

DIVISION: 31 00 00 - Earthwork
Section: 31 60 00 - Special Foundations and Load-Bearing Elements

REPORT HOLDER:
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REPORT SUBJECT:
Deck Foot Anchor™

1.0 SCOPE OF EVALUATION

1.1 This Research Report addresses compliance with the following Codes:

- 2021 and 2018 *International Residential Code*® (IRC)

NOTE: This report references the most recent Code editions noted. Section numbers in earlier editions may differ.

1.2 Deck Foot Anchor™ has been evaluated for the following properties (see Table 1):

- Structural

1.3 Deck Foot Anchor™ has been evaluated for the following uses (see Table 1):

- Footing for free standing exterior decks (Decks that are not attached to a frost protected structure).

2.0 STATEMENT OF COMPLIANCE

Deck Foot Anchor™ complies with the Codes listed in Section 1.1, for the properties stated in Section 1.2 and uses stated in Section 1.3, when installed as described in this report, including the Conditions of Use stated in Section 6.

3.0 DESCRIPTION

The Titan Deck Foot Anchor™ is a fabricated steel surface footing plate with an integral post bracket and auger anchor for use as an alternative to a conventional footing supporting exterior, free standing residential decks. See Figure 1.

3.1 Deck Foot Bearing Plate: The Deck Foot Bearing Plate is fabricated from SS400 30 ksi steel, 0.118" (3 mm) thick with ASTM A153 hot dipped galvanized 66 um thick coating.

3.2 Deck Post Bracket: Deck Post brackets are fabricated from SS400 30 ksi steel, 0.08" (2 mm) thick with ASTM A153 hot dipped galvanized 66 um thick coating. Post brackets are fabricated in two sizes for 4x4 and 6x6 conventional wood posts.

3.3 Auger Style Anchor: The Auger Style Anchors are fabricated from SS400 30 ksi steel, 0.09" (2.3 mm) thick shaft and 0.118" (3 mm) Auger with ASTM A153 hot dipped galvanized 66 um thick coating. The auger anchor is provided in two lengths, 600 mm and 900 mm (TIGA600 and TIGA900 respectively). Each is identical except for the overall length of shaft.

4.0 PERFORMANCE CHARACTERISTICS

4.1 Installation Condition: Deck Foot Anchors are evaluated for vertical load capacity in two installation conditions.

Installation condition 1: Footing plate is placed on undisturbed load-bearing soil in accordance with IRC Section R403.1.4 (Not less than 12 inches below undisturbed ground surface).

Installation condition 2: Footing plate is placed on loose surface soils or noncompacted fill. The helical plate of the auger anchor is located not less than 12" below undisturbed ground surface.



4.2 Allowable Load Capacity: Allowable loads are provided in Tables 2, 3 and 4 for vertical downward (compression) concentric load and vertical uplift load based on soil class and installation condition.

5.0 INSTALLATION

5.1 General:

Deck Foot Anchor must be installed in accordance with the manufacturer's published installation instructions, the applicable Code, and this Research Report. A copy of the manufacturer's instructions must be available on the jobsite during installation.

5.2 Installation Condition. Deck Foot Anchors are evaluated for two installation conditions as described in Section 4.1.

5.3 Free Standing Decks. Decks supported by Titan Deck Foot Anchors shall not be attached to a frost protected structure.

5.4 Frost Protection. When used in accordance with this report, the Titan Deck Foot Anchor™ does not require frost protection.

5.5 Post Column. Wood post column by others. See Tables 2, 3, and 4, for requirements.

5.6 Lag Screws. Wood posts shall be attached in the post brackets with (4) 1/4" x 3" lag screws located at the top edge of the slotted holes in the bracket flanges. Lag screws shall have a minimum bending yield strength (F_{yb}) of 70,000 psi.

5.7 Auger anchor installation torque shall not exceed 102 ft-lbs.

6.0 CONDITIONS OF USE

6.1 Installation must comply with this Research Report, the manufacturer's published installation instructions, and the applicable Code. In the event of a conflict, this report governs.

6.2 Titan Deck Foot Anchors are for use with Free Standing Decks only.

6.3 Lateral Loads are not within the scope of this evaluation.

6.4 Frost protection: When the helical plate of the Deck Foot Anchor is located below frost line, frost heave could impose force on the surface footing plate. Anticipated frost heave force shall not exceed the uplift capacity in Table 2, 3 and 4.

6.5 Equivalent performance to concrete footings found in Tables 2, 3, and 4 apply to corresponding soil classification found in IRC Table R405.1

6.6 To achieve the allowable uplift capacity, the wood post lag screws shall be installed at top of the slotted holes in Deck Post Bracket. Lag screws shall be minimum 70,000 psi F_{yb} yield strength.

6.7 Installation in highly corrosive soils or environmental conditions such as salt water is not within the scope of this evaluation.

6.8 Installation adjacent to sloped grades shall be in accordance with IRC R403.1.7.

6.9 The Titan Deck Foot Anchor is an alternative method of construction per IRC R104.11.

6.10 The Titan Deck Foot Anchor is manufactured under a quality control program with inspections by Intertek Testing Services NA, Inc.

