

A CASE HISTORY

Warehouse foundation settlement recovered 22 inches

Job Description:

Operations at this warehouse could not continue due to excessive floor deflections and from air infiltration. The building was found to have been constructed without adequate soil testing or foundation underpinning. After the structure began to settle, a geotechnical engineer was retained to analyze the soil on the site. He found areas of unstable organic material under the structure.



This is a view of the front of the structure. The loading dock shown here had settled 8 inches. Some areas at the right side of this building suffered settlement in excess of 22 inches!

Background Information:

The management and maintenance department of the company chose AtlasResistance® Continuous Lift Piers to solve the settlement and structural instability problems. Elevation measurements made prior to restoration revealed that the foundation settlement was 8 inches at the dock area and in excess of 22 inches along the side of the structure!



The photo above shows the right side being carefully and gently lifted. Note the hydraulic rams on each pier.

A load-bearing stratum was located at an average depth of 50 feet below the surface. The soil analysis reported that the soft organic material extended to a depth of 18 feet under parts of the

PROJECT SUMMARY

Number of Piers:	107
Part Numbers:	AP-CL-UF-3500.165 Pier AP-PPSP-4000.219 Sleeve
Avg. Pier Depth:	55 feet
Avg. Pier Load:	50,000 Pounds
Factor of Safety:	1.7 : 1 (Yield to Load)

structure. There was concern that the weak soil below the building may not provide adequate lateral support to the pier. To increase the moment of inertia (stiffness) of the piers in this weak material, four-inch diameter sleeves were installed over the pier pipes to a depth of 21 feet. The sleeve joints

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were staggered with the pier pipe couplings to enhance the strength of the couplings and the pier.



These photographs show the restoration process using Atlas Resistance® Continuous Lift Piers. The recovery at this point is approximately 50 percent. The tape measure at right shows a lift of approximately 11 inches.

Notice how the piers were all connected together by manifolds. Each hydraulic ram was actuated at the same time to provide a gentle, even lift.

