



Listing and Technical Evaluation Report™

A Duly Authenticated Report from an Approved Agency

Report No: 0804-01



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Subject to Renewal: April 1, 2026

OX-IS®, OX-IS® HS and SI-Strong Structural Insulation

Trade Secret Report Holder:

Amrize Building Envelope, LLC

Phone: 800-345-8881 Website: www.oxengineeredproducts.com

CSI Designations:

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 Innovative Products Evaluated1

- 1.1 OX-IS Structural Insulation
- 1.2 OX-IS HS (High Shear) Structural Insulation
- 1.3 SI-Strong Structural Insulation

2 Product Description and Materials

2.1 The innovative products evaluated in this report are shown in Figure 1, Figure 2, and Figure 3.



Figure 1. OX-IS Logo





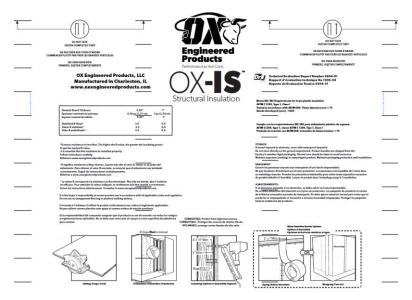


Figure 2. OX-IS and OX-IS HS Structural Insulation Product Labels



Figure 3. SI-Strong Structural Insulation Product Label

- 2.2 OX-IS and SI-Strong are structural, rigid insulating sheathing products consisting of a proprietary fibrous sheathing board laminated to one side of a proprietary rigid foam plastic insulation sheathing.
 - 2.2.1 The proprietary fibrous sheathing is made of specially treated plies that are pressure-laminated with a water resistant adhesive. The surface finish consists of a facer on one or both sides, using either a 0.113" (2.9 mm) nominal thickness fibrous sheathing board attached to 0.50" foam (12.7 mm) or a 0.135" (3.4 mm) nominal thickness fibrous sheathing board attached to 1.0" (25.4 mm) or greater foam.
 - 2.2.2 The rigid foam plastic insulation sheathing is a proprietary Polyisocyanurate (polyiso) insulation sheathing, which may have facings on one or both sides.





- 2.3 OX-IS HS is a structural, rigid insulating sheathing product consisting of a proprietary fibrous sheathing board laminated to one side of a proprietary rigid foam plastic insulation.
 - 2.3.1 The proprietary fibrous sheathing is made of specially treated plies that are pressure-laminated with a water resistant adhesive. The surface finish consists of a facer on one or both sides, using a 0.135" (3.4 mm) nominal thickness fibrous sheathing board attached to 0.50" (12.7 mm) foam.
 - 2.3.2 The rigid foam plastic insulation sheathing is a proprietary polyiso insulation sheathing, which may have facings on one or both sides.
- 2.4 Material Availability
 - 2.4.1 Thickness:
 - 2.4.1.1 0.50" (12.7 mm) to 1.7" (43 mm)
 - 2.4.2 Standard Product Width:
 - 2.4.2.1 48" (1,219 mm)
 - 2.4.3 Standard Lengths:
 - 2.4.3.1 96" (2,438 mm)
 - 2.4.3.2 108" (2,743 mm)
 - 2.4.3.3 120" (3,048 mm)
- 2.5 As needed, review material properties for design in **Section 6** and to regulatory evaluation in **Section 8**.

3 Definitions

- 3.1 New Materials² are defined as building materials, equipment, appliances, systems, or methods of construction not provided for by prescriptive and/or legislatively adopted regulations, known as alternative materials.³ The design strengths and permissible stresses shall be established by tests⁴ and/or engineering analysis.⁵
- 3.2 <u>Duly Authenticated Reports</u>⁶ and <u>Research Reports</u>⁷ are test reports and related engineering evaluations, which are written by an <u>approved agency</u>⁸ and/or an <u>approved source</u>.⁹
 - 3.2.1 These reports contain intellectual property and/or trade secrets, which are protected by the <u>Defend Trade</u> Secrets Act (DTSA).¹⁰
- 3.3 An <u>approved agency</u> is "approved" when it is <u>ANAB ISO/IEC 17065 accredited</u>. DrJ Engineering, LLC (DrJ) is listed in the <u>ANAB directory</u>.
- 3.4 An <u>approved source</u> is "approved" when a professional engineer (i.e., <u>Registered Design Professional</u>) is properly licensed to transact engineering commerce. The regulatory authority governing approved sources is the <u>state legislature</u> via its professional engineering regulations.¹¹
- 3.5 Testing and/or inspections conducted for this <u>Duly Authenticated Report</u> were performed by an <u>ISO/IEC 17025</u> accredited testing laboratory, an <u>ISO/IEC 17020</u> accredited inspection body, and/or a licensed <u>Registered Design Professional (RDP)</u>.
 - 3.5.1 The Center for Building Innovation (CBI) is ANAB12 ISO/IEC 17025 and ISO/IEC 17020 accredited.
- 3.6 The regulatory authority shall enforce 13 the specific provisions of each legislatively adopted regulation. If there is a non-conformance, the specific regulatory section and language of the non-conformance shall be provided in writing 14 stating the nonconformance and the path to its cure.
- 3.7 The regulatory authority shall accept <u>Duly Authenticated Reports</u> from an <u>approved agency</u> and/or an <u>approved source</u> with respect to the quality and manner of use of new materials or assemblies as provided for in regulations regarding the use of alternative materials, designs, or methods of construction.¹⁵





- 3.8 ANAB is an International Accreditation Forum (IAF) Multilateral Recognition Arrangement (MLA) signatory where recognition of certificates, validation, and verification statements issued by conformity assessment bodies accredited by all other signatories of the IAF MLA with the appropriate scope, shall be approved.

 Therefore, all ANAB ISO/IEC 17065 Duly Authenticated Reports are approval equivalent.

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- 3.9 Approval equity is a fundamental commercial and legal principle. 18

4 Applicable Standards for the Listing; Regulations for the Regulatory Evaluation 19

- 4.1 Standards
 - 4.1.1 ANSI/AWC SDPWS: Special Design Provisions for Wind and Seismic
 - 4.1.2 ASCE/SEI 7: Minimum Design Loads and Associated Criteria for Buildings and Other Structures
 - 4.1.3 ASTM C518: Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus
 - 4.1.4 ASTM D7989: Standard Practice for Demonstrating Equivalent In-Plane Lateral Seismic Performance to Wood-Frame Shear Walls Sheathed with Wood Structural Panels
 - 4.1.5 ASTM E72: Standard Test Methods of Conducting Strength Tests of Panels for Building Construction
 - 4.1.6 ASTM E84: Standard Test Method for Surface Burning Characteristics of Building Materials
 - 4.1.7 ASTM E330: Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Static Air Pressure Difference
 - 4.1.8 ASTM E331: Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Uniform Static Air Pressure Difference
 - 4.1.9 ASTM E564: Standard Practice for Static Load Test for Shear Resistance of Framed Walls for Buildings
 - 4.1.10 ASTM E2126: Standard Test Methods for Cyclic (Reversed) Load Test for Shear Resistance of Vertical Elements of the Lateral Force Resisting Systems for Buildings
 - 4.1.11 ASTM E2178: Standard Test Method for Air Permeance of Building Materials
 - 4.1.12 NFPA 286: Standard Methods of Fire Test for Evaluating Contribution of Wall and Ceiling Interior Finish to Room Fire Growth
- 4.2 Structural performance for shear wall assemblies used as lateral force resisting systems in Seismic Design Categories A through F, have been tested and evaluated in accordance with the following standards:
 - 4.2.1 ASCE/SEI 7: Minimum Design Loads and Associated Criteria for Buildings and Other Structures
 - 4.2.2 ASTM D7989: Standard Practice for Demonstrating Equivalent In-Plane Lateral Seismic Performance to Wood-Frame Shear Walls Sheathed with Wood Structural Panels
 - 4.2.2.1 ASTM D7989 is accepted engineering practice used to establish Seismic Design Coefficients (SDCs).
 - 4.2.2.2 Test data generated by ISO/IEC 17025 approved agencies and/or professional engineers.
 - 4.2.2.3 All associated professional engineering evaluations that use ASTM D7989 as their basis, are defined as intellectual property and/or trade secrets and are also defined as an Independent Design Review (i.e., Listings, certified reports, <u>Duly Authenticated Reports</u> from approved agencies and/or research reports prepared by approved agencies and/or approved sources).
 - 4.2.3 ASTM E72: Standard Test Methods of Conducting Strength Tests of Panels for Building Construction
 - 4.2.4 ASTM E564: Standard Practice for Static Load Test for Shear Resistance of Framed Walls for Buildings
 - 4.2.5 ASTM E2126: Standard Test Methods for Cyclic (Reversed) Load Test for Shear Resistance of Vertical Elements of the Lateral Force Resisting Systems for Buildings





4.3 Regulations

- 4.3.1 IBC 15, 18, 21: International Building Code®
- 4.3.2 IRC 15, 18, 21: International Residential Code®
- 4.3.3 IECC 15, 18, 21: International Energy Conservation Code®
- 4.3.4 CBC—19, 22: California Building Code
- 4.3.5 FBC-B—20, 23: Florida Building Code²⁰ Building (FL 16410)
- 4.3.6 FBC-R—20, 23: Florida Building Code²⁰ Residential (FL 16410)

5 Listed²¹

5.1 Equipment, materials, products or services included in a List published by a <u>nationally recognized testing laboratory</u> (i.e., CBI), <u>approved agency</u> (i.e., CBI and DrJ), and/or <u>approved source</u> (i.e., DrJ) or other organization concerned with product evaluation (i.e., DrJ) that maintains periodic inspection (i.e., CBI) 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.

6 Tabulated Properties Generated from Nationally Recognized Standards

- 6.1 General
 - 6.1.1 OX-IS, OX-IS HS, and SI-Strong Structural Insulation are structural insulated sheathing panels for use in the following applications as:
 - 6.1.1.1 Wall sheathing in buildings constructed in accordance with the IBC and IRC for light-frame wood and steel construction.
 - 6.1.1.2 Structural wall sheathing to provide lateral load resistance (wind and seismic) for braced wall panels used in light-frame construction.
 - 6.1.1.3 Structural wall sheathing to provide resistance to transverse loads for wall assemblies used in wood construction.
 - 6.1.1.4 Insulating sheathing applied as in-fill to portions of walls that are not designed as braced wall panels or shear walls.
 - 6.1.1.5 Insulated sheathing in accordance with the IRC Section R402 and IECC Section R402 an
 - 6.1.1.6 An approved Water-Resistive Barrier (WRB) in accordance with <u>IBC Section 1403.2</u>²² and <u>IRC Section R703.2</u> when installed with approved construction tape on all sheathing seams, see **Section 6.3.3**. See the manufacturer product information for further details.
 - 6.1.1.6.1 Where the joints are not taped, a separate WRB shall be installed in accordance with the WRB manufacturer installation instructions.
 - 6.1.1.7 An air barrier material as part of an air barrier assembly in accordance with <u>IRC Section N1102.4</u> and <u>IECC Section C402</u>, in compliance with the manufacturer installation instructions and this report.
 - 6.1.1.8 An approved draftstop material when installed in accordance with **Section 6.6** and **Section 9**.
 - 6.1.2 OX-IS, OX-IS HS, and SI-Strong Structural Insulation contain foam plastics complying with <u>IBC Section 2603</u> and <u>IRC Section R316</u>.





6.2 Structural Applications

6.2.1 General Provisions:

- 6.2.1.1 Except as otherwise described in this report, OX-IS, OX-IS HS, and SI-Strong Structural Insulation shall be installed in accordance with the applicable building codes listed in **Section 4** using the provisions set forth herein for the design and installation of WSP.
- 6.2.1.2 OX-IS, OX-IS HS, and SI-Strong Structural Insulation shall be permitted to be designed in accordance with SDPWS for the design of shear walls using the methods set forth therein, including the perforated shear wall methodology, and subject to the SDPWS boundary conditions, except as specifically allowed in this report.
- 6.2.1.3 Anchorage for in-plane shear shall be provided to transfer the induced shear force into and out of each shear wall.
 - 6.2.1.3.1 For wind design, anchor bolt spacing shall not exceed 6' o.c.
 - 6.2.1.3.2 For seismic design, anchor bolt spacing shall not exceed 4' o.c.
- 6.2.1.4 The maximum aspect ratio for OX-IS, OX-IS HS, and SI-Strong Structural Insulation shall be 4:1.
- 6.2.1.5 The minimum full height panel width shall be 24".
- 6.2.1.6 All panel edges shall be blocked with a minimum 2" nominal lumber.
- 6.2.1.7 Fasteners may be countersunk beneath the outer surface of the foam plastic sheathing layer.
- 6.2.1.8 Installation is permitted for single top plate (advanced framing method) or double top plate applications.
- 6.2.2 Simplified IRC Bracing Provisions:
 - OX-IS, OX-IS HS, and SI-Strong Structural Insulation are permitted to be used in accordance with the IRC simplified bracing method of IRC Section R602.12 as modified by **Table 1**, **Table 2**, **Table 3**, and **Table 4**.
 - 6.2.2.2 All other provisions of the IRC simplified bracing method shall be met.