7.0 SUPPORTING EVIDENCE

7.1 Data from tests in accordance with ASTM D1143, ASTM D3689, ASTM A370, ASTM D2395, ASTM D4442, ASTM F1575, and ASTM D7147.

8.0 IDENTIFICATION

The [product] is/are identified with the manufacturer's name ([name]), the product name ([name]), [other applicable marking requirements], the Intertek Mark as shown below, the Intertek Control Number and the Code Compliance Research Report number (CCRR-0495).





9.0 OTHER CODES

This section is not applicable.

10.0 CODE COMPLIANCE RESEARCH REPORT USE

10.1 Approval of building products and/or materials can only be granted by a building official having legal authority in the specific jurisdiction where approval is sought.

10.2 Code Compliance Research Reports shall not be used in any manner that implies an endorsement of the product by Intertek.

10.3 Reference to the <https://bpdirectory.intertek.com> is recommended to ascertain the current version and status of this report.

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TABLE 1 - PROPERTIES EVALUATED

PROPERTY	2021 IRC SECTION
Structural	R507.3
Footing for free standing deck	R507.3

TABLE 2 – ALLOWABLE LOADS FOR TITAN DECK FOOT ANCHOR™ WITH 600 mm AUGER (TIGA600)
Soil Class: Stiff Clay (CL)
Minimum Soil Bearing Capacity: 1,500 PSF

Installation Condition ¹	Allowable Bearing Capacity (pounds)	Equivalent size of a square footing (inches)	Equivalent Diameter of Round Footing (inches)	Allowable Uplift Capacity (pounds) with Wood Post Minimum Specific Gravity (G)	
				G=0.42	G=0.50
Condition 1	1,500	12	14	312	319
Condition 2	627	8	9	312	319

Table 2 Notes:

1. See section 4.1 for installation conditions.
2. Equivalent footing sizes are comparable to traditional concrete footings.

TABLE 3 – ALLOWABLE LOADS FOR TITAN DECK FOOT ANCHOR™ WITH 900 mm AUGER (TIGA900)
Soil Class: Stiff Clay (CL)
Minimum Soil Bearing Capacity: 1,500 PSF

Installation Condition ¹	Allowable Bearing Capacity (pounds)	Equivalent size of a square footing (inches)	Equivalent Diameter of Round Footing (inches)	Allowable Uplift Capacity (pounds) with Wood Post Minimum Specific Gravity (G)	
				G=0.42	G=0.50
Condition 1	1,500	12	14	319	336
Condition 2	627	8	9	312	336

Table 3 Notes:

1. See section 4.1 for installation conditions.
2. Equivalent footing sizes are comparable to traditional concrete footings.



TABLE 4 – ALLOWABLE LOADS FOR TITAN DECK FOOT ANCHOR™ WITH 600 mm or 900 mm AUGER (TIGA600 or TIGA900)
Soil Class: Silty Sand (SM)
Minimum Soil Bearing Capacity: 2000 PSF

Installation Condition ¹	Allowable Bearing Capacity (pounds)	Equivalent side of a square footing (inches)	Equivalent Diameter of Round Footing (inches)	Allowable Uplift Capacity (pounds) with Wood Post Minimum Specific Gravity (G)	
				G=0.42	G=0.50
Condition 1	1,500	10	12	312	336
Condition 2	1,140	9	10	312	336

Table 4 Notes:

1. See section 4.1 for installation conditions.
2. Equivalent footing sizes are comparable to traditional concrete footings.

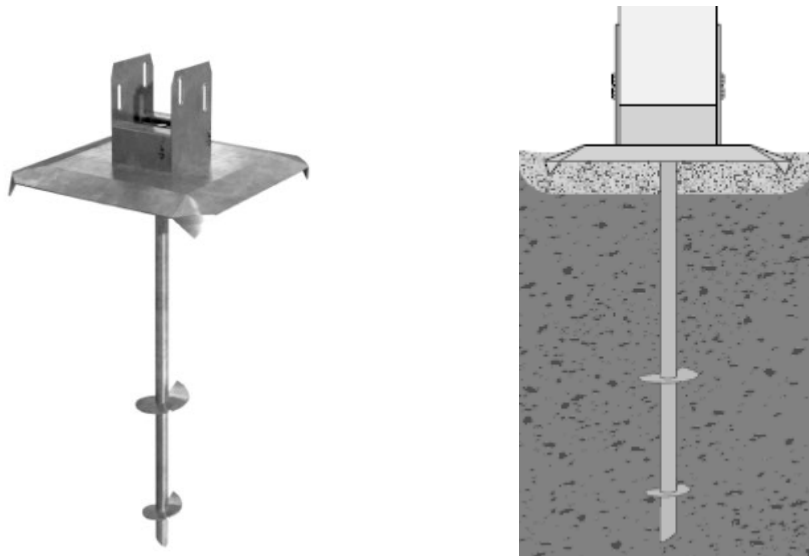


Figure 1: Titan Deck Foot Anchor as installed with Deck Post Bracket, Deck Foot Bearing Plant and Auger Style Anchor.