

File R21591

Project 10CA43866

2010-11-18

REPORT

on

Laminated Panel

Under the

LISTING PROGRAM

Barrier Technology Corp
Watkins, MN

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DESCRIPTION

PRODUCT COVERED:

The Product covered by this Report is a wafer board with a cementitious coating.

The product is Listed as to Surface Burning Characteristics only.

USE

The product is intended for use as a building material as permitted by authorities having jurisdiction.

Test Record No. 1

Project No. 10CA18368

This test record describes an investigation undertaken to determine the comparative burning characteristics of Barrier Technology Corp's Blazeguard panel by evaluating the flame spread and smoke developed over its surface when exposed to a test fire. Selected samples were tested on October 15, 2010 at Underwriters Laboratories of Canada's testing facilities in Toronto, Ontario, in accordance with CAN/ULC-S102-10, Standard Method of Test for Surface Burning Characteristics of Building Materials and Assemblies, Seventh Edition.

The Surface Burning Characteristics are limited to the coated face of the board only.

This method defines the relative surface burning characteristics under specific test conditions. Although the procedure is applicable to materials, products and assemblies used in building construction for development of comparative surface spread of flame data, test results may not reflect the relative surface burning characteristics of tested materials under all building fire conditions. Test results relate only to the items tested.

EXAMINATION OF MATERIALS:

The test assemblies used in this investigation were produced under the Follow-Up Service Program of Underwriters Laboratories Inc. (ULI) and bore the UL Mark.

SURFACE BURNING CHARACTERISTICS:

SAMPLES

Samples consisted of maximum and minimum thicknesses of plywood substrate coated with identical thicknesses of cementitious mixture.

For each test, three panels measuring 2440 mm long and 605 mm wide were butted end-to-end to create the 7320 mm long test specimens.

The test specimens were conditioned to constant mass at a temperature of $23 \pm 3^{\circ}\text{C}$ and at a relative humidity of 50 ± 5 per cent prior to testing.

Due to the rigidity of the test samples, supplementary means of support was not required. The test specimens were installed on the ceiling of the tunnel furnace. A 350 mm long by 560 mm wide by 1.6 mm thick, uncoated, steel plate was placed on the specimen mounting ledge in front of and under the specimen at the fire end of the tunnel furnace "upstream" from the gas burners to complete the 7620 mm chamber length. An airtight water seal was maintained around the furnace lid during the test.

SURFACE BURNING CHARACTERISTICS: (Cont'd)

METHOD

The tests were conducted in accordance with the Standard CAN/ULC-S102-10, Standard Method of Test for Surface Burning Characteristics of Building Materials and Assemblies, Seventh Edition.

RESULTS

Flame Spread Rating

The position of the flame front was determined through visual observation and recorded with time throughout the test to produce a graphical plot of flame spread versus time. The total area (A_T) under the flame spread time-distance curve was determined disregarding any flame front recession.

The Flame Spread Value (FSV) of the material was calculated using one of the calculation methods described below.

1. If the total area (A_T) is less than or equal to 29.7 m-min, the FSV shall be 1.85 times the total area:

$$FSV = 1.85 \times A_T$$

2. If the total area (A_T) is greater than 29.7 m-min, the FSV is to be 1640 divided by 59.4 minus the total area:

$$FSV = \frac{1640}{59.4 - A_T}$$

The Flame Spread Rating (FSR) is the numerical average of not less than three individual Flame Spread Values (FSV) rounded to the nearest multiple of 5 points.

The Flame Spread Values that were achieved during this investigation appear in Tables 1.

SURFACE BURNING CHARACTERISTICS: (Cont'd)

Table 1

| Test No. | Sample Description | Maximum Flame Distance m (ft) | Time of Maximum Flame Distance (min:sec) | Flame Spread Value |
|------------------------------|--|----------------------------------|---|--------------------|
| 1 | Blazeguard, $\frac{3}{4}$ inch thick coated waferboard | 0 (0) | N/A | 0.0 |
| 2 | Blazeguard, $\frac{1}{2}$ inch thick coated waferboard | 0 (0) | N/A | 0.0 |
| 3 | Blazeguard, $\frac{3}{4}$ inch thick coated waferboard | 0 (0) | N/A | 0.0 |
| 4 | Blazeguard, $\frac{3}{4}$ inch thick coated waferboard | 0.61 (2.0) | 9:43 | 1.1 |
| Assigned Flame Spread Rating | | | | 0 |

Smoke Developed Classification

The Smoke Developed Classification (SDC) is the numerical average of not less than three individual Smoke Developed Values (SDV) rounded to the nearest multiple of 5 points.

