Listing and Technical Evaluation Report™

A Duly Authenticated Report from an Approved Agency

Report No: 2302-42

Issue Date: April 15, 2024
Revision Date: May 6, 2025
Subject to Renewal: October 1, 2026

Performance Characteristics of Owens Corning® (OC™) Lumber - USA

Trade Secret Report Holder:

Owens Corning®

Phone: 1-800-GET-PINK Website: www.owenscorning.com Email: oclumber@owenscorning.com

CSI Designations:

DIVISION: 06 00 00 - WOOD, PLASTICS AND COMPOSITES

Section: 06 05 23 - Wood, Plastic, and Composite Fastenings
Section: 06 10 00 - Rough Carpentry
Section: 06 15 00 - Wood Decking
Section: 06 17 00 - Shop-Fabricated Structural Wood

1 Innovative Product Evaluated[1]

1.1 Owens Corning Lumber

2 Product Description and Materials

2.1 The innovative product evaluated in this report is shown in **Figure 1** and is described in **Table 1**.

Figure 1. Owens Corning Lumber

Table 1. Description of Owens Corning Lumber

Owens Corning Lumber	Description
Product Type	Continuous Glass fiber reinforced High Density Polyethylene (HDPE) with less than twenty-five percent (25%) calcium carbonate in base HDPE resin. ≥ 5% of overall total weight is fibrous glass < 2.5% by weight of organic surface binder
Application	Reinforced and semi-reinforced extruded products for use in non-structural and structural applications.
Joists (OC Lumber Structural Framing)	Reinforced polymeric lumber for joist applications (edgewise orientation) available in the following sizes: Nominal: 2 x 6, 2 x 8, 2 x 10, and 2 x 12 Actual: 1.5" x 5.5", 1.5" x 7.5", 1.5" x 9.25" and 1.5" x 11.25"
Decking[1] (OC Lumber WEARDECK Decking)	Reinforced polymeric lumber for decking applications (flatwise orientation) available in the following sizes: Nominal: 5/4 x 6, 5/4 x 8, and Scant 2 x 6 Actual: 1.02" x 5.5", 1.02" x 7.5", and 1.35" x 5.5"
SI: 1 in = 25.4 mm 1. See Report Number 2311-03 for material properties.	

2.2 As needed, review material properties for design in **Section 6** and the regulatory evaluation in **Section 8**.

3 Definitions[2]

3.1 New Materials[3] 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.[4] The design strength and permissible stresses shall be established by tests[5] and/or engineering analysis.[6]

3.2 Duly authenticated reports[7] and research reports[8] are test reports and related engineering evaluations that are written by an approved agency[9] and/or an approved source.[10]

3.2.1 These reports utilize intellectual property and/or trade secrets to create public domain material properties for commercial end-use. This report protects confidential Intellectual Property and trade secretes under the regulation, 18.US.Code.90, also known as Defend Trade Secrets Act of 2016 (DTSA).[11]

3.3 An approved agency is *"approved"* when it is ANAB ISO/IEC 17065 accredited. DrJ Engineering, LLC (DrJ) is accredited and listed in the ANAB directory.

3.4 An approved source is *"approved"* when a professional engineer (i.e., Registered Design Professional, hereinafter RDP) is properly licensed to transact engineering commerce. The regulatory authority governing approved sources is the state legislature via its professional engineering regulations.[12]

3.5 Testing and/or inspections conducted for this duly authenticated report were performed by an ISO/IEC 17025 accredited testing laboratory, an ISO/IEC 17020 accredited inspection body, and/or a licensed RDP.

3.5.1 The Center for Building Innovation (CBI) is ANAB[13] ISO/IEC 17025 and ISO/IEC 17020 accredited.

3.6 The regulatory authority shall enforce[14] 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[15] stating the nonconformance and the path to its cure.

3.7 The regulatory authority shall accept duly authenticated reports from an approved agency and/or an approved source 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.[16]

3.8 ANAB is an International Accreditation Forum (IAF) Multilateral Recognition Arrangement (MLA) signatory. Therefore, recognition of certificates and validation statements issued by conformity assessment bodies accredited by all other signatories of the IAF MLA with the appropriate scope shall be approved.[17] Thus, all ANAB ISO/IEC 17065 duly authenticated reports are approval equivalent,[18] and can be used in any country that is an MLA signatory found at this link: https://iaf.nu/en/recognised-abs/

3.9 Approval equity is a fundamental commercial and legal principle.[19]

4 Applicable Standards for the Listing; Regulations for the Regulatory Evaluation[20]

4.1 *Standards*

4.1.1 *ASTM D198: Standard Test Methods of Static Tests of Lumber in Structural Sizes*

4.1.2 *ASTM D1037: Standard Test Methods for Evaluating Properties of Wood-Base Fiber and Particle Panel Materials*

4.1.3 *ASTM D6109: Standard Test Methods for Flexural Properties of Unreinforced and Reinforced Plastic Lumber and Related Products*

4.1.4 *ASTM D7147: Standard Specification for Testing and Establishing Allowable Loads of Joist Hangers*

4.1.5 *ASTM E84: Standard Test Method for Surface Burning Characteristics of Building Materials*

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

4.2 *Regulations Evaluated and Regulatory Compliance*

4.2.1 *IBC – 15, 18, 21, 24: International Building Code®*

4.2.2 *IRC – 15, 18, 21, 24: International Residential Code®*

4.2.3 *California Building Code (CBC) and California Residential Code (CRC) – 22*

4.2.3.1 Base code and as amended by state agency authorities including but not limited to, the Building Standards Commission, BCS; State Fire Marshall, SFM; Division of the State Architect, DSA; Department of Housing and Community Development, HCD; and the Office of Statewide Health Planning and Development, OSHPD as applicable. Also includes amendments as adopted by Los Angeles County, the City of Los Angeles, San Diego, San Jose and San Francisco as applicable.

4.2.4 *Florida Building Code (FBC) and Florida Residential Code (FRC) – 23*

4.2.5 *Other State and Local Regulations:*

4.2.5.1 *Chicago Building Code – 19 with 22 Supplement*

4.2.5.2 *New York City – 22*

4.2.5.3 *Texas Department of Insurance*

5 Listed[21]

5.1 Equipment, materials, products, or services included in a List published by a nationally recognized testing laboratory (i.e., CBI), an approved agency (i.e., CBI and DrJ), and/or and approved source (i.e., DrJ), or other organization(s) 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 Owens Corning Lumber was tested and/or evaluated for:

6.1.1 Structural capacities for gravity loads of when used as deck posts, joists, beams, headers, and stair stringers

6.1.2 Fastener and hanger connection capacities

6.1.3 Flame spread

6.2 Decks shall be supported on footings designed in accordance with IRC Section R507.3.

6.2.1 Bottom of posts shall be restrained to prevent lateral displacement as specified in IRC Section R407.3, and shall be designed in accordance with IRC Section R507.4.1.

6.3 Maximum allowable joist spans are provided in **Table 2** through **Table 5**.

6.3.1 **Table 2** provides the maximum allowable joist spans based on a Total Load (TL) of 50 psf.

6.3.1.1 10 psf Dead Load (DL) and 40 psf Live Load (LL)

6.3.2 **Table 3** provides the maximum allowable joist spans based on a TL of 70 psf.

6.3.2.1 10 psf DL and 60 psf LL

6.3.3 **Table 4** provides the maximum allowable joist spans based on a TL of 90 psf.

6.3.3.1 10 psf DL and 80 psf LL

6.3.4 **Table 5** provides the maximum allowable joist spans based on a TL of 110 psf.

6.3.4.1 10 psf DL and 100 psf LL

6.4 The procedure for using **Table 2** through **Table 5** is as follows:

6.4.1 Determine the desired deck length.

6.4.2 Find a combination of joist span and cantilever length to achieve the desired length taking account of the expected load on the deck.

6.4.3 The length of the joist span in **Table 2** through **Table 5** is defined in IRC Figure R507.6.

6.4.4 The cantilever length is defined, in **Section 6.4.7**, as the distance from the exterior side of the post or beam to the end of the rim joist.

6.4.5 *Examples:*

6.4.5.1 For this example, assume Live Load of 40 psf and Dead Load of 10 psf, therefore **Table 2** shall be used.

6.4.5.2 For a 14' deck length, and assuming a 2-ply beam:

6.4.5.2.1 Add the joist span, the 3" width from the supports, and the cantilever length.

6.4.5.2.2 For this example, refer to the row for 2" x 12" lumber. According to **Table 2**, a 2" x 12" joist at 16" spacing can span up to 12' 5" under an L/240 deflection limit, which is suitable for most projects. Add in the 3" of span for the ledger and half of the support beam, and add a 1' 4" cantilever to achieve a total length of 14' 0" (**Table 2** lists a maximum allowable cantilever length of 2' 0").

6.4.5.2.3 Center the support beam for the joists 12' 6$^1/_2$" (span plus the ledger thickness) from the face of the building to which the deck will be attached.

6.4.5.3 For a 16' deck length, and assuming a 2-ply beam:

6.4.5.3.1 Add the joist span, the 3" width from the supports and the cantilever length.

6.4.5.3.2 For this example, refer to the row for 2" x 12" lumber. According to **Table 2**, a 2" x 12" joist at 12" spacing can span up to 13' 8" under an L/240 deflection limit, which is suitable for most projects. Add in the 3" of span for the ledger and half of the support beam, and add the 2' 0" cantilever to achieve a total length of 15' 11".

6.4.5.3.3 Center the support beam for the joists 13' 9½" (span plus the ledger thickness) from the face of the building to which the deck will be attached.

Table 2. Joist Spans using Owens Corning Lumber at Various Deflection Limits – 50 psf TL

Owens Corning Lumber Profile	Joist Spacing (in o.c.)	Deflection Limits									
		L/360[1]		L/240[2]		L/180[2]		L/150[2]		L/120[2]	
		Joist Span	Max.[3] Cantilever	Joist Span	Max.[3] Cantilever	Joist Span	Max.[3] Cantilever	Joist Span	Max.[3] Cantilever	Joist Span	Max.[3] Cantilever
2" x 6"	12	6' 5"	0' 6"	6' 10"	0' 9"	7' 6"	0' 10"	8' 0"	1' 0"	8' 7"	1' 2"
	16	5' 10"	0' 7"	6' 2"	0' 9"	6' 10"	0' 11"	7' 3"	1' 1"	7' 10"	1' 3"
	24	5' 1"	0' 7"	5' 5"	0' 10"	6' 0"	1' 1"	6' 4"	1' 2"	6' 10"	1' 4"
2" x 8"	12	8' 9"	0' 11"	9' 4"	1' 4"	10' 3"	1' 7"	10' 11"	1' 9"	11' 9"	2' 0"
	16	8' 0"	1' 0"	8' 6"	1' 5"	9' 4"	1' 9"	9' 11"	1' 11"	10' 8"	2' 0"
	24	6' 11"	1' 2"	7' 5"	1' 7"	8' 2"	1' 11"	8' 8"	2' 0"	9' 4"	2' 0"
2" x 10"	12	10' 10"	1' 5"	11' 6"	2' 0"	12' 8"	2' 0"	13' 6"	2' 0"	14' 6"	2' 0"
	16	9' 10"	1' 7"	10' 5"	2' 0"	11' 6"	2' 0"	12' 3"	2' 0"	13' 2"	2' 0"
	24	8' 7"	1' 9"	9' 1"	2' 0"	10' 0"	2' 0"	10' 8"	2' 0"	11' 6"	2' 0"
2" x 12"	12	12' 10"	2' 0"	13' 8"	2' 0"	15' 0"	2' 0"	16' 0"	2' 0"	17' 3"	2' 0"
	16	11' 8"	2' 0"	12' 5"	2' 0"	13' 8"	2' 0"	14' 6"	2' 0"	15' 8"	2' 0"
	24	10' 2"	2' 0"	10' 10"	2' 0"	11' 11"	2' 0"	12' 8"	2' 0"	13' 8"	2' 0"

SI: 1 ft = 0.305 m, 1 in = 25.4 mm

1. Joist spans based on a deck design live load of 40 psf.
2. Joist spans based on a deck design live load of 40 psf, and a dead load of 10 psf.
3. Maximum cantilever based on twice the joist span deflection limit and a 220 lb point load applied to the end.

