

PROJECT DESCRIPTION:

Student Residential Tower
Birmingham, AL

Morris-Shea Project Component: Driven High-Capacity 12x74 H-Piles



MORRIS-SHEA

17 Story Mixed-Use Building

H-PILE PERFORMANCE:

- REDUCED MATERIAL EXPENSE
- HIGHER PRODUCTION RATES
- IMPROVED LOAD CAPACITY
- NO DRILLING SPOILS



PROJECT OVERVIEW

Morris-Shea has completed installation of driven H-piles for the deep foundation of the new Ascend Apartments in downtown Birmingham. The 17 story residential building's mixed-use design includes 198 student occupancy units, ground floor retail space, a second story parking garage, and a rooftop swimming pool. Morris-Shea installed 261 high-capacity H-piles as a value engineered alternate to the original specification for drilled shafts with rock sockets. The original foundation design raised budget concerns that impacted the project's feasibility.

DEEP FOUNDATION INSTALLATION

The Morris-Shea team completed H-pile load testing and production pile installation in only 20 work days. Subsurface conditions varied considerably from pile-to-pile with dolomite rock pinnacles and crevices requiring piles be driven to depths as shallow as 40-feet and as deep as 120-feet. Morris-Shea installed high-capacity 12x74 H-piles with a 200 ton working load, rather than typical 12x53 H-piles with a smaller 50 ton load. The high-capacity piles were driven in 60-foot lengths to rock refusal with a PVE 50 rig using a 5 ton hydraulic hammer. A static load test to 400 tons was performed prior to commencing installation to verify load capacity.



SOIL CONDITION

The Ascend Apartments jobsite sits atop the Knox Group Formation, a subsurface mineral deposit dominated by Copper Ridge dolomite. The H-piles are installed through residual clays to refusal at the dolomite bedrock. The depth of piles is highly varied due to cavities and fracturing found in this type of subsurface.



DESIGN-BUILD ALTERNATE

Our team can provide a Value Engineered Alternate (VEA) to a project's base bid design to improve production efficiency and lessen project expense. Our design-build alternates often offer higher capacity piles and reduce the pile count.

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