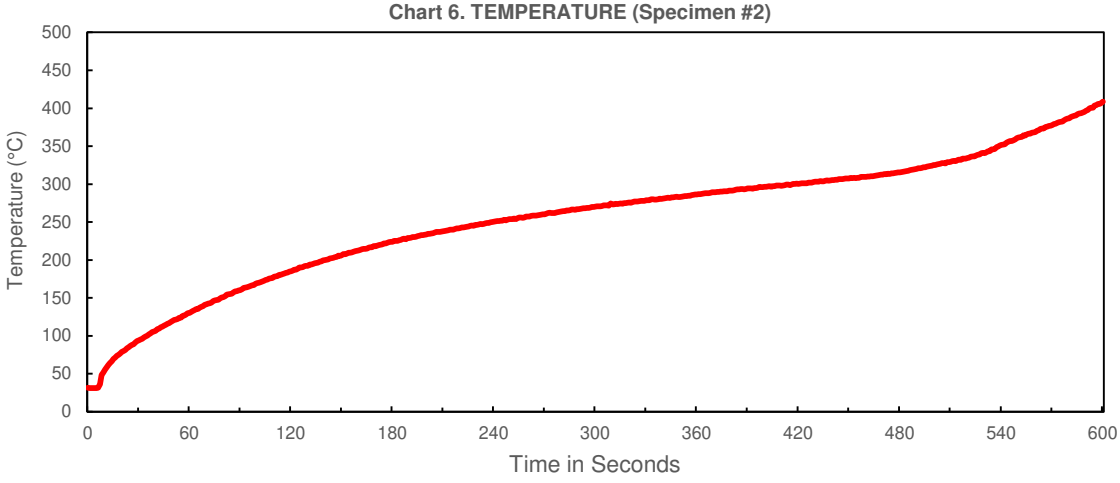


Chart 6. TEMPERATURE (Specimen #2)



Flame Spread Value (FSV)	Smoke Developed Value (SDV)	Maximum Air Temperature (°C)
17	**155**	408

9.3 Test 3

Test #3: "ReindeerMoss Panel"

Chart 7. FLAME SPREAD (Specimen #3)

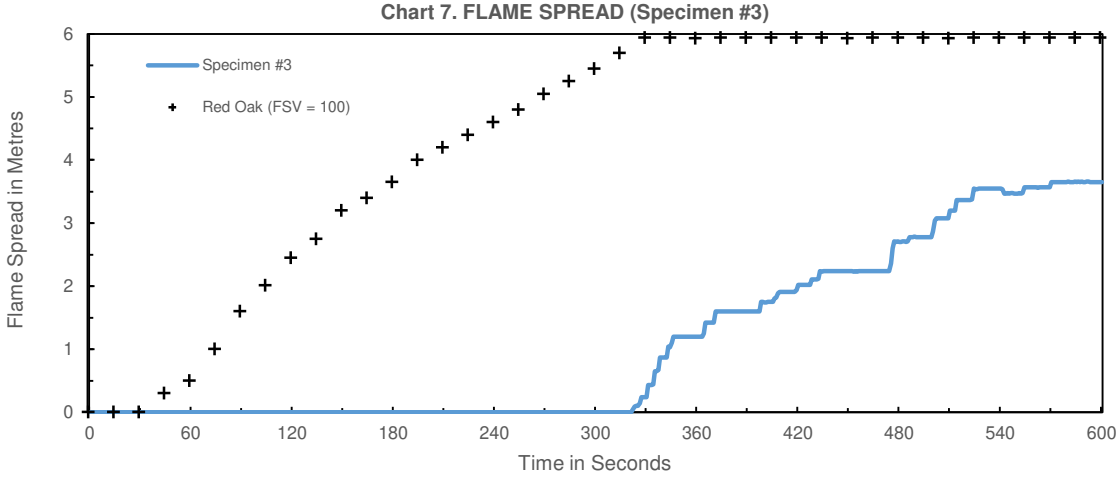


Chart 8. SMOKE DEVELOPED (Specimen #3)

