



ICC Evaluation Service, Inc.
www.icc-es.org

Business/Regional Office ■ 5360 Workman Mill Road, Whittier, California 90601 ■ (562) 699-0543
Regional Office ■ 900 Montclair Road, Suite A, Birmingham, Alabama 35213 ■ (205) 599-9800
Regional Office ■ 4051 West Flossmoor Road, Country Club Hills, Illinois 60478 ■ (708) 799-2305

The Subcommittee on Evaluation has reviewed the data submitted for compliance with the Standard Building Code® and the International One and Two Family Dwelling Code and submits to the Building Official or other authority having jurisdiction the following report. The Subcommittee on Evaluation, ICC-ES and its staff are not responsible for any errors or omissions to any documents, calculations, drawings, specifications, tests or summaries prepared and submitted by the design professional or preparer of record that are listed in the Substantiating Data Section of this report. Portions of this report were previously included in SBCCI PST & ESI Evaluation Reports #9504 and #9504A.

REPORT NO.: 9504B

EXPIRES: See the current EVALUATION REPORT INDEX

CATEGORY: FOUNDATION SYSTEMS

SUBMITTED BY:

HUBBEL CORPORATION / A. B. CHANCE COMPANY
210 NORTH ALLEN STREET
CENTRALIA, MISSOURI 65240

1. PRODUCT TRADE NAME

HELICAL PIER® Foundation Systems

2. SCOPE OF EVALUATION

Structural

3. USES

The HELICAL PIER® Foundation Systems are used as a foundation system for supporting and anchoring structures.

4. DESCRIPTION

4.1 HELICAL PIER® Foundation Systems Anchor Components

The steel anchor components consist of one or more steel helix plates attached to a central steel shaft. Foundation anchors can be extended by adding one or more shaft extensions coupled together to form one long continuous pier. Extensions can be with or without steel helix plates attached.

Each steel helix plate has an outer diameter ranging from 6" (152 mm) to 14" (356 mm) and an inner square annulus. The inner annulus ranges in size from 1 1/2" to 1 3/4" (38 to 44 mm) square.

Each plate is formed so that all radial sections are normal to the central longitudinal axis ±3 degrees. The pitch of the helix is 3" (76 mm). The thickness of the helix plates is 3/8" (10 mm).

4.2 Connection to Structure

Connections to structures can be made by using a welded steel bracket or reinforced steel concrete haunch. Each steel bracket consists of a bracket body made of 1/4", 3/8", or 1/2" (6, 10, or 13 mm) structural steel sections shaped and welded together so that it will positively engage the foundation of the structure. The bracket body consists of a lower and an upper part. The lower part is used for settlement loading only and the upper part is used for uplift loading.

4.3 Material Specifications

4.3.1 Helix Plate

- 1. The plates used for the foundation anchors installed with up to 5,500 ft. lb. (7457 N-m) of torque are fabricated from steel meeting the requirements of ASTM A 607, A 570, A 572, or A 715.
2. The plates used for the foundation anchors installed with up to 10,000 ft. lb. (13,558 N-m) of torque are fabricated from hot rolled steel plate per ASTM A 656 or A 715 with minimum yield strength of 80 Ksi (552 MPa) and a minimum ultimate strength of 90 Ksi (621 MPa).

4.3.2 Foundation Anchor Shaft

- 1. The shaft used for the foundation anchors installed with up to 5,500 ft. lb. (7,457 N-m) of torque are hot-rolled, round cornered square steel bar conforming to ASTM A 29.
2. The shaft used for the foundation anchors installed with up to 10,000 ft. lb. (13,558 N-m) of torque are hot-rolled, round cornered square HSLA steel bar conforming to ASTM A 29.

4.3.3 Bolts

- 1. Bolts for the foundation anchors shafts installed with up to 5,500 ft.-lbs. (7,457 N-m) of torque: ASTM A 320 Grade L7
Bolts for the foundation anchors installed with up to 10,000 ft.-lbs. (13,558 N-m) of torque: ASTM A 193 Grade B7
2. Bolts for the steel bracket meet the following specifications:

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Lifting bolts: SAE J429, Gr.2 or Gr.5.
 Cross bolts: SAE J429 Gr.5.
 Anchor bolts/stud: SAE J429 Gr.5 minimum.

4.3.4 Steel Bracket

1. The bracket body is fabricated from hot rolled structural steel meeting the requirements of ASTM A 36 and ASTM A 570 Grade 50.
2. The pipe assembly is fabricated from carbon steel structural tubing per ASTM A 500 Grade B with minimum yield strength of 42 Ksi (290 MPa) and minimum ultimate of 58 Ksi (400 MPa).

5. **INSTALLATION**

The manufacturer's published installation instructions and this report shall be strictly adhered to and a copy of these instructions shall be available at all times on the job site during installation.

6. **SUBSTANTIATING DATA**

- 6.1 Manufacturer's descriptive literature and installation instructions.
- 6.2 Quality Control Manual and Inspection Procedures for the welding process used in the production of the HELICAL PIER® Foundation Systems, prepared by A.B. Chance Company and RADCO, dated August 1993, signed by R.F. Tucker, P.E. (RADCO), and Leif Lomo (A.B. Chance).

7. **CODE REFERENCES**

Standard Building Code - 1999 Edition

Section 103.7	Alternate Materials and Methods
Chapter 16	Structural Loads
Section 1803	Excavations
Section 1804	Footings and Foundations
Section 1805	Piles

International One and Two Family Dwelling Code -
 1998 Edition

Section 108	Alternate Materials and Systems
Section 401	General - Foundations
Section 403	Footings

8. **COMMITTEE FINDINGS**

The Subcommittee on Evaluation in review of the data submitted finds that, in their opinion, the HELICAL PIER® Foundation Systems as described in this report conform with or are suitable alternates to that specified in the *Standard Building Code* and the International One and Two Family Dwelling Code or Supplements thereto.

9. **LIMITATIONS**

- 9.1 This Legacy Evaluation Report and the installation instructions, when required by the building official, shall be submitted at the time of permit application.
- 9.2 The foundation anchors shall be installed only by authorized A.B. Chance dealers. A member of the installing crew shall have a valid certification card in their possession.
- 9.3 Engineering calculations and drawings shall be submitted to the building official when applying for permit. The calculations and drawings shall be signed and sealed by the registered professional engineer responsible for the calculations and drawings.
- 9.4 A soils investigation report shall be provided for each project site if deemed necessary by the authority having jurisdiction.
- 9.5 The connection between the HELICAL PIER® Foundation Systems and the structure is not within the scope of this report.
- 9.6 The capacity of the HELICAL PIER® Foundation Systems, in place, is not within the scope of this report.

10. **IDENTIFICATION**

Each foundation anchor shall have the manufacturer's name or trademark, the SBCCI Public Safety Testing and Evaluation Service, Inc. seal or initials (SBCCI PST & ESI), and the number of this report labeled or stenciled on the pier for field identification.

11. **PERIOD OF ISSUANCE**

SEE THE CURRENT EVALUATION REPORT INDEX FOR STATUS OF THIS LEGACY EVALUATION REPORT.

For information on this report contact:
 Woods McRoy, P.E.
 205/599-9800