Table 1. Simplified Bracing for 0.50" OX-IS, OX-IS HS, and SI-Strong (Studs 16" o.c.)1,2,3,4,5,6,7,8,9

Ultimate Design Wind	Story	Eave to	Minir	num N Requ		r of Br Long \$		Units	Minin	num N Requ	umbe uired (Units
Speed	Level	Ridge Height (ft)		Lengt	h of S	hort Si	ide (ft)			Lengt	h of L	ong Si	de (ft)	
(mph)		(14)	10	20	30	40	50	60	10	20	30	40	50	60
	One Story or Top of Two or Three Story		1	1	2	2	3	3	1	1	2	2	3	3
	First of Two Story or Second of Three Story	10	1	2	3	4	5	5	1	2	3	4	5	5
115	First of Three Story		2	3	4	5	7	8	2	3	4	5	7	8
115	One Story or Top of Two or Three Story		1	1	3	3	4	4	1	1	3	3	4	4
	First of Two Story or Second of Three Story	15	1	2	3	5	6	6	1	2	3	5	6	6
	First of Three Story		2	3	4	6	8	9	2	3	4	6	8	9
	One Story or Top of Two or Three Story		1	2	2	3	3	4	1	2	2	3	3	4
	First of Two Story or Second of Three Story	10	2	3	4	5	6	7	2	3	4	5	6	7
120	First of Three Story		2	4	5	7	8	10	2	4	5	7	8	10
130 -	One Story or Top of Two or Three Story		1	3	3	4	4	5	1	3	3	4	4	5
	First of Two Story or Second of Three Story	15	2	3	5	6	7	8	2	3	5	6	7	8
	First of Three Story		2	4	6	8	9	11	2	4	6	8	9	11

- 1 SI: 1 in = 25 4 mm 1 mph = 1 61 km/h
- 2. This simplified bracing table is based on the provisions of <u>IRC Section R602.12</u>. All provisions therein shall be observed, except that this table shall replace <u>IRC Table R602.12.4</u>, and 0.50" OX-IS, 0.50" OX-IS HS, or 0.50" SI-Strong shall replace the sheathing material.
- 3. Interpolation shall not be permitted.
- 4. Cripple walls or wood-framed basement walls in a walk-out condition shall be designated as the first story and the stories above shall be re-designated as the second and third stories, respectively, and shall be prohibited in a three-story structure.
- 5. Actual lengths of the sides of the circumscribed rectangle shall be rounded to the next highest unit of 10 when using this table.
- 6. For Exposure Category C, multiply bracing units by a factor of 1.20 for a one-story building, 1.30 for a two-story building, and 1.40 for a three-story building.
- 7. 6. Maximum stud spacing is 16" o.c.
- 8. 0.50" OX-IS, 0.50" OX-IS HS and 0.50" SI-Strong attached with minimum 16-gauge, 7/16" crown staples fastened 3":6" (edge:field) and penetrate a minimum of 1.0" into the stud. Fasteners are to be installed with the crown parallel to the framing. Fastener edge distance shall be a minimum of 3/6". Fastener head shall be in contact with the panel surface. Minimum 1/2" GWB fastened 16":16" attached to the interior side of the wall in accordance with IRC Section R702.3.5 and IRC Table R702.3.5.
- 9. As an alternate to table footnote 7 above, 0.50" OX-IS, 0.50" OX-IS HS and 0.50" SI-Strong may be attached with minimum 0.113" diameter (3/8" head or 2" cap) nails fastened 3":6" (edge:field). Minimum 1/2" GWB fastened 8":8" attached to the interior side of the wall in accordance with IRC Section R702.3.5 and IRC Table R702.3.5.
- 10. Where GWB is not applied to the interior side of the wall assembly, bracing lengths in IRC Table R602.10.3(3), as modified by all applicable factors in IRC Table R602.10.3(2) and IRC Table R602.10.3(4) shall be used, except the factor for omitting the GWB shall be 1.5.







Table 2. Simplified Bracing for 0.50" OX-IS, OX-IS HS, and SI-Strong (Studs 24" o.c.)1,2,3,4,5,6,7,8,9

Ultimate Design	Story	Eave to					f Braci			nimun nits Ro				
Wind Speed	Level	Ridge Height	I	Lengtl	n of SI	hort S	ide (ft)		Lengt	h of L	ong S	ide (ft	
(mph)		(ft)	10	20	30	40	50	60	10	20	30	40	50	60
	One Story or Top of Two or Three Story		1	1	2	2	3	3	1	1	2	2	3	3
	First of Two Story or Second of Three Story	10	2	3	3	4	5	6	2	3	3	4	5	6
445	First of Three Story		2	4	5	6	7	8	2	4	5	6	7	8
115	One Story or Top of Two or Three Story		1	1	3	3	4	4	1	1	3	3	4	4
	First of Two Story or Second of Three Story	15	2	3	3	5	6	7	2	3	3	5	6	7
	First of Three Story		2	4	6	7	8	9	2	4	6	7	8	9
	One Story or Top of Two or Three Story		1	2	2	3	4	4	1	2	2	3	4	4
	First of Two Story or Second of Three Story	10	2	3	4	5	6	7	2	3	4	5	6	7
400	First of Three Story		3	4	6	8	9	11	3	4	6	8	9	11
130	One Story or Top of Two or Three Story		1	3	3	4	5	5	1	3	3	4	5	5
	First of Two Story or Second of Three Story	15	2	3	5	6	7	8	2	3	5	6	7	8
	First of Three Story		3	4	7	9	10	12	3	4	7	9	10	12

- This simplified bracing table is based on the provisions of IRC Section R602.12. All provisions therein shall be observed, except that this table shall replace IRC Table R602.12.4, and 0.50" OX-IS, 0.50" OX-IS HS, or 0.50" SI-Strong shall replace the sheathing material.
- 2. Interpolation shall not be permitted.
- 3. Cripple walls or wood-framed basement walls in a walk-out condition shall be designated as the first story, and the stories above shall be re-designated as the second and third stories, respectively, and shall be prohibited in a three-story structure.
- Actual lengths of the sides of the circumscribed rectangle shall be rounded to the next highest unit of 10 when using this table. 4.
- For Exposure Category C, multiply bracing units by a factor of 1.20 for a one-story building, 1.30 for a two-story building, and 1.40 for a three-story building. 5.
- 6. Maximum stud spacing is 24" o.c.
- 0.50" OX-IS, 0.50" OX-IS HS, and 0.50" SI-Strong attached with minimum 16-gauge, 7/16" crown staples fastened 3":3" (edge:field) and penetrate a minimum of 1.0" into the stud. Fasteners are to be installed with the crown parallel to the framing. Fastener edge distance shall be a minimum of ϑ_{6} ". Fastener head shall be in contact with the panel surface. Minimum 1/2" GWB fastened 16":16" attached to the interior side of the wall in accordance with IRC Section R702.3.5 and IRC Table R702.3.5.
- As an alternate to footnote 7 above, 0.50" OX-IS, 0.50" OX-IS HS, and 0.50" SI-Strong may be attached with minimum 0.113" diameter (3/8" head or 2" cap) nails fastened 3":3" (edge:field). Minimum 1/2" GWB fastened 8":8" attached to the interior side of the wall in accordance with IRC Section R702.3.5 and IRC Table R702.3.5.
- Where GWB is not applied to the interior side of the wall assembly, bracing lengths $\underline{IRC\ Table\ R602.10.3(1)}$ and $\underline{IRC\ Table\ R602.10.3(3)}$, as modified by all applicable factors in IRC Table R602.10.3(2) and IRC Table R602.10.3(4) shall be used, except the factor for omitting the GWB shall be 1.5.





Table 3. Simplified Bracing for 0.92" OX-IS, 1.0" OX-IS and SI-Strong (Studs 16" o.c.)1,2,3,4,5,6,7,8,9

Ultimate Design	Story	Eave to				ber of		_					f Brac ort Sid	
Wind Speed	Level	Ridge Height	I	Lengtl	of SI	hort S	ide (ft)		Lengt	h of L	ong S	ide (ft)
(mph)		(ft)	10	20	30	40	50	60	10	20	30	40	50	60
	One Story or Top of Two or Three Story		1	1	2	2	3	3	1	1	2	2	3	3
	First of Two Story or Second of Three Story	10	1	2	3	4	4	5	1	2	3	4	4	5
115	First of Three Story		2	3	4	5	6	7	2	3	4	5	6	7
115	One Story or Top of Two or Three Story		1	1	3	3	4	4	1	1	3	3	4	4
	First of Two Story or Second of Three Story	15	1	2	3	5	5	6	1	2	3	5	5	6
	First of Three Story		2	3	4	6	7	8	2	3	4	6	7	8
	One Story or Top of Two or Three Story		1	2	2	3	3	3	1	2	2	3	3	3
	First of Two Story or Second of Three Story	10	2	3	4	4	5	6	2	3	4	4	5	6
420	First of Three Story		2	4	5	6	8	9	2	4	5	6	8	9
130	One Story or Top of Two or Three Story		1	3	3	4	4	4	1	3	3	4	4	4
	First of Two Story or Second of Three Story	15	2	3	5	5	6	7	2	3	5	5	6	7
	First of Three Story		2	4	6	7	9	10	2	4	6	7	9	10

- 1. This simplified bracing table is based on the provisions of <u>IRC Section R602.12</u>. All provisions therein shall be observed, except that this table shall replace <u>IRC Table R602.12.4</u>, and 0.92" OX-IS, 1.0" OX-IS or 1.0" SI-Strong shall replace the sheathing material.
- 2. Interpolation shall not be permitted.
- 3. Cripple walls or wood-framed basement walls in a walk-out condition shall be designated as the first story, and the stories above shall be re-designated as the second and third stories, respectively, and shall be prohibited in a three-story structure.
- 4. Actual lengths of the sides of the circumscribed rectangle shall be rounded to the next highest unit of 10 when using this table.
- 5. For Exposure Category C, multiply bracing units by a factor of 1.20 for a one-story building, 1.30 for a two-story building, and 1.40 for a three-story building.
- 6. Maximum stud spacing is 16" o.c.
- 7. 0.92" OX-IS, 1.0" OX-IS, 1.0" OX-IS HS and 1.0" SI-Strong attached with minimum 16-gauge, 1" crown staples fastened at 3":3" (edge:field) and penetrate a minimum of 1.0" into the stud. Fasteners are to be installed with the crown parallel to the framing. Fastener edge distance shall be a minimum of 3/s". Fastener head shall be in contact with the panel surface. Minimum 1/2" GWB fastened 16":16" attached to the interior side of the wall in accordance with IRC Section R702.3.5 and IRC Table R702.3.5.
- 8. As an alternate to table footnote 7 above, 0.92" OX-IS, 1.0" OX-IS HS and 1.0" SI-Strong may be attached with minimum 0.113" diameter (3/s" head or 2" cap) nails fastened 3":3" (edge:field). Minimum 1/2" GWB fastened 8":8" attached to the interior side of the wall in accordance with IRC Section R702.3.5 and IRC Table R702.3.5.
- 9. Where GWB is not applied to the interior side of the wall assembly, bracing lengths in IRC Table R602.10.3(3), as modified by all applicable factors in IRC Table R602.10.3(3), as modified by all applicable factors in IRC Table R602.10.3(2) and IRC Table R602.10.3(3), as modified by all applicable factors in IRC Table R602.10.3(2) and IRC Table R602.10.3(2")) and IRC Table R602.10.3(2") and IRC Table R602.10.3(2")





Table 4. Simplified Bracing for 0.92" OX-IS, 1.0" OX-IS and SI-Strong (Studs 24" o.c.)1,2,3,4,5,6,7,8,9

Ultimate Design	Story	Eave to				ber of				nimun nits Ro				
Wind Speed	Level	Ridge Height	ı	_engtl	of SI	hort S	ide (ft)		Lengt	h of L	ong S	ide (ft)
(mph)		(ft)	10	20	30	40	50	60	10	20	30	40	50	60
	One Story or Top of Two or Three Story		1	1	2	2	3	3	1	1	2	2	3	3
	First of Two Story or Second of Three Story	10	1	2	3	4	5	5	1	2	3	4	5	5
115	First of Three Story		2	3	4	5	7	8	2	3	4	5	7	8
115	One Story or Top of Two or Three Story		1	1	3	3	4	4	1	1	3	3	4	4
_	First of Two Story or Second of Three Story	15	1	2	3	5	6	6	1	2	3	5	6	6
	First of Three Story		2	3	4	6	8	9	2	3	4	6	8	9
	One Story or Top of Two or Three Story		1	2	2	3	3	4	1	2	2	3	3	4
	First of Two Story or Second of Three Story	10	2	3	4	5	6	7	2	3	4	5	6	7
420	First of Three Story		2	4	5	7	8	10	2	4	5	7	8	10
130	One Story or Top of Two or Three Story		1	3	3	4	4	5	1	3	3	4	4	5
	First of Two Story or Second of Three Story	15	2	3	5	6	7	8	2	3	5	6	7	8
	First of Three Story		2	4	6	8	9	11	2	4	6	8	9	11

