

# HELICAL PIER® Foundation Systems

U.S. Patents 5,011,336; 5,120,163; 5,213,448



*A Solid Foundation Solution*®  
For Homeowners



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**CHANCE**

**SPEC DATA**  
PROGRAM PARTICIPANT

**BOCA**  
**ES**  
Report No. 94-27

**RADCO**  
CERTIFICATION • LISTING  
TESTING • INSPECTION  
I.C.B.O. Listed  
Report No. ER5110

**LISTED**  
SBC  
PSTAES  
Report No. 9504



A. B. CHANCE COMPANY,  
HUBBELL POWER SYSTEMS  
Certificate Number 001136  
SIC Numbers 3499, 3429, 5063  
Original Registration: July 1, 1992  
Current Registration: Oct. 23, 2003

This product was manufactured in a plant whose Quality Management System is certified/registered as being in conformity with ISO 9001:2000.

See our catalog in Sweet's,  
on Sweet's CD  
and website,  
McGraw-Hill, Inc.

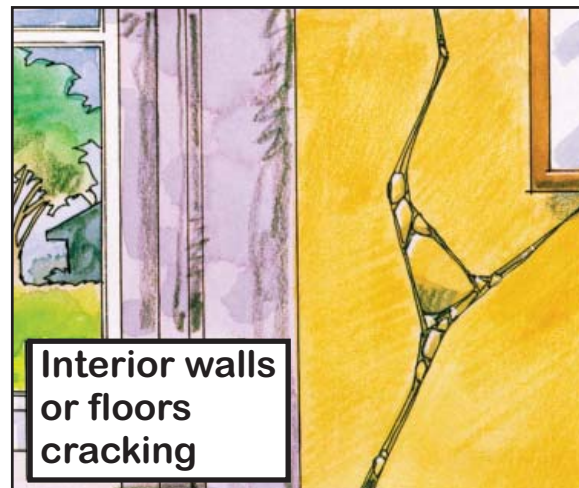
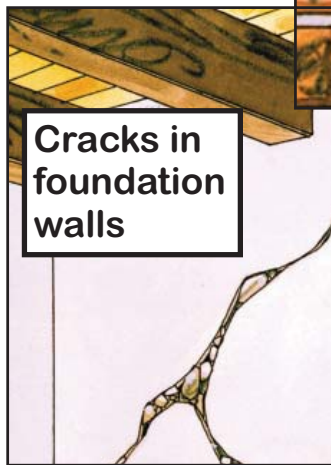
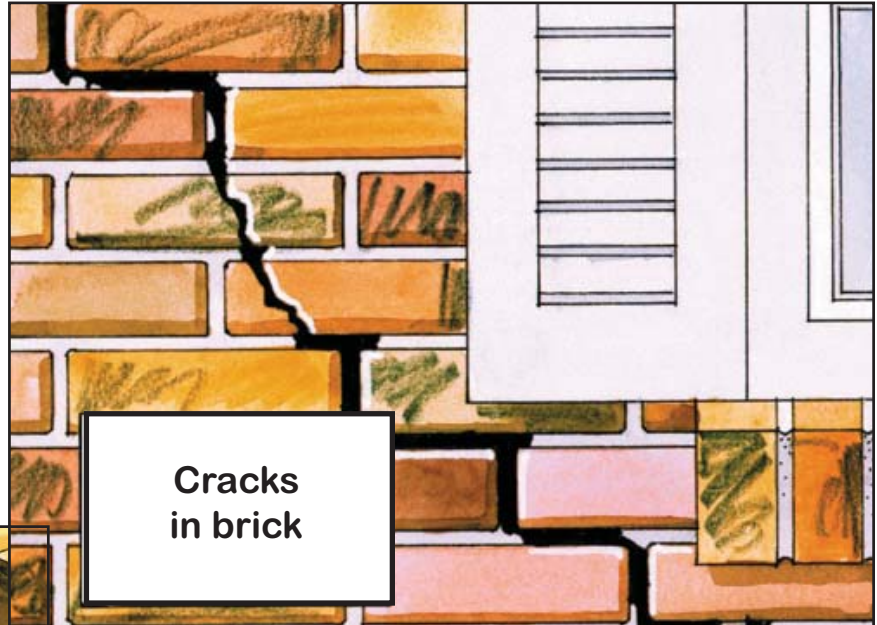


# The damaging effects of foundation settling

**S**inking foundations, cracked and buckled walls and uneven floors are problems commonly faced annually by some quarter-million homeowners. Homes and other structures situated on unstable soils settle when their foundations are subjected to extreme moisture conditions or lack proper drainage. A shifting foundation may result in structural damage to your home and a loss of your investment.

