



**RAM JACK**<sup>®</sup>

# 2014 CASE STUDY

Type: Commercial | Issue: AL201402

## RAM JACK TRANSFORMS THE HALLS OF JUSTICE

Custom Brackets and Triple-Helix Configurations  
Preserve the Structural  
Integrity of a Historic Courthouse

RAM JACK LOCATION:

### Alabama Ram Jack

[www.aramjack.com](http://www.aramjack.com) | 877-875-2171

Bessemer, AL

# LIMESTONE COUNTY COURTHOUSE | REPAIR

Athens, Alabama

CASE STUDY 2014



The Limestone County Courthouse is a beautiful, historic building that not only represents justice and peace, but also the heart of the South in Athens, Alabama. With a beautiful stairway leading to a decadent entry surrounded by ornate columns and a clock for all to see, it looks more like a museum than a public office.

## **PROBLEM**

While the 1919 construction had a gorgeous exterior, the interior was in need of updates, which included removing interior walls and enlarging interior rooms. In order to provide adequate support to the structure after the remodel, increased foundational support was required.

### PROPOSED SOLUTION

Alabama Ram Jack proposed the installation of a system of helical piles to support the new footings inside the building. A subsurface investigation was not necessary, and it was assumed that the underlying ground was stiff. The project specifications assumed that the helical piles would be only 6 ft. long and that Ram Jack's industry-leading 2 7/8 in. helical piles would suffice. In addition, the plans specified that constant third-party inspections would take place during the entire process of installation.



### OUTCOME

After demolition, Alabama Ram Jack faced a number of obstacles with the courthouse, including excessively deep and wide existing footings as well as an extensive system of interior shoring that limited the available space for helical pile installation. Additionally, Alabama Ram Jack could not use mechanical equipment inside the historic structure; therefore, all piles were installed using handheld drivers. After the first pile reached bedrock at a depth of 31 ft. without generating significant torque, it was clear that the soil was not as stiff as originally anticipated.

Alabama Ram Jack quickly dealt with each of the obstacles to complete the job effectively and efficiently. First, Ram Jack supplied custom, heavy-duty, fold out brackets in areas of need to provide added support to the structure. Next, Ram Jack used a triple 8"/12"/14" helix configuration strategically spaced to ensure the building was supported prior to the piles reaching bedrock. Ram Jack Manufacturing supplied custom brackets along with the large helical assemblies, and Alabama Ram Jack installed sixty-one (61) piles to an average depth of 24 ft. in just 14 working days. The remodel was completed successfully, and the historic building's structural integrity was restored.



- Engineered Foundation Solutions
- Products Manufactured in the USA
- 50+ Locations Nationwide



Recognized as Code Compliant to Meet International Building Codes



# HELICAL PILE DESIGN SOFTWARE: FOUNDATION SOLUTIONS™

**Project :: /Ram Jack Distribution / Proposed Building Addition::**

**Soil Profile**

Profile	Maximum Depth	Depth of Ground Water Table		
AC				
1	Clay	0	200	0.8
2	Clay	11	275	0.8
3	Clay	11	1025.5	0.8
4	Clay	10	1142	0.8
5	Clay	12	12	0.8
6	Clay	12	12	0.8
7	Clay	12	12	0.8
8	Clay	12	12	0.8
9	Clay	12	12	0.8
10	Clay	12	12	0.8

**Project Data**

Ram Jack Specialist  
Soil Profile  
**Piles / Anchor Data**  
Calculations  
Shared Users  
Back

**Anchors**

Anchor Information

Lead Shaft (OD) (Inches) 2-7/8    Lead Shaft Length (ft) 15    Extension Shaft OD (Inches) 2-7/8

Shaft Thickness 0.217    Yield Strength 45    Tensile Strength 55

**Geometric Data / Back Slope**

Anchor Installation Degree 90    Pile Head Position

X-AXIS 0    Y-AXIS 0

Calculation Box Options

**Estimated Pile Capacity:**

**Compression Results**

Allowable Frictional Resistance:	9.08	kip
Allowable End Bearing Capacity:	25.92	kip
Allowable Pile Capacity:	35.0	kip
Appr. Pile Embedment Depth:	42	ft
Required Min. Installation Torque:	7800	ft-lbs

**NOTE:** The reported "Appr. Pile Embedment Depth" value to realize the required capacity is based on the assumed soil conditions and is not to be used for construction without approval otherwise by a licensed professional engineer.

## Create Profiles

- Simulate soil profiles, including peat
- Anchors with varying diameter and helix configurations
- Vertical/battered/tie-back pile design
- Custom pile design

## Mobile-friendly

- Web-based software
- Use anywhere, anytime
- Tablet and PC-friendly

## Share & Report

- PDF output for submittals
- Share projects with other registered users

[www.ramjack.com/FoundationSolutions](http://www.ramjack.com/FoundationSolutions)

888-332-9909



**RAMJACK**