- 1. This simplified bracing table is based on the provisions of <u>IRC Section R602.12</u>. All provisions therein shall be observed, except that this table shall replace <u>IRC Table R602.12.4</u>, and 0.92" OX-IS, 1.0" OX-IS or 1.0" SI-Strong shall replace the sheathing material.
- 2. Interpolation shall not be permitted.
- 3. Cripple walls or wood-framed basement walls in a walk-out condition shall be designated as the first story, and the stories above shall be re-designated as the second and third stories, respectively, and shall be prohibited in a three-story structure.
- 4. Actual lengths of the sides of the circumscribed rectangle shall be rounded to the next highest unit of 10 when using this table.
- 5. For Exposure Category C, multiply bracing units by a factor of 1.20 for a one-story building, 1.30 for a two-story building, and 1.40 for a three-story building.
- 6. Maximum stud spacing is 24" o.c.
- 7. 0.92" OX-IS, 1.0" OX-IS, 1.0" OX-IS HS and 1.0" SI-Strong attached with minimum 16-gauge, 1" crown staples fastened at 3":3" (edge:field) and penetrate a minimum of 1.0" into the stud. Fasteners are to be installed with the crown parallel to the framing. Fastener edge distance shall be a minimum of 3/s". Fastener head shall be in contact with the panel surface. Minimum 1/2" GWB fastened 16":16" attached to the interior side of the wall in accordance with IRC Section R702.3.5 and IRC Table R702.3.5.
- 8. As an alternate to table footnote 7 above, 0.92" OX-IS, 1.0" OX-IS HS and 1.0" SI-Strong may be attached with minimum 0.113" diameter (3/8" head or 2" cap) nails fastened 3":3" (edge:field). Minimum 1/2" GWB fastened 8":8" attached to the interior side of the wall in accordance with IRC Section R702.3.5 and IRC Table R702.3.5
- 9. Where GWB is not applied to the interior side of the wall assembly, bracing lengths in IRC Table R602.10.3(3), as modified by all applicable factors in IRC Table R602.10.3(2) and IRC Table R602.10.3(4) shall be used, except the factor for omitting the GWB shall be 1.5.

6.2.3 Prescriptive IRC Bracing Applications:





- 6.2.3.1 OX-IS, OX-IS HS, and SI-Strong Structural Insulation may be used on braced wall lines as an equivalent alternative to the IRC Method WSP and Method CS WSP, when installed in accordance with IRC Section R602.10 and this report.
- 6.2.3.2 OX-IS, OX-IS HS, and SI-Strong Structural Insulation may be used to brace walls of buildings as an alternative to the IRC Method CS-PF braced wall panel provisions of IRC Section R602.10.4.
- 6.2.3.3 For wind design, required braced wall panel lengths for OX-IS, OX-IS HS, and SI-Strong Structural Insulation shall be as shown in **Table 5**, **Table 6**, **Table 7**, and **Table 8** and shall be used in conjunction with IRC Table R602.10.3(2), which provides the required adjustments.





Table 5. 0.50" OX-IS, OX-IS HS and SI-Strong Required Bracing Lengths (Studs 16" o.c.) – Wind^{1,2,3,4,5,6,8}

	Braced				Le	ength of	Wall Lin	e to be l	Braced (ft)			
• ""	Wall		Inte	ermitten	t Sheath	ing			Co	ntinuous	Sheath	ing	
Condition	Line Spacing					W	ind Spee	eds ⁷ (mp	h)				
	(ft)	< 95	≤ 110	≤ 115	≤ 120	≤ 130	< 140	< 95	≤ 110	≤ 115	≤ 120	≤ 130	< 140
	10	1.5	2.0	2.0	2.5	2.5	3.0	1.5	1.5	2.0	2.0	2.5	2.5
	20	2.5	3.5	3.5	4.0	5.0	5.5	2.5	3.0	3.5	3.5	4.0	5.0
One Story or the Top of Two	30	4.0	5.0	5.5	6.0	7.0	8.0	3.5	4.5	4.5	5.0	6.0	7.0
or Three Stories	40	5.0	6.5	7.0	8.0	9.0	10.5	4.0	5.5	6.0	6.5	7.5	9.0
	50	6.0	8.0	9.0	9.5	11.0	13.0	5.0	7.0	7.5	8.0	9.5	11.0
	60	7.0	9.5	10.5	11.5	13.0	15.0	6.0	8.0	9.0	9.5	11.0	13.0
	10	3.0	3.5	4.0	4.5	5.0	6.0	2.5	3.0	3.5	3.5	4.5	5.0
First Story of	20	5.0	6.5	7.5	8.0	9.5	11.0	4.5	5.5	6.5	7.0	8.0	9.0
Two Stories or	30	7.0	9.5	10.5	11.5	13.5	15.5	6.0	8.0	9.0	9.5	11.5	13.0
Second Story of Three	40	9.5	12.5	13.5	15.0	17.5	20.0	8.0	10.5	11.5	12.5	15.5	17.0
Stories	50	11.5	15.5	16.5	18.0	21.5	24.5	10.0	13.0	14.0	15.5	18.0	21.0
	60	13.5	18.0	20.0	21.5	25.0	29.0	11.5	15.5	17.0	18.5	21.5	25.0
	10	4.0	5.5	6.0	6.5	7.5	8.5	3.5	4.5	5.0	5.5	6.5	7.5
	20	7.5	10.0	11.0	11.5	13.5	16.0	6.5	8.5	9.0	10.0	11.5	13.5
First Story of	30	10.5	14.0	15.5	17.0	19.5	23.0	9.0	12.0	13.0	14.5	17.0	19.5
Three Stories	40	13.5	18.5	20.0	22.0	25.5	29.5	11.5	15.5	17.0	18.5	22.0	25.0
	50	17.0	22.5	24.5	27.0	31.5	36.5	14.5	19.0	21.0	23.0	26.5	31.0
	60	20.0	26.5	29.0	32.0	37.5	43.0	17.0	23.0	25.0	27.0	31.5	36.5

- 1. Linear interpolation is permitted.
- 2. 0.50" OX-IS, 0.50" OX-IS HS and 0.50" SI-Strong attached with minimum 16-gauge, 7/16" crown x 11/2" leg staples fastened 3":6" (edge:field).
- 3. Maximum stud spacing is 16" o.c.
- 4. Demonstrates equivalency to IRC Table R602.10.3(1). All adjustment factors from IRC Table R602.10.3(2) shall be applied.
- 5. Minimum 1/2" GWB spaced 16":16" (edge:field) shall be installed as part of the wall assembly. Where GWB is not applied to the interior side of the wall assembly, bracing lengths shall be multiplied by a factor of 1.5 fastening.
- 6. Bracing lengths are based on an equivalency factor of 1.0. Where bracing lengths for other wall assemblies are desired, multiply the bracing lengths in this table by the appropriate equivalency factor in **Table 9**.
- 7. Wind speeds are Vult in accordance with ASCE 7-22. Convert to equivalent Vasd wind speed per IBC Section 1609.3.1.
- 8. As an alternate to table footnote 2 above, 0.50" OX-IS, 0.50" OX-IS HS and 0.50" SI-Strong may be attached with minimum 0.113" diameter (3/8" head or 2" cap) nails fastened 3":6" (edge:field). Minimum 1/2" GWB fastened 8":8" attached to the interior side of the wall in accordance with IRC Section R702.3.5 and IRC Table R702.3.5.







Table 6. 0.50" OX-IS, OX-IS HS and SI-Strong Required Bracing Lengths (Studs 24" o.c.) - Wind1,2,3,4,5

	Dunned				Lo	ength of	Wall Lin	e to be	Braced (ft)			
0 177	Braced Wall		Inte	ermitten	t Sheath	ing			Co	ntinuous	s Sheath	ing	
Condition	Line Spacing					W	ind Spee	eds ⁷ (mp	h)				
	(ft)	< 95	≤ 110	≤ 115	≤ 120	≤ 130	< 140	< 95	≤ 110	≤ 115	≤ 120	≤ 130	< 140
	10	1.7	2.2	2.2	2.8	2.8	3.3	1.7	1.7	2.2	2.2	2.8	2.8
	20	2.8	3.9	3.9	4.4	5.5	6.1	2.8	3.3	3.9	3.9	4.4	5.5
One Story or the Top of Two	30	4.4	5.5	6.1	6.6	7.7	8.8	3.9	5.0	5.0	5.5	6.6	7.7
or Three Stories	40	5.5	7.2	7.7	8.8	9.9	11.6	4.4	6.1	6.6	7.2	8.3	9.9
	50	6.6	8.8	9.9	10.5	12.1	14.3	5.5	7.7	8.3	8.8	10.5	12.1
	60	7.7	10.5	11.6	12.7	14.3	16.5	6.6	8.8	9.9	10.5	12.1	14.3
	10	3.3	3.9	4.4	5.0	5.5	6.6	2.8	3.3	3.9	3.9	5.0	5.5
First Story of	20	5.5	7.2	8.3	8.8	10.5	12.1	5.0	6.1	7.2	7.7	8.8	9.9
Two Stories or Second Story	30	7.7	10.5	11.6	12.7	14.9	17.1	6.6	8.8	9.9	10.5	12.7	14.3
of Three	40	10.5	13.8	14.9	16.5	19.3	22.0	8.8	11.6	12.7	13.8	17.1	18.7
Stories	50	12.7	17.1	18.2	19.8	23.7	27.0	11.0	14.3	15.4	17.1	19.8	23.1
	60	14.9	19.8	22.0	23.7	27.5	31.9	12.7	17.1	18.7	20.4	23.7	27.5
	10	4.4	6.1	6.6	7.2	8.3	9.4	3.9	5.0	5.5	6.1	7.2	8.3
	20	8.3	11.0	12.1	12.7	14.9	17.6	7.2	9.4	9.9	11.0	12.7	14.9
First Story of	30	11.6	15.4	17.1	18.7	21.5	25.3	9.9	13.2	14.3	16.0	18.7	21.5
Three Stories	40	14.9	20.4	22.0	24.2	28.1	32.5	12.7	17.1	18.7	20.4	24.2	27.5
	50	18.7	24.8	27.0	29.7	34.7	40.2	16.0	20.9	23.1	25.3	29.2	34.1
	60	22.0	29.2	31.9	35.2	41.3	47.3	18.7	25.3	27.5	29.7	34.7	40.2

- 1. Linear interpolation is permitted.
- 0.50" OX-IS, 0.50" OX-IS HS and 0.50" SI-Strong attached with minimum 16-gauge, 7/16" crown x 11/2" leg staples fastened 3":3" (edge:field).
- 3. Maximum stud spacing is 24" o.c.
- 4. Demonstrates equivalency to IRC Table R602.10.3(1). All adjustment factors from IRC Table R602.10.3(2) shall be applied.
- Minimum 1/2" GWB spaced 16":16" (edge:field) shall be installed as part of the wall assembly. Where GWB is not applied to the interior side of the wall assembly, 5. bracing lengths shall be multiplied by a factor of 1.5 fastening.
- 6. Wind speeds are Vult in accordance with ASCE 7-22. Convert to equivalent Vasd wind speed per IBC Section 1609.3.1.





