

CBI Listing



CL 2302-41

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Subject to Renewal: July 1, 2024

Trade Secret Owner

OX Engineered Products, LLC

Website: oxengineeredproducts.com

Telephone: 800-345-8881

DIVISION: 06 00 00 - WOOD, PLASTICS AND COMPOSITES

DIVISION: 07 00 00 - THERMAL AND MOISTURE PROTECTION

SECTION: 06 12 00 - Structural Panels

SECTION: 07 21 00 - Thermal Insulation

SECTION: 06 12 19 - Shear Wall Panels

SECTION: 07 25 00 - Water-Resistive Barriers/Weather Barriers

SECTION: 06 16 00 - Sheathing

SECTION: 07 27 00 - Air Barriers

1 Listed OX Sheathing Products^{1,2}

1.1 OX Sheathing Products - Allowable Holes

1.1.1 The OX Sheathing Products evaluated in this Listing are shown in Figure 1.

1.1.1.1 This listing applies to the following products:

1.1.1.1.1 Thermo-Ply® Red and Thermo-Ply® Red AMG

1.1.1.1.2 Thermo-Ply® Blue and Thermo-Ply® Blue AMG

1.1.1.1.3 OX-IS® and OX-IS® HD

1.1.1.1.4 SI-Strong

1.1.1.1.5 Strong-R®

1.1.1.2 Throughout this listing, these products are collectively referred to as OX Sheathing Products.

¹ For more information, visit cbitest.com or call us at 608-310-6739.

² **Federal Regulation Definition.** 24 CFR 3280.2 "Listed or certified" means included in a list published by a nationally recognized testing laboratory, inspection agency, or other organization concerned with product evaluation that maintains periodic inspection of production of listed equipment or materials, and whose listing states either that the equipment or material meets nationally recognized standards or has been tested and found suitable for use in a specified manner. **International Building Code (IBC) Definition of Listed.** Equipment, materials, products or services included in a list published by an organization acceptable to the building official and concerned with evaluation of products or services that maintains periodic inspection of production of listed equipment or materials or periodic evaluation of services and whose Listing states either that the equipment, material, product or service meets identified standards or has been tested and found suitable for a specified purpose. **IBC Definition of Labeled.** Equipment, materials or products to which has been affixed a label, seal, symbol or other identifying mark of a nationally recognized testing laboratory, approved agency or other organization concerned with product evaluation that maintains periodic inspection of the production of the above-labeled items and whose labeling indicates either that the equipment, material or product meets identified standards or has been tested and found suitable for a specified purpose.

1.2 The OX Sheathing Products evaluated in this Listing are shown in Figure 1.



Figure 1. OX Sheathing Products

1.3 OX Sheathing Products description:

Table 1. Product Information

Product	Description
OX Sheathing Products	Structural Sheathing composed of pressure-laminated plies consisting of high-strength cellulosic fibers placed in proprietary orientation(s) to provide a given set of strength properties. These fibers are specially treated to be water resistant and are bonded with a proprietary water-resistive adhesive. A protective polymer layer is applied on both sides of the panel, and foil facings may be additionally applied on one or both faces. Insulated sheathing product have a polyiso foam sheathing adhered to the structural sheathing component.

2 Scope of Listing^{3,4}

2.1 OX Sheathing Products have been tested and/or evaluated in accordance with the following Standards and Referenced Documents for use as specified herein:

- 2.1.1 *ANSI/AWC SDPWS: Special Design Provisions for Wind and Seismic*
- 2.1.2 *ASCE/SEI 7: Minimum Design Loads and Associated Criteria for Buildings and Other Structures*
- 2.1.3 *ASTM D7989: Standard Practice for Demonstrating Equivalent In-Plane Lateral Seismic Performance to Wood-Frame Shear Walls Sheathed with Wood Structural Panels*
- 2.1.4 *ASTM E72: Standard Test Methods of Conducting Strength Tests of Panels for Building Construction*
- 2.1.5 *ASTM E84: Standard Test Method for Surface Burning Characteristics of Building Materials*
- 2.1.6 *ASTM E330: Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Static Air Pressure Difference*
- 2.1.7 *ASTM E331: Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Uniform Static Air Pressure Difference*
- 2.1.8 *ASTM E564: Standard Practice for Static Load Test for Shear Resistance of Framed Walls for Buildings*
- 2.1.9 *ASTM E2126: Standard Test Methods for Cyclic (Reversed) Load Test for Shear Resistance of Vertical Elements of the Lateral Force Resisting Systems for Buildings*

³ This Listing is a code defined research report, which is also known as a duly authenticated report, provided by an approved agency (see IBC Section 1703.1) and/or an approved source (see IBC Section 1703.4.2). An approved agency is “approved” as an approved agency when it is ANAB accredited (CBI and DrJ Engineering, LLC [DrJ] are listed in the ANAB directory). A professional engineer is “approved” as an approved source when that professional engineer is properly licensed to transact engineering commerce. Where sealed by a professional engineer, it is also a duly authenticated report certified by an approved source. (i.e., Registered Design Professional). CBI is an ANAB accredited laboratory and inspection body. DrJ is an ANAB accredited product certification body.

