



AB Chance Company
Subsidiary of Hubbell Power Systems
210 North Allen St.
Centralia, MO 65240
Phone: (573) 682-8414
Fax: (573) 682-8660
E-mail: hpscontact@hps.hubbell.com
www.abchance.com

This MANU-SPEC™ utilizes the Construction Specifications Institute (CSI) *Manual of Practice*, including *MasterFormat™*, *SectionFormat™* and *PageFormat™*. A MANU-SPEC is a manufacturer-specific proprietary product specification using the proprietary method of specifying applicable to project specifications and master guide specifications. Optional text is indicated by brackets []; delete optional text in final copy of specification. Specifier Notes typically precede specification text; delete notes in final copy of specification. Trade/brand names with appropriate symbols typically are used in Specifier Notes; symbols are not used in specification text. Metric conversion, where used, is soft metric conversion.

This MANU-SPEC specifies shoring and underpinning, including foundation piles, remedial screw piles for foundation repair, foundation stabilization, retaining walls and tieback systems, marketed under the HELICAL PIER® Foundation Systems brand name, by AB Chance, a subsidiary of Hubbell Corp. Revise MANU-SPEC section number and title below to suit project requirements, specification practices and section content. Refer to CSI *MasterFormat* for other section numbers and titles.

SECTION 02250 SHORING & UNDERPINNING

PART 1 GENERAL

1.01 SUMMARY

- A. Section Includes: Shoring and underpinning, including:
1. Foundation piles for new buildings.
 2. Remedial screw piles for foundation repair.
 3. Foundation stabilization.
 4. Retaining walls.
 5. Tieback systems.

Specifier Note: Revise paragraph below to suit project requirements. Add section numbers and titles per CSI *MasterFormat* and specifier's practice.

- B. Related Sections: Section(s) related to this section include:
1. Excavating (excavating to working level): Division 2 Earthwork Sections.
 2. Pile Load Tests (requirements for screw anchor load tests): Division 2 Piles Sections.
 3. Concrete Reinforcement (requirements for concrete reinforcement): Division 3 Concrete Sections.
 4. Cast-in-Place Concrete (requirements for concrete and placement of screw anchor) [Caps] and [Grade beams] Division 3 Concrete Sections.

Specifier Note: Retain paragraph below to suit project requirements. Coordinate with other Contract Documents.

- C. Unit Prices: Products and installation included in this section are specified by unit prices. Refer to Division 1 Unit Prices Section for unit prices amounts and requirements.

1.02 REFERENCES

- A. General: Standards listed by reference, including revisions by issuing authority, form a part of this specification section to extent indicated. Standards listed are identified by issuing authority, authority abbreviation, designation number, title or



other designation established by issuing authority. Standards subsequently referenced herein are referred to by issuing authority abbreviation and standard designation.

B. ASTM International:

1. ASTM A29/A29M Standard Specification for Steel Bars, Carbon and Alloy, Hot-Wrought and Cold-Finished, General Requirements for.
2. ASTM A36/A36M Standard Specification for Carbon Structural Steel.
3. ASTM A53 Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless.
4. ASTM A153 Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware.
5. ASTM A193/A193M Standard Specification for Alloy-Steel and Stainless Steel Bolting Materials for High-Temperature Service.
6. ASTM A252 Standard Specification for Welded and Seamless Steel Pipe Piles.
7. ASTM A320/A320M Standard Specification for Alloy/Steel Bolting Materials for Low-Temperature Service.
8. ASTM A500 Standard Specification for Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes.
9. ASTM A572 Standard Specification for High-Strength Low-Alloy Columbium-Vanadium Structural Steel.
10. ASTM A618 Standard Specification for Hot-Formed Welded and Seamless High-Strength Low-Alloy Structural Tubing.
11. ASTM A656 Standard Specification for Hot-Rolled Structural Steel, High-Strength Low-Alloy Plate with Improved Formability.
12. ASTM A1018 Standard Specification for Steel, Sheet and Strip, Heavy Thickness Coils, Hot Rolled, Carbon, Structural, High-Strength Low-Alloy, Columbium or Vanadium, and High-Strength Low-Alloy with Improved Formability.

C. Society of Automotive Engineers (SAE):

1. SAE J429 Mechanical and Material Requirements for Externally Threaded Fasteners.

1.03 DEFINITIONS

- A. Screw Anchor: The AB Chance HELICAL PIER Foundation Systems consist of steel screw anchors with 1 or more true-helix shaped steel plates attached to a central steel shaft. Extend anchors by adding shaft extensions.

