EVALUATION REPORT

Applicant File Number: B1152
Report Number: B1152-1 Edition 2

Applicant: Chemco Incorporated
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Attention: Darin Dalry, General Manager

Edition 2: January 23, 2026; Application Number B1152-1 – Tulsa, OK Office
Issued by: Anthony Peñaloza, Project Specialist 3
Reviewed by: Matt Lansdowne, P.Eng., Vice President of Certification & Engineering
Contents: Pages 1 through 8

SUMMARY OF EDITION: Update to product certification and code evaluation report for lumber products to include new species thermally modified Ayous and Thermally modified Nordic Pine for non-structural exterior and interior applications based on weathering and extended ASTM E84 evaluation by Intertek San Antonio (IAS accredited testing site). Removal Flame Repel reference per client request.

APPLICABLE REQUIREMENTS:

1. CAN/ULC S102-18 *Standard Method of Test for Surface Burning Characteristics of Building Materials and Assemblies*.
2. 2021 / 2018 / 2015 International Building Code (Panels 2018 / 2015 Only).
3. 2021 / 2018 / 2015 International Residential Code (Panels 2018 / 2015 Only).
4. 2022 / 2019 California Building Code (Panels 2019 Only).
5. 2022 / 2019 California Residential Code (Panels 2019 Only).
6. 2021 / 2018 International Wildland-Urban Interface Code (Panels 2018 Only).
7. ASTM E84-21a *Standard Test Method for Surface Burning Characteristics of Building Materials* extended 20 minutes.
8. ASTM E2768-11(R2018) *Standard Test Method for Extended Duration Surface Burning Characteristics of Building Materials (30 min Tunnel Test).*
9. ASTM D5664-17 *Standard Test Method for Evaluating the Effects of Fire-Retardant Treatments and Elevated Temperatures on Strength Properties of Fire-Retardant Treated Lumber* (ASTM D5664).
10. ASTM D6841-08 *Standard Practice for Calculating Design Value Treatment Adjustment Factors for Fire-Retardant-Treated Lumber* (ASTM D6841).
11. ASTM D5516-18 *Standard Practice for Calculating Design Value Treatment Adjustment Factors for Fire-Retardant-Treated Lumber* (ASTM D5516).
12. ASTM D6305-21*Standard Practice for Calculating Bending Strength Design Adjustment Factors for Fire-Retardant-Treated Plywood for Roof Sheathing* (ASTM D6305).
13. ASTM D3201-94(2003) *Standard Test Method for Hygroscopic Properties of Fire-Retardant Wood and Wood-Base Products* (ASTM D3201).
14. MIL-L-19140E Military Specification.

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SUBJECT:

SaferWood-FX, FRX, Thermex-FX, Mataverde Fire-retardant Treated Lumber of the following species:

Lumber Grades: Southern Yellow Pine (SYP), Douglas-fir (DF), Spruce-Pine-Fir (SPF), Western Red Cedar (WRC), Redwood (RW), Hemlock-Fir (HF),

SaferWood-FX, FRX, Thermex-FX Fire-retardant Treated Wood Structural Panel Types:

Plywood Panels: Southern Yellow Pine (SYP), Douglas-fir (DF), Western Red Cedar (WRC), White Spruce (WS), Western Hemlock-Fir.

Only wood species complying with grading per NLGA for lumber and plywood species noted are eligible for application of the QAI certification mark.

SaferWood-FX, FRX, Thermex-FX Fire-retardant Treated Non-Structural Types for Siding and Decking:

Thermal Modified Ayous (TM AY), and Thermal Modified Nordic Pine (TM NP)

Manufacturing and Labeling Location(s):		Contact Person
1)	Chemco Incorporated 4191 Grandview Road Ferndale, WA 98248 USA	Darin Dalry, General Manager Phone: 360-366-3500 Email: ddalry@chemco.org
2)	FSR Treatment, Inc. 9486 288th Street Maple Ridge, British Columbia V2W 1L1 Canada	Kris Watkins 604-462-7116 kris@watkinsawmills.com

Ratings: **The following outlines FRX, Saferwood-FX, Thermex-FX, Mataverde Fire Retardant Treated Wood product ratings:**

Table 1. FRX, Saferwood-FX, Thermex-FX, Mataverde Fire Retardant Treated Lumber Surface Burning Characteristics per CAN/ULC S102.