The Smoke Developed Value (SDV) is determined by plotting the output of a photoelectric circuit, which measures the light absorption across the furnace flue pipe, against time. The area under the curve of the test material obtained during the fire test (A_U) is divided by the area under the curve for Red Oak (A_{RO}) and multiplied by 100 to establish a numerical index by which the performance of the material is to be compared with that of inorganic cement board and select-grade Red Oak flooring which have been arbitrarily established by the standard as 0 and 100, respectively.

The Smoke Developed Values that were achieved during this investigation appear in Tables 2.

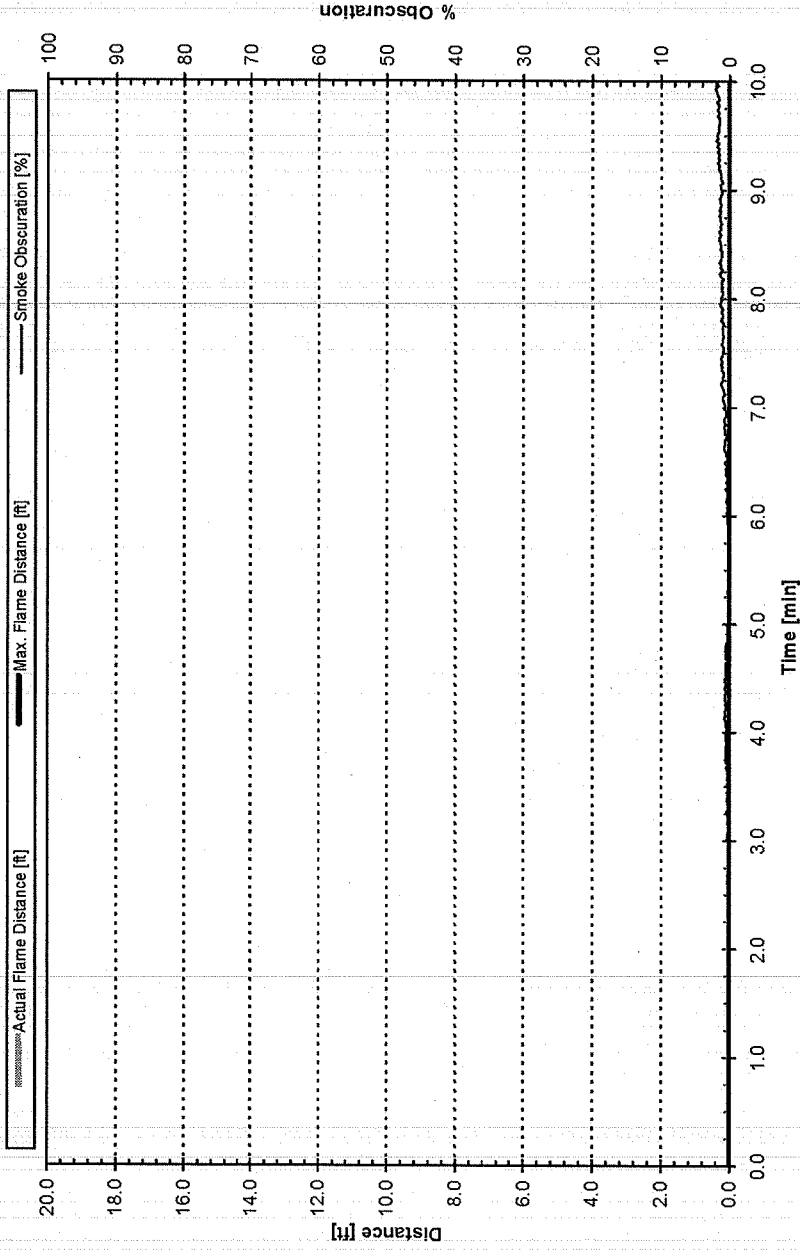
Table 2