Table 3. Joist Spans using Owens Corning Lumber at Various Deflection Limits – 70 psf TL

Owens Corning Lumber Profile	Joist Spacing (in o.c.)	Deflection Limits									
		L/360[1]		L/240[2]		L/180[2]		L/150[2]		L/120[2]	
		Joist Span	Max.[3] Cantilever	Joist Span	Max.[3] Cantilever	Joist Span	Max.[3] Cantilever	Joist Span	Max.[3] Cantilever	Joist Span	Max.[3] Cantilever
2" x 6"	12	5' 7"	0' 7"	6' 1"	0' 9"	6' 9"	0' 11"	7' 2"	1' 1"	7' 8"	1' 3"
	16	5' 1"	0' 7"	5' 6"	0' 10"	6' 1"	1' 0"	6' 6"	1' 2"	7' 0"	1' 4"
	24	4' 5"	0' 8"	4' 10"	0' 11"	5' 4"	1' 2"	5' 8"	1' 3"	6' 1"	1' 6"
2" x 8"	12	7' 8"	1' 1"	8' 4"	1' 5"	9' 2"	1' 9"	9' 9"	1' 11"	10' 6"	2' 0"
	16	6' 11"	1' 2"	7' 7"	1' 7"	8' 4"	1' 10"	8' 10"	2' 0"	9' 7"	2' 0"
	24	6' 1"	1' 3"	6' 7"	1' 7"	7' 3"	1' 9"	7' 9"	1' 11"	8' 4"	2' 0"
2" x 10"	12	9' 5"	1' 7"	10' 3"	2' 0"	11' 4"	2' 0"	12' 0"	2' 0"	12' 11"	2' 0"
	16	8' 7"	1' 9"	9' 4"	2' 0"	10' 3"	2' 0"	10' 11"	2' 0"	11' 9"	2' 0"
	24	7' 6"	1' 10"	8' 2"	2' 0"	9' 0"	2' 0"	9' 6"	2' 0"	10' 3"	2' 0"
2" x 12"	12	11' 3"	2' 0"	12' 2"	2' 0"	13' 5"	2' 0"	14' 3"	2' 0"	15' 5"	2' 0"
	16	10' 2"	2' 0"	11' 1"	2' 0"	12' 2"	2' 0"	13' 0"	2' 0"	14' 0"	2' 0"
	24	8' 11"	2' 0"	9' 8"	2' 0"	10' 8"	2' 0"	11' 4"	2' 0"	12' 2"	2' 0"

SI: 1 ft = 0.305 m, 1 in = 25.4 mm

1. Joist spans based on a deck design live load of 60 psf.
2. Joist spans based on a deck design live load of 60 psf, and a dead load of 10 psf.
3. Maximum cantilever based on twice the joist span deflection limit and a 220 lb point load applied to the end.

Table 4. Joist Spans using Owens Corning Lumber at Various Deflection Limits – 90 psf TL

Owens Corning Lumber Profile	Joist Spacing (in o.c.)	Deflection Limits									
		L/360[1]		L/240[2]		L/180[2]		L/150[2]		L/120[2]	
		Joist Span	Max.[3] Cantilever	Joist Span	Max.[3] Cantilever	Joist Span	Max.[3] Cantilever	Joist Span	Max.[3] Cantilever	Joist Span	Max.[3] Cantilever
2" x 6"	12	5' 1"	0' 7"	5' 7"	0' 10"	6' 2"	1' 0"	6' 7"	1' 2"	7' 1"	1' 4"
	16	4' 7"	0' 8"	5' 1"	0' 11"	5' 7"	1' 1"	6' 0"	1' 3"	6' 5"	1' 5"
	24	4' 0"	0' 9"	4' 5"	1' 0"	4' 11"	1' 2"	5' 2"	1' 3"	5' 7"	1' 4"
2" x 8"	12	6' 11"	1' 2"	7' 8"	1' 6"	8' 5"	1' 10"	9' 0"	2' 0"	9' 8"	2' 0"
	16	6' 4"	1' 3"	6' 11"	1' 8"	7' 8"	1' 11"	8' 2"	2' 0"	8' 9"	2' 0"
	24	5' 6"	1' 4"	6' 1"	1' 6"	6' 8"	1' 8"	7' 1"	1' 9"	7' 8"	1' 11"
2" x 10"	12	8' 7"	1' 9"	9' 5"	2' 0"	10' 5"	2' 0"	11' 1"	2' 0"	11' 11"	2' 0"
	16	7' 9"	1' 10"	8' 7"	2' 0"	9' 5"	2' 0"	10' 0"	2' 0"	10' 10"	2' 0"
	24	6' 10"	1' 8"	7' 6"	1' 10"	8' 3"	2' 0"	8' 9"	2' 0"	9' 5"	2' 0"
2" x 12"	12	10' 2"	2' 0"	11' 3"	2' 0"	12' 4"	2' 0"	13' 2"	2' 0"	14' 2"	2' 0"
	16	9' 3"	2' 0"	10' 2"	2' 0"	11' 3"	2' 0"	11' 11"	2' 0"	12' 10"	2' 0"
	24	8' 1"	2' 0"	8' 11"	2' 0"	9' 10"	2' 0"	10' 5"	2' 0"	11' 3"	2' 0"

SI: 1 ft = 0.305 m, 1 in = 25.4 mm

1. Joist spans based on a deck design live load of 80 psf.
2. Joist spans based on a deck design live load of 80 psf, and a dead load of 10 psf.
3. Maximum cantilever based on twice the joist span deflection limit and a 220 lb point load applied to the end.

Table 5. Joist Spans using Owens Corning Lumber at Various Deflection Limits – 110 psf TL

Owens Corning Lumber Profile	Joist Spacing (in o.c.)	Deflection Limits									
		L/360[1]		L/240[2]		L/180[2]		L/150[2]		L/120[2]	
		Joist Span	Max.[3] Cantilever	Joist Span	Max.[3] Cantilever	Joist Span	Max.[3] Cantilever	Joist Span	Max.[3] Cantilever	Joist Span	Max.[3] Cantilever
2" x 6"	12	4' 9"	0' 8"	5' 3"	0' 11"	5' 9"	1' 1"	6' 2"	1' 2"	6' 7"	1' 5"
	16	4' 3"	0' 9"	4' 9"	0' 11"	5' 3"	1' 2"	5' 7"	1' 3"	6' 0"	1' 6"
	24	3' 9"	0' 9"	4' 2"	1' 0"	4' 7"	1' 1"	4' 10"	1' 2"	5' 3"	1' 3"
2" x 8"	12	6' 5"	1' 3"	7' 2"	1' 7"	7' 11"	1' 11"	8' 5"	2' 0"	9' 0"	2' 0"
	16	5' 10"	1' 4"	6' 6"	1' 7"	7' 2"	1' 9"	7' 7"	1' 10"	8' 2"	2' 0"
	24	5' 1"	1' 3"	5' 8"	1' 5"	6' 3"	1' 6"	6' 8"	1' 8"	7' 2"	1' 9"
2" x 10"	12	8' 0"	1' 10"	8' 10"	2' 0"	9' 9"	2' 0"	10' 4"	2' 0"	11' 2"	2' 0"
	16	7' 3"	1' 9"	8' 0"	2' 0"	8' 10"	2' 0"	9' 5"	2' 0"	10' 1"	2' 0"
	24	6' 4"	1' 7"	7' 0"	1' 9"	7' 9"	1' 11"	8' 2"	2' 0"	8' 10"	2' 0"
2" x 12"	12	9' 5"	2' 0"	10' 6"	2' 0"	11' 7"	2' 0"	12' 3"	2' 0"	13' 3"	2' 0"
	16	8' 7"	2' 0"	9' 6"	2' 0"	10' 6"	2' 0"	11' 2"	2' 0"	12' 0"	2' 0"
	24	7' 6"	1' 10"	8' 4"	2' 0"	9' 2"	2' 0"	9' 9"	2' 0"	10' 6"	2' 0"

SI: 1 ft = 0.305 m, 1 in = 25.4 mm

1. Joist spans based on a deck design live load of 100 psf.
2. Joist spans based on a deck design live load of 100 psf, and a dead load of 10 psf.
3. Maximum cantilever based on twice the joist span deflection limit and a 220 lb point load applied to the end.

6.4.6 In general, the maximum joist cantilever is 2' 0", twice the deflection limit used for the main span at the cantilever, or twenty-five percent (25%) of the length of the joist span, in accordance with IRC Section R507.6, whichever length is less.

6.4.7 The length of the cantilever is measured from the exterior side of the post or beam to the end of the rim joist.

6.4.8 Owens Corning Lumber joist deflection limits are based upon empirical testing of Owens Corning Lumber decks. Identical deck configurations were constructed. Owens Corning Lumber deck performance was compared directly to decks constructed of competing materials. These deflection limits are considered proprietary intellectual property and trade secrets.