Table 7. 0.92" OX-IS, 1.0" OX-IS and SI-Strong Required Bracing Lengths (Studs 16" o.c.) – Wind^{1,2,3,4,5}

	Donald				L	ength of	Wall Lin	e to be	Braced (ft)			
0 177	Braced Wall		Inte	ermitten	t Sheath	ing			Co	ntinuous	Sheath	ing	
Condition	Line Spacing					W	ind Spee	eds ⁷ (mp	h)				
	(ft)	< 95	≤ 110	≤ 115	≤ 120	≤ 130	< 140	< 95	≤ 110	≤ 115	≤ 120	≤ 130	< 140
	10	1.4	1.8	1.8	2.3	2.3	2.7	1.4	1.4	1.8	1.8	2.3	2.3
	20	2.3	3.2	3.2	3.6	4.6	5.0	2.3	2.7	3.2	3.2	3.6	4.6
One Story or the Top of Two	30	3.6	4.6	5.0	5.5	6.4	7.3	3.2	4.1	4.1	4.6	5.5	6.4
or Three Stories	40	4.6	5.9	6.4	7.3	8.2	9.6	3.6	5.0	5.5	5.9	6.8	8.2
	50	5.5	7.3	8.2	8.6	10.0	11.8	4.6	6.4	6.8	7.3	8.6	10.0
	60	6.4	8.6	9.6	10.5	11.8	13.7	5.5	7.3	8.2	8.6	10.0	11.8
	10	2.7	3.2	3.6	4.1	4.6	5.5	2.3	2.7	3.2	3.2	4.1	4.6
First Story of	20	4.6	5.9	6.8	7.3	8.6	10.0	4.1	5.0	5.9	6.4	7.3	8.2
Two Stories or Second Story	30	6.4	8.6	9.6	10.5	12.3	14.1	5.5	7.3	8.2	8.6	10.5	11.8
of Three	40	8.6	11.4	12.3	13.7	15.9	18.2	7.3	9.6	10.5	11.4	14.1	15.5
Stories	50	10.5	14.1	15.0	16.4	19.6	22.3	9.1	11.8	12.7	14.1	16.4	19.1
	60	12.3	16.4	18.2	19.6	22.8	26.4	10.5	14.1	15.5	16.8	19.6	22.8
	10	3.6	5.0	5.5	5.9	6.8	7.7	3.2	4.1	4.6	5.0	5.9	6.8
	20	6.8	9.1	10.0	10.5	12.3	14.6	5.9	7.7	8.2	9.1	10.5	12.3
First Story of	30	9.6	12.7	14.1	15.5	17.7	20.9	8.2	10.9	11.8	13.2	15.5	17.7
Three Stories	40	12.3	16.8	18.2	20.0	23.2	26.8	10.5	14.1	15.5	16.8	20.0	22.8
	50	15.5	20.5	22.3	24.6	28.7	33.2	13.2	17.3	19.1	20.9	24.1	28.2
	60	18.2	24.1	26.4	29.1	34.1	39.1	15.5	20.9	22.8	24.6	28.7	33.2

- 1. Linear interpolation is permitted.
- 2. 0.92" OX-IS, 1.0" OX-IS, 1.0" OX-IS HS and 1.0" SI-Strong attached with minimum 16-gauge, 1" crown x 2" leg staples fastened 3":3" (edge:field).
- 3. Maximum stud spacing is 16" o.c.
- 4. Demonstrates equivalency to IRC Table R602.10.3(2) shall be applied.
- 5. Minimum 1/2" GWB spaced 16":16" (edge:field) shall be installed as part of the wall assembly. Where GWB is not applied to the interior side of the wall assembly, bracing lengths shall be multiplied by a factor of 1.5.
- 6. Wind speeds are Vult in accordance with ASCE 7-22. Convert to equivalent Vasd wind speed per IBC Section 1609.3.1.





Table 8. 0.92" OX-IS, 1.0" OX-IS and SI-Strong Required Bracing Lengths (Studs 24" o.c.) – Wind^{1,2,3,4,5}

	Dunned				L	ength of	Wall Lin	e to be	Braced (ft)			
0 11/1	Braced Wall		Inte	ermitten	t Sheath	ing			Co	ntinuous	Sheath	ing	
Condition	Line Spacing					W	ind Spee	eds ⁷ (mp	h)				
	(ft)	< 95	≤ 110	≤ 115	≤ 120	≤ 130	< 140	< 95	≤ 110	≤ 115	≤ 120	≤ 130	< 140
	10	1.5	2.0	2.0	2.5	2.5	3.0	1.5	1.5	2.0	2.0	2.5	2.5
	20	2.5	3.5	3.5	4.0	5.0	5.5	2.5	3.0	3.5	3.5	4.0	5.0
One Story or the Top of Two	30	4.0	5.0	5.5	6.0	7.0	8.0	3.5	4.5	4.5	5.0	6.0	7.0
or Three Stories	40	5.0	6.5	7.0	8.0	9.0	10.5	4.0	5.5	6.0	6.5	7.5	9.0
	50	6.0	8.0	9.0	9.5	11.0	13.0	5.0	7.0	7.5	8.0	9.5	11.0
	60	7.0	9.5	10.5	11.5	13.0	15.0	6.0	8.0	9.0	9.5	11.0	13.0
	10	3.0	3.5	4.0	4.5	5.0	6.0	2.5	3.0	3.5	3.5	4.5	5.0
First Story of	20	5.0	6.5	7.5	8.0	9.5	11.0	4.5	5.5	6.5	7.0	8.0	9.0
Two Stories or Second Story	30	7.0	9.5	10.5	11.5	13.5	15.5	6.0	8.0	9.0	9.5	11.5	13.0
of Three	40	9.5	12.5	13.5	15.0	17.5	20.0	8.0	10.5	11.5	12.5	15.5	17.0
Stories	50	11.5	15.5	16.5	18.0	21.5	24.5	10.0	13.0	14.0	15.5	18.0	21.0
	60	13.5	18.0	20.0	21.5	25.0	29.0	11.5	15.5	17.0	18.5	21.5	25.0
	10	4.0	5.5	6.0	6.5	7.5	8.5	3.5	4.5	5.0	5.5	6.5	7.5
	20	7.5	10.0	11.0	11.5	13.5	16.0	6.5	8.5	9.0	10.0	11.5	13.5
First Story of	30	10.5	14.0	15.5	17.0	19.5	23.0	9.0	12.0	13.0	14.5	17.0	19.5
Three Stories	40	13.5	18.5	20.0	22.0	25.5	29.5	11.5	15.5	17.0	18.5	22.0	25.0
	50	17.0	22.5	24.5	27.0	31.5	36.5	14.5	19.0	21.0	23.0	26.5	31.0
	60	20.0	26.5	29.0	32.0	37.5	43.0	17.0	23.0	25.0	27.0	31.5	36.5

- 1. Linear interpolation is permitted.
- 2. 0.92" OX-IS, 1.0" OX-IS, 1.0" OX-IS HS and 1.0" SI-Strong attached with minimum 16-gauge, 1" crown x 2" leg staples fastened 3":3" (edge:field).
- 3. Maximum stud spacing is 24" o.c.
- 4. Demonstrates equivalency to IRC Table R602.10.3(2) shall be applied.
- 5. Minimum 1/2" GWB spaced 16":16" (edge:field) shall be installed as part of the wall assembly. Where GWB is not applied to the interior side of the wall assembly, bracing lengths shall be multiplied by a factor of 1.5.
- 6. Wind speeds are Vult in accordance with ASCE 7-22. Convert to equivalent Vasd wind speed per IBC Section 1609.3.1.





- 6.2.3.4 Required braced wall panel lengths shall be as determined by the equivalency factor shown in **Table 9**, IRC Table R602.10.3(1), and IRC Table R602.10.3(3), including all footnotes.
- 6.2.3.5 All other IRC prescriptive bracing minimums, spacing requirements and rules must still be met.

Table 9. Braced Wall Line Length Equivalency Factors 1,2,5

Structural Sheathing Product	Maximum Stud Spacing (in)	Fastener ⁶	Maximum Fastener Spacing (edge:field) (in)	GWB Fastening Spacing ⁴ (blocked or unblocked) (edge:field) (in)	Equivalency Factors ³ to IRC WSP or CS-WSP
		Minimum 16-gauge Staple,	3:6	16:16	1.00
	16 o.c.	⁷ / ₁₆ " Crown x 1 ¹ / ₂ " Leg	3:3	8:8	0.81
0.50"OX-IS		0.113" Dia. Nail (min. ³ / ₈ " head or 2" cap)	3:3	16:16	1.24
0.50" OX-IS HS			3:3	16:16	1.10
0.50" SI-Strong		Minimum 16-gauge Staple, 7/16" Crown x 11/2" Leg	3.3	8:8	0.91
0.50" SI-Strong	24 o.c.	, and the second	3:6	8:8	0.92
		0.113" Dia. Nail (min. ³ / ₈ " head or 2" cap)	3:6	8:8	1.10
	16 o.c.	Minimum 16-gauge Staple,	3:3	16:16	0.91
	10 0.6.	1" Crown x 2" Leg	3.3	8:8	0.75
0.92" OX-IS, 1.0" OX-IS	24 0 0	Minimum 16-gauge Staple,	2.2	16:16	1.00
1.0" SI-Strong	24 o.c.	1" Crown x 2" Leg	3:3	8:8	0.82
	16 o.c.	0.113" Dia. Nail (min. 280" head or 2" cap)	3:3	8:8	0.94

SI: 1 in = 25.4 mm

- 1. Based on equivalency testing for use with the IRC.
- 2. At a minimum, framing shall be SPF (specific gravity 0.42).
- 3. Equivalency factors allow the user to determine the length of bracing required, by multiplying the equivalency factor above by the length of bracing shown in the WSP or CS-WSP columns in IRC Table R602.10.3(1) and IRC Table R602.10.3(3), as modified by all applicable factors in IRC Table R602.10.3(2) and IRC Table R602.10.3(3), respectively.
- 4. Where GWB is not applied to the interior side of the wall assembly, bracing lengths in IRC Table R602.10.3(1) and IRC Table R602.10.3(3), as modified by all applicable factors in IRC Table R602.10.3(2) and IRC Table R602.10.3(4) shall be used, except the factor for omitting the 16:16 GWB shall be 1.5 and 1.8 when omitting gypsum using the 8":8" GWB fastening.
- 5. Valid for single top plate (advanced framing method) wall installations or double top plate wall installations
- 6. Fastener penetration into the stud shall be a minimum of 1.0".





- 6.2.4 OX-IS and SI-Strong CS-PF Portal Frame:
 - 6.2.4.1 OX-IS and SI-Strong CS-PF were tested and evaluated for equivalency to the IRC Method CS-PF in accordance with IRC Section R602.10.6.4 and IRC Table R602.10.5.
 - 6.2.4.2 IRC Table R602.10.5 establishes the contributing length of bracing of the CS-PF for Seismic Design Categories (SDC) A, B, and C as equivalent to 1.5 times its actual length and that it contributes this length of bracing to that required by method CS-WSP. For SDC D0, D1, and D2, the contributing length of the CS-PF is equivalent to its actual length.
 - 6.2.4.3 The capacity of the OX-IS and SI-Strong Sheathing CS-PF exceeds the capacity of the IRC Method CS-WSP and is therefore permitted to be substituted for an equivalent length of bracing.





6.2.4.4 The OX-IS and SI-Strong CS-PF is depicted in Figure 4.

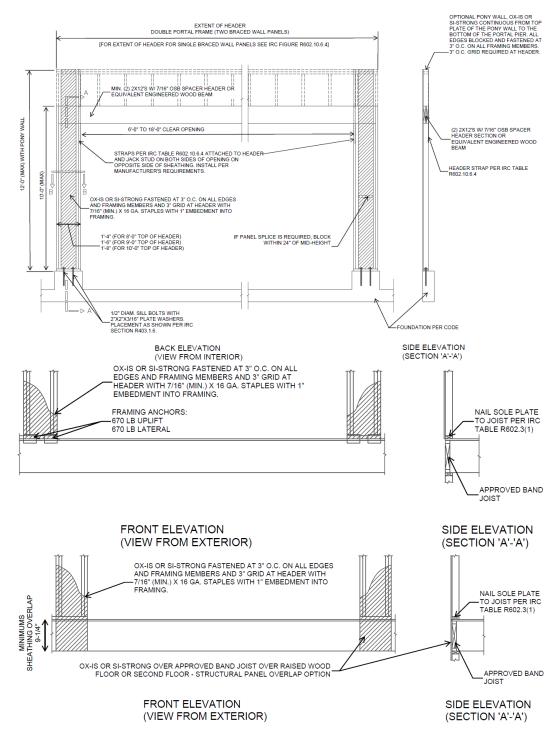


Figure 4. Construction Details of OX-IS or SI-Strong CS-PF





- 6.2.5 Prescriptive IBC Conventional Light-Frame Wood Construction:
 - 6.2.5.1 OX-IS and SI-Strong may be used to brace exterior walls of buildings as an equivalent alternative to Method 3 of the IBC when installed with blocked or unblocked 0.50" GWB fastened with a minimum 5d cooler nail or #6 Type W or S screw spaced a maximum of 16" o.c. at panel edges and 16" o.c. in the field. Bracing shall be in accordance with the conventional light-frame construction method of IBC Section 2308.6 and this report.
- 6.2.6 Performance-Based Wood-Framed Construction:
 - 6.2.6.1 OX-IS, OX-IS HS, and SI-Strong Structural Insulation panels used in wall assemblies designed as shear walls are permitted to be designed in accordance with the methodology used in SDPWS for WSP using the capacities shown in **Table 10**. Walls sheathed with OX-IS, OX-IS HS, and SI-Strong Structural Insulation panels may be designed to resist wind loads resulting from winds up to 200 mph (Vult).
 - 6.2.6.2 OX-IS, OX-IS HS, and SI-Strong Structural Insulation panels used in wall assemblies designed as shear walls are permitted to resist lateral wind load forces using the allowable shear loads (in pounds per linear foot) set forth in **Table 10**.
 - 6.2.6.3 OX-IS, OX-IS HS, and SI-Strong Structural Insulation panels used in wall assemblies designed as shear walls are permitted to resist seismic load forces using the seismic allowable unit shear capacities set forth in **Table 11** when seismic design is required in accordance with <u>IBC Section</u> 1613.
 - 6.2.6.3.1 The response modification coefficient, R; system overstrength factor, Ω_0 ; and deflection amplification factor, C_d, indicated in **Table 11** shall be used to determine the base shear, element design forces, and design story drift in accordance with ASCE 7 Chapter 12 and Section 14.5.

