

# STRUCTURECRAFT BUILDERS INC. TEST REPORT

## SCOPE OF WORK

REPORT OF TESTING 4 IN. STRUCTURECRAFT DOUGLAS FIR DOWELLAM DLT TIMBER FOR COMPLIANCE WITH THE APPLICABLE REQUIREMENTS OF THE FOLLOWING CRITERIA: ASTM E84-20 STANDARD TEST METHOD FOR SURFACE BURNING CHARACTERISTICS OF BUILDING MATERIALS.

## REPORT NUMBER

104508364COQ-001 R0

## TEST DATE(S)

12/18/20 - 12/18/20

## ISSUE DATE

12/21/20

## PAGES

11

## DOCUMENT CONTROL NUMBER

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## TEST REPORT FOR STRUCTURECRAFT BUILDERS INC.

Report No.: 104508364COQ-001 R0

Date: 12/21/20

### REPORT ISSUED TO

**StructureCraft Builders INC.**  
**1929 Foy Street**  
**Abbotsford, BC V2F 6B1 CAN**

### SECTION 1

#### SCOPE

Intertek Building & Construction (B&C) was contracted by StructureCraft Builders Inc. to perform testing in accordance with ASTM E84-20 Standard Test Method for Surface Burning Characteristics of Building Materials on their 4 in. thick StructureCraft Douglas Fir Dowellam DLT Timber. Results obtained are tested values and were secured by using the designated test method(s). Testing was conducted at Intertek Testing Services NA Ltd. (Intertek) test facility in Coquitlam, BC Canada.

This report does not constitute certification of this product nor an opinion or endorsement by this laboratory.


### SECTION 2

#### SUMMARY OF TEST RESULTS

The samples of 4 in. thick StructureCraft Douglas Fir Dowellam DLT Timber submitted by StructureCraft Builders Inc. were tested in accordance with ASTM E84-20 Standard Test Method for Surface Burning Characteristics of Building Materials.

The product test results are presented in Section 10 of this report.

For INTERTEK B&C:

<b>REPORTED BY:</b>	Sean Fewer
<b>TITLE:</b>	Technician – B&C
<b>SIGNATURE:</b>	
<b>DATE:</b>	12/21/20

<b>REVIEWED BY:</b>	Greg Philp
<b>TITLE:</b>	Reviewer – B&C
<b>SIGNATURE:</b>	
<b>DATE:</b>	12/21/20

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**SECTION 3**

**TEST METHOD(S)**

The specimens were evaluated in accordance with the following:

**ASTM E84-20 Standard Test Method for Surface Burning Characteristics of Building Materials.**

**SECTION 4**

**MATERIAL SOURCE/INSTALLATION**

Samples were submitted to Intertek directly from the client and were not independently selected for testing and Intertek accepts no responsibility for any inaccuracies provided.

**SECTION 5**

**EQUIPMENT**

ASSET #	DESCRIPTION	MODEL	CAL DUE DATE
WH 2189	Photocell	Huygen 856	11/06/21
WH 2190	Smoke Opacity Meter	Huygen	11/06/21
WH 1052	Data Logger	Phidgets DAQ 2020	11/06/21

**SECTION 6**

**LIST OF OFFICIAL OBSERVERS**

NAME	COMPANY
Sean Fewer	Intertek B&C
Brian Woudstra	StructureCraft Builders Inc.

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### SECTION 7

#### TEST CALCULATIONS

#### TEST STANDARD

The results of the tests are expressed by indexes, which compare the characteristics of the sample under tests relative to that of select grade red oak flooring and inorganic-cement board.

##### (A) Flame Spread Index:

This index relates to the rate of progression of a flame along a sample in the 25 foot tunnel. A natural gas flame is applied to the front of the sample at the start of the test and drawn along the sample by a draft kept constant for the duration of the test. An observer notes the progression of the flame front relative to time.

The test apparatus is calibrated such that the flame front for red oak flooring passes out the end of the tunnel in five minutes, thirty seconds (plus or minus 15 seconds).