⁴ Unless otherwise noted, all references in this Listing are from the 2021 version of the codes and the standards referenced therein. This material, product, design, service and/or method of construction also complies with the 2000-2021 versions of the referenced codes and the standards referenced therein.



2.1.10 *ASTM E2178: Standard Test Method for Air Permeance of Building Materials*

2.1.11 *UL 723: Test for Surface Burning Characteristics of Building Materials*

3 Performance Evaluation

- 3.1 Tests, testing, test reports, research reports, duly authenticated reports and related engineering evaluations are defined as intellectual property and/or trade secrets and protected by Defend Trade Secrets Act 2018 (DTSA).⁵
- 3.2 Testing and/or inspections conducted for this Listing were performed by CBI, an ISO/IEC 17025 accredited testing laboratory⁶ and ISO/IEC 17020 accredited inspection body,⁷ which are internationally recognized accreditations through International Accreditation Forum (IAF).
- 3.3 Independent testing and/or inspections conducted for this Listing were performed by an ISO/IEC 17025 accredited testing laboratory, ISO/IEC 17020 accredited inspection body, and/or a licensed Registered Design Professional (RDP).
- 3.4 Small penetrations for utilities are permitted in OX Sheathing Products without the need for additional blocking when confined to the following limits:
 - 3.4.1 Individual penetrations of OX Sheathing Products shall not exceed 16 square inches in area.
 - 3.4.2 Total penetrations shall not exceed 100 square inches in 100 square feet of wall area.
 - 3.4.3 No more than two (2) penetrations are permitted in a single framing cavity.
 - 3.4.4 Penetrations exceeding the limits of this section require the use of additional blocking around the penetrations as permitted in sections 3.5 through 3.10.
- 3.5 Up to five holes can be placed in one 4-foot by 8-foot (4x8) panel as depicted in Figure 2, with no effect on the performance of OX Sheathing Products. Not all of the hole locations are required to be used.

⁵ <https://www.law.cornell.edu/uscode/text/18/part-11/chapter-90>. Given our professional duty to inform, please be aware that whoever, with intent to convert a trade secret (TS), that is related to a product or service used in or intended for use in interstate or foreign commerce, to the economic benefit of anyone other than the owner thereof, and intending or knowing that the offense will, injure any owner of that trade secret, knowingly without authorization copies, duplicates, sketches, draws, photographs, downloads, uploads, alters, destroys, photocopies, replicates, transmits, delivers, sends, mails, communicates, or conveys such information; shall be fined under this title or imprisoned not more than 10 years, or both. Any organization that commits any offense described in subsection (a) shall be fined not more than the greater of \$5,000,000 or 3 times the value of the stolen trade secret to the organization, including expenses for research and design and other costs of reproducing the trade secret that the organization has thereby avoided. The federal government and each state have a public records act. As the National Society of Professional Engineers states, "Engineers shall not disclose, without consent, confidential information concerning the business affairs or technical processes of any present or former client or employer, or public body on which they serve." Therefore, to protect intellectual property (IP) and TS, and to achieve compliance with public records and trade secret legislation, requires approval through the use of Listings, certified reports, technical evaluation reports, duly authenticated reports and/or research reports prepared by approved agencies and/or approved sources. For more information, please review this website: Intellectual Property and Trade Secrets.

⁶ Internationally recognized accreditations are performed by members of the International Accreditation Forum (IAF). Accreditation Body and Regional Accreditation Group Members of IAF are admitted to the IAF MLA only after a stringent evaluation of their operations by a peer evaluation team, which is charged to ensure that the applicant complies fully with both international standards and IAF requirements. Once an accreditation body is a signatory of the IAF MLA, it is required to recognize certificates and validation and verification statements issued by conformity assessment bodies accredited by all other signatories of the IAF MLA, with the appropriate scope.

⁷ Ibid.

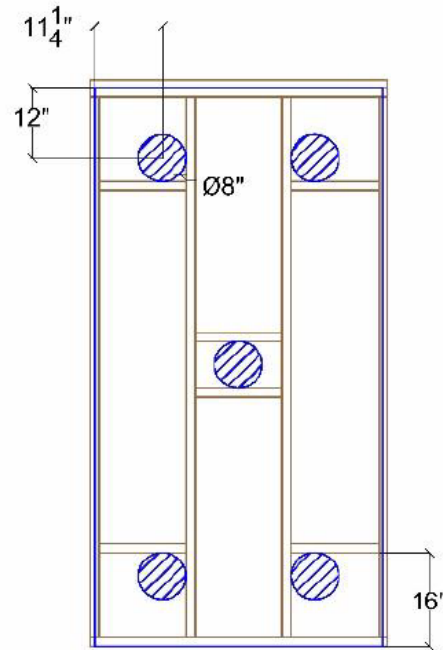


Figure 2. Small Round Hole Placement Map

- 3.5.1 The maximum diameter of each hole is 8 inches. Holes of lesser diameter are allowed.
- 3.5.2 For each hole cut into the 4x8 panel the:
 - 3.5.2.1 Specific edge distance depicted in Figure 2 shall be maintained.
 - 3.5.2.2 Blocking located and as depicted in Figure 2 shall be provided.
 - 3.5.2.3 Blocking shall be connected to existing studs using two (2) 10d gun nails at each end of the blocking.
 - 3.5.2.4 OX Sheathing Products shall be attached to all framing members, including the blocking using staples 3-inches on center per the manufacturer installation instructions.
- 3.5.3 One (1) 8-inch diameter hole can be placed anywhere in a 4x8 foot panel as long as the edge and end distances are maintained as a minimum and blocking is installed on both sides of the hole in a manner similar to the center hole in Figure 2.

