DIVISION: 03 00 00—CONCRETE
SECTION: 03 15 00—CONCRETE ACCESSORIES
SECTION: 03 16 00—CONCRETE ANCHORS
DIVISION: 04 00 00—MASONRY
SECTION: 04 05 19.16—MASONRY ANCHORS
DIVISION: 05 00 00—METALS
SECTION: 05 05 23—METAL FASTENINGS
DIVISION: 06 00 00—WOOD, PLASTICS AND COMPOSITES
SECTION: 06 05 23—WOOD, PLASTIC, AND COMPOSITE FASTENINGS
DIVISION: 09 00 00—FINISHES
SECTION: 09 22 16.23—FASTENERS

REPORT HOLDER:

DEWALT

EVALUATION SUBJECT:

TRAK-IT® C4 AND TRAK-IT® C5 FASTENERS IN CONCRETE, MASONRY AND STEEL
(DEWALT / POWERS)
DIVISION: 03 00 00—CONCRETE
Section: 03 15 00—Concrete Accessories
Section: 03 16 00—Concrete Anchors

DIVISION: 04 00 00—MASONRY
Section: 04 05 19.16—Masonry Anchors

DIVISION: 05 00 00—METALS
Section: 05 05 23—Metal Fastenings

DIVISION: 06 00 00—WOOD, PLASTICS AND COMPOSITES
Section: 06 05 23—Wood, Plastic, and Composite Fastenings

DIVISION: 09 00 00—FINISHES
Section: 09 22 16.23—Fasteners

REPORT HOLDER:
DEWALT

ADDITIONAL LISTEES:
POWERS FASTENERS
MAX COMPANY, LTD.

EVALUATION SUBJECT:
TRAK-IT® C4 AND TRAK-IT® C5 FASTENERS IN CONCRETE, MASONRY AND STEEL (DEWALT / POWERS)

1.0 EVALUATION SCOPE
Compliance with the following codes:

Property evaluated:
Structural

2.0 USES
Trak-It C4 and Trak-It C5 fasteners are used to attach building elements, such as wood and cold-formed steel, to base materials of uncracked, normalweight and sand-lightweight concrete, steel deck with sand-lightweight concrete fill, concrete masonry units (CMUs) and structural steel. The fasteners are alternatives to the cast-in-place anchors described in IBC Section 1901.3 (2012 IBC Section 1908; 2009 IBC Section 1911) for placement in concrete; the embedded anchors described in Section 8.1.3 of TMS 402-16 and TMS 402-13, referenced in Section 2107 of the 2018 and 2015 IBC, respectively (Section 2.1.4 of TMS 402-11 and -08, referenced in Section 2107 of the 2012 and 2009 IBC) for placement in masonry; and the welds and bolts used to attach materials to steel described in IBC Sections 2204.1 and 2204.2, respectively. For structures regulated under the IRC, the fasteners may be used where an engineered design is submitted in accordance with IRC Section R301.1.3.

3.0 DESCRIPTION
3.1 Trak-It C4 and Trak-It C5 Fasteners:
Trak-It C4 and Trak-It C5 fasteners are low-velocity power-actuated fasteners (PAFs) manufactured from hardened steel complying with the manufacturer’s quality documentation.

The Trak-It C4 and Trak-It C5 fasteners are collated into plastic strips as illustrated in Figure 3. Product names for the report holder and the additional listees are presented in the table below.

<table>
<thead>
<tr>
<th>COMPANY NAME</th>
<th>PRODUCT NAMES</th>
</tr>
</thead>
<tbody>
<tr>
<td>DEWALT</td>
<td>Trak-It C4 Fasteners</td>
</tr>
<tr>
<td></td>
<td>Trak-It C5 Fasteners</td>
</tr>
<tr>
<td>Powers Fasteners</td>
<td>Trak-It C4 Fasteners</td>
</tr>
<tr>
<td></td>
<td>Trak-It C5 Fasteners</td>
</tr>
<tr>
<td>Max Company, Ltd.</td>
<td>Powerlite Pins</td>
</tr>
<tr>
<td></td>
<td>Max Concrete Pins</td>
</tr>
</tbody>
</table>

The fasteners have straight, stepped or tapered shanks which are either smooth or knurled. See Table A for shank type, fastener dimensions, coating and applicable base materials. Maximum point length is the maximum specified length from the tip of the fastener to the location where the diameter of the shank becomes constant. Minimum effective shank length is the minimum specified length from the underside of the fastener head to the tip of the fastener.