## Indications of foundation settling problems include:

- Foundation walls that are buckled or bowed
- Doors and windows that stick or don't open properly
- Cracks in foundation walls
- Cracks in exterior walls
- Cracks in interior walls and ceilings
- Sunken or buckled interior concrete floors



# Stop the damage with HELICAL PIER Foundation Systems

**C**hance HELICAL PIER® Foundation Systems offer a technically superior and cost-effective alternative to other remedial systems. Our patented stabilizing system is backed by more than 80 years of structural engineering experience. The concept is founded on the principle of turning a screw anchor into stable subsoil strata until the torque applied indicates that the necessary load capacity has been achieved. Adjustable brackets are then attached to the base of your foundation walls, connecting the screw anchors to the foundation. The weight of your home is then shifted to the screw anchors. In the process, foundations, walls and floors are repositioned and retained from further movement.

This innovative system contrasts with other methods which use the structure's weight to force pipes down into the ground. Pipe-pile or skin-friction systems (without helix plates on the shafts) can involve costly and time-consuming construction methods. Due to the extensive excavation they require, site features such as walkways and landscaping are often disturbed.

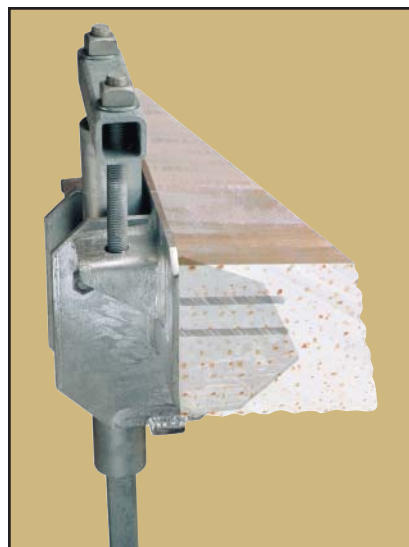
HELICAL PIER foundation systems may be installed only by contractors who have been certified by the Chance Company. The load-bearing steel shafts are screwed into the ground independent of the structure and their bearing or holding capacity is verified as the system is installed.

## HELICAL PIER foundation systems advantages

- A time-proven, versatile and technically sound system
- Lower cost — both for the system and its installation
- Faster installation than other methods
- Very limited excavation — site is minimally disturbed
- No heavy equipment required
- Installs in limited-access areas
- Used in new home construction to enhance foundation strength on sites with poor soil conditions