6.4.9 For more information, see the manufacturer installation guide or contact Owens Corning technical support.

6.4.10 An example of Owens Corning Lumber joist installation is shown in **Figure 2**.

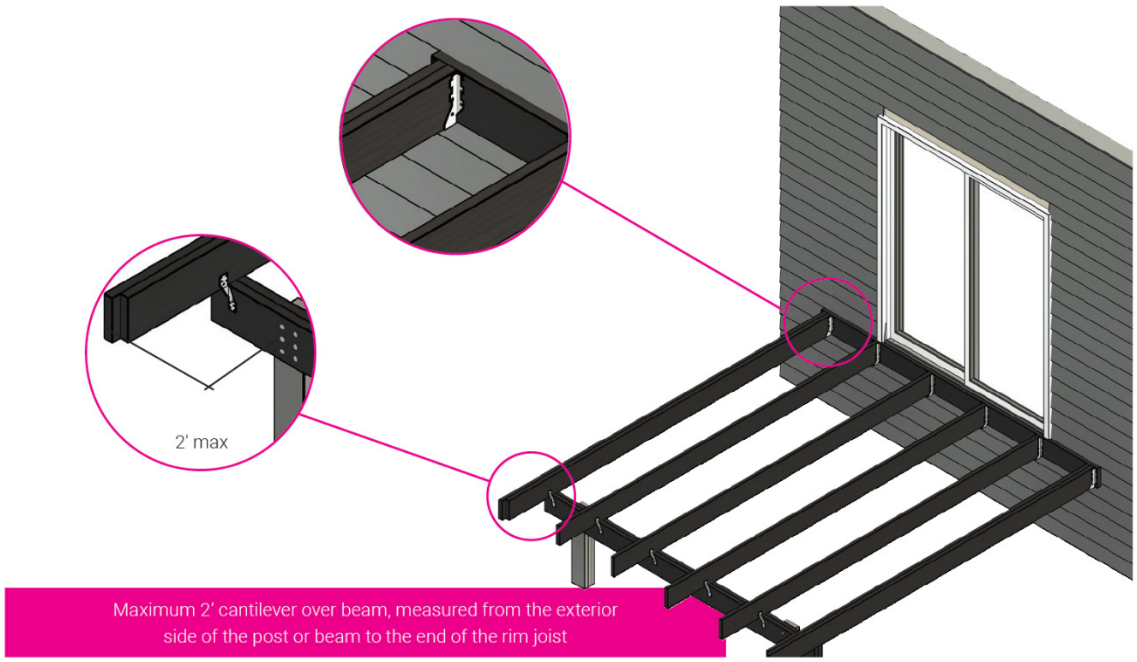

Figure 2. Owens Corning Lumber Joist Installation

6.5 The maximum post spacing recommended for support of deck beams with two supports are shown in **Figure 3** and **Table 6**.

6.5.1 The post spacing provided in **Table 6** shall be used in place of the tables specified in IRC Section R507.5.

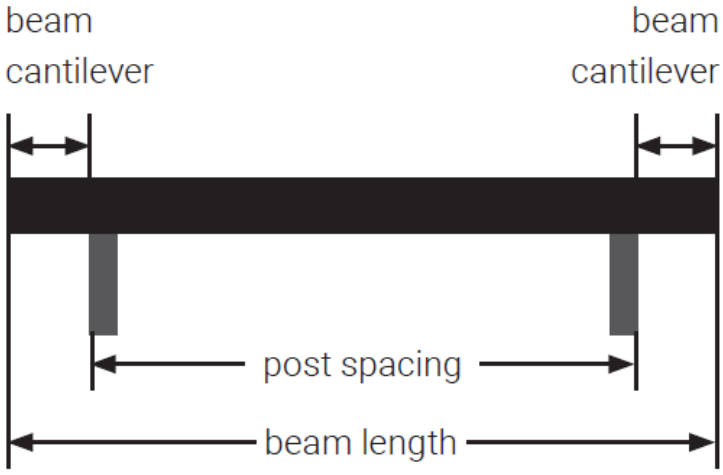

Figure 3. Post Spacing for Support of Beams at Two (2) Locations

Table 6. Maximum Post Spacing (Beam Span) and Cantilever Lengths for Support of Beams at Two Locations[1,2,3] – 40 psf LL

Owens Corning Lumber Profile	Number of Plies	Length of OC Joist (ft) [4]									
		4		5		6		7		8	
		Beam Span	Max. Cantilever	Beam Span	Max. Cantilever	Beam Span	Max. Cantilever	Beam Span	Max. Cantilever	Beam Span	Max. Cantilever
2" x 6"	2	5' 1"	1' 3"	4' 11"	1' 2"	4' 9"	1' 2"	4' 7"	1' 1"	4' 5"	1' 1"
	3	5' 10"	1' 5"	5' 7"	1' 4"	5' 5"	1' 4"	5' 3"	1' 3"	5' 1"	1' 3"
2" x 8"	2	6' 11"	1' 8"	6' 8"	1' 8"	6' 5"	1' 7"	6' 3"	1' 6"	6' 1"	1' 6"
	3	8' 0"	2' 0"	7' 8"	1' 11"	7' 5"	1' 10"	7' 2"	1' 9"	6' 11"	1' 8"
2" x 10"	2	8' 7"	2' 0"	8' 3"	2' 0"	8' 0"	2' 0"	7' 9"	1' 11"	7' 6"	1' 10"
	3	9' 10"	2' 0"	9' 5"	2' 0"	9' 1"	2' 0"	8' 10"	2' 0"	8' 7"	2' 0"
2" x 12"	2	10' 2"	2' 0"	9' 10"	2' 0"	9' 5"	2' 0"	9' 2"	2' 0"	8' 11"	2' 0"
	3	11' 8"	2' 0"	11' 3"	2' 0"	10' 10"	2' 0"	10' 6"	2' 0"	10' 2"	2' 0"
Owens Corning Lumber Profile	Number of Plies	Length of OC Joist (ft) [4]									
		9		10		11		12		13	
		Beam Span	Max. Cantilever	Beam Span	Max. Cantilever	Beam Span	Max. Cantilever	Beam Span	Max. Cantilever	Beam Span	Max. Cantilever
2" x 6"	2	4' 4"	1' 1"	4' 3"	1' 0"	4' 1"	1' 0"	4' 0"	1' 0"	3' 11"	0' 11"
	3	4' 11"	1' 2"	4' 10"	1' 2"	4' 9"	1' 2"	4' 7"	1' 1"	4' 6"	1' 1"
2" x 8"	2	5' 11"	1' 5"	5' 9"	1' 5"	5' 8"	1' 5"	5' 6"	1' 4"	5' 5"	1' 4"
	3	6' 9"	1' 8"	6' 7"	1' 7"	6' 5"	1' 7"	6' 4"	1' 7"	6' 2"	1' 6"
2" x 10"	2	7' 3"	1' 9"	7' 1"	1' 9"	6' 11"	1' 8"	6' 10"	1' 8"	6' 8"	1' 8"
	3	8' 4"	2' 0"	8' 2"	2' 0"	8' 0"	2' 0"	7' 9"	1' 11"	7' 8"	1' 11"
2" x 12"	2	8' 8"	2' 0"	8' 5"	2' 0"	8' 3"	2' 0"	8' 1"	2' 0"	7' 11"	1' 11"
	3	9' 11"	2' 0"	9' 8"	2' 0"	9' 5"	2' 0"	9' 3"	2' 0"	9' 1"	2' 0"

Table 6. Maximum Post Spacing (Beam Span) and Cantilever Lengths for Support of Beams at Two Locations[1,2,3] – 40 psf LL

Owens Corning Lumber Profile	Number of Plies	Length of OC Joist (ft) [4]					
		14		15		16	
		Beam Span	Max. Cantilever	Beam Span	Max. Cantilever	Beam Span	Max. Cantilever
2" x 6"	2	3' 10"	0' 11"	3' 10"	0' 11"	3' 9"	0' 11"
	3	4' 5"	1' 1"	4' 4"	1' 1"	4' 3"	1' 0"
2" x 8"	2	5' 4"	1' 4"	5' 2"	1' 3"	5' 1"	1' 3"
	3	6' 1"	1' 6"	6' 0"	1' 6"	5' 10"	1' 5"
2" x 10"	2	6' 6"	1' 7"	6' 5"	1' 7"	6' 4"	1' 7"
	3	7' 6"	1' 10"	7' 4"	1' 10"	7' 3"	1' 9"
2" x 12"	2	7' 9"	1' 11"	7' 8"	1' 11"	7' 6"	1' 10"
	3	8' 11"	2' 0"	8' 9"	2' 0"	8' 7"	2' 0"

SI: 1 ft = 0.305 m, 1 in = 25.4 mm

1. Post spacing (beam span) is based on a deck design live load of 40 psf.
2. OC decks use proprietary materials and conditions not prescribed in IRC Section R507.1.
3. OC decks use design requirements are considered proprietary intellectual property and trade secrets pursuant to IRC Section R301.1.3, IBC Section 1706.2, IBC Section 1707.1, and IRC Section R104.2.2.
4. Length of OC Joist refers to the joist span (deck joist back span) as shown in IRC Figure R507.6. This value is not the same as tributary span.

6.5.2 In general, the maximum beam cantilever is 2' 0", twice the deflection limit used for the main span at the cantilever, or twenty-five percent (25%) of the length of the post spacing, in accordance with IRC Section R507.5, whichever length is less.

6.5.3 The length of the cantilever is measured from the exterior side of the post to the end of the beam length.

6.5.3.1 For more information, see the manufacturer installation guide or contact Owens Corning technical support.

6.5.4 The procedure for using **Table 6** is as follows:

6.5.4.1 Determine the length of joist to be used for your deck (i.e., 10').

6.5.4.2 Find the *"Length of OC Joist"* column in **Table 6** (in this case, 10').

6.5.4.3 Using the beam size and number of plies (2 x 8 beam that is 3-ply), find the maximum OC post spacing that supports a 10' joist (this is a **6' 7"** post spacing).

6.5.4.4 If applicable, add cantilever length(s) to determine final beam length (i.e., if the 6' 7" post spacing has a beam with **1' 7"** cantilevers on each end, the maximum beam length is 9' 9").

6.6 The maximum post spacing recommended for support of deck beams with three supports are outlined in **Figure 4** and **Table 7**.