3.2 Substrate Materials:
3.2.1 Concrete: Normalweight and sand-lightweight concrete must conform to IBC Chapter 19 or IRC Section R402.2, as applicable. The minimum concrete compressive strength at the time of fastener installation must be as noted in Tables 1 and 2.

3.2.2 Concrete Masonry: Concrete masonry units (CMUs) must be minimum 8-inch-thick (203 mm) blocks conforming to ASTM C90. Mortar must comply with ASTM...
3.2.3 Steel Substrates: Structural steel must comply with the minimum requirements of ASTM A36, A572 Grade 50, A992 or A1011, and have a thickness as described in Tables 4 and 5, as applicable.

3.2.4 Steel Deck Panels: Steel deck panel properties and configurations must be as described in the footnotes to Table 2 and Figures 1A and 1B, as applicable.

4.0 DESIGN AND INSTALLATION

4.1 Design:

4.1.1 General: Selection of fasteners must take into consideration the applicable base material and the length of the fastener. The minimum fastener length must be determined as follows:

- For installation into concrete, concrete-filled steel deck panels, CMU and steel base materials, the minimum effective shank length shown in Table A must equal or exceed the sum of the thickness of the attached material and the minimum embedment depth (penetration) shown in the applicable tables in this report.

- For installation through steel base materials, the minimum effective shank length shown in Table A must equal or exceed the sum of the following: the thickness of the attached material, the thickness of the base material and the required point penetration shown in the applicable tables in this report.

4.1.2 Allowable Loads: The applicable allowable load tables for Trak-It C4 and Trak-It C5 fasteners driven into different base materials may be determined by referencing Table A.

The most critical applied loads, excluding seismic load effects, resulting from the load combinations in IBC Section 1605.3.1 or 1605.3.2 must not exceed these allowable loads. For fasteners which are subjected to seismic loads, see Section 4.1.5 for additional information. The stress increases and load reductions described in IBC Section 1605.3 are not allowed.

The allowable tension (pull-out) and shear loads listed in this report apply only to the connection of the fastener to the base materials. Other limit states applicable to the design of a connection, such as fastener pull-through (pull-over) and lateral bearing on the attached material, which are governed by the properties of attached materials, are outside the scope of this report. Design of the connection to the attached material must comply with the applicable requirements of the IBC. When designing the connection of wood members to base materials, the bending yield strength of the PAFs can be assumed to be the same as that of a nail with the same shank diameter.

4.1.3 Combined Loading: For fasteners subjected to tension and shear loads, compliance with the following interaction equation must be verified:

\[(p/P_a) + (v/V_a) \leq 1\]

where:

- \( p \) = Actual applied tension load on fastener, lbf (N).
- \( P_a \) = Allowable tension load on fastener, lbf (N).
- \( v \) = Actual applied shear load on fastener, lbf (N).
- \( V_a \) = Allowable shear load on fastener, lbf (N).

4.1.4 Steel-to-steel Connections: When the Trak-It C5 fasteners listed in Tables 4 and 5 are used in connections of two steel elements in accordance with Section J5 of AISI S100-16 (Section E5 of AISI S100-12), connection capacity must be determined in accordance with Sections 4.1.4.1 and 4.1.4.2, as applicable.

4.1.4.1 Connection Strength - Tension: To determine the tensile connection strength in accordance with Section J5.2 of AISI S100-16 (Section E5.2 of AISI S100-12), the fastener tension strength, pull-out strength and pull-over strength must be known. These characteristics must be determined as follows:

- **PAF Tensile Strength**: The available tension strengths must be calculated in accordance with Section J5.2.1 of AISI S100-16 (Section E5.2.1 of AISI S100-12) using a value of 260,000 psi for \( F_{th} \).
- **Pull-out Strength**: See Table 4 or 5 for available pull-out strength, as applicable.
- **Pull-over Strength**: The available pull-over strengths must be calculated in accordance with Section J5 of AISI S100-16 (Section E5.2.3 of AISI S100-12).

