



Listing and Technical Evaluation Report™

Report No: 2204-01



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⁵/₁₆" GripRite Structural Screw for Use in Deck Ledger Applications

Trade Secret Report Holder:

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CSI Designations:

DIVISION: 06 00 00 - WOOD, PLASTICS AND COMPOSITES

Section: 06 05 23 - Wood, Plastic, and Composite Fastenings Section: 06 11 00 - Wood Framing Section: 06 15 00 - Wood Decking

1 Innovative Products Evaluated¹

1.1 5/16" GripRite Structural Screws

2 Product Description and Materials

2.1 The innovative products evaluated in this report are shown in **Figure 1**.

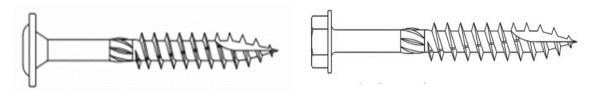


Figure 1. GripRite Structural Screw with Flat Head (Left) and Hex Head (Right)

- 2.2 ⁵/₁₆" GripRite Structural Screws are partially threaded, self-drilling screws with flat heads with a star shaped driving recess or hex-washer heads. The screws have a Type 17 point. The screws have a reamer knurl between the screw thread and the smooth portion of the shank.
- 2.3 ⁵/₁₆" GripRite Structural Screws are formed from carbon steel wire, hardened after forming and then coated with a proprietary coating.
 - 2.3.1 The coating consists of a layer of zinc and a proprietary black outer coating.
- 2.4 Treated Wood Applications
 - 2.4.1 ⁵/₁₆" GripRite Structural Screws may be used in preservative-treated and fire-resistant-treated lumber as alternatives to hot-dip galvanized fasteners prescribed in <u>IBC Section 2304.10.6</u>.² GripRite Structural Screws have been evaluated for use in wood treated with ACQ-D preservatives with a maximum retention of 0.40 pcf.





- 2.4.2 Corrosion resistance applications are limited to the following:
 - 2.4.2.1 Where equilibrium moisture content of the chemically treated wood meets the dry service conditions as described in NDS.
 - 2.4.2.2 Exposure is freshwater and chemically treated wood (no saltwater exposure).
- 2.4.3 Fastener design values for preservative-treated and fire-resistant treated lumber must be reduced as stated by the manufacturer of the lumber treatment.

2.5 Wood Material

- 2.5.1 Wood main and side members must be solid-sawn lumber or boards having an assigned specific gravity as given in the respective tables of this report.
- 2.6 The GripRite Structural Screws evaluated in this report are outlined in **Table 1**.

Table 1. Fastener Specifications - 5/16" GripRite Structural Screws

| Fastener Designation | Head | | | Length (in) | | Diameter (in) | | | Bending Yield | Allowable Steel Strength (lbs) | |
|-------------------------------------|--------|-----------------|------------------|-----------------------|---------------------|---------------|-------|-------|--|-----------------------------------|-------|
| | Style | Drive System | Diameter (in) | Fastener ¹ | Thread ² | Shank | Minor | Major | Strength, ³ f _{yb} , (psi) | Tensile | Shear |
| ⁵ / ₁₆ " x 4" | Hex | T-25 | 0.571" | 4 | 2 | 0.202 | 0.179 | 0.281 | 230,000 | 1,970 | 1,070 |
| ⁵ / ₁₆ " x 5" | Washer | 1-25 | | 5 | 21/4 | | | | | | |
| ⁵ / ₁₆ " x 4" | Flat | T-30 | 0.610" | 4 | 2 | 0.202 | 0.179 | 0.281 | 230,000 | 1,970 | 1,070 |
| ⁵ / ₁₆ " x 5" | | | | 5 | 21/4 | | | | | | |

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 includes tapered tip.
- 3. Bending yield strength, F_{yb}, is determined in accordance with ASTM F1575 using minor thread diameter.
- 2.7 As needed, review material properties for design in **Section 6** and to regulatory evaluation in **Section 8**.

3 Definitions

- 3.1 New Materials³ 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 strengths and permissible stresses shall be established by tests⁵ and/or engineering analysis.⁶
- 3.2 <u>Duly authenticated reports</u>⁷ and <u>research reports</u>⁸ are test reports and related engineering evaluations, which are written by an <u>approved agency</u>⁹ and/or an <u>approved source</u>.¹⁰
 - 3.2.1 These reports contain intellectual property and/or trade secrets, which are protected by the <u>Defend Trade</u> Secrets Act (DTSA).¹¹
- 3.3 An <u>approved agency</u> is "approved" when it is <u>ANAB ISO/IEC 17065 accredited</u>. DrJ Engineering, LLC (DrJ) is listed in the ANAB directory.
- 3.4 An <u>approved source</u> is "approved" when a professional engineer (i.e., <u>Registered Design Professional</u>) is properly licensed to transact engineering commerce. The regulatory authority governing approved sources is the <u>state legislature</u> via its professional engineering regulations.¹²





- 3.5 Testing and/or inspections conducted for this <u>duly authenticated report</u> were performed by an <u>ISO/IEC 17025</u> accredited testing laboratory, an <u>ISO/IEC 17020</u> accredited inspection body, and/or a licensed <u>Registered Design Professional</u> (RDP).
 - 3.5.1 The Center for Building Innovation (CBI) is ANAB¹³ 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 <u>duly authenticated reports</u> from an <u>approved agency</u> and/or an <u>approved source</u> with respect to the quality and manner of use of new materials or assemblies as provided for in regulations regarding the use of alternative materials, designs, or methods of construction.¹⁶
- 3.8 ANAB is an International Accreditation Forum (IAF) Multilateral Recognition Arrangement (MLA) signatory where recognition of certificates, validation and verification statements issued by conformity assessment bodies accredited by all other signatories of the IAF MLA with the appropriate scope, shall be approved.¹⁷ Therefore, all ANAB ISO/IEC 17065 duly authenticated reports are approval equivalent.¹⁸
- 3.9 Approval equity is a fundamental commercial and legal principle. 19

