PERRY JOHNSON LABORATORY ACCREDITATION, INC.

Certificate of Accreditation

Perry Johnson Laboratory Accreditation, Inc. has assessed the Laboratory of:

Benchmark Holdings, LLC

2710 West 5th Avenue, Eugene, OR 97402

(Hereinafter called the Organization) and hereby declares that Organization is accredited in accordance with the recognized International Standard:

ISO/IEC 17025:2017

This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system
(as outlined by the joint ISO-ILAC-IAF Communiqué dated Insert April 2017):

Chemical, Environmental, Dimensional and Mechanical Testing

(As detailed in the supplement)

Accreditation claims for such testing and/or calibration services shall only be made from addresses referenced within this certificate. This Accreditation is granted subject to the system rules governing the Accreditation referred to above, and the Organization hereby covenants with the Accreditation body's duty to observe and comply with the said rules.

For PJLA:

Tracy Szerszen
President

Perry Johnson Laboratory Accreditation, Inc. (PJLA)
755 W. Big Beaver, Suite 1325
Troy, Michigan 48084

Initial Accreditation Date:	*Issue Date:*	*Expiration Date:*
June 20, 2024	June 20, 2024	November 30, 2024
Revision Date:	*Accreditation No.:*	*Certificate No.:*
August 30, 2024	127148	L24-461-R1
	Extension Date:	
	January 31, 2025	

The validity of this certificate is maintained through ongoing assessments based on a continuous accreditation cycle. The validity of this certificate should be confirmed through the PJLA website: www.pjlabs.com

Certificate of Accreditation: Supplement

Benchmark Holdings, LLC
2710 West 5th Avenue, Eugene, OR 97402
Contact Name: Mr. Chris Battin Phone: 541-484-9212

Accreditation is granted to the facility to perform the following testing:

FLEX CODE	FIELD OF TEST	ITEMS, MATERIALS, OR PRODUCTS TESTED	COMPONENT, CHARACTERISTIC, PARAMETER TESTED	SPECIFICATION OR STANDARD METHOD	TECHNOLOGY OR TECHNIQUE USED
F1, F2	Dimensional [FO]	Particleboard	Panel dimensions (length and width)	ANSI A208.1	Tape measure
F1, F2			Panel Thickness		Micrometer or Caliper
F1, F2			Panel squareness		Tape measure
F1, F2			Edge straightness		Straight edge
F1, F2	Mechanical [FO]		Moisture content		Oven-dry moisture content
F1, F2			Linear expansion		Determination of linear expansion between 50% and 80% relative humidity according to ASTM D1037: Section 24 and notes 48 through 51
F1, F2			Thickness swell		Determination of thickness swelling after exposure to a single, continuous 24-hour submersion in water according to ASTM D1037: Section 23
F1, F2			Durability of exterior glue bonding system		Determination of residual modulus of rupture (MOR) according to ASTM D1037: Section 9 after accelerated aging according to ASTM D1037: Section 7
F1, F2			Internal bond		Determination of internal bond (tension perpendicular to surface) according to ASTM D1037: Section 11
F1, F2			Modulus of rupture and modulus of elasticity (MOE)		Determination of MOR and/or MOE according to ASTM D1037: Section 9
F1, F2			Hardness		Determination of hardness according to ASTM D1037: Section 17
F1, F2			Face screw-holding capacity		Determination of face-screw holding capacity according to ASTM D1037: Section 16 and Notes 34 and 35, and ANSI A208.1 section 4.3.8
F1, F2			Edge screw holding capacity		Determination of edge-screw holding capacity according to ASTM D1037: Section 16 and Notes 34 through 36, and ANSI A208.1 section 4.3.9
F1, F2			Concentrated loading		Universal Test Machine - Compression