4.1.4.2 Connection Strength - Shear: To determine the shear connection strength in accordance with Section J5.3 of AISI S100-16 (Section E5.3 of AISI S100-12), the fastener shear strength, bearing and tilting strength, pull-out strength in shear, net section rupture strength and shear strength limited by edge distance must be known. These characteristics must be determined as follows:

- **PAF Shear Strength**: The available shear strengths must be calculated in accordance with Section J5.3.1 of AISI S100-16 (Section E5.3.1 of AISI S100-12) using a value of 260,000 psi for \( F_{sh} \).
- **Bearing and Tilting Strength**: The available bearing and tilting strengths must be calculated in accordance with Section J5.3.2 of AISI S100-16 (Section E5.3.2 of AISI S100-12).
- **Pull-out Strength in Shear**: The available pull-out strength in shear must be the applicable allowable shear strength from Table 4 or 5, as applicable, or must be calculated in accordance with Section J5.3.3 of AISI S100-16 (Section E5.3.3 of AISI S100-12).

4.1.5 Seismic Considerations: The Trak-It C4 and Trak-It C5 fasteners are recognized for use when subjected to seismic loads as follows:

1. The fasteners may be used for attachment of nonstructural components listed in Section 13.1.4 of ASCE 7, which are exempt from the requirements of ASCE 7.

2. Concrete base materials: The fasteners installed in concrete may be used to support acoustical tile or lay-in panel suspended ceiling systems, distributed systems and distribution systems where the service load on any individual fastener does not exceed the lesser of 90 lbf (400 N) or the published allowable load in Tables 1 and 2, as applicable.

3. Steel base materials: The fasteners installed in steel may be used where the service load on any individual fastener does not exceed the lesser of 250 lbf (1112 N) or the published allowable load shown in Tables 4 and 5, as applicable.

4. For interior, nonstructural walls that are not subject to...
sustained tension loads and are not a bracing application, the power-driven fasteners may be used to attach steel track to concrete or steel in all Seismic Design Categories. In Seismic Design Categories D, E, and F, the allowable shear load due to transverse pressure must be no more than 90 pounds (400 N) when attaching to concrete; or 250 pounds (1,112 N) when attaching to steel. Substantiating calculations must be submitted addressing the fastener-to-base-material capacity and the fastener-to-attached-material capacity. Interior nonstructural walls are limited to locations where bearing walls, shear walls or braced walls are not required by the approved plans. The design load on the fastener must not exceed the allowable load established in this report for the concrete or steel base material.

4.2 Installation:

4.2.1 General: Fasteners must be installed with a power-actuated fastening tool (gas-actuated) in accordance with the manufacturer’s recommendations. Installers of gas-actuated fasteners do not require an operator’s license. The fasteners must be installed in accordance with the manufacturer’s published installation instructions. A copy of these instructions must be available on the jobsite at all times during fastener installation.

The fastener size, minimum embedment depth or penetration, minimum spacing and edge distances must comply with Tables 1 through 5, as applicable. For fasteners installed into concrete, the fasteners must not be driven until the concrete has reached the designated concrete compressive strength.

4.2.2 Use with Treated Lumber: The Trak-It C4 tapered shank fasteners described in Table A, which have an ASTM B695 Class 55 mechanically galvanized coating, may be used in contact with preservative-treated wood or fire-retardant-treated wood in dry, interior locations only in accordance with IBC Section 2304.10.5 (2012 and 2009 IBC Section 2304.9.5).

Any power-driven fastener described in this report may be used in contact with wood treated with SBX/DOT and zinc borate preservatives in dry, interior locations only, in accordance with the exception to IBC Section 2304.10.5.1 (2012 and 2009 IBC Section 2304.9.5.1).

Any, power-driven fastener described in this report may be used in contact with fire-retardant-treated wood in dry, interior locations only, in accordance with IBC Section 2304.10.5.4 (2012 and 2009 IBC Section 2304.9.4.5) and the report holder’s recommendations.

Except as noted above, use of the carbon steel fasteners in contact with preservative-treated wood or in contact with fire-retardant-treated wood in exterior applications is outside the scope of this report.