4 Applicable Standards for the Listing; Regulations for the Regulatory Evaluation²⁰

- 4.1 Standards
 - 4.1.1 AISI S904: Standard Test Methods for Determining the Tensile and Shear of Screws
 - 4.1.2 ANSI/AWC NDS: National Design Specification (NDS) for Wood Construction
 - 4.1.3 ASTM A153: Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware
 - 4.1.4 ASTM A510: Standard Specification for General Requirements for Wire Rods and Coarse Round Wire, Carbon Steel, and Alloy Steel
 - 4.1.5 ASTM B117: Standard Practice for Operating Salt Spray (Fog) Apparatus
 - 4.1.6 ASTM D1761: Standard Test Methods for Mechanical Fasteners in Wood and Wood-Based Materials
 - 4.1.7 ASTM F1575: Standard Test Method for Determining Bending Yield Moment of Nails
 - 4.1.8 ASTM G85: Standard Practice for Modified Salt Spray (Fog) Testing
- 4.2 Regulations
 - 4.2.1 IBC 15, 18, 21: International Building Code®
 - 4.2.2 IRC 15, 18, 21: International Residential Code®
 - 4.2.3 IECC 15, 18, 21: International Energy Conservation Code®

5 Listed²¹

5.1 Equipment, materials, products, or services included in a List published by a <u>nationally recognized testing laboratory</u> (i.e., CBI), <u>approved agency</u> (i.e., CBI and DrJ), and/or <u>approved source</u> (i.e., DrJ) or other organization concerned with product evaluation (i.e., DrJ) that maintains periodic inspection (i.e., CBI) of production of listed equipment or materials, and whose listing states either that the equipment or material meets nationally recognized standards or has been tested and found suitable for use in a specified manner.





6 Tabulated Properties Generated from Nationally Recognized Standards

- 6.1 ⁵/₁₆" GripRite Structural Screws are self-tapping fasteners used for attaching the deck ledger to the band joist of a building in accordance with <u>IBC Section 1604.8.3</u> and <u>IRC Section R507.9</u>.²² See **Section 9** for installation requirements.
- 6.2 ⁵/₁₆" GripRite Structural Screws can be used for attaching ledger boards to wall studs with zero, one or two layers of Gypsum Wall Board (GWB) between the ledger and the wall studs.

6.3 General

- 6.3.1 ⁵/₁₆" GripRite Structural Screws are installed without lead holes, as prescribed in NDS.
- 6.3.2 ⁵/₁₆" GripRite Structural Screws are governed by the applicable code and the provisions for dowel-type fasteners in NDS.
- 6.3.3 ⁵/₁₆" GripRite Structural Screws may be used where screws are required to exhibit corrosion resistance when exposed to adverse environmental conditions and/or in chemically treated wood.
- 6.3.4 5/₁₆" GripRite Structural Screws are subject to the limitations of this report and are approved as alternatives to hot-dipped galvanized screws with a coating weight in compliance with ASTM A153, Class D.
- 6.3.5 Unless otherwise noted, adjustment of the design stresses for duration of load shall be in accordance with the applicable code.

6.4 Reference Design Values for Deck Ledger to Band Joist Attachment

6.4.1 ⁵/₁₆" GripRite Structural Screws are designed for attaching the deck ledger to the band joist of a building in accordance with <u>IBC Section 1604.8.3</u> and <u>IRC Section R507.9</u>. This connection is shown in **Figure 2** and **Figure 3**.

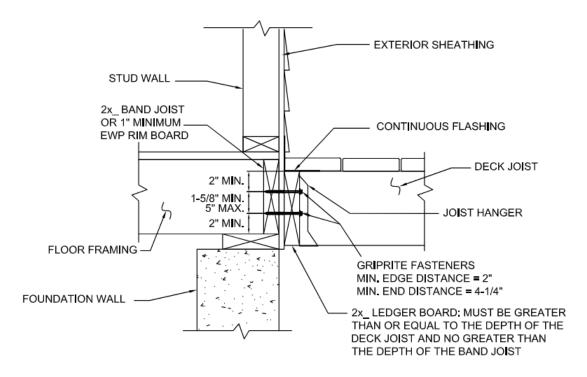


Figure 2. GripRite Deck Ledger Connection to Band Joist





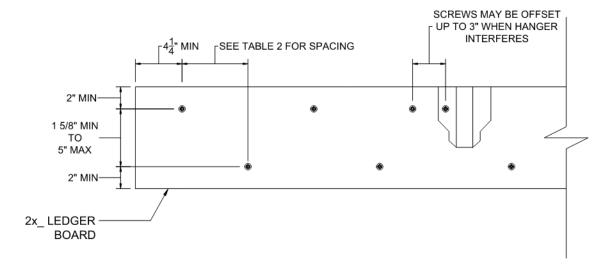


Figure 3. GripRite Deck Ledger connection to Band Joist: Screw Spacing

- 6.4.2 The IRC provides prescriptive fastener spacing for the attachment of a deck ledger to a rim joist with 1/2" diameter lag screws or through bolts as shown in IRC Table R507.9.1.3(1).²³
 - 6.4.2.1 **Table 2** provides the ⁵/₁₆" GripRite Structural Screws spacing required to provide performance at least equivalent to the lag screws found in <u>IRC Table R507.9.1.3(1)</u> in accordance with <u>IBC Section 104.11</u>, <u>IBC Section 1604.8.3</u>, <u>IRC Section R104.11</u>, and <u>IRC Section R507.9</u>²⁴ in accordance with generally accepted engineering practice.
 - 6.4.2.1.1 **Table 2** provides screw spacing for materials found in <u>IRC Section R507.9</u>, as well as a wider range of materials commonly used for rim joists. Screw spacing values are provided for four loading conditions.
 - 6.4.2.2 When installed in accordance with the spacing requirements of **Table 2**, the listed $\frac{5}{16}$ " GripRite Structural Screws provide equivalent performance to IRC Table R507.9.1.3(1).





