

TEST REPORT # **T1003-1**

DATE: April 27, 2015

CLIENT: **Fire Retardant Coatings of Texas**
1150 Blue Mound Rd. W #403
Haslet, TX
76052
Contact: David Paulo

SAMPLE DESCRIPTION: FX LUMBER GUARD XT TREATED 3/8 IN. THICK OSB See page 3 for full description.

SAMPLING PROCEDURES: See page 2 for the sampling procedure.

DATE OF RECEIPT: April 21, 2015

DATE OF TESTING: April 24, 2015

TESTING REQUESTED: **Testing to the flaming and penetration requirements of the following criteria: ASTM E119-14, Standard Test Methods for Fire Tests of Building Construction and Materials, and CAN/ULC S101-07, Standard Methods of Fire Endurance Tests of Building Construction and Materials. See page 6 for deviations from the test standard.**

TESTED RATING: 15-Minute Fire Resistance

TEST RESULTS: See Page 6 for the test results.

CONTENTS: Test Report Pages 1 through 7, Appendix A1 through A3

TESTING PERFORMED AT: QAI Laboratories Ltd., Coquitlam

Reported By

Reviewed By

Scott Leduc, EIT
Project Manager

Kevin Saito, P.Eng
Division Manager

Introduction:

This report documents the fire testing conducted by QAI Laboratories Ltd. for Fire Retardant Coatings of Texas of a FX Lumber Guard XT treated 3/8 in. thick OSB wall assembly. Testing was performed in accordance with ASTM E119-14, Standard Test Methods for Fire Tests of Building Construction and Materials, and CAN/ULC S101-07, Standard Methods of Fire Endurance Tests of Building Construction and Materials, with the deviations found on page 6. The wall was evaluated for a 15-Minute Fire Resistance rating on April 24, 2015.

The FX Lumber Guard XT treated 3/8 in. thick OSB assembly was submitted directly by the client. The test sample was not independently selected for testing. The wall assembly was received on April 21, 2015.

Sample Description:

Table 1: Wall Description

Wall Construction:	Type:	Fire retardant coated OSB wall assembly.
	Overall Size:	48 in. wide by 48 in. high by 3-7/8 in. thick.
	Framing:	Nominal 2x4 in. wood studs spaced 12 in. on center.
	Sheathing:	3/8 in. thick OSB.
	FR Coating:	FX Lumber Guard XT applied to the interior of the panel in one application at a rate of 300 to 350 sq.ft./gallon.
	Fasteners:	1-5/8 in. coarse thread drywall screws spaced approx. 10 in. on center.

Test Apparatus:

The furnace used in the tests is a pilot-scale fire burning apparatus with interior dimensions of 60 in. in height, 60 in. in width, and 52 in. in depth.

Temperatures within the furnace were monitored using four thermocouples. The temperatures are controlled by adjusting fuel to the furnace burners to conform to the time/temperature curve specified by the test standards. Temperature measurements are recorded by a Keithley 2750 data acquisition unit (ID# DMM1) which passes the readings to a computer for graphical display and storage.

The wall assembly was mounted in a vertical orientation, into a steel frame specimen holder. The specimen holder was then rolled up to the furnace and secured by chain to the furnace opening. At the end of the tests the specimen holder was rolled away from the furnace so that the exposed face can be extinguished.

One pressure tap was installed through the back of the furnace. The pressure tap was attached and monitored by Setra model 264 pressure transducers (ID# Pressure T3). The furnace pressure is controlled by adjusting a damper in the furnace exhaust stack and air flow into the furnace to maintain the neutral pressure plane.



Figure 1: Burners Fired in the Furnace



Figure 2: Pilot-Scale Furnace

Test Conditions:

The Fire Retardant Coatings of Texas wall assembly was constructed in a pilot-scale moveable steel test frame. The perimeter of the test sample was protected with wood studs and 5/8 in. thick type X gypsum board. The space between the test frame and the wall assembly was filled with ceramic fiber batt to prevent air movement between the frame and wall.

The pressure within the furnace was measured by a pressure probe. The pressure was continuously monitored using a calibrated pressure transducer.

Prior to the fire endurance test the test assembly was moved into position in front of the furnace opening and the pilot burners were ignited. The fire endurance test was initiated after igniting the burners. The temperature inside the furnace was controlled to follow the standard time/temperature curve within the limits described in the test standards.

The following observations were taken over the duration of the fire test:

Table 2: Test Observations

Test Time (min)	Unexposed	Exposed
1:30		The intumescent is beginning to react.
2:20		The surface of the OSB appears to be white in colour.
3:00		The 2x4's are black, the OSB is beginning to darken.
4:13		Entire assembly is black.
5:30	The paint is blistering.	No surface flaming.
7:10	Venting from the surface.	
17:40	Darkening of the surface between the studs.	
18:32	Burn through, test discontinued.	

This report includes tests performed on a specimen of specific dimensions. Actual product performance may be affected by variations in the dimensions, assembly details and installation method. Details of the assembly can be found in table 1.

Deviation From the Test Standard

CAN/ULC S101-07, ASTM E119-14

The required sample size of 9.3 m² (100 ft²) was not met. The total size of the test sample was 1.49 m² (16 ft²).

