TEST SUMMARIES: AWP 1818 & 3030

ASTM C1186 - Physical Properties Tests
ASTM E84 - Surface Burning Characteristics
CAN/ULC S102 - Surface Burning Characteristics
ASTM E2768 - Extended Duration Surface Burning Characteristics of Building Materials
ASTM E119 - Fire Resistance of a Wall Assembly (Load-Bearing Wood)
NFPA 285 - Vertical & Lateral Flame Propagation (4" Polyiso c.i. w/1-1/4" Air Cavity)
NFPA 285 - Vertical & Lateral Flame Propagation (4" Polyiso)
NFPA 285 - Vertical & Lateral Flame Propagation (Mineral Wool)
CAN/ULC S134 - Fire Test Method - Vertical & Lateral Flame Propagation
NFPA 286 - Fire Test Method - Wall and Ceiling Interior Finish to room fire growth
NFPA 268 - Ignitability of Exterior Wall Assemblies
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ASTM E331 - Water Penetration Resistance Testing
ASTM C518 - Steady-State Heat Flex & Thermal Tests (R-Value)
ASTM E90 - Airborne Sound Transmission Loss of Building Partitions
ASTM B117 - Standard Practice for Operating Salt Spray (Fog) Apparatus

Code Certifications and Product Approvals

U.S.: Intertek CCRR-0299
Canada: Evaluated by CCMC
Canada: NBCC Part 3/4/5 Engineering Evaluation
Florida Product Approval FL #42392
Miami-Dade NOA 23-1031.05
Texas Department of Insurance (TDI) FL #42392

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ASTM C1186 Physical Properties

Date of Test: December, 2022

Test Agency: Intertek Testing Services, 1500 Brigantine Drive, Coquitlam, B.C. V3K 7C1

Test Standard: ASTM C1186-08 (Reapproved 2016) Standard Specification for Flat Fiber Cement Sheets

Test Specimen: Nichiha Architectural Wall Panels (AWP) & Sierra/Savannah

Sample Specs: Thickness: 16mm (nominal 5/8"), Width: Various. Length: Various.

Test Procedure: The tests were performed in accordance to ASTM requirements.

Test Results: The test results show Nichiha AWP meet the requirements of ASTM C1186 to be classified as a Type A, Grade II fiber cement sheet.

Property	Requirement	AWP Panel Siding Compliance / Result	Sierra/Savannah Compliance / Result
Dimensions			
Length Tolerance, in.	± 0.25	Pass	Pass
Width Tolerance, in.	± 0.09	Pass	Pass
Thickness Tolerance			
Within a sheet, %	15	Pass	N/A
Between samples, in.	± 0.05	Pass	Pass
Squareness Tolerance, in.	0.19	Pass	Pass
Edge Straightness Tolerance, in.	0.05	Pass	Pass
Density, lb/ft^3	As Reported	Pass / 77.8	Pass / 73.2
Flexural Strength, psi			
Dry	≥ 1450	Pass	Pass
Wet	≥ 1015	Pass	Pass
Moisture Movement, %			
Machine Direction	As Reported	Pass / 0.04	Pass / 0.06
Cross Direction	As Reported	Pass / 0.05	N/A
Water Absorption, %	As Reported	Pass / 17.5	Pass / 18.9
Moisture Content, %	As Reported	Pass / 5.1	Pass / 5.3
Water Tightness	No formation of water drops	Pass	Pass
Surface Burning Characteristics			
Flame Spread Index	0	Pass	Pass
Smoke Developed Index	≤ 5	Pass	Pass
Frost Resistance (Freeze/Thaw)			
Observation	No visible cracks or structural alteration	Pass	Pass
Flexural Strength, % of As Received	80	Pass	Pass
Warm Water Resistance			
Observation	No visible cracks or structural alteration	Pass	Pass
Flexural Strength	As Reported	Pass / 86%	Pass / 70%
Heat/Rain Resistance	No visible cracks or structural alteration	Pass	Pass