5.0 CONDITIONS OF USE

The Trak-It C4 and Trak-It C5 fasteners described in this report comply with, or are suitable alternatives to what is specified in, those codes listed in Section 1.0 of this report, subject to the following conditions:

5.1 The fasteners must be manufactured and identified in accordance with this report.

5.2 The fasteners must be installed in accordance with this report and the manufacturer’s published installation instructions. In the event of a conflict between the instructions in this report and the manufacturer’s published installation instructions, the more restrictive requirements govern.

5.3 Calculations demonstrating that the applied loads are less than the allowable loads described in this report must be submitted to the code official for approval. The calculations must be prepared by a registered design professional where required by the statutes of the jurisdiction in which the project is constructed.

5.4 For steel-to-steel connections that meet the applicability requirements of Section J5 of AISI S100-16 (Section E5 of AISI S100-12), calculations demonstrating that the available connection strength has been determined in accordance with Section J5 of AISI S100-16 (Section E5 of AISI S100-12) and Section 4.1.4 of this report, and equals or exceeds the applied load, must be submitted to the code official. The calculations must be prepared by a registered design professional where required by the statutes of the jurisdiction in which the project is to be constructed.

5.5 For fasteners installed in concrete, the concrete must have a minimum thickness of three times the fastener embedment depth, unless noted otherwise.

5.6 The use of fasteners in concrete or masonry is limited to installation in uncracked concrete or masonry. Cracking occurs when $f_t > f_c$ due to service loads or deformations.

5.7 The use of the fasteners in this report is limited to installation in dry, interior environments, which include exterior walls which are protected by an exterior wall envelope.

5.8 See Section 4.2 regarding use of fasteners in contact with preservative-treated or fire-retardant-treated wood.

5.9 See Section 4.1.5 for seismic considerations.

5.10 The products addressed in this report are manufactured under a quality-control program with inspections by ICC-ES.

6.0 EVIDENCE SUBMITTED

Data in accordance with the ICC-ES Acceptance Criteria for Power-actuated Fasteners Driven into Concrete, Steel, and Masonry Elements (AC70), dated February 2016 (editorially revised November 2017).

7.0 IDENTIFICATION

7.1 The Trak-It C4 and Trak-It C5 fasteners are identified by a “P” or “D” stamped onto the head of the fastener, except for the Trak-It C5 tapered fastener, which does not have a head marking. Packages bear one of the company names listed in Section 3.1, the product name, the fastener shank type, length and diameter, and the evaluation report number (ESR-3275).

7.2 The report holder’s contact information is the following:

DEWALT
701 EAST JOPPA ROAD
TOWSON, MARYLAND 21286
(800) 524-3244
www.DEWALT.com
anchors@DEWALT.com
7.3 The additional listee's contact information is the following:

**POWERS FASTENERS**
701 EAST JOPPA ROAD
TOWSON, MARYLAND 21286
(800) 524-3244
[www.powers.com](http://www.powers.com)
engineering@powers.com

**MAX COMPANY, LTD.**
6-6 NIHONBASHI-HAKAZAKI-CHO
CHOU-KU, TOKYO
JAPAN
+(03) 3669-8131

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### TABLE A—TRAK-IT C4 AND TRAK-IT C5 FASTENERS