SPECIES GRADE	Flame Spread Rating (FSR)[1]	Smoke Developed Classification (SDC)
LUMBER: SYP, DF, SPF, WRC, RW, HF	≤ 25[2]	≤ 100
WOOD STRUCTURAL PANEL: SYP, SPF, DF, WRC, WS, HF	≤ 25[2]	≤ 100
SIDING AND DECKING (NON-STRUCTURAL) TM AY, TM NP	< 25[2]	< 100

Note 1: Flame spread rating is determined after weathering in accordance with ASTM D2898 per the 2020 National Building Code of Canada Section 3.1.4.8 clause 3) for exterior grade products.
Note 2: Flame spread rating complies with Section 3.1.4.5 of the 2020 National Building Code of Canada Section 3.1.4.5 clause b) flame spread rating requirements.

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Table 2. FRX, Saferwood-FX, Thermex-FX, Mataverde Fire Retardant Treated Lumber Surface Burning Characteristics per ASTM E84 (Extended) / ASTM E2768[1]

PRODUCT	SPECIES	Flame Spread Index (FSI)	Smoke Developed Index (SDI)	Flame Front[2]
LUMBER:	SYP, DF, SPF, WRC, RW, HF	< 25	< 450	< 10.5 feet.
WOOD STRUCTURAL PANEL[3]:	SYP, DF, WS, WRC, HF	< 25	< 450	< 10.5 feet.
SIDING AND DECKING (NON-STRUCTURAL)	TM AY, TM NP	< 25	< 450	< 10.5 feet

Note 1: Flame spread index is determined after weathering in accordance with ASTM D2898 for exterior grade products.
Note 2: No evidence of significant progressive combustion after extended 20 minutes duration.
Note 3: Testing of wood panels was conducted without ripping or longitudinal cut of 1/8'' (0.375 inches) included.

FRX, Saferwood-FX, Thermex-FX, Mataverde Fire Retardant Treated Lumber products strength adjustment factors are outlined in QAI Code Evaluation Report CER_{US}-1031. Strength adjustments outlined in the noted CER_{US}-1031 should be used in conjunction with the approved wood design methodology where fire-retardant treated wood products are used in load-bearing applications (National Design Specification USA / CSA 086 Canada).

FRX, Saferwood-FX, Thermex-FX, Mataverde Fire Retardant Treated Wood Structural Panel products strength adjustment factors are outlined in QAI Code Evaluation Report CER_{US}-1042. Strength adjustments outlined in the noted CER_{US}-1042 should be used in conjunction with the approved wood design methodology where fire-retardant treated wood products are used in load-bearing applications (National Design Specification USA / CSA 086 Canada).

FRX, Saferwood-FX, Thermex-FX, Mataverde products have less than 28% moisture content when tested in accordance with ASTM D3201 at a 92 percent-relative humidity.

CONDITIONS OF ACCEPTANCE:

1. The manufacturer's compliance stamp must be placed on each unit prior to application of the QAI mark.

2. Final acceptance of the product in the intended application is to be determined by the authority having jurisdiction.

3. Only products complying with the approved quality documentation is approved for final application of the QAI certification mark.

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MARKINGS:

Listed products are identified with a label bearing the following information:

Certification Label (Figure 1)

- Manufacturer's Name and address.
- Product Name
- Drying Information (KDAT)
- QAI logo with 'us' identifier
- QAI Code Evaluation Report (CER_{US}1031 or CER_{US}-1042) or B1152
- Extended ASTM E84 / ASTM E2768 / CAN/ULC S102 Flame Spread Index and Smoke Development Index.

See QAI CER_{US}-1031 and QAI_{US}-1042 for details of the approved stamps applied to complying Chemco fire-retardant treated wood products.

ALTERATIONS:

The product is marked as per this evaluation report.

FACTORY TESTS:

Chemco Incorporated is under inspections by QAI Laboratories for ongoing compliance of fire-retardant treated lumber and wood panel products of the approved species outlined in this report.

Chemco fire-retardant treated wood, is treated with Chemco supplied fire-retardant solution. This solution is under QAI follow up and verification testing via FTIR scan to ensure ongoing solution formulation consistency.

See Chemco Inc. quality control manual maintained on file at QAI for details regarding the treatment of fire-retardant treated wood products. This Quality Control Manual is to be used during follow up inspections to ensure ongoing product formulation and performance consistency.

<u>Warning</u>

The factory tests specified may present a hazard of injury to personnel and/or property and should only be performed by persons knowledgeable of such hazards and under conditions designed to minimize the possibility of injury.

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TESTS:

Samples selected for evaluation were witnessed and retained by independent third-party Fire Tech Services, James Heywood.

Testing for strength reduction factor assessment of Chemco Inc. lumber and wood panel products was conducted by Intertek Testing Services, North America, Coquitlam BC Facility.