ASTM E84 - Surface Burning Characteristics

Date of Test:	February 15 - March 07, 2022
Test Agency:	Intertek Testing Services 1500 Brigantine Drive, Coquitlam, B.C. V3K 7C1
Test Method:	ASTM E84-21a Standard test method for Surface Burning Characteristics of Building Materials
Test Specimen:	Nichiha Architectural Wall Panels (AWP)
Sample Thickness:	16mm (nominal 5/8”)
Test Procedure:	The panels were physically self-supporting and required no additional sample preparation. For testing, 24 in. wide by 24 ft. length of sample material was placed on the upper ledge of the flame spread tunnel.
Results:	*Flame Spread Rating: 0* *Smoke Developed Classification: 0*

CAN/ULC S102 Surface Burning Characteristics

Date of Test:	April 7, 2016
Test Agency:	Intertek Testing Services 1500 Brigantine Drive, Coquitlam, B.C. V3K 7C1
Test Method:	CAN/ULC S102-10 Standard Method of Test for Surface Burning Characteristics of Building Materials and Assemblies.
Test Specimen:	Nichiha Architectural Wall Panels (AWP)
Sample Specs:	Thickness: 16mm (nominal 5/8") Width: 455mm (nominal 17-7/8") Length: 1818mm (nominal 71-9/16")
Test Procedure:	The panels were physically self-supporting and required no additional sample preparation. For testing, panels were cut to 24" widths and were placed end-to-end on the ledges of the tunnel furnace to make up the 24 foot test sample. Testing was performed in accordance with CAN/ULC S102-10.
Results:	*Flame Spread Rating: 0* *Smoke Developed Classification: 5*

ASTM E2768 - Extended Duration Surface Burning Characteristics for Building Materials

Date of Test: August 21, 2024

Test Agency: Intertek Testing Services
1500 Brigantine Drive, Coquitlam, B.C. V3K 7C1

Test Method: ASTM E2768-11(2018) Standard Test Method for Extended Duration Surface Burning Characteristics for Building Materials (30 min. Tunnel Test)

Test Specimen: Nichiha Architectural Wall Panels (AWP) & Sierra/Savannah Lap Siding

Sample Thickness: 16mm (nominal 5/8") AWP & 1/2" Sierra/Savannah Lap Siding

Test Procedure:
The samples were cut down to 12 in. wide samples to provide a center joint that would run down the length of the tunnel. For each trial run, 24 in. wide by 24 ft. length of sample material was placed on the upper ledge of the flame spread tunnel. The sample material was supported by ¼ in. steel rods spaced every 24 in. in order to support the product with the center joint. Seperate tests were run testing both sides of the products.

Results:
The Flame Spread Index resultant was 0. The flame front did not exceed the initial 4 ft. 6 in. flame front. This result meets the requirement of the extended 20-minute burn in Section 13.1.2 of ASTM E2768, of a maximum flame spread of 10 ft. 6 in. past the centerline of the burners. During the test, there was no visible surface ignition. The testing precedure and testing results qualify the products as an "Ignition-Resistant Building Material" as defined by, and in accordance with the International Wildland-Urban Interface Code (IWUIC).