6.6.1 The post spacing provided in **Table 7** shall be used in place of the tables specified in IRC Section R507.5.

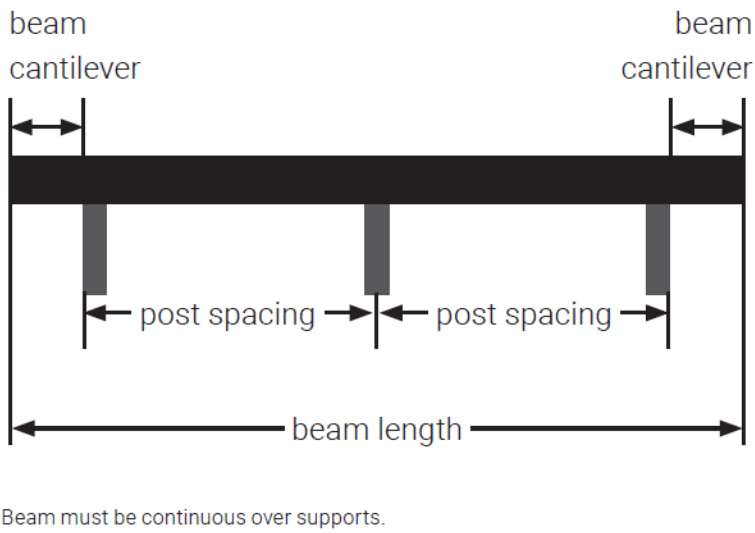

Figure 4. Post Spacing for Support of Beams at Three or More Locations

Table 7. Maximum Post Spacing (Beam Span) and Cantilever Lengths for Support of Beams at Three or More Locations[1,2,3] – 40 psf LL

Owens Corning Lumber Profile	Number of Plies	Length of OC Joist (ft) [4]									
		4		5		6		7		8	
		Beam Span	Max. Cantilever	Beam Span	Max. Cantilever	Beam Span	Max. Cantilever	Beam Span	Max. Cantilever	Beam Span	Max. Cantilever
2" x 6"	2	5' 3"	1' 3"	5' 1"	1' 3"	4' 11"	1' 2"	4' 9"	1' 2"	4' 7"	1' 1"
	3	6' 1"	1' 6"	5' 10"	1' 5"	5' 7"	1' 4"	5' 5"	1' 4"	5' 3"	1' 3"
2" x 8"	2	7' 3"	1' 9"	6' 11"	1' 8"	6' 8"	1' 8"	6' 6"	1' 7"	6' 4"	1' 7"
	3	8' 3"	2' 0"	7' 11"	1' 11"	7' 8"	1' 11"	7' 5"	1' 10"	7' 3"	1' 9"
2" x 10"	2	8' 11"	2' 0"	8' 7"	2' 0"	8' 3"	2' 0"	8' 0"	2' 0"	7' 9"	1' 11"
	3	10' 2"	2' 0"	9' 10"	2' 0"	9' 6"	2' 0"	9' 2"	2' 0"	8' 11"	2' 0"
2" x 12"	2	10' 7"	2' 0"	10' 2"	2' 0"	9' 10"	2' 0"	9' 6"	2' 0"	9' 3"	2' 0"
	3	12' 1"	2' 0"	11' 8"	2' 0"	11' 3"	2' 0"	10' 11"	2' 0"	10' 7"	2' 0"

Table 7. Maximum Post Spacing (Beam Span) and Cantilever Lengths for Support of Beams at Three or More Locations[1,2,3] – 40 psf LL

Owens Corning Lumber Profile	Number of Plies	Length of OC Joist (ft) [4]									
		9		10		11		12		13	
		Beam Span	Max. Cantilever	Beam Span	Max. Cantilever	Beam Span	Max. Cantilever	Beam Span	Max. Cantilever	Beam Span	Max. Cantilever
2" x 6"	2	4' 6"	1' 1"	4' 5"	1' 1"	4' 3"	1' 0"	4' 2"	1' 0"	4' 1"	1' 0"
	3	5' 2"	1' 3"	5' 0"	1' 3"	4' 11"	1' 2"	4' 10"	1' 2"	4' 8"	1' 2"
2" x 8"	2	6' 2"	1' 6"	6' 0"	1' 6"	5' 10"	1' 5"	5' 9"	1' 5"	5' 7"	1' 4"
	3	7' 0"	1' 9"	**6' 10"**	**1' 8"**	6' 8"	1' 8"	6' 7"	1' 7"	6' 5"	1' 7"
2" x 10"	2	7' 7"	1' 10"	7' 5"	1' 10"	7' 3"	1' 9"	7' 1"	1' 9"	6' 11"	1' 8"
	3	8' 8"	2' 0"	8' 6"	2' 0"	8' 3"	2' 0"	8' 1"	2' 0"	7' 11"	1' 11"
2" x 12"	2	9' 0"	2' 0"	8' 9"	2' 0"	8' 7"	2' 0"	8' 5"	2' 0"	8' 3"	2' 0"
	3	10' 4"	2' 0"	10' 1"	2' 0"	9' 10"	2' 0"	9' 7"	2' 0"	9' 5"	2' 0"

Owens Corning Lumber Profile	Number of Plies	Length of OC Joist (ft) [4]					
		14		15		16	
		Beam Span	Max. Cantilever	Beam Span	Max. Cantilever	Beam Span	Max. Cantilever
2" x 6"	2	4' 0"	1' 0"	3' 11"	0' 11"	3' 11"	0' 11"
	3	4' 7"	1' 1"	4' 6"	1' 1"	4' 5"	1' 1"
2" x 8"	2	5' 6"	1' 4"	5' 5"	1' 4"	5' 4"	1' 4"
	3	6' 4"	1' 7"	6' 2"	1' 6"	6' 1"	1' 6"
2" x 10"	2	6' 9"	1' 8"	6' 8"	1' 8"	6' 7"	1' 7"
	3	7' 9"	1' 11"	7' 8"	1' 11"	7' 6"	1' 10"
2" x 12"	2	8' 1"	2' 0"	7' 11"	1' 11"	7' 9"	1' 11"
	3	9' 3"	2' 0"	9' 1"	2' 0"	8' 11"	2' 0"

SI: 1 ft = 0.305 m, 1 in = 25.4 mm

1. Post spacing (beam span) is based on a deck design live load of 40 psf.
2. OC decks use proprietary materials and conditions not prescribed in IRC Section R507.1.
3. OC decks use design requirements are considered proprietary intellectual property and trade secrets pursuant to IRC Section R301.1.3, IBC Section 1706.2, IBC Section 1707.1, and IRC Section R104.2.2.
4. Length of OC Joist refers to the joist span (deck joist back span) as shown in IRC Figure R507.6. This value is not the same as tributary span.

6.6.2 In general, the maximum beam cantilever is 2' 0", twice the deflection limit used for the main span at the cantilever, or twenty-five percent (25%) of the length of the post spacing, in accordance with IRC Section R507.5, whichever length is less.

6.6.3 The length of the cantilever is measured from the exterior side of the exterior post to the end of the beam length.

6.6.4 Deflection limits used to create post spacing are based upon empirical testing of Owens Corning Lumber decks. Identical deck configurations were constructed. Owens Corning Lumber deck performance was compared directly to decks constructed of competing materials. These deflection limits are considered proprietary intellectual property and trade secrets.

6.6.5 For more information, see the manufacturer installation guide or contact Owens Corning technical support.

6.6.6 The procedure for the using **Table 7** is as follows:

6.6.6.1 Determine the length of joist to be used for your deck (i.e., 10').

6.6.6.2 Find the *"Length of OC Joist"* column in **Table 7** (10').

6.6.6.3 Using the beam size and number of plies (i.e., 2 x 8 beam that is 3-ply), find the maximum OC post spacing that supports a 10' joist (this is a **6' 10"** post spacing).

6.6.6.4 If applicable, add cantilever(s) to determine final beam length (if the 6' 10" post spacing has a beam with one cantilever on each end, the maximum beam length is 10' 2" [6' 10" + 1' 8" + 1' 8"]).

6.7 The maximum bearing capacity of built-up Owens Corning Lumber posts that are used to support 2-ply and 3-ply Owens Corning Lumber beams are provided in **Table 8**.

6.7.1 See **Figure 5**, **Figure 6**, and **Section 9.3.2** for assembly details of built-up Owens Corning Lumber posts.

6.7.2 The maximum post height is 9' 0".

6.7.3 All posts shall be diagonally braced to prevent side-sway and/or buckling.

6.7.4 For more information regarding post and bracing installations, see the manufacturer installation guide or contact Owens Corning technical support.

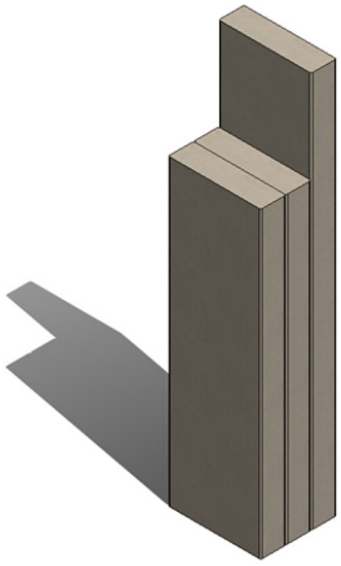

Figure 5. Owens Corning Lumber Post Supporting a 2-Ply Beam

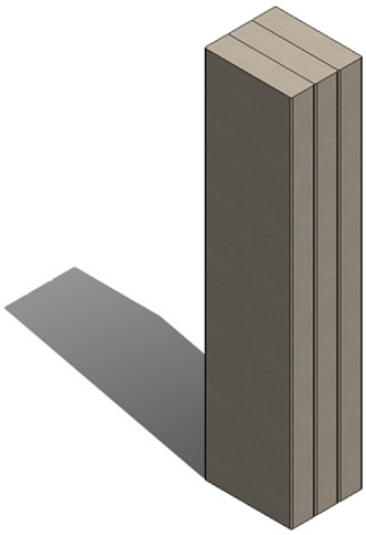

Figure 6. Owens Corning Lumber Post Supporting a 3-Ply Beam

Table 8. Maximum Bearing Capacity of Posts to Support 2-Ply and 3-Ply Beams[1]

Maximum Bearing Capacity to Support a 2-Ply Beam (See Figure 5)	Maximum Bearing Capacity to Support a 3-Ply Beam (See Figure 6)
5,500 lb	8,250 lb
SI: 1 lb = 4.45 N 1. Maximum post height is 9 ft. ***Important Note***: Post shall be diagonally braced to prevent side-sway and buckling.	

6.8 General application information regarding fasteners to be used with Owens Corning Lumber are as follows:

6.8.1 *Dowel-Type Fasteners:*

6.8.1.1 Starborn® CAP-TOR® xd 305 Stainless Steel Composite/PVC Screw, #10 x 2 3/4"

6.8.1.2 CAMO® Premium 316 Stainless Steel Deck Screw, #10 x 2 1/2"

6.8.1.3 Simpson Strong-Drive® SD Connector SS Screw, #9 x 2 1/2"

6.8.1.4 Simpson Strong-Drive® SD Connector SS Screw, #9 x 1 1/2"

6.8.2 Head-pull through and withdrawal resistance when installed in Owens Corning Lumber were evaluated and the allowable connection design values for the specified fasteners are presented in **Table 9** and **Table 10**.

Table 9. Reference Head-Pull-Through Design Values (lb)

Owens Corning Lumber Profile	CAMO Premium 316 Stainless Steel Deck Screw, #10 x 2 1/2"	Starborn CAP-TOR xd 305 Stainless Steel Composite/PVC Screw, #10 x 2 3/4"
1/2" x 6" or 1/2" x 10"	250	120
5/4" x 6" or 5/4" x 8"	260	300
Scant 2" x 6"	370	370
SI: 1 in = 25.4 mm, 1 lb = 4.45 N		

Table 10. Reference Withdrawal Design Values (lb)[1]

Fastener	End Grain Installation	Narrow Edge/Wide Face Installation
CAMO Premium 316 Stainless Steel Deck Screw, #10 x 2 1/2"	300	310
Starborn CAP-TOR xd 305 Stainless Steel Composite/PVC Screw, #10 x 2 3/4"	390	410

SI: 1 in = 25.4 mm, 1 lb = 4.45 N

1. Minimum penetration into Owens Corning Lumber profiles shall be 1 1/2".

6.8.3 *Metal Connectors:*

6.8.3.1 Beam-to-post connectors with a minimum uplift capacity of 2,000 lbs.

6.8.3.2 Hurricane ties and angle brackets with minimum uplift capacity of 500 lbs.

6.8.4 For more information, see the manufacturer installation guide or contact Owens Corning technical support.

6.9 General application information regarding Owens Corning WEARDECK is as follows:

6.9.1 *Minimum Screw Lengths:*

6.9.1.1 2 1/2" screws for 5/4" x 8" WEARDECK

6.9.1.2 1 1/2" screws for 1/2" x 6" and 1/2" x 10" WEARDECK

6.9.2 *Minimum Spacing:*

6.9.2.1 End to end: 1/16" (3/16" recommended)

6.9.2.2 Side to side: 1/16" (3/16" recommended)

6.9.3 For more information regarding WEARDECK, please see the manufacturer installation guide or contact Owens Corning technical support.

