Listing and Technical Evaluation Report™

A Duly Authenticated Report from an Approved Agency

Report No: 2404-12

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Drillcrete® Concrete Screws for Use in Concrete Masonry

Trade Secret Report Holder:

Robertson, Inc.

Phone: 800-268-5090 Website: www.robertsonscrew.com Email: info@robertsonscrew.com

CSI Designations:

DIVISION: 03 00 00 - CONCRETE

Section: 03 16 00 - Concrete Anchors

DIVISION: 05 00 00 - METALS

Section: 05 05 19 - Post-Installed Concrete Anchors

1 Innovative Products Evaluated[1]

1.1 Drillcrete Concrete Screws:

1.1.1 $^{3}/_{16}$" Drillcrete Concrete Screw

1.1.2 $^{1}/_{4}$" Drillcrete Concrete Screw

2 Product Description and Materials

2.1 The innovative products evaluated in this report are shown in **Figure 1** through **Figure 3**.

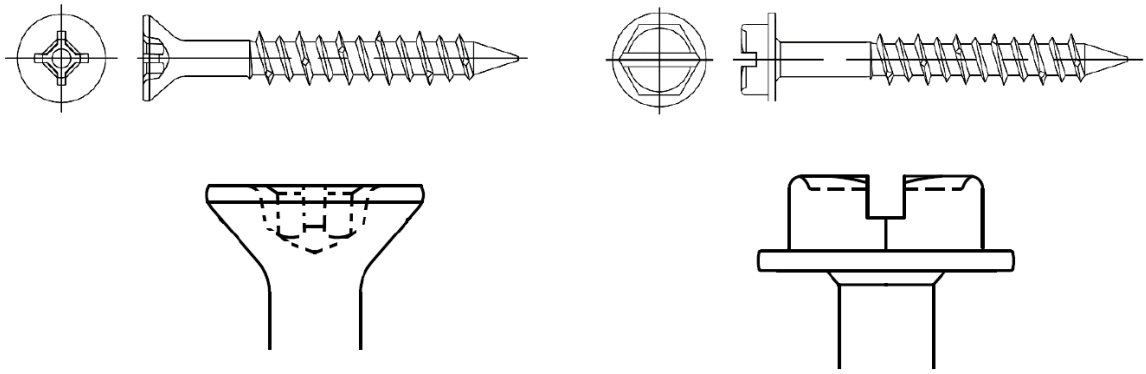

Figure 1. Drillcrete Concrete Screws – Flat Head and Hex Head

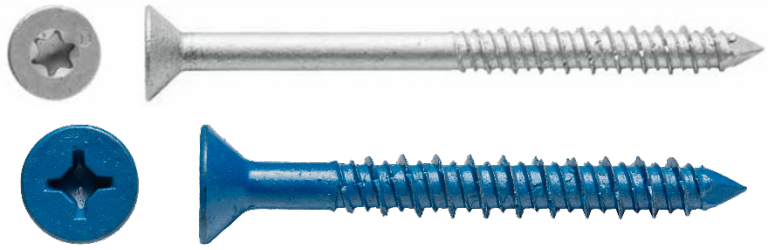

Figure 2. Drillcrete Concrete Screws Flat Head – Brushed Nickel Finish and Blue Fluorocarbon Finish

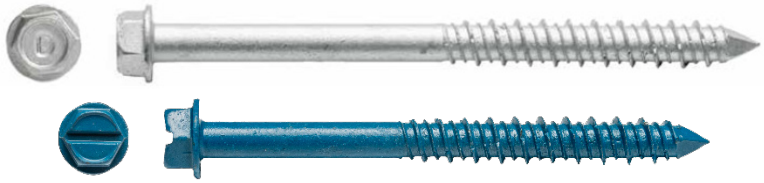

Figure 3. Drillcrete Concrete Screws Hex Head – Brushed Nickel Finish and Blue Fluorocarbon Finish

2.2 Drillcrete Concrete Screws are post-installed screw anchors for use as anchorage, in accordance with IBC Chapter 21 and TMS 402, to resist static, wind, seismic tension, and shear loads in uncracked, grouted, or ungrouted concrete masonry construction.

