

Froedtert Malt

Milwaukee, Wisconsin

PROJECT PROFILE 001



SPEC MIX® SPECPATCH MS



SPEC MIX® SPECPATCH MSF



Polymer modified
SPEC MIX® SPECPATCH MSFE



Polymer modified
SPEC MIX® SPECPATCH MSP



SPEC MIX® SPECPATCH MSPFA

LICENSEES:

Billings Brick and Masonry Supply, Billings, MT
Central Pre Mix Concrete, Kent, WA
Central Pre Mix Concrete, Spokane, WA
EZ Mix Products, Sun Valley, CA
Gibraltar National, Detroit, MI
Great River SPEC MIX, Muscatine, IA
Materials Packaging, Memphis, TN
Materials Packaging, Draper, UT
Midwest Block and Brick, Kansas City, MO
Onondaga Dry Mix, Marcellus, NY
Package Pavement, Stormville, NY
Packaged Concrete Inc., Elburn, IL
Pre Mix Industries, Clinton, MD
Pre Mix Industries, Berlin, NJ
Pre Mix Industries, Eaton Park, FL
Pre Mix Industries, Chesapeake, VA
Precision Packaging, Jackson, MS
Precision Packaging, Fort Smith, AR
Precision Packaging, North Little Rock, AR
QUIKRETE Atlanta, Lithonia, GA
QUIKRETE Birmingham, Birmingham, AL
QUIKRETE Boston, Brentwood, NH
QUIKRETE Buffalo, Lackawanna, NY
QUIKRETE Carolina, West Columbus, SC
QUIKRETE Cincinnati, Harrison, OH
QUIKRETE Columbus, Columbus, OH
QUIKRETE Connecticut, Wauregan, CT
QUIKRETE Denver Holdings, Denver, CO
QUIKRETE Indianapolis, Indianapolis, IN
QUIKRETE Kentucky, Louisville, KY
QUIKRETE Miami, Miami, FL
QUIKRETE Nashville, Nashville, TN
QUIKRETE Peachland, Peachland, NC
QUIKRETE Pittsburg, Latrobe, PA
QUIKRETE Tennessee, Jefferson City, TN
QUIKRETE Wisconsin, Sussex, WI
Simpson Materials, Valley Park, MO
Superlite Block, Phoenix, AZ
Tri Delta Inc., North Las Vegas, NV
Tri State QUIKRETE, Flanders, NJ
Twin City Concrete Products, Mendota Heights, MN
Twin City Concrete Products, Des Moines, IA
Twin City Concrete Products, Vinton, IA
Twin City Concrete Products, Omaha, NE
Twin City Concrete Products, Fargo, ND
Twin City Concrete Products, Sioux Falls, SD

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March 2003

PRODUCTS: **SPECPATCH MS, SPECPATCH MSF, SPECPATCH MSPFA, Polymer Modified SPECPATCH MSFE, Polymer Modified SPECPATCH MSP**
CONTRACTOR: **DAVID GRAHAM CONSTRUCTION** LICENSEE: **QUIKRETE WISCONSIN**

BRINGING NEW LIFE AND STABILITY TO A CRUMBLING SOLID CONCRETE STRUCTURE.
A DEMONSTRATION IN THE VERSATILE USE OF SHOTCRETE REPAIR.



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THE SOLUTION

The first step in this project was to determine the optimal repair process. The first option was to chip out the deteriorated concrete and sandblast the existing reinforcing steel then form and inject ready-mixed concrete complete with new reinforcing steel. Cost, time and the congestion created by a concrete crew made this option not feasible. The second option was to spot repair the failing concrete with an epoxy material, but this proved impractical because of the cost of the epoxy and its short life, as well as the fact that the material didn't solve the structural concerns.

David Graham Construction Co. offered a third more viable solution—shotcrete. With the help of the SPEC MIX® Technical Services Department, a project field analysis concluded that NaO^3 was attacking the structure and a micro silica, fiber reinforced shotcrete would perform beyond expectations for the project. David Graham Construction Co. suggested the unobtrusive and highly cost effective hydro-demolition method for both removing deteriorated concrete and cleaning corroded reinforcement.

Once the deteriorated concrete was removed and the existing reinforcement was free of corrosion, SPECSHOT 5000 MSF was introduced to the shotcrete machine outside the structure and conveyed to the work area pneumatically as high as the fifth story. A steel fibered SPECSHOT 5000 MS was used in areas where the existing reinforcement was too deteriorated to be salvaged.

All of the shotcrete work was trowel finished smooth to make the project as good as new upon completion. The process allowed the other trades to continue working on the plant rehabilitation and for Froedtert to meet their deadline.

PROJECT BRIEF

- 1 100+ year-old malting facility
- 2 Carbonic acid chemical attack
- 3 Corroded reinforcing steel
- 4 Hydro-demo deteriorated concrete
- 5 Shoot SPECPATCH / MS / MSF / MSPFA / MSFE / MSP
- 6 Trowel finish fresh shotcrete to its original state

PHOTOS BELOW: ALL OF THE SHOTCRETE WORK WAS TROWEL FINISHED SMOOTH TO MAKE THE PROJECT AS GOOD AS NEW UPON COMPLETION. THE PROCESS ALLOWED THE OTHER TRADES TO CONTINUE WORKING ON THE PLANT REHABILITATION AND FOR FROEDTERT TO MAKE THEIR DEADLINE.

THE CHALLENGE

Froedtert Malt, a division of Kraft Foods, had shut down one of its 100-plus-year-old malt houses in Milwaukee, Wisconsin, for approximately ten years. To reopen the building, many structural repairs needed to be made. Even though the building had been maintained during its lifetime, a byproduct of the malting process created a chemical reaction with the concrete of the superstructure and caused deterioration. The structure also had been exposed to high temperatures and constant humidity. The result was the concrete had been eroded to the point where the reinforcing steel was exposed and corroding. Along with these structural stability concerns, contamination of the malt was an issue. This facility is a food grade plant, which is held to the highest government standards. The biggest hurdle to get over was that of time. The building had to be completed and ready for operation in less than a month.

"SPEC MIX WAS RIGHT THERE WHEN I NEED THEM. FROM FORENSIC CONCRETE ANALYSIS TO MATERIAL DELIVERY RIGHT ON TIME, THEIR INVOLVEMENT IN THIS PROJECT HELPED ME SECURE THE WORK AND GET IT ACCOMPLISHED ON TIME. BEST OF ALL, THE MIX PERFORMED ABOVE AND BEYOND EXPECTATIONS MAKING MY CREW MORE EFFICIENT AND KEEPING THE CUSTOMER MORE THAN SATISFIED WITH THE RESULTS."

DAVID GRAHAM

PHOTOS ABOVE: THE STRUCTURE ALSO HAD BEEN EXPOSED TO HIGH TEMPERATURES AND CONSTANT HUMIDITY. THE RESULT WAS THAT THE CONCRETE HAD BEEN ERODED TO THE POINT WHERE THE REINFORCING STEEL WAS EXPOSED AND CORRODING.

