

ASSISTED LIVING FACILITY THREATENED BY

# FOUNDATION SETTLEMENT

**435**  
HELICAL  
PILES  
INSTALLED

COMMERCIAL

**STRAIGHT LINE CONSTRUCTION**

[www.straightlinepier.com](http://www.straightlinepier.com) | 719-545-9942

Pueblo, Colorado





## 435 HELICAL PILES FOR ASSISTED LIVING FACILITY

PUEBLO, COLORADO

The Bonaventure Assisted Living Facility in Pueblo, Colorado contacted Straight Line Construction in 2016 to provide a solution for an existing column. In 2017, the owner of the facility reached out again after observing additional signs of foundation distress on the building's exterior. Floor level surveys and visual observations pointed to the culprit: settlement of the surficial soils.

### PROBLEM

With anywhere from 7 to 35 ft. of clay soils over claystone bedrock, the ground loses significant strength when moisture content increases. The upper-level clay is mapped as being in the Piney Creek Alluvium formation. For the Bonaventure Assisted Living Facility, the distress and movement came from soil settlement. The foundation had settled up to six inches in certain areas.



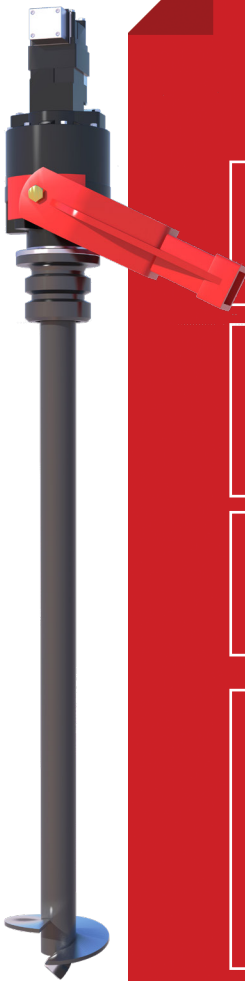


**PROPOSED SOLUTION**

Straight Line Construction worked with Chrisman Engineering, Inc. to propose the solution: underpinning the building with the use of helical piles. Ram Jack's 2-7/8 in. piles with a single eight-inch helix on the lead section were chosen for installation around the exterior foundation as well as the interior grade beams at approximately four-foot centers. The piles were designed for a capacity of 25 kips and are being used in conjunction with 3½ in. guide sleeves and underpinning brackets to provide the required structural capacity. The interior piles required the use of hand-tools for installation to place them in the desired locations. Straight Line Construction also installed 12 micropile tiebacks to provide additional lateral resistance for the structure. The tiebacks were installed between pairs of existing helical piles and utilized channel steel and custom bearing plates in conjunction with additional vertical helical piles to provide support.

**OUTCOME**

With the installation of the helical and micropiles, the Bonaventure Assisted Living Facility foundation achieved maximum practical recovery. Due to interior pile installation requiring the selective removal of floor coverings, the first floor of the affected wing of the building remained unoccupied during installation. Thanks to Ram Jack's care, however, the rest of the facility remained operational throughout the process.



**INSTALLATION OVERVIEW**

**COMMERCIAL INSTALLATION**  
STRAIGHT LINE CONSTRUCTION

**PRODUCTS USED**  
2 7/8" HELICAL PILES

**PRODUCT TYPE**  
REMEDIAL HELICAL PILES

**TYPICAL APPLICATIONS**  
Ram Jack's 2 7/8" external connection helical piles are typically used in compression and tension applications.

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# Custom Engineered Solutions Rooted in Quality.



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At Ram Jack®, we are focused on providing custom-engineered solutions that meet the unique needs of our commercial clients. You can move forward with confidence knowing we maintain code compliance, providing piles and brackets that reach the highest rating among competitors' products recognized by ESR-1854. Our company has the most products recognized by the ICC and boast an ISO 9001:2015 certified manufacturing facility.

We have the facility to design and fabricate custom products—we are the one-stop solution for engineers and even offer our own in-house engineers for assistance with your project. If you need assistance with foundation designs, we also provide engineer tools and resources and our engineers can work with the project's EOR to develop a custom-designed solution.



## Everything an Engineer Needs

The Ram Jack Technical Manual provides engineers with the information that you will need to understand, design, and specify Ram Jack's helical and driven piles. It also provides information verifying compliance with current building codes and ICC-approved acceptance criteria.

Everything an engineer could ever want and need to know about Ram Jack Helicals and Driven Piles in one book. If you or your firm would be interested in a Ram Jack Technical Manual, please contact your local Ram Jack dealer by emailing [info@ramjack.com](mailto:info@ramjack.com).



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