Placing a twin-helix anchor



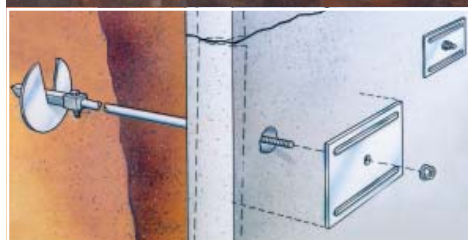
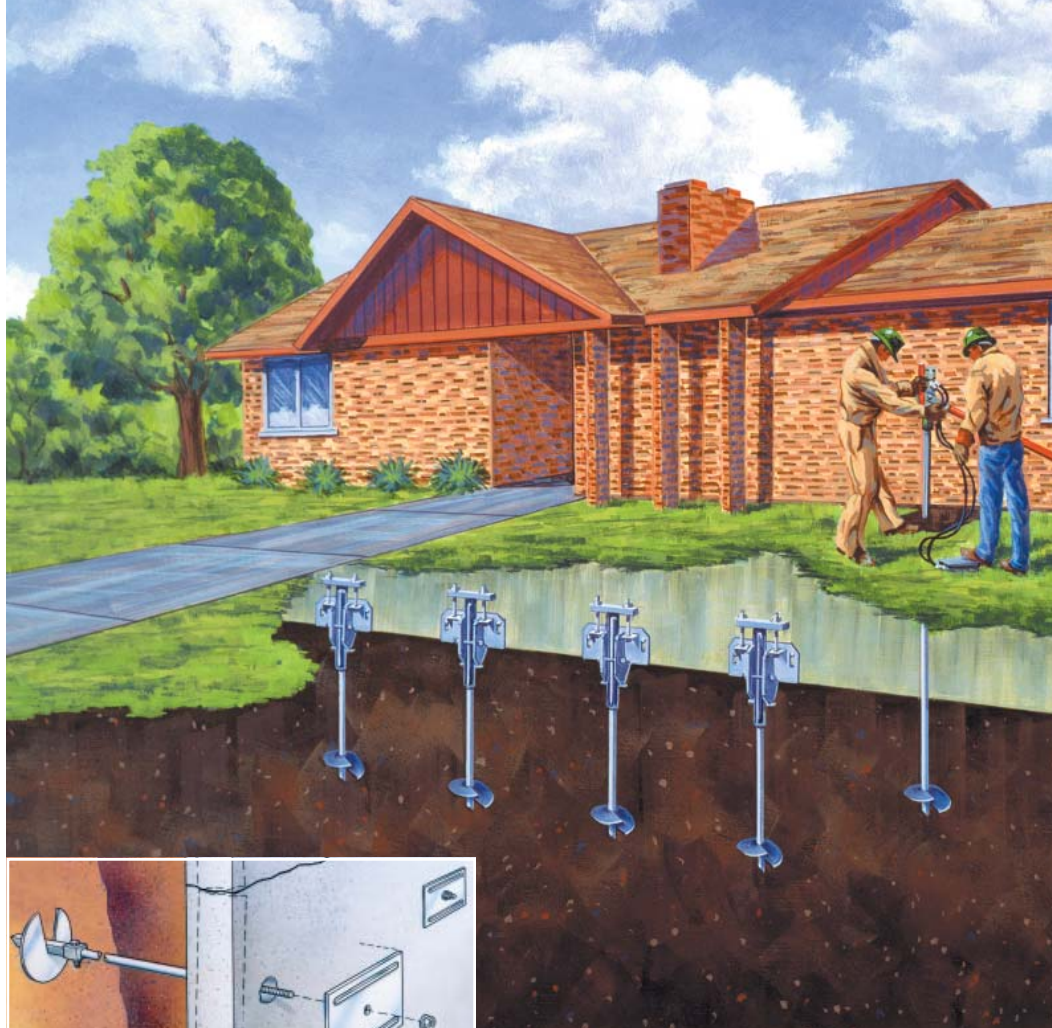
Adjustable bracket installed on screw anchor shaft

# HELICAL PIER foundation systems installation procedure

**W**hen you select Chance HELICAL PIER foundation systems to remedy your foundation problems, a dealer certified by the Chance Company will visit your home to inspect your foundation and determine installation requirements. The dealer will prepare an installation design based on your home's damage and weight and local soil conditions. The design analysis will address the size, position and load requirement for each anchor. Then the dealer will give you a price quotation and time estimate for the HELICAL PIER foundation systems installation.

Following the design specifications, the contractor will excavate down to the footing at each anchor location. A notch will be chipped out of the footing to accommodate a support bracket. A high-torque hydraulic drive head will screw the anchors into stable subsoil until the prescribed depth is reached. A steel L-shaped bracket placed on top of each anchor shaft will connect to the base of the foundation wall. The weight of your home then will be transferred to the HELICAL PIER foundation systems by a calculated procedure of hydraulic jacking and adjustment of the brackets. Finally, all excavation will be backfilled.

Settling, cracked or bulging concrete floors are also the result of soil movement and are corrected in much the same way. An access hole is cut through the floor at the prescribed location. A screw anchor is inserted through the opening and screwed into stable subsoil. The top of the anchor is then fitted with a steel channel plate that spans the diameter of the hole. Screwing a bolt through the channel plate applies the load to the anchor shaft and the floor is raised. After the correction is made, the access holes are filled with concrete.