6.10 Engineering properties for various Owens Corning Lumber member sizes are provided in **Table 11**.

Table 11. Owens Corning Lumber Edgewise Orientation Design Values (ASD)[1,2,3]

Owens Corning Lumber Profile	F_b (psi)	EI (lb·in^2)	MOE (psi)	Bearing Strength (psi)	Nominal I_x (in^4)	Nominal S_x (in^3)
2" x 6"	1,305	7,300,000	350,000	270	20.8	7.6
2" x 8"	1,460	18,500,000	350,000		52.7	14.1
2" x 10"	1,515	34,600,000	350,000		98.9	21.4
2" x 12"	1,265	57,800,000	325,000		178.0	31.6

SI: 1 psi = 0.00689 MPa, 1 lb-in^2 = 0.00287 N-m^2, 1 in^4 = 41.62 cm^4, 1 in^3 = 16.39 cm^3

1. F_b, EI and MOE are allowable design values, and based on a temperature factor, C_t, of 1.0.
2. Listed F_b, EI, and MOE values are the effective flexural stiffness of the evaluated composite product.
3. Nominal section properties are determined using the nominal width and depth of the composite product.

6.10.1 Applications of the Owens Corning Lumber that require professional engineering are those conditions where the joist, beam, and column application is outside of the prescriptive design properties provided in **Table 2** through **Table 8**.

6.10.1.1 A deck design that requires higher applied loads, longer spans, multiple joist spans, a cantilever, a concentrated load, multiple applied loads and so forth, will require an engineered design.

6.10.2 The engineered design drawing development process includes, but is not be limited to, the following guidelines:

6.10.2.1 To size Owens Corning Lumber structural members, use the allowable stress design values found in **Table 11**.

6.10.2.2 Analyze the resistance needed, for the pertinent member size designated in **Table 11** using the allowable stress design properties and standard engineering equations.[22]

6.10.2.2.1 These design properties are based upon test data and used actual design dimensions (i.e., $1^1/_2$" x $5^1/_2$", $1^1/_2$" x $7^1/_4$", $1^1/_2$" x $9^1/_4$", and $1^1/_2$" x $11^1/_4$" section properties).

6.10.2.3 Create an engineered design drawing for the application which includes, but is not limited to, span, depth, applied loads, support conditions, anchorage, reaction limits, component connections, deflection limits, moisture conditions, serviceability conditions, durability conditions, end connection details, boundary condition application details, and so forth.

6.10.2.4 Each Owens Corning Lumber engineered design and associated engineered design drawing shall provide sufficient detailing for the specific floor, wall, or roof installation.

6.10.2.5 Each Owens Corning Lumber structural member design is defined as an engineered design pursuant to the building code and professional engineering law, which requires the design to be performed by an RDP, where all loading and boundary conditions are provided by the owner or the Registered Design Professional in Responsible Charge of the project.

6.10.2.5.1 Where assistance is needed regarding Owens Corning Lumber specialty engineered designs, please contact Owens Corning technical support.

6.10.3 To establish a complete load path, all connections shall be designed separately to transfer load from Owens Corning Lumber to other structural members and then onto the foundation. Please refer to the manufacturer details and installation instructions or contact Owens Corning technical support.

6.11 *OC Standard Deck Tested and Analyzed – Load Resistance for a Specific OC Deck Design*

6.11.1 Owens Corning Lumber decks were constructed as detailed in **Figure 7**.

6.11.2 12' x 10' decks were constructed with joists spaced at 24" on center, 16" on center, and at 12" on center.

6.11.3 These decks were constructed with a 24" cantilever on one side of the deck and the joists were installed using 2 x 8 Owens Corning Lumber.

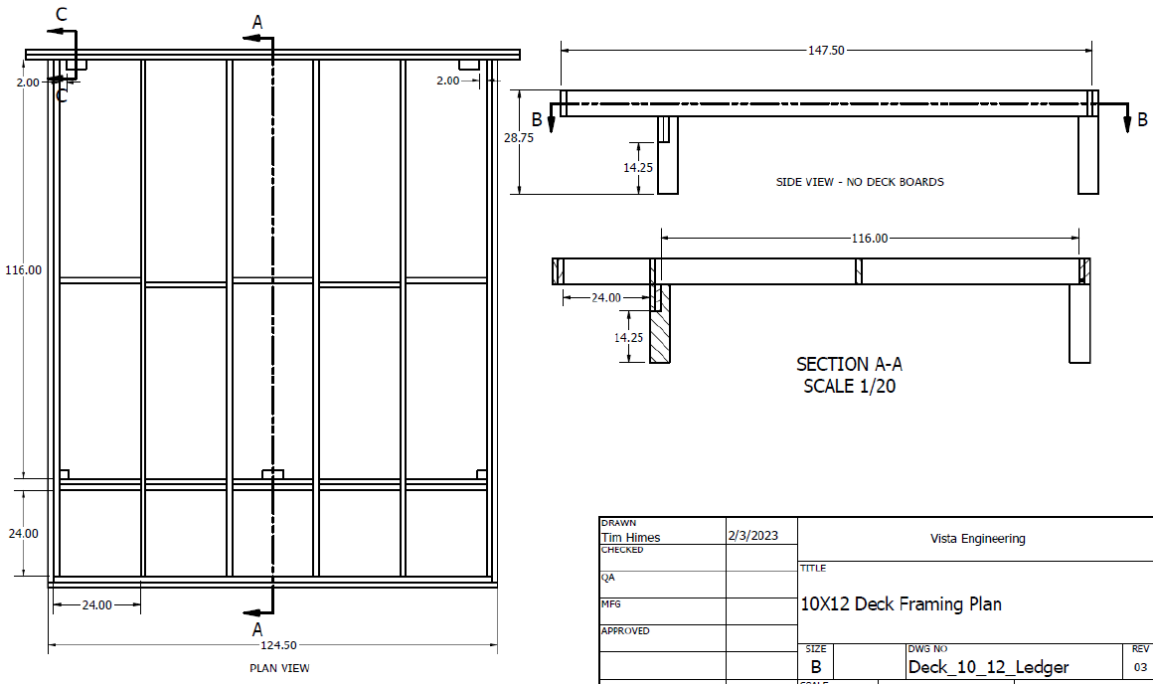

Figure 7. Tested Deck Framing Plan

6.11.4 Based upon this OC deck standard design for the specific **Figure 7** installation details, the allowable design values for Owens Corning Lumber Composite Assemblies are found in **Table 12**.

Table 12. Allowable Composite Floor Joist Assembly Applications

Product	12-foot Long Owens Corning Lumber Joist with 2-foot Cantilever Spaced 24" o.c. Total Load, (psf)	12-foot Long Owens Corning Lumber Joist with 2-foot Cantilever Spaced 16" o.c. Total Load, (psf)	12-foot Long Owens Corning Lumber Joist with 2-foot Cantilever Spaced 12" o.c. Total Load, (psf)
Owens Corning Lumber 2 x 8 Joist Assemblies	50	65	80
SI: 1 in = 25.4 mm, 1 ft = 0.305 m, 1 psf = 0.0479 kPa			

6.12 *Fire Performance*

6.12.1 Owens Corning Lumber was evaluated for surface burning characteristics (flame spread) in accordance with IBC Section 2612.3 and IRC Section R507.2.2.2.

6.12.2 Owens Corning Lumber meets the requirements for composite deck boards having the assessed flame spread indices detailed in **Table 13**.

Table 13. Surface Burning Characteristics[1]

Product Description	Flame Spread Index
Owens Corning Lumber Joists	≤75
Owens Corning Lumber Deck Boards	≤75

1. Tested in accordance with ASTM E84 and meets Class B requirements for Flame Spread.

6.13 *Owens Corning Lumber Stair Tread Application*

6.13.1 Owens Corning Lumber was evaluated for its performance for use as stair treads in accordance with IBC Section 1607.20 and IRC Section R507.2.2.

6.13.1.1 Owens Corning Lumber may be used as stair treads in one and two-family dwellings.

6.13.1.2 Minimum of a three span configuration shall be installed when Owens Corning Lumber is used for stair tread applications.

6.14 *Owens Corning Lumber Stair Stringer Application*

6.14.1 Owens Corning Lumber was evaluated for its performance as stair stringers.

6.14.1.1 Owens Corning Lumber may be used as stair stringers in one and two-family dwellings.

6.14.1.2 Minimum of a three span configuration shall be installed when Owens Corning Lumber is used for stair stringer applications.

6.14.1.2.1 Stringers shall be reinforced with blocking.

6.14.1.3 See **Table 14** for maximum stair stringer spans per loading condition and stringer spacing.

Table 14. Maximum Allowable Stair Stringer Spans Per Loading Criteria[2,3,4]

Live Load (psf)	Stringer Spacing	Total Load[1] (Dead Load + Live Load)		Live Load Only	
		L/180	L/240	L/360	L/480
40	8" o.c.	8' 6"	7' 8"	7' 4"	6' 8"
	10" o.c.	7' 10"	7' 2"	6' 10"	6' 2"
	12" o.c.	7' 5"	6' 9"	6' 5"	5' 10"
	14" o.c.	7' 0"	6' 5"	6' 1"	5' 6"
50	8" o.c.	8' 0"	7' 3"	6' 10"	6' 2"
	10" o.c.	7' 5"	6' 9"	6' 4"	5' 9"
	12" o.c.	7' 0"	6' 4"	5' 11"	5' 5"
	14" o.c.	6' 8"	6' 0"	5' 8"	5' 2"
60	8" o.c.	7' 7"	6' 11"	6' 5"	5' 10"
	10" o.c.	7' 1"	6' 5"	5' 11"	5' 5"
	12" o.c.	6' 8"	6' 0"	5' 7"	5' 1"
	14" o.c.	6' 4"	5' 9"	5' 4"	4' 10"
70	8" o.c.	7' 3"	6' 7"	6' 1"	5' 6"
	10" o.c.	6' 9"	6' 2"	5' 8"	5' 2"
	12" o.c.	6' 4"	5' 9"	5' 4"	4' 10"
	14" o.c.	6' 0"	5' 6"	5' 1"	4' 7"
80	8" o.c.	7' 0"	6' 4"	5' 10"	5' 3"
	10" o.c.	6' 6"	5' 11"	5' 5"	4' 11"
	12" o.c.	6' 1"	5' 7"	5' 1"	4' 7"
	14" o.c.	5' 10"	5' 3"	4' 10"	4' 5"

SI: 1 in = 25.4 mm

1. Total load includes a 12 psf dead load
2. Minimum throat depth of 5".
3. Minimum of three stringer stair assemblies tied together with stair treads.
4. These span calculations do not account for creep or external factors such as temperature, freeze-thaw cycles, UV exposure, etc.