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F1, F2	Environmental, Chemical FO	Particleboard	Formaldehyde emissions	ANSI A208.1	Testing and certification according to 40 CFR Part 770 (EPA TSCA Title VI), CARB ATCM 93120, and/or CANFER, as applicable.
F1, F2	Dimensional FO	Medium Density Fiberboard / Basic Hardboard	Panel dimensions (length and width)	ANSI A208.2	Tape measure
F1, F2			Panel Thickness		Micrometer or Caliper
F1, F2			Panel squareness		Tape measure
F1, F2			Edge straightness		Straight edge
F1, F2	Mechanical FO		Moisture content		Oven-dry moisture content
F1, F2			Linear expansion		Determination of linear expansion between 50% and 80% relative humidity according to ASTM D1037: Section 24 and notes 48 through 51
F1, F2			Thickness swell		Determination of thickness swelling after exposure to a single, continuous 24-hour submersion in water according to ASTM D1037: Section 23
F1, F2			Reduced thickness swell		Determination of thickness swelling after exposure to a single, continuous 24-hour submersion in water according to ASTM D1037: Section 23
F1, F2			Advanced bond integrity		Determination of residual modulus of rupture (MOR) according to the provisions of ASTM D1037: Section 9 after accelerated aging according to ASTM D1037: Section 7
F1, F2			Modulus of rupture and modulus of elasticity (MOE)		Determination of MOR and/or MOE according to ASTM D1037: Section 9 or Section 33
F1, F2			Internal bond		Determination of internal bond (tension perpendicular to surface) according to ASTM D1037: Section 11 or Section 35

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F1, F2	Mechanical [FO]	Medium Density Fiberboard / Basic Hardboard	Face screw-holding capacity	ANSI A208.2	Determination of face-screw holding capacity according to ASTM D1037: Section 16 and Notes 34 and 35, and ANSI A208.2 section 4.3.8
F1, F2			Edge screw holding capacity		Determination of edge-screw holding capacity according to ASTM D1037: Section 16 and Notes 34 through 36, and ANSI A208.2 section 4.3.9
F1, F2	Environmental, Chemical [FO]		Formaldehyde emissions		Testing and certification according to 40 CFR Part 770 (EPA TSCA Title VI), CARB ATCM 93120, and/or CANFER, as applicable.
F1, F2	Dimensional [FO]	Plywood	Panel dimensions (length, and width)	ANSI/HPVA HP-1	Tape measure
F1, F2			Panel thickness		Micrometer or Caliper
F1, F2			Panel squareness		Tape measure
F1, F2			Panel straightness		Straight edge
F1, F2	Non-destructive [FO]		Veneer and panel grade/ appearance/ construction		Visual evaluation
F1, F2	Mechanical [FO]		Dry shear test		Determination of adhesive bond shear strength by tension loading
F1, F2			Cyclic-boil shear test		Determination of adhesive bond shear strength by tension loading after cyclic boiling and drying
F1, F2			Two-cycle boil test		Visual evaluation of adhesive bond delamination after cyclic boiling and drying
F1, F2			Three-cycle soak test		Visual evaluation of adhesive bond delamination after cyclic submersion in water and drying
F1, F2			Moisture content		Oven-dry moisture content
F1, F2	Environmental, Chemical [FO]		Formaldehyde emissions		Testing and certification according to the provisions of 40 CFR Part 770 (EPA TSCA Title VI), CARB ATCM 93120, and/or CANFER, as applicable.