**To match individual requirements, HELICAL PIER foundation systems anchors and brackets are selected and spaced at proper intervals to support the loads specific to each home. Screw anchors or the DURA-GRIP® Wall Repair System also can tieback retaining and foundation walls.**

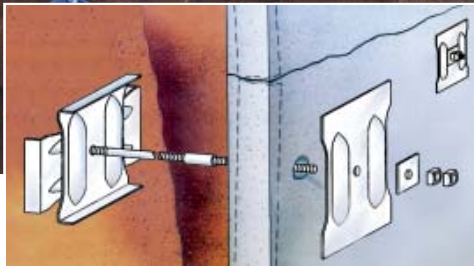
Buckled foundation walls are also stabilized by screw anchors. The contractor first carefully excavates a narrow trench outside, along the foundation wall, to relieve pressure and provide room for repositioning the wall. A small hole is drilled through the wall at the affected area. From inside, a steel shaft is inserted through the hole and a screw plate is attached outside. Then the contractor uses a drive motor to install the screw anchor to its proper depth. A ribbed steel plate positioned over the shaft protruding inside the wall is secured by a nut. Tightening the nut counteracts further movement and, in many cases, straightens the wall.



**Chipping notch out of foundation footing for bracket attachment**

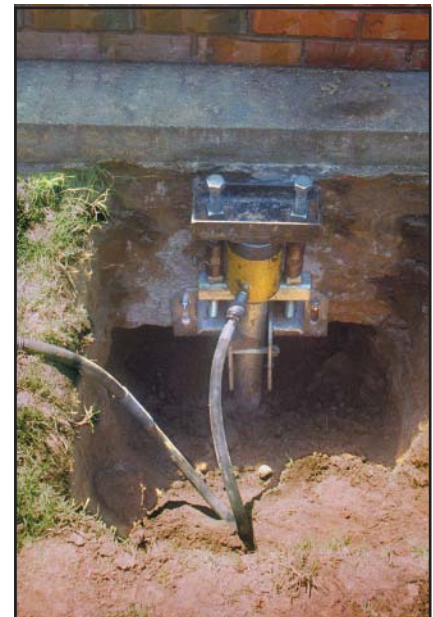


**HELICAL PIER foundation systems anchor installation by hand-held hydraulic driver**



on walls.

**Anchor shafts are cut off, then brackets are attached.**



**Hydraulic jack pushes down on HELICAL PIER foundation systems anchor shaft and up on foundation held in bracket. After jacking, nuts on top of T-pipe secure the load. Then, jack and plate above are removed to complete installation.**



**Completed HELICAL PIER foundation systems anchor and bracket**

# Hardware for HELICAL PIER Foundation Systems

**P**ower-installed screw anchors have proven to be a reliable and economical advancement in foundation technology. Chance HELICAL PIER foundation systems anchors and related hardware are available in a wide range of sizes to meet many job applications. Chance also offers such unique product resources as:

- Training and field supervision of certified installers
- Geotechnical engineering guidance for any job
- Computer-assisted design capability through interactive software programs and a field manual bringing design theory to practical field application

The system components include solid-steel shafts of round or square configuration to most economically meet any design-load requirement. The standard underpinning bracket typically comes complete with the hardware required for assembly to the HELICAL PIER foundation systems anchor shaft. The lifting assembly, consisting of the underpinning bracket and jacking tool, is designed to lift with hydraulic jack assistance.

Hardware is also available for specialized applications, such as the Uplift bracket for seismic conditions, as well as a variety of extensions, adapters, wall anchor kits and slab-repair brackets.



## Light Duty Bracket

Primarily for correcting sagging lesser loads, affordable “quick fix” outlasts the porches, stairways, decks and patios it repairs.



## Standard Duty Bracket

Applied in multiple locations along the foundation to stabilize and correct problems caused by poor soil conditions.

For seismic uplift loads, the Uplift Restraint Bracket may be added.