Table 2. ⁵/₁₆" GripRite Structural Screws Spacing for Items in <u>IRC Table R507.9.1.3(1)</u>²⁵ and Other Materials and Loading Conditions¹

| | Load Case ⁹ | 2x Nominal Ledger Species ^{4,5,6} | | Maximum On-center Spacing of Fasteners (in) | | | | | | | | |
|---|---------------------------|--|--|---|-------------|-----------|-----------|-----------|-----------|-----------|--|--|
| Fastener Designation ^{2,3} (in) | | | Band Joist Material ^{7,8} | Maximum Deck Joist Spans (ft) | | | | | | | | |
| | | | | Up to 6' | Up to 8' | Up to 10' | Up to 12' | Up to 14' | Up to 16' | Up to 18' | | |
| ⁵ / ₁₆ " x 4" Structural | LL + DL 40 + 10 | HF | 2x Sawn Lumber | 18 | 11 | 9 | 7 | 6 | 5 | 5 | | |
| | | | 1 ¹ / ₈ " OSB | 27 | 20 | 16 | 10 | 9 | 7 | 7 | | |
| | | SP | 2x Sawn Lumber | 20 | 13 | 11 | 9 | 7 | 6 | 6 | | |
| | | | 11/8" OSB | 18 | 14 | 11 | 9 | 8 | 7 | 6 | | |
| | SL + DL 50 + 10 | HF | 2x Sawn Lumber | 13 | 9 | 7 | 6 | 5 | 4 | 4 | | |
| | | | 1 ¹ / ₈ " OSB | 22 | 16 | 10 | 8 | 7 | 6 | 5 | | |
| | | SP | 2x Sawn Lumber | 17 | 11 | 9 | 7 | 6 | 5 | 5 | | |
| | | | 1 ¹ / ₈ " OSB | 16 | 12 | 9 | 8 | 6 | 6 | 5 | | |
| | SL + DL 60 + 10 | HF | 2x Sawn Lumber | 11 | 8 | 6 | 5 | 4 | 4 | 3 | | |
| | | | 1 ¹ / ₈ " OSB | 19 | 11 | 9 | 7 | 6 | 5 | 5 | | |
| | | SP | 2x Sawn Lumber | 13 | 9 | 7 | 6 | 5 | 4 | 4 | | |
| | | | 1 ¹ / ₈ " OSB | 13 | 10 | 8 | 6 | 5 | 5 | 4 | | |
| | SL + DL 70 + 10 | HF | 2x Sawn Lumber | 9 | 7 | 5 | 4 | 4 | 3 | 3 | | |
| | | | 11/8" OSB | 16 | 9 | 7 | 6 | 5 | 4 | 4 | | |
| | | SP | 2x Sawn Lumber | 11 | 8 | 6 | 5 | 4 | 4 | 3 | | |
| | | | 1 ¹ / ₈ " OSB | 12 | 9 | 7 | 6 | 5 | 4 | 4 | | |

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

- 1. Based on load duration of 1.0. Spacing may be adjusted by the applicable load duration as specified in NDS.
- 2. Fasteners are required to have full thread penetration into the main member. Excess fastener length extending beyond the main member is not reflected in the table above
- 3. Fasteners shall be installed per **Section 6** of this report.
- 4. Solid-sawn ledgers shall be HF or SP species (specific gravity of 0.43 and 0.55, respectively) and designed by others.
- 5. Minimum ledger board requirements: 11/2" thickness and 71/4" depth.
- 6. Ledger materials tested in the wet service condition.
- 7. A maximum ¹/₂" structural sheathing may be installed between the ledger and band joist. Up to ¹/₂" thickness of stacked washers shall be permitted to substitute for up to ¹/₂" on allowable sheathing thickness where combined with wood structural panel or lumber sheathing.
- 8. Minimum band joist requirements: SPF (specific gravity of 0.42) solid-sawn lumber 11/2" thick and 71/4" depth; OSB 1" thick and 71/2" depth.
- 9. Snow load shall not be assumed to act concurrently with live load.





- 6.5 Reference Lateral Design Values for Deck Ledger to Stud Attachment
 - 6.5.1 Without GWB Interlayer:
 - 6.5.1.1 Installation details for ledger to stud connections without GWB for 2"x6", 2"x8" and 2"x10" ledgers are shown in **Figure 4**, **Figure 5** and **Figure 6**, respectively.

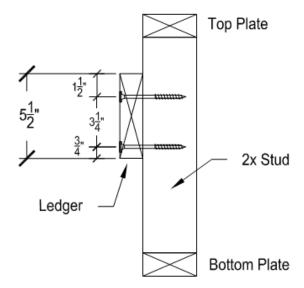


Figure 4. 2"x6" Ledger Directly Attached to Stud

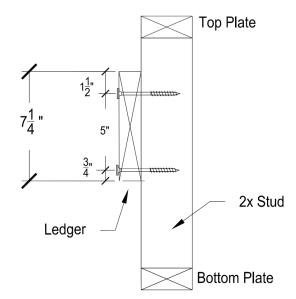


Figure 5. 2"x8" Ledger Directly Attached to Stud





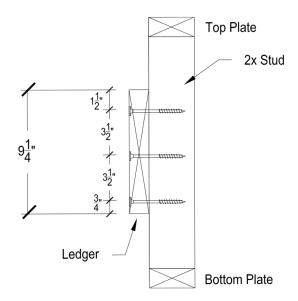


Figure 6. 2"x10" Ledger Directly Attached to Stud

6.5.2 With One Layer GWB Interlayer:

6.5.2.1 Installation details for ledger to stud connections with a single layer of GWB for 2"x6", 2"x8" and 2"x10" ledgers are shown in **Figure 7**, **Figure 8** and **Figure 9**, respectively.

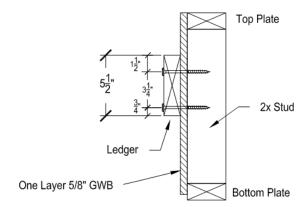


Figure 7. 2"x6" Ledger Attached to Stud Through One Layer of GWB





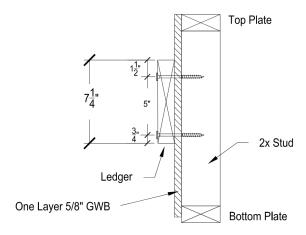


Figure 8. 2"x8" Ledger Attached to Stud Through One Layer of GWB

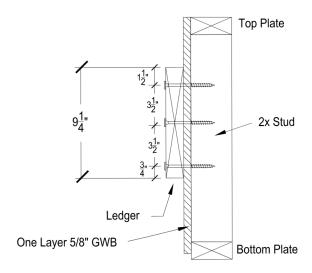


Figure 9. 2"x10" Ledger Attached to Stud Through One Layer of GWB

6.5.3 With Two Layers GWB Interlayer:

6.5.3.1 Installation details for ledger to stud connections with a double layer of GWB for 2"x6", 2"x8" and 2"x10" ledgers are shown in **Figure 10**, **Figure 11** and **Figure 12**, respectively.

