CBI Listing

CL 2303-23

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Trade Secret Owner

Screw Products, Inc.

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DIVISION: 06 00 00 - WOOD, PLASTICS AND COMPOSITES

SECTION: 06 05 23 - Wood, Plastic, and Composite Fastenings

1 Listed Nova™ and Yukon™ Fasteners[1,2]

1.1 Nova™ and Yukon™ Fasteners

1.1.1 The Nova™ and Yukon™ Fasteners evaluated in this Listing are shown in Figure 1, Figure 2 and Figure 3.

Figure 1. Nova™ Fastener

Figure 2. #16 Yukon™ Fastener

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

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

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Figure 3. #18 Yukon™ Fastener

1.2 Nova™ fasteners are partially threaded screws with a coin head and star drive.

1.3 Yukon™ fasteners are partially threaded screws with a hex head.

1.4 Nova™ and Yukon™ fasteners are construction lag screws intended for structural use in timber construction.

1.5 Nova™ and Yukon™ fasteners are construction lag screws coated with a proprietary Zytec™ GX coating that is equivalent to the protection provided by code-approved hot-dipped galvanized coatings meeting ASTM A153, Class D.

1.5.1 Zytec™ GX coating is tested and recognized for use in ground contact pressure treated lumber (MCA), exterior, freshwater, general construction applications (i.e., Ground Contact AWPA UC1-UC4A MCA).

1.5.2 Zytec™ GX coated fasteners are approved for use in FRT lumber, provided the conditions set forth by the FRT lumber manufacturer are met, including appropriate strength reductions.

1.6 Nova™ and Yukon™ Fasteners, evaluated in this Listing, are set forth in Table 1 and Table 2:

Table 1. Fastener Specifications – Nova™

Fastener Name	Designation	Head (in)		Nominal Length[1] (in)	Thread Length[2] (in)	Shank Diameter[3] (in)	Thread Diameter (in		Nominal Bending Yield, f_{yb} (psi)	Allowable Fastener Strength (lb)	
		Diameter	Drive Type				Minor	Major		Tensile	Shear[4]
#14 Nova™	14 x 1"	0.531	TX30	1	¾	0.173	0.152	0.246	175,900	1,130	855
	14 x 1½"			1½	1						
	14 x 2"			2	1½						
	14 x 2½"			2½	1½						
	14 x 3"			3	1½						
	14 x 4"			4	2						
	14 x 5"			5	3						
	14 x 6"			6	3						
#16 Nova™	16 x 2"	0.630	TX30	2	1½	0.205	0.177	0.283	178,200	1,520	1,105
	16 x 2½"			2½	1½						
	16 x 3"			3	1½						
	16 x 3½"			3½	1½						
	16 x 4"			4	2						
	16 x 4½"			4½	2						
	16 x 5"			5	3						
	16 x 6"			6	3						

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Fastener Name	Designation	Head (in)		Nominal Length[1] (in)	Thread Length[2] (in)	Shank Diameter[3] (in)	Thread Diameter (in		Nominal Bending Yield, f_{yb} (psi)	Allowable Fastener Strength (lb)	
		Diameter	Drive Type				Minor	Major		Tensile	Shear[4]
	16 x 6"			6	5						
#18 Nova™	18 x 3⅜"	0.728	TX40	3⅜	1½	0.226	0.205	0.315	161,000	1,800	1,465
	18 x 4"			4	2						
	18 x 5"			5	1½						
	18 x 6"			6	3						
	18 x 6¾"			6¾	1½						
	18 x 7"			7	3½						
	18 x 8"			8	4						
	18 x 10"			10	4						
	18 x 12"			12	5						
	18 x 14"			14	6						
	18 x 16"			16	6						

SI: 1 in = 25.4 mm, 1 lb = 4.45 N, 1 psi = 0.00689 MPa

1. Fastener length is measured from the top of the head to the tip.
2. Thread length excludes the knurl. The #14 x 1", #14 x 1½", #14 x 2", #16 x 2" and #16 x 6" (with 5" thread length) screws have no knurl.
3. Shank diameter based on manufactured thickness with coating.
4. Shear determined at thread diameter for #14 and #16 screws and at smooth shank diameter for #18 screws.