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F1, F2	Mechanical [FO]	Steels, stainless steels, and related alloys	Tension	ASTM A370	Universal Test Machine - Tension
F1, F2			Bend		Universal Test Machine - Compression
F1, F2			Hardness - Brinell		N/A: Not in scope
F1, F2			Hardness - Rockwell		Hardness testing according to ASTM E18 using a Rockwell Hardness Tester - A, B, and C Scales only
F1, F2			Hardness - Portable		N/A: Not in scope
F1, F2			Impact		
F1, F2		Deformed steel reinforcing bars in cut lengths, with a head attached to one or both ends, for concrete reinforcement	Tensile test	ASTM A970/ A970M	Universal Test Machine - Tension
F1, F2			Bend test		Universal Test Machine - Compression
F1, F2		Mechanically spliced steel reinforcing bars	Monotonic tension test	ASTM A1034	Universal Test Machine - Tension
F1, F2			Monotonic compression test		Universal Test Machine - Compression
F1, F2			Cyclic load test		Universal Test Machine - Tension and/or Compression
F1, F2			High-cycle fatigue test		Universal Test Machine - Tension
F1, F2			Slip test		Universal Test Machine - Tension
F1, F2			Differential elongation test		Universal Test Machine - Tension and/or Compression
F1, F2			Low-temperature test		Universal Test Machine - Tension and/or Compression after low temperature conditioning
F1, F2	Non-destructive [FO]	Lumber / Wood-based products	Record of Heartwood and Sapwood	ASTM D143	Visual evaluation
F1, F2	Mechanical [FO]		Static bending		Universal Test Machine - Compression
F1, F2			Compression parallel to grain		
F1, F2			Impact bending		N/A: Not in Scope
F1, F2			Toughness		

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F1, F2	Mechanical [FO]	Lumber / Wood-based products	Compression perpendicular to grain	ASTM D143	Universal Test Machine - Compression
F1, F2			Hardness		
F1, F2			Shear parallel to grain		
F1, F2			Cleavage		Universal Test Machine - Tension
F1, F2			Tension parallel to grain		
F1, F2			Tension perpendicular to grain		
F1, F2			Nail withdrawal		
F1, F2			Specific gravity and shrinkage in volume		Determination of specific gravity according to ASTM D2395 Determination of volumetric shrinkage after drying using volume by water immersion methods
F1, F2			Radial and tangential shrinkage		Determination of radial and/or tangential shrinkage after drying using length measurement methods
F1, F2			Moisture determination		Oven-dry moisture content
F1, F2			Flexure	ASTM D198	Universal Test Machine - Compression
F1, F2			Compression parallel to grain (Short Specimen)		
F1, F2			Compression parallel to grain (Long Specimen)		
F1, F2			Tension		Universal Test Machine - Tension
F1, F2			Torsion		Universal Test Machine - Compression
F1, F2		Wood Products / Adhesives	Shear strength Wood fiber failure	ASTM D905	Universal Test Machine - Compression Visual Evaluation
F1, F2		Dried films of paint, varnish, lacquer and related products	Coating thickness	ASTM D1005	Procedure A: Stationary micrometer for measuring coatings applied to plane rigid surfaces
F1, F2					Procedure B: Stationary micrometer for measuring free films
F1, F2					Procedure C: Hand-held micrometer for measuring coatings applied to plane rigid surfaces

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F1, F2	Mechanical FO	Dried films of paint, varnish, lacquer and related products	Coating thickness	ASTM D1005	Procedure D: Hand-held micrometer for measuring free films
F1, F2		Wood-Based Fiber and Particle Panels	Moisture content	ASTM D1037	Oven-dry moisture content
F1, F2			Accelerated aging		Cyclic aging pre-treatment by water immersion, steaming, freezing, and heating followed by post aging conditioning and mechanical testing
F1, F2	Dimensional FO		Dimensions/Size		Tape Measure Caliper Micrometer
F1, F2	Mechanical FO		Specific Gravity		Volume by Measurement
F1, F2	Non-destructive FO		Surface Finish		Visual evaluation
F1, F2	Mechanical FO		Static Bending		Universal Test Machine - Compression
F1, F2			Tension parallel to surface		Universal Test Machine - Tension
F1, F2			Tension perpendicular to surface		
F1, F2			Compression parallel to surface		Universal Test Machine - Compression (method C only)
F1, F2			Lateral nail resistance`		Universal Test Machine - Tension
F1, F2			Nail withdrawal		
F1, F2			Nail head pull through		
F1, F2			Direct screw withdrawal		
F1, F2			Hardness		Universal Test Machine – Compression
F1, F2			Hardness modulus		Universal Test Machine - Compression
F1, F2			Shear in the plane of the panel		
F1, F2			Glue line shear (block type)		
F1, F2			Falling ball impact		Falling ball impact apparatus
F1, F2			Abrasion resistance by the U.S. Navy Wear Tester		N/A: Not in scope