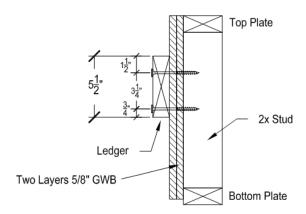


Figure 10. 2"x6" Ledger Attached to Stud Through Two Layers of GWB





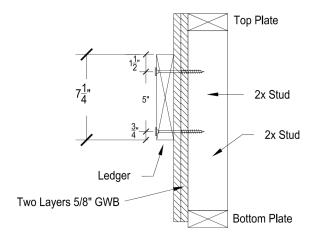


Figure 11. 2"x8" Ledger Attached to Stud Through Two Layers of GWB

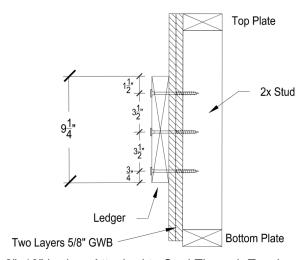


Figure 12. 2"x10" Ledger Attached to Stud Through Two Layers of GWB

Reference lateral design values for the deck ledger to stud connections detailed in **Figure 4** through **Figure 12** are provided in **Table 3**. The values in **Table 3** apply where the ledger is applied either directly over the studs or with up to two layers of ⁵/₈" GWB between the ledger and studs.





Table 3. Design Values for ledger to Stud Attachment

| | Minimum Thread | | Allowable Load per Stud Connection ^{3,4,5,6,7} (lb) | | | | | |
|--|--------------------------------------|----------------------------|--|-----|------|--|--|--|
| Fastener | Penetration into Main Member (in) | Layers of GWB ⁸ | Ledger Size ^{1,2} | | | | | |
| | | | 2x6 | 2x8 | 2x10 | | | |
| ⁵ / ₁₆ " x 4" | 21/2 | 0 | 655 | 655 | 1050 | | | |
| | 17/8 | 1 | 570 | 570 | 815 | | | |
| ⁵ / ₁₆ " x 5" | 21/4 | 2 | 500 | 500 | 700 | | | |

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

- Two fasteners are required for 2x6 ledger connections. Three fasteners are required for 2"x10" ledger connections. Additional fasteners prohibited.
- 2. SPF ledger with minimum specific gravity of 0.42.
- 3. The tabulated values apply where the ledger is installed either directly over the studs or with up to two layers of 5/8" gypsum between the ledger and studs.
- 4. Allowable loads shall be limited to parallel-to-grain loaded solid sawn main members (minimum 2" nominal). Wood side members shall be loaded perpendicular to grain.
- 5. Allowable loads are shown at the wood load duration factor of C_D = 1.00. Loads may be increased for load duration as permitted by the building code up to a C_D = 1.60. All adjustment factors shall be applied per NDS. For in-service moisture content greater than nineteen percent (19%), use Wet Service Factor (C_M) = 0.70.
- 6. For LRFD values, the reference connection design values shall be adjusted in accordance with NDS Section 11.3.
- 7. Fasteners shall be centered in the stud and spaced as shown in Figure 4 through Figure 12. The stud minimum end distance is 63/4" when loaded toward the end and 4" when loaded away from the end. The ledger end distance is 6" for full values. For ledger end distances under 6", the reference connection design values shall be adjusted in accordance with NDS Section 12.5.
- 8. Gypsum wall board (GWB) must be attached as required per the building code.
 - 6.6 Where the application falls outside of the performance evaluation, conditions of use and/or installation requirements set forth herein, alternative techniques shall be permitted in accordance with accepted engineering practice and experience. This includes but is not limited to the following areas of engineering: mechanics or materials, structural, building science, and fire science.

7 Certified Performance²⁶

- 7.1 All construction methods shall conform to accepted engineering practices to ensure durable, livable, and safe construction and shall demonstrate acceptable workmanship reflecting journeyman quality of work of the various trades.²⁷
- 7.2 The strength and rigidity of the component parts and/or the integrated structure shall be determined by engineering analysis or by suitable load tests to simulate the actual loads and conditions of application that occur.²⁸

8 Regulatory Evaluation and Accepted Engineering Practice

- 8.1 ⁵/₁₆" GripRite Structural Screws comply with the following legislatively adopted regulations and/or accepted engineering practice for the following reasons:
 - 8.1.1 Use for attachment of deck ledgers to the building structure. This application includes attachments to Spruce-Pine-Fir (SPF) band joists²⁹ and oriented strand board (OSB) band joists.
 - 8.1.2 Lateral strength of ledger connections to wood-framed walls. This application includes zero, one, or two layers of 5/8" gypsum wallboard (GWB) between the ledger and the wall studs.





- 8.2 For conventionally framed buildings, the deck ledger is required to be attached to the band joist in accordance with IBC Section 1604.8.3 or IRC Section R507.9³⁰ as applicable.
 - 8.2.1 Where a band joist is not used, as in some truss installations, an engineered design is required.
- 8.3 Corrosion resistance was evaluated in accordance with ASTM B117 and ASTM G85.
- 8.3.1 Use of fasteners in locations exposed to saltwater or saltwater spray is outside the scope of this report.
- 8.4 Any building code, regulation and/or accepted engineering evaluations (i.e., research reports, <u>duly authenticated reports</u>, etc.) that are conducted for this Listing were performed by DrJ Engineering, LLC (DrJ), an <u>ISO/IEC 17065 accredited certification body</u> and a professional engineering company operated by <u>RDP/approved sources</u>. DrJ is qualified³¹ to practice product and regulatory compliance services within its scope of accreditation and engineering expertise, respectively.
- 8.5 Engineering evaluations are conducted with DrJ's ANAB <u>accredited ICS code scope</u> of expertise, which are also its areas of professional engineering competence.
- 8.6 Any regulation specific issues not addressed in this section are outside the scope of this report.

