# Large Residential Apartment Complex

## Deep Foundations – Installing Micropiles

### PROJECT OVERVIEW

The existing building was constructed in 1936 and replaced the previous school building that had opened in 1883. The present 3-story building was constructed using a concrete frame with concrete block and brick masonry.

The foundations consist of shallow column footings connected by grade beams. The east end of the building has experienced considerable distress and cracking, with settlement of approximately 9 inches. The present building was being converted from a school to an apartment building.

### REQUIREMENTS AND CHALLENGES

The size of the existing grade beam was unknown, the owner wanted to preserve the existing stairs into the building where a lot of the settlement occurred, the loads for the columns were as high as 250 kips. Soil borings were done next to the building, they found a silty/slightly moist clay with limestone approximately 25 foot. The column footings would need to be supported both on the outside and the inside of the building. In some cases overhead clearance would be approximately 9 foot.

### SOLUTION AND RESULTS

Because of the specific challenges, Micropiles were selected as the deep foundation of choice. CNC Foundations was selected for the work on the micropiles because of their experience installing limited access micropiles and available equipment that could perform the work in the limited access locations.

We designed the micropiles and concrete haunches that would allow the load to transfer from the columns to the newly installed micropiles. With CNC Foundation's limited access rigs and experience, we were able to stabilize the column footings, on time and on budget.

## Project Details

### SECTOR

Large Residential Apartment Complex

### LOCATION

St. Louis, MO

### APPLICATION(S)

Hollow Bar Micropiles (Man-portable)

1ST CHOICE