CODE EVALUATION REPORT

CERUS-1042

PUBLISHED: November 2024
REVISED: January 2026
EXPIRATION: January 2028

PRODUCT: **FRX, SAFERWOOD-FX, THERMEX-FX FIRE-RETARDANT-TREATED WOOD STRUCTURAL PANELS**

REPORT HOLDER: Chemco, Inc.

CONTACT DETAILS:
4191 Grandview Road
Ferndale, WA
98248 USA

CSI DIVISION: **06 00 00 – Wood, Plastics, and Composites**

CSI SECTION:
06 05 73 - Wood Treatment
06 05 73.13 - Fire-Retardant Wood Treatment

APPLICABLE CODES:
2018, 2015 International Building Code (IBC)
2018, 2015 International Residential Code (IRC)
2019 California Building Code (CBC)
2019 California Residential Code (CRC)
2018 International Wildland-Urban Interface Code (IWUIC)

EVALUATED:
Ignition Resistance (Surface Burning Characteristics, Extended 20-minutes)
Weather Exposure
Strength Adjustments (Structural)
Moisture Content

IAS ACCREDITED Product Certification Agency PCA-118

1.0 APPROVED FOR FOLLOWING:

APPROVED TYPES OF CONSTRUCTION:	Types I-V A/B
APPROVED USE:	Fire-retardant treated wood structural panels.
APPROVED INSTALLATIONS:	Load-Bearing and Non-load Bearing Exterior and Interior Walls.

2.0 DESCRIPTION:

2.1 General:

FRX, Saferwood-FX and Thermex-FX are pressure impregnated fire-retardant treated wood structural panel products complying with Section 2303.2 of the 2018 / 2015 IBC and Section R802.1.5 of the 2018 / 2015 IRC with a flame spread of 25 or less with no evidence of significant progressive combustion when tested in accordance with ASTM E84 extended for an additional 20-minutes (30-minute ASTM E84). Labeling of wood panels complies with Section 2303.2.4 of the 2018 / 2015 IBC and Section R802.1.5.4 of the 2018 / 2015 IRC.

FRX, Saferwood-FX and Thermex-FX are approved for exterior and interior applications, including exposure to weather with no increase in the listed classification when subjected to standard rain test (ASTM D2898). The noted products have a moisture content of less than 28% at 92% relative humidity when tested in accordance with ASTM D3201 for hygroscopicity and have a moisture content of 15% or less for wood structural panels after kiln drying.

Fasteners including nuts and washers intended for use with FRX, Saferwood-FX, Thermex-FX, Mataverde, and Flame Repel treated wood products in both interior and exterior applications, shall be hot-dipped zinc-coated galvanized steel, stainless steel, silicone bronze or copper and stapes are to be stainless steel in accordance with Section 2304.10.6.3 of the 2021 IBC, Section 2304.10.5.3 of the 2018 / 2015 IBC and Section R317.3.3 of the 2021 / 2018 / 2015 IRC. Fasteners other than nails, staples timber rivets, wood screws and lag screws are permitted to be mechanically deposited zinc-coated steel with coating weights in accordance with ASTM B695 Class 55 minimum.

FRX, Saferwood-FX and Thermex-FX treated wood structural panels have strength adjustments as outlined in Section 8.1 of this report determined in accordance with ASTM D6305 based on evaluation to ASTM D5516.

FRX, Saferwood-FX and Thermex-FX treatments are approved for the following wood structural panel types:

Table 1. FRX, Saferwood-FX and Thermex Approved Panels[1]

WOOD STRUCTURAL PANEL	SYP, DF, White Spruce (WS), WRC, HF

Note 1: Application of strength adjustment factors to other species shall be in accordance with Section 3.0 and 8.1 of this report. ASTM E84 extended for an additional 20-minutes (30-minute ASTM E84) as required by Section 2303.2 of the 2018 / 2015 IBC and R802.1.5 of the 2018 / 2015 IRC apply to species combinations in Table 1 and Section 8.1 of this report only.

FRX, Saferwood-FX and Thermex-FX treated wood structural panels comply as *Ignition-resistant material* in accordance with Section 503.2 of the 2021 / 2018 IWUIC. See Section 9.2 of this report for additional details.