<table>
<thead>
<tr>
<th>FASTENER FAMILY</th>
<th>Shank Type</th>
<th>Shank Diameter1 (inch)</th>
<th>Head Diameter (inch)</th>
<th>Maximum Point Length (inch)</th>
<th>Available Lengths (inch)</th>
<th>Minimum Effective Shank Length (inch)</th>
<th>Fastener Coating</th>
<th>Applicable Base Material</th>
<th>Applicable Load Tables</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trak-It C5</td>
<td>Straight, smooth</td>
<td>0.102</td>
<td>0.25</td>
<td>0.15</td>
<td>3/4 to 1 1/2</td>
<td>Length - 0.025</td>
<td>ASTM B695, Class 5, Type 1</td>
<td>Concrete, Conc.-filled deck</td>
<td>1, 2, 3</td>
</tr>
<tr>
<td>Trak-It C4</td>
<td>Straight, smooth</td>
<td>0.145</td>
<td>0.25</td>
<td>0.27</td>
<td>3/4</td>
<td>1</td>
<td>ASTM B695, Class 5, Type 1</td>
<td>Concrete, Conc.-filled deck</td>
<td>1, 2, 3</td>
</tr>
<tr>
<td>Trak-It C5</td>
<td>Step, smooth</td>
<td>0.145 / 0.102</td>
<td>0.25</td>
<td>0.16</td>
<td>1 1/4 to 2 1/2</td>
<td>Length - 0.033</td>
<td>ASTM B695, Class 5, Type 1</td>
<td>Concrete, Conc.-filled deck</td>
<td>1, 2, 3</td>
</tr>
<tr>
<td>Trak-It C4</td>
<td>Step, smooth</td>
<td>0.145 / 0.102</td>
<td>0.25</td>
<td>0.16</td>
<td>1 1/4 to 1 1/2</td>
<td>Length - 0.033</td>
<td>ASTM B695, Class 5, Type 1</td>
<td>Concrete, Conc.-filled deck</td>
<td>1, 2, 3</td>
</tr>
<tr>
<td>Trak-It C5</td>
<td>Step, knurl</td>
<td>0.145 / 0.120</td>
<td>0.25</td>
<td>0.19</td>
<td>1 to 2 1/2</td>
<td>Length - 0.22</td>
<td>ASTM B695, Class 5, Type 1</td>
<td>Concrete, CMU</td>
<td>1, 3, 4, 5</td>
</tr>
<tr>
<td>Trak-It C4</td>
<td>Tapered, smooth</td>
<td>0.137</td>
<td>0.25</td>
<td>Not applicable</td>
<td>2 1/2</td>
<td>2.37</td>
<td>ASTM B695 Class 55</td>
<td>Concrete</td>
<td>1</td>
</tr>
<tr>
<td>Trak-It C5</td>
<td>Step, knurl</td>
<td>0.120 / 0.102</td>
<td>0.25</td>
<td>0.15</td>
<td>3/4</td>
<td>0.50</td>
<td>ASTM B695, SC1, Type III</td>
<td>Steel</td>
<td>4, 5</td>
</tr>
<tr>
<td>Trak-It C5</td>
<td>Tapered, smooth</td>
<td>0.120</td>
<td>0.25</td>
<td>Not applicable</td>
<td>3/4</td>
<td>0.75</td>
<td>ASTM B695 (2 μm)</td>
<td>Steel</td>
<td>4, 5</td>
</tr>
</tbody>
</table>

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1For step shank fasteners the first diameter listed is for the portion of the shank adjoining the head of the fasteners and the second diameter listed is for the point end of the fastener.

For SI: 1 inch = 25.4 mm.
### TABLE 1—ALLOWABLE LOADS FOR TRAK-IT C4 AND TRAK-IT C5 FASTENERS DRIVEN INTO NORMALWEIGHT CONCRETE

<table>
<thead>
<tr>
<th>FASTENER FAMILY</th>
<th>SHANK TYPE</th>
<th>SHANK DIAMETER (inch)</th>
<th>MINIMUM EMBEDMENT DEPTH (inch)</th>
<th>MINIMUM SPACING ¹ (inches)</th>
<th>MINIMUM EDGE DISTANCE (inches)</th>
<th>ALLOWABLE LOADS (lbf)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Concrete Compressive Strength:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>$f'_c = 2,500$ psi</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td><strong>Tension</strong></td>
</tr>
<tr>
<td>Trak-It C5</td>
<td>Straight</td>
<td>0.102</td>
<td>7/8</td>
<td>4</td>
<td>3/4</td>
<td>120 135 120 140 120 145 – –</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>180 185 180 195 180 215 200 220</td>
</tr>
<tr>
<td>Trak-It C4 /</td>
<td>Step</td>
<td>0.145</td>
<td>7/8</td>
<td>4</td>
<td>3/4</td>
<td>105 75 110 95 120 135 – –</td>
</tr>
<tr>
<td>Trak-It C5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>125 105 135 110 – – – –</td>
</tr>
<tr>
<td>Trak-It C4 /</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>115 80 115 125 – – – –</td>
</tr>
<tr>
<td>Trak-It C5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>120 135 120 145 – – – –</td>
</tr>
<tr>
<td>Trak-It C5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>150 170 150 170 145 170 155 170 190 – –</td>
</tr>
<tr>
<td>Trak-It C5</td>
<td>Tapered</td>
<td>0.137</td>
<td>7/8</td>
<td>4</td>
<td>1/4</td>
<td>80 90 85 95 – – – –</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>90 70 100 75 – – – –</td>
</tr>
<tr>
<td>Trak-It C5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>120 135 120 135 120 145 75 135</td>
</tr>
<tr>
<td>Trak-It C5</td>
<td>Tapered</td>
<td>0.120</td>
<td>7/8</td>
<td>4</td>
<td>3/4</td>
<td>150 120 170 135 150 120 135 165 135 75 135</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>150 90 170 100 160 100 75 95</td>
</tr>
</tbody>
</table>