Table 10. Allowable Stress Design (ASD) Capacity for OX-IS, OX-IS HS and SI-Strong – Wind

Structural Sheathing Product	Product Thickness (in)	Maximum Fastener Spacing (edge:field) (in)	Maximum Stud Spacing (in)	GWB Thickness (in)	GWB Fastener ² Spacing (edge:field) (in)	Allowable Unit Shear Capacity (plf)
		3:3(1)	16 o.c.	1/2	8:8	440
		3.3(1)	10 0.0.	'72	16:16	370
					0.0	425(1)
		3:6	16 o.c.	1/2	8:8	350 ⁽³⁾
OX-IS and SI-Strong	0.50				16:16	355 ⁽¹⁾
or or only		3:3(1)	24 o.c.	1/2	8:8	385
		2.2(1)	16 o.c.	-	-	300
		3:3(1)	24 o.c.	-	-	275
		3:3(1)	24 o.c.	1/2	8:8	420
OX-IS HS	0.50	6:12 ⁽⁶⁾	16.00	'/2	8:8	470
		0.12(*)	16 o.c.	-	-	310





Table 10. Allowable Stress Design (ASD) Capacity for OX-IS, OX-IS HS and SI-Strong - Wind

Structural Sheathing Product	Product Thickness (in)	Maximum Fastener Spacing (edge:field) (in)	Maximum Stud Spacing (in)	GWB Thickness (in)	GWB Fastener ² Spacing (edge:field) (in)	Allowable Unit Shear Capacity (plf)
			16 o.c.	1/2	8:8	475
			10 O.C.	'/2	16:16	400
			24 o.c.	1/-	8:8	450
		2.2(1)	24 O.C.	1/2	16:16	380
OX-IS and	0.92 and 1.0	3:3(1)	16 o.c.	-	-	325
SI-Strong	OX-IS and 1.0 SI-Strong			-	-	295
			24 o.c.	¹ / ₂ and ThermoPLY Red ⁴	8:8	550
		3:3(3)	16 o.c.	1/2	8:8	390
		3:6(1)	16 o.c.	1/2	8:8	415
		3:3(5)	16 o.c.	-	-	305
		3.3(4)	24 o.c.	-	-	275
OX-IS,	1.7	3:6(5)	16 o.c.	1/2	8:8	415
SI-Strong	1.1	3.0(<)	24 o.c.	1/2	8:8	370
		3:3(5)	16 o.c.	1/2	8:8	425
		J.J(^e /	24 o.c.	1/2	8:8	380

SI: 1 in = 25.4 mm, 1 lb/ft = 0.0146 kN/m

- 1. Unless otherwise stated, OX-IS, SI-Strong and OX-IS HS attached to wood framing with a minimum 16-gauge, 7/16" crown staples shall penetrate a minimum of 1.0" into the stud. Fasteners are to be installed with the crown parallel to the framing. Fastener edge distance shall be a minimum of 3/6". Fastener head shall be in contact with the panel surface. Alternately, fastener heads are permitted to be overdriven into foam portion of the panel with no reduction in shear capacities.
- 1. Unless noted otherwise, GWB attached with minimum #6 type W or S screws 11/4" long with a minimum edge distance of 3/s".
- 2. OX-IS fastened with a minimum 0.113" diameter roofing nail with 0.280" minimum head size. 2" cap nails having a minimum 0.113" diameter are also permitted.
- 3. Install ThermoPLY Red on opposite side of wall from the OX-IS or SI-Strong with minimum 16-gauge, 1.0" crown staples fastened 3" o.c edge / 3" o.c. field. Separately attach 1/2" GWB over ThermoPLY Red with minimum #6 type W or S screws 11/4" long fastened 8" o.c edge/ 8" o.c. field.
- 4. OX-IS fastened with a minimum 0.113" diameter roofing nail with 0.280" minimum head size.
- 5. OX-IS HS fastened with a minimum #8 x 11/4" Wafer Head Screws driven through foam with head flush with the structural backer.





Table 11. Seismic Allowable Unit Shear Capacity and Seismic Design Coefficients for Light-Frame (Wood) Walls Sheathed with OX Products¹

Product	Product Thickness	Max. Stud	GWB Fastening Spacing ²	Seismic Allowable Unit Shear	Apparent Shear Stiffness,	Response Modifi- cation	System Over- strength	Deflection Amplifi- cation	L	₋imita 3uild	ation	Syste s and leigh (ft)	d
Troudot	(in)	(in)	(edge:field)	Capacity ³ (plf)	G _a (kips/in)	Factor, R ⁴	Factor, Ω_0^5	Coefficient Cd6	9		nic D atego	esigi ry	n
									В	С	D	Е	F
			16:16	295	23.0	6.5	3	4	NL	NL	65	65	65
OX-IS or SI-Strong	1 1 1	16 o.c.	8:8	350	23.0	6.5	3	4	NL	NL	65	65	65
			-	230	6.4	6.5	3	4	NL	NL	65	65	65
0.92	0.92		16:16	320	26.0	6.5	3	4	NL	NL	65	65	65
	(OX-IS only)	16 o.c.	8:8	380	26.0	6.5	3	4	NL	NL	65	65	65
OX-IS or SI-Strong	or		-	260	6.4	6.5	3	4	NL	NL	65	65	65
3	1.0 (OX-IS or	24	16:16	300	14.0	6.5	3	4	NL	NL	65	65	65
	SI-Strong)	24 o.c.	8:8	355	14.0	6.5	3	4	NL	NL	65	65	65
OX-IS	1.7	16 o.c	8:8	340(9)	17.9	6.5	3	4	NL	NL	65	65	65
	1.7	16 o.c.	8:8	375(10)	14.9	6.5	3	4	NL	NL	65	65	65
OX-IS HS	0.5	10 U.C.	-	250(10)	9.8	6.5	3	4	NL	NL	65	65	65
		24 o.c.	8:8	335	12.5	6.5	3	4	NL	NL	65	65	65

SI: 1 in = 25.4 mm, 1 lb/ft = 0.0146 kN/m, 1 psi = 0.00689 MPa

- 1. Unless otherwise stated, OX-IS, OX-IS HS and SI-Strong attached to wood framing with a minimum 16-gauge, 7/16" crown staples shall penetrate a minimum of 1.0" into the stud. Fasteners are to be installed with the crown parallel to the framing and spaced a maximum of 3" o.c. at the panel edges and 3" o.c. in the field. Fastener edge distance shall be a minimum of 3/6". Fastener head shall be in contact with the panel surface. Alternately, fastener heads are permitted to be overdriven into foam portion of the panel, at a maximum such that they are flush with the structural backer material, with no reduction in shear capacities.
- 2. Walls installed with minimum 1/2" GWB attached with minimum #6 type W or S screws 11/4" long. Fasteners shall maintain a minimum edge distance of 3/8".
- 3. All seismic design parameters follow the equivalency as defined in **Section 8** of this report.
- 4. Response modification coefficient, R, for use throughout ASCE 7. Note: R reduces forces to a strength level, not an allowable stress level.
- 5. The tabulated value of the overstrength factor, Ω₀, is permitted to be reduced by subtracting one-half (0.5) for structures with flexible diaphragms.
- 6. Deflection amplification factor, C_d, for use with ASCE 7 Sections 12.8.6, 12.8.7, and 12.9.1.2.
- 7. Heights are measured from the base of the structure as defined in ASCE 7 Section 11.2.
- 8. NL = Not Limited
- 9. OX-IS fastened with 0.131" x 3" nail spaced a maximum of 3" o.c. at the panel edges and 3" o.c. in the field. Fastener edge distance spacing shall be a minimum of 3/8".
- 10. OX-IS HS fastened with a minimum #8 x 1¹/₄" Wafer Head Screws driven through foam with head flush with the structural backer and fastened 6" o.c. at the panel edges, and 12" o.c. in the field.





6.2.7 Transverse Load Resistance:

- 6.2.7.1 OX-IS, OX-IS HS, and SI-Strong Structural Insulation panels are permitted to resist transverse wind load forces using the allowable transverse loads (in pounds per linear foot) set forth in **Table 12** and the basic wind speeds in **Table 13**.
- 6.2.7.2 Required component and cladding loads to be resisted are found in <u>IBC Section 1609.1.1</u>, <u>IRC Table</u> R301.2.1(1)²³ and IRC Table R301.2.1(2).²⁴

Table 12. Transverse (Out-of-Plane) Wind Load Resistance^{1,3,4}

Structural Sheathing Product	Maximum Stud Spacing (in)	Fastener ²	Fastener Spacing (edge:field) (in)	Allowable Design Value (psf)
OX-IS, OX-IS HS and SI-Strong	24 o.c.	7/ ₁₆ " crown 16-gauge galvanized staples, minimum 1.0" penetration into the stud	3:3	95

SI: 1 in = 25.4 mm, 1 psf = 0.0479 kN/m²

- Tested in accordance with ASTM E330.
- 2. Applies to both negative and positive load.
- 3. Attachment to wood framing having a minimum specific gravity of 0.42.
- 4. Staple crowns to be installed parallel to grain.

Table 13. Basic Wind Speed for Use in Exterior Wall Covering Assemblies 1,2,4,5,6

	Allowable Components and Cladding Basic Wind Speed (mph)							
Structural Sheathing Product		vable Stress De ind Speed ³ (Vas		Basic Design Wind Speed ² (V _{ult})				
	Exposure B	Exposure C	Exposure D	Exposure B	Exposure C	Exposure D		
OX-IS, OX-IS HS and SI-Strong	155	155	154	200	200	199		

SI: 1 mph = 1.61 km/h

- 1. Design wind load capacity shall be in accordance with ASCE 7-22 as specified in IBC Section 1609.1.1.
- 2. Allowable wind speeds are based on the following: A building height of 30-feet, GC_p= -1.4 for Zone 5 and an Effective Wind Area of 10 ft², Topographic Factor: K_{zt}=1.0, Ground Elevation Factor: K_e=1.0, Internal Pressure Coefficient, GC_{pi}=+/-0.18 for an enclosed building, K_d = 0.85 for Component and Cladding.
- 3. <u>IBC Section 1609.3.1</u>: $V_{asd} = V_{ult} \sqrt{0.6}$.
- 4. Reported V_{asd} is capped at 155 mph. Reported V_{ult} is capped at 200 mph.
- 5. Attachment to wood framing having a minimum specific gravity of 0.42.
- 24" o.c. framing.

6.2.8 Uplift Resistance:

6.2.8.1 OX-IS, OX-IS HS, and SI-Strong Structural Insulation panels are permitted to resist uplift forces using the allowable uplift loads (in pounds per linear foot) set forth in **Table 14**.





Table 14. Uplift Performance^{1,2,3,4}

Structural Sheathing Product	Bottom Plate	Allowable Uplift Capacity (plf)	Maximum Stud Spacing (in)	Fastener Schedule		
0.50" OX-IS, 0.50" OX-IS HS or 0.50" SI-Strong	Single Bottom Plate	220		⁷ / ₁₆ " crown, 1 ¹ / ₂ " leg		
0.92" OX-IS, 1.0" OX-IS	Single Bottom Plate	275		16-gauge galvanized		
or 1.0" SI-Strong	Double Bottom Plate	540	16 o.c.	staples, or		
1.7" OX-IS or 1.7" SI-Strong	Single Bottom Plate	275		0.120" x 1 ¹ / ₄ " roofing nails		
	Double Bottom Plate	540				

SI: 1 in = 25.4 mm, 1 lb/ft = 0.0146 kN/m

- The capacities shown are for the purpose of providing information on the hold-down capacity of the sheathing to the bottom plate connection independent of lateral loading. Where combined shear and uplift loading is needed, consult a professional engineer.
- 2. Attachment to wood framing having a minimum specific gravity of 0.42
- 3. Fastener spacing shall be 3" o.c. at the panel edges and 3" o.c. in the field. Fastener edge distance spacing shall be a minimum of 3/s".
- 4. Staple crowns to be installed parallel to grain of the framing members.

6.2.9 Steel-Framed Construction:

- 6.2.9.1 OX-IS, OX-IS HS, and SI-Strong Structural Insulation panels used in steel-framed construction resist lateral wind load forces using the allowable shear loads (in pounds per linear foot) set forth in **Table**15.
- 6.2.9.2 OX-IS, OX-IS HS, and SI-Strong Structural Insulation panels used in steel-framed construction resist lateral wind load forces using the allowable shear loads (in pounds per linear foot) set forth in **Table 15**.

