

CLIENT: Flexstone Coatings, Inc.
1230 W. 75th Avenue
Vancouver, BC V6P 3G3

| | |
|---------------------------------------|-----------------------------|
| Test Report Number : RJ8042F-1 | Date: April 20, 2021 |
|---------------------------------------|-----------------------------|

SAMPLE ID: The client identified the following test material as:
Flexstone deck coating system

SAMPLING DETAIL: The clients submitted the Flexstone deck coating system to QAI Laboratories. The client's roller applied the liquid coating on to the 3/4" combustable deck. This application was witness by QAI personal on September 22, 2020 - September 28, 2020 per ASTM E108 and section 7 of UL790.

DATE OF RECEIPT: Samples were received at QAI facilities on: October 22, 2020

TESTING PERIOD: October 22, 2020,

AUTHORIZATION: Testing was authorized by Jay Cruz for proposal 21MB0322.

TEST REQUESTED: Evaluate the clients Roof Covering system in accordance to ASTM E 108-2017 Edition, which outlines testing to be conducted using the procedures and methods outlined in ASTM E 108-17 "Standard Test Methods for Fire Tests of Roof Coverings".

TEST RESULTS: **TEST #1,#2:** The Flexstone deck coating system when installed at a 1/G12 test slope, **has met** the requirements of Class B Spread of flame mode for Section 7 of UL790 and Section 9 of ASTM E108 when tested and evaluated to the requirements outlined in ASTM E 108-2017 Edition.

Detailed test results are provided on the subsequent pages of this report.

Prepared By



Nathan Juarez
Test Technician

**Signed for and on behalf of
QAI Laboratories, Inc.**



Jason Friedrich P.E.
Engineering Manager

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DETAILS OF THE TESTING

TEST SAMPLE DESCRIPTION

1.0 Description of Test Specimens

Table 1 outlines the Flexstone Coatings Inc. Roof Covering system evaluated by QAI.Laboratorie

| COMPONENT | SUPPLIER | COMMENT |
|-----------------------------------|-------------------------|--|
| Framing Type / Species | Lowes | Moisture Content: 8-12% |
| Douglas Fir No.1 | | |
| Sheathing Type / Grade | Lowes | 3/4" ACX plywood |
| 3/4" ACX plywood | | |
| Roof Covering Material 1 / Grade: | Send directly by client | The test decks were built and coatings where applied by client here at QAI Laboratories. |
| Flexstone deck coating system | | |

Table No. 1: Details of the Flexstone Coatings Inc. Roof Covering Test Specimens.

DETAILS OF THE TESTING

2.0 Test Set Up and Procedure:

Storage of Assembled Test Decks

All test deck assemblies were stored indoors at temperatures not lower than 60F (16) nor higher than 90F (32C) for the period of time necessary to cure the assembly components prior to testing. The test decks were stored in such a manner to assure that each deck was surrounded by free circulating air.

A photograph of the assembled test deck is provided in Appendix B of this report.

Roof System and Deck Assembly Construction Details

Lumber: Nominal 2" X 4" Douglas Fir, moisture content between 8-12%.

Deck: 3/4" ACX Plywood, moisture content not greater than 8%.

Roof Covering: The clients submitted the Flexstone deck coating system to QAI Laboratories. The Flexstone primer #3 was first applied at 300 sq. ft. per gallon. Flexstone Solvent-free "Base" coating was applied after at 3 gallons per 100 sq. ft. After curing a coat of Flexstone Color-Coat AR (mixed with Flexstone "FR" powder) is applied at 1 ¼ gallons per 100 sq. ft. then the Flexstone Vinyl-Acrylic chips are broadcast into the wet coating. After curing a seal coat of Flexstone Multi-Glaze MCU clear is applied at one gallon per 100 sq. ft. This application was witness by QAI personal on September 26, 2019 – September 27, 2019 per ASTM E108 and section 7 of UL790.