ASTM E119 - One-Hour Rated, Load-Bearing Wood Assembly

Date of Test:	June 27, 2018
Test Agency:	Southwest Research Institute, 6220 Culebra Road, San Antonio, TX 78228
Test Method:	ASTM E119-18 Standard Test Methods for Fire Tests of Building Construction and Materials
Test Specimen:	Nichiha Architectural Wall Panels (AWP), 16mm (nominal 5/8"), Width: 3030mm on a wood, load-bearing wall assembly with Double Flange Sealant Backer, 10mm Spacer, polyurethane sealant.
Sample Spec:	Base Wall: Standard gypsum base wall assembly (9'x12'), comprising of 2x4 wood studs at 16" spacing. One layer of 5/8", Type X gypsum was attached to the interior side using #8 by 1-5/8" cement board screws. A single layer of 5/8", Type X gypsum (DensGlass) was attached to the exterior side with 11 GA, 1.75" roofing nails every 7" o.c. perimeter and field. Stud cavities were filled with unfaced R-13 fiberglass insulation. Nichiha panels were installed in a horizontal application using Starter Track and Ultimate Clips.
Test Procedure:	The test panel was secured to the test fixture in accordance with the requirements of the standard. The test exposed assembly to a standard fire exposure controlled to achieve specified temperatures throughout a 60 minute time period. A superimposed load of 13,200 lbs (1,100 lb/ft) was utilized. The fire exposure was followed by a standard hose stream test, which subjects the specimen to impact, erosion, and cooling effects of the water.
Results:	The wall was evaluated with exterior (Nichiha face) exposure. The wall successfully endured a 60 minute fire exposure without developing excessive unexposed surface temperatures or allowing flaming on the unexposed side of the assembly. The Hose Stream Test did not penetrate the interior sheathing.

NFPA 285 Fire Propagation (4" Polyiso with 1-1/4" Air Cavity)

Date of Test: August 14, 2025

Test Agency: ICC-ES, 6151 Mumford Road, Bryan, TX 77807

Test Method: National Fire Protection Association (NFPA) 285-25 - Standard Fire Test Method for Evaluation of Fire Propagation Characteristics of Exterior Wall Assemblies containing Combustible Components.

Test Specimens: Nichiha 16mm Architectural Wall Panels (AWP), AdFast DWS 4580 Silicone Sealant Joint, ClarkDietrich ProChannel CI cladding support system, Atlas EnergyShield XR- 4" Polyiso Continious Insulation, TRUFAST Thermal-Grip TubeSeal Insulation Fasteners, Soprema SOPRASEAL STICK 1100T Water-Resistive Barrier.

Sample Specs:
Nichiha Architectural Wall Panels, 455mm x 3,030mm x 16mm, cut to fit the test frame and at terminations, were installed via Nichiha attachment hardware - FA700 Starter Track and JEL778 3/8" panel clips fastened to ClarkDietrich ProChannel CI 7/8" 18 gauge steel vertical hat channel, spaced 24" on center, giving a total air cavity of 1-1/4". Atlas EnergyShield XR , 4" thick faced polyiso continious insulation was attached over the exterior sheathing using TRUFAST Thermal-Grip TubeSeal Insulation Fasteners. The backup wall assembly included Soprema SOPRASEAL® STICK 1100T water-resistive barrier (wrb) applied to 1/2" DensGlass® exterior sheathing on 3-5/8" 20 gauge steel c-channel studs, spaced 24" on center. Steel framing was sheathed on the interior side with 5/8" Type X gypsum. Stud wall cavities were empty. The two-story assembly included a 78" x 30" window opening. Panels were face fastened to the furring over Nichiha 10mm Spacer at the window sill and at the top of the wall. A 3/8"vertical sealant joint with AdFast DWS 4580 silicone adhesive sealant was continuous up the wall, within 12" of the window center-line. The Nichiha Horizontal Compression Joint was continious accross the wall at 24" above the window header.The window opening was lined with 24 gauge steel flashing.

Test Procedure:
The test was conducted in accordance with the NFPA 285-25 standard. A matrix of temperature measurement devices were used to record data throughout the assembly, including, but not limited to, the panels' surface, the air cavity between the back of the panels and face of the exterior insulation, and burn room ceiling. The test total duration was 30 minutes. The burn room burners acted alone for the first 5 minutes. Next, a window burner was placed to provide flame exposure directly to the assembly exterior face, and the test continued for 25 minutes until the burners were deactivated after 30 minutes.

NFPA 285 Fire Propagation (4" Polyiso with 1-1/4" Air Cavity) (Cont.)