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F1, F2	Mechanical [FO]	Wood-Based Fiber and Particle Panels	Water Absorption/Thickness Swelling	ASTM D1037	Determination of water absorption/ thickness swelling using a micrometer or caliper after exposure to either: • 2-plus 22-hour submersion in water • Single, continuous 24-hour submersion in water
F1, F2			Linear Expansion with change in moisture content		Determination of linear expansion using dial gage comparator after exposure from 50% to 90% relative humidity
F1, F2			Interlaminar shear		Universal Test Machine - Compression loaded by plates
F1, F2			Edgewise shear		Universal Test Machine - Compression loaded by rails
F1, F2			Compression-shear		Universal Test Machine - Compression loaded by axial loading
F1, F2			Thickness - hardboard		Micrometer
F1, F2			Modulus of rupture - hardboard		Universal Test Machine - Compression
F1, F2			Tension parallel to surface - hardboard		Universal Test Machine - Tension
F1, F2			Tension perpendicular to surface - hardboard		
F1, F2			Water absorption/thickness swelling - hardboard		Determination of water absorption/ thickness swelling using a micrometer or caliper after a single, continuous 24-hour submersion in water
F1, F2			Moisture content - hardboard		Oven-dry moisture content
F1, F2			Specific gravity - hardboard		Volume by measurement
F1, F2		Structural laminated wood members	Adhesive joint integrity	ASTM D1101	Pretreatment by vacuum/pressure cycling and drying followed by visual evaluation and measurement of adhesive joint delamination

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F1, F2	Mechanical [FO]	Wood and Wood-Based Products	Ash in wood	ASTM D1102	Evaluation of residual ash in wood after dry oxidation at 580°C to 600°C
F1, F2		Wood Products / Fasteners	Fastener withdrawal strength	ASTM D1761	Universal Test Machine - Tension
F1, F2		Wood / Wood Products	Moisture	ASTM D2395	Oven-Dry Moisture Content
F1, F2			Density		Volume by Measurement Volume by Water Immersion Volume by Flotation Tube Forstner Bit Increment Core Chips Full-Size Members
F1, F2			Specific Gravity		
F1, F2		Adhesives or adhesive-bonded wood materials, including treated wood	Resistance to shear by compression loading	ASTM D2559	Universal Test Machine - Compression
F1, F2			Resistance to delamination during accelerated exposure		N/A: Not in scope
F1, F2			Resistance to creep under static loading		
F1, F2		Plywood / Wood-Based Panel Products	Planar shear loaded by plates	ASTM D2718 Method A	Universal Test Machine - Compression
F1, F2			Planar shear induced by five-point bending	ASTM D2718 Method B	
F1, F2			Center point flexure test	ASTM D3043 Method A	Universal Test Machine - Compression
F1, F2			Two-point flexure test	ASTM D3043 Method B	
F1, F2			Large panel bending stiffness and strength	ASTM D3043 Method C	QL3 Machine - Midordinate Deflection
F1, F2			Flexure test for quality assurance	ASTM D3043 Method D	Universal Test Machine – Compression
F1, F2		Painted, varnished, lacquered, or other coated products	Coating adhesion	ASTM D3359	Visual evaluation of coating adhesion using either the X-cut or crosshatch method
F1, F2			Wear resistance	ASTM D4060	Evaluation of coating wear resistance using Taber rotary abrader
F1, F2		Wood / Wood Products	Moisture content	ASTM D4442	Oven-Dry Moisture Content
F1, F2		Finger-jointed lumber and related wood products	Adhesive bond performance of finger-jointed wood products	ASTM D4688	Measurement of finger joint strength and visual evaluation of wood fiber failure after tension loading, with or without pre-treatment