## Heavy Duty Bracket

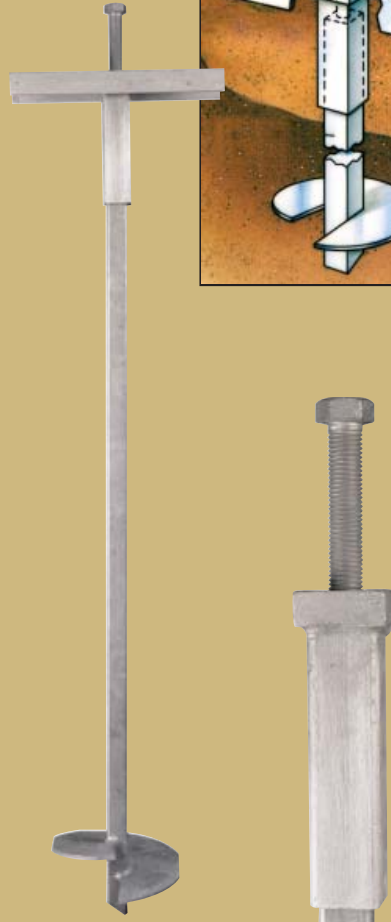
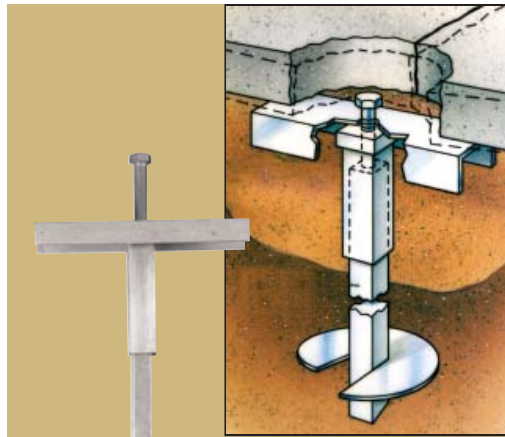
For such higher loads as commercial buildings and larger residences. Applied in multiples to stop settled areas, resist new movement.

**All components are hot-dip galvanized to increase product life in aggressive soils.**



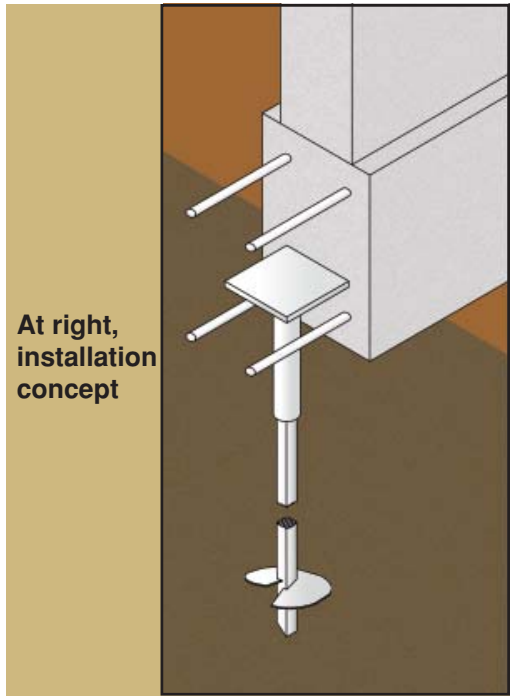
## Uplift Restraint Bracket

For seismic conditions and to resist other upward forces. Shown as applied, assembled to top of Standard-Duty Bracket.



## Slab Bracket

For stabilizing uneven or damaged floors. Bolt adjusts through cap fitting on top of anchor so channel lifts floor.



At right, installation concept

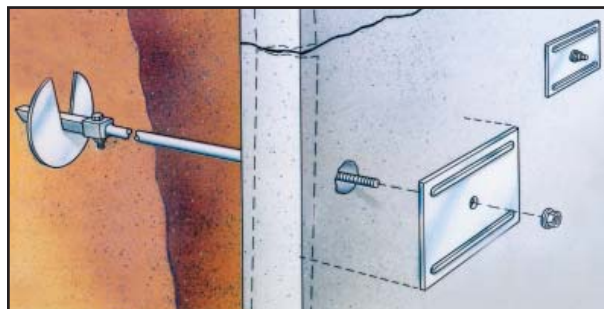


## New Construction Bracket

For support of new structures. Placed on foundation anchors installed between footing forms and tied to reinforcing bars before pouring concrete.