FRX, Saferwood-FX and Thermex-FX treated wood structural panels are classified as *Ignition Resistant* per NFPA 1144 for use in reducing structure ignition hazard resulting from wildland fire.

3.0 DESIGN:

FRX, Saferwood-FX and Thermex-FX treated wood structural panels are to be designed in accordance with the appropriate code referenced methodology, considering the strength adjustments outlined in Section 8.1 of this report and anticipated service temperatures and humidities. Design for use in applications for load and spans outside Section 8.1 are outside the scope of this report and are to be approved by the authority having jurisdiction. Strength adjustment of each noted mechanical property for Southern Yellow Pine wood structural panels can be applied to other wood structural panel types of commercially available North American softwood species. Compliance with Section 2303.2 of the 2018 / 2015 IBC and Section R802.1.5 of the 2018 / 2015 IRC with a flame spread of 25 or less with no evidence of significant progressive combustion when tested in accordance with ASTM E84 extended for an additional 20-minutes (30-minute ASTM E84) is applicable to wood structural panel types outlined in Table 1 and Section 8.1 only.

4.0 INSTALLATIONS:

4.1 General:

FRX, Saferwood-FX and Thermex-FX treated wood structural panels must comply with the manufacturer's published installation instructions, this report, and the applicable code(s). Where conflicts exist, this report and the applicable building code shall govern.

FRX, Saferwood-FX and Thermex-FX treated wood structural panels are to be installed in accordance with the applicable code for application in which the products are used.

FRX, Saferwood-FX and Thermex-FX treated wood structural panel products can be installed in exterior or interior conditions. The noted products can be exposed to weather. FRX, Saferwood-FX, Thermex-FX, Mataverde, and Flame Repel treated wood structural panel products are not intended for storage in or exposure to standing water.

Fasteners for use with FRX, Saferwood-FX and Thermex-FX treated wood structural panels shall be hot-dipped zinc-coated galvanized steel, stainless steel, silicone bronze or copper in accordance with Section 2304.10.5.3 of the 2018 / 2015 IBC and Section R318.3.3 of the 2018 / 2015 IRC.

5.0 LIMITATIONS

- FRX, Saferwood-FX and Thermex-FX treated wood structural panel products must comply with the manufacturer's published installation instructions, this report, and the applicable code(s). Where conflicts exist, this report and the applicable building code shall govern.
- Strength design must include consideration of strength adjustment factors and load spans outlined in Section 8.1 of this report for anticipated temperature and humidity exposures, as applicable.
- FRX, Saferwood-FX and Thermex-FX interior treated wood structural panels are not intended for long-term exposure to elements or standing water exposure. Where exposed to water for these products intended for interior applications, the affected wood product is required to be dried to moisture content of ≤ 15% wood structural panels as required by Section 2303.2.8 of the 2018 / 2015 IBC or replaced prior to installation of coverings.
- Fasteners for use with FRX, Saferwood-FX, Thermex-FX, Mataverde, and Flame Repel treated lumber in both interior and exterior conditions are to be in accordance with Section 4.1 of this report and Section 2304.10.6.3 of the 2021 IBC, Section 2304.10.5.3 of the 2018 / 2015 IBC and Section R317.3.3 of the 2021 / 2018 / 2015 IRC.
- FRX, Saferwood-FX and Thermex-FX treated wood panels fire-retardant applies to finished (uncut) surfaces only.
- FRX, Saferwood-FX and Thermex-FX treated wood panel products are manufactured by approved treatment facilities located in Ferndale, WA State, and Maple Ridge, BC with inspections by QAI Laboratories.

- FRX, Saferwood-FX and Thermex-FX treated wood panel products composed of thermally modified ayous and thermally modified Nordic pine are evaluated for flame spread and smoke development for extended ASTM E84 with weathering as described below. They are not evaluated for the strength adjustment (ASTM D5516), bending strength (ASTM D5516 & D6305), hygroscopic properties (ASTM D3201). They are for use as siding and decking only.