Results: *The Nichiha AWP and wall assembly met the acceptance criteria given in the NFPA 285-25 standard.*

- No vertical flame propagation to 10 feet above the top of the window.
- No lateral flame propagation to 5 feet from the centerline of the window.
- Thermocouples 11 and 14-17 temperature readings did not exceed 1000° F at any time.
- Thermocouples 18-19, 28, and 39-40 readings did not exceed 750° F above ambient temperature.
- Flame propagation did not occur in the second floor test room at any time.

NFPA 285 FIRE PROPOGATION (4" POLYISO)

Date of Test: December 27, 2019

Test Agency: Intertek, 16015 Shady Falls Road, Elmendorf, TX 78112
Report Number 104152993SAT-001

Test Method: National Fire Protection Association (NFPA) 285-19 – Standard Fire Test Method for Evaluation of Fire Propagation Characteristics of Exterior Wall Assemblies containing Combustible Components.

Test Specimens: Nichiha 16mm Architectural Wall Panels (AWP), Hunter Panels Xci CG (Class A) - 4" thick polyiso, Soprema SOPRASEAL® STICK 1100T WRB.

Sample Specs:
Nichiha Architectural Wall Panels, 455mm x 3,030mm x 16mm, cut to fit the test frame and at terminations, were installed via Nichiha attachment hardware - FA700 Starter Track and JEL778 panel clips fastened to 2x4x2 in. Vertical z-girts. Hunter Xci CG Panels, 4" thick, were fitted between the 24" o.c. furrings. The backup wall assembly included Soprema SOPRASEAL STICK 1100T weather membrane applied to 1/2" DensGlass exterior sheathing on 3-5/8" c-channel steel studs, spaced 24" on center. Steel framing was sheathed on the interior side with 5/8" Type X gypsum. Stud wall cavities were empty. The two-story assembly included a 78" x 30" window opening. Panels were face fastened to the furring over Nichiha 10mm Spacer at the window sill and at the top of the wall. A vertical joint featuring aluminum H-Mold trim was continuous up the wall, within 12" of the window centerline. The window opening was lined with 24 gauge steel flashing.

Test Procedure:
The test was conducted in accordance with the NFPA 285-19 standard. A matrix of temperature measurement devices was used to record data throughout the assembly, including, but not limited to, the panels' surface, the air cavity between the back of the panels and face of the exterior insulation, and burn room ceiling. The test total duration was 30 minutes. The burn room burners acted alone for the first five minutes. Next, a window burner was placed to provide flame exposure directly to the assembly exterior face, and the test continued for 25 minutes until the burners were deactivated after 30 minutes.

Results: *The Nichiha AWP and wall assembly met the acceptance criteria given in the NFPA 285-19 standard.*

- No vertical flame propagation to 10 feet above the top of the window.
- No lateral flame propagation to 5 feet from the centerline of the window.
- Thermocouples 11 and 14-17 temperature readings did not exceed 1000˚ F at any time.
- Thermocouples 18-19, 28, and 39-40 readings did not exceed 750˚ F above ambient temperature.
- Flame propagation did not occur in the second floor test room at any time.

NFPA 285 Fire Propagation

Date of Test: April 24, 2014

Test Agency: Southwest Research Institute, 6220 Culebra Road,
San Antonio, TX 78238-5166
SwRI Project No. 01.19577.01.608

Test Method: National Fire Protection Association (NFPA) 285-12 – Standard Fire Test Method for Evaluation of Fire Propagation Characteristics of Exterior Nonload-Bearing Wall Assemblies containing Combustible Components.

Test Specimen: Nichiha Architectural Wall Panels (AWP), JEL777 Panel Clips, 10mm Spacer, Single Flange Sealant Backer, Starter Track T300, vertical panel Starter Track.

