

A CASE HISTORY

Project: Chandler Residence Bahia Bay, TX	Engineer: Ronald Voss, P.E. Corpus Christi, TX	General Contractor: Haristan Homes, Inc. Rockport, TX	Foundation Contractor: Torq Teq, Inc. Montgomery, TX
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Job Description:

A two-story contemporary home was to be built on a lot overlooking the intercoastal waterway on the Gulf of Mexico. The Building Code required the structure be elevated 10 feet above ground level and be designed to withstand 115 mph winds.

Bulkheads bordered three sides of the lot. A soil test boring revealed a stratum of loose fine sand to a depth of 23 feet, then medium-dense to dense fine sand from 23 to 55 feet. “N” values within these sands ranged from 19 to 38 blows per foot. These soils were non-plastic with shell fragments throughout the 55-foot depth. Ground water was constant at a 6-foot depth.

Specified Solution:

To resist vertical-compression design loads ranging from 3,500 to 14,800 pounds, 27 square-steel-shaft Chance HELICAL PIER® Foundation Systems anchors were specified. Each was placed at a support column location on the grade beam. A vertical-compression design load was given for each column.

In one and a half workdays, the foundation anchors were installed to depths as much as 28 feet by an Eskridge 6,000-ft.-lb. drive head on a 960 Mustang skid loader. To ensure desired load capacities, installation torque was monitored at 1-foot intervals. Each anchor was terminated with a 5-inch-square plate welded to the shaft.



Superstructure:

To connect the support columns with reinforcing steel to the 24-inch-deep grade beam, an 18-inch-diameter fiber tube was placed around each anchor shaft from a depth 2 feet below grade to the 10-foot elevation required for the first-floor joists. Hence, a concrete column terminated and extended each

anchor to the house.

Lateral loads are resisted in the design by the concrete slab-on-grade parking area below the house and the skin friction and passive-soil pressure on the grade beam. The overturning moment is resisted in bearing and side friction on the grade beam.