9 Installation

- 9.1 Installation shall comply with the approved construction documents, the manufacturer installation instructions, this report and the applicable building code.
- 9.2 In the event of a conflict between the manufacturer installation instructions and this report, the more restrictive shall govern.
- 9.3 Lead holes are not required.
- 9.4 Screws shall be installed with a low-speed (450 rpm) drill and manufacturer-supplied bits.
- 9.5 Screws shall not be struck with a hammer during installation.
- 9.6 Install ⁵/₁₆" GripRite Structural Screws such that the threads fully engage the band joist material and the fastener tip extends beyond the back face of the band joist material when fully seated against the installed ledger. Do not overdrive fasteners.
- 9.7 For deck ledger connections, stagger the ⁵/₁₆" GripRite Structural Screws from the top to the bottom of the ledger along its length while maintaining the required edge and end distances.
 - 9.7.1 **Figure 2** and **Figure 3** provide a deck ledger installation detail, including minimum required spacing, end and edge distances.
- 9.8 For ledger to stud connections, fasteners shall be centered in the stud and spaced as shown in **Figure 4** through **Figure 12**.
 - 9.8.1 The stud minimum end distance is 6³/₄" when loaded toward the end and 4" when loaded away from the end.
 - 9.8.2 The fasteners shall be installed with a minimum $4^{1}/4^{"}$ end distance on the ledger.





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 Ledger assembly testing in accordance with ASTM D1761
 - 10.1.2 Corrosion resistance testing in accordance with ASTM B117 and ASTM G85
- 10.2 Information contained herein may include the result of testing and/or data analysis by sources that are approved agencies, approved sources, and/or RDPs. Accuracy of external test data and resulting analysis is relied upon.
- 10.3 Where 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 <u>duly authenticated reports</u> from <u>approved agencies</u> and/or <u>approved sources</u> provided by the supplier. These are presumed to be minimum properties and relied upon to be accurate. The reliability of DrJ's engineering practice, as contained in this <u>duly</u> authenticated report, may be dependent upon published design properties by others.
- 10.5 Testing and engineering analysis: The strength, rigidity, and/or general performance of component parts and/or the integrated structure are determined by suitable tests that simulate the actual conditions of application that occur and/or by accepted engineering practice and experience.³²
- 10.6 Where additional condition of use and/or regulatory compliance information is required, please search for ⁵/₁₆" GripRite Structural Screws on the DrJ Certification website.

11 Findings

- 11.1 As outlined in **Section 6**, ⁵/₁₆" GripRite Structural Screws have performance characteristics that were tested and/or meet applicable regulations and are suitable for use pursuant to its specified purpose.
- 11.2 When used and installed in accordance with this <u>duly authenticated report</u> and the manufacturer installation instructions, ⁵/₁₆" GripRite Structural Screws shall be approved for the following applications:
 - 11.2.1 To provide a connection equivalent to the connection required by the <u>IBC Section 1604.8.3</u> and <u>IRC Section R507.9.33</u>
 - 11.2.2 To connect ledger boards to study through zero, one or two layers of gypsum.
- 11.3 Any application specific issues not addressed herein can be engineered by an <u>RDP</u>. Assistance with engineering is available from PrimeSource Building Products, Inc.
- 11.4 IBC Section 104.11 (IRC Section R104.11 and IFC Section 104.10³⁴ are similar) in pertinent part states:
 - **104.11** Alternative materials, design and methods of construction and equipment. The provisions of this code are not intended to prevent the installation of any material or to prohibit any design or method of construction not specifically prescribed by this code. Where the alternative material, design or method of construction is not approved, the building official shall respond in writing, stating the reasons the alternative was not approved.





- 11.5 **Approved**: 35 Building regulations require that the <u>building official</u> shall accept <u>duly authenticated reports</u>. 36
 - 11.5.1 An approved agency is "approved" when it is ANAB ISO/IEC 17065 accredited.
 - 11.5.2 An <u>approved source</u> is "approved" when an <u>RDP</u> is properly licensed to transact engineering commerce.
 - 11.5.3 Federal law, <u>Title 18 US Code Section 242</u>, requires that where the alternative product, material, service, design, assembly and/or method of construction is not approved, the building official shall respond in writing, stating the reasons why the alternative was not approved. Denial without written reason deprives a protected right to free and fair competition in the marketplace.
- 11.6 DrJ is a licensed engineering company, employs licensed <u>RDP</u>s and is an <u>ANAB-Accredited Product</u> Certification Body Accreditation #1131.
- 11.7 Through the <u>IAF Multilateral Agreements</u> (MLA), this <u>duly authenticated report</u> can be used to obtain product approval in any <u>jurisdiction</u> or <u>country</u> because all ANAB ISO/IEC 17065 <u>duly authenticated reports</u> are equivalent.³⁷

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 ⁵/₁₆" GripRite Structural Screws covered by this report shall be installed in accordance with this report and the manufacturer installation instructions.
- 12.4 ⁵/₁₆" GripRite Structural Screws spacing in ledger to band joist applications shall not exceed those listed in **Table 2**.
- 12.5 ⁵/₁₆" GripRite Structural Screws loading in ledger to stud applications shall not exceed those listed in **Table 3**.
- 12.6 Use of ⁵/₁₆" GripRite Structural Screws in locations exposed to saltwater or saltwater spray is outside the scope of this evaluation report.
- 12.7 When required by adopted legislation and enforced by the <u>building official</u>, also known as the authority having jurisdiction (AHJ) in which the project is to be constructed:
 - 12.7.1 Any calculations incorporated into the construction documents shall conform to accepted engineering practice and, when prepared by an <u>approved source</u>, shall be approved when signed and sealed.
 - 12.7.2 This report and the installation instructions shall be submitted at the time of permit application.
 - 12.7.3 These innovative products have an internal quality control program and a third-party quality assurance program.
 - 12.7.4 At a minimum, these innovative products shall be installed per **Section 9** of this report.
 - 12.7.5 The review of this report by the AHJ shall comply with <u>IBC Section 104</u> and <u>IBC Section 105.4</u>.
 - 12.7.6 These innovative products have an internal quality control program and a third party quality assurance program in accordance with <u>IBC Section 104.4</u>, <u>IBC Section 110.4</u>, <u>IBC Section 1703</u>, <u>IRC Section R104.4</u>, and IRC Section R109.2.
 - 12.7.7 The application of these innovative products in the context of this report is dependent upon the accuracy of the construction documents, implementation of installation instructions, inspection as required by IBC Section 110.3, IRC Section R109.2, and any other regulatory requirements that may apply.
- 12.8 The approval of this report by the AHJ shall comply with <u>IBC Section 1707.1</u>, where legislation states in part, "the <u>building official</u> shall accept duly authenticated reports from <u>approved agencies</u> in respect to the quality and manner of <u>use</u> of new material or assemblies as provided for in <u>Section 104.11</u>," all of <u>IBC Section 104</u>, and IBC Section 105.4.