Sample Specs:
Full size Nichiha Architectural Wall Panels, 455mm x 1,818mm x 16mm, and reduced panels, cut at terminations, were installed via Nichiha attachment hardware - starter track and panel clips fastened to 18 gauge, 3-5/8" C-channel steel studs, spaced 16" on center. Steel framing was sheathed on the interior with 5/8" Type X gypsum and on the exterior side with 1/2" Densglass Gold Sheathing. Stud wall cavities were lined with 4" thick, 4-pct, mineral wool insulation. The exterior sheathing was covered with a layer of Tyvek Commercial Wrap. The two-story assembly included a 78" x 30" window opening. Panels were face fastened over 10mm Spacer at the window head and sill and at the top of the wall. The Vertical Panel Starter Track was used at the window header, installed over 10mm Spacer prior to panel installation.

Test Procedure:
Test conducted in accordance with NFPA 285 standard, with matrix of temperature measurement devices recording data throughout the assembly, including, but not limited to, the panels' surface, the air cavity between the back of the panels and face of the Densglass sheathing, and burn room ceiling. The test was comprised of three parts with a total duration of 40 minutes, including a 10-minute observation period at the end. The burn room burners acted alone for the first five minutes. Next, a window burner was placed to provide flame exposure directly to the assembly exterior face, and the test continued for 25 minutes until the burners were deactivated and the 10-minute observation period began.

Results: *The wall assembly met the acceptance criteria given in the NFPA 285 standard.*

- No vertical flame propagation to 10 feet above the top of the window.
- No lateral flame propagation to 5 feet from the centerline of the window.
- Surface temperature readings did not exceed 1000° F at any time.
- Temperatures in the air cavity did not exceed 1000° F at any time.
- Flame propagation did not occur in the second floor test room at any time, nor did temperatures exceed 500° F at any time.

CAN/ULC S134 Fire Propagation

Date of Test: September 17, 2015

Test Agency: NRC Fire Safety Laboratory, Mississippi Mills, Ontario
NRC Report No. A1-007541.1

Test Method: CAN/ULC S134-13 – Standard Method of Fire Test for Evaluation of Exterior Wall Assemblies.

Test Specimen: Nichiha Architectural Wall Panels, JEL777 Panel Clips, 10mm Spacer, Double Flange Sealant Backer, and Starter Track FA700.

Sample Specs:

Full size Nichiha Architectural Wall Panels, 455mm x 3,030mm x 16mm, and reduced panels, cut at the window sill and jambs, were installed via Nichiha attachment hardware - Starter Track and Panel Clips fastened to 2x4 wood studs, spaced 16" on center. Wood framing was sheathed on the interior with 5/8" Type X gypsum and on the exterior side with 5/8" Fire Resistant Plywood Sheathing. Stud wall cavities were lined with 3.5" thick fiberglass insulation batts. The exterior sheathing was covered with a layer of Tyvek WRB. The 10 meter assembly included a 2.51 x 1.42 m window opening. The sample assembly included a Double Flange Sealant Backer vertical joint above the center of the window, up to a height of 2.73 meters where there was a horizontal/compression joint. FA700 Starter Track was used at the wall base, window header, and above the compression joint. The top edge of the panels just below the horizontal/compression joint and those at top of the wall were face fastened over 10mm Spacer. Otherwise all other panel edges were secured with JEL777 Panel Clips.

Test Procedure:

Test conducted in accordance with CAN/ULC S134 standard with a matrix of temperature measurement devices recording data throughout the assembly, including, but not limited to, the panels' surface, on the WRB, on the interior gypsum sheathing, and within the burn room. The test lasted 60 minutes with flame ignition/gas flow ramping upwards until the 20 minute mark. At 20 minutes, the gas flow reduction began until cut off at 25 minutes. The assembly was then monitored until the 60 minute mark.