6.15 Railings and rail posts are outside of the scope of this report. For more information, please contact Owens Corning technical support.

6.16 For installation details regarding guard post attachments, refer to Figure 25 and Figure 26 (page 19 and page 20, respectively) of AWC DCA-6.

6.17 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 Performance[23]

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.[24]

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.[25]

8 Regulatory Evaluation and Accepted Engineering Practice

8.1 Owens Corning Lumber complies with the following legislatively adopted regulations and/or accepted engineering practice for the following reasons:

8.1.1 Owens Corning Lumber was tested and/or evaluated for:

8.1.1.1 Structural capacities for gravity loads when used as deck posts, joists, beams, and headers.

8.1.1.1.1 Edgewise flexural testing was conducted in accordance with ASTM D198 and ASTM D6109 where the use is for joists, beams, and headers.

8.1.1.1.2 Axial compression testing was conducted in accordance with ASTM D198 where the use is for posts.

8.1.1.2 Connection capacities of composite deck screws were conducted in accordance with ASTM D1037.

8.1.1.3 Vertical load-bearing capacities of hanger connections were conducted in accordance with ASTM D7147 as specified in IBC Section 2304.10.4.

8.1.1.4 Surface burning characteristics testing was conducted in accordance with ASTM E84 as specified in IBC Section 2612.3 and IRC Section R507.2.2.2.

8.2 Any building code, regulation and/or accepted engineering evaluations (i.e., research reports, duly authenticated reports, etc.) that are conducted for this Listing were performed by DrJ, which is an ISO/IEC 17065 accredited certification body and a professional engineering company operated by RDP or approved sources. DrJ is qualified[26] to practice product and regulatory compliance services within its scope of accreditation and engineering expertise,[27] respectively.

8.3 Engineering evaluations are conducted with DrJ's ANAB accredited ICS code scope of expertise, which is also its areas of professional engineering competence.

8.4 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, contact the manufacturer for counsel on the proper installation method.

9.3 *Exterior Deck Installation Procedure*

9.3.1 Install a ledger board to the desired structure in accordance with IRC Section R507.9.

9.3.1.1 For fasteners not specified in building codes, fastener spacing provisions from other approved sources may be permitted for the installation of the ledger board.

9.3.1.2 Ledger board shall be greater than or equal to the joist size.

9.3.2 Assemble 3-ply posts using 2 x 6 Owens Corning Lumber and #10 x 4" screws as shown in **Figure 8** (notched post for a 2-ply beam) and **Figure 9** (for a 3-ply beam).

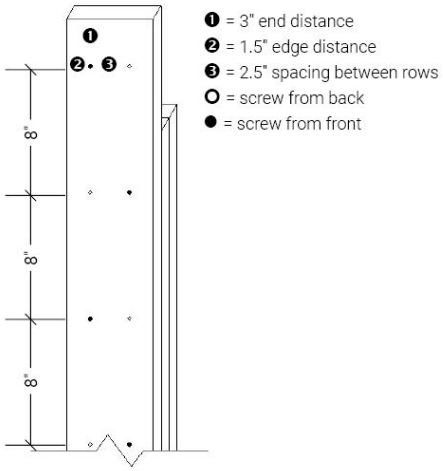

Figure 8. Post Supporting a 2-Ply Beam

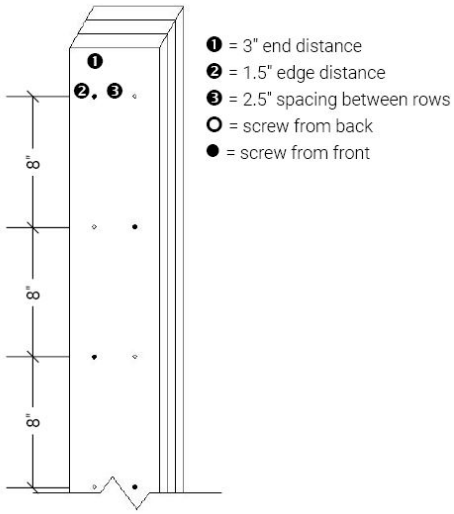

Figure 9. Post Supporting a 3-Ply Beam

9.3.2.1 Screws securing the Owens Corning Lumber plies for use as posts shall be staggered and placed 8" o.c.

9.3.2.2 A 2-ply beam shall be fastened to each notched 3-ply Owens Corning Lumber post with two rows of #10 x 3" screws. Minimum edge distance shall be 1½".

9.3.2.2.1 2 x 6 beams require two (2) screws per row at each notched post.

9.3.2.2.2 2 x 8 beams require three (3) screws per row at each notched post.

9.3.2.2.3 2 x 10 beams require four (4) screws per row at each notched post.

9.3.2.3 A 3-ply beam shall be secured to the 3-ply Owens Corning Lumber post with a code-compliant post cap connector with a minimum uplift capacity of 2,000 lb.

9.3.2.4 Posts shall be anchored to footings in compliance with the applicable building codes.

9.3.3 Assemble 2-ply or 3-ply beams 2x Owens Corning Lumber.

9.3.3.1 Beams shall be secured using #10 x 3" screws staggered in two rows as shown in **Figure 10**.

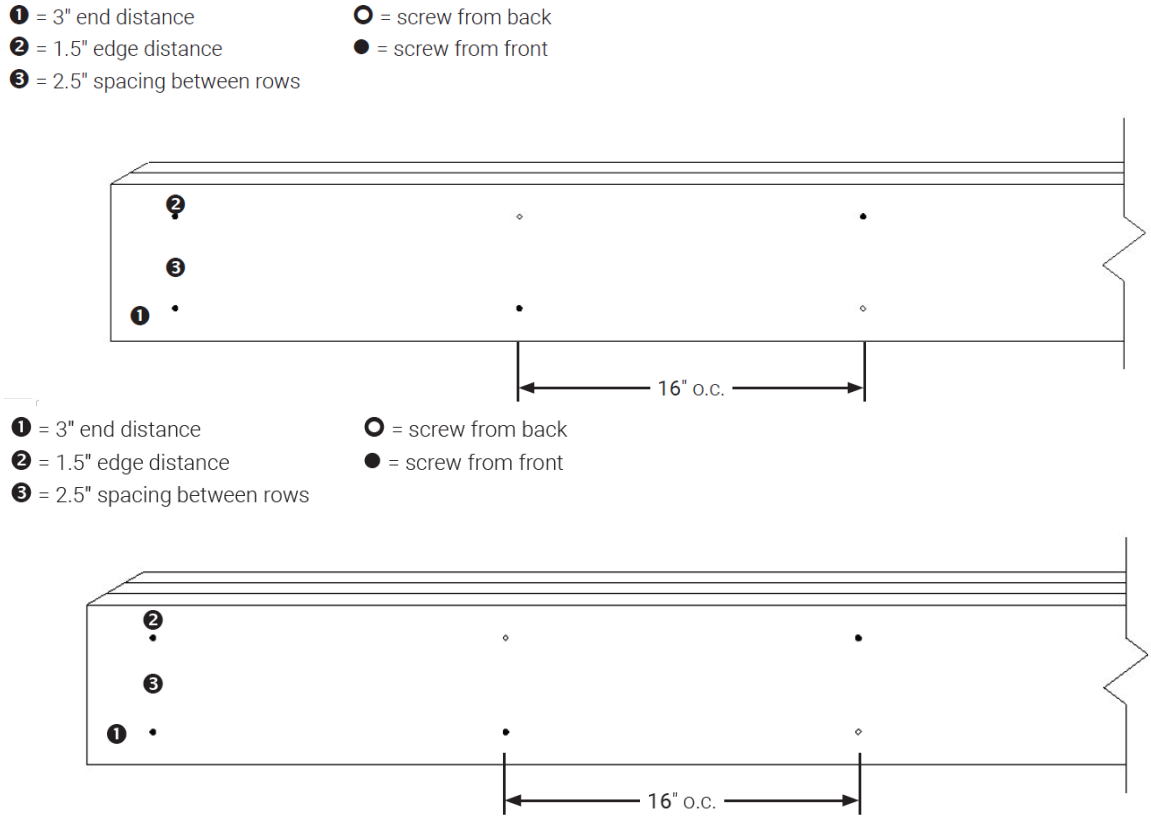

Figure 10. Owens Corning Lumber Beams – 2-Ply (Top) and 3-Ply (Bottom)

9.3.4 Owens Corning Lumber beams shall be installed onto Owens Corning Lumber posts in accordance with **Section 9.3.2**.

9.3.4.1 Overhangs up to 2' over the sides of the posts may be permitted.

9.3.4.1.1 Overhangs are limited to the lesser of 2', 25% of the length of the beam span between posts, or the cantilever lengths in **Table 6** and **Table 7**.

9.3.5 A 2-ply Owens Corning Lumber beam shall be used as the band joist and assembled as demonstrated in **Figure 10**. However, spacing of rows of fasteners shall be 12" o.c. instead of 16" o.c.

9.3.5.1 The outer ply shall overhang the inner ply by $1^1/_2$" at the free end of the band joist.

9.3.5.1.1 For ease, the lengths of inner ply of the band joist and the deck joists are equivalent.

9.3.5.2 Joist hangers shall be sized appropriately and in accordance with **Table 15**.

Table 15. Minimum Design Values for Hangers Attached to Owens Corning Lumber[1]

Hanger Type	Minimum Gravity Allowable Load (lb)	Minimum Uplift Allowable Load (lb)
Single 2x6 Joist Hanger	345	500
Single 2x8 Joist Hanger	490	500
Single 2x10 Joist Hanger	545	500
Double 2x6 Joist Hanger	685	500
Double 2x8 Joist Hanger	980	500
Double 2x10 Joist Hanger	1,170	500

SI: 1 lb = 4.45 N

1. Tested in accordance with ASTM D7147.

9.3.5.3 Hurricane ties shall be used to secure deck joists deck beam for dropped beam installation.

9.3.6 Install blocking between each joist every 4' to 5' using #10 x 3" composite deck screws.

9.3.6.1 Blocking shall be staggered.

9.3.6.2 Installation of blocking over the drop beam is recommended.

9.3.6.3 Screws shall be installed along the centerline of each blocking with a minimum edge distance of $1^1/_2$".

9.3.7 Install first rim joist, a single ply Owens Corning Lumber beam, using #10 x 3" composite deck screws through the side of the rim joist into each deck joist.