3.6 Up to Five rectangular holes can be placed as depicted in Figure 3, with no effect on the performance of OX Sheathing Products when installed in accordance with the manufacturer installation instructions.

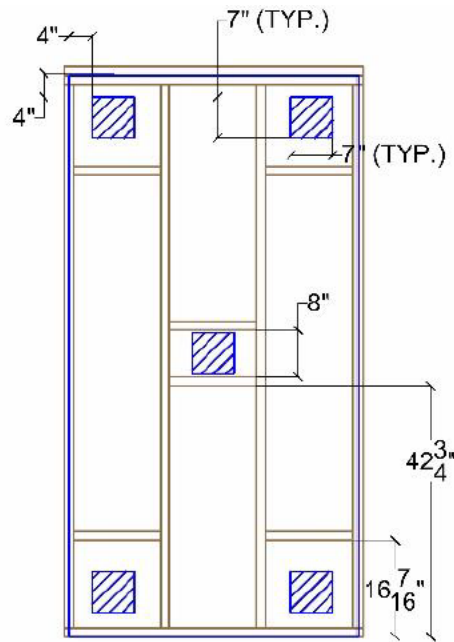


Figure 3. Small Square Hole Placement Map

- 3.6.1 The maximum dimension of each side of each hole is seven (7) inches. Holes of lesser dimension are allowed. Blocking at the center hole (7"x7" maximum) shall be no more than 8" apart. Holes located at the corners shall be a minimum of 4" from the panel edges.
- 3.6.2 For each hole cut into the 4x8 panel the:
 - 3.6.2.1 Specific edge distance depicted in Figure 3 shall be maintained.
 - 3.6.2.2 Blocking located and as depicted in Figure 3 shall be provided.
 - 3.6.2.3 Blocking shall be connected to existing studs using two (2) 10d gun nails at each end of the blocking.
 - 3.6.2.4 OX Sheathing Products shall be attached to the blocking using staples three (3) inches on center per the manufacturer installation instructions.
- 3.6.3 One (1) 4 inch dimension square hole can be placed anywhere in a 4x8 foot panel as long as the edge and end distances are maintained and blocking is installed on both sides of the hole in a manner similar to the center hole in Figure 2.

- 3.7 One 14½ inch by 32” square hole can be placed as depicted in Figure 4, with no effect on the performance of OX Sheathing Products when installed in accordance with the manufacturer installation instructions.

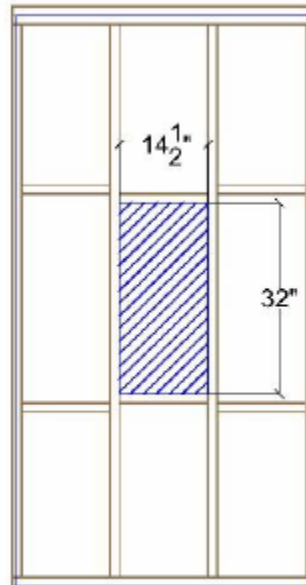


Figure 4. Large Central Rectangular Hole Placement Map

- 3.7.1 The maximum number of 14½ inch by 32” square hole square holes that can be placed in one 4x8 panel is one and needs to be located as defined in Figure 4.
- 3.7.2 Holes of lesser dimension are allowed.
- 3.7.3 For each hole cut into the 4x8 panel the:
- 3.7.3.1 Specific edge distance depicted in Figure 4 shall be maintained.
 - 3.7.3.2 Blocking located and as depicted in Figure 4 shall be provided.
 - 3.7.3.3 Blocking shall be connected to existing studs using two (2) 10d gun nails at each end of the blocking.
 - 3.7.3.4 OX Sheathing Products shall be attached to the blocking using staples 3 inches on center per OXEP installation instructions.

- 3.8 One 11¼" by 32" square hole can be placed as depicted in Figure 5, with no effect on the performance of OX Sheathing Products when installed in accordance with the manufacturer installation instructions.