| Test No. | Sample Description | Smoke Developed Value |
|---|--|-----------------------|
| 1 | Blazeguard, $\frac{3}{4}$ inch thick coated waferboard | 3.1 |
| 2 | Blazeguard, $\frac{1}{2}$ inch thick coated waferboard | 2.5 |
| 3 | Blazeguard, $\frac{3}{4}$ inch thick coated waferboard | 2.9 |
| 4 | Blazeguard, $\frac{3}{4}$ inch thick coated waferboard | 3.3 |
| Assigned Smoke Developed Classification | | 5 |

SURFACE BURNING CHARACTERISTICS
BARRIER TECHNOLOGY CORP.
Sprayed Wafer Board 3/4 in Thick

Test #1: FSV = 0; SDV = 3.1

CAN/JULC-S102



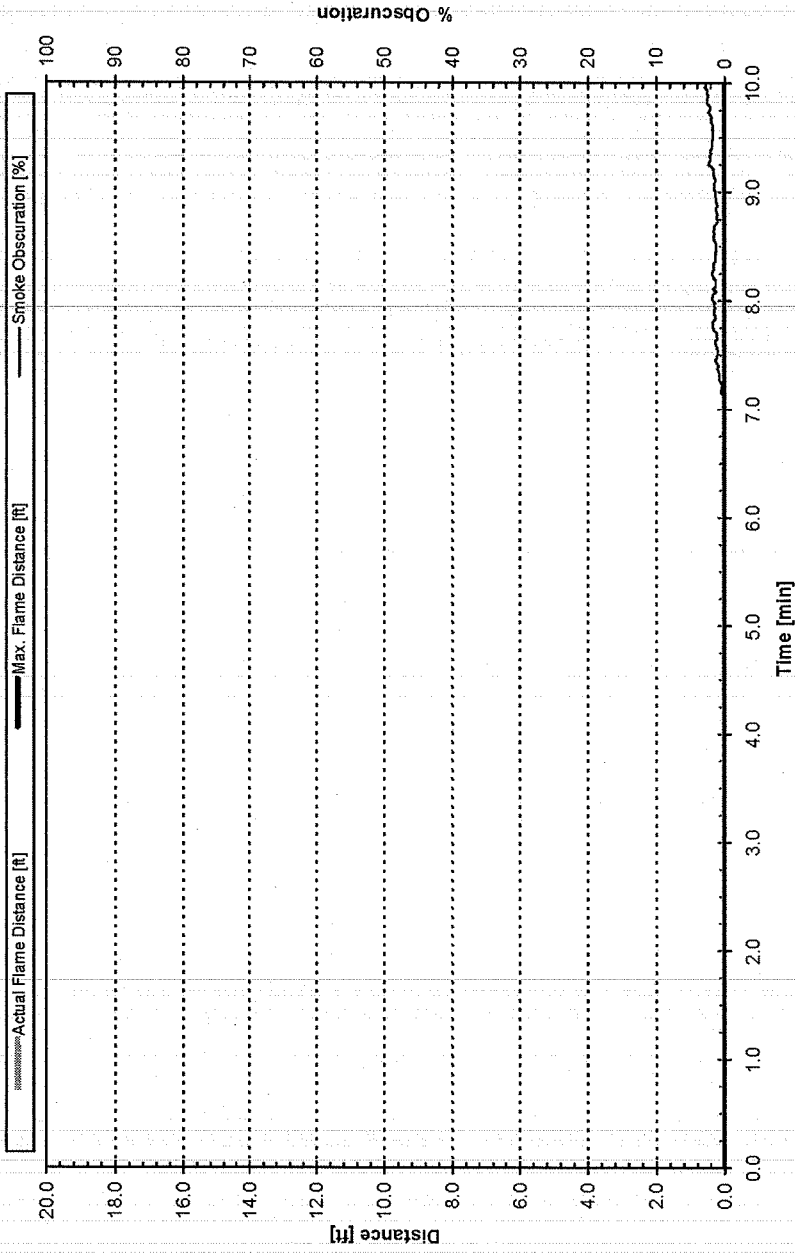
File: R21591 Project: 10CA43866

Test Date: October 15, 2010 10:49:48 AM

SURFACE BURNING CHARACTERISTICS
BARRIER TECHNOLOGY CORP.
Sprayed Wafer Board 1/2 in Thick