6.0 SUPPORTING INFORMATION:

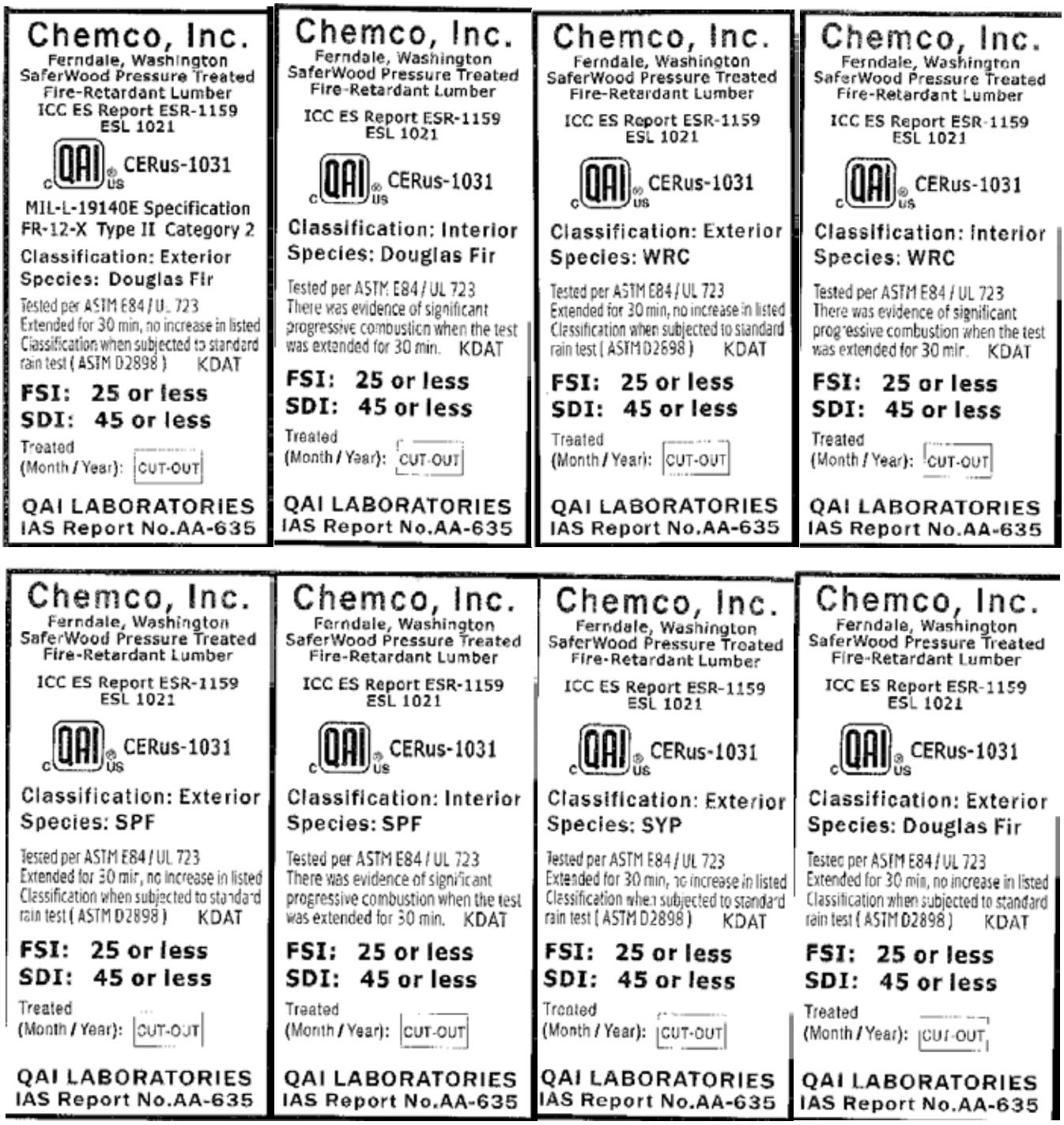
The following data has been evaluated for FRX, Saferwood-FX and Thermex-FX treated wood panel products:

- Data outlining compliance to ASTM E84 extended for an additional 20-minutes (30-minute ASTM E84) with a flame spread of < 25, with maximum flame progression of ≤ 10.5 ft (3.2 m) beyond the burners at any time during testing, with no evidence of significant progressive combustion after weathering exposure per ASTM D2898 *Standard Practice for Accelerated Weathering of Fire-Retardant-Treated Wood for Fire Testing.*
- Data outlining determination of strength adjustment factors for fire-retardant treated wood panels per ASTM D5516 Standard Test Method for Evaluating the Flexural Properties of Fire-Retardant Treated Softwood Plywood Exposed to Elevated Temperatures.
- Determination of modification factors for wood panels in accordance with ASTM D6305 Standard Practice for Calculating Bending Strength Design Adjustment Factors for Fire-Retardant-Treated Plywood Roof Sheathing.
- Evaluation of hygroscopicity per ASTM D3201 *Standard Test Method for Hygroscopic Properties of Fire-Retardant Wood and Wood-Based Products*.
- Evaluation of moisture content for fire-retardant treated wood panel and lumber products.
- Evaluation of corrosion in accordance with AWPA E12 *Standard Method of Determining Corrosion of Metal in Contacted with Treated Wood*.

7.0 MARKING:

FRX, Saferwood-FX and Thermex-FX treated wood panel product labels are outlined below:

Figure 2a. Example of SaferWood Fire-Retardant Treated Lumber Labeling



8.0 RESULTS / RATINGS:

8.1 FRX, Saferwood-FX and Thermex-FX Treated Wood Structural Panels

Table 2: FRX, Saferwood-FX and Thermex-FX Treated Engineered Wood Structural Panel Live Loads (psf) for Service Temperature ≤ 170 ºF (77ºC)

ZONE 1A[1]								
SPAN	**PANEL THICKNESS**							
	5/16	**3/8**	**15/32, /1/2**	**19/32, 5/8**	**23/32, 3/4**	**7/8**	**1**	**1-1/8**
12	64	105	154	247	314	397	533	676
16	32	55	82	135	172	219	293	376
24	-	-	31	54	71	92	126	161
30	-	-	-	31	42	55	77	100
36	-	-	-	-	-	-	28	51
ZONE 1B[2]								
SPAN	**PANEL THICKNESS**							
	5/16	**3/8**	**15/32, /1/2**	**19/32, 5/8**	**23/32, 3/4**	**7/8**	**1**	**1-1/8**
12	105	158	244	388	490	619	830	1051
16	55	80	133	214	271	344	463	587
24	-	34	54	90	115	147	200	255
30	-	-	31	54	70	91	124	160
36	-	-	-	-	35	46	65	84
42	-	-	-	-	-	-	-	59
48	-	-	-	-	-	-	-	43
54	-	-	-	-	-	-	-	33
ZONE 2[3]								

SPAN	PANEL THICKNESS							
	5/16	3/8	15/32, /1/2	19/32, 5/8	23/32, 3/4	7/8	1	1-1/8
12	157	248	359	568	717	903	1210	1530
16	84	135	198	315	399	504	676	856
24	32	55	82	135	172	218	295	375
30	-	31	49	83	106	136	185	236
36	-	-	-	41	55	71	98	127
42	-	-	-	-	-	49	69	90
48	-	-	-	-	-	36	51	67
54	-	-	-	-	-	-	39	50
60	-	-	-	-	-	-	-	39

Zone Definitions per ASTM D6305:

(1) Zone 1A: Minimum roof live load or maximum ground snow load ≤ 20 psf (≤ 958 Pa) (Southwest Arizona and Southeast Nevada (Area bound by Las Vegas, Yuma, Phoenix, Tucson).
(2) Zone 1B: Minimum roof live load or maximum ground snow load ≤ 20 psf (≤ 958 Pa) (All other areas).
(3) Zone 2: Minimum ground snow load > 20 psf (> 958 Pa).

Span Rating Limitations:

- Wood panels are to comply with the applicable code based on material specifications (pretreatment fire-retardant treatment), thickness, and installation for meeting service conditions. Treated wood panels are not to be used at spans greater than the untreated span rating.
- Live loads are determined for wood panels installed perpendicular to supports. Span ratings for 12-30 inches (305 – 762 mm) are based on a continuous span of three (3) or more spans (C = 120 inches per ft). Span ratings for 36-60 inches (914 – 1524 mm) are based on a single span or continuous over two (2) spans (C = 96 inches per ft).
- Duration of load for Zone 1A was 1.25, Zone 1B and 2 was 1.15 in accordance with ASTM D6305.
- Live loads are based on flexural bending.
- A dead load of 10 psf (479 Pa) was used in live load determination for spans noted.
-

9.0 SUPPLEMENTAL CODES

9.1 2019 California Building Code, 2019 California Residential Code:

FRX, Saferwood-FX and Thermex-FX treated wood structural panels comply with the requirements of Section 2303.2 of the 2019 / 2016 California Building Code and Section R802.1.5 of the 2019 / 2016 California Residential Code for use as *fire-retardant treated wood* as outlined in Sections 2 through 8 of this report.