Results: *The wall assembly met the acceptance criteria given in the CAN/ULC S134 standard.*

- No vertical flame propagation to 5 meters above the top of the window.
- Highest flames measured at 2.5 m
- The maximum one-minute averaged value of the total heat flux density at 3.5 m above the top of the window did not exceed 35 kW/m2.
- Max one-minute averaged value was 25.4 kW/m2

NFPA 286 Fire Propagation

Date of Test: April 10, 2025

Test Agency: Intertek, 1500 Brigantine Dr, Coquitlam, BC V3K 7C1, Canada

Test Method: National Fire Protection Association (NFPA) 286-24 – Standard Fire Test Method for Evaluating Contribution of Wall and Ceiling Interior Finish to Room Fire Growth.

Test Specimens: Nichiha 16mm Architectural Wall Panels, 2x4 wood framing @16" o.c. Ceiling framing 2x6 @16" o.c.

Sample Specs:
The AWP Fiber-Cement Panel is nominally 5/8" (16mm) in thickness, 18" (455mm) in width, and 119" (3030mm) in length with alternate sizes of 71.5" (1818mm) in length and thickness of 5/8", 3/4" and 7/8" (16,18 and 21mm). The AWP system was installed as wall and ceiling finish to the interior of the test room in accordance with NFPA 286, fastened directly to framing of 2x4 wood studs and 2x6 wood ceiling joists @16" o.c.

Test Procedure:
NFPA 286 evaluates the fire performance of interior finish materials in a room-sized test chamber. Before the test begins, the room and test materials are conditioned to a specific temperature and humidity for 24 hours to ensure consistent results. A gas burner serves as the ignition source, starting with a net rate heat output of 40 kW (Kilowatts) for 5 minutes, then increasing to 160 kW for 10 minutes which rapidly increases the chambers temperature to about 1,000 degrees Celsius. The burn last 20 minutes or until the test material reaches failure. The fire growth, heat release rate, and smoke production are closely monitored. Key factors measured include the time to flashover, heat release, and smoke development. The NFPA 286 test provides critical data on how quickly fire spreads and whether materials meet safety standards by limiting fire progression and smoke hazards.

Results: *The Nichiha AWP and wall assembly met the acceptance criteria given in the NFPA 286-24 and the criteria of the 2024 IBC, Section 803.1.1, Interior wall and ceiling finish tested in accordance with NFPA 286.*

- Flames did not spread to the ceiling during the 40kW exposure.
- Flame propagation to the outer extremities and/or flashover did not occur during the160-kW exposure.
- The peak heat release rate was 198 kW.
- The total smoke released during the entirety of the test was 115 m^2.

NFPA 268 Ignitability of Exterior Wall

Date of Test:	October 8, 2014
Test Agency:	Southwest Research Institute 6220 Culebra Road, San Antonio, TX 78238-5166 SwRI Project No. 01.19582.01.220
Test Method:	National Fire Protection Association (NFPA) 268-12 – Standard Test Method for Determining Ignitibility of Exterior Wall Assemblies Using a Radiant Heat Energy Source.
Test Specimen:	Nichiha Architectural Wall Panels (AWP), JEL777 Panel clips, 10mm Spacer, FA100B Starter Track
Sample Specs:	Nichiha Architectural Wall Panels, 455mm x 1,818mm x 16mm, were cut to width for a 4' x 8' metal stud assembly and installed via Nichiha attachment hardware – Starter Track and Panel Clips. The top course was cut to height and face fastened over Nichiha Spacer.
Test Procedure:	Test conducted in accordance with the NFPA 268 standard, with sample cladding subjected to a minimum radiant heat flux of 12.5 kW/m2 ± 5% in the presence of a pilot ignition source for a 20-minute period.
Results:	The wall assembly met the acceptance criteria given in the NFPA 268 standard. No sustained flaming exhibited.