2.2.1 Drillcrete Concrete Screws are manufactured from heat-treated carbon steel and are subsequently coated with a corrosion-resistant brushed nickel finish or a blue fluorocarbon coating.

2.2.2 Drillcrete Concrete Screws are available with a flat countersinking (bugle) head with a Philips or Star-drive recess or hex-washer head, and are available in lengths ranging from $1^1/_4$" to $3^1/_4$".

2.2.3 The threaded region of Drillcrete Concrete Screws have high-low alternating threads.

2.2.4 The length of the anchor is identified with a marking on the head. Length identification codes are provided in **Table 1**.

Table 1. Length Identification Codes

Marking on Head	#	A	B	C	D	E
Anchor Length (in)	$1 < L < 1^1/_2$	$1^1/_2 < L < 2$	$2 < L < 2^1/_2$	$2^1/_2 < L < 3$	$3 < L < 3^1/_2$	$3^1/_2 < L < 4$
SI: 1 in. = 25.4 mm						

2.3 Drillcrete Concrete Screws are an alternative to cast-in-place anchors described in TMS 402 Section 8.1.3, as specified in IBC Section 2107.1. Drillcrete Concrete Screws may be used where an engineered design is submitted as specified in IRC Section R301.1.3.

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

3 Definitions[2]

3.1 New Materials[3] are defined as building materials, equipment, appliances, systems, or methods of construction, not provided for by prescriptive and/or legislatively adopted regulations, known as alternative materials.[4] The design strength and permissible stresses shall be established by tests[5] and/or engineering analysis.[6]

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

3.2.1 This report utilizes intellectual property and/or trade secrets to create public domain material properties for commercial end-use.

3.2.1.1 This report protects confidential Intellectual Property and trade secrets under the regulation, 18.US.Code.90, also known as Defend Trade Secrets Act of 2016 (DTSA).[11]

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

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

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

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

3.6 The regulatory authority shall enforce[14] the specific provisions of each legislatively adopted regulation. If there is a non-conformance, the specific regulatory section and language of the non-conformance shall be provided in writing[15] stating the nonconformance and the path to its cure.

3.7 The regulatory authority shall accept duly authenticated reports from an approved agency and/or an approved source with respect to the quality and manner of use of new materials or assemblies as provided for in regulations regarding the use of alternative materials, designs, or methods of construction.[16]

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

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

4 Applicable Local, State, and Federal Approvals; Standards; Regulations[20]

4.1 *Local, State, and Federal*

4.1.1 Approved in all local jurisdictions pursuant to ISO/IEC 17065 duly authenticated report use, which includes, but is not limited to, the following featured local jurisdictions: Austin, Baltimore, Broward County, Chicago, Clark County, Dade County, Dallas, Detroit, Denver, DuPage County, Fort Worth, Houston, Kansas City, King County, Knoxville, Las Vegas, Los Angeles City, Los Angeles County, Miami, Nashville, New York City, Omaha, Philadelphia, Phoenix, Portland, San Antonio, San Diego, San Jose, San Francisco, Seattle, Sioux Falls, South Holland, St. Louis County, Texas Department of Insurance, and Wichita.[21]

4.1.2 Approved in all state jurisdictions pursuant to ISO/IEC 17065 duly authenticated report use, which includes, but is not limited to, the following featured states: California, Florida, New Jersey, Oregon, New York, Texas, Washington, and Wisconsin.[22]

4.1.3 Approved by the Code of Federal Regulations Manufactured Home Construction: Pursuant to Title 24, Subtitle B, Chapter XX, Part 3282.14[23] and Part 3280[24] pursuant to the use of ISO/IEC 17065 duly authenticated reports.