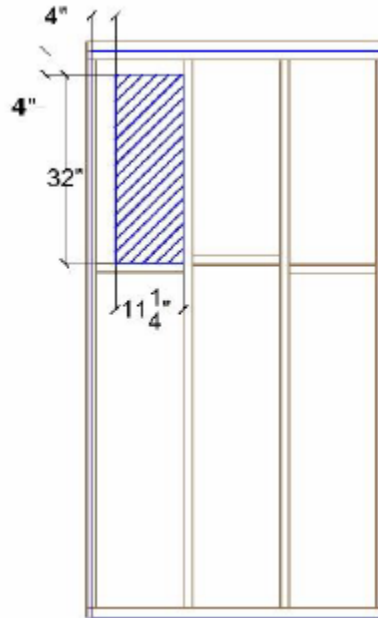


Figure 5. Large Offset Rectangular Hole Placement Map

- 3.8.1 The maximum number of 11¼ inch by 32" square holes that can be placed on one 4x8 panel is one and needs to be located as defined in Figure 3.
- 3.8.2 An 11¼ inch by 32" square hole can be installed in any one of the three bays along the top of the 4x8 panel.
- 3.8.3 Holes of lesser dimension are allowed.
- 3.8.4 For each hole cut into the 4x8 panel the:
- 3.8.4.1 Specific edge distance depicted in Figure 5 shall be maintained.
 - 3.8.4.2 Blocking located and as depicted in Figure 5 shall be provided.
 - 3.8.4.3 Blocking shall be connected to existing studs using two (2) 10d gun nails at each end of the blocking.
 - 3.8.4.4 OX Sheathing Products shall be attached to the blocking using staples 3 inches on center per the manufacturer installation instructions.
- 3.9 Up to five (5) 4-inch diameter holes can be cut into any 4x8 panel without the need for blocking provided that each hole is no closer than:
- 3.9.1 Twelve (12) inches from the edge of the 4x8 panel.
 - 3.9.2 Twelve (12) inches between two hole edges.



- 3.10 Holes larger than those indicated in Figure 2 through Figure 5 or in a Portal Frame require an evaluation by a registered design professional.
- 3.11 Any building code and/or accepted engineering evaluations (i.e., research reports, duly authenticated reports, etc.) that are conducted for this Listing were performed by DrJ Engineering, LLC (DrJ), an ISO/IEC 17065 accredited certification body and a professional engineering company operated by RDPs / approved sources. DrJ is qualified⁸ to practice product and code compliance services within its scope of accreditation and engineering expertise, respectively.

4 Installation

- 4.1 Installation shall comply with the manufacturer installation instructions, this Listing, the approved construction documents, and the applicable building code.
- 4.2 In the event of a conflict between the manufacturer installation instructions, this Listing, the approved construction documents and the applicable building code, the most restrictive shall govern.
- 4.3 *General*
 - 4.3.1 Installation should follow the instructions given in the respective TER/Listing of the OX Sheathing Product being used.
- 4.4 *Hole Installation/Repair*
 - 4.4.1 Any installation/repair of holes in the OX Sheathing Products should follow Figure 2 through Figure 5 to determine the allowed hole placement.
 - 4.4.2 Holes may be made in the OX Sheathing Products with various tools such as a knife, scissors, etc.
 - 4.4.2.1 Any holes made larger than the allowed sizes in Figure 2 through Figure 5 will result in performance characteristics to not be covered by this Listing.

5 Findings

- 5.1 As described in Section 3, OX Sheathing Products have performance characteristics that were tested and/or meet pertinent standards and is suitable for use pursuant to its specified purpose.
- 5.2 When used and installed in accordance with this Listing and the manufacturer installation instructions, OX Sheathing Products shall be approved for:
 - 5.2.1 Placement of holes as depicted herein.
- 5.3 Unless exempt by state statute, when OX Sheathing Products is to be used as a structural and/or building envelope component in the design of a specific building, the design shall be performed by an RDP.
- 5.4 Any application specific issues not addressed herein can be engineered by an RDP. Assistance with engineering is available from OX Engineered Products, LLC.
- 5.5 IBC Section 104.11 (IRC Section R104.11 and IFC Section 104.10⁹ are similar) in pertinent part states:

104.11 Alternative materials, design and methods of construction and equipment. The provisions of this code are not intended to prevent the installation of any material or to prohibit any design or method of construction not specifically prescribed by this code. Where the alternative material, design or method of construction is not approved, the building official shall respond in writing, stating the reasons the alternative was not approved.

⁸ Qualification is performed by a legislatively defined Accreditation Body. ANSI National Accreditation Board (ANAB) is the largest independent accreditation body in North America and provides services in more than 75 countries. CBI is an ANAB accredited laboratory and inspection body. DrJ is an ANAB accredited product certification body.

⁹ 2018 IFC Section 104.9



- 5.6 **Approved:**¹⁰ Building codes require that the building official shall accept duly authenticated reports¹¹ or research reports¹² from approved agencies and/or approved sources (i.e., licensed RDP) with respect to the quality and manner of use of new products, materials, designs, services, assemblies, or methods of construction.
- 5.6.1 Acceptability of an approved agency, by a building official, is performed by verifying that the agency is accredited by a recognized accreditation body of the International Accreditation Forum (IAF).
- 5.6.2 Acceptability of a licensed RDP by a building official is performed by verifying that the RDP and/or their business entity is listed by the licensing board of the relevant jurisdiction.
- 5.7 CBI is an approved agency through its ISO/IEC 17025 testing and an ISO/IEC 17020 inspection accreditation. CBI employs RDPs and is accredited by ANAB.¹³
- 5.8 Through ANAB accreditation and the IAF Multilateral Agreements, this Listing can be used to obtain innovative product approval in any jurisdiction or country that has IAF MLA Members and Signatories to meet the Purpose of the MLA – “*certified once, accepted everywhere.*” IAF specifically says, “*Once an accreditation body is a signatory of the IAF MLA, it is required to recognise certificates and validation and verification statements issued by conformity assessment bodies accredited by all other signatories of the IAF MLA, with the appropriate scope.*”¹⁴