Test #2: FSV = 0; SDV = 2.5

CAN/JULC-S102



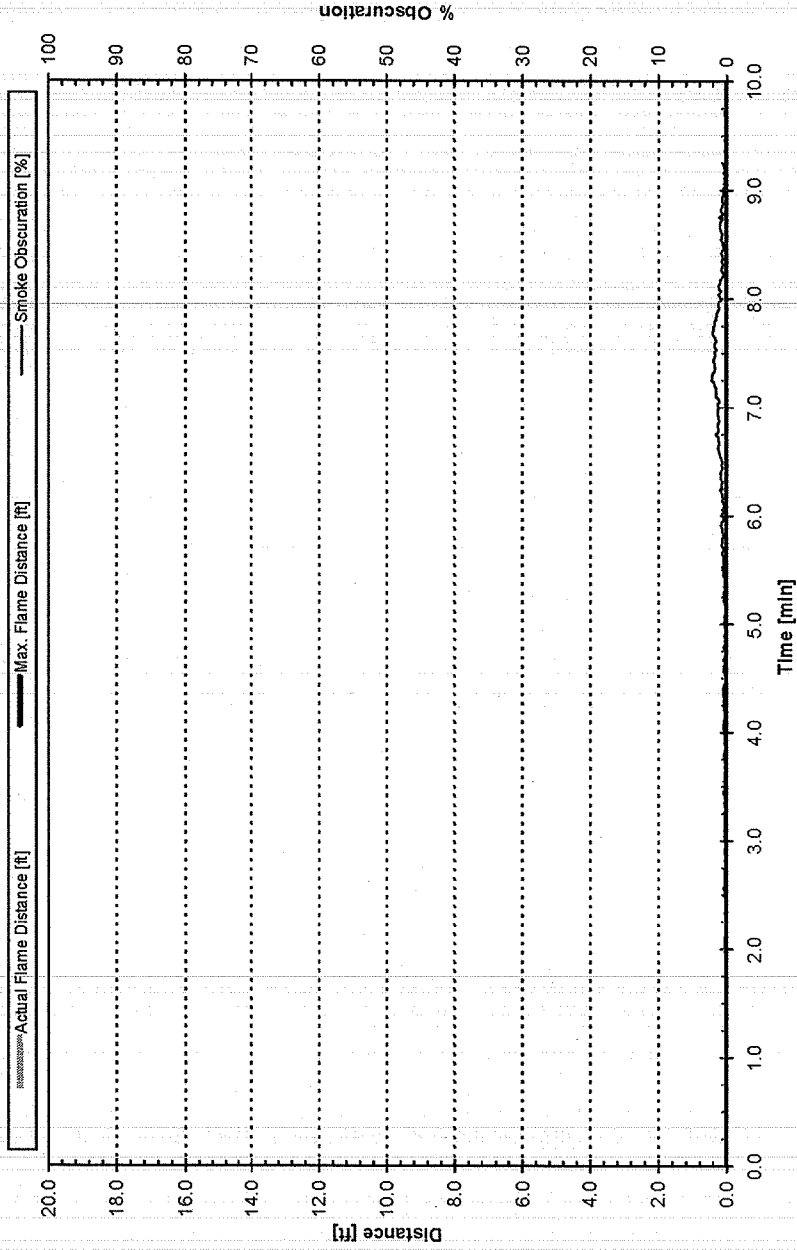
File: R21591 Project: 10CA43866

Test Date: October 15, 2010 11:38:48 AM

SURFACE BURNING CHARACTERISTICS
BARRIER TECHNOLOGY CORP.
Sprayed Water Board 3/4 In Thick