Test Procedure

Two test deck was constructed by the client in accordance with Section 4 of UL790 and Section 6 of ASTM E108 with final measurements of 40-inch wide by 44-inch long and were individually mounted onto the test chamber compliant with Section 5 of ASTM E108 and UL 790. The burning brand was ignited following the sequence outlined in the method and the test was run in accordance to Section 8 of UL790 and Section 10 of ASTM E108. Observations were made and recoded during a 90 minute test period and recorded on the individual test data sheets in the Appendix A of this report.

2.1 Test Requirements

At no time during or after the intermittent flame, spread of flame or burning brand tests shall:

- 1 Any portion of the roof covering material be blown or fall off the test deck in the form of flaming or glowing brands that continue to glow after reaching the floor, or
- 2 The roof deck be exposed, or
- 3 Portions of the roof deck fall away in the form of particles that continue to glow after reaching the chamber floor.
- 4 At no time during the Class B intermittent flame or burning brand tests shall there be sustained flaming of the underside of the test assembly deck.
- 5 At the conclusion of the spread of flame tests, the flaming shall not have spread beyond 8 feet for Class B.
- 6 There shall have been no significant lateral spread of flame from the path directly exposed to the test flame during spread of flame tests.

3.0 Test Results

The following summarizes testing conducted by QAI during testing of the Flexstone Coatings Inc. Flexstone deck coating system Roof Covering when tested to ASTM E 108-17.

| | | | | | |
|----------------------------------|-------------------------|-------------------|---------------|-----------------------------------|-------------------------------|
| Client Name: | Flexstone Coatings Inc. | Criteria: | ASTM E 108 | Framing Type / Species | Douglas Fir No.1 |
| Job No.: | RJ8042F-1 | Criteria Version: | 2017 Edition. | Sheathing Type / Grade | 3/4" ACX plywood |
| Test Method: | ASTM E 108 | | | Underlayment 1: Grade / Type: | N/A |
| Version / Publication of Method: | 17 | | | Underlayment 2: Grade / Type: | N/A |
| System Type | Covering | | | Joint Compound? | N/A |
| Test Slope | 1/ :12 | | | Insulation Type / Grade | N/A |
| Test Degree | 1.2 Degrees | | | Roof Covering Material 1 / Grade: | Flexstone deck coating system |
| Burning Brand | No | | | Roof Covering Material 2 / Grade: | |
| Intermittant Flame | No | | | | |
| Spread of Flame | Yes | | | | |
| Roofing Class | B | | | | |

Sample ID:

Flexstone deck coating system

| Test Conditions | Class B Requirement | Average Recorded |
|------------------------------|---------------------|------------------|
| Wind Speed (ft/min) | 1012 – 1100 ft/min | 1053 (ft/min) |
| Flame Temperature (°F) | 1400 ± 50 (°F) | 1369 (°F) |
| Burning Brand Weight (grams) | 500 ± 50 (grams) | 1296.77 (grams) |

Conclusion:

The Flexstone deck coating system when installed at a 1/G12 test slope, has met the requirements of Class B Spread of flame mode for Section 7 of UL790 and Section 9 of ASTM E108 when tested and evaluated to the requirements outlined in ASTM E 108-2017 Edition.

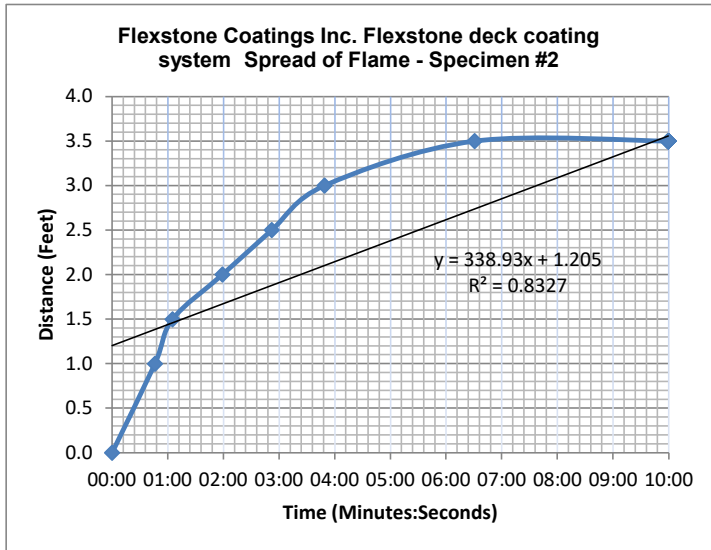
| Spread of Flame Test | | | | | | | |
|----------------------|---------------|-----------------------|------------------------------|------------------------------|---------------------------|--------|---------|
| Test Date | Test Assembly | Ignition Time (MM:SS) | Maximum Spread of Flame (ft) | Lateral Spread of Flame (ft) | Condition @ Start of Test | | Result: |
| | | | | | Temp. (°F) | RH (%) | |
| 10/22/2020 | 1 | 00:54 | 5.0 | 0 | 66 | 2 | Pass |
| 10/22/2020 | 2 | 00:45 | 3.5 | 0 | 66 | 2 | Pass |
| | 3 | 00:46 | 2.5 | 0 | 64 | 31 | Pass |

