

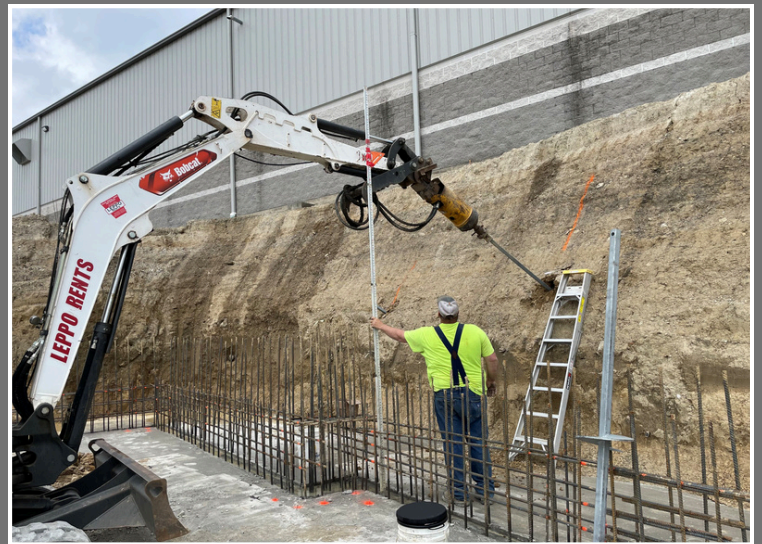
# Helical Tiebacks

## Support New Wall at Event Center

Mount Hope, Ohio  
COMMERCIAL PROJECT OF THE YEAR FINALIST

Ivan Weaver Construction contacted Midwest Foundation Tech to assist with the construction of high foundation walls for a new event center addition in Mount Hope, Ohio. While constructing the foundation it became evident there was insufficient space between the new addition and the adjacent structure. They wouldn't be able to properly excavate for the new addition without undermining the existing foundation that supported finished flooring just 18' above.

The best design choice was to use helical screw tiebacks in both the footing and the wall to resist sliding and overturning forces. The final design called for 19 tiebacks in the footing and 20 along the 18' concrete wall.



The implementation was accomplished across two phases. Phase one had the team install tiebacks into the footing after excavating but prior to the placement of the rebar and concrete. The second phase was accomplished after the footing had cured sufficiently but prior to rebar placement and wall forming.

The design team opted for the use of ECP's 1-3/4" square shaft with a 10-12 helical configuration because the material exceeded the design requirements and ensured effectiveness at higher torques.



The soil borings indicated that the tiebacks would be installed into bedrock shale. The tough soil made achieving the required capacity easy, but installation was continued in order to achieve a length that permitted space for connecting transition pieces and threaded rods.



The Midwest Foundation Tech team used a Bobcat E-50 series mini-excavator with a Pro-dig 12k5 torque motor to install the tiebacks. They measured torque using differential pressure across the auger motor. To reach all the tiebacks and make all the connections they used a man lift (telehandler). The tiebacks were terminated so the bearing plate would be encased in concrete in between layers of rebar in the wall or footing.