##### (B) Smoke Developed:

A photocell is used to measure the amount of light, which is obscured by the smoke passing down the tunnel duct. When the smoke from a burning sample obscures the light beam, the output from the photocell decreases. This decrease with time is recorded and compared to the results obtained for red oak, which is defined to be 100.

### SECTION 8

#### TEST SPECIMEN DESCRIPTION

Upon receipt of the samples at the Intertek Coquitlam laboratory they were placed in a conditioning room where they remained in an atmosphere of  $23 \pm 3^{\circ}\text{C}$  ( $73.4 \pm 5^{\circ}\text{F}$ ) and  $50 \pm 5\%$  relative humidity.

The sample material was identified by the client as StructureCraft DowelLam<sub>DLT</sub> (Dowel Laminated Timber) mass timber panel, nominal 4 in. deep, Douglas Fir species, complete with OSB sheathing on the topside.

For this trial run, three 24 in. wide by 8 ft. long sample panels were placed on the upper ledge of the flame spread tunnel to form the required 24 ft. sample length. A layer of 6 mm reinforced cement board was placed over top of the sample material, the tunnel lid was lowered into place, and the samples were then tested in accordance with ASTM E84-20.

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**SECTION 9****TEST RESULTS****(A) Flame Spread**

The resultant flame spread Indexes are as follows:  
(Indexes rounded to nearest 5)

Sample Material	Flame Spread	Flame Spread Index
4 in. thick StructureCraft Douglas Fir DowelLam DLT Timber	25	25

**(B) Smoke Developed**

The areas beneath the smoke developed curve and the related indexes are as follows:  
(For smoke developed indexes 200 or more, index is rounded to the nearest 50. For smoke developed indexes less than 200, index is rounded to nearest 5)

Sample Material	Smoke Developed	Smoke Developed Index
4 in. thick StructureCraft Douglas Fir DowelLam DLT Timber	112	110

**(C) Observations**

During the test, the sample surface ignited at approximately 10 seconds; the flame began to progress along the sample until it reached the maximum flame spread.

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**COMMENTARY ON CLASSIFICATION**

Neither ASTM E84 nor UL 723 include classification criteria for the results obtained from testing. The International Building Code® (IBC), NFPA 101: Life Safety Code® (NFPA 101), and NFPA 5000: Building Construction and Safety Code® (NFPA 5000) all describe a set of classification criteria required for interior wall and ceiling finish materials based on Flame Spread Index and Smoke Developed Index when tested in accordance with ASTM E84 or UL 723. The classification criteria for all three model codes is the same:

Class	Flame Spread Index	Smoke Developed Index
A	0-25	0-450
B	26-75	0-450
C	76-200	0-450

Note that classification under this scheme for interior wall and ceiling finishes does not strictly apply to all products or materials tested in accordance with ASTM E84 or UL 723 because not all products or materials are recommended or suitable for use as interior wall or ceiling finish materials in buildings, regardless of the surface burning characteristics. Consult with the product manufacturer and the local authority having jurisdiction (AHJ) regarding specific applications of a given product or material.

**SECTION 10  
CONCLUSION**

The samples 4 in. thick StructureCraft Douglas Fir DowelLam DLT Timber submitted by StructureCraft Builders Inc. exhibited the following flame spread characteristics when tested in accordance with ASTM E84-20 Standard Test Method for Surface Burning Characteristics of Building Materials.

Sample Material	Flame Spread Index	Smoke Developed Index
4 in. thick StructureCraft Douglas Fir DowelLam DLT Timber	25	110

The conclusions of this test report may not be used as part of the requirements for Intertek product certification. Authority to Mark must be issued for a product to become certified.



Total Quality. Assured.