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Table 2. Fastener Specifications – Yukon™

Fastener Name	Designation	Head (in)		Nominal Length[1] (in)	Thread Length[2] (in)	Shank Diameter[3] (in) Minor	Thread Diameter (in)		Nominal Bending Yield, f_{yb} (psi)	Allowable Fastener Strength (lb)	
		Diameter	Drive Type				Major	Major		Tensile	Shear[4]
#16 Yukon™	16 x 4"	0.472	5/16" Hex	4	2	0.205	0.177	0.284	178,200	1,520	1,105
	16 x 6"			6	2						
	16 x 6"			6	5						
	16 x 8"			8	2						
	16 x 10"			10	2						
	16 x 12"			12	2						
	16 x 14"			14	2						
#18 Yukon™	18 x 4"	0.630	5/16" Hex	4	2	0.226	0.205	0.315	161,000	1,800	1,465
	18 x 5"			5	2¾						
	18 x 6"			6	2¾						
	18 x 7"			7	2¾						
	18 x 9"			9	2¾						
	18 x 11"			11	2¾						

SI: 1 in = 25.4 mm, 1 lb = 4.45 N, 1 psi = 0.00689 MPa

1. Fastener length is measured from the underside of the head to the tip.
2. Thread length excludes the knurl. The #16 x 6" screw with 5" thread length has no knurl.
3. Shank diameter based on manufactured thickness with coating.
4. Shear determined at thread diameter for #16 screws and at smooth shank diameter for #18 screws.

2 Scope of Listing[3,4]

2.1 Nova™ and Yukon™ Fasteners have been tested and/or evaluated in accordance with the following Standards and Referenced Documents for use as specified herein:

2.1.1 *AISI S904: Standard Test Methods for Determining the Tensile and Shear Strength of Screws*

2.1.2 *ANSI / AWC NDS: National Design Specification (NDS) for Wood Construction*

2.1.3 *ASTM B117: Standard Practice for Operating Salt Spray (Fog) Apparatus*

2.1.4 *ASTM D1761: Standard Test Methods for Mechanical Fasteners in Wood*

2.1.5 *ASTM D2395: Standard Test Methods for Density and Specific Gravity (Relative Density) of Wood and Wood-Based Materials*

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

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

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2.1.6 *ASTM D2915: Standard Practice for Sampling and Data-Analysis for Structural Wood and Wood-Based Products*

2.1.7 *ASTM D4442: Standard Test Methods for Direct Moisture Content Measurement of Wood and Wood-Based Materials*

2.1.8 *ASTM F1575: Standard Test Method for Determining Bending Yield Moment of Nails*

3 Performance Evaluation

3.1 Tests, testing, test reports, research reports, duly authenticated reports and related engineering evaluations are defined as intellectual property and/or trade secrets and protected by Defend Trade Secrets Act 2018 (DTSA).[5]

3.2 Testing and/or inspections conducted for this Listing were performed by CBI, an ISO/IEC 17025 accredited testing laboratory[6] and ISO/IEC 17020 accredited inspection body,[7] which are internationally recognized accreditations through International Accreditation Forum (IAF).

3.3 Independent testing and/or inspections conducted for this Listing were performed by an ISO/IEC 17025 accredited testing laboratory, ISO/IEC 17020 accredited inspection body, and/or a licensed Registered Design Professional (RDP).

3.4 *General*

3.4.1 Nova™ and Yukon™ Fasteners are used to attach wood framing members in conventional light-frame construction and provide resistance against withdrawal, head pull-through, axial, and shear loads. See Section 4 for installation requirements.

3.4.2 Nova™ and Yukon™ Fasteners are installed without lead holes, as prescribed in NDS.

3.4.3 Where the application exceeds the limitations set forth herein, design shall be permitted in accordance with accepted engineering procedures, experience, and technical judgment.

3.5 *Design*

3.5.1 Design of Nova™ and Yukon™ Fasteners is governed by the applicable code and provisions for dowel-type fasteners in NDS.

3.5.2 Unless otherwise noted, adjustment of the design stresses for duration of load shall be in accordance with the applicable code.

3.6 *Nova™ and Yukon™ Fasteners Reference Lateral Design Values (Z)*

3.6.1 Reference lateral design values (lb) for shear load perpendicular to grain and parallel to grain for Nova™ and Yukon™ Fasteners are specified in Table 3 and Table 4, respectively.