For SI: 1 lbf = 4.4 N, 1 inch = 25.4 mm, 1 psi = 6.895 kPa.

¹Fasteners must not be driven until the concrete has reached the tabulated compressive strength.

²Concrete thickness must be a minimum of three times the embedment depth of the fastener, or 2 inches, whichever is greater.

³The fasteners listed in the table above may be used for static load conditions and for the seismic load conditions described in Section 4.1.5, as applicable. The tabulated allowable loads apply to static load conditions. For seismic load conditions, the allowable loads must be limited in accordance with Section 4.1.5, Items 2 and 4, as applicable.

⁴Where two values are reported, the first value applies to spacing of fasteners subject to tension only and also to spacing of fasteners in a row subject to tension and/or shear loading perpendicular to the row; the second value applies to the fastener spacing for all other conditions.
### TABLE 2—ALLOWABLE LOADS FOR TRAK-IT C4 AND TRAK-IT C5 FASTENERS DRIVEN INTO MINIMUM 3,000 PSI SAND-LIGHTWEIGHT CONCRETE AND SAND-LIGHTWEIGHT CONCRETE-FILLED STEEL DECK\(^{1,5}\)

<table>
<thead>
<tr>
<th>FASTENER FAMILY</th>
<th>SHANK TYPE</th>
<th>SHANK DIAMETER (inch)</th>
<th>MINIMUM EMBEDMENT DEPTH (inch)</th>
<th>ALLOWABLE LOADS (lbf)</th>
<th>TOP COVER (inches)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Installed Directly into Concrete(^a)</td>
<td>Installed through 3” Deep Steel Deck into Concrete(^b)</td>
</tr>
<tr>
<td>Fastener Location:</td>
<td></td>
<td></td>
<td></td>
<td>Upper Flute</td>
<td>Lower Flute</td>
</tr>
<tr>
<td>Trak-It C5</td>
<td>Straight</td>
<td>0.102</td>
<td></td>
<td>150</td>
<td>195</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>7/8</td>
<td>105</td>
<td>225</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>11/8</td>
<td>205</td>
<td>255</td>
</tr>
<tr>
<td>Trak-It C4 / Trak-It C5</td>
<td>Straight</td>
<td>0.145</td>
<td></td>
<td>80</td>
<td>200</td>
</tr>
<tr>
<td>Trak-It C4 / Trak-It C5</td>
<td>Step</td>
<td>0.145/0.102</td>
<td></td>
<td>280</td>
<td>300</td>
</tr>
<tr>
<td>Trak-It C5</td>
<td>Tapered</td>
<td>0.120</td>
<td></td>
<td>80</td>
<td>205</td>
</tr>
</tbody>
</table>

For SI: 1 lbf = 4.4 N, 1 inch = 25.4 mm, 1 psi = 6.895 kPa.

1Fasteners must not be driven until the concrete has reached the tabulated compressive strength.

2For straight Shank and step Shank fasteners installed directly into concrete (e.g. top of concrete-filled steel deck), fastener edge distance must be 3 inches minimum and fastener spacing must be 4 inches minimum. For tapered Shank fasteners installed directly into concrete, fastener edge distance must be 3 inches minimum and fastener spacing must be 3.25 inches minimum. Shear loads may be applied in any direction.