Where used in areas identified by the state as a *Fire Hazard Severity Zone* or any *Wildland-Urban Interface (WUI)* designated by the enforcing agency, FRX, Saferwood-FX and Thermex-FX treated wood structural panel products are approved for use in exterior design and construction as fire-retardant treated wood in accordance with Section 703A.5.2.1 of the 2019 / 2016 CBC and as *ignition resistant material* determined in accordance with Section 704A of the 2019 / 2016 CBC as outlined in this report.

9.2 2018 International Wildland-Urban Interface Code (IWUIC)

FRX, Saferwood-FX and Thermex-FX treated wood structural panels comply with the requirements of 2018 IWUIC Section 503.2 *Ignition-resistant building material* item (3), as compliant fire-retardant-treated wood for exterior use and meeting the requirements of the 2303.2 of the 2018 / 2015 IBC when installed in accordance with this report. Installation is to comply with this report and requirements of the 2018 IWUIC based on Ignition Class required.

10.0 MULTIPLE LISTEES

The following manufacturing facilities have been evaluated and approved for FRX, Saferwood-FX and Thermex-FX treatment wood structural panel products:

FSR Treatment Inc.
9486 288th Street
Maple Ridge, British Columbia
V2W 1L1 Canada

11.0 ELIGIBILITY OF REPORT

QAI's Code Evaluation Report complies with the 2021 / 2018 / 2015 IBC Section 104.11 *Alternative materials, design and methods of construction and equipment* subsection 104.11.1 *Research Reports*. Supporting data has been evaluated by QAI for compliance of the noted materials and assemblies to the applicable code by QAI, and *approved* source as detailed below.

The attached report has been reviewed by a QAI Registered Professional Engineer approved by the specific state Board of Professional Engineers noted on the specific P.E. seal(s).

Per section 1703 of the IBC, QAI is an independent third-party testing, inspection and certification agency accredited by the International Accreditation Service, Inc. (IAS) for this specific scope (see IAS PCA-118). QAI can confirm that based on its IAS accreditation it meets IBC Section 1703.1 on Independence, Section 1703.1.2 on Equipment and Section 1703.1 on Personnel.

This Evaluation report has been designed to meet the performance requirements of IBC Section 1703.4 and contains the required information to show the product, material or assembly meets the applicable code requirements.

The product is labeled per section IBC 1703 and subject to follow-up inspection per IBC 1703.6 using QAI IAS accredited ISO/IEC 17020 inspection program (see IAS AA-723).

For more information regarding QAI Laboratories, please visit www.qai.org.

The above is an example of the QAI registered Listing mark. The Listing mark may only be used by the Report Holder per the QAI service agreement on products defined in this report. The 'us' indicator in the 8 o'clock position indicates the product complies with the properties evaluated with limitations outlined in this report for use in the US market. A 'c' indicator in the 4 o'clock position indicates the product has been evaluated for use in the Canadian market.

11.0 REFERENCED STANDARDS

ASTM B695 *Standard Specification for Coatings of Zinc Mechanically Deposited on Iron and Steel*.
NFPA 1144 *Standard for Reducing Structure Ignition Hazards from Wildland Fire.*
ASTM E84 *Standard Test Method for Surface Burning Characteristics of Building Materials*.
ASTM D2898 *Standard Practice for Accelerated Weathering of Fire-Retardant-Treated Wood for Fire Testing*.
ASTM D3201 *Standard Test Method for Hydroscopic Properties of Fire-Retardant Wood and Wood-Based Products*.
ASTM D6841 *Standard Practice for Calculating Design Value Treatment Adjustment Factors for Fire-Retardant-Treated Lumber*.
ASTM D5664 *Standard Test Method for Evaluating the Effects of Fire-Retardant Treatments and Elevated Temperatures on Strength Properties of Fire-Retardant Treated Lumber*.
AWPA E12 *Standard Method of Determining Corrosion of Metal in Contact with Treated Wood.*