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

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

7 Ibid.

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Table 3. Nova™ Fastener Reference Lateral Design Values (Z), lb[3,4]

Fastener Name	Designation	Nominal Length (in)	Thread Length (in)	Minimum Side Member Thickness (in)	Minimum Main Member Penetration[5] (in)	Wood Species (Specific Gravity)[1,2]					
						HF/SPF (0.42)		DF (0.50)		SP (0.55)	
						$Z_{\perp}$	$Z_{\parallel}$	$Z_{\perp}$	$Z_{\parallel}$	$Z_{\perp}$	$Z_{\parallel}$
#14 Nova™	14 x 1½"	1½	1	½	1	60	60	85	85	105	105
	14 x 2"	2	1½	¾	1¼	85	85	120	120	140	140
	14 x 2½"	2½	1½	¾	1½	110	110	135	135	150	150
	14 x 3"	3	1½	1½	1½	240	230	240	230	240	230
	14 x 4"	4	2								
	14 x 5"	5	3								
	14 x 6"	6	3								
#16 Nova™	16 x 2"	2	1½	¾	1¼	75	95	105	130	125	155
	16 x 2½"	2½	1½	¾	1½	105	130	135	170	150	190
	16 x 3"	3	1½	1½	1½	265	225	265	225	265	230
	16 x 3½"	3½	1½								
	16 x 4"	4	2							265	245
	16 x 4½"	4½	2								
	16 x 5"	5	3								
	16 x 6"	6	3								
	16 x 6"	6	5								
#18 Nova™	18 x 3⅜"	3⅜	1½	1½	1½	135	170	185	230	220	275
	18 x 4"	4	2		2½	410	370	410	370	410	370
	18 x 5"	5	1½								
	18 x 6"	6	3								
	18 x 6¾"	6¾	1½								
	18 x 7"	7	3½								
	18 x 8"	8	4								
	18 x 10"	10	4								
	18 x 12"	12	5								
	18 x 14"	14	6								
	18 x 16"	16	6								

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SI: 1 in = 25.4 mm, 1 lb = 4.45 N, 1 lb/in = 0.175 kN/m

5. Reference lateral design values apply to two-member single shear connections where both members are of the same specific gravity, and the fastener is oriented perpendicular to grain. Where the members are of different specific gravities, use the lower of the two.
6. For wood species with an assigned specific gravity between 0.42 and 0.50, use the tabulated values for a specific gravity of 0.42. For wood species with an assigned specific gravity between 0.50 and 0.55, use the tabulated values for a specific gravity of 0.50. For wood species with an assigned specific gravity greater than or equal to 0.55, use the tabulated value for specific gravity of 0.55.
7. Tabulated lateral design values (Z) shall be adjusted by all applicable adjustment factors per NDS Table 11.3.1.
8. $Z_{\perp}$ = Lateral Design Values Perpendicular to Grain, $Z_{||}$ = Lateral Design Values Parallel to Grain.
9. Fastener main member penetration is the length embedded in the main member, including the tip.

Table 4. Yukon™ Fastener Reference Lateral Design Values (Z), lb[3,4]

Fastener Name	Designation	Nominal Length (in)	Thread Length (in)	Minimum Side Member Thickness (in)	Minimum Main Member Penetration[5] (in)	Wood Species (Specific Gravity)[1,2]					
						HF/SPF (0.42)		DF (0.50)		SP (0.55)	
						$Z_{\perp}$	$Z_{||}$	$Z_{\perp}$	$Z_{||}$	$Z_{\perp}$	$Z_{||}$
#16 Yukon™	16 x 4"	4	2	1½	1½	130	165	180	225	200	250
	16 x 6"	6	2	1½	3½	140	175	180	225	200	250
	16 x 6"	6	5								
	16 x 8"	8	2	3½	3½	155	195	185	230	200	250
	16 x 10"	10	2								
	16 x 12"	12	2	5½	5½						
	16 x 14"	14	2								
#18 Yukon™	18 x 4"	4	2	1½	1½	135	170	185	230	220	275
	18 x 5"	5	2¾	1½	3½	150	190	195	245	225	280
	18 x 6"	6	2¾								
	18 x 7"	7	2¾	3½	3½	175	220	210	260	225	285
	18 x 9"	9	2¾								
	18 x 11"	11	2¾								

SI: 1 in = 25.4 mm, 1 lb = 4.45 N, 1 lb/in = 0.175 kN/m

1. Reference lateral design values apply to two-member single shear connections where both members are of the same specific gravity, and the fastener is oriented perpendicular to grain. Where the members are of different specific gravities, use the lower of the two.
2. For wood species with an assigned specific gravity between 0.42 and 0.50, use the tabulated values for a specific gravity of 0.42. For wood species with an assigned specific gravity between 0.50 and 0.55, use the tabulated values for a specific gravity of 0.50. For wood species with an assigned specific gravity greater than or equal to 0.55, use the tabulated value for specific gravity of 0.55.
3. Tabulated lateral design values (Z) shall be adjusted by all applicable adjustment factors per NDS Table 11.3.1.
4. $Z_{\perp}$ = Lateral Design Values Perpendicular to Grain, $Z_{||}$ = Lateral Design Values Parallel to Grain.
5. Fastener main member penetration is the length embedded in the main member, including the tip.