1.04 SYSTEM DESCRIPTION

- A. Design Requirements: Design screw anchor application by a certified AB Chance dealer or designer, or a Professional Structural Engineer experienced in design of this work and licensed [At the place where the Project is located] [In the State of {Specify.}].

1.05 SUBMITTALS

- A. General: Submit listed submittals in accordance with Conditions of the Contract and Division 1 Submittal Procedures Section.
- B. Product Data: Submit product data, including manufacturer's SPEC-DATA™ product sheet, for specified products.
- C. Shop Drawings: Submit shop drawings showing profiles and product components, including anchorage and accessories.
- D. Quality Assurance Submittals: Submit the following:
1. Test Reports: Certified test reports showing compliance with specified characteristics and physical properties.
 2. Manufacturer's Instructions: Manufacturer's installation instructions.
- E. Closeout Submittals: Submit the following:
1. Warranty: Warranty documents specified herein.
 2. Record Documents: Project record documents for installed materials in accordance with Division 1 Closeout Submittals (Project Record Documents) Section.
 - a. Accurately Record the Following: Type (number and size of helices) and size; actual locations of screw anchors, anchor diameter and anchor length, installation angle below horizontal; extension length along shaft and datum; anchor testing (if required); torque installation records on all screw anchors and torque monitoring calibration data.

1.06 QUALITY ASSURANCE

- A. Installer Qualifications: Installer experienced in performing work of this section who has specialized in installation of work similar to that required for this project.
 - 1. Installer: [Certified AB Chance dealer] [Installer Company specializing in performing the work of this section] with documented certification.
- B. Preinstallation Meetings: Conduct preinstallation meeting to verify project requirements, substrate conditions, manufacturer's installation instructions and manufacturer's warranty requirements. Comply with Division 1 Project Management and Coordination (Project Meetings) Section.

1.07 WARRANTY

- A. Project Warranty: Refer to Conditions of the Contract for project warranty provisions.
- B. Manufacturer's Warranty: Submit, for Owner's acceptance, manufacturer's standard warranty document executed by authorized company official. Manufacturer's warranty is in addition to, and not a limitation of, other rights Owner may have under Contract Document.

Specifier Note: Coordinate paragraph below with manufacturer's warranty requirements.

- 1. Warranty Period: [Specify term.] years commencing on Date of Substantial Completion.

PART 2 PRODUCTS

Specifier Note: Retain article below for proprietary method specification. Add product attributes, performance characteristics, material standards and descriptions as applicable. Use of such phrases as "or equal" or "or approved equal" or similar phrases may cause ambiguity in specifications. Such phrases require verification (procedural, legal and regulatory) and assignment of responsibility for determining "or equal" products.

2.01 SHORING & UNDERPINNING

- A. Manufacturer: AB Chance Company, a subsidiary of Hubbell Power Systems, an ISO 9001 company.

Specifier Note: Paragraph below is an addition to CSI *SectionFormat* and a supplement to MANU-SPEC. Retain or delete paragraph below per project requirements and specifier's practice.

- 1. Contact: 210 North Allen St., Centralia, MO 65240; Telephone: (573) 682-8414; Fax: (573) 682-8660; E-mail: hpscontact@hps.hubbell.com; Web site: www.abchance.com.

- B. Proprietary System: AB Chance HELICAL PIER Foundation Systems.

2.02 PRODUCT SUBSTITUTIONS

- A. Substitutions: No substitutions permitted.

2.03 MANUFACTURED COMPONENTS

Specifier Note: The following paragraphs specify materials used to manufacture components that are supplied by the manufacturer. Size and strength rating are determined by the application. Edit accordingly.

- A. Components:
 - 1. Screw Anchor Plate:
 - a. 5500 ft/lb (760 kg/m) Anchors: Low-carbon steel meeting the general requirements of AISI, or ASTM A572, ASTM A1018 or ASTM A656.
 - b. 7000 and 10,000 ft/lb (968 and 1383 kg/m) Anchors: Hot rolled steel per ASTM A656 or ASTM A1018.
 - c. 11,000 ft/lb (1521 kg/m) Anchors: Low-carbon steel meeting the general requirements of AISI, or ASTM A36, ASTM A572, ASTM A656 or ASTM A1018.
 - d. 15,000 ft/lb (2074 kg/m) Anchors: Hot rolled steel per ASTM A656 or ASTM A1018.
 - 2. Screw Anchor Shaft:
 - a. 5500 ft/lb (760 kg/m) Anchors: Medium-carbon round-cornered square steel bar meeting dimensional and workmanship requirements of ASTM A29.