4.1.4 Approved means complying with the requirements of local, state, or federal legislation.

4.2 *Regulations*

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

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

4.2.3 *IECC – 18, 21, 24: International Energy Conservation Code®*

4.3 *Standards*

4.3.1 *ACI 318: Building Code Requirements for Structural Concrete*

4.3.2 *ACI 355.2: Qualification of Post-Installed Mechanical Anchors in Concrete*

4.3.3 *ANSI B212.15 Cutting Tools – Carbide-Tipped Masonry Drills and Blanks for Carbide Tipped Masonry Drills*

4.3.4 *ASTM A153: Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware*

4.3.5 *ASTM C90: Standard Specification for Dry-Cast Loadbearing Concrete Masonry Units*

4.3.6 *TMS 402: Building Code Requirements for and Specification for Masonry Structures*

5 Listed[25]

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

6 Tabulated Properties Generated from Nationally Recognized Standards

6.1 *General*

6.1.1 Allowable tension and shear loads for installation of Drillcrete Concrete Screws in concrete masonry are presented in **Table 2**.

Table 2. Tension Strength Design Information for Drillcrete Concrete Screws[1,2,6,7]

Anchor Diameter	Drill Bit Diameter	Nominal Embedmenet[4]	Critical Distances[3] (in)			Allowable Loads[5] (lb)	
			Edge	End	Spacing	Tension	Shear
3/16	5/32	1	3	3	3	73	133
1/4	3/16	1	4	4	4	107	174

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

1. Tabulated strength values are for anchors installed in the face shell of Concrete Masonry Units (CMU) in compliance with ASTM C90.
2. Tabulated strength values are for anchors installed in a minimum 8" wide grouted or hollow CMU wall having reached a minimum f'_m = 1,500-psi at the time of installation.
3. Tabulated strength values are for anchors installed at the listed critical joint or wall edge, and end distance and anchor spacing in the wall face.
4. Nominal embedment depth is the distance from the surface of the CMU to the end of the screw anchor.
5. Special inspection shall be provided in accordance with **Section 12.3**.
6. Values are based on a factor of safety of 5.
7. Installation of anchors shall be on the face shell of the CMU.

6.1.2 Design values for use with allowable stress design (working stress design) load combinations in accordance with IBC Section 1605.1 shall be determined using **Equation 1** as follows:

Equation 1

$$\left(\frac{P_s}{P_t}\right) + \left(\frac{V_s}{V_t}\right) \leq 1$$

where:

P_s is the applied service tension load [lb or N]

P_t is the allowable service tension load [lb or N]

V_s is the applied service shear load [lb or N]

V_t is the allowable service shear load [lb or N]

6.2 *Corrosion Resistance*

6.2.1 Drillcrete Concrete Screws coated with the blue fluorocarbon coating or the corrosion-resistant brushed nickel finish may be used where screws are required to exhibit corrosion resistance when exposed to adverse environmental conditions, which are subject to the limitations of this report.

6.2.1.1 Drillcrete Concrete Screws have been evaluated for use in wood treated with ACQ-D preservatives and may be used as an alternative to hot-dip galvanized fasteners in wood treated with preservatives or less corrosive effects meeting ASTM A153, Class D (IBC Section 2304.10.6 and IRC Section R304.3[26]).

6.3 Alternative techniques shall be permitted in accordance with accepted engineering practice and experience. These provisions for the use of alternative materials, designs, and methods of construction are not intended to prevent the installation of any material or to prohibit any design or method of construction not specifically prescribed herein. This includes, but is not limited to, the following areas of engineering: mechanics of materials, structures, building science, and fire science.

7 Certified Performance[27]

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.[28]

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.[29]

8 Regulatory Evaluation and Accepted Engineering Practice

8.1 Drillcrete Concrete Screws comply with the following legislatively adopted regulations and/or accepted engineering practice for the following reasons:

8.1.1 Drillcrete Concrete Screws were evaluated in accordance with ACI 355.2 as specified in ACI 318 Section 17.1.2(f), per IBC Section 1901.3.

8.2 Any building code, regulation and/or accepted engineering evaluations (e.g., research reports, duly authenticated reports, etc.) that are conducted for this Listing were performed by DrJ, which is an ISO/IEC 17065 accredited certification body and a professional engineering company operated by RDP or approved sources. DrJ is qualified[30] to practice product and regulatory compliance services within its scope of accreditation and engineering expertise,[31] respectively.

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

9 Installation

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

9.2 In the event of a conflict between the manufacturer installation instructions and this report, contact the manufacturer for counsel on the proper installation method.