Appendix A: Spread of Flame-Test Specimen #2

| | | | | | |
|--------------------|-------------------------|-------------------|---------------|-----------------------------------|-------------------------------|
| Client Name: | Flexstone Coatings Inc. | Criteria: | ASTM E 108 | Framing Type / Species | Douglas Fir No.1 |
| Job No.: | RJ8042F-1 | Criteria Version: | 2017 Edition. | Sheathing Type / Grade | 3/4" ACX plywood |
| Test Method: | ASTM E 108 | | | Underlayment 1: Grade / Type: | N/A |
| Publication of | 17 | | | Underlayment 2: Grade / Type: | N/A |
| System Type | Roof Covering | | | Joint Compound? | N/A |
| Test Slope | 1/2:12 | | | Insulation Type / Grade | N/A |
| Test Degree | 1.2 Degrees | | | Roof Covering Material 1 / Grade: | Flexstone deck coating system |
| Burning Brand | No | | | Roof Covering Material 2 / Grade: | |
| Intermittant Flame | No | | | Test Temperature (°F) | 66 |
| Spread of Flame | Yes | | | Test Humidity (%) | 2 |
| Roofing Class | B | | | Test Date | 10/22/2020 |

Sample Id: **Flexstone Coatings Inc. Flexstone deck coating system Spread of Flame - Specimen #2**

| # of Feet | Time (mm : ss) | Half Foot | Time (mm : ss) |
|-----------|----------------|-----------|----------------|
| 1 | 00:46 | 1.5 | 01:05 |
| 2 | 01:59 | 2.5 | 02:52 |
| 3 | 03:49 | 3.5 | 06:31 |
| 4 | | 4.5 | |
| 5 | | 5.5 | |
| 6 | | 6.5 | |
| 7 | | 7.5 | |
| 8 | | 8.5 | |
| 9 | | | |
| | | | |
| | | | |
| | | | |
| | | | |



| | |
|--------------------------------------|-------|
| Test Duration (Minutes:Seconds) | 10:00 |
| Time of Ignition (Minutes:Seconds) | 00:45 |
| Maximum Spread of Flame (ft) | 3.5 |
| Time at Maximum Spread of Flame (ft) | 06:31 |

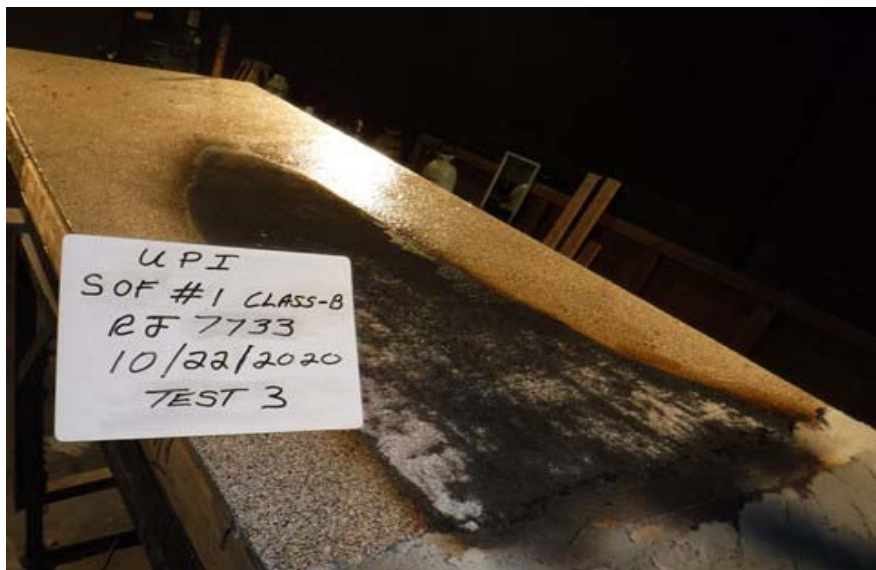
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|--|------|
| Flame Front Recession (ft) | 0 |
| Lateral Flame Spread (ft) | 0 |
| Flame Spread Distance at Test End (ft) | 3.5 |
| Test Result for Class B | Pass |

