

### Seven ECP PPB-300 Steel Piers™ Provide Foundation Support for Adjacent Excavations and Construction of an Addition



The home builder contacted Epp Concrete Construction, Inc. for a support solution for an existing two story brick home during a proposed addition that included a basement. The new home owner wanted the addition to have a nine foot deep basement, which created a structural support problem that had to be solved. The current structure was constructed on a four foot stem wall on an eight inch thick spread footing. To accomplish this project, five feet of soil would have to be excavated directly adjacent to the existing foundation. Without supplemental support for the existing footings, the structure could collapse.

Epp Concrete Construction, Inc. excavated the soil to the elevation of the existing footings. The supplemental support design called for seven PPB-300 ECP Steel Piers™ to be installed at eight feet on center in the area of the proposed addition. The existing footings were carefully notched to locate the pier bracket under the stem wall. The steel piers were driven to an average depth of 27 feet. One of the piers did not encounter suitable end bearing until reaching a depth of 42 feet.

The ultimate capacity of the Model PPB-300 pier system is 68,000 pounds assuming full lateral soil support on the pier pipe. The average proof test load placed on each steel pier to verify suitable end bearing support was 48,750 pounds. The estimated service load on the steel piers from the weight of the structure was 21,500 pounds.

Because five feet of exposed and unsupported pier pipe would occur during excavation buckling of the pier pipe was possible. The maximum allowable compressive load on the pier system with lack of lateral support on the pipe was estimated to be 33,000 pounds. The installer reported that the pier pipe was filled with grout to enhance buckling strength of the exposed pier pipe. The design was accepted by the owner and builder.



The footings are notched and adjusted to allow the ECP Steel Pier™ brackets to support the underside of the footing.



After the steel piers were installed, proof tested, a service load was applied to each pier to support the structure and to remove the structural load on the soil below the footings. At this point the home was being stabilized and supported by the ECP Steel Piers™ on the perimeter.

An excavator was used to remove soil adjacent to the structure to the design depth of the proposed basement foundation.

Project Summary	
Project:	Mann Homes Addition
Installer:	Epp Concrete Construction, Inc. Lincoln, NE
Product Installed:	ECP PPB-300 Steel Pier™
Number of Placements:	7
Depth to Bearing:	21 to 42 feet
Ultimate Limit Capacity:	33,000 lb
Average Test Load:	48,750 lb
Average Service Load:	21,500 lb
Average Factor of Safety	1.53 to 1.00

Once the basement foundation and concrete basement walls were fabricated, the steel pier system was encased within the new walls.

Because the ECP Steel

Piers™ were rapidly installed using quiet, vibration free hydraulics that did not disturb the occupants of the home, steel piers were chosen as the best product for this restoration. Steel pier underpinning allowed the installation process to progress quickly with minimal down time or damage to the existing structure.

The ECP Steel Piers™ provided the interim structural support and stability during adjacent excavations and construction thus giving the homeowner, and builder, the opportunity to construct a full basement next to the crawl space of this home.

Epp Concrete Construction, Inc. of Lincoln, Nebraska was able to complete the project quickly, accurately and with no damage and minimal disruption to the occupants of the house. The project was inspected and approved.



This photo shows the ECP PPB-300 Steel Piers™ installed on the structure and the piers have been



The steel piers have been installed, the excavation is complete and the new basement footings are in place ready for the new basement walls.



*Designed and  
Engineered to  
Perform™*