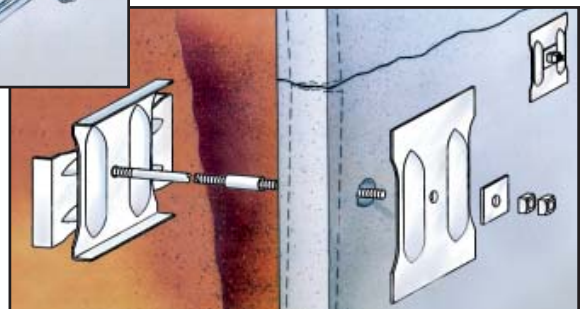
## Wall Anchors

To restrain movement in foundation walls. Through a hole drilled in wall, a rod threads into an anchor plate installed into the soil bank. A ribbed retainer plate and a nut secure the rod inside the wall. Either of two methods may be used to stabilize, or often to straighten, failing walls.



At left, screw anchors tieback retaining and foundation walls.

**DURA-GRIP® Wall Repair System**  
cross plate anchors tieback retaining and foundation walls.

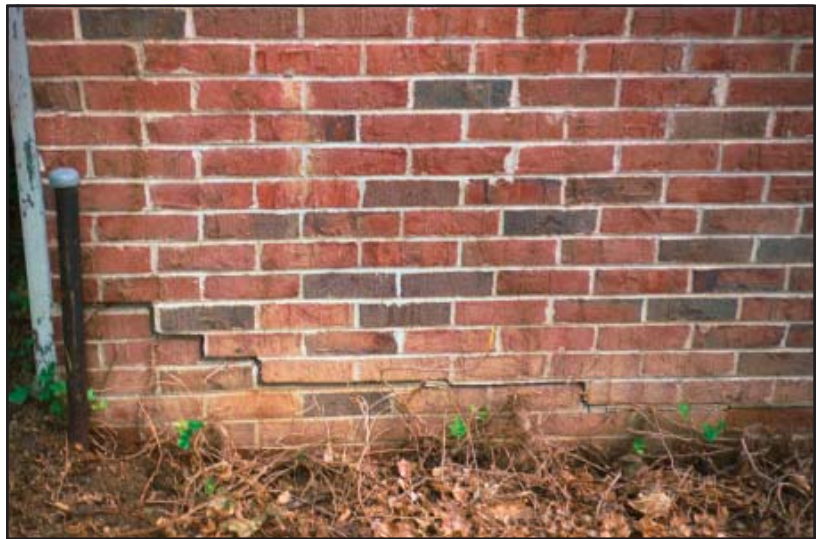


# The proven and reliable system for correcting foundation problems

**T**he solution to your foundation problems comes from the world leader in screw anchor development.

Chance anchoring systems, widely used since 1907 in thousands of construction projects, brings the finest in materials, service and quality to your foundation.

All dealer/representatives are thoroughly trained and certified in installation procedures and are supported by the extensive technical-support services of Chance.



**Before** Typical "stairstep" cracks in mortar indicate the deeper cause . . . foundation settling problems.



**After** HELICAL PIER foundation systems stopped the foundation from sinking. Mortar repairs now will have a chance to last, too.

DISCLAIMER: The material presented in this bulletin is derived from generally accepted engineering practices. Specific application and plans of repair should be prepared by a local structural/geotechnical engineering firm familiar with conditions in that area. The possible effects of soil (such as expansion, liquefaction and frost heave) are beyond the scope of this bulletin and should be evaluated by others. Chance Company assumes no responsibility in the performance of anchors beyond that stated in our SCS policy sheet on terms and conditions of sale.

NOTE: Because Hubbell has a policy of continuous product improvement, we reserve the right to change design and specifications without notice.



# CHANCE<sup>®</sup>

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