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Testing of LP Siding Products in Accordance with SFM Test Standard 12-7A-1: *Fire Resistive Standards for Exterior Wall Siding and Sheathing*

WFCi Project Nos. 06089, 07028 & 07058

Conducted for:

LOUISIANA-PACIFIC
308 MALLORY STATION RD.
FRANKLIN, TN 37067 USA

TESTING CONDUCTED ON: OCTOBER 2006 (06089), MAY 2007 (07028), AUGUST 2007 (07058)

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INTRODUCTION

This report documents the CSFM 12-7A-1 testing of LP siding products performed by Western Fire Center, Inc. (WFCi) for:

LOUISIANA-PACIFIC
308 MALLORY STATION RD.
FRANKLIN, TN 37067 USA.

This test program covers the testing of Louisiana Pacific siding products identified as follows:

- LP Smartside® Precision Series exterior lap and panel siding – oriented strand back-bone
- LP Smartside® Foundation Series exterior lap and panel siding – wet process fiber back-bone

The 4' X 8' wall samples were constructed at WFCi prior to testing. A detailed description of the samples can be found beginning on page 5 of this report.

The purpose of these tests was to evaluate the fire endurance characteristics of the client's exterior siding samples when subjected to the fire exposure conditions specified in SFM 12-7a-1.

This test is used to measure and describe the properties of materials, products or assemblies in response to heat and flame under controlled laboratory conditions and is not intended to be used to describe or appraise the fire hazard or fire risk of the materials, products or assemblies.

SUMMARY OF THE TEST METHOD

Excerpted from SFM 12-7A-1: *Fire Resistive Standards for Exterior Wall Siding and Sheathing*:

(a) Application. *The minimum design, construction and performance standards set forth herein for exterior wall siding and sheathing are those deemed necessary to establish conformance to the provisions of these regulations. Materials and assemblies that meet the performance criteria of this standard are acceptable for use in Very High Fire Hazard Zones as defined in California Building Code, Chapter 7A.*

(b) Scope. *This standard determines the performance of exterior walls of structures when exposed to direct flames.*

(i) Conduct of Tests.

1. ***Airflow.*** *The wall test shall be conducted under conditions of ambient airflow.*
2. ***Number of tests****. Conduct the tests on three replicate wall assemblies (six for weathered performance)****.***
3. ***Burner output verification.*** *Without the wall assembly in place, adjust the burner for 150 ± 8 kW output. Extinguish the burner.*
4. ***Burner configuration****. Center the burner relative to the width of the cladding-wall assembly and 0.75 in. (20 mm) from the wall. The distance from the floor to the top of the burner shall be 12 in. (300 mm).*
5. ***Procedure***
   i) Ignite the burner, controlling for constant 150 ± 8 kW output.
   ii) Continue the exposure until flame penetration of the cladding-wall assembly occurs, or for a 10-min period.
   iii) If penetration does not occur, continue the test for an additional 60 min or until all combustion has ceased. An infrared thermometer has been found to be useful to detect the increase of temperature on the back side of the sheathing and an aid to identify the areas of potential combustion.
6. ***Observations.*** *Note the time, location, and nature of flame penetration.*

SAMPLE DESCRIPTION

The 4' x 8' wall assemblies were constructed at the WFCi laboratory using materials shipped from the client. Each sample included nominal 2" X 4" wood studs spaced at 16" on center with a vertical seam in the siding material placed over a stud. Sheathing paper was not used. Studs averaged 8-9% moisture content. Each sample was fastened with 8d nails in accordance with client directions as described in the following.

Test Series	Sample Description
1	7/16" LP Smartside® Precision Series exterior panel siding – oriented strand back-bone, with fire retardant seal (UL listed fire caulk, nominal ¼" bead) in the vertical joint, 3-in. nail spacing on the joint, 8" nail spacing in the perimeter and field
2	7/16" LP Smartside® Foundation Series exterior panel siding – wet process fiber back-bone, with fire retardant seal (UL listed fire caulk, nominal ¼" bead) in the vertical joint, 3-in. nail spacing on the joint, 8" nail spacing in the perimeter and field
3	3/8" LP Smartside® Precision Series exterior lap siding – oriented strand back-bone, 8" wide, 1" overlap, 16" blind nailing, vertical butt joint every other course (3/16" gap), sealed with FR caulk, applied over ½" standard gypsum wall board substrate
4	½" LP Smartside® Foundation Series exterior lap siding – wet process fiber back-bone, 8" wide, 1" overlap, 16" face nailing, vertical butt joint every other course (3/16" gap), sealed with standard latex caulk, installed over ½" standard fiber glass faced exterior grade gypsum sheathing
5	½" LP Smartside® Foundation Series exterior lap siding – wet process fiber back-bone, 8" wide, 1" overlap, 16" face nailing, vertical butt joint every other course (3/16" gap), sealed with standard latex caulk, installed over 5/8" type X gypsum wallboard