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3.7 *Withdrawal Design Values*

3.7.1 The reference withdrawal design values (lb/in) in Table 5 apply to the screws listed in Table 1 and Table 2.

Table 5. Reference Withdrawal Design Values (W) – Side Grain Applications, lb/in[1]

Fastener Designation	Minimum Penetration Length[4] (in)	Wood Species (Specific Gravity)[2,3]		
		HF/SPF (0.42)	DF (0.50)	SP (0.55)
#14 Nova™	1	125	175	210
	2	260	260	260
#16 Nova™ and Yukon™	1	145	200	245
	2	260	260	260
#18 Nova™ and Yukon™	1	265	225	270
	2		265	270

SI: 1 in = 25.4 mm, 1 lb = 4.45 N, 1 lb/in = 0.175 kN/m

6. Tabulated withdrawal values (W) shall be adjusted by all applicable factors per NDS, Table 11.3.1.
7. For wood species with an assigned specific gravity between 0.42 and 0.50, use the tabulated values for a specific gravity of 0.42. For wood species with an assigned specific gravity between 0.50 and 0.55, use the tabulated values for a specific gravity of 0.50. For wood species with an assigned specific gravity greater than or equal to 0.55, use the tabulated value for specific gravity of 0.55.
8. The full design withdrawal value is equal to the reference withdrawal value multiplied by the length of the threaded portion of the fastener embedded in the main member.
9. Fastener penetration is the threaded length embedded in the main member, including the tip. For penetrations equal to or greater than 2", use the tabulated value for 2" penetration.

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3.8 *Head Pull-Through Design Values*

3.8.1 The reference head pull-through design values (lb) in Table 6 apply to the screws listed in Table 1 and Table 2.

Table 6. Reference Head Pull-Through Design Values (P), lb[1]

Fastener Name	Wood Member Thickness[3] (in)	Wood Species (Specific Gravity)[2]		
		HF/SPF (0.42)	DF (0.50)	SP (0.55)
#14 Nova™	¾	150	215	260
	1½	480	480	480
	2	480	480	480
#16 Yukon™	¾	135	190	230
	1½	380	380	380
	2	380	380	380
#16 Nova™	¾	180	255	310
	1½	650	650	650
	2	650	650	655
#18 Yukon™	¾	180	255	310
	1½	660	660	660
	2	660	660	660
#18 Nova™	¾	210	295	360
	1½	885	885	885
	2	885	885	885

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

10. Tabulated pull-through values (P) shall be adjusted by all applicable adjustment factors per NDS Table 11.3.1.
11. For wood species with an assigned specific gravity between 0.42 and 0.50, use the tabulated values for a specific gravity of 0.42. For wood species with an assigned specific gravity between 0.50 and 0.55, use the tabulated values for a specific gravity of 0.50. For wood species with an assigned specific gravity greater than or equal to 0.55, use the tabulated value for specific gravity of 0.55.
12. Pull-through design values apply to connections having a minimum wood member thickness provided in the table.

3.9 Any building code and/or accepted engineering evaluations (i.e., research reports, duly authenticated reports, etc.) that are conducted for this Listing were performed by DrJ Engineering, LLC (DrJ), an ISO/IEC 17065 accredited certification body and a professional engineering company operated by RDPs / approved sources. DrJ is qualified[8] to practice product and code compliance services within its scope of accreditation and engineering expertise, respectively.

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

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4 Installation

4.1 Installation shall comply with the manufacturer installation instructions, this Listing, the approved construction documents, and the applicable building code.

4.2 In the event of a conflict between the manufacturer installation instructions, this Listing, the approved construction documents and the applicable building code, the most restrictive shall govern.

4.3 Minimum penetration is 1", unless otherwise stated in this Listing. Install fasteners with head flush to the surface of the wood member.