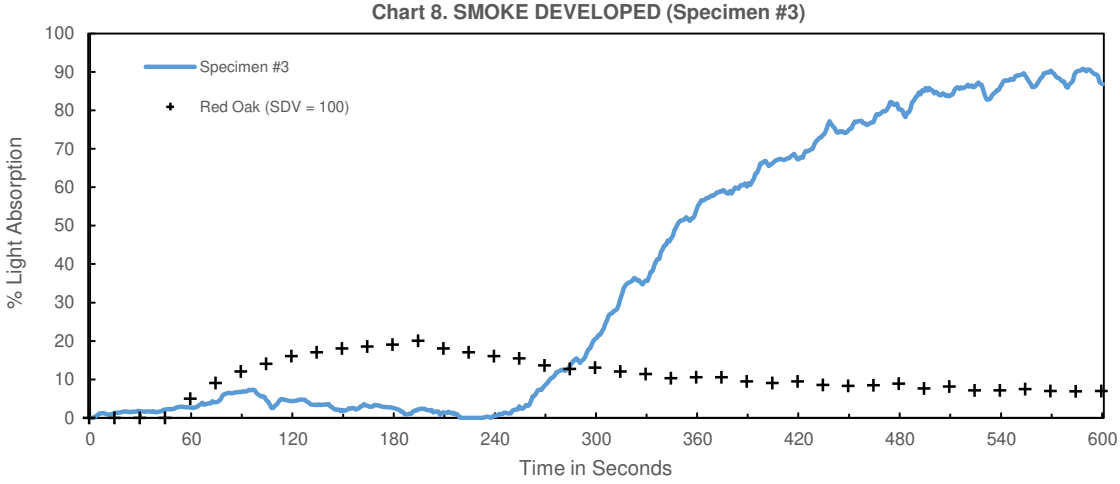
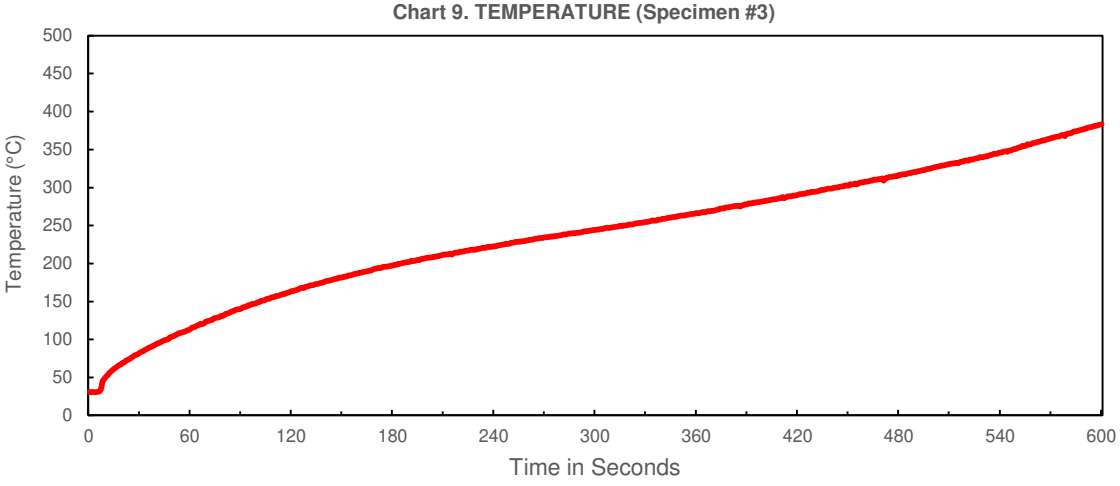


Chart 9. TEMPERATURE (Specimen #3)



Flame Spread Value (FSV)	Smoke Developed Value (SDV)	Maximum Air Temperature (°C)
21	**321**	383