6 Conditions of Use

- 6.1 Performance characteristics are specified in Section 3.
- 6.2 As defined in Section 3, where material or engineering mechanics properties are created for load resisting design purposes, the resistance to the applied load shall not exceed the ability of the defined properties to resist those loads using the principles of accepted engineering practice.
- 6.3 As listed herein, OX Sheathing Products shall not be used:
- 6.3.1 As a nailing base for claddings, trim, windows, and doors.
- 6.3.2 To resist horizontal loads from concrete and masonry walls.
- 6.4 When required by adopted legislation and enforced by the building official (AHJ)¹⁵ in which the project is to be constructed:
- 6.4.1 This Listing and the installation instructions shall be submitted at the time of permit application.
- 6.4.2 Any calculations incorporated into the construction documents shall conform to accepted engineering practice and, when prepared by an approved source, shall be approved when signed and sealed.
- 6.4.3 These OX Sheathing Products have an internal quality control program and a third-party quality assurance program.
- 6.4.4 At a minimum, these OX Sheathing Products shall be installed per Section 4 of this Listing.
- 6.5 The approval of this Listing by the AHJ shall comply with IBC Section 1707.1, where legislation states in pertinent part, “*the building official shall accept duly authenticated reports from approved agencies in respect to the quality and manner of use of new materials or assemblies as provided for in Section 104.11*”, all of IBC Section 104, and IBC Section 105.4.

¹⁰ Approved is an adjective that modifies the noun after it. For example, Approved Agency means that the Agency is accepted officially as being suitable in a particular situation. This example conforms to IBC/IRC/IFC Section 201.4 where the building code authorizes sentences to have an ordinarily accepted meaning such as the context implies.

¹¹ <https://up.codes/viewer/wyoming/ibc-2021/chapter/17/special-inspections-and-tests#1707.1>

¹² <https://up.codes/viewer/wyoming/ibc-2021/chapter/17/special-inspections-and-tests#1703.4.2>

¹³ Please see the ANAB directories and search for Center for Building Innovation - <https://anab.ansi.org/laboratory-accreditation> and <https://anab.ansi.org/inspection-body-accreditation>

¹⁴ <https://iaf.nu/en/about-iaf-mla/#:~:text=required%20to%20recognise>

¹⁵ Also known as the Authority Having Jurisdiction (AHJ)



- 6.6 These OX Sheathing Products have an internal quality control program and a third party quality assurance program in accordance with [IBC Section 104.4](#), [IBC Section 110.4](#), [IBC Section 1703](#), [IRC Section R104.4](#), and [IRC Section R109.2](#).
- 6.7 The application of these OX Sheathing Products, in the context of this Listing, are dependent upon the accuracy of the construction documents, implementation of installation instructions, inspection as required by [IBC Section 110.3](#), [IRC Section R109.2](#), and any other regulatory requirements that may apply.
- 6.8 The actual design, suitability, and use of this Listing for any particular building is the responsibility of the owner or the owner's authorized agent.
- 6.9 Any required design loads shall be provided by the building designer (i.e., owner or RDP) and/or determined in accordance with the building code adopted by the jurisdiction in which the project is to be constructed.
- 6.10 Information contained herein may include the result of testing and/or data analysis by sources that are [approved agencies](#) (i.e., ANAB accredited agencies), [approved sources](#) (i.e., RDPs), and/or [professional engineering regulations](#). Accuracy of external test data and resulting analysis is relied upon.
- 6.11 Where pertinent, testing and/or engineering analysis is based upon state or local code and/or standard provisions that have been codified into law through legislation. The developers of the codes and standards are legally responsible for the accuracy of any legislatively adopted material properties and/or analytical methods. Any testing and/or engineering mechanics-based analysis may use legislatively and/or code adopted provisions as the control condition. The use of a control condition to compare to a test condition establishes [equivalency](#) to that prescribed in the adopted legislation with respect to quality, [strength](#), effectiveness, [fire resistance](#), durability, and safety.
- 6.12 The reliability of the attributes provided herein may be dependent upon published design properties by others. These properties are defined by the grade mark, grade stamp, mill certificate, [Listings](#), [certified reports](#), [duly authenticated reports](#), and/or [research reports](#) prepared by [approved agencies](#) and/or [approved sources](#) furnished by suppliers of products, materials, designs, assemblies, and/or methods of construction. These are presumed to be minimum properties and relied upon to be accurate.
- 6.13 Testing and engineering analysis: The strength, rigidity and/or general performance of component parts and/or the integrated structure are determined by suitable tests that simulate the actual conditions of application that occur and/or by accepted engineering practice and experience.¹⁶
- 6.14 Where additional condition of use and/or code compliance information is required, please search for OX Sheathing Products on the [DrJ Engineering](#) website.