TEST RESULTS

EXCERPTED FROM SFM 12-7A-1: *FIRE RESISTIVE STANDARDS FOR EXTERIOR WALL SIDING AND SHEATHING*

(k) Conditions of Acceptance. *Should one of the three replicates fail to meet the Conditions of Acceptance, three additional tests may be run. All of the additional tests must meet the Conditions of Acceptance.*

1. Absence of flame penetration through the wall assembly at any time.
2. Absence of evidence of glowing combustion on the interior surface of the assembly at the end of the 70-min test.

Test Series	Description	Result	Observations
1	7/16" LP Smartside® Precision Series exterior panel siding – oriented strand back-bone, with fire retardant seal (UL listed fire caulk, nominal ¼" bead) in the vertical joint, 3-in. nail spacing on the joint, 8" nail spacing in the perimeter and field (reference WFCi P/N 06089, Tests 6, 8 and 9)	**Pass**	No evidence of glowing combustion either panel surface, within 15 minutes test time, no flame penetration
2	7/16" LP Smartside® Foundation Series exterior panel siding – wet process fiber back-bone, with fire retardant seal (UL listed fire caulk, nominal ¼" bead) in the vertical joint, 3-in. nail spacing on the joint, 8" nail spacing in the perimeter and field (reference WFCi P/N 07028, Tests 7, 8 and 9)	**Pass**	Light glowing comb. nonfire side at 12 min., glow out w/in 4-5 min, moderate charring, IR camera – nonfire surface temps diminishing at test termination, glow out w/in 18 minutes

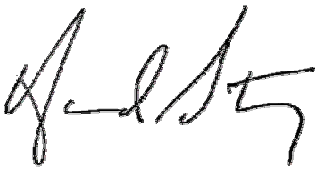
3	3/8" LP Smartside® Precision Series exterior lap siding – oriented strand back-bone, 8" wide, 1" overlap, 16" blind nailing, applied over ½" standard gypsum wall board substrate(reference WFCi P/N 07058, Tests 1,3 & 4)	**Pass**	Tests conducted for 70 minutes, no evidence of glow at test termination
4	½" LP Smartside® Foundation Series exterior lap siding – wet process fiber back-bone, 8" wide, 1" overlap, 16" face nailing, applied over ½" standard fiber glass faced exterior grade gypsum sheathing (reference WFCi P/N 07058, Tests 7, 8 & 9)	**Pass**	No evidence of glowing combustion at 70 minutes
5	½" LP Smartside® Foundation Series exterior lap siding – wet process fiber back-bone, 8" wide, 1" overlap, 16" face nailing, applied over 5/8" type X gypsum wallboard (reference WFCi P/N 07058, Tests 10, 11 & 12)	**Pass**	No evidence of glowing combustion at 70 minutes

SIGNATURE PAGE

Testing Supervised by,

Mike White
Laboratory Manager

Reviewed by,



Howard Stacy
Director, Testing Services

The test specimen identification is as provided by the client and WFCi accepts no responsibilities for any inaccuracies therein. WFCi did not select the specimen and has not verified the composition, manufacturing techniques or quality assurance procedures.

Appendix A Test Photographs

Test Series 1, 7/16" LP Smartside® Precision Series exterior panel siding – oriented strand back-bone, with fire retardant seal (UL listed fire caulk, nominal ¼" bead) in the vertical joint, 3-in. nail spacing on the joint, 8" nail spacing in the perimeter and field (reference WFCi P/N 06089, Tests 6, 8 and 9)

Test 6, 3 minutes of fire exposure

Series 1, Test 6, term. of flame exposure

Series 1, Test 6, nonfire side at test termination

Test Series 2, 7/16" LP Smartside® Foundation Series exterior panel siding – wet process fiber back-bone, with fire retardant seal (UL listed fire caulk, nominal ¼" bead) in the vertical joint, 3-in. nail spacing on the joint, 8" nail spacing in the perimeter and field (reference WFCi P/N 07028, Tests 7, 8 and 9)

