



CASE HISTORY

SAFEBASE™ STANDARD DUTY PUSH PIERS

MINNEAPOLIS APARTMENT BUILDING STABILIZATION



SafeBasements of Minnesota was contacted with concerns regarding sloping floors, cracks in the foundation and continual repairs needed to the brick veneer. A site visit was made and laser levels were used to take elevation measurements throughout the structure. The maximum magnitude of differential settlement was found to be 8-1/2 inches in the south west corner.



A plan was made to support the foundation with SafeBase™ 2.875" OD Standard Duty Push Piers with SafeBase™ SaberTooth™ Bracket Assemblies. A total of 22 Push Piers were installed

on the south and west sides of the foundation, 20 on the interior and 2 on the exterior supporting the chimney.



The concrete floor was removed at the location for each pier on the interior and an area was excavated near the chimney allowing access to the footing. The piers were driven using a hydraulic ram to an average depth of 58 feet with a force of 48,000 pounds per pier. After the piers were installed hydraulic lift cylinders were connected to the pier brackets in a series to allow for uniform lift of the foundation. Lasers were once again set up to monitor elevation changes during the lift. There were concerns with damaging the brick on the exterior as it had portions replaced, and patched over time, which would limit the potential for a full lift without removing and replacing the veneer. Pressure was slowly increased to the lift cylinders and checks were made on the interior and exterior for lift and any further cracking of the brick veneer. A portion of the settlement was reclaimed before new cracks started developing in the brick. At that point the nuts were tightened on the pier brackets and the load locked in place.



The foundation was now supported by the piers which were bearing on suitable stratum to prevent future settlement. Each pier was installed with a force twice as great as the load per pier, resulting a factor of safety of two. The owner decided to level the floors after the foundation was stabilized, rather than replacing the brick as would have been required to achieve a full lift. The other repairs could now be made permanently, knowing that the foundation will not continue to settle. With the installation completed the excavations could be backfilled and the access holes in the basement floor could be patched. The project was completed in December of 2020.



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