

## Model 288 Push Piers

**Project:** Fond du Lac YMCA  
**Location:** Fond du Lac, WI  
**Date:** September 2009

### Challenge:

The existing YMCA building was constructed in the 1970's and generally consists of 12-foot high by 12-inch thick poured concrete foundation walls with integral column supports, 17-inch thick spread footings, and a steel-framed superstructure. Construction of a new 14 million dollar addition began in 2009 to house a new child care area, locker rooms, workout studios, and swimming pool. The design of the addition added 160 kips of structural load to one of the existing building columns. Two options were considered to provide the necessary support of this column, helical piles and hydraulically driven push piers. Only smaller, portable or hand-held equipment could be used given the limited access both inside and outside the existing building. Hydraulically-driven push piers were selected due to the relative ease of installation over the helical piers and the ability to load test each pier during the installation process.

### Solution:

The pier design and layout consisted of six Foundation Supportworks Model 288 Push Piers, each designed to support 26.7 kips. Four piers were installed outside the existing building and two piers were installed inside the existing building. The pier locations were selected to provide balanced support for the proposed column load. The general contractor cut a four foot by eight foot opening through the interior floor slab and then excavated approximately four feet of soil to provide access to the footing. Test borings closest to the area of the proposed column support piers indicated competent soils at depths ranging from about 30 to 40 feet.

Foundation Supportworks of Wisconsin installed the six piers in two days to an average depth of 37.5 feet. The piers were driven to an average ultimate capacity of 57.2 kips, thereby providing a factor of safety of at least two. The ultimate driving pressure/load was held on each pier to monitor the pier for any creep movement. The drive pressure was released, all the piers connected in series, and a uniform seating pressure/load was applied.

## Project Summary

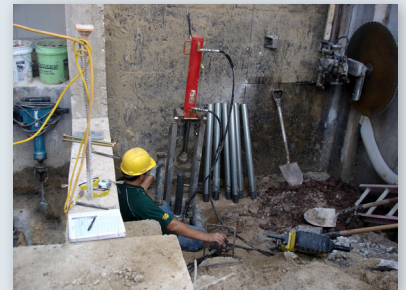
**Architect:** Zimmerman Architectural Studio, Inc.  
**Structural Engineer:** Harwood Engineering Consultants  
**Geotechnical Engineer:** Midwest Engineering Services  
**General Contractor:** CD Smith  
**Certified Installer:** Foundation Supportworks of WI  
**Products Installed:** (6) Foundation Supportworks™ Model 288 Push Piers



Limited access



Footing prepared and bracket set



Piers driven to stable soils



Installation pressure is logged for each pier



Piers are connected and seating load applied