



HOME BUILT ON 20 FEET OF PEAT FAILS DURING CONSTRUCTION!

Atlas Piers™ PROVIDE RECOVERY AND MEASURED FOUNDATION SUPPORT

Carmel, Indiana

CASE STUDY IL590-6-0002

DESCRIPTION

OF THE PROBLEM:

The building began showing signs of structural distress soon after construction began. The basement floor slab exhibited significant movement. A fracture in the basement floor was noted approximately 4 to 6 feet from the perimeter wall. The floor sloped downward from the crack to the perimeter walls. Most of the movements occurred on the exterior walls of two sides of the building, but the engineers predicted the entire structure was at risk.



BUILDING DESCRIPTION:

The structure is a newly built two story wood frame, brick veneer residence that measures approximately 66 by 44 feet. The house was supported upon an eight-inch thick cast-in-place concrete footing. The basement walls were cast of concrete 8 inches thick.

SITE CONDITIONS:

General grades across the site dropped toward the rear approximately five feet. Borings were made on the site. The borings revealed sandy or silty clay fill to a depth of 11 feet. Under this was a 20-foot layer of peat and organic clayey silt! Beneath the organic soils were silty sands, sandy silt, sand and clayey silt. Much of the peat was very loose. Standard Penetration Tests of the peat were impossible as the weight of hammer (WOH) pushed the sampler over one foot. The organic clayey silt was very soft with unconfined compressive strengths of less than 500 psf. Groundwater was at 13 feet.

PROJECT SUMMARY

Engineering By:	ETS Geotechnical, Environmental & Material Consultants, Inc.
Installed By:	Atlas Restorations, Inc.
Qty 2-Piece Piers:	52
Qty Slab Piers:	34
Product Description:	AP2P-4000.219 (4" dia. 2-Piece Pier) AP2P-4500.238 (4-1/2" dia. 2-Piece H.D. Pier) AP-SPA(PA)-3500.160 (3-1/2" dia. Slab Pier)
Avg. Pier Depth:	24 - 38 feet
Avg. Driving Force:	37,000 pounds

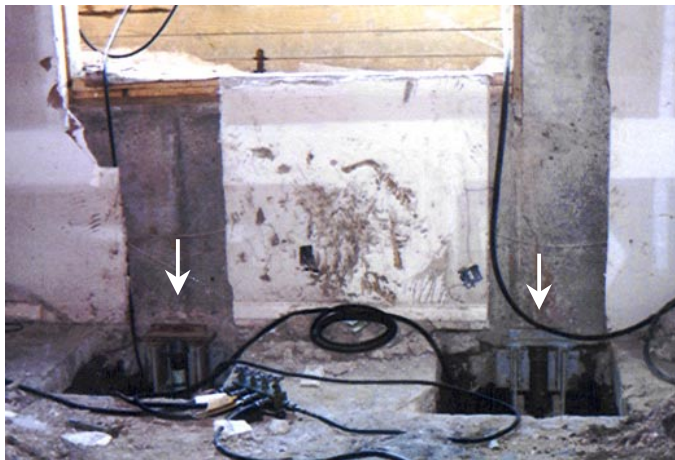
THE PLAN:

The engineer specified **Atlas 2-Piece Resistance™ Piers** to be installed on the perimeter. This layout would completely support the foundation to firm bearing, far below the problem soils. **Atlas Resistance™ Slab Piers** supported the interior column foundations.



These photographs show the **Atlas 2-Piece Resistance Piers** installed along internal basement walls. Each pier was driven to a suitable bearing stratum below the poor soil. After reaching refusal, each pier was individually tested to a load

greater than the force required to support the foundation. To restore the structure closely to the original elevation, 25-ton hydraulic rams were positioned on each Pier and manifold assemblies were used to distribute the load equally to each Pier.



SUCCESS!

The **Atlas Resistance Piers** were installed using quiet, vibration free hydraulic equipment. Each pier was driven to a suitable bearing stratum using portable equipment. The building structure was used as reaction to the driving force. Technicians carefully recorded the installation forces involved at regular intervals.

The interior columns were supported and restored using **Atlas Resistance Slab Piers**. The Piers were easily and quickly installed through holes drilled through the concrete slab and footing. **Rapid Foundation™ Repair** allowed house construction to resume!



The photograph at left shows lifting the floor and a column using four **Atlas Resistance Slab Piers**. Below each circular Lifting Plate was a 25-ton hydraulic ram. Once the desired elevation was achieved, nuts below the ram were tightened to transfer the load to the Pier. After load transfer, the rams and Lifting Plates were removed and the holes repaired.