View of vertical joint with fire caulk application

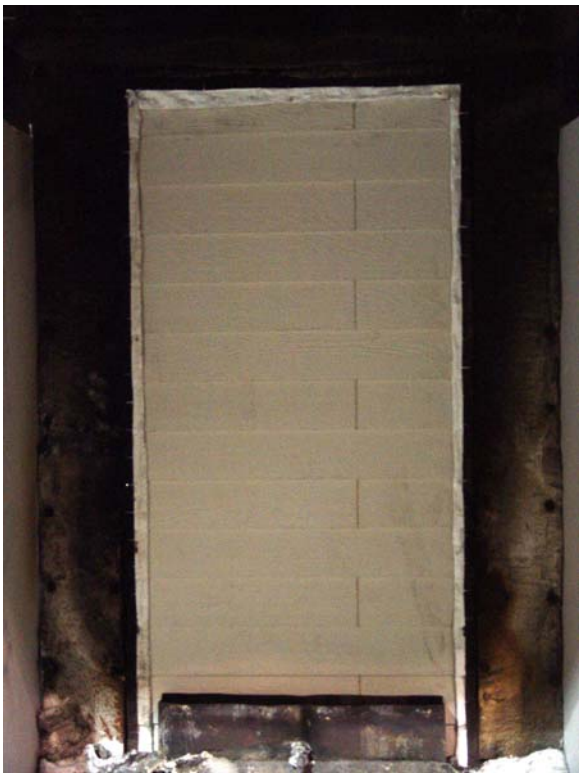
Series 2, Test 8, SmartSide Hardboard siding during fire exposure

Series 2, Test 8, SmartSide Hardboard siding, fire side, immed. After fire exposure

Series 2, Test 8, Nonfire side, shortly after end of flame exposure

Series 2, Test 8, Slight glowing nonfire side near test termination, IR camera shows diminishing temperature

Test Series 3, 3/8" LP Smartside® Precision Series exterior lap siding – oriented strand back-bone, 8" wide, 1" overlap, 16" blind nailing, applied over ½" standard gypsum wall board substrate(reference WFCi P/N 07058, Tests 1,3 & 4)

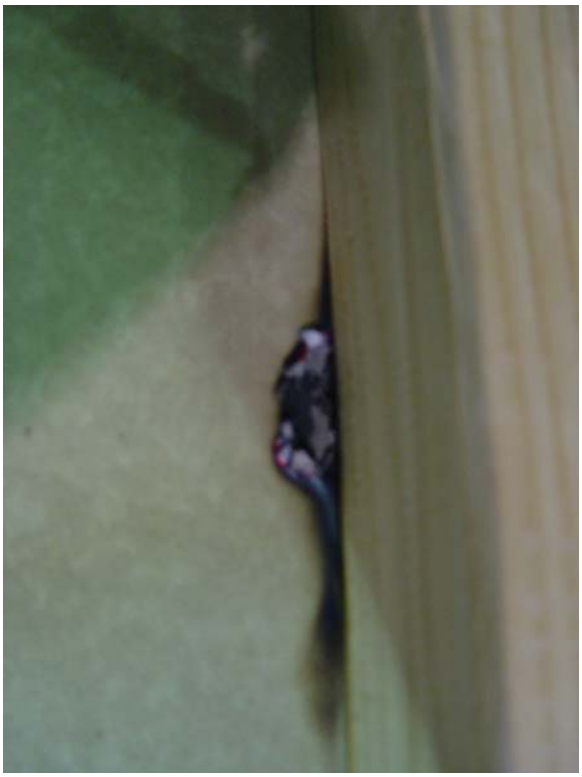


Series 3, Test 3 prior to test start

Series 3, Test 3, prior to burn termination

3

Series 3, Test 3 fire side at 40 minutes



Series 3, Test 3, Nonfire side at test termination (70 minutes)

Series 4, ½" LP Smartside® Foundation Series exterior lap siding – wet process fiber back-bone, 8" wide, 1" overlap, 16" face nailing, applied over ½" standard fiber glass faced exterior grade gypsum sheathing (reference WFCi P/N 07058, Tests 7, 8 & 9)

Series 4, Test 7, Prior to test

Series 4, Test 7, termination of burner at 10 minutes

Series 4, Test 7, fire side at test termination

Series 4, Test 7, nonfire side at test termination (70 minutes)

Series 5, ½" LP Smartside® Foundation Series exterior lap siding – wet process fiber back-bone, 8" wide, 1" overlap, 16" face nailing, applied over 5/8" type X gypsum wallboard (reference WFCi P/N 07058, Tests 10, 11 & 12)

Series 5, Test 12, during fire exposure

Series 5, Test 12, termination of burner

Series 5, Test 12, fire side at 50 minutes

Series 5, Test 12, nonfire side termination of test (70 minutes)