Table 15. Allowable Shear Values for OX-IS, OX-IS HS, and SI-Strong on 20-Gauge 50 ksi Metal Studs1

Structural Sheathing Product	Maximum Fastener Spacing (edge:field) (in)	Maximum Stud Spacing (in)	GWB Thickness ^{2,3} (in)	GWB Fastener Spacing (edge:field)	Allowable Unit Shear Capacity (plf)	Structural Sheathing Fastener Schedule
0.50" OX-IS,	3:3	24	-	-	200	Note 4
0.50" OX-IS HS or 0.50" SI-Strong	3:3	24	1/2	8:8	300	Note 4
	3:3	24	-	-	235	Note 5
	3:3	24	-	-	140	Note 6
0.92" OX-IS,	3:12	24	-	-	395	Note 7
1.0" OX-IS, 1.0" SI-Strong,	6:12	24	-	-	195	Note 7
1.7" OX-IS	12:12	24	-	-	105	Note 7
1.7" SI-Strong	3:3	24	1/2	8:8	280	Note 5
	3:3	24	1/2	8:12	290	Note 5
	3:3	24	1/2	6:12	325	Note 5





Table 15. Allowable Shear Values for OX-IS, OX-IS HS, and SI-Strong on 20-Gauge 50 ksi Metal Studs¹

Structural Sheathing Product	Maximum Fastener Spacing (edge:field) (in)	Maximum Stud Spacing (in)	GWB Thickness ^{2,3} (in)	GWB Fastener Spacing (edge:field)	Allowable Unit Shear Capacity (plf)	Structural Sheathing Fastener Schedule
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SI: 1 in = 25.4 mm, 1 lb/ft = 0.0146 kN/m

- 1. Steel studs shall be minimum 20-gauge 50 ksi steel studs spaced at 24" o.c.
- Gypsum attached with a minimum #6 type S screws 1¹/₄" long with a minimum edge distance of ³/₈".
- 3. Where GWB is not installed on the interior face of the wall, the wall shall be constructed with mid-height horizontal bracing installed every other cavity space.
- 4. #8 x 1" self-drilling screws with modified truss head, driven flush with exterior of foam board.
- 5. #8 x 2" self-drilling screws with modified truss head, driven flush with exterior of foam board.
- 6. 0.100" diameter x 11/2" long pins.
- 7. #8 x 2" self-drilling screws with modified truss head, driven through foam plastic to seat against the backer material.

Table 16. Seismic Allowable Unit Shear Capacity and Seismic Design Coefficients for Light-Frame (Steel) Walls Sheathed with OX-IS, OX-IS HS and SI-Strong

Product	Product Thickness (in.)	Maximum Stud Spacing (in)	GWB Fastening Spacing ¹ (edge:field)	Seismic Allowable Unit Shear Capacity ² (plf)	Apparent Shear Stiffness, G _a (kips/in)	Response Modifi- cation Factor, R ³	$\begin{array}{c} \text{System} \\ \text{Over-} \\ \text{strength} \\ \text{Factor,} \\ \Omega_0^4 \end{array}$	Deflection Amplifi- cation Coefficient C _d ⁵	- (ft)				nit ^{6,7}
									В	C	D	Е	F
OX-IS	1.7	16 o.c	8:8	245(8)	14.9	6.5	3	4	NL	NL	65	65	65

SI: 1 in = 25.4 mm, 1 lb/ft = 0.0146 kN/m, 1 psi = 0.00689 MPa

- 1. Walls installed with minimum 1/2" GWB attached with minimum #6 type W or S screws 11/4" long. Fasteners shall maintain a minimum edge distance of 3/8".
- 2. All seismic design parameters follow the equivalency as defined in Section 8 of this report.
- 3. Response modification coefficient, R, for use throughout ASCE 7. Note: R reduces forces to a strength level, not an allowable stress level.
- 4. The tabulated value of the overstrength factor, Ω₀, is permitted to be reduced by subtracting one-half (0.5) for structures with flexible diaphragms.
- 5. Deflection amplification factor, C_d, for use with ASCE 7 Sections 12.8.6, 12.8.7, and 12.9.2
- 6. Heights are measured from the base of the structure as defined in ASCE 7 Section 11.2.
- 7. NL = Not Limited
- 8. #8 x 1" self-drilling screws with modified truss head, driven flush with exterior of foam board, spaced a maximum of 3" o.c. at the panel edges, and 3" o.c. in the field. Fastener edge distance spacing shall be a minimum of 3/8".

6.3 Water-Resistive Barrier (WRB)

- 6.3.1 OX-IS, OX-IS HS, and SI-Strong Structural Insulation may be used as a WRB as prescribed in <u>IBC</u>
 Section 1403.2²⁵ and <u>IRC Section R703.2</u> when installed on exterior walls as described in this section.
- 6.3.2 OX-IS, OX-IS HS, and SI-Strong Structural Insulation shall be installed with board joints placed directly over exterior framing spaced a maximum of 24" (610 mm) o.c. The fasteners used to attach the board shall be installed in accordance with **Table 9**, **Table 10**, **Table 11**, **Table 12**, **Table 14**, and **Section 9**, as applicable.
- 6.3.3 All seams and joints between boards shall be sealed with an approved construction tape in accordance with **Section 6.1.1.6**. Approved construction tape includes 2⁷/₈" OX Seam Tape[®]. Flashing tape may be required for effectively taping of inside and outside corners.
- 6.3.4 A separate WRB may also be provided. If a separate WRB method is used, overlapping or taping of the sheathing joints is not required.





6.3.5 Flashing of penetrations shall comply with the applicable code and must be installed at all sheathing penetrations. Use qualified flashing tape, such as Arctic Flash Synthetic Flashing, Flexible Butyl Flashing, or Home Guard RA-Plus Flashing. See **Figure 5**, **Figure 6**, and **Figure 7** for typical penetration flashing details.

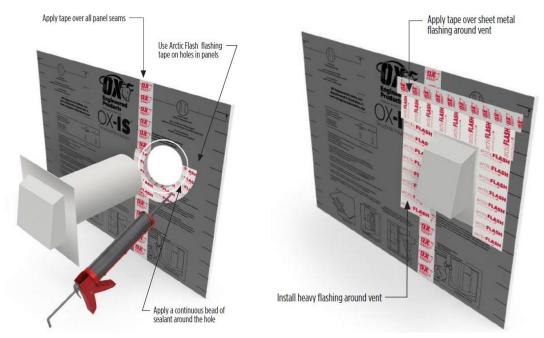


Figure 5. Typical Penetration Flashing Detail – Flanged

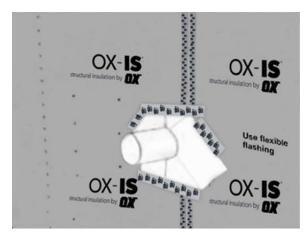


Figure 6. Typical Penetration Flashing Detail - Unflanged





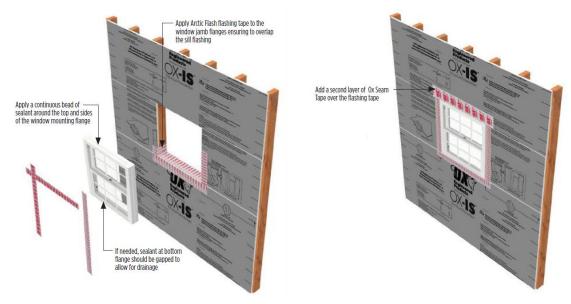


Figure 7. Typical Window Flashing Detail

- 6.4 Thermal Resistance (R-Value)
 - 6.4.1 OX-IS, OX-IS HS, and SI-Strong Structural Insulation meet the continuous insulated sheathing requirements complying with the provisions of <u>IECC Section C402</u>.
 - 6.4.2 OX-IS, OX-IS HS, and SI-Strong Structural Insulation have the thermal resistance shown in **Table 17**.

Table 17. Thermal Resistance Properties

Thickness (in)	R-Value (h⋅ft²⋅°F/Btu)
0.50	3.0
0.75	4.0
0.92	5.0
1.0	6.0
1.7	10.0
	0.50 0.75 0.92 1.0





6.5 Air Barrier

6.5.1 OX-IS, OX-IS HS, and SI-Strong Structural Insulation meet the requirements of <u>IECC Section C402</u> for use as a component of the air barrier when installed in accordance with the manufacturer installation instructions and this report, with all seams including the top and bottom edges, taped. See **Table 18**.

Table 18. Air Barrier Properties¹

Structural Sheathing Product	Air Permeance [L/(s·m²]
OX-IS, OX-IS HS and SI-Strong	< 0.02
Tested in accordance with ASTM D2178	

6.6 Draftstop

- 6.6.1 OX-IS, OX-IS HS, and SI-Strong Structural Insulation may be used as a draftstop material in accordance with IBC Section 708.4.2, IBC Section 718.3, IBC Section 718.4, and IRC Section R302.12.
- When installed as a draftstop, OX-IS, OX-IS HS, and SI-Strong Structural Insulation shall be installed in accordance with **Section 6.6** and **Section 9**.

6.7 Surface Burn Characteristics

6.7.1 The surface burn characteristics of OX-IS, OX-IS HS, and SI-Strong Structural Insulation are shown in **Table 19**.

Table 19. Surface Burn Characteristics¹

Structural Sheathing Product	Flame Spread Index	Smoke Developed Index	Classification				
OX-IS, OX-IS HS, and SI-Strong	≤ 75	≤ 450	Class B				
Tested in accordance with ASTM E84, with maximum foam thickness of 2.25", foam core only.							

- 6.8 Thermal Barrier Requirements Attic, Crawlspace, or Other Uninhabitable Space Applications
 - 6.8.1 Installation shall be fully protected from the interior of the building by an approved 15-minute thermal barrier or ignition barrier as required by <u>IBC Section 2603.4</u> and <u>IRC Section R316.4</u>, except as follows:
 - 6.8.1.1 When installed in an attic, crawlspace, or other uninhabitable spaces, OX-IS, OX-IS HS, and SI-Strong Structural Insulation, at a maximum thickness of 1.7", are approved for use without a thermal barrier or ignition barrier. This includes, but is not limited to, knee and gable end walls.
 - 6.8.1.2 Use without an approved thermal barrier or ignition barrier is limited to areas where:
 - 6.8.1.2.1 OX-IS, OX-IS HS, and SI-Strong Structural Insulation are installed on the walls only.
 - 6.8.1.2.2 Access to the space is required by IRC Section R807.1 or IRC Section R408.4.
 - 6.8.1.2.3 Entry is made only for the purposes of repairs or maintenance.

6.9 Non-Structural Applications

6.9.1 Where other means of wall bracing are provided or are not required, and an approved exterior wall covering capable of separately resisting loads perpendicular to the face of the walls is installed over the sheathing, OX-IS, OX-IS HS, and SI-Strong Structural Insulation may be installed in accordance with **Section 9.7**.





6.10 Where the application falls outside of the performance evaluation, conditions of use and/or installation requirements set forth herein, alternative techniques shall be permitted in accordance with accepted engineering practice and experience. This includes but is not limited to the following areas of engineering: mechanics or materials, structural, building science, and fire science.

7 Certified Performance²⁶

- 7.1 All construction methods shall conform to accepted engineering practices to ensure durable, livable, and safe construction and shall demonstrate acceptable workmanship reflecting journeyman quality of work of the various trades.²⁷
- 7.2 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.²⁸

8 Regulatory Evaluation and Accepted Engineering Practice

- 8.1 OX-IS, OX-IS HS, and SI-Strong Structural Insulation comply with the following legislatively adopted regulations and/or accepted engineering practice for the following reasons:
 - 8.1.1 OX-IS and SI-Strong were evaluated to determine:
 - 8.1.1.1 Structural performance under lateral load conditions (wind and seismic) for use as an alternative to the IRC Intermittent Wall Bracing provisions specified in IRC Section R602.10, Method WSP (Wood Structural Panel), and the IRC Continuous Wall Bracing provisions specified in IRC Section R602.10.4, Method CS WSP (Continually Sheathed Wood Structural Panel) and CS-PF (Continually Sheathed Portal Frame).
 - 8.1.1.2 Structural performance under lateral load conditions for use as an alternative to the Conventional Wall Bracing provisions specified in IBC Section 2308.6 Method 3, for Type V construction.
 - 8.1.2 OX-IS, OX-IS HS, and SI-Strong Structural Insulation were evaluated to determine:
 - 8.1.2.1 Structural performance under lateral load conditions for both wind and seismic loading for use with the performance-based provisions specified in IBC Section 2306.1 and IBC Section 2306.3, for light-frame wood wall assemblies.
 - 8.1.2.1.1 **Table 11** provides Seismic Design Coefficients (SDC) that conform to the requirements in ASCE 7 Section 12.2.1 and Table 12.2-1 for design of wall assemblies in buildings that require seismic design in accordance with ASCE 7 (i.e., all seismic design categories).
 - 8.1.2.1.2 The basis for equivalency testing is outlined in Section 12.2.1.1²⁹ of ASCE 7:

Alternative Structural Systems. Use of seismic force-resisting systems not contained in Table 12.2-1 shall be permitted contingent on submittal to and approval by the Authority Having Jurisdiction and independent structural design review of an accompanying set of design criteria and substantiating analytical and test data. The design criteria shall specify any limitations on system use, including Seismic Design Category and height; required procedures for designing the system's components and connections; required detailing; and the values of the response medication coefficient, R; overstrength factor, Ω_0 ; and deflection amplification factor, C_d .