Testing for ignition resistance per ASTM E84 extended 20 minutes, was conducted by Omega Point Laboratories, San Antonio (Intertek San Antonio), Intertek Testing Services, North America Coquitlam, BC facility and QAI Laboratories Rancho Cucamonga, CA facility. Samples for ASTM E84 extended were weathered by Western Fire Center, Kelso Washington.

Corrosion resistance studies were conducted by Corrosion Testing Laboratories, Inc. Newark DE.

Table 3. Testing

Test Report Number	***Date***	***Issued By***	***Test Standard***	***Results***		
3027140	August 9, 2002	Intertek Coquitlam, BC Division	ASTM D5664 ASTM D5516	Strength Adjustment Factor testing of: Douglas-Fir (Lumber, Plywood) Southern Yellow Pine (Lumber, Plywood).		
0210N-1	January 9, 2003	CandaWood	ASTM D5664	Strength Adjustment Factor testing of: White Spruce (Lumber)		
FTS-08-00	August 31, 2000	Fire Tech Services, Inc.	UBC 8-1 (ASTM E84 Extended 20 minutes)	**Control (Non-Weathered):**		
				PRODUCT	FSI	SDI
				FRX DF Lumber:	5	100
				FRX SYP Lumber	5	140
				FRX DF Plywood	25	50
				FRX SYP Plywood	20	145
				Weathered Samples:		
				FRX DF Lumber:	15	0
				FRX SYP Lumber	15	20
				FRX DF Plywood	15	0
				FRX SYP Plywood	20	0
				No products exceeded 10.5 flame progression during testing or showed progressive combustion after 30 minutes exposure.		
FTS-02-01	February 22, 2002	Fire Tech Services, Inc.	UBC 8-1 (ASTM E84 Extended 20 minutes)	**Control (Non-Weathered):**		
				PRODUCT	FSI	SDI
				FRX WS Lumber (SPF)	0	5
				FRX WS Plywood (SPF)	10	0
				Weathered Samples:		
				FRX WS Lumber (SPF)	20	0
				FRX WS Plywood (SPF)	20	10
				No products exceeded 10.5 flame progression during testing or showed progressive combustion after 30 minutes exposure.		
FTS-02-01-R1	February 22, 2002 revised September 11, 2002	Fire Tech Services, Inc.	UBC 8-1 (ASTM E84 Extended 20 minutes)	Span ratings for plywood determined based on APA plywood design specification and Intertek strength loss test data by Fire Tech.		

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Test Report Number	***Date***	***Issued By***	***Test Standard***	***Results***
			ASTM D6305	
3101973	August 28, 2006	Intertek Coquitlam, BC Division	ASTM D6841-03	Strength reduction factor for Douglas-fir, Southern Yellow Pine, and White Spruce. Per ASTM D6841, the lowest value from the noted grades evaluated can be applied to other North American softwood grades.
#18195	January 7, 2002	Corrosion Testing Laboratories	MIL-L-19140E	Complies with noted MIL-L-19140E requirements of < 25 mils per year loss for contact with brass, aluminum and bare steel.
RJ6391-3-REV1	05/16/2019	QAI Rancho Cucamonga	ASTM E84-19 extended 20 minutes on ASTM D2898 weathered samples.	Weathered / FSI / SDI RW / 20 / 35 Maximum flame front < 10.5 and no signs of significant progressive combustion at test completion.
RJ6391-4-REV1	05/16/2019	QAI Rancho Cucamonga	ASTM E84-19 extended 20 minutes on ASTM D2898 weathered samples.	Weathered / FSI / SDI WRC / 25 / 70 Maximum flame front < 10.5 and no signs of significant progressive combustion at test completion.
1159	05/2022	ICC-ES	ASTM E84-19 extended 20 minutes on ASTM D2898 weathered samples.	ICC-ES ESR-1159 outlines compliance of the following wood types that test reports were not found by QAI: Western Hem-Fir (HF) lumber. WRC and HF plywood. Based on treatments of wood of similar specific gravities, and approval in ICC-ES ESR-1159, QAI considers these product types as meeting fire-retardant treated wood requirements.
1021	06/2023	ICC-ES	CAN/ULC S102-18	QAI reviewed ICC-ES ESL-1021 including CAN/ULC S102 values for all lumber and plywood species noted above. Review of CAN/ULC S102 method, shows this is a 10 minute flame exposure test conducted on the Steiner tunnel apparatus (ASTM E84). As CAN/ULC S102 is conducted for 10 minutes exposure, compared to ASTM E84 extended 20 minutes of total 30 minutes exposure, ASTM E84 extended 20 minutes results are considered to apply to CAN/ULC S102-18 by QAI for flame spread / smoke developed indexes.