Test #3: FSV = 0; SDV = 2.9

CANJULC-S102



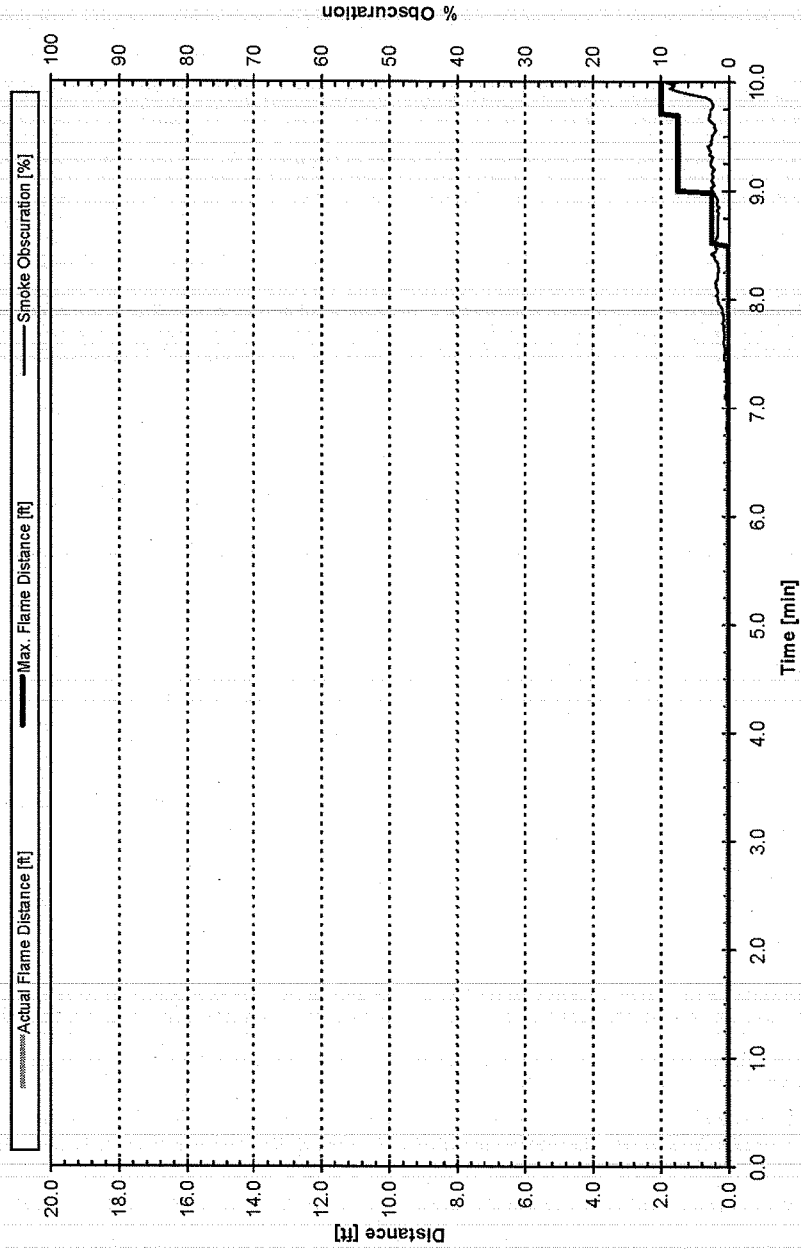
File: R21591 Project: 10CA43866

Test Date: October 15, 2010 1:32:47 PM

SURFACE BURNING CHARACTERISTICS
BARRIER TECHNOLOGY CORP.
Sprayed Water Board 3/4 In Thick

Test #: FSV = 1.1; SDV = 3.3

CANULC-S102




TEST RECORD NO. 1 SUMMARY:

The results of this investigation, including construction review and testing, indicate that the products evaluated comply with the applicable requirements in the Standard, CAN/ULC-S102-10, Standard method of Test for Surface Burning Characteristics of Building Materials and Assemblies, Seventh Edition and, therefore, such products are judged to be eligible to bear the ULC Mark as described below and on the Conclusion Page of this Report.