3The steel deck must have a minimum base material thickness of 0.035 inch, minimum yield strength, \(F_y\), of 33 ksi, a minimum tensile strength of 45ksi, and conform to the profile requirements as shown in Figure 1A. Fastener edge distance (lower flute locations) must be a minimum of 7/8 inches. Fastener spacing must be a minimum of 4 inches for straight and step Shank fasteners and a minimum of 3.25 inches for tapered Shank fasteners. Shear loads may be applied in any direction.

4The steel deck must have a minimum base material thickness of 0.035 inch, minimum yield strength, \(F_y\), of 33 ksi, a minimum tensile strength of 45ksi, and conform to the profile requirements as shown in Figure 1B. Fastener edge distance (lower flute locations) must be a minimum of 7/8 inches. Fastener spacing must be a minimum of 4 inches for straight and step Shank fasteners and a minimum of 3.25 inches for tapered Shank fasteners. Shear loads may be applied in any direction.

5Unless otherwise noted, for installation into lightweight concrete with \(f'c\) = 3,500 psi, multiply the tabulated values by 1.05 to determine the applicable allowable load value.

6For installation of 0.102-inch-diameter straight Shank fasteners and 0.120-inch-diameter tapered Shank fasteners into lightweight concrete with \(f'c\) = 3,500 psi, no increase in tabulated values is allowed. For installation into lightweight concrete with \(f'c\) = 2,500 psi, multiply the tabulated values by 0.87 to determine the applicable allowable load value.

7The fasteners listed in the table above may be used for static load conditions and for the seismic load conditions described in Section 4.1.5, as applicable. The tabulated allowable loads apply to static load conditions. For seismic load conditions, the allowable loads must be limited in accordance with Section 4.1.5, Items 2 and 4, as applicable.

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**FIGURE 1A—FASTENER INSTALLATION LOCATION THROUGH THE SOFFIT OF 3-INCH-DEEP CONCRETE-FILLED COMPOSITE STEEL DECK FLOOR AND ROOF ASSEMBLIES**
FIGURE 1B—FASTENER INSTALLATION LOCATION THROUGH THE SOFFIT OF 1 1/2-INCH-DEEP CONCRETE-FILLED COMPOSITE STEEL DECK FLOOR AND ROOF ASSEMBLIES

TABLE 3—ALLOWABLE LOADS FOR TRAK-IT C4 AND TRAK-IT C5 FASTENERS DRIVEN INTO CONCRETE MASONRY UNITS

<table>
<thead>
<tr>
<th>FASTENER FAMILY</th>
<th>SHANK TYPE</th>
<th>SHANK DIAMETER (inch)</th>
<th>MINIMUM EMBEDMENT DEPTH (inch)</th>
<th>MINIMUM END AND EDGE DISTANCE3 (inches)</th>
<th>APPLICABLE MORTAR TYPE</th>
<th>ALLOWABLE LOADS (lbf)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>HOLLOW CMU</td>
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<td></td>
<td></td>
<td></td>
<td>GROUTED CMU</td>
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<td></td>
<td></td>
<td></td>
<td>Face Shell4</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>Face Shell4</td>
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<td></td>
<td></td>
<td></td>
<td>Horizontal Mortar Joint</td>
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<td></td>
<td></td>
<td></td>
<td>Top and Center of Grouted Cell1</td>
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<td>Load Direction:</td>
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<tr>
<td>Tension</td>
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<td>Shear</td>
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<tr>
<td>Shear</td>
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</tr>
</tbody>
</table>

For SI: 1 lbf = 4.4 N, 1 inch = 25.4 mm.

1Concrete masonry units must be normal-weight units conforming to ASTM C90, unless otherwise noted. The minimum allowable nominal size of the CMU must be 8 inches high by 8 inches wide by 16 inches long, with a minimum, 1 1/4-inch-thick face shell thickness.
2Only one PAF may be installed in each cell. Allowable loads for fasteners installed in vertical mortar joints including the intersection of the head joint and bed joint are outside the scope of this report.
3Refers to wall end and edge distance. See Figure 2.
4Straight shank and step shank PAFs must be installed a minimum of 1 1/2 inches from the mortar joints and 1 1/2 inches from the CMU web. Tapered shank PAFs must be installed a minimum of 2 inches from the vertical mortar joints.
5Shear loads for fasteners installed in the face shell or top of grouted cells can be applied in any direction.
6Shear direction can be horizontal or vertical along the CMU wall plane.
7CMU may be lightweight or normalweight units conforming to ASTM C90.
8The fasteners listed in the table above may be used for static load conditions and for the seismic load conditions described in Item 1 of Section 4.1.5.

