

Manhole Reconstruction in Wisconsin

A series of manholes on a busy concrete roadway in Waukesha, Wis., that experienced heavy truck traffic had been deteriorating over time. When constructed, the manhole frames and covers had been adjusted to final grade with concrete grade rings. These masonry materials were typical at the time, but had taken a beating from the traffic and harsh Wisconsin winters. By 2012, almost all of the manhole frames and covers in the south-bound lane, which also were in the wheel line of the traffic, had sunk a bit. Not only were the manholes taking a pounding, so were the vehicles that traveled on this roadway.

The city specified Cretex Specialty Product's Pro-Ring on a project to reconstruct the grade adjustment area on 25 manholes to protect both manholes and vehicles. Pro-Ring is manufactured from expanded polypropylene, which is a lightweight, high-strength plastic that has an energy-dissipating property, weighs 95% less than typical concrete grade rings, meets or exceeds AASHTO HS-25 loading, and has effective chemical resistance.

Another issue was that the most common failure mode in city manholes resulted from the freeze-thaw cycle. Pro-Ring had worked so well on the grade adjustment area

reconstruction project that the city performed a cost-benefit analysis to investigate expanding its use.

Pro-Ring ended up being about 1.1 times more expensive to have installed, but in terms of maintenance, the city found it would come out ahead due to the 50-year design life. The city started using it on all sanitary manholes in 2013 and has since started to use it on all storm manholes. Since the city selected Pro-Ring, the use of concrete grade rings to adjust manholes has ceased.



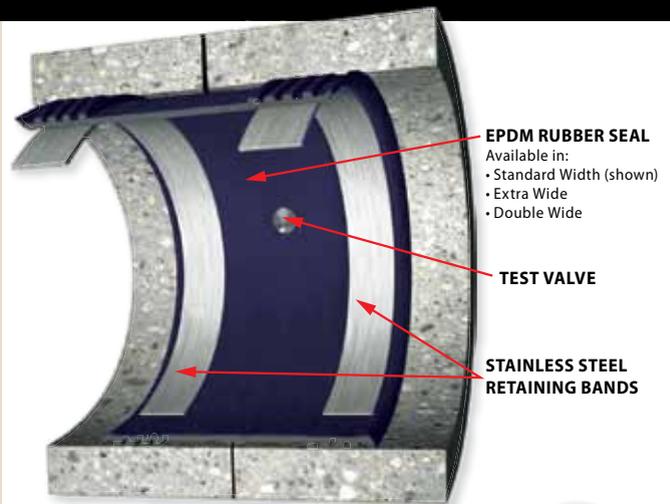
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