4.4 Lead holes are not required.

4.5 Screws shall be installed with the appropriate rotating powered driver.

4.6 Minimum requirements for screw spacing, edge distance, and end distance shall be in accordance with Table 7.

Table 7. Nova™ and Yukon™ Fastener Spacing, Edge Distance, and End Distance Requirements,[1] inch

Connection Geometry	#14	#16	#18
Edge Distance – Load in any direction	½	⅝	
End Distance – Load parallel to grain, towards end	2⅝	3⅛	3½
End Distance – Load parallel to grain, away from end	1¾	2⅛	2⅜
End Distance – Load perpendicular to grain	1¾	2⅛	2⅜
Spacing between Fasteners in a Row – Parallel to grain	2⅝	3⅛	3½
Spacing between Fasteners in a Row – Perpendicular to grain	1¾	2⅛	2⅜
Spacing between Rows of Fasteners – In-line	⅞	1⅛	1¼
Spacing between Rows of Fasteners – Staggered[2]	½	⅝	

SI: 1 in = 25.4 mm

1. Edge distances, end distances, and spacing of fasteners shall be sufficient to prevent splitting of the wood or as shown in this table, whichever is the more restrictive.
2. Values for "Spacing between Rows of Fasteners-Staggered" apply where the screws in adjacent rows are offset by one-half of the "Spacing between Fasteners in a Row."

5 Findings

5.1 As described in Section 3, Nova™ and Yukon™ Fasteners have performance characteristics that were tested and/or meet pertinent standards and is suitable for use pursuant to its specified purpose.

5.2 When used and installed in accordance with this Listing and the manufacturer installation instructions, Nova™ and Yukon™ Fasteners shall be approved for:

5.2.1 The reference design value properties defined herein for use in accordance with the applicable code.

5.3 Unless exempt by state statute, when Nova™ and Yukon™ Fasteners is to be used as a structural and/or building envelope component in the design of a specific building, the design shall be performed by an RDP.

5.4 Any application specific issues not addressed herein can be engineered by an RDP. Assistance with engineering is available from Screw Products, Inc.

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5.5 IBC Section 104.11 (IRC Section R104.11 and IFC Section 104.10[9] 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.

5.6 **Approved**:[10] Building codes require that the building official shall accept duly authenticated reports[11] or research reports[12] from approved agencies and/or approved sources (i.e., licensed RDP) with respect to the quality and manner of use of new products, materials, designs, services, assemblies, or methods of construction.

5.6.1 Acceptance of an approved agency, by a building official, is performed by verifying that the agency is accredited by a recognized accreditation body of the International Accreditation Forum (IAF).

5.6.2 Acceptance of a licensed RDP by a building official is performed by verifying that the RDP and/or their business entity is listed by the licensing board of the relevant jurisdiction.

5.7 CBI is an approved agency through its ISO/IEC 17025 testing and an ISO/IEC 17020 inspection accreditation. CBI employs RDPs and is accredited by ANAB.[13]

5.8 Through ANAB accreditation and the IAF Multilateral Agreements, this Listing can be used to obtain innovative product approval in any jurisdiction or country that has IAF MLA Members and Signatories to meet the Purpose of the MLA – "*certified once, accepted everywhere*." IAF specifically says, "*Once an accreditation body is a signatory of the IAF MLA, it is required to recognise certificates and validation and verification statements issued by conformity assessment bodies accredited by all other signatories of the IAF MLA, with the appropriate scope*."[14]

6 Conditions of Use

6.1 Performance characteristics are specified in Section 3.

6.2 As defined in Section 3, where material or engineering mechanics properties are created for load resisting design purposes, the resistance to the applied load shall not exceed the ability of the defined properties to resist those loads using the principles of accepted engineering practice.

6.3 As listed herein, Nova™ and Yukon™ Fasteners shall not be used:

6.3.1 If moisture content is greater than nineteen percent (19%) for sawn lumber.

6.4 Use of Nova™ and Yukon™ Fasteners in locations exposed to saltwater or saltwater spray is outside the scope of this evaluation report.

6.5 When required by adopted legislation and enforced by the building official (AHJ)[15] in which the project is to be constructed:

6.5.1 This Listing and the installation instructions shall be submitted at the time of permit application.

6.5.2 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.

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9 2018 IFC Section 104.9

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

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

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

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

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

15 Also known as the Authority Having Jurisdiction (AHJ)

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6.5.3 These Nova™ and Yukon™ Fasteners have an internal quality control program and a third-party quality assurance program.

6.5.4 At a minimum, this innovative product shall be installed per Section 4 of this Listing.

6.6 The approval of this Listing by the AHJ shall comply with IBC Section 1707.1, where legislation states in pertinent part, "*the building official shall accept duly authenticated reports from approved agencies in respect to the quality and manner of use of new materials or assemblies as provided for in Section 104.11*", all of IBC Section 104, and IBC Section 105.4.

6.7 These Nova™ and Yukon™ Fasteners have an internal quality control program and a third party quality assurance program in accordance with IBC Section 104.4, IBC Section 110.4, IBC Section 1703, IRC Section R104.4, and IRC Section R109.2.