9.3 Minimum spacing between anchors and minimum edge distances between the anchor and the edge of the concrete masonry wall and joints are set forth in **Table 2**.

9.4 *Installation Procedure*

9.4.1 Select the drill bit according to the size of the Drillcrete Concrete Screws being used. The specified drill bit size is provided in **Table 2**.

9.4.1.1 The drill bit shall be designed for use in concrete applications and shall conform to ANSI B212.15.

9.4.2 Drill hole a minimum of $^1/_4$" deeper than the anchor's engagement (penetration) with a hammer drill with the hammering function on.

9.4.2.1 Alternately, where applicable, drill the hole deep enough to accommodate embedment depth and dust or debris generated from the pre-drilling and installation.

9.4.2.2 When drilling into ungrouted (hollow) CMU, the hammering function shall be off.

9.4.3 Clear the bored hole from dust or debris generated from the drilling process. A blow out bulb or compressed air may be used to perform this function.

9.4.4 Drive the anchor using a drill with the appropriate attachment (nut driver, Star Drive, or Philips bit) until the concrete screw is fully seated.

9.4.4.1 Do not use an impact driver to install anchors into ungrouted (hollow) CMU.

9.4.4.2 Do not overdrive or over torque.

9.4.4.2.1 Overdriving may result in anchor failure.

9.4.4.2.2 Driving at high speeds may also result in anchor failure.

9.4.4.3 Being fully seated is achieved when the anchor's bearing surface is flush with the substrate being attached.

9.4.4.4 If a hammer drill is used to perform this task, the hammering function shall be off.

9.4.4.5 For faster and easier installation, use Robertson Installation Concrete Drill and Drive Tool Kit. See **Figure 4**.

Figure 4. Contents of Robertson Drillcrete Tool Kit for Drillcrete Concrete Screws

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 Testing in accordance with ACI 355.2

10.2 Information contained herein may include the result of testing and/or data analysis by sources that are approved agencies, approved sources, and/or an RDP. Accuracy of external test data and resulting analysis is relied upon.

10.3 Where applicable, testing and/or engineering analysis are based upon provisions that have been codified into law through state or local adoption of regulations and standards. The developers of these regulations and standards are responsible for the reliability of published content. DrJ's engineering practice may use a regulation-adopted provision as the control. A regulation-endorsed control versus a simulation of the conditions of application to occur establishes a new material as being equivalent to the regulatory provision in terms of quality, strength, effectiveness, fire resistance, durability, and safety.

10.4 The accuracy of the provisions provided herein may be reliant upon the published properties of raw materials, which are defined by the grade mark, grade stamp, mill certificate, or duly authenticated reports from approved agencies and/or approved sources provided by the supplier. These are presumed to be minimum properties and relied upon to be accurate. The reliability of DrJ's engineering practice, as contained in this duly authenticated report, may be dependent upon published design properties by others.

10.5 *Testing and Engineering Analysis*

10.5.1 The strength, rigidity, and/or general performance of component parts and/or the integrated structure are determined by suitable tests that simulate the actual conditions of application that occur and/or by accepted engineering practice and experience.[32]

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

11 Findings

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

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

11.2.1 Use as anchorage to concrete masonry as an alternative to cast-in-place anchors described in TMS 402 Section 8.1.3, as specified in IBC Section 2107.1.

11.2.2 Use where an engineered design is submitted in accordance with IRC Section R301.1.3.

11.2.3 Drillcrete Concrete Screws have been evaluated for reliability against brittle failure and were found to be not significantly sensitive to stress-induced hydrogen embrittlement.

11.3 Unless exempt by state statute, when Drillcrete Concrete Screws are to be used as a structural and/or building envelope component in the design of a specific building, the design shall be performed by an RDP.

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

11.5 IBC Section 104.2.3[33] (IRC Section R104.2.2[34] and IFC Section 104.2.3[35] are similar) in pertinent part state:

> **104.2.3 Alternative Materials, Design and Methods of Construction and Equipment.** The provisions of this code are not intended to prevent the installation of any material or to prohibit any design or method of construction not specifically prescribed by this code, provided that any such alternative is not specifically prohibited by this code and has been approved.

