



## Trinity Church Boston, MA

Boston's historic Trinity Church recently underwent a renovation and expansion that included an innovative foundation repair and replacement system that was designed and installed by Schnabel Foundation Company. Schnabel repaired a number of the existing timber piles and installed new grouted steel micropiles to allow the renovation and expansion to be successful.

A number of the 130-year old timber piles that support the massive structure had suffered significant deterioration since their installation and could no longer be counted on to carry their design loads. Deterioration of timber piles occurs frequently in the Back Bay area where a lowering of the groundwater table exposes the piles to oxygen. Trinity's engineer determined that the deteriorated portion of the pile had to be removed and replaced. Schnabel began the repair work by carefully hand excavating around the pile tops. Temporary supports were placed beneath the huge granite block foundations supported by the piles. The damaged pile tops were then cut away and replaced with steel struts and the entire excavation filled with lightweight concrete.

Micropiles were installed in the basement of the church and around the perimeter of the building (20 ft. below street level) using a special drill constructed to be used in limited access applications. The drill rig can be lifted in place by a crane and driven through doorways and hallways. The small but powerful drill rotated 10-inch casing through caving soils and timber pile obstructions to reach a suitable bearing stratum.

Schnabel's mix of old and new technology has given Trinity Church a solid foundation for the new millennium.

Owner: Trinity Church, Boston, MA  
 Contractor: Shawmut Design and Construction  
 Micropile Contractor: Schnabel Foundation Company, Southborough, MA  
<http://www.schnabel.com>