The unexposed surface temperatures were not recorded. The only criterion that was evaluated was flaming and penetration through the wall assembly.

Test Results:

Flaming and Penetration

A penetration through the surface of the OSB occurred at 18 minutes 32 seconds into the fire test. This duration was corrected using the equation in section 5.2.6 of CAN/ULC S101-07 and section 9.4 of ASTM E119-14. The corrected duration based on the area of the time temperature curves is 16 minutes 22 seconds.

Conclusion:

QAI Laboratories Ltd., with lab facilities located in Coquitlam, British Columbia, performed testing in accordance with ASTM E119-14, Standard Test Methods for Fire Tests of Building Construction and Materials, and CAN/ULC S101-07, Standard Methods of Fire Endurance Tests of Building Construction and Materials with the above deviations, on a representative sample of a Fire Retardant Coatings of Texas FX Lumber Guard XT treated 3/8 in. thick OSB wall assembly.

Test results in this report may not be reproducible in the field. Test results relate only to those products tested. See Table 1 for a summary of the product description. The test sample successfully achieved a 15-Minute Fire Resistance rating for the flaming and penetration criteria of the test standard.

APPENDIX A

Page	Title
A1	Time-Temperature Curve
A2-A3	Test Photos

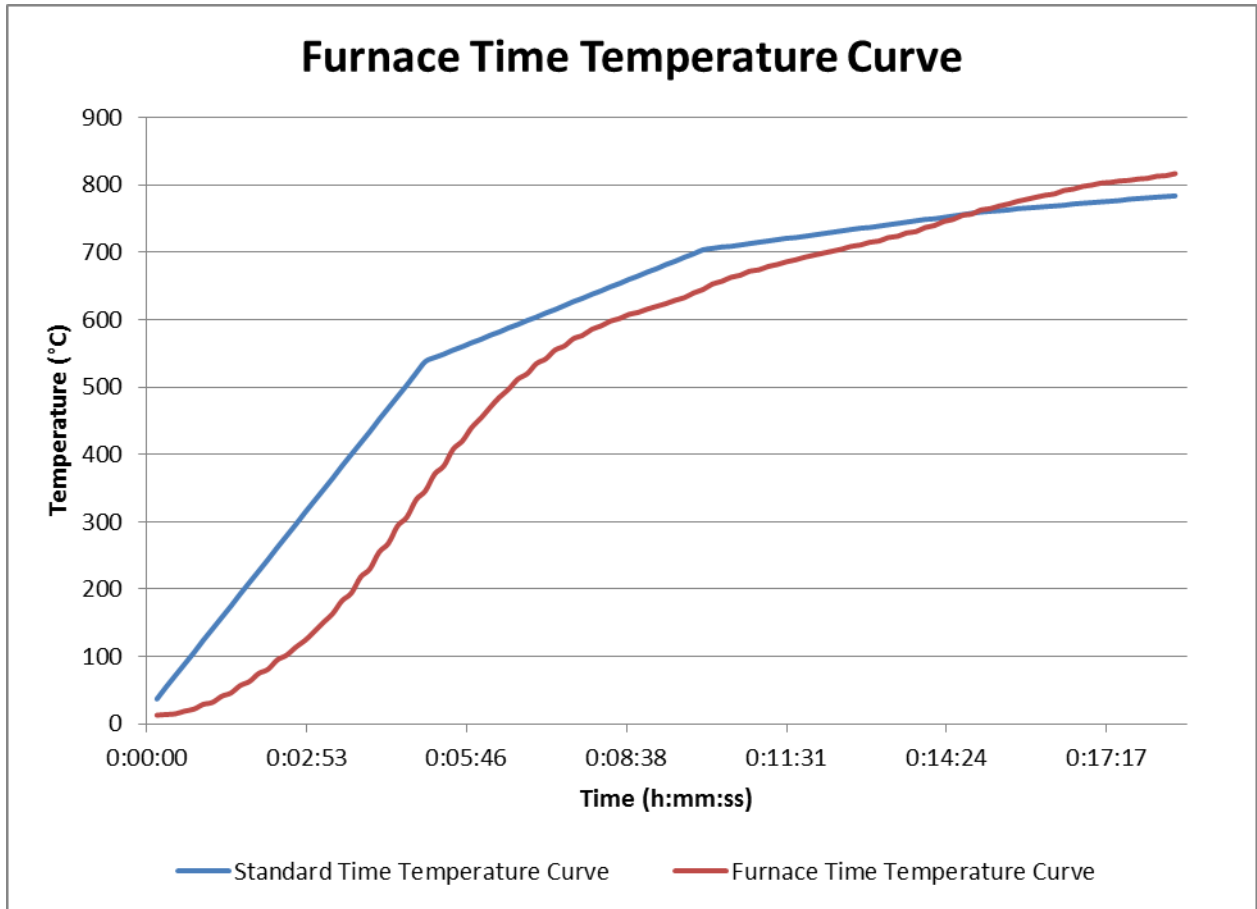


Figure 3: Time Temperature Curve



Figure 4: Unexposed Side Prior to Test



Figure 5: Exposed Side Prior to Test



Figure 6: Unexposed Side at Termination of Fire Exposure