7 Identification

- 7.1 Labeling^{17,18} shall include, but not be limited to, the manufacturer name, manufacturing location/identifier, and the CBI Listing number.
- 7.2 Labeling may include, but not be limited to, the CBI mark and any other numerical designations related to layout locations for a given project.

¹⁶ See Code of Federal Regulations (CFR) [Title 24 Subtitle B Chapter XX Part 3280](#) for definition.

¹⁷ **LABEL:** An identification applied on a product by the manufacturer that contains the name of the manufacturer, the function and performance characteristics of the product or material and the name and identification of an [approved agency](#), and that indicates that the representative sample of the product or material has been tested and evaluated by an [approved agency](#) (see [IBC Section 1703.5](#), "[Manufacturer designation](#)" and "Mark").

¹⁸ **LABELED:** Equipment, materials or products to which has been affixed a [label](#), seal, symbol or other identifying mark of a nationally recognized testing laboratory, [approved agency](#) or other organization concerned with product evaluation that maintains periodic inspection of the production of the above-[labeled](#) items and whose labeling indicates either that the equipment, material or product meets identified standards or has been tested and found suitable for a specified purpose.



8 Review Schedule

- 8.1 This Listing is subject to periodic review and revision. For the most recent version, visit cbitest.com.
- 8.2 For information on the status of this Listing, contact CBI.

9 Approved for Use Pursuant to US and International Legislation Defined in Appendix A

- 9.1 OX Sheathing Products are included in this [list](#) published by an [approved agency](#) concerned with evaluation of products or services that maintains periodic inspection of production of listed materials or periodic evaluation of services and whose Listing states either that the material, product, or service meets identified standards or has been tested and found suitable for a specified purpose. This Listing meets the legislative intent and definition of being acceptable to the AHJ.



Appendix A

1 Innovation Legislation that Mandates Approval by any AHJ

- 1.1 **Fair Competition:** Many state legislatures have adopted regulations for the examination and approval of both building codes referenced and alternative materials, products, designs, services, and/or methods of construction that:
 - 1.1.1 Advance innovation,
 - 1.1.2 Promote competition so all businesses have the opportunity to compete on price and quality in an open market on a level playing field unhampered by anticompetitive constraints, and
 - 1.1.3 Benefit consumers through lower prices, better quality, and greater choice.
- 1.2 **Adopted Legislation:** The following local, state, and federal regulations affirmatively authorize OX Sheathing Products to be found acceptable to AHJs, delegates of building departments, and/or delegates of an agency of the federal government:
 - 1.2.1 Interstate commerce is governed by the Federal Department of Justice to encourage the use of innovative materials, products, designs, services, and/or methods of construction. The goal is to “protect economic freedom and opportunity by promoting free and fair competition in the marketplace.”
 - 1.2.2 Title 18 US Code Section 242 affirms and regulates the right of individuals and businesses to freely and fairly have alternative to code-referenced materials, products, services, designs, and/or methods of construction approved for use in commerce. Disapproval of alternative to code applications shall be based upon specific provisions of adopted legislation and shall be provided in writing stating the reasons why the alternative was not approved with reference to legislation violated.
 - 1.2.3 The federal government and each state have a public records act. In addition, each state also has legislation that mimics the federal Defend Trade Secrets Act 2016 (DTSA),¹⁹ where providing test reports, engineering analysis and/or other related Intellectual Property (IP)/Trade Secrets (TS), is subject to prison of not more than 10 years²⁰ and/or a \$5,000,000 fine or 3 time the value of²¹ the IP and TS.
 - 1.2.3.1 Compliance with public records and trade secret legislation requires approval through the use of Listings, certified reports, duly authenticated reports from approved agencies, valid research reports prepared by approved agencies and/or approved sources, and/or Technical Evaluation Reports.
 - 1.2.4 For new materials that are not specifically provided for in any building code, the design strengths and permissible stresses shall be established by tests, where suitable load tests simulate the actual loads and conditions of application that occur.
 - 1.2.5 The design strengths and permissible stresses of any structural material....shall conform to the specifications and methods of design using accepted engineering practice....²²
 - 1.2.6 The commerce of approved sources (i.e., registered PEs) is regulated by professional engineering legislation. Professional engineering commerce shall always be approved by AHJs, except where there is evidence, provided in writing, that specific legislation has been violated by an individual registered PE.
 - 1.2.7 The AHJ shall accept duly authenticated reports from approved agencies in respect to the quality and manner of use of new materials or assemblies as provided for in IBC Section 104.11.²³

¹⁹ <http://www.drjengineering.org/AppendixC> and <https://www.drjcertification.org/cornell-2016-protection-trade-secrets>

²⁰ <https://www.law.cornell.edu/uscode/text/18/1832#:~:text=imprisoned%20not%20more%20than%2010%20years>

²¹ <https://www.law.cornell.edu/uscode/text/18/1832#:~:text=Any%20organization%20that,has%20thereby%20avoided>

²² [IBC 2021, Section 1706.1 Conformance to Standards](#)

²³ [IBC 2021, Section 1707 Alternative Test Procedure, 1707.1 General](#)