ULC LISTING MARK:

The surface burning characteristics as shown below in the Listing Mark represents the judgement of Underwriters Laboratories of Canada based upon the results of the examination and tests presented in this Report.

| | | |
|---|-------------------------|--------------------------------|
|  | MINERAL AND FIBERBOARDS | |
| | <Control No.> | |
| Listed in accordance with <StandardNo> | | |
| | Flame Spread Rating | Smoke Developed Classification |
| Material Details | | |
| Blazeguard Panel (coated face only) | 0 | 5 |

Test Record No. 1 by:
Beny Spensieri
Project Handler
Building Materials /
Life Safety & Security Industries

Reviewed by:
AHMAD F.MANGOU, P. Eng.
Senior Project Engineer
Building Materials /
Life Safety & Security Industries

CONCLUSION

Samples of the products covered by this Report have been found to comply with the requirements covering the category and the products are judged to be eligible for ULC Listing and Follow-Up Service. The manufacturer is authorized to use the ULC Mark on such products which comply with the Follow-Up Service Procedure and any other applicable requirements of Underwriters Laboratories of Canada.

Only those products which properly bear the ULC Mark are considered as Listed by Underwriters Laboratories of Canada Inc.

Report by:
Beny Spensieri
Project Handler
Building Materials /
Life Safety & Security Industries

Reviewed by:
AHMAD F.MANGOU, P. Eng.
Senior Project Engineer
Building Materials /
Life Safety & Security Industries



File R21591

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FOLLOW-UP SERVICE PROCEDURE
(TYPE R)

BUILDING UNITS
(BZXX)

Complementary Product Category

LAMINATED PANELS

(BKRZC)

BUILDING UNITS

(BZXXC)

Manufacturer: BARRIER TECHNOLOGY CORP
(406647-001) 510 4TH ST N
PO BOX 379
WATKINS MN 55389

Applicant: SAME AS MANUFACTURER
(406647-001)

Classified Company: SAME AS MANUFACTURER
(406647-001)

This Procedure authorizes the above manufacturer to use the marking specified by Underwriters Laboratories Inc.(UL), or any authorized licensee of UL, only on products covered by this Procedure, in accordance with the applicable UL Services Agreement.

The prescribed Mark or Marking shall be used only at the above manufacturing location on such products which comply with this Procedure and any other applicable requirements.

The Procedure contains information for the use of the above named Manufacturer and representatives of Underwriters Laboratories Inc. and is not to be used for any other purpose. It is lent to the Manufacturer with the understanding that it is not to be copied, either wholly or in part, and that it will be returned to Underwriters Laboratories Inc. (UL) or any authorized licensee of UL, upon request.

This PROCEDURE, and any subsequent revision, is the property of Underwriters Laboratories Inc.(UL) and the authorized licensee of UL and is not transferable.

Underwriters Laboratories Inc.

Stephen Hewson
Senior Vice President
Global Follow-Up Service Operations

William R. Carney
Director
North American Certification Program

ULC Listing Mark Data Page

(FILE IMMEDIATELY AFTER AUTHORIZATION PAGE)

LISTING MARK

The Listing Mark consists of four elements placed in close proximity and shall appear on Listed products only. Minimum size is not specified, as long as the Listing Mark is legible. The following is suggested.



LISTED
(PRODUCT IDENTITY)
XXXX

XXXX = The control number assigned by ULC, 24CP.

The product identity is: "LAMINATED PANELS" or appropriate product identities, as shown in the individual Listing.

The product identity may be omitted if the Mark is directly and permanently applied to the product by stamping, molding, ink-stamping, silk screening or similar process. The product identity may appear elsewhere on the product if the other three elements are part of the nameplate, which includes the rating or the catalog or model designation.

Separable Listing Mark (not part of a nameplate and in the form of decals, stickers or labels) will always include the seven elements.

The complete four element Listing Mark will appear on each piece of material or on the smallest unit container in which the product is packaged when the product is of such a size that only the ULC Symbol can be applied to the product or when the product size, shape, material or surface texture makes it impossible to apply any legible marking to the product.

The manufacturer may reproduce the Mark or obtain it from a UL authorized supplier.

THIS FORM PAGE IS TO BE REVISED BY THE ULC LABEL DEPARTMENT ONLY