6.8 The application of these Nova™ and Yukon™ Fasteners, in the context of this Listing, are dependent upon the accuracy of the construction documents, implementation of installation instructions, inspection as required by IBC Section 110.3, IRC Section R109.2, and any other regulatory requirements that may apply.

6.9 The actual design, suitability, and use of this Listing for any particular building is the responsibility of the owner or the owner's authorized agent.

6.10 Any required design loads shall be provided by the building designer (i.e., owner or RDP) and/or determined in accordance with the building code adopted by the jurisdiction in which the project is to be constructed.

6.11 Information contained herein may include the result of testing and/or data analysis by sources that are approved agencies (i.e., ANAB accredited agencies), approved sources (i.e., RDPs), and/or professional engineering regulations. Accuracy of external test data and resulting analysis is relied upon.

6.12 Where pertinent, testing and/or engineering analysis is based upon state or local code and/or standard provisions that have been codified into law through legislation. The developers of the codes and standards are legally responsible for the accuracy of any legislatively adopted material properties and/or analytical methods. Any testing and/or engineering mechanics-based analysis may use legislatively and/or code adopted provisions as the control condition. The use of a control condition to compare to a test condition establishes equivalency to that prescribed in the adopted legislation with respect to quality, strength, effectiveness, fire resistance, durability, and safety.

6.13 The reliability of the attributes provided herein may be dependent upon published design properties by others. These properties are defined by the grade mark, grade stamp, mill certificate, Listings, certified reports, duly authenticated reports, and/or research reports prepared by approved agencies and/or approved sources furnished by suppliers of products, materials, designs, assemblies, and/or methods of construction. These are presumed to be minimum properties and relied upon to be accurate.

6.14 Testing and engineering analysis: The strength, rigidity and/or general performance of component parts and/or the integrated structure are determined by suitable tests that simulate the actual conditions of application that occur and/or by accepted engineering practice and experience.[16]

6.15 Where additional condition of use and/or code compliance information is required, please search for Nova™ and Yukon™ Fasteners on the DrJ Engineering website.

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

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7 Identification

7.1 Labeling[17,18] shall include, but not be limited to, the manufacturer name, manufacturing location/identifier, and the CBI Listing number.

7.2 Labeling may include, but not be limited to, the CBI mark and any other numerical designations related to layout locations for a given project.

8 Review Schedule

8.1 This Listing is subject to periodic review and revision. For the most recent version, visit cbitest.com.

8.2 For information on the status of this Listing, contact CBI.

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

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

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

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

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Appendix A

1 Innovation Legislation that Mandates Approval by any AHJ

1.1 **Fair Competition:** Many state legislatures have adopted regulations for the examination and approval of both building codes referenced and alternative materials, products, designs, services, and/or methods of construction that:

1.1.1 Advance innovation,

1.1.2 Promote competition so all businesses have the opportunity to compete on price and quality in an open market on a level playing field unhampered by anticompetitive constraints, and

1.1.3 Benefit consumers through lower prices, better quality, and greater choice.

1.2 **Adopted Legislation:** The following local, state, and federal regulations affirmatively authorize Nova™ and Yukon™ Fasteners to be found acceptable to AHJs, delegates of building departments, and/or delegates of an agency of the federal government:

1.2.1 Interstate commerce is governed by the Federal Department of Justice to encourage the use of innovative materials, products, designs, services, and/or methods of construction. The goal is to "protect economic freedom and opportunity by promoting free and fair competition in the marketplace."

1.2.2 Title 18 US Code Section 242 affirms and regulates the right of individuals and businesses to freely and fairly have alternative to code-referenced materials, products, services, designs, and/or methods of construction approved for use in commerce. Disapproval of alternative to code applications shall be based upon specific provisions of adopted legislation and shall be provided in writing stating the reasons why the alternative was not approved with reference to legislation violated.

1.2.3 The federal government and each state have a public records act. In addition, each state also has legislation that mimics the federal Defend Trade Secrets Act 2016 (DTSA),[19] where providing test reports, engineering analysis and/or other related Intellectual Property (IP)/Trade Secrets (TS), is subject to prison of not more than 10 years[20] and/or a $5,000,000 fine or 3 time the value of[21] the IP and TS.

1.2.3.1 Compliance with public records and trade secret legislation requires approval through the use of Listings, certified reports, duly authenticated reports from approved agencies, valid research reports prepared by approved agencies and/or approved sources, and/or Technical Evaluation Reports.

1.2.4 For new materials that are not specifically provided for in any building code, the design strengths and permissible stresses shall be established by tests, where suitable load tests simulate the actual loads and conditions of application that occur.

