

Underground Residential Wine Cave

QUIKRETE® Shotcrete MS – Fiber Reinforced
Springfield, MO



PROJECT DESCRIPTION:

The private 6,000 square-foot residential cave built outside of Springfield, Mo. proved extremely challenging due to limited ground support conditions. Baccus Caves, Brierley Associates & QUIKRETE® collaborated to develop a unique two-step application of QUIKRETE® MS – Fiber Reinforced Shotcrete to stabilize the structure. In the first phase, dry process shotcrete was applied about every two feet during the excavation to overcome the weak soil composition. In the second phase, four-inch by four-inch wire mesh was attached to the entire interior subterranean surface and wet mix shotcrete was spray-applied to create the final six-inch tunnel liner. All the

shotcrete pumps were equipped with fast-switching rock valves for surge-free operations at the hose so the shotcrete could be pumped at distances greater than 400 feet through a line two inches in diameter.

Collectively, more than 1,000 cubic yards of shotcrete was applied on the project, which features wine storage space, a wine tasting room, a dining room, a bathroom and a banquet preparation area accessible through a four-story spiral staircase or elevator from the home's basement and an outside entrance. The wine cave produces a grand entertainment space highlighted by a natural stone fountain framed by arching shotcrete walls and ceilings, quartzite floors, 200 hand-formed recessed lights and a chandelier that mimics a tree root. The wine cave maintains a perfect 60 degree temperature at all times.

QUIKRETE® Shotcrete MS is a single component Micro Silica enhanced repair material that achieves more than 9,000 PSI at 28 days, and features very low rebound and permeability characteristics.

EXCAVATION: Baccus Caves
ENGINEER: Brierley Associates
ARCHITECTS: Slone and Associates
CONTRACTORS: Brady Mitchell,
Brundage-Bone Concrete Pumping

PROJECT START DATE:

March 2015

PROJECT COMPLETION DATE:

August 2015

QUIKRETE® PRODUCTS:

- 3,000 lb Shotcrete MS –
Fiber Reinforced: 1,200 bulk bags

**QUIKRETE® Shotcrete MS –
Fiber Reinforced >>**