AAMA 509 Drained/Back-Ventilated Rainscreen

Date of Test: February 21, 2025
Test Agency: Intertek - 1500 Brigantine Dr, Coquitlam, BC V3K 7C1, Canada
Test Method: AAMA 509-22 – Voluntary Test and Classification Method of Drained and Back Ventilated Rain Screen Wall Cladding Systems

Test Specimen: Nichiha Architectural Wall Panels (AWP), 16 mm (5/8" nominal) 1818 and 3030

Sample Specs:
Test assemblies were constructed according to the AAMA 509-22 standard, 8'x 8' with 2x6 16 ga steel framing at 16" o/c, with a 1/2" clear polycarbonate sheathing substituted for typical sheathing and WRB. Nichiha exterior cladding systems were installed over the sheathing with representative horizontal and vertical joints in the field and typical top, bottom and end of wall terminations.

Test Procedure:
AAMA 509-22 was performed in accordance with AAMA instructions and component tests, including ASTM E283 -19 Rate of Air Leakage, ASTM E331-23 Water Penetration (Uniform Static Pressure), and AAMA 501.1-17 Water Penetration (Dynamic Pressure).

Results:

CLASSIFICATION[1]

Nichiha AWP 1818 Horizontal	V1/W1
Nichiha AWP 3030 Horizontal	V1/W1
Nichiha AWP 3030 Vertical	V1/W1

1. Using charting methods from the AAMA 509-22 standard all 3 performed at the lowest amount of water penetration and ventilation

Description	Joints	Ventilation Rate Thru Cladding (ASTM E283)	Standard	Pressure/ Wind Speed	Water Penetration
AWP 3030 Vertical Panels	Vertical: Panel Shiplap	3.06 L/s/m^2	ASTM E331	300 Pa	0 mL
				577 Pa	94 mL
	Horizontal: Metal Z-Flashing		AAMA 501.1	22.1 m/s	0 mL
				30.7 m/s	70 mL
AWP 3030 Horizontal Panels	Vertical: Metal H-Mold	1.90 L/s/m^2	ASTM E331	300 Pa	147 mL
				577 Pa	973 mL
	Horizontal: Panel Shiplap		AAMA 501.1	22.1 m/s	153 mL
				30.7 m/s	434 mL
AWP 1818 Horizontal Panels	Vertical: Double Flange Sealant Joint	2.02 L/s/m^2	ASTM E331	300 Pa	390 mL
				577 Pa	758 mL
	Horizontal: Panel Shiplap		AAMA 501.1	22.1 m/s	574 mL
				30.7 m/s	305 mL

ASTM E331 - WATER PENETRATION RESISTANCE TESTING

Date of Test: Feburary 21, 2025

Test Agency: Intertek - 1500 Brigantine Dr, Coquitlam, BC V3K 7C1, Canada

Test Method: ASTM E331-23 Standard Test Method for Water Penetration of Exterior Windows, Door, and Curtain Walls by Uniform Static Air Pressure Difference.

Test Specimen: Sierra Premium Shake 1/2" thick, 8 7/8" height by 9' 4" length.

Sample Specs: The Sierra Shake was tested on an 8'x8' wall, wood-framed @ 16" with 7/16" OSB sheathing, water-resistive barrier and 2'x3' window opening with flashing, built in accordance with IBC Ch. 14. The cladding system each contained a least one horizontal and one vertical siding joint in accordance with the manufacturer's installation instructions.

Test Procedure: Adjust the water spray to the specified rate. Apply the air-pressure difference within 15 s and maintain this pressure, along with the specified rate of water spray, for 15 min. Remove the air-pressure difference and stop the water spray. Observe and record the points of water penetration, if any.