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1500 Brigantine Drive  
Coquitlam, BC V3K 7C1

Telephone: 604-520-3321  
[www.intertek.com/building](http://www.intertek.com/building)

**SECTION 11**

**TEST DATA (2 PAGES)**

## TEST REPORT FOR STRUCTURECRAFT BUILDERS INC.

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### ASTM E84-20 DATA SHEETS

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**Standard:** ASTM E84-20/UL723

Lab ID: Intertek Coquitlam Fire Laboratory  
Client: Structure Craft  
Date: 18 Dec 2020  
Project Number: 104508364  
Test Number: 1  
Operator: Sean Fewer

Specimen ID and Description:

Douglas Fir DLP
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#### TEST RESULTS

FLAMESPREAD INDEX: 25.000  
SMOKE DEVELOPED INDEX: 110.000

#### SPECIMEN DATA

Time to Ignition (sec): 52.370  
Time to Max Flame Spread (min): 4.590  
Maximum Flame Spread (mm): 6.300  
Time to 527 C / 980 F (sec): 0.000  
Max Temperature (deg F or C as per test standard): 642.398  
Time to Max Temperature (sec): 585.372  
Total Fuel Burned (cubic feet): 43.612  
  
Flame Spread\*Time Area (M\*min): 49.137  
Smoke Area (%A\*min): 50.566  
Unrounded FSI: 25.306  
Unrounded SDI: 111.986

#### CALIBRATION DATA

Time to Ignition of Last Red Oak (sec): 44  
Calibrated Smoke Area (%A\*min): 45.153

15 point Heptane average for E84-20 5 point Red Oak average for S102
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Tested by: SF

Reviewed by: [Signature]



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### ASTM E84-20 DATA SHEETS

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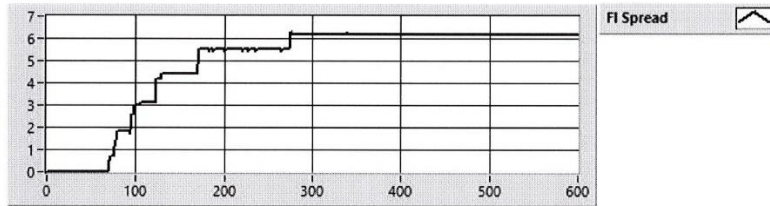
Client: Structure Craft

Project Number: 104508364

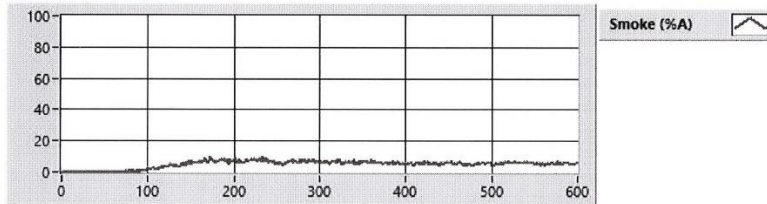
Test Number: 1

Test Standard: ASTM E84-20/UL723

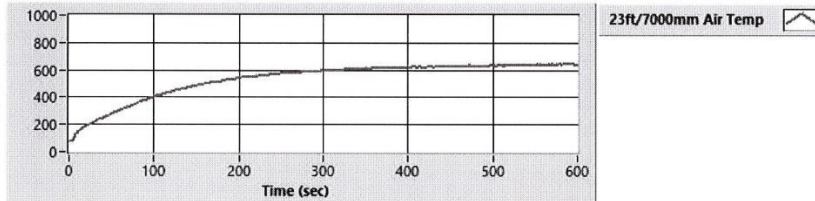
#### FLAME SPREAD



#### SMOKE (%A)



#### TEMPERATURE



Tested by: SF

Reviewed by: [Signature]

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### SECTION 12 PHOTOGRAPHS



**Photo No. 1**  
**Pre-Test**



**Photo No. 2**  
**Post-Test**



Total Quality. Assured.

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Coquitlam, BC V3K 7C1

Telephone: 604-520-3321  
[www.intertek.com/building](http://www.intertek.com/building)

**SECTION 13**

**REVISION LOG**

REVISION #	DATE	PAGES	REVISION
0	12/21/20	N/A	Original Report Issue