1.2.5 The design strengths and permissible stresses of any structural material….shall conform to the specifications and methods of design using accepted engineering practice….[22]

1.2.6 The commerce of approved sources (i.e., registered PEs) is regulated by professional engineering legislation. Professional engineering commerce shall always be approved by AHJs, except where there is evidence, provided in writing, that specific legislation has been violated by an individual registered PE.

1.2.7 The AHJ shall accept duly authenticated reports from approved agencies in respect to the quality and manner of use of new materials or assemblies as provided for in IBC Section 104.11.[23]

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

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

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

[22] IBC 2021, Section 1706.1 Conformance to Standards

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

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1.3 **Approval by Los Angeles**: The Los Angeles Municipal Code (LAMC) states in pertinent part that the provisions of LAMC are not intended to prevent the use of any material, device, or method of construction not specifically prescribed by LAMC. The Department shall use Part III, Recognized Standards in addition to Part II, Uniform Building Code Standards of Division 35, Article 1, Chapter IX of the LAMC in evaluation of products for approval where such standard exists for the product or the material and may use other approved standards which apply. Whenever tests or certificates of any material or fabricated assembly are required by Chapter IX of the LAMC, such tests or certification shall be made by a testing agency approved by the Superintendent of Building to conduct such tests or provide such certifications. The Superintendent of Building shall accept duly authenticated reports from approved agencies in respect to the quality and manner of use of new materials or assemblies as provided for in the California Building Code (CBC) Section 104.11. The testing agency shall publish the scope and limitation(s) of listed material or fabricated assembly.[24] The Superintendent of Building roster of approved testing agencies is provided by the Los Angeles Department of Building and Safety (LADBS).

1.4 **Approval by Chicago**: The Municipal Code of Chicago (MCC) states in pertinent part that an Approved Agency is a Nationally Recognized Testing Laboratory (NRTL) acting within its recognized scope and/or a certification body accredited by the American National Standards Institute (ANSI) acting within its accredited scope. Construction materials and test procedures shall conform to the applicable standards listed in the MCC. Sufficient technical data shall be submitted to the building official to substantiate the proposed use of any product, material, or assembly. Supporting technical data to assist in the approval of products, materials, or assemblies not specifically provided for in MCC, shall consist of valid research reports from approved sources (i.e., MCC defined Approved Agencies).

1.5 **Approval by** New York City**:** The NYC Building Code 2022 (NYCBC) states in pertinent part that an approved agency shall be deemed[25] 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[26] (i.e., ANAB, International Accreditation Forum (IAF), etc.).

1.6 **Approval by Florida:** Statewide approval of products, methods, or systems of construction shall be approved, without further evaluation, by 1) A certification mark or listing of an approved certification agency, 2) A test report from an approved testing laboratory, 3) A product evaluation report based upon testing or comparative or rational analysis, or a combination thereof, from an approved product evaluation entity; 4) A product evaluation report based upon testing or comparative or rational analysis, or a combination thereof, developed and signed and sealed by a professional engineer or architect, licensed in Florida. For local product approval, products or systems of construction shall demonstrate compliance with the structural wind load requirements of the Florida Building Code (FBC) through one of the following methods; 1) A certification mark, listing, or label from a commission-approved certification agency indicating that the product complies with the code; 2) A test report from a commission-approved testing laboratory indicating that the product tested complies with the code; 3) A product-evaluation report based upon testing, comparative or rational analysis, or a combination thereof, from a commission-approved product evaluation entity which indicates that the product evaluated complies with the code; 4) A product-evaluation report or certification based upon testing or comparative or rational analysis, or a combination thereof, developed and signed and sealed by a Florida professional engineer or Florida registered architect, which indicates that the product complies with the code; 5) A statewide product approval issued by the Florida Building Commission. The Florida Department of Business and Professional Regulation (DBPR) website provides a listing of companies certified as a Product Evaluation Agency (i.e., EVL13692), a Product Certification Agency (i.e., CER10642), and as a Florida Registered Engineer (i.e., ANE13741).

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

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

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

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1.7 **Approval by Miami Dade (i.e., Notice of Acceptance [NOA]):** A Florida statewide approval is an NOA. An NOA is a Florida local product approval. By Florida law, Miami Dade shall accept the statewide and local Florida Product Approval as provided for in Florida legislation 553.842 and 553.8425.