9.3.7.1 2 x 6 beams require two (2) screws along the centerline of each blocking with a minimum edge distance of $1^1/_2$".

9.3.7.2 2 x 8 beams require three (3) screws along the centerline of each blocking with a minimum edge distance of $1^1/_2$".

9.3.7.3 2 x 10 beams require four (4) screws along the centerline of each blocking with a minimum edge distance of $1^1/_2$".

9.3.8 Install the second rim joist in front of the first rim joist using two rows of #10 x 3" screws staggered 12" o.c. with a minimum edge distance of $1^1/_2$".

9.3.8.1 Secure the corners of the second rim joist to the outer ply of the band joist using the same provisions as in **Section 9.3.7**.

9.4 *Stair Stringer Application*

9.4.1 When Owens Corning Lumber is used as stair stringers, fabrication of the stringers shall comply with the applicable provisions in IBC Section 1011 and IRC Section R318.7.

9.4.2 Choose an appropriate size Owens Corning Lumber that will satisfy a minimum throat depth of 5" for project-specific stair riser and tread depth parameters.

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 Flexural testing in accordance with ASTM D198

10.1.2 Flexural test data in accordance with ASTM D6109 from approved sources

10.1.3 Vista Engineering Full Deck Assembly Report

10.1.4 Compression testing (short and long specimens) in accordance with ASTM D198

10.1.5 Fastener head-pull through and withdrawal data in accordance with ASTM D1037 from approved sources

10.1.6 Joist hanger assembly testing in accordance with ASTM D7147

10.1.7 Span and post spacing calculations from approved sources

10.1.8 Surface burning characteristics in accordance with ASTM E84

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 an RDP. Accuracy of external test data and resulting analysis is relied upon.

10.3 Where applicable, 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 duly authenticated reports from approved agencies and/or approved sources 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 duly authenticated report, may be dependent upon published design properties by others.

10.5 *Testing and Engineering Analysis*

10.5.1 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.[28]

10.6 Where additional condition of use and/or regulatory compliance information is required, please search for Owens Corning Lumber on the DrJ Certification website.

11 Findings

11.1 As outlined in **Section 6**, Owens Corning Lumber has performance characteristics that were tested and/or meet applicable regulations. In addition, they are suitable for use pursuant to its specified purpose.

11.2 When used and installed in accordance with this duly authenticated report and the manufacturer installation instructions, Owens Corning Lumber shall be approved for the following applications:

11.2.1 Joists as permitted in **Table 2** through **Table 5**.

11.2.2 Posts as permitted in **Table 6** and **Table 7**.

11.2.3 Built-up Posts as permitted in **Table 8**.

11.2.4 Ledgers as permitted in **Table 11**.

11.2.5 Headers and beams as permitted in **Table 11**.

11.2.6 Fire-rated as Class B per flame spread index shown in **Table 13**.

11.2.7 Stair stringers as permitted in **Table 14**.

11.3 Evaluated fastener properties used with Owens Corning Lumber are provided in **Table 9** and **Table 10**.

11.4 Owens Corning Lumber contains no wood or cellulosic materials and meets the requirements of IBC Section 2612.4 and IRC Section R304, where protection against biodegradation and decay is required.

11.5 Owens Corning Lumber contains no wood or cellulosic materials and meets the requirements of IBC Section 2612.4 and IRC Section R305, where protection against termite attack is required.

11.6 Unless exempt by state statute, when Owens Corning Lumber 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.

11.7 Any application specific issues not addressed herein can be engineered by an RDP. Assistance with engineering is available from Owens Corning.

11.8 IBC Section 104.2.3 (IRC Section R104.2.2 and IFC Section 104.2.3[29] are similar) in pertinent part state:

> **104.2.3 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, provided that any such alternative is not specifically prohibited by this code and has been approved.

11.9 **Approved:**[30] Building regulations require that the building official shall accept duly authenticated reports.[31]

11.9.1 An approved agency is *"approved"* when it is ANAB ISO/IEC 17065 accredited.

11.9.2 An approved source is *"approved"* when an RDP is properly licensed to transact engineering commerce.

11.9.3 Federal law, Title 18 US Code Section 242, 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.

11.10 DrJ is a licensed engineering company, employs licensed RDPs and is an ANAB Accredited Product Certification Body – Accreditation #1131.

11.11 Through the IAF Multilateral Arrangement (MLA), this duly authenticated report can be used to obtain product approval in any jurisdiction or country because all ANAB ISO/IEC 17065 duly authenticated reports are equivalent.[32]

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, Owens Corning Lumber shall be used:

12.3.1 Primarily for outdoor decks;

12.3.2 For all other applications, assistance is available from Owens Corning technical support.

12.4 When used as stair stringers, Owens Corning Lumber shall only be used in buildings that are one or two-family dwellings in accordance with IBC Table 1607.1.

12.5 When required by adopted legislation and enforced by the building official, also known as the Authority Having Jurisdiction (AHJ) in which the project is to be constructed:

12.5.1 Building regulations require that the building official shall accept Duly Authenticated Reports.[33]

12.5.2 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.

12.5.3 This report and the installation instructions shall be submitted at the time of permit application.

12.5.4 This innovative product has an internal quality control program and a third-party quality assurance program.

12.5.5 At a minimum, this innovative product shall be installed per **Section 9** of this report.

12.5.6 The review of this report by the AHJ shall comply with IBC Section 104.2.3.2 and IBC Section 105.3.1.

12.5.7 This innovative product has an internal quality control program and a third party quality assurance program in accordance with IBC Section 104.7.2, IBC Section 110.4, IBC Section 1703, IRC Section R104.7.2, and IRC Section R109.2.

12.5.8 The application of this innovative product 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 IBC Section 1707.1, where legislation states in part, *"the building official shall make, or cause to be made, the necessary tests and investigations; or 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 104.2.3"*, all of IBC Section 104, and IBC Section 105.3.

12.7 Design loads shall be determined in accordance with the regulations adopted by the jurisdiction in which the project is to be constructed and/or by the building designer (i.e., owner or RDP).

12.8 The actual design, suitability, and use of this report for any particular building, is the responsibility of the owner or the authorized agent of the owner.

13 Identification

13.1 The innovative product listed in **Section 1.1** is 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.owenscorning.com.

14 Review Schedule

14.1 This report is subject to periodic review and revision. For the latest version, visit www.drjcertification.org.

14.2 For information on the status of this report, please contact DrJ Certification.

15 Approved for Use Pursuant to United States and International Legislation Defined in Appendix A

15.1 Owens Corning Lumber is included in this report published by an approved agency that is concerned with evaluation of products or services, maintains periodic inspection of the production of listed materials or periodic evaluation of services. This report states either that the material, product, or service meets recognized standards or has been tested and found suitable for a specified purpose. This report meets the legislative intent and definition of being acceptable to the AHJ.

Appendix A

1 Legislation that Authorizes AHJ Approval

1.1 **Fair Competition:** State legislatures have adopted Federal regulations for the examination and approval of building code referenced and alternative products, materials, designs, services, assemblies, 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.

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 products to be approved by 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 products, materials, designs, services, assemblies, 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 new products, materials, designs, services, assemblies, and/or methods of construction approved for use in commerce. Disapproval of alternatives shall be based upon non-conformance with respect to specific provisions of adopted legislation and shall be provided in writing stating the reasons why the alternative was not approved, with reference to the specific 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),[34] where providing test reports, engineering analysis, and/or other related IP/TS is subject to prison of not more than ten years[35] and/or a $5,000,000 fine or three (3) times the value of[36] the Intellectual Property (IP) and Trade Secrets (TS).

1.2.3.1 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.

1.2.4 For new materials[37] that are not specifically provided for in any regulation, 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.[38]

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 have 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 104.2.3.[39]

1.3 **Approved**[40] **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 that 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 testing agency shall publish the scope and limitation(s) of the listed material or fabricated assembly.[41] The Superintendent of Building Approved Testing Agency Roster is provided by the Los Angeles Department of Building and Safety (LADBS). The Center for Building Innovation (CBI) Certificate of Approval License is TA24945. Tests and certifications found in a DrJ Listing are LAMC approved. In addition, 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 1707.1.[42]

1.4 **Approved 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, service, design, assembly, and/or method of construction, not specifically provided for in the MCC. This technical data shall consist of research reports from approved sources (i.e., MCC defined approved agencies).

1.5 **Approved by New York City:** The 2022 NYC Building Code (NYCBC) states in part that an approved agency shall be deemed[43] 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 agreement[44] (i.e., ANAB, International Accreditation Forum also known as IAF, etc.).

1.6 **Approved by Florida:** Statewide approval of products, methods, or systems of construction, shall be approved without further evaluation by:

1.6.1 A certification mark or listing of an approved certification agency

1.6.2 A test report from an approved testing laboratory

1.6.3 A product evaluation report based upon testing or comparative or rational analysis, or a combination thereof, from an approved product evaluation entity

1.6.4 A product evaluation report based upon testing, comparative or rational analysis, or a combination thereof, developed, signed, and sealed by a professional engineer or architect, licensed in Florida.

1.6.5 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:

1.6.5.1 A certification mark, listing, or label from a commission-approved certification agency indicating that the product complies with the code.

1.6.5.2 A test report from a commission-approved testing laboratory indicating that the product tested complies with the code.

1.6.5.3 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.

1.6.5.4 A product evaluation report or certification based upon testing, comparative, or rational analysis, or a combination thereof, developed, signed, and sealed by a Florida professional engineer or Florida registered architect, which indicates that the product complies with the code.

1.6.5.5 A statewide product approval issued by the Florida Building Commission.

1.6.6 The Florida Department of Business and Professional Regulation (DBPR) website provides a listing of companies certified as a Product Evaluation Agency (i.e., EVLMiami 13692), a Product Certification Agency (i.e., CER10642), and as a Florida Registered Engineer (i.e., ANE13741).

1.7 **Approved by Miami-Dade County (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 County shall accept the statewide and local Florida Product Approval as provided for in Florida legislation 553.842 and 553.8425.

1.8 **Approved by New Jersey:** Pursuant to the 2018 Building Code of New Jersey in IBC Section 1707.1 General,[45] it states: *"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)".*[46] Furthermore N.J.A.C 5:23-3.7 states: *"Municipal approvals of alternative materials, equipment, or methods of construction"*.

1.8.1 **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.

1.8.1.1 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 the above.

1.8.1.2 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 the above.

1.8.2 The New Jersey Department of Community Affairs has confirmed that technical evaluation reports, from any accredited entity listed by ANAB, meets the requirements of item the previous paragraph, given that the listed entities are no longer in existence and/or do not provide *"reports of engineering findings"*.

