

Ram Jack® Case Study

Oak Steel Supply • Chicago Ridge, IL



ECO-FRIENDLY



Situation: The project consisted of an existing manufacturing facility requiring the installation of a 25'-0" deep precast concrete pit on the interior of the building. The opening of the excavation through the floor slab was approximately 30'-0" x 30'-0" and adjacent to a building column supporting a 133 kip load. Another obstacle encountered was the water table was 12'-0" below finished floor requiring the dewatering of the lower 13'-0" of the excavation.

The owners had hired a contractor who did not have the proper experience nor the excavation technique to perform this type of project. During the excavation phase of the project, the excavation began to cave in undermining the column supporting a 133 kip load. Emergency action was taken to distribute the column load to stable areas of the floor slab and backfill the excavation to prevent structural damage to the structure.

Solution: The Larson Engineering, Inc., on the owners behalf, contacted Ram Jack of Illinois (owner: John Walsh) for their expertise in underpinning the undermined column and also provide the shoring and dewatering required to safely excavate and install the 25'-0" precast concrete pit. Ram Jack of Illinois worked with the engineer of record to develop an underpinning and shoring plan.

The excavation began in 5'-0" stages. At each stage, a reinforced shotcrete facing was placed on the perimeter walls of the excavation. Ram Jack helical tiebacks were installed on a 5'-0" grid to secure the shotcrete facing to the soil. A wide flange beam was installed beneath the column footing to distribute the load to eight (8) Ram Jack driven steel piles. Each driven pile was installed with a minimum driving force of 60 kips. Due to the exposed length of the piles, Ram Jack helical tiebacks were also installed at 5'-0" intervals along the exposed length of the shaft to provide lateral bracing.

Conclusion: The pre-cast concrete pit was safely installed and the facilities' production line is back on track. The strength, versatility and expertise of Ram Jack can overcome even the most complicated of projects.

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