- b. 7000, 10,000 and 15,000 ft/lb (968, 1383 and 2074 kg/m) Anchors: High strength, low-alloy round-cornered square steel bar meeting dimensional and workmanship requirements of ASTM A29.
- c. 11,000 ft/lb (1521 kg/m) Anchors: 3 1/2 inches and 8 5/8 inches (89 and 219 mm) OD steel tube or pipe, seamless or straight welded, ASTM A53, ASTM A252, ASTM A500 or ASTM A618.
- 3. Bolts:
 - a. 5500 and 7000 ft/lb (760 and 968 kg/m) Anchors - Bolts: ASTM A320, Grade L7.
 - b. 10,000 ft/lb (1383 kg/m) Anchors - Bolts: ASTM A193, Grade B7.
 - c. 11,000 ft/lb (1521 kg/m) Anchors - Bolts: SAE J429, Grade 5.
 - d. 15,000 ft/lb (2074 kg/m) Anchors - Bolts: ASTM A193, Grade B7.
- 4. Steel Bracket:
 - a. Lifting Bolts: SAE J429, Grade 5.
 - b. Cross Bolts: SAE J429, Grade 5.
- 5. Steel Bracket:
 - a. Bracket Body: Hot rolled steel, ASTM A36, ASTM A635 or ASTM A1018.
 - b. Pipe Assembly: Steel tubing, ASTM A500.

2.04 SOURCE QUALITY

- A. Source Quality: Obtain proprietary sharing and underpinning products from a single manufacturer.
- B. Tests, Inspections: [Specify tests, inspections and other source quality requirements.].
- C. Verification of Performance: [Specify applicable performance verification requirements.].

PART 3 EXECUTION

Specifier Note: Article below is an addition to the CSI *SectionFormat* and a supplement to MANU-SPEC. Revise article below to suit project requirements and specifier's practice.

3.01 MANUFACTURER'S INSTRUCTIONS

- A. Compliance: Comply with manufacturer's product data, including product technical bulletins.

3.02 PREPARATION

- A. Preparation: [Specify applicable product preparation requirements.].
 - 1. Use placement method that will not cause damage to nearby structures.
 - 2. Prepare to place piles from [Existing site elevations] [Excavated working elevation].

Specifier Note: Coordinate article below with manufacturer's recommended installation details and requirements.

3.03 INSTALLATION

- A. HELICAL PIER Installation: Installation by certified installer or dealer.
 - 1. Provide installation torque units, rotary type, forward and reverse capability, electric or hydraulic powered. Capable of positioning the screw anchor at the designed angle. Minimum drive equipment rating to equal or exceed the maximum torque rating of the specified screw anchor. Provide torque monitoring device as part of the installing unit or as a separate in-line device. Make available calibration torque monitoring data for Architect, Inspector or Owner.
 - 2. Position screw anchor as indicated. Establish proper angular alignment at the start of installation.
 - 3. Connect the installation unit to the anchor with manufacturer's approved adapters. Provide safe and secure connection to screw anchors and extensions. Apply sufficient downward pressure to advance anchor. Install in a smooth and continuous manner, rate of anchor rotation 5 - 20 rpm.
 - 4. Monitor torque applied by the installing unit during the entire installation, and record values achieved on each screw anchor. Remove encountered obstructions, or relocate screw anchor and adjacent anchors as required.
 - 5. Provide extension material to obtain indicated depth, couple with bolts provided as part of extension; torque to 40 ft/lb (5.5 kg/m). Install to minimum depth indicated. Provide ground cover, 5 feet (1.5 m) minimum, above the top helix.

Obtain written permission from Architect/Engineer before proceeding if indicated depth or minimum torque cannot be obtained.

6. Connect screw anchor to the structure; use manufacturer approved steel bracket or approved reinforced steel concrete haunch.
- B. Depth and Torque Tolerances: Screw anchors that reach maximum torque rating before reaching minimum indicated depth shall be subject to the following:
1. Terminate at depth obtained with written approval of Architect/Engineer.
 2. Replace screw anchor with smaller and/or fewer helices, installed 3 feet (0.9 m) minimum beyond termination of original screw anchor.

3.04 FIELD QUALITY REQUIREMENTS

- A. Site Tests: Monitor torque applied by the installing units during the entire installation.
- B. Inspection: Field inspection [And] testing when required will be performed under provisions of Division 1 Testing Requirements.

3.05 PROTECTION

- A. Protection: Protect installed product from damage during construction.

END OF SECTION