1.9 **Approved by the Code of Federal Regulations Manufactured Home Construction and Safety Standards:** Pursuant to Title 24, Subtitle B, Chapter XX, Part 3282.14[47] and Part 3280,[48] the Department encourages innovation and the use of new technology in manufactured homes. The design and construction of a manufactured home shall conform to the provisions of Part 3282 and Part 3280 where key approval provisions in mandatory language follow:

1.9.1 *"All construction methods shall be in conformance with accepted engineering practices."*

1.9.2 *"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."*

1.9.3 *"The design stresses of all materials shall conform to accepted engineering practice."*

1.10 **Approval by US, Local, and State Jurisdictions in General:** 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.[49]

1.10.2 For innovative alternatives and/or methods of construction, the building official shall accept duly authenticated reports from approved agencies with respect to the quality and manner of use of new materials or assemblies.[50]

1.10.2.1 An approved agency is *"approved"* when it is ANAB ISO/IEC 17065 accredited. DrJ is in the ANAB directory.

1.10.2.2 An approved source is *"approved"* when an RDP is properly licensed to transact engineering commerce. The regulatory authority governing approved sources is the state legislature via its professional engineering regulations.[51]

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.[52]

1.11 **Approval by International Jurisdictions:** The USMCA and GATT agreements provide for approval of innovative materials, designs, services, and/or methods of construction through the Agreement on Technical Barriers to Trade and the IAF Multilateral Recognition Arrangement (MLA), where these agreements:

1.11.1 State that 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.

1.11.2 **Approved:** The purpose of the 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, designs, services, and/or methods of construction.

1.11.3 ANAB is an IAF 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.[53]

1.11.4 Therefore, all ANAB ISO/IEC 17065 duly authenticated reports are approval equivalent.[54]

1.12 Approval equity is a fundamental commercial and legal principle.[55]

Notes

1 For more information, visit drjcertification.org or call us at 608-310-6748.

2 Capitalized terms and responsibilities are defined pursuant to the applicable building code, applicable reference standards, the latest edition of TPI 1, the NDS, AISI S202, US professional engineering law, Canadian building code, Canada professional engineering law, Qualtim External Appendix A: Definitions/Commentary, Qualtim External Appendix B: Project/Deliverables, Qualtim External Appendix C: Intellectual Property and Trade Secrets, definitions created within Design Drawings and/or definitions within Reference Sheets. Beyond this, terms not defined shall have ordinarily accepted meanings as the context implies. Words used in the present tense include the future; words stated in the masculine gender include the feminine and neuter; the singular number includes the plural and the plural, the singular.

3 https://up.codes/viewer/mississippi/ibc-2024/chapter/17/special-inspections-and-tests#1702

4 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://www.justice.gov/atr/mission and https://up.codes/viewer/mississippi/ibc-2024/chapter/1/scope-and-administration#104.2.3

5 https://up.codes/viewer/mississippi/ibc-2024/chapter/17/special-inspections-and-tests#1706.2:~:text=the%20design%20strengths%20and%20permissible%20stresses%20shall%20be%20established%20by%20tests

6 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/mississippi/ibc-2024/chapter/17/special-inspections-and-tests#1706.1:~:text=Conformance%20to%20Standards-,The%20design%20strengths%20and%20permissible%20stresses,-of%20any%20structural

7 https://up.codes/viewer/mississippi/ibc-2024/chapter/17/special-inspections-and-tests#1707.1:~:text=the%20building%20official%20shall%20make%2C%20or%20cause%20to%20be%20made%2C%20the%20necessary%20tests%20and%20investigations%3B%20or%20the%20building%20official%20shall%20accept%20duly%20authenticated%20reports%20from%20approved%20agencies%20in%20respect%20to%20the%20quality%20and%20manner%20of%20use%20of%20new%20materials%20or%20assemblies%20as%20provided%20for%20in%20Section%20104.2.3.

8 https://up.codes/viewer/mississippi/ibc-2024/chapter/17/special-inspections-and-tests#1703.4.2

9 https://up.codes/viewer/mississippi/ibc-2024/chapter/2/definitions#approved_agency

10 https://up.codes/viewer/mississippi/ibc-2024/chapter/2/definitions#approved_source

11 https://www.law.cornell.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.

12 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/

13 https://www.cbitest.com/accreditation/

14 https://up.codes/viewer/mississippi/ibc-2024/chapter/1/scope-and-administration#104.1:~:text=directed%20to%20enforce%20the%20provisions%20of%20this%20code

15 https://up.codes/viewer/mississippi/ibc-2024/chapter/1/scope-and-administration#104.2.3 AND https://up.codes/viewer/mississippi/ibc-2024/chapter/1/scope-and-administration#105.3.1

16 https://up.codes/viewer/mississippi/ibc-2024/chapter/17/special-inspections-and-tests#1707.1

17 https://iaf.nu/en/about-iaf-mla/#:~:text=Once%20an%20accreditation%20body%20is%20a%20signatory%20of%20the%20IAF%20MLA%2C%20it%20is%20required%20to%20recognise%20certificates%20and%20validation%20and%20verification%20statements%20issued%20by%20conformity%20assessment%20bodies%20accredited%20by%20all%20other%20signatories%20of%20the%20IAF%20MLA%2C%20with%20the%20appropriate%20scope.

18 True for all ANAB accredited product evaluation agencies and all International Trade Agreements.

19 https://www.justice.gov/crt/deprivation-rights-under-color-law AND https://www.justice.gov/atr/mission

20 Unless otherwise noted, the links referenced herein use un-amended versions of the 2024 International Code Council (ICC) 2024 International Code Council (ICC) model codes as foundation references. Mississippi versions of the IBC 2024 and the IRC 2024 are un-amended. This material, product, design, service and/or method of construction also complies with the 2000-2012 versions of the referenced codes and the standards referenced therein. As pertinent to this technical and code compliance evaluation, CBI and/or DrJ staff have reviewed any state or local regulatory amendments to assure this report is in compliance.

21 https://www.ecfr.gov/current/title-24/subtitle-B/chapter-XX/part-3280#p-3280.2(Listed%20or%20certified); https://up.codes/viewer/mississippi/ibc-2024/chapter/2/definitions#listed AND https://up.codes/viewer/mississippi/ibc-2024/chapter/2/definitions#labeled

22 https://ctscivil.com/wp-content/uploads/2019/08/V-M-D-Diagrams.pdf AND https://engineering.purdue.edu/~ce474/Docs/DA6-BeamFormulas.pdf. For assistance with beam or post specialty engineered design, please contact Owens Corning via email at oclumber@owenscorning.com.

23 https://up.codes/viewer/mississippi/ibc-2024/chapter/17/special-inspections-and-tests#1703.4

24 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%20livable%2C%20and%20safe%20housing%20and%20shall%20demonstrate%20acceptable%20workmanship%20reflecting%20journeyman%20quality%20of%20work%20of%20the%20various%20trades

25 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%20engineering%20analysis%20or%20by%20suitable%20load%20tests%20to%20simulate%20the%20actual%20loads%20and%20conditions%20of%20application%20that%20occur.

26 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. DrJ is an ANAB accredited product certification body.

27 https://anabpd.ansi.org/Accreditation/product-certification/AllDirectoryDetails?prgID=1&orgID=2125&statusID=4#:~:text=Bill%20Payment%20Date-,Accredited%20Scopes,-13%20ENVIRONMENT.%20HEALTH

[28] See Code of Federal Regulations (CFR) Title 24 Subtitle B Chapter XX Part 3280 for definition: https://www.ecfr.gov/current/title-24/subtitle-B/chapter-XX/part-3280

[29] 2018: https://up.codes/viewer/wyoming/ifc-2018/chapter/1/scope-and-administration#104.9 AND 2021: https://up.codes/viewer/wyoming/ibc-2021/chapter/1/scope-and-administration#104.11

[30] 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 (https://up.codes/viewer/mississippi/ibc-2024/chapter/2/definitions#201.4) where the building code authorizes sentences to have an ordinarily accepted meaning such as the context implies.

[31] https://up.codes/viewer/mississippi/ibc-2024/chapter/17/special-inspections-and-tests#1707.1

[32] Multilateral approval is true for all ANAB accredited product evaluation agencies and all International Trade Agreements.

[33] https://up.codes/viewer/mississippi/ibc-2024/chapter/17/special-inspections-and-tests#1707.1

[34] http://www.drjengineering.org/AppendixC AND https://www.law.cornell.edu/uscode/text/18/part-I/chapter-90

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

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

[37] https://up.codes/viewer/mississippi/ibc-2024/chapter/17/special-inspections-and-tests#1706.2

[38] IBC 2024, Section 1706.1 Conformance to Standards

[39] IBC 2024, Section 1707 Alternative Test Procedure, 1707.1 General

[40] See **Section 11** for the distilled building code definition of **Approved**.

[41] Los Angeles Municipal Code, SEC. 98.0503. TESTING AGENCIES

[42] https://up.codes/viewer/california/ca-building-code-2022/chapter/17/special-inspections-and-tests#1707.1

[43] New York City, The Rules of the City of New York, § 101-07 Approved Agencies

[44] New York City, The Rules of the City of New York, § 101-07 Approved Agencies

[45] 2018: https://up.codes/viewer/new_jersey/ibc-2018/chapter/17/special-inspections-and-tests#1707.1 AND 2021: https://up.codes/viewer/new_jersey/ibc-2021/chapter/17/special-inspections-and-tests#1707.1

[46] https://www.nj.gov/dca/divisions/codes/codreg/ucc.html

[47] https://www.ecfr.gov/current/title-24/section-3282.14

[48] https://www.ecfr.gov/current/title-24/part-3280

[49] 2024 IBC Section 1706 Design Strengths of Materials (https://up.codes/viewer/mississippi/ibc-2024/chapter/17/special-inspections-and-tests#1706) AND 2024 IBC Section 1706.2 New Materials (https://up.codes/viewer/mississippi/ibc-2024/chapter/17/special-inspections-and-tests#1706.2) Adopted law pursuant to IBC model code language 1706.2.

[50] IBC 2024, Section 1707 Alternative Test Procedure, 1707.1 General (https://up.codes/viewer/mississippi/ibc-2024/chapter/17/special-inspections-and-tests#1707.1) Adopted law pursuant to IBC model code language 1707.1.

[51] 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/

[52] IBC 2024, Section 1706 Design Strengths of Materials and IBC 2024 Section 1706.1 Conformance to Standards Adopted law pursuant to IBC model code language 1706.1.

[53] IAF MLA: https://iaf.nu/en/about-iaf-mla/#:~:text=Once%20an%20accreditation%20body%20is%20a%20signatory%20of%20the%20IAF%20MLA%2C%20it%20is%20required%20to%20recognise%20certificates%20and%20validation%20and%20verification%20statements%20issued%20by%20conformity%20assessment%20bodies%20accredited%20by%20all%20other%20signatories%20of%20the%20IAF%20MLA%2C%20with%20the%20appropriate%20scope

[54] True for all ANAB accredited product evaluation agencies and all International Trade Agreements.

[55] https://www.justice.gov/crt/deprivation-rights-under-color-law AND https://www.justice.gov/atr/mission