11.6 **Approved:**[36] Building regulations require that the building official shall accept duly authenticated reports.[37]

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

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

11.6.3 Federal law, Title 18 US Code Section 242, requires that, where the alternative product, material, service, design, assembly, and/or method of construction is not approved, the building official shall respond in writing, stating the reasons why the alternative was not approved. Denial without written reason deprives a protected right to free and fair competition in the marketplace.

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

11.8 Through the IAF Multilateral Arrangement (MLA), this duly authenticated report can be used to obtain product approval in any jurisdiction or country because all ANAB ISO/IEC 17065 duly authenticated reports are equivalent.[38]

12 Conditions of Use

12.1 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.

12.2 As listed herein, Drillcrete Concrete Screws shall be subject to the following conditions:

12.2.1 The specified compressive strength of masonry, f'_m, at 28 days shall be a minimum of 1,500-psi. Fully grouted masonry walls shall be constructed from the following:

12.2.1.1 Concrete masonry units conforming to ASTM C90 (lightweight or medium-weight).

12.2.1.1.1 Minimum size of each unit shall be 8" wide x 8" high x 16" long.

12.2.1.2 Grout shall comply with IBC Section 2103.3 or IRC Section R606.2.12, as applicable. Grout shall have a minimum compressive strength of 2,000-psi at 28 days.

12.2.1.3 Mortar shall be Type M, S, or N in compliance with IBC Section 2103.2.1 or IRC Section R606.2.8, as applicable.

12.2.2 Drillcrete Concrete Screws shall be installed in the face shell of grouted or ungrouted (hollow), uncracked concrete masonry units that have achieved their minimum design strength.

12.2.2.1 Cracking occurs when $f_t > f_r$ due to service loads or deformations.

12.2.2.2 Concrete masonry units shall be lightweight or medium-weight with a specified compressive strength of 1,500-psi at 28 days.

12.2.2.3 Masonry wall shall be fully mortared.

12.2.3 Anchor spacing, edge distance, and minimum member thickness shall comply with **Table 2**.

12.2.4 Use of Drillcrete Concrete Screws to resist wind or seismic forces in structures is outside the scope of this report.

12.2.5 Where not otherwise prohibited in the code, Drillcrete Concrete Screws may be used in fire-resistance construction provided at least one of the following conditions be satisfied:

12.2.5.1 Drillcrete Concrete Screws supporting a fire-resistance rated envelope or a fire-resistance rated membrane, are protected by approved fire-resistance rated materials or have been evaluated for resistance to fire exposure in accordance with recognized standards.

12.2.5.2 Drillcrete Concrete Screws are used to support non-structural elements.

12.2.6 Use of Drillcrete Concrete Screws shall be limited to dry, interior locations.

12.2.6.1 Anchors are used to support non-structural elements.

12.2.7 Performance of anchors that are subjected to fatigue or shock loading is outside the scope of this report.

12.3 *Installation with Special Inspection (When Required)*

12.3.1 Anchors shall be installed with special inspection in accordance to IBC Section 1704 and IBC Section 1705.

12.3.2 The following components shall be inspected:

12.3.2.1 Anchor type and dimensions

12.3.2.2 Masonry unit type and compliance with ASTM C90

12.3.2.3 Grout and mortar compressive strength

12.3.2.4 Masonry prism compressive strength (when required)

12.3.2.5 Drill bit size and compliance with ANSI B212.15

12.3.2.6 Embedment, spacing, edge distance, and end distance

12.3.3 The special inspector shall inspect and verify that anchor installation complies with manufacturer installation instructions, the applicable code, and this report.

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

12.4.1 Any calculations incorporated into the construction documents shall conform to accepted engineering practice and, when prepared by an approved source, shall be approved when signed and sealed.

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

12.4.3 These innovative products have an internal quality control program and a third-party quality assurance program.

12.4.4 At a minimum, these innovative products shall be installed per **Section 9**.

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

12.4.6 These innovative products have an internal quality control program and a third party quality assurance program in accordance with IBC Section 104.7.2, IBC Section 110.4, IBC Section 1703, IRC Section R104.7.2, and IRC Section R109.2.