Results:

Description	Cladding Fastening	ASTM E331 Water Penetration Resistance Test	PASS/FAIL
Sierra Premium Shake	#8 screw 8" o/c in to studs and sheathing	120 minutes at 300 Pa	PASS
		15 minutes at 577 Pa	PASS
		15 minutes at 958 Pa	PASS

ASTM C518 - Steady-State Heat Flex & Thermal Tests

Date of Test:	October 16, 2017
Test Agency:	Intertek - ATI, 130 Derry Court, York, PA 17406
Test Method:	ASTM C518 -17, Standard Test Method for Steady-State Thermal Transmission Properties by means of the Heat Flow Meter Apparatus.
Test Specimen:	Nichiha Architectural Wall Panels (AWP)
Sample Specs:	Thickness: Two 16mm (5/8") samples, stacked.
Test Procedure:	The test apparatus consists of a warm plate, a cold plate, a heat flow meter, and the necessary electronic measurement devices. The test specimen is held between the two temperature controlled plates, of which the lower can be raised or lowered to the desired specimen thickness.
Results:	The test results show a single, 16mm-thick Nichiha AWP has a thermal resistance or R-Value of 0.47. This data is shown below and is based off the test measurement R-Value for two sample panels stacked together with a total thickness of 1.256".

Element	Measurement	
Warm Plate	100˚F	
Cold Plate	50˚F	
Mean Specimen Temperature	75˚F	
Average heat flux (Btu/hr-ft2)	52.66	
Average thermal conductance – C (Btu/hr-ft2- ˚F)	1.05	
Average thermal resistance – R (hr-ft2-˚F/Btu)	0.95	(0.47 single panel)
Average thermal resistance – Rsi (m2-K/W)	0.17	(0.08 single panel)

ASTM E90 - Sound Transmission Loss

Date of Test: March 17, 2020

Test Agency: Intertek: Reports 104168521CRT-001a,b

Test Method: ASTM E90-09 (2016) - Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions

Test Specimens: Nichiha Wood Series AWP: VintageWood (16mm thick)
Dimension Series AWP: Novenary Tile (21mm thick)

Test Procedure:

An 8 foot by 8 foot stud wall with 4" metal studs, spaced at 16 inches o.c. was constructed with a layer of 5/8 gypsum board on the interior side only. The base wall was tested without Nichiha panels to establish its Sound Transmission Class and Outdoor-Indoor Transmission under ASTM E90 with performance classifications under ASTM E413-2016 (Classification for Rating Sound Insulation) and ASTM E1332-16 (Standard Classification for Rating Outdoor-Indoor Sound Attenuation). With STC and OITC baselines established without the cladding panels, the tests were then run again individually with both of the Nichiha panel types installed.

Results:

The Nichiha panels by themselves contribute 14 to 17 units (in dB) to the Sound Transmission Class (STC) rating of a basic wall assembly with interior sheathing only, depending on the panel thickness. For Outdoor-Indoor Transmission, AWP add between 4 and 6 units.

Assembly	AWP Thickness	STC	OITC (in dB)
Base Wall (no Nichiha)	0mm	26	22
VintageWood	16mm	40	26
Novenary Tile	21mm	43	28

ASTM B117 Corrosion Resistance

Date of Test:	November 19, 2018 - February 8, 2019
Test Agency:	Intertek, 1500 Brigantine Drive, Coquitlam, BC, V3K 7C1
Test Method:	ASTM B117-18 - Standard Practice for Operating Salt Spray (Fog) Apparatus
Test Specimens:	Nichiha Ultimate Clips (JEL778) (ZAM®), BT-R100 Brick Tie (305 g/m^2), HTT4 Tension Tie (610 g/m^2), and MSTA18 Stainless Steel Strap
Test Procedure:	Nichiha Ultimate Clips (coated with Zinc, Aluminum, and Magnesium (ZAM®))along with comparative samples of hot-dipped zinc coated steel, of coating weights 305 and 610 g/m^2, as well as samples of stainless steel were subjected to 2000 hours of salt fog testing per ASTM B117.
Results:	Nichiha Ultimate Clips experienced a mass change of 1.3% with moderate signs of salt deposits but no corrosion or red rust. The 305 g/m^2 brick ties experienced a mass change of -0.2% with significant corrosion and salt deposits. The 610 g/m^2 tension ties gained 1.6% mass due to significant salt deposits, and lastly, the stainless steel straps had 0% mass change with slight brown staining near cuts but no corrosion or salt deposits.