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F1, F2	Mechanical [FO]	Stress-graded lumber and other wood-based structural materials	Bending edgewise	ASTM D4761	Universal Test Machine - Compression
F1, F2			Bending flat-wise - center point loading		
F1, F2			Bending flat-wise - third-point loading		
F1, F2			Axial strength in tension		Universal Test Machine - Tension
F1, F2			Axial strength in compression		Universal Test Machine - Compression
F1, F2		Prefabricated wood I-joists	Shear capacity qualification	ASTM D5055	Universal Test Machine Compression
F1, F2			Reaction capacity qualification		
F1, F2			Moment capacity qualification		Universal Test Machine - Compression and tension
F1, F2			End joint qualification		Universal Test Machine - Tension
F1, F2			Stiffness capacity qualification		Universal Test Machine Compression
F1, F2	Non-destructive [O]	Plywood / Wood-Based Panel Products	Treatment	ASTM D5516 Section 6.2	Fire retardant pressure treatment (witness basis only)
F1, F2			Post-Treatment Drying	ASTM D5516 Section 6.3	Kiln drying (witness basis only)
F1, F2	Mechanical [FO]		Flexure Test	ASTM D5516 Section 6.4, 6.5 and 7	Universal Test Machine - Compression
F1, F2		Joist hangers and similar products	Allowable loads of joist hangers for wood materials	ASTM D7147	Universal Test Machine - Compression
F1, F2			Allowable loads of joist hangers for concrete or masonry materials		N/A: Not in scope
F1, F2			Tensile testing of steel used to produce joist hangers		Evaluation of tensile strength according to ASTM E8/E8M
F1, F2			Fastener bending yield strength		Evaluation of fastener bending yield strength according to ASTM F1575 (excluding bolts tested according to ASTM F606/F606M)
F1, F2		Metallic materials	Tension testing including yield strength, yield point elongation, tensile strength, elongation, and reduction of area	ASTM E8	Universal Test Machine – Tension
F1, F2			Rockwell hardness	ASTM E18	Rockwell Hardness Tester - A, B, and C Scales only

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F1, F2	Mechanical [FO]	Plywood / Wood-Based Panel Products / Other Panel Products	Compressive Load	ASTM E72	Compressive Load Apparatus (witness basis only)
F1, F2			Tensile Load		Tensile Load Apparatus (witness basis only)
F1, F2			Transverse Load - Specimen Horizontal		Transverse Load Apparatus - Horizontal (witness basis only)
F1, F2			Transverse Load - Specimen Vertical		Transverse Load Apparatus - Vertical (witness basis only)
F1, F2			Concentrated Load		Concentrated Load Apparatus (witness basis only)
F1, F2			Impact Load		Impact Load Apparatus (witness basis only)
F1, F2			Racking Load (dry)		Racking Load Apparatus
F1, F2			Racking Load (wet)		Wetting room Racking Load Apparatus
F1, F2		Plywood / Wood-Based Panel Products	Concentrated static load	ASTM E661	QL2 Machine
F1, F2			Concentrated impact load		
F1, F2		Nails, screws and similar fasteners	Bending yield moment	ASTM F1575	Universal Test Machine - Compression
F1, F2		Veneer plywood / Blockboard / Laminboard / Other wood panel products	Adhesive bond quality	BS EN 314-1	Test specimen pre-treatment followed by measurement of adhesive bond shear strength by tension loading to failure and/or visual evaluation of residual wood fiber failure
F1, F2			Adhesive bond quality	BS EN 314-2	
F1, F2		Plywood / Wood-based panel products / Other wood materials	Moisture content	BS EN 322	Oven dry moisture content
F1, F2			Density	BS EN 323	Scale / balance Volume by Measurement
F1, F2			Sampling and cutting of test pieces and expression of test results	BS EN 326-1	Various cutting and trimming equipment Mathematical Calculation
F1, F2	Non-destructive [FO]		Sampling and analysis for initial type testing and factory production control	BS EN 326-2	Sampling and analysis by attributes Sampling and analysis by variables
F1, F2	Mechanical [FO]	Joist hangers and similar products	Direct load capacity tests	ICC-ES AC 13, Section 3.0	Evaluation according to ASTM D7147
F1, F2			Alternative test method for direct load capacity testing		Evaluation according to ASTM D1761 and ICC-ES AC 13, Appendix A
F1, F2			Torsional moment capacity test		Evaluation according to ASTM D7147 or ASTM D1761
F1, F2			Load capacity of hurricane ties		Universal Test Machine - Compression