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- 12.9 <u>Design loads</u> shall be determined in accordance with the regulations adopted by the <u>jurisdiction</u> in which the project is to be constructed and/or by the building designer (i.e., <u>owner</u> or <u>RDP</u>).
- 12.10 The actual design, suitability, and use of this report for any particular building, is the responsibility of the <u>owner</u> or the authorized agent of the owner.

13 Identification

- 13.1 The innovative products listed in **Section 1.1** are identified by a label on the board or packaging material bearing the manufacturer name, product name, this report number, and other information to confirm code compliance.
- 13.2 Additional technical information can be found at www.primesourcebp.com.

14 Review Schedule

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

15 Approved for Use Pursuant to U.S. and International Legislation Defined in Appendix A

15.1 ⁵/₁₆" GripRite Structural Screws are 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**: <u>State legislatures</u> 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 these innovative 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 <u>Federal Department of Justice</u> 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 <u>Title 18 US Code Section 242</u> 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 <u>stating the reasons why the alternative was not approved</u>, with reference to the specific legislation violated.
 - 1.2.3 The <u>federal government</u> and each state have a <u>public records act</u>. In addition, each state also has legislation that mimics the federal <u>Defend Trade Secrets Act 2016</u> (DTSA),³⁸ where providing test reports, engineering analysis and/or other related IP/TS is subject to <u>prison of not more than ten years</u>³⁹ and/or a \$5,000,000 fine or 3 times the value of⁴⁰ 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 <u>Listings</u>, certified reports, <u>Technical Evaluation Reports</u>, <u>duly authenticated reports</u> and/or <u>research reports</u> prepared by <u>approved agencies</u> and/or <u>approved sources</u>.
 - 1.2.4 For <u>new materials</u>⁴¹ that are not specifically provided for in any regulation, the <u>design strengths and</u> <u>permissible stresses</u> shall be established by <u>tests</u>, where <u>suitable load tests simulate the actual loads and</u> conditions of application that occur.
 - 1.2.5 The <u>design strengths and permissible stresses</u> of any structural material shall <u>conform</u> to the specifications and methods of design using accepted engineering practice.⁴²
 - 1.2.6 The commerce of <u>approved sources</u> (i.e., registered PEs) is regulated by <u>professional engineering</u> <u>legislation</u>. Professional engineering <u>commerce shall always be approved</u> 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 <u>duly authenticated reports</u> from <u>approved agencies</u> in respect to the quality and manner of use of new materials or assemblies as provided for in IBC Section 104.11.⁴³





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- 1.3 Approved⁴⁴ 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. 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 1707.1.46
- 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 <u>approved agency</u> shall be deemed⁴⁷ an approved testing agency via <u>ISO/IEC 17025 accreditation</u>, an approved inspection agency via <u>ISO/IEC 17020 accreditation</u>, and an approved product evaluation agency via <u>ISO/IEC 17065</u> <u>accreditation</u>. 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 agreement⁴⁸ (i.e., ANAB, International Accreditation Forum also known as IAF, etc.).
- 1.6 **Approved by Florida**: <u>Statewide approval</u> 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, or
 - 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 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, or
- 1.6.5.5 A statewide product approval issued by the Florida Building Commission.
- 1.6.6 The <u>Florida Department of Business and Professional Regulation</u> (DBPR) website provides a listing of companies certified as a <u>Product Evaluation Agency</u> (i.e., EVLMiami 13692), a <u>Product Certification Agency</u> (i.e., CER10642), and as a <u>Florida Registered Engineer</u> (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 <u>IBC Section 1707.1</u>

 <u>General</u>, ⁴⁹ it states: "In the absence of approved rules or other approved standards, the building official shall accept duly authenticated reports from <u>approved agencies</u> 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 (<u>N.J.A.C. 5:23</u>)". ⁵⁰ 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 3282.14⁵¹ and Part 3280,⁵² 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."





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- 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 <u>new materials</u> that are not specifically provided for in this code, the <u>design strengths and permissible</u> <u>stresses</u> shall be established by tests.⁵³
 - 1.10.2 For innovative <u>alternatives</u> and/or methods of construction, the building official shall accept <u>duly</u> <u>authenticated reports</u> from <u>approved agencies</u> with respect to the quality and manner of use of <u>new</u> materials or assemblies.⁵⁴
 - 1.10.2.1 An <u>approved agency</u> is "approved" when it is <u>ANAB ISO/IEC 17065 accredited</u>. DrJ Engineering, LLC (DrJ) is in the ANAB directory.
 - 1.10.2.2 An <u>approved source</u> is "approved" when an <u>RDP</u> is properly licensed to transact engineering commerce. The regulatory authority governing approved sources is the <u>state legislature</u> via its professional engineering regulations.⁵⁵
 - 1.10.3 The <u>design strengths and permissible stresses</u> of any structural material...shall conform to the specifications and methods of design of accepted engineering practice performed by an <u>approved</u> source.⁵⁶
- 1.11 **Approval by International Jurisdictions**: The <u>USMCA</u> and <u>GATT</u> agreements provide for approval of innovative materials, designs, services, and/or methods of construction through the <u>Agreement on Technical Barriers to Trade</u> and the <u>IAF Multilateral Recognition Arrangement</u> (MLA), where these agreements:
 - 1.11.1 State that <u>conformity assessment procedures</u> (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 <u>purpose of the MLA</u> 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 <u>IAF-MLA</u> 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.⁵⁷
 - 1.11.4 Therefore, all ANAB ISO/IEC 17065 duly authenticated reports are approval equivalent.58
- 1.12 Approval equity is a fundamental commercial and legal principle. 59