8.1.2.1.3 The basis of the seismic evaluation performed as part of this report is based on ASTM D7989 and testing per ASTM E2126 to establish SDC that conform to the requirements of ASCE 7 Section 12.2.1.1.





- 8.1.2.2 Structural performance under lateral load conditions for use as an alternative to SDPWS Section 4.3 Wood Frame Shear Walls.
- 8.1.2.3 Resistance to uplift loads for wall assemblies used for light-frame wood construction in accordance with IBC Section 1609 and IRC Section R301.2.1.
- 8.1.2.4 Resistance to transverse loads for wall assemblies used in light-frame wood construction in accordance with IBC Section 1609.1.1 and IRC Section R301.2.1.
- 8.1.2.5 Performance for use as foam plastic insulation in accordance with the <u>IBC Section 2603</u> and <u>IRC Section R316</u>.
- 8.1.2.6 Performance for use as insulated sheathing in accordance with the IECC Section C402.1.
- 8.1.2.7 Performance for use as an air barrier in accordance with the IECC Section C402.5.1.3.30
- 8.1.2.8 Performance for use as a WRB in accordance with the <u>IBC Section 1403.2</u>³¹ and <u>IRC Section R703.2</u>.
- 8.1.2.9 Performance for use as a draftstop in accordance with <u>IBC Section 708.4.2,³² IBC Section 718.3</u>, <u>IBC Section 718.4</u>, and IRC Section R302.12.
- Use in an IRC Method PFH (Portal Frame with Hold-downs) braced wall panels is outside the scope of this report. For this application, see Report Number <u>1101-01</u>.
- 8.3 Any building code, regulation, and/or accepted engineering evaluations (i.e., research reports, <u>Duly Authenticated Reports</u>, etc.) that are conducted for this Listing were performed by DrJ Engineering, LLC (DrJ), an <u>ISO/IEC 17065 accredited certification body</u> and a professional engineering company operated by <u>RDP/approved sources</u>. DrJ is qualified³³ to practice product and regulatory compliance services within its scope of accreditation and engineering expertise, respectively.
- 8.4 Engineering evaluations are conducted with DrJ's ANAB <u>accredited ICS code scope</u> of expertise, which are also its areas of professional engineering competence.
- 8.5 Any regulation specific issues not addressed in this section are outside the scope of this report.

9 Installation

- 9.1 Installation shall comply with the approved construction documents, the manufacturer installation instructions, this report and the applicable building code.
- 9.2 In the event of a conflict between the manufacturer installation instructions and this report, the more restrictive shall govern.
- 9.3 Orientation
 - 9.3.1 OX-IS, OX-IS HS, and SI-Strong Structural Insulation may be installed vertically or horizontally over studs, with framing that has a nominal thickness of not less than 2" (50.8 mm) and spaced a maximum of 24" (610 mm) o.c.
 - 9.3.2 Sheathing joints must be butted at framing members, and all panel edges shall be blocked. A single row of fasteners must be applied to each panel edge into the stud or blocking below. Do not tack product to framing, but fasten each panel completely after fastening begins.

9.4 Attachment

- 9.4.1 General:
 - 9.4.1.1 Fasteners shall be installed with a nominal edge distance of 3/8" (9.5 mm) for GWB.
 - 9.4.1.2 Where used, always fasten staples parallel to the framing member.
 - 9.4.1.3 Where hold-down straps are used, install structural sheathing first, remove foam at strap's location, then install the strap over the face of the structural sheathing backer and attach per the manufacturer installation instructions.





- 9.4.2 OX-IS, OX-IS HS, and SI-Strong Structural Insulation:
 - 9.4.2.1 Minimum ⁷/₁₆" crown by 1¹/₂" leg, 16-gauge staples with a 1.0" minimum embedment into the stud unless otherwise stated in **Section 6**.
 - 9.4.2.2 Fastener spacing shall be a maximum of 3" o.c. (76.2 mm) along the edge and 3" o.c. in the field unless otherwise permitted in **Section 6**.
- 9.4.3 GWB:
 - 9.4.3.1 Where required, GWB shall be a minimum ¹/₂" thickness and shall be attached with one of the following:
 - 9.4.3.1.1 #6 x $1^{1}/_{4}$ " Type W or S screws
 - 9.4.3.1.2 5d cooler nails
 - 9.4.3.2 Fastener spacing shall be as shown in **Section 6**.
- 9.5 Treatment of Joints
 - 9.5.1 OX-IS, OX-IS HS, and SI-Strong Structural Insulation sheathing joints must be butted at framing members, and a single row of fasteners must be applied to each panel edge into the stud below. Run staples parallel to framing.
- 9.6 Window Treatments
 - 9.6.1 OX-IS, OX-IS HS, and SI-Strong Structural Insulation must be installed with appropriate flashing and counter flashing in conformance with accepted building standards and in compliance with local building codes and the flashing manufacturer installation instructions.
- 9.7 Non-Structural Applications
 - 9.7.1 Install panels with nails that have a 0.113" (2.9 mm) minimum shank diameter, a ³/₈" (9.5 mm) head diameter, and a 1.0" (25.4 mm) minimum stud embedment length; or 16-gauge ⁷/₁₆" (11.1 mm) crown staples and a 1.0" (25.4 mm) minimum stud embedment length.
 - 9.7.2 The fastener spacing shall be 6" o.c. along the top, bottom, and vertical panel edges and 12" o.c. in the field. Do not tack product to framing, but fasten each panel completely after fastening begins.

10 Substantiating Data

- 10.1 Testing has been performed under the supervision of a professional engineer and/or under the requirements of ISO/IEC 17025 as follows:
 - 10.1.1 Lateral load testing for use as an alternative material for wind design in accordance with ASTM E72 and ASTM E564
 - 10.1.2 Lateral load testing and data for determining comparative equivalency for use as an alternative material for seismic design in accordance with ASTM E2126 and analysis per ASTM D7989
 - 10.1.3 Transverse load testing in accordance with ASTM E330
 - 10.1.4 WRB material testing in accordance with ASTM E331
 - 10.1.5 Air barrier testing in accordance with ASTM E2178
 - 10.1.6 Surface burning characteristics testing in accordance with ASTM E84
 - 10.1.7 Use in attics and crawlspaces without a thermal barrier or ignition barrier testing in accordance with NFPA 286





- 10.2 Information contained herein may include the result of testing and/or data analysis by sources that are approved agencies, approved sources, and/or RDPs. Accuracy of external test data and resulting analysis is relied upon.
- 10.3 Where pertinent, testing and/or engineering analysis are based upon provisions that have been codified into law through state or local adoption of regulations and standards. The developers of these regulations and standards are responsible for the reliability of published content. DrJ's engineering practice may use a regulation-adopted provision as the control. A regulation-endorsed control versus a simulation of the conditions of application to occur establishes a new material as being equivalent to the regulatory provision in terms of quality, strength, effectiveness, fire resistance, durability, and safety.
- 10.4 The accuracy of the provisions provided herein may be reliant upon the published properties of raw materials, which are defined by the grade mark, grade stamp, mill certificate, or <u>Duly Authenticated Reports</u> from <u>approved agencies</u> and/or <u>approved sources</u> provided by the supplier. These are presumed to be minimum properties and relied upon to be accurate. The reliability of DrJ's engineering practice, as contained in this <u>Duly</u> Authenticated Report, may be dependent upon published design properties by others.
- 10.5 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.³⁴
- 10.6 Where additional condition of use and/or regulatory compliance information is required, please search for OX-IS, OX-IS HS, and SI-Strong Structural Insulation on the DrJ Certification website.

11 Findings

- 11.1 As outlined in **Section 6**, OX-IS, OX-IS HS, and SI-Strong Structural Insulation have performance characteristics that were tested and/or meet applicable regulations and are suitable for use pursuant to its specified purpose.
- 11.2 When used and installed in accordance with this <u>Duly Authenticated Report</u> and the manufacturer installation instructions, OX-IS, OX-IS HS, and SI-Strong Structural Insulation shall be approved for the following applications:
 - 11.2.1 Lateral load resistance due to wind and seismic loads carried by shear walls.
 - 11.2.2 Use as an equivalent alternative to the CS-PF as described in <u>IRC Section R602.10.5</u> and <u>IRC Section R602.10.6</u>.
 - 11.2.3 Transverse load resistance due to components and cladding pressures on building surfaces.
 - 11.2.4 Performance of the foam plastic component for conformance to IBC Section 2603 and IRC Section R316.
 - 11.2.5 Performance for use as insulating sheathing in accordance with <u>IRC Sections N1102.1</u>, <u>IRC Section N1102.2</u>, and <u>IECC Section C402</u>.
 - 11.2.6 Performance for use as a WRB in accordance with IBC Section 1403.2³⁵ and IRC Section R703.2.
 - 11.2.7 Performance for use as an air barrier in accordance with IRC Section N1102.4 and IECC Section C402.
 - 11.2.8 Performance for use as a draftstop in accordance with <u>IBC Section 708.4.2</u>, <u>IBC Section 718.3</u>, <u>IBC Section 718.4</u>, and <u>IRC Section R302.12</u>.
- 11.3 When used and installed in accordance with this report and the manufacturer installation instructions, OX-IS HS is approved for the following:
 - 11.3.1 Lateral load resistance due to wind and seismic loads carried by shear walls
 - 11.3.2 Transverse load resistance due to components and cladding pressures on building surfaces
 - 11.3.3 Performance of the foam plastic component for conformance to IBC Section 2603 and IRC Section R316





- 11.3.4 Performance for use as insulating sheathing in accordance with <u>IRC Sections N1102.1</u>, <u>IRC Section N1102.2</u>, and <u>IECC Section C402</u>
- 11.3.5 Performance for use as a WRB in accordance with IBC Section 1403.2³⁶ and IRC Section R703.2
- 11.3.6 Performance for use as an air barrier in accordance with IRC Section N1102.4 and IECC Section C402
- 11.4 Any application specific issues not addressed herein can be engineered by an RDP. Assistance with engineering is available from Amrize Building Envelope, LLC.
- 11.5 IBC Section 104.11 (IRC Section R104.11 and IFC Section 104.10³⁷ 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.
- 11.6 Approved:³⁸ Building regulations require that the <u>building official</u> shall accept <u>Duly Authenticated Reports</u>.³⁹
 - 11.6.1 An approved agency is "approved" when it is ANAB ISO/IEC 17065 accredited.
 - 11.6.2 An <u>approved source</u> is "approved" when an <u>RDP</u> is properly licensed to transact engineering commerce.
 - 11.6.3 Federal law, <u>Title 18 US Code Section 242</u>, requires that where the alternative product, material, service, design, assembly, and/or method of construction is not approved, the building official shall respond in writing, stating the reasons why the alternative was not approved. Denial without written reason deprives a protected right to free and fair competition in the marketplace.
- 11.7 DrJ is a licensed engineering company, employs licensed RDPs and is an <u>ANAB-Accredited Product Certification Body Accreditation #1131</u>.
- 11.8 Through the <u>IAF Multilateral Agreements</u> (MLA), this <u>Duly Authenticated Report</u> can be used to obtain product approval in any <u>jurisdiction</u> or <u>country</u> because all ANAB ISO/IEC 17065 <u>Duly Authenticated Reports</u> are equivalent.⁴⁰

12 Conditions of Use

- 12.1 Material properties shall not fall outside the boundaries defined in **Section 6**.
- 12.2 As defined in **Section 6**, where material and/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.
- 12.3 As listed herein, OX-IS, OX-IS HS, and SI-Strong Structural Insulation shall not be used:
 - 12.3.1 To resist horizontal loads from concrete and masonry walls, nor
 - 12.3.2 As a nailing base.
- 12.4 Except as provided in **Section 6.8**, this product shall be fully protected from the interior of the building by an approved 15-minute thermal barrier where required by the applicable code.
- 12.5 When required by adopted legislation and enforced by the <u>building official</u>, also known as the authority having jurisdiction (AHJ) in which the project is to be constructed:
 - 12.5.1 Any calculations incorporated into the construction documents shall conform to accepted engineering practice and, when prepared by an <u>approved source</u>, shall be approved when signed and sealed.
 - 12.5.2 This report and the installation instructions shall be submitted at the time of permit application.
 - 12.5.3 These innovative products have an internal quality control program and a third-party quality assurance program.





