

LODGE M-10 FREEWAY REHABILITATION, DETROIT, MI

MS-D3 ACCELERATED SHOTCRETE AND MS-D1 SHOTCRETE

PROJECT:	Lodge M-10 Freeway Rehabilitation Detroit, MI
SPECIFIER:	Michigan Department of Transportation URS Corporation, Detroit, MI
CONTRACTOR:	Ram Construction Services/Western Waterproofing Co., Livonia, MI
PRODUCT:	MS-D3 Accelerated Shotcrete MS-D1 Shotcrete
QUANTITY:	380 m ³ (13,400 ft ³)
COMPLETION:	Spring 2007

Detroit's Lodge M-10 Freeway originally constructed during the 1950s became in dramatic need of major rehabilitation. Michigan Department of Transportation (MDOT) tendered this \$140 Million project to repair over 14 miles of pavement and 50 bridges. A majority of this specific 5 mile stretch is collared by twin vertical barrier walls resulting in the Freeway being an average of 25 feet below the service roads above. Ram Construction Services, formerly Western Waterproofing Co was awarded the concrete restoration subcontract for both phases of the project.

The overall scope of work and its limited 19 week completion time led MDOT personnel to consider the use of shotcrete as an alternate to formed concrete repairs for the first time. A Special Provision was added to the State's main construction documents and the mandatory use of ACI Certified Nozzlemen was specified.

Ram faced several challenges over the four months including the fact that even though the original bid quantities more than doubled, no additional time was allowed for completion. Chipping began in February and it wasn't uncommon during the often -5°F temperatures for hammers, hoses, compressors and crew members to freeze. Since MDOT's specification only allowed for shotcreting above 40°F, Ram's crew's chipping and preparation was over 60 percent complete before their first patch was shot.

The flexibility of the dry-mix process was essential in their ability to quickly re-mobilize and stay on schedule. Ram chose to shoot the majority of the repairs with MS-D3 Accelerated Shotcrete since it allowed them to shoot thicker sections in one pass. Where temperatures rose to the point where finishing became difficult, they switched to MS-D1 Shotcrete enabling them to provide the finish the authority desired.

Again, the true significance of shotcrete being used on this project is that it was the first time MDOT allowed this repair method to be used on any of their structures. Not only did the shotcrete provide the results hoped for on this landmark project, but several more shotcrete jobs have been completed for MDOT since and shotcrete has found a home in their specifications.