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Notes

- For more information, visit dricertification.org or call us at 608-310-6748.
- https://up.codes/viewer/wyoming/ibc-2021/chapter/17/special-inspections-and-tests#1702
- 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/colorado/ibc-2021/chapter/1/scope-and-administration#104.11
- https://up.codes/viewer/wyoming/ibc-2021/chapter/17/special-inspections-andtests#1706:~:text=the%20design%20strengths%20and%20permissible%20stresses%20shall%20be%20established%20by%20tests%20as
- The design strengths and permissible stresses of any structural material shall conform to the specifications and methods of design of accepted engineering practice. https://up.codes/viewer/wyoming/ibc-2021/chapter/17/special-inspections-and-
- https://up.codes/viewer/wyoming/ibc-2021/chapter/17/special-inspections-and
 - tests#1707.1:~:text=the%20building%20official%20shall%20accept%20duly%20authenticated%20reports%20from%20approved%20agencies
- https://up.codes/viewer/wyoming/ibc-2021/chapter/17/special-inspections-and-tests#1703.4.2
- https://up.codes/viewer/wyoming/ibc-2021/chapter/2/definitions#approved_agency
- 10 https://up.codes/viewer/wyoming/ibc-2021/chapter/2/definitions#approved_source
- 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.
- https://www.nspe.org/resources/issues-and-advocacy/professional-policies-and-position-statements/regulation-professional AND https://apassociation.org/list-of-engineering-position-statements/regulation-professional 12 boards-in-each-state-archive/
- 13 https://www.cbitest.com/accreditation/
- $\underline{\text{https://up.codes/viewer/colorado/ibc-2021/chapter/1/scope-and-administration\#104:} \\ \text{-:text=to\%20enforce\%20the\%20provisions\%20of\%20this\%20code} \\ \underline{\text{https://up.codes/viewer/colorado/ibc-2021/chapter/1/scope-and-administration\#104:} \\ \text{-:text=to\%20enforce\%20the\%20provisions\%20of\%20this\%20code} \\ \underline{\text{https://up.codes/viewer/colorado/ibc-2021/chapter/1/scope-and-administration\#104:} \\ \underline{\text{https://up.codes/viewer/colorado/ibc-2021/chapter/1/scope-and-administration#104:} \\ \underline{\text{https://up.codes/viewer/colorado/ibc-2021/cha$
- 15 https://up.codes/viewer/colorado/ibc-2021/chapter/1/scope-and-
 - $\underline{administration\#104.11:\text{-:}text=Where\%20the\%20alternative\%20material\%2C\%20design\%20or\%20method\%20of\%20construction\%20is\%20not\%20approved\%2C\%20the\%20buildingstration\#104.11:\text{-:}text=Where\%20the\%20alternative\%20material\%2C\%20design\%20or\%20method\%20of\%20construction\%20is\%20not\%20approved\%2C\%20the\%20buildingstration\#104.11:\text{-:}text=Where\%20the\%20alternative\%20material\%2C\%20design\%20or\%20method\%20of\%20construction\%20is\%20not\%20approved\%2C\%20the\%20buildingstration\#104.11:\text{-:}text=Where\%20the\%20alternative\%20material\%2C\%20design\%20or\%20method\%20of\%20construction\%20is\%20not\%20approved\%2C\%20the\%20buildingstration\%20is\%20or\%20method\%20of\%20construction\%20is\%20not\%20approved\%2C\%20the\%20buildingstration\%20is\%20or\%20method\%20of\%20construction\%20is\%20or\%20approved\%2C\%20the\%20buildingstration\%20is\%20or\%20approved\%2C\%20the\%20buildingstration\%20is\%20or\%20approved\%2C\%20the\%20or\%20approved\%2C\%20the\%20approved\%2C\%20the\%20approved\%2C\%20the\%20approved\%2C\%20the\%20approved\%2C\%20the\%20approved\%2C\%20the\%20approved\%2C\%20the\%20approved\%2C\%20ap$ $\underline{\mathsf{ng}\%20\mathsf{official}\%20\mathsf{shall}\%20\mathsf{respond}\%20\mathsf{in}\%20\mathsf{writing}\%2C\%20\mathsf{stating}\%20\mathsf{the}\%20\mathsf{reasons}\%20\mathsf{why}\%20\mathsf{the}\%20\mathsf{alternative}\%20\mathsf{was}\%20\mathsf{not}\%20\mathsf{approved} \ \ \mathbf{AND}$ https://up.codes/viewer/colorado/ibc-2021/chapter/1/scope-and-
 - $administration \#105.3.1: \sim: text=If\%20 the\%20 application\%20 of\%20 the\%20 construction\%20 documents\%20 do\%20 not\%20 conform\%20 to\%20 the\%20 requirements\%20 of\%20 pertinents\%20 of\%20 the\%20 application\%20 ap$ t%20laws%2C%20the%20building%20official%20shall%20reject%20such%20application%20in%20writing%2C%20stating%20the%20reasons%20therefore
- https://up.codes/viewer/colorado/ibc-2021/chapter/17/special-inspections-and
 - tests#1707.1:~:text=the%20building%20official%20shall%20accept%20duly%20authenticated%20reports%20from%20approved%20agencies%20in%20respect%20to%20the%20 guality%20and%20manner%20of%20use%20of%20new%20materials%20or%20assemblies%20as%20provided%20for%20in%20Section%20104.11
- 17 https://iaf.nu/en/about-iaf
 - mla/#:~:text=it%20is%20required%20to%20recognise%20certificates%20and%20validation%20and%20verification%20statements%20issued%20by%20conformity%20assessmen $\label{eq:condition} \begin{tabular}{ll} $t\%20$ bodies $\%20$ accredited $\%20$ by $\%20$ all $\%20$ ther $\%20$ signatories $\%20$ of $\%20$ the $\%20$ lAF $\%20$ MLA $\%2C\%20$ with $\%20$ the $\%20$ signatories $\%20$ of $\%20$ the $\%20$ lAF $\%20$ MLA $\%2C\%20$ with $\%20$ the $\%20$ signatories $\%20$ of $\%20$ the $\%20$ lAF $\%20$ mLA $\%2C\%20$ with $\%20$ the $\%20$ signatories $\%20$ of $\%20$ the $\%20$ lAF $\%20$ mLA $\%20$ signatories $\%20$ of $\%20$ the $\%20$ lAF $\%20$ mLA $\%20$$
- 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
- 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.
- 21 https://www.ecfr.gov/current/title-24/subtitle-B/chapter-XX/part-3280#p-3280.2(Listed%20or%20certified); https://up.codes/viewer/colorado/ibc-2021/chapter/2/definitions#listed AND https://up.codes/viewer/colorado/ibc-2021/chapter/2/definitions#labeled
- 22 2015 IRC Section R507.2
- 23 2015 IRC Table R507.2
- 24 2015 IRC Section R507.2
- 25 2015 IRC Table R507.2
- 26 https://up.codes/viewer/colorado/ibc-2021/chapter/17/special-inspections-and-tests#1703.4
- https://www.ecfr.gov/current/title-24/subtitle-B/chapter-XX/part-3280#:~:text=All%20construction%20methods%20shall%20be%20in%20conformance%20with%20accepted%20engineering%20practices%20to%20insure%20durable%2C%20liv able%2C%20and%20safe%20housing%20and%20shall%20demonstrate%20acceptable%20workmanship%20reflecting%20journeyman%20quality%20of%20work%20of%20the% 20various%20trades
- https://www.ecfr.gov/current/title-24/subtitle-B/chapter-XX/part- $\underline{3280\#:} \sim \text{text} = \text{The} \%20 \text{strength} \%20 \text{and} \%20 \text{rigidity} \%20 \text{of} \%20 \text{the} \%20 \text{component} \%20 \text{parts} \%20 \text{and} / \text{or} \%20 \text{the} \%20 \text{integrated} \%20 \text{structure} \%20 \text{shall} \%20 \text{be} \%20 \text{determined} \%20 \text{by} \%20 \text{component} \%20 \text{parts} \%20 \text{and} / \text{or} \%20 \text{the} \%20 \text{integrated} \%20 \text{shall} \%20 \text{be} \%20 \text{determined} \%20 \text{by} \%20 \text{component} \%20 \text{parts} \%20 \text{and} / \text{or} \%20 \text{the} \%20 \text{component} \%20 \text{parts} \%20 \text{and} / \text{or} \%20 \text{the} \%20 \text{component} \%20 \text{parts} \%20 \text{and} / \text{or} \%20 \text{the} \%20 \text{component} \%20 \text{parts} \%20 \text{part$ engineering%20analysis%20or%20by%20suitable%20load%20tests%20to%20simulate%20the%20actual%20loads%20and%20conditions%20of%20application%20that%20occur
- 29 The term "band joist" is used throughout this report. Other regional terms synonymous with band joist include rim board, band board, header board, and header joist.
- 30 2015 IRC Section R507.2