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F1, F2	Mechanical FO	Mechanically spliced steel reinforcing bars	Type 1, Type 2, and Type 2HS Splices	ICC-ES AC 133, Section 4.0	Monotonic tension, compression, and cyclic tension/ compression tests according to ASTM A370 and ICC-ES AC 133 section 4
F1, F2		Headed deformed bars	Cyclic tension followed by monotonic tension	ICC-ES AC 347, Section 4.0	Cyclic tension followed by monotonic tension according to ASTM A370
F1, F2			Bend test of welded headed products		Bend testing according to ASTM A970
F1, F2			Heat rigidity		Evaluation of residual deformation using either engineering analysis or by tension loading
F1, F2		Painted, varnished, lacquered, or other coated products	Coating adhesion	ISO 2409	Visual evaluation of coating adhesion using the crosshatch cutting method
F1, F2			Coating thickness	ISO 2808, Section 5.2.4 and 5.2.4.1.1.2	Micrometer, dial comparator, or dial indicator Stationary base Chemical or mechanical means to remove coatings or films
F1, F2		Laminate flooring	Thickness swell	NALFA LF-01, Section 3.2	Evaluation of thickness swelling using a micrometer before and after submersion in water
F1, F2			Wear resistance	NALFA LF-01, Section 3.7	Evaluation of wear resistance of coatings and/or high-pressure decorative laminates using a Taber rotary abrader
F1, F2			Formaldehyde emissions	NALFA LF-01, Section 3.11	Testing and certification according to 40 CFR Part 770 (EPA TSCA Title VI), CARB ATCM 93120, and/or CANFER, as applicable.
F1, F2	Dimensional FO	Plywood	Panel dimensions (length and width)	United States Department of Commerce Product Standard PS-1 (Sections 5.7, 5.8.6, 5.8.7, 5.9, 5.10, 5.11, and 6.0)	Tape measure
F1, F2			Panel thickness		Micrometer
F1, F2			Panel squareness		Tape measure
F1, F2			Panel straightness		Straight edge
F1, F2	Non-destructive FO		Panel grade/appearance		Visual evaluation
F1, F2	Mechanical FO		Bond performance - vacuum/pressure test		Visual evaluation of wood fiber failure after vacuum/pressure pre-treatment followed by shear testing
F1, F2			Bond performance - boiling test		Visual evaluation of wood fiber failure after boiling pre-treatment followed by shear testing