- 12.5.4 At a minimum, these innovative products shall be installed per **Section 9** of this report.
- 12.5.5 The review of this report by the AHJ shall comply with IBC Section 104 and IBC Section 105.4.
- 12.5.6 These innovative products have an internal quality control program and a third party quality assurance program in accordance with <u>IBC Section 104.4</u>, <u>IBC Section 110.4</u>, <u>IBC Section 1703</u>, <u>IRC Section 1703</u>, <u>IRC Section 1704.4</u>, and IRC Section R109.2.
- 12.5.7 The application of these innovative products in the context of this report is 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.
- 12.6 The approval of this report by the AHJ shall comply with <u>IBC Section 1707.1</u>, where legislation states in part, "the <u>building official</u> shall accept duly authenticated reports from <u>approved agencies</u> in respect to the quality and manner of <u>use</u> of new material or assemblies as provided for in <u>Section 104.11</u>," all of <u>IBC Section 104</u>, and <u>IBC Section 105.4</u>.
- 12.7 <u>Design loads</u> shall be determined in accordance with the regulations adopted by the <u>jurisdiction</u> in which the project is to be constructed and/or by the building designer (i.e., <u>owner</u> or RDP).
- 12.8 The actual design, suitability, and use of this report for any particular building, is the responsibility of the <u>owner</u> or the authorized agent of the owner.

13 Identification

- 13.1 OX-IS Structural Insulation, OX-IS HS (High Shear) Structural Insulation, and SI-Strong Structural Insulation as listed in **Section 1**, are identified by a label on the board or packaging material bearing the manufacturer name, product name, this report number, and other information to confirm code compliance.
- 13.2 Additional technical information can be found at www.oxengineeredproducts.com.

14 Review Schedule

- 14.1 This report is subject to periodic review and revision. For the latest version, visit <u>drjcertification.org</u>.
- 14.2 For information on the status of this report, please contact <u>DrJ Certification</u>.





Issue Date: December 9, 2020

Subject to Renewal: April 1, 2026

FBC Supplement to Report Number 0804-01

REPORT HOLDER: Amrize Building Envelope, LLC

1 Evaluation Subject

1.1 OX-IS, OX-IS HS, and SI-Strong Structural Insulation

2 Purpose and Scope

- 2.1 Purpose
 - 2.1.1 The purpose of this report supplement is to show the OX-IS, OX-IS HS, and SI-Strong Structural Insulation, recognized in Report Number 0804-01, have also been evaluated for compliance with the codes listed below as adopted by the Florida Building Commission.
- 2.2 Applicable Code Editions
 - 2.2.1 FBC-B—20, 23: Florida Building Code Building (FL 16410)
 - 2.2.2 FBC-R—20, 23: Florida Building Code Residential (FL 16410)

3 Conclusions

- 3.1 OX-IS, OX-IS HS, and SI-Strong Structural Insulation, described in Report Number 0804-01, comply with the FBC-B and FBC-R and are subject to the conditions of use described in this supplement.
- 3.2 Where there are variations between the IBC and IRC and the FBC-B and FBC-R applicable to this report, they are listed here:
 - 3.2.1 FBC-B Section 104.4, Section 110.4, and Section 2308 are reserved.
 - 3.2.2 FBC-R Section R104, Section R109, Section R602.10, Section R602.10.4, Section R602.10.5, Section R602.10.6.4, Section R602.12, and Section R602.12.4 are reserved.
 - 3.2.3 FBC-B Section 718.3 replaces IBC Section 718.3.
 - 3.2.4 FBC-B Section 718.4 replaces IBC Section 718.4.
 - 3.2.5 FBC-B Section 1404.2 replaces IBC Section 1403.2.
 - 3.2.6 FBC-B Section 1609.1.1 replaces IBC Section 1609.1.1.
 - 3.2.7 FBC-B Section 1609.3.1 replaces IBC Section 1609.3.1.
 - 3.2.8 FBC-B Section 2306.1 replaces IBC Section 2306.1.
 - 3.2.9 FBC-R Section R301.2.1 replaces IBC Section 301.2.1.
 - 3.2.10 FBC-R Section R702.3.5 replaces IBC Section R702.3.5.
 - 3.2.11 FBC-R Section R703.2 replaces IBC Section R703.2.
 - 3.2.12 FBC-R Section R807.1 replaces IBC Section 807.1.





4 Conditions of Use

- 4.1 OX-IS, OX-IS HS, and SI-Strong Structural Insulation, described in Report Number 0804-01, must comply with all of the following conditions:
 - 4.1.1 All applicable sections in Report Number 0804-01.
 - 4.1.2 The design, installation, and inspections are in accordance with additional requirements of FBC-B Chapter 16 and Chapter 17, as applicable.





Notes

- For more information, visit dricertification.org or call us at 608-310-6748.
- https://up.codes/viewer/wyoming/ibc-2021/chapter/17/special-inspections-and-tests#1702
- 3 Alternative Materials, Design and Methods of Construction and Equipment: The provisions of any regulation code are not intended to prevent the installation of any material or to prohibit any design or method of construction not specifically prescribed by a regulation. Please review https://up.codes/viewer/colorado/ibc-2021/chapter/1/scope-and-administration#104.11
- 4 https://up.codes/viewer/wyoming/ibc-2021/chapter/17/special-inspections-and-tests#1706:~:text=the%20design%20strengths%20and%20permissible%20stresses%20shall%20be%20established%20by%20tests%20as
- The design strengths and permissible stresses of any structural material shall conform to the specifications and methods of design of accepted engineering practice. https://up.codes/viewer/wyoming/ibc-2021/chapter/17/special-inspections-and-tests#1706:~:text=shall%20conform%20to%20the%20specifications%20and%20methods%20of%20design%20of%20accepted%20engineering%20practice
- https://up.codes/viewer/wyoming/ibc-2021/chapter/17/special-inspections-and-
- tests#1707.1:~:text=the%20building%20official%20shall%20accept%20duly%20authenticated%20reports%20from%20approved%20agencies
- https://up.codes/viewer/wyoming/ibc-2021/chapter/17/special-inspections-and-tests#1703.4.2
- 8 https://up.codes/viewer/wyoming/ibc-2021/chapter/2/definitions#approved_agency
- https://up.codes/viewer/wyoming/ibc-2021/chapter/2/definitions#approved_source
- https://www.law.comell.edu/uscode/text/18/1832 (b) 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. To follow DTSA and comply state public records and trade secret legislation requires approval through ANAB ISO/IEC 17065 accredited certification bodies or approved sources. For more information, please review this website: Intellectual Property and Trade Secrets.
- https://www.nspe.org/resources/issues-and-advocacy/professional-policies-and-position-statements/regulation-professional AND https://apassociation.org/list-of-engineering-boards-in-each-state-archive/
- 12 <u>https://www.cbitest.com/accreditation/</u>
- https://up.codes/viewer/colorado/ibc-2021/chapter/1/scope-and-administration#104:~:text=to%20enforce%20the%20provisions%20of%20this%20code
- https://up.codes/viewer/colorado/ibc-2021/chapter/1/scope-and
 - administration#104.11:~:text=Where%20the%20alternative%20material%2C%20design%20or%20method%20of%20construction%20is%20not%20approved%2C%20the%20building%20official%20shall%20respond%20in%20writing%2C%20stating%20the%20reasons%20why%20the%20alternative%20was%20not%20approved AND https://up.codes/viewer/colorado/ibc-2021/chapter/1/scope-and-
 - administration#105.3.1:~:text=If%20the%20application%20or%20the%20construction%20documents%20do%20not%20conform%20to%20the%20requirements%20of%20pertinent%20laws%2C%20the%20building%20official%20shall%20reject%20such%20application%20in%20writing%2C%20stating%20the%20reasons%20therefore
- https://up.codes/viewer/colorado/ibc-2021/chapter/17/special-inspections-and-tests#1707.1:~:text=the%20building%20official%20shall%20accept%20duly%20authenticated%20reports%20from%20approved%20agencies%20in%20respect%20to%20the%20 quality%20and%20manner%20of%20use%20of%20mew%20materials%20or%20assemblies%20as%20provided%20for%20in%20Section%20104.11
- 16 https://iaf.nu/en/about-iaf
 - mla/#:~:text=it%20is%20required%20to%20recognise%20certificates%20and%20validation%20and%20verification%20statements%20issued%20by%20conformity%20assessmen t%20bodies%20accredited%20by%20all%20other%20signatories%20of%20the%20IAF%20MLA%2C%20with%20the%20appropriate%20scope
- 17 True for all ANAB accredited product evaluation agencies and all International Trade Agreements.
- https://www.justice.gov/crt/deprivation-rights-under-color-law AND https://www.justice.gov/atr/mission
- 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.
- 20 All references to FBC-B and FBC-R are the same as the 2021 IBC and 2021 IRC unless otherwise noted in the supplement at the end of this report.
- https://www.ecfr.gov/current/title-24/subtitle-B/chapter-XX/part-3280#p-3280.2(Listed%20or%20certified); https://up.codes/viewer/colorado/ibc-2021/chapter/2/definitions#listed AND https://up.codes/viewer/colorado/ibc-2021/chapter/2/definitions#labeled
- 22 2015 IBC Section 1404.2
- 23 <u>2018 IRC Table R301.2(2)</u>
- ²⁴ 2018 IRC Table R301.2(3)
- ²⁵ 2015 IBC Section 1404.2
- https://up.codes/viewer/colorado/ibc-2021/chapter/17/special-inspections-and-tests#1703.4
- https://www.ecfr.gov/current/title-24/subtitle-B/chapter-XX/part-3280#:~:text=All%20construction%20methods%20shall%20be%20in%20conformance%20with%20accepted%20engineering%20practices%20to%20insure%20durable%2C%20liv_able%2C%20and%20safe%20housing%20and%20shall%20demonstrate%20acceptable%20workmanship%20reflecting%20journeyman%20quality%20of%20work%20of%20the%20vorkwanship%20reflecting%20journeyman%20quality%20of%20work%20of%20the%20vorkwanship%20reflecting%20journeyman%20quality%20of%20work%20of%20the%20vorkwanship%20reflecting%20journeyman%20quality%20of%20work%20of%20the%20workwanship%20reflecting%20journeyman%20quality%20of%20work%20of%20the%20workwanship%20reflecting%20journeyman%20quality%20of%20work%20of%20the%20workwanship%20reflecting%20journeyman%20quality%20of%20work%20of%20the%20workwanship%20reflecting%20journeyman%20quality%20of%20work%20of%20the%20workwanship%20reflecting%20journeyman%20quality%20of%20work%20of%20the%20workwanship%20reflecting%20journeyman%20quality%20of%20workwanship%20reflecting%20journeyman%20quality%20of%20workwanship%20reflecting%20journeyman%20quality%20of%20workwanship%20reflecting%20journeyman%20quality%20of%20workwanship%20reflecting%20journeyman%20quality%20of%20workwanship%20reflecting%20journeyman%20quality%20of%20workwanship%20reflecting%20journeyman%20quality%20of%20workwanship%20reflecting%20journeyman%20quality%20of%20workwanship%20reflecting%20journeyman%20quality%20of%20workwanship%20reflecting%20journeyman%20quality%20of%20workwanship%20of%
- https://www.ecfr.gov/current/title-24/subtitle-B/chapter-XX/part-3280#:~:text=The%20strength%20and%20rigidity%20of%20the%20component%20parts%20and/or%20the%20integrated%20structure%20shall%20be%20determined%20by%20 engineering%20analysis%20or%20by%20suitable%20load%20tests%20to%20simulate%20the%20actual%20loads%20and%20conditions%20of%20application%20that%20occur
- ²⁹ ASCE 7-5 and 7-10 Section 12.2.1
- 30 <u>2018 IECC Section C402.5.1.2.1</u>





- 2015 IBC Section 1404.2
- 32 2015 IBC Section 708.4
- 33 Qualification is performed by a legislatively defined <u>Accreditation Body</u>. <u>ANSI National Accreditation Board (ANAB)</u> is the largest independent accreditation body in North America and provides services in more than 75 countries. <u>DrJ</u> is an ANAB accredited <u>product certification body</u>.
- See Code of Federal Regulations (CFR) <u>Title 24 Subtitle B Chapter XX Part 3280</u> for definition.
- ³⁵ 2015 IBC Section 1404.2
- 36 <u>2015 IBC Section 1404.2</u>
- 37 <u>2018 IFC Section 104.9</u>
- 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.
- https://up.codes/viewer/wyoming/ibc-2021/chapter/17/special-inspections-and-tests#1707.1
- 40 Multilateral approval is true for all ANAB accredited product evaluation agencies and all International Trade Agreements.