| Asset Number | Description | Equipment Functional Range | Calibration Date | Calibration Due Date |
|--------------|--------------------------------------|-----------------------------|------------------|----------------------|
| RF0029 | Stop Watch | N/A | 10/2/2020 | 10/2/2021 |
| RF0005 | Anemometer | 30 FPM to 5000 FPM +14/- | 2/25/2020 | 2/25/2021 |
| TU8124 | Digital Thermometer | -328°F - 2498°F | 11/4/2019 | 11/4/2020 |
| RP0072 | Calibrated Tape Measure | 0-25 Feet | 10/6/2019 | 10/6/2020 |
| RP0138 | Temperature and Humidity Data Logger | -4°F to 158°F +/-0.8°F / 60 | 11/4/2019 | 11/4/2020 |
| RE0039 | Digital Angle Gauge | 0° to 90° | 11/4/2019 | 11/4/2020 |
| RF0031 | UL790 Test Chamber | AS PER UL790 | 10/22/2020 | Per USE |
| | | | | |
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Appendix B: Photographs

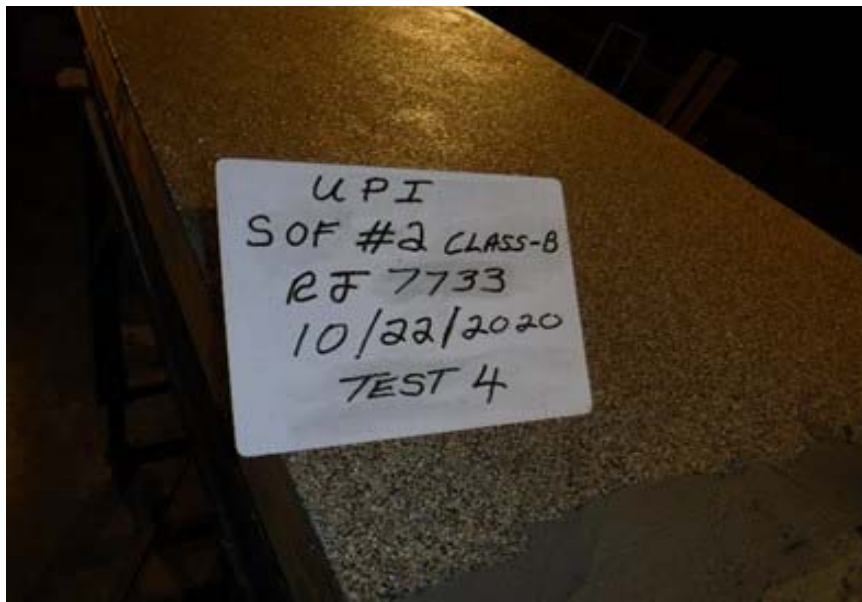


Photograph 1: Class B Spread of Flame test Specimen prior to test.
Flexstone Pedestrian deck coating system



Photograph 2: Class B Spread of Flame after test.

Appendix B: Photographs (Continued)



Photograph 3: Class B Burning brand after test.
Flexstone Pedestrian deck coating system



Photograph 4: Class B Spread of Flame after test.

<<<END OF REPORT>>>