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F1, F2	Mechanical [FO]	Plywood	Bond performance - heat performance test	United States Department of Commerce Product Standard PS-1 (Sections 5.7, 5.8.6, 5.8.7, 5.9, 5.10, 5.11, and 6.0)	Visual evaluation of adhesive bond performance after exposure to open flame
F1, F2			Moisture content		Oven-dry moisture content
F1, F2			Scarf and finger joint strength		Universal test machine - Tension
F1, F2			Scarf joint bond performance		Visual evaluation of scarf joint wood fiber failure after vacuum/pressure and boiling pre-treatments followed by shear testing
F1, F2			Finger joint bond performance		Visual evaluation of finger joint bond performance using a wedge or chisel after vacuum/ pressure and boiling pre-treatments
F1, F2			Concentrated static load		QL2 machine
F1, F2			Concentrated impact load		
F1, F2			Uniform load		Uniform load machine
F1, F2			Large panel bending stiffness and strength		QL3 Machine - Midordinate Deflection
F1, F2			Planar shear strength loaded by plates		Universal test machine - Compression loaded by plates
F1, F2			Planar shear strength loaded by five-point bending		Universal test machine - Compression loaded by 5-point bend
F1, F2			Shear through the thickness strength		Universal test machine - Compression by two rail shear
F1, F2			Racking load (dry)		Racking load apparatus
F1, F2	Dimensional [FO]	Plywood / Wood-Based Panel Products	Panel dimensions (length, and width)	United States Department of Commerce Product Standard PS-2 (Sections 5.3, 5.4, 6.0, and 7.0)	Tape measure
F1, F2			Panel thickness		Micrometer
F1, F2			Panel squareness		Tape measure
F1, F2			Panel grade/appearance		Visual evaluation
F1, F2			Panel straightness		Straight edge
F1, F2	Mechanical [FO]		Concentrated static load		QL2 machine
F1, F2			Concentrated impact load		
F1, F2			Uniform load		Uniform load machine
F1, F2			Racking load (dry)		Racking load apparatus

Certificate of Accreditation: Supplement

Benchmark Holdings, LLC
2710 West 5th Avenue, Eugene, OR 97402
Contact Name: Mr. Chris Battin Phone: 541-484-9212

Accreditation is granted to the facility to perform the following testing:

FLEX CODE	FIELD OF TEST	ITEMS, MATERIALS, OR PRODUCTS TESTED	COMPONENT, CHARACTERISTIC, PARAMETER TESTED	SPECIFICATION OR STANDARD METHOD	TECHNOLOGY OR TECHNIQUE USED
F1, F2	Mechanical [FO]	Plywood / Wood-Based Panel Products	Fastener-holding resistance test - lateral load	United States Department of Commerce Product Standard PS-2 (Sections 5.3, 5.4, 6.0, and 7.0)	Universal test machine - withdrawal by lateral tension load
F1, F2			Fastener-holding resistance test - Direct withdrawal load		Universal test machine - withdrawal by direct tension load
F1, F2			Large panel bending stiffness and strength		QL3 Machine - Midordinate Deflection
F1, F2			Small static bending test for OSB		Universal test machine - Compression
F1, F2			Small static bending test for composites and mat-formed panels		
F1, F2			Linear expansion from oven-dry to vacuum/pressure soak		Determination of linear expansion using dial gage comparator after pre-conditioning at 103 ± 2 deg C followed by vacuum/pressure treatment
F1, F2			Linear expansion from 50% relative humidity to vacuum/pressure soak		Determination of linear expansion using dial gage comparator after pre-conditioning at 103 ± 2 deg C followed by conditioning at 21 ± 6 deg C; 50 ± 5% relative humidity
F1, F2			Linear expansion and thickness swell after exposure to relative humidity		Determination of linear expansion and thickness swelling after exposure from 50% to 90% relative humidity
F1, F2			Moisture content		Oven-dry moisture content
F1, F2			Probe test for delamination		Visual evaluation by probe
F1, F2			Adhesive mold test - plywood		Bond performance strength retention after exposure to mold (not applicable to panels made using phenolic resins)
F1, F2			Adhesive mold test - OSB, mat-formed panels, and composite panels		Small static bending strength retention after exposure to mold (not applicable to panels made using phenolic resins)
F1, F2			Adhesive bacteria test - plywood		Bond performance strength retention after exposure to bacteria (not applicable to panels made using phenolic resins)
F1, F2			Adhesive bacteria test - OSB, mat-formed panels, and composite panels		Small static bending strength retention after exposure to bacteria (not applicable to panels made using phenolic resins)