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- 31 Qualification is performed by a legislatively defined <u>Accreditation Body</u>. <u>ANSI National Accreditation Board (ANAB)</u> is the largest independent accreditation body in North America and provides services in more than 75 countries. <u>DrJ</u> is an ANAB accredited <u>product certification body</u>.
- 32 See Code of Federal Regulations (CFR) <u>Title 24 Subtitle B Chapter XX Part 3280</u> for definition.
- 33 2015 IRC Section R507.2
- 34 2018 IFC Section 104.9
- 35 Approved is an adjective that modifies the noun after it. For example, Approved Agency means that the Agency is accepted officially as being suitable in a particular situation. This example conforms to IBC/IRC/IFC Section 201.4 where the building code authorizes sentences to have an ordinarily accepted meaning such as the context implies.
- https://up.codes/viewer/wyoming/ibc-2021/chapter/17/special-inspections-and-tests#1707.1
- 37 Multilateral approval is true for all ANAB accredited product evaluation agencies and all International Trade Agreements.
- 38 http://www.drjengineering.org/AppendixC_AND_https://www.drjecrtification.org/cornell-2016-protection-trade-secrets
- https://www.law.comell.edu/uscode/text/18/1832#:~:text=imprisoned%20not%20more%20than%2010%20years
- 40 https://www.law.cornell.edu/uscode/text/18/1832#:~:text=Any%20organization%20that,has%20thereby%20avoided
- https://up.codes/viewer/wyoming/ibc-2021/chapter/17/special-inspections-and-tests#1706.2
- 42 IBC 2021, Section 1706.1 Conformance to Standards
- 43 IBC 2021, Section 1707 Alternative Test Procedure, 1707.1 General
- 44 See Section 11 for the distilled building code definition of Approved.
- 45 Los Angeles Municipal Code, SEC. 98.0503. TESTING AGENCIES
- https://up.codes/viewer/california/ca-building-code-2022/chapter/17/special-inspections-and-tests#1707.1
- New York City, The Rules of the City of New York, § 101-07 Approved Agencies
- New York City, The Rules of the City of New York, § 101-07 Approved Agencies
- https://up.codes/viewer/new_jersey/ibc-2018/chapter/17/special-inspections-and-tests#1707.1
- 50 https://www.nj.gov/dca/divisions/codes/codreg/ucc.html
- https://www.ecfr.gov/current/title-24/subtitle-B/chapter-XX/part-3282/subpart-A/section-3282.14
- 52 https://www.ecfr.gov/current/title-24/subtitle-B/chapter-XX/part-3280
- 53 IBC 2021, Section 1706 Design Strengths of Materials, 1706.2 New Materials. Adopted law pursuant to IBC model code language 1706.2.
- 54 IBC 2021, Section 1707 Alternative Test Procedure, 1707.1 General. Adopted law pursuant to IBC model code language 1707.1.
- 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/
- ⁵⁶ IBC 2021, Section 1706 Design Strengths of Materials, Section 1706.1 Conformance to Standards Adopted law pursuant to IBC model code language 1706.1.
- 57 https://iaf.nu/en/about-iaf-mla/#:~:text=it%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
- 58 True for all ANAB accredited product evaluation agencies and all International Trade Agreements.
- 59 <u>https://www.justice.gov/crt/deprivation-rights-under-color-law</u> AND <u>https://www.justice.gov/atr/mission</u>