1.8 **Approval by New Jersey:** Pursuant to Building Code 2018 of New Jersey in Section 1707.1 General[27] says: "*In the absence of approved rules or other approved standards,…the building official shall accept duly authenticated reports from approved agencies in respect to the quality and manner of use of new materials or assemblies as provided for in the administrative provisions of the Uniform Construction Code (N.J.A.C. 5:23)*".[28] § 5:23-3.7 Municipal approvals of alternative materials, equipment, or methods of construction. (a) Approvals: Alternative materials, equipment, or methods of construction **shall be approved** by the appropriate subcode official provided the proposed design is satisfactory and that the materials, equipment, or methods of construction are suitable for the intended use and are at least the equivalent in quality, strength, effectiveness, fire resistance, durability and safety of those conforming with the requirements of the regulations. 1. A field evaluation label and report or letter issued by a nationally recognized testing laboratory verifying that the specific material, equipment, or method of construction meets the identified standards or has been tested and found to be suitable for the intended use, **shall be accepted** by the appropriate subcode official as meeting the requirements of (a) above. 2. Reports of engineering findings issued by nationally recognized evaluation service programs, such as, **but not limited to**, the Building Officials and Code Administrators (BOCA), the International Conference of Building Officials (ICBO), the Southern Building Code Congress International (SBCCI), the International Code Council (ICC), and the National Evaluation Service, Inc., **shall be accepted** by the appropriate subcode official as meeting the requirements of (a) above. The New Jersey Department of Community Affairs has confirmed that reports of engineering findings from any accredited entity listed by ANAB meets the requirements of item 2 given the listed entities no longer exist.

1.9 **Code of Federal Regulations Manufactured Home Construction and Safety Standards Approval:** Pursuant to Title 24, Subtitle B, Chapter XX, Part 3282[29] and Part 3280[30], "*the Department encourages innovation and the use of new technology in manufactured homes*" and the design and construction of a manufactured home shall conform to the provisions of this standard where key approval provisions in mandatory language follow; "*All construction methods shall be in conformance with accepted engineering practices*", "*the strength and rigidity of the component parts and/or the integrated structure shall be determined by engineering analysis or by suitable load tests to simulate the actual loads and conditions of application that occur*", and "*the design stresses of all materials shall conform to accepted engineering practice*".

1.10 **Other US Local and State Approval Processes:** In all other local and state jurisdictions, the adopted building code legislation states in pertinent part that:

1.10.1 For new materials that are not specifically provided for in this code, the design strengths and permissible stresses shall be established by tests.[31]

1.10.2 For innovative alternative products, materials, designs, services and/or methods of construction, in the absence of approved rules or other approved standards…the building official shall accept duly authenticated reports (i.e., listing and/or research report) from approved agencies with respect to the quality and manner of use of new materials or assemblies.[32] A building official approved agency is deemed to be approved via certification from an accreditation body that is listed by the International Accreditation Forum,[33] or the equivalent.

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

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

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

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

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

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

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

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1.10.3 The design strengths and permissible stresses of any structural material…shall conform to the specifications and methods of design of accepted engineering practice performed by an approved source.[34] An approved source is defined as a PE subject to professional engineering laws, where a research and/or a technical evaluation report, certified by a PE, shall be approved.

1.11 **International Approval Process:** The USMCA and GATT agreements provide for approval of innovative materials, products, designs, services, and/or methods of construction through the Technical Barriers to Trade agreements and the International Accreditation Forum (IAF) Multilateral Recognition Arrangement (MLA), where these agreements state in pertinent part:

1.11.1 Permit participation of conformity assessment bodies located in the territories of other Members under conditions no less favourable than those accorded to bodies located within their territory or the territory of any other country.

1.11.2 Conformity assessment procedures (i.e., ISO/IEC 17020, 17025, 17065, etc.) are prepared, adopted, and applied so as to grant access for suppliers of like products originating in the territories of other Members under conditions no less favourable than those accorded to suppliers of like products of national origin or originating in any other country, in a comparable situation.

1.11.3 Conformity assessment procedures are not prepared, adopted, or applied with a view to or with the effect of creating unnecessary obstacles to international trade. This means that conformity assessment procedures shall not be more strict or be applied more strictly than is necessary to give the importing Member adequate confidence that products conform to the applicable technical regulations or standards.

1.11.4 **International Approval:** The purpose of the IAF MLA is to ensure mutual recognition of accredited certification and validation/verification statements between signatories to the MLA, and subsequently acceptance of accredited certification and validation/verification statements in many markets based on one accreditation for the timely approval of innovative materials, products, designs, services, and/or methods of construction. Accreditations granted by IAF MLA signatories are recognized worldwide based on their equivalent accreditation programs, therefore reducing costs and adding value to businesses and consumers.

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

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