- 1.3 **Approval by Los Angeles:** The Los Angeles Municipal Code (LAMC) states in pertinent part that the provisions of LAMC are not intended to prevent the use of any material, device, or method of construction not specifically prescribed by LAMC. The Department shall use Part III, Recognized Standards in addition to Part II, Uniform Building Code Standards of Division 35, Article 1, Chapter IX of the LAMC in evaluation of products for approval where such standard exists for the product or the material and may use other approved standards which apply. Whenever tests or certificates of any material or fabricated assembly are required by Chapter IX of the LAMC, such tests or certification shall be made by a testing agency approved by the Superintendent of Building to conduct such tests or provide such certifications. The Superintendent of Building shall accept duly authenticated reports from approved agencies in respect to the quality and manner of use of new materials or assemblies as provided for in the California Building Code (CBC) Section 104.11. The testing agency shall publish the scope and limitation(s) of listed material or fabricated assembly.²⁴ The Superintendent of Building roster of approved testing agencies is provided by the Los Angeles Department of Building and Safety (LADBS).
- 1.4 **Approval by Chicago:** The Municipal Code of Chicago (MCC) states in pertinent part that an Approved Agency is a Nationally Recognized Testing Laboratory (NRTL) acting within its recognized scope and/or a certification body accredited by the American National Standards Institute (ANSI) acting within its accredited scope. Construction materials and test procedures shall conform to the applicable standards listed in the MCC. Sufficient technical data shall be submitted to the building official to substantiate the proposed use of any product, material, or assembly. Supporting technical data to assist in the approval of products, materials, or assemblies not specifically provided for in MCC, shall consist of valid research reports from approved sources (i.e., MCC defined Approved Agencies).
- 1.5 **Approval by New York City:** The NYC Building Code 2022 (NYCBC) states in pertinent part that an approved agency shall be deemed²⁵ an approved testing agency via ISO/IEC 17025 accreditation, an approved inspection agency via ISO/IEC 17020 accreditation, and an approved product evaluation agency via ISO/IEC 17065 accreditation. Accrediting agencies, other than federal agencies, must be members of an internationally recognized cooperation of laboratory and inspection accreditation bodies subject to a mutual recognition agreement²⁶ (i.e., ANAB, International Accreditation Forum (IAF), etc.).
- 1.6 **Approval by Florida:** Statewide approval of products, methods, or systems of construction shall be approved, without further evaluation, by 1) A certification mark or listing of an approved certification agency, 2) A test report from an approved testing laboratory, 3) A product evaluation report based upon testing or comparative or rational analysis, or a combination thereof, from an approved product evaluation entity; 4) A product evaluation report based upon testing or comparative or rational analysis, or a combination thereof, developed and signed and sealed by a professional engineer or architect, licensed in Florida. For local product approval, products or systems of construction shall demonstrate compliance with the structural wind load requirements of the Florida Building Code (FBC) through one of the following methods; 1) A certification mark, listing, or label from a commission-approved certification agency indicating that the product complies with the code; 2) A test report from a commission-approved testing laboratory indicating that the product tested complies with the code; 3) A product-evaluation report based upon testing, comparative or rational analysis, or a combination thereof, from a commission-approved product evaluation entity which indicates that the product evaluated complies with the code; 4) A product-evaluation report or certification based upon testing or comparative or rational analysis, or a combination thereof, developed and signed and sealed by a Florida professional engineer or Florida registered architect, which indicates that the product complies with the code; 5) A statewide product approval issued by the Florida Building Commission. The Florida Department of Business and Professional Regulation (DBPR) website provides a listing of companies certified as a Product Evaluation Agency (i.e., EVL13692), a Product Certification Agency (i.e., CER10642), and as a Florida Registered Engineer (i.e., ANE13741).