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F1, F2	Mechanical [FO]	Plywood / Wood-Based Panel Products	Moisture cycle test for bond performance (single cycle test)	United States Department of Commerce Product Standard PS-2 (Sections 5.3, 5.4, 6.0, and 7.0)	Vacuum/pressure pre-treatment followed by oven drying (single cycle) and bond performance testing
F1, F2			Moisture cycle test for delamination and strength retention (six-cycle test)		Vacuum/pressure pre-treatment followed by oven drying (six cycle) and bond performance or strength retention testing
F1, F2			Bond performance test for plywood with knots and knotholes		QL2 machine
F1, F2			Radial probe test		Pre-treatment (either 72-hour water spray, 72-hour water soak, or vacuum/pressure treatment) followed by visual evaluation with probe
F1, F2			Deadweight bending stiffness		Static weight bending stiffness apparatus Deflection measuring device
F1, F2	Environmental, Chemical [FO]	Plywood / Medium Density Fiberboard (MDF) / Thin-Medium Density Fiberboard (Thin-MDF) / Particleboard (PB) / Laminated Products	Formaldehyde emissions	40 CFR Part 770: U.S. EPA Toxic Substances Control Act (TSCA) Title VI: Formaldehyde Emission Standards for Composite Wood Products	Formaldehyde emissions sampling and analysis according to ASTM E1333, ASTM D6007, ASTM D5582 and/or other referenced test methods
F1, F2	Environmental, Chemical [F]	Plywood / Wood-Based Panel Products / Laminated Products / Other furniture and building products	Formaldehyde and other carbonyl compounds	ASTM D5197	Air sampling at a rate of 0.5 to 1.50 L/minute following by analysis using Ultra-High Performance Liquid Chromatography (UHPLC)
F1, F2	Environmental, Chemical [FO]	Plywood / Wood-Based Panel Products / Laminated products / Wood	Formaldehyde emissions	ASTM D5582	Air sampling by desiccator followed by chromotropic acid analysis

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F1, F2	Environmental, Chemical [FO]	Plywood / Wood-Based Panel Products / Laminated products / Wood	Formaldehyde emissions	ASTM D6007	Air sampling using a small chamber with a volume of 0.02 to 1m^3 followed by either chromotropic acid analysis or UHPLC analysis according to ASTM D5197
F1, F2				ASTM E1333	Air sampling using a large chamber with a volume of at least 22m^3 followed by either chromotropic acid analysis or UHPLC analysis according to ASTM D5197
F1, F2		Plywood / Medium Density Fiberboard (MDF) / Thin-Medium Density Fiberboard (Thin-MDF) / Particleboard (PB) / Laminated Products		Canada Formaldehyde Emissions from Composite Wood Products Regulations (SOR/2021-148) and Testing Directive	Formaldehyde emissions sampling and analysis according to ASTM E1333, ASTM D6007, ASTM D5582 and/or other referenced test methods

1. The presence of a superscript F means that the laboratory performs testing of the indicated parameter at its fixed location.

2. The presence of a superscript O means that the laboratory performs testing of the indicated parameter onsite at customer locations.

3. Flex Code:
F0-Fixed scope item. No deviations allowed to the line item as identified, except for updating to the most recent version of an accredited standard method after verification
F1-Laboratory has the capability to test a new item, material, matrix, or product similar in composition to item, material, matrix, or product identified on the scope
F2-Laboratory has the capability to introduce the newest revision of an accredited authoritative standard method (with no modifications) identified on the scope
F3-Laboratory has the capability to introduce a parameter/component/analyte to an accredited test method identified on the scope
F4-Laboratory has the capability to introduce a new revision of an accredited non-standard method using the same technology or technique identified on the scope
F5-Laboratory has the capability to introduce a validated method that is equivalent to an accredited method (using same technology or technique) identified on the scope