KING

*Mixing Strength With Satisfaction*

# CARRIAGE HOUSE, MINNEAPOLIS, MN

## MS-D1 SHOTCRETE

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| **PROJECT:** | Carriage House Retaining Wall, Minneapolis, MN |
| **SPECIFIER:** | Partners & Sirny Architects Minneapolis, MN |
| **CONTRACTOR:** | Brent Anderson Associates Fridley, MN |
| **PRODUCT:** | MS-D1 Shotcrete |
| **QUANTITY:** | 20 $m^3$ (700 $ft^3$) |
| **COMPLETION:** | Spring 2005 |

The owners of a 1900's style Carriage House began a renovation project to change the structure into a residence. The structure was originally built into a 16-foot embankment or bluff with a natural stone wall (exposed to view) forming the top six feet of a retaining wall. The retaining wall, located at the back of the two storey structure, served a dual purpose which included supporting the building's roof structure. Continued water run-off from the structure's roof caused severe deterioration of the stone wall which caused concerns about the wall's structural integrity as well as water leakage problems.

Brent Anderson and Associates worked closely with the project architects to address the concerns about the stone wall and proposed to use shotcrete as a method to repair the structure. The deteriorated sections of wall were chipped and the entire surface was high pressure water-blasted and cleaned. Galvanized, welded-wire mesh supported by stainless steel pins was anchored to the stone to provide mechanical bond to the wall. Brent Anderson Associates chose to shoot King's MS-D1 Shotcrete because its air entrained properties provided long-term durability in an environment that was exposed to continuous freeze-thaw cycles. The owner's concerns about the aesthetic qualities of shotcrete were alleviated after BAA technicians shot the wall, cut it to a uniform plane and finished it with a broom texture.

This project is an excellent example of the flexibility and capability of shotcrete. Many projects regardless of scale, originally thought to be typical form and pump repairs lend themselves to either the wet or dry-mix shotcrete process. Projects such as this can be completed without the costly additions of formwork and as the photograph illustrates, the finished product is as aesthetically pleasing as any cast-in-place type of repair.

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