²⁴ Los Angeles Municipal Code, SEC. 98.0503. TESTING AGENCIES

²⁵ New York City, The Rules of the City of New York, § 101-07 Approved Agencies

²⁶ New York City, The Rules of the City of New York, § 101-07 Approved Agencies



- 1.7 **Approval by Miami Dade (i.e., Notice of Acceptance [NOA]):** A Florida statewide approval is an NOA. An NOA is a Florida local product approval. By Florida law, Miami Dade shall accept the statewide and local Florida Product Approval as provided for in Florida legislation [553.842](#) and [553.8425](#).
- 1.8 **Approval by New Jersey:** Pursuant to Building Code 2018 of New Jersey in [Section 1707.1 General](#)²⁷ says: *“In the absence of approved rules or other approved standards, ...the building official shall accept duly authenticated reports from [approved agencies](#) in respect to the quality and manner of use of new materials or assemblies as provided for in the administrative provisions of the [Uniform Construction Code \(N.J.A.C. 5:23\)](#)”*.²⁸ § 5:23-3.7 Municipal approvals of alternative materials, equipment, or methods of construction. (a) Approvals: Alternative materials, equipment, or methods of construction **shall be approved** by the appropriate subcode official provided the proposed design is satisfactory and that the materials, equipment, or methods of construction are suitable for the intended use and are at least the equivalent in quality, strength, effectiveness, fire resistance, durability and safety of those conforming with the requirements of the regulations. 1. A field evaluation label and report or letter issued by a nationally recognized testing laboratory verifying that the specific material, equipment, or method of construction meets the identified standards or has been tested and found to be suitable for the intended use, **shall be accepted** by the appropriate subcode official as meeting the requirements of (a) above. 2. Reports of engineering findings issued by nationally recognized evaluation service programs, such as, **but not limited to**, the Building Officials and Code Administrators (BOCA), the International Conference of Building Officials (ICBO), the Southern Building Code Congress International (SBCCI), the International Code Council (ICC), and the National Evaluation Service, Inc., **shall be accepted** by the appropriate subcode official as meeting the requirements of (a) above. The [New Jersey Department of Community Affairs](#) has confirmed that reports of engineering findings from any accredited entity listed by [ANAB](#) meets the requirements of item 2 given the listed entities no longer exist.
- 1.9 **Code of Federal Regulations Manufactured Home Construction and Safety Standards Approval:** Pursuant to Title 24, Subtitle B, Chapter XX, [Part 3282](#)²⁹ and [Part 3280](#)³⁰, *“the Department encourages innovation and the use of new technology in manufactured homes”* and the design and construction of a manufactured home shall conform to the provisions of this standard where key approval provisions in mandatory language follow; *“All construction methods shall be in conformance with accepted engineering practices”*, *“the strength and rigidity of the component parts and/or the integrated structure shall be determined by engineering analysis or by suitable load tests to simulate the actual loads and conditions of application that occur”*, and *“the design stresses of all materials shall conform to accepted engineering practice”*.
- 1.10 **Other US Local and State Approval Processes:** In all other local and state jurisdictions, the adopted building code legislation states in pertinent part that:
 - 1.10.1 For [new materials](#) that are not specifically provided for in this code, the [design strengths and permissible stresses](#) shall be established by tests.³¹
 - 1.10.2 For [innovative alternative products, materials, designs, services and/or methods of construction](#), in the absence of approved rules or other approved standards...the building official shall accept [duly authenticated reports](#) (i.e., listing and/or research report) from [approved agencies](#) with respect to the quality and manner of use of [new materials or assemblies](#).³² A building official [approved agency](#) is deemed to be approved via certification from an [accreditation body](#) that is listed by the [International Accreditation Forum](#),³³ or the equivalent.

²⁷ https://up.codes/viewer/new_jersey/lbc-2018/chapter/17/special-inspections-and-tests#1707.1

²⁸ <https://www.nj.gov/dca/divisions/codes/codreg/ucc.html>

²⁹ <https://www.ecfr.gov/current/title-24/subtitle-B/chapter-XX/part-3282/subpart-A/section-3282.14>

³⁰ <https://www.ecfr.gov/current/title-24/subtitle-B/chapter-XX/part-3280>

³¹ [IBC 2021, Section 1706 Design Strengths of Materials, 1706.2 New Materials](#). Adopted law pursuant to IBC model code language 1706.2.

³² [IBC 2021, Section 1707 Alternative Test Procedure, 1707.1 General](#). Adopted law pursuant to IBC model code language 1707.1.

³³ Please see the [ANAB directory](#) for building official approved agencies.



- 1.10.3 The design strengths and permissible stresses of any structural material...shall conform to the specifications and methods of design of accepted engineering practice performed by an approved source.³⁴ An approved source is defined as a PE subject to professional engineering laws, where a research and/or a technical evaluation report, certified by a PE, shall be approved.
- 1.11 **International Approval Process:** The USMCA and GATT agreements provide for approval of innovative materials, products, designs, services, and/or methods of construction through the Technical Barriers to Trade agreements and the International Accreditation Forum (IAF) Multilateral Recognition Arrangement (MLA), where these agreements state in pertinent part:
- 1.11.1 Permit participation of conformity assessment bodies located in the territories of other Members under conditions no less favourable than those accorded to bodies located within their territory or the territory of any other country.
- 1.11.2 Conformity assessment procedures (i.e., ISO/IEC 17020, 17025, 17065, etc.) are prepared, adopted, and applied so as to grant access for suppliers of like products originating in the territories of other Members under conditions no less favourable than those accorded to suppliers of like products of national origin or originating in any other country, in a comparable situation.
- 1.11.3 Conformity assessment procedures are not prepared, adopted, or applied with a view to or with the effect of creating unnecessary obstacles to international trade. This means that conformity assessment procedures shall not be more strict or be applied more strictly than is necessary to give the importing Member adequate confidence that products conform to the applicable technical regulations or standards.
- 1.11.4 **International Approval:** The purpose of the IAF MLA is to ensure mutual recognition of accredited certification and validation/verification statements between signatories to the MLA, and subsequently acceptance of accredited certification and validation/verification statements in many markets based on one accreditation for the timely approval of innovative materials, products, designs, services, and/or methods of construction. Accreditations granted by IAF MLA signatories are recognized worldwide based on their equivalent accreditation programs, therefore reducing costs and adding value to businesses and consumers.

³⁴ IBC 2021, Section 1706 Design Strengths of Materials, 1706.1 Conformance to Standards Adopted law pursuant to IBC model code language 1706.1.