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106224793SAT-001	09/24/2025	Intertek Elmendorf, TX	ASTM E2768-11 on ASTM D2898 weathered samples	Weathered / FSI / SDI TM AY / 5 / 50 Maximum flame front 5.9 feet and no signs of significant progressive combustion at test completion.
106224793SAT-002	09/24/2025	Intertek Elmendorf, TX	ASTM E2768-11 on ASTM D2898 weathered samples	Weathered / FSI / SDI TM NP / 5 / 55 Maximum flame front 5.8 feet and no signs of significant progressive combustion at test completion.

Based on the above, QAI considers Chemco Inc. Saferwood-FX, FRX lumber to comply with requirements of the 2021 / 2018 / 2015 IBC and IRC, and 2022, 2019 CBC, and 2021 / 2018 IWUIC as complying with requirements of fire-retardant treated lumber, including use in exterior applications to reduce ignition of structure hazards. See CER_{US}-1031 for additional details. See CER_{US}-1031 Cross Reference Checklist for additional information related to code compliance of the noted products.

Based on the above, QAI considers Chemco Inc. Saferwood-FX, FRX plywood to comply with requirements of the 2018 / 2015 IBC and IRC, 2019 CBC, and 2018 IWUIC as complying with requirements of fire-retardant treated lumber, including use in exterior applications to reduce ignition of structure hazards. See CER_{US}-1042 for additional details. See CER_{US}-1042 Cross Reference Checklist for additional information related to code compliance of the noted products. Note, as wood panel products for Chemco were not tested to ASTM E84 extended an additional 20 minutes with included longitudinal joint of 1/8'' width, these products do not comply with 2021 or more recent editions of the 2021 IBC and IRC, or subsequent state codes based off these model i-Codes.

EVALUATION OF CAN/ULC S102 PERFORMANCE BASED ON ASTM E84 RESULTS:

As noted in Table 3 above, TM Ayous and TM Nordic pine were tested to an ASTM E84 with 20 minute extension (also known as ASTM E2768) after accelerated weathering using ASTM D2898. Results for TM Ayous were FSI=5 and SDI=50. Results for TM Nordic pine were FSI=5 and SDI=55.

The E84 test method is similar in most practical ways to the S102 in terms of draft, flame exposure, and downstream induced turbulence. The two methods' mathematical formulas to determine flame spread and smoke developed normalized indices, produce results that are almost identical within the scale of the results presented here.

Considering that the results for an S102 and E84 are similar and very low, the results of the extended E84 for TM Ayous and TM Nordic pine can be extended to the same products using S102 within the stated allowances: FSR <25, SDC <100 as written in Table 1 as the noted products were of similar ASTM E84 results as other notable species included in Table 1.

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CONCLUSIONS:

Chemco Saferwood-FX, Thermex-FX, FRX treated SYP plywood strength adjustment factors as outlined in CER-1042 can be applied to other softwood plywood species based on testing of worst-case SYP plywood product. FRX exterior evaluated SYP, DF, WS, WRC and HF products have been evaluated for ASTM E84 extended an additional 20 minutes and found to comply with requirements. As such, Saferwood-FX, Thermex-FX, and FRX SYP, DF, WS, WRC and HF plywood are eligible for certification by QAI as fire-retardant treated wood panel products.

Chemco Saferwood-FX, Thermex-FX, FRX, Mataverde treated SYP, DF, SPF strength adjustment factors as outlined in CER-1031 can be applied to other softwood lumber grades based on the worst-case performance value for each mechanical property. TM Ayous and TM Nordic Pine are not included as north American softwood lumber grades and are restricted to non-structural applications. Saferwood-FX, Thermex-FX, FRX, Mataverde exterior evaluated SYP, DF, SPF, WRC, RW and HF, TM Ayous and TM Nordic Pine products have been evaluated for ASTM E84 extended an additional 20 minutes and found to comply with requirements. As such, Saferwood-FX, Thermex-FX, FRX, Mataverde SYP, DF, SPF, RW, WRC and HF products are eligible for certification by QAI as fire-retardant treated wood panel products.

QAI considers the product eligible for QAI certification.

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REPORT REVISION HISTORY:

Date	Version	Change Description	Initials
November 12, 2024	1	Certification Publish.	ML
January 23, 2025	2	Update to product certification and code evaluation report for lumber products to include new species thermally modified Ayous and Thermally modified Nordic Pine for non-structural exterior and interior applications. Removal of Flame Repel reference per client request.	AP

**********<END OF REPORT>********

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