12.4.7 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.

12.5 The approval of this report by the AHJ shall comply with IBC Section 1707.1, where legislation states in part, *"the building official shall make, or cause to be made, the necessary tests and investigations; or the building official shall accept duly authenticated reports from approved agencies in respect to the quality and manner of use of new materials or assemblies as provided for in Section 104.2.3"*, all of IBC Section 104, and IBC Section 105.3.

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

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

13 Identification

13.1 Drillcrete Concrete Screws ($^{3}/_{16}$" Drillcrete Concrete Screw and $^{1}/_{4}$" Drillcrete Concrete Screw), as 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.robertsonscrew.com.

14 Review Schedule

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

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

Notes

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

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

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

4 Alternative Materials, Design and Methods of Construction and Equipment: The provisions of any regulation code are not intended to prevent the installation of any material or to prohibit any design or method of construction not specifically prescribed by a regulation. Please review https://www.justice.gov/atr/mission and https://up.codes/viewer/mississippi/ibc-2024/chapter/1/scope-and-administration#104.2.3

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

6 The design strengths and permissible stresses of any structural material shall conform to the specifications and methods of design of accepted engineering practice. https://up.codes/viewer/mississippi/ibc-2024/chapter/17/special-inspections-and-tests#1706.1:~:text=Conformance%20to%20Standards-,The%20design%20strengths%20and%20permissible%20stresses,-of%20any%20structural

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

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

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

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

11 https://www.law.cornell.edu/uscode/text/18/1832 (b) Any organization that commits any offense described in subsection (a) shall be fined not more than the greater of $5,000,000 or 3 times the value of the stolen trade secret to the organization, including expenses for research and design and other costs of reproducing the trade secret that the organization has thereby avoided. The federal government and each state have a public records act. To follow DTSA and comply state public records and trade secret legislation requires approval through ANAB ISO/IEC 17065 accredited certification bodies or approved sources. For more information, please review this website: Intellectual Property and Trade Secrets.

12 https://www.nspe.org/resources/issues-and-advocacy/professional-policies-and-position-statements/regulation-professional AND https://apassociation.org/list-of-engineering-boards-in-each-state-archive/

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

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

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

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

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

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

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

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

21 See Adoptions by Publisher for the latest adoption of a non-amended or amended model code by the local jurisdiction. https://up.codes/codes/general

22 See Adoptions by Publisher for the latest adoption of a non-amended or amended model code by state. https://up.codes/codes/general

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

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

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

26 2021 IRC Section R317.3

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

28 https://www.ecfr.gov/current/title-24/subtitle-B/chapter-XX/part-3280#:~:text=All%20construction%20methods%20shall%20be%20in%20conformance%20with%20accepted%20engineering%20practices%20to%20insure%20durable%2C%20livable%2C%20and%20safe%20housing%20and%20shall%20demonstrate%20acceptable%20workmanship%20reflecting%20journeyman%20quality%20of%20work%20of%20the%20various%20trades

29 https://www.ecfr.gov/current/title-24/subtitle-B/chapter-XX/part-3280#:~:text=The%20strength%20and%20rigidity%20of%20the%20component%20parts%20and/or%20the%20integrated%20structure%20shall%20be%20determined%20by%20engineering%20analysis%20or%20by%20suitable%20load%20tests%20to%20simulate%20the%20actual%20loads%20and%20conditions%20of%20application%20that%20occur

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

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

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

[33] 2021 IBC Section 104.11

[34] 2021 IRC Section R104.11

[35] 2018: https://up.codes/viewer/wyoming/ifc-2018/chapter/1/scope-and-administration#104.9 AND 2021: https://up.codes/viewer/wyoming/ibc-2021/chapter/1/scope-and-administration#104.11

[36] Approved is an adjective that modifies the noun after it. For example, Approved Agency means that the Agency is accepted officially as being suitable in a particular situation. This example conforms to IBC/IRC/IFC Section 201.4 (https://up.codes/viewer/mississippi/ibc-2024/chapter/2/definitions#201.4) where the building code authorizes sentences to have an ordinarily accepted meaning such as the context implies.

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

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