FIGURE 2—TAPERED SHANK FASTENERS INSTALLED INTO HOLLOW OR GROUT-FILLED CONCRETE MASONRY UNITS (AS APPLICABLE)
### TABLE 5—ALLOWABLE LOADS FOR TRAK-IT C5 FASTENERS INSTALLED IN ASTM A572 GRADE 50 OR ASTM A992 STEEL\(^{1,2,9}\)

<table>
<thead>
<tr>
<th>FASTENER FAMILY</th>
<th>SHANK TYPE</th>
<th>SHANK DIAMETER (inch)</th>
<th>MINIMUM SPACING (inch)</th>
<th>MINIMUM EDGE DISTANCE (inch)</th>
<th>ALLOWABLE LOADS (lbf)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Tension</td>
</tr>
<tr>
<td>Load Direction:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trak-It C5</td>
<td>Step</td>
<td>0.120 / 0.102</td>
<td>1</td>
<td>(1/2)</td>
<td>105(^{10})</td>
</tr>
<tr>
<td></td>
<td>Tapered</td>
<td>0.120</td>
<td>1</td>
<td>(1/2)</td>
<td>105(^{10})</td>
</tr>
<tr>
<td></td>
<td>Step</td>
<td>0.145 / 0.120</td>
<td>1</td>
<td>(1/2)</td>
<td>105(^{10})</td>
</tr>
</tbody>
</table>

For SI: 1 lbf = 4.4 N, 1 inch = 25.4 mm.

1. Steel base material must have minimum yield and tensile strengths \((F_y, F_t)\) equal to 50 ksi and 85 ksi, respectively.
2. An embedment depth of 0.188 inch is required. Allowable load value applies to steel base material with thickness of \(1/2\) inch and greater.
3. An embedment depth of 0.350 inch is required. Allowable load value applies to steel base material with thickness of \(1/2\) inch and greater.
4. An embedment depth of 0.375 inch is required for the tabulated value. Allowable load value applies to steel base material with thickness of \(1/2\) inch and greater.
5. The fasteners listed in the table above may be used for static load conditions and for the seismic load conditions described in Section 4.1.5, Items 3 and 4, as applicable. The tabulated allowable loads apply to static load conditions. For seismic load conditions, the allowable load must be limited in accordance with Section 4.1.5, Items 3 and 4, as applicable. For steel-to-steel connections designed in accordance with Section 4.1.4, the tabulated allowable load may be increased by a factor of 1.25, and the design strength may be taken as the tabulated allowable load multiplied by a factor of 2.0.
1.0 REPORT PURPOSE AND SCOPE

Purpose:
The purpose of this evaluation report supplement is to indicate that Trak-It C4 and Trak-It C5 fasteners, recognized in ICC-ES master report ESR-3275, have also been evaluated for compliance with the codes noted below.

Applicable code editions:

- 2017 Florida Building Code—Building
- 2017 Florida Building Code—Residential

2.0 CONCLUSIONS

The Trak-It C4 and Trak-It C5 fasteners, described in Sections 2.0 through 7.0 of the master evaluation report ESR-3275, comply with the Florida Building Code—Building and Florida Building Code—Residential, provided the design and installation are in accordance with the 2015 International Building Code® provisions noted in the master report.

Use of the Trak-It C4 and Trak-It C5 fasteners has also been found to be in accordance with the High-Velocity Hurricane Zone provisions of the Florida Building Code—Building and Florida Building Code—Residential.

For products falling under Florida Rule 9N-3, verification that the report holder’s quality-assurance program is audited by a quality-assurance entity approved by the Florida Building Commission for the type of inspections being conducted is the responsibility of an approved validation entity (or the code official, when the report holder does not possess an approval by the Commission).

This supplement expires concurrently with the master report, reissued September 2018, revised March 2019.