

Position Paper Regarding Detectable Warning Fields

2-17-10

BACKGROUND

On July 26, 2001, ADA Accessible Guideline (ADAAG) standards went into effect that required the use of raised truncated domes on the surface of curb ramps. Since that time, a variety of products have been introduced into the market and many studies have been conducted in order to evaluate the cost, constructability, durability and compliance with the new standards by these products.

In 2002-2003, the Wisconsin Department of Transportation (WisDOT) partnered with the Federal Highway Administration (FHA) and the City of Madison Engineering Division to study detectable warning field designs in relation to new ADA guidelines that required truncated domes. Many products were tested in this study under a variety of conditions and the results were documented in a final report entitled "Truncated Warning Dome Systems for Handicap Access Ramps" which was released in November 2003.

Since 2005, the City of Madison has included a bid item for Curb Ramp Detectable Warning Field in the Standard Specifications. The material type for the detectable warning field systems are not specified in Section 303.2(n) but are listed as "approved by Engineer". Epoxy paint and glass pavement marking beads have material specific information in the Standard Specifications. The following materials are currently allowed by the City of Madison: stainless steel plates, composite (fiber glass type), stamped concrete and cast iron plates. In recent years, cast iron plates have occasionally been contract specified or they are used in areas where mechanical snowplow operations take place.

The City of Green Bay has been tracking the performance of detectable warning fields since the early 2000s and they have specified the use of cast iron plates since 2006 as a result of failures and continued maintenance involved with other products. To date, they have not experienced any failures with the cast iron product.

CITY OF MADISON ENGINEERING'S POSITION

City of Madison Engineering believes that the cast iron detectable warning field plates should be the standard for Curb Ramp Detectable Warning Fields.

The Citywide Installation and Repair contract currently replaces defective or damaged detectable warning fields with cast iron plates because they are proving to be a more durable product that don't require maintenance such as painting. ADAAG require the use of light on dark or dark on light contrasting surface, meaning that the panels would not have to be painted or receive a powder-coating finish. In May, pending anticipated approval from the Federal Highway Administration, the WisDOT will revise FDM 11-25-30 to accept the cast iron, natural patina detectable warning panel and will update the PAL (Products Acceptability List).

To this point, City Engineering has not documented any failures with the cast iron detectable warning field plates. However, the following failures have been noted on the other products:

Stainless Steel and Composite Plates

- Peeling surface creating a slippery and hazardous surface
- Bent and cracked panels
- Panels dislodging from concrete
- Removed/damaged domes creating sharp surfaces

Stamped Pattern

Inconsistent pattern not in ADA compliance

Paint wear or lack of compliance by contractors to paint ramps

Damaged domes

Photos of some of these product failures are attached.

A cost analysis of City of Madison Public Works contracts for work completed in 2009 indicated an average increase of \$10.06 per square foot for projects that specified the required use of cast iron detectable warning fields. If all 2009 contracts had specified the use of cast iron detectable warning fields it would have resulted in an increased cost of approximately \$23,000.

City Engineering feels that the long-term benefits of durability, the ability of product reuse and low maintenance associated with the cast iron detectable warning plates outweigh the additional cost. For these reasons City Engineering recommends that the cast iron detectable warning field plates become the standard for Curb Ramp Detectable Warning Fields. Recommended changes to the construction specification are attached.

CAST IRON DETECTABLE WARNING FIELD PLATE IN PLACE



DETECTABLE WARNING FIELD FAILURES



Stainless steel plate with peeling surface



Stainless steel panel with complete surface failure



Stainless steel panel with surface wear. Beginning to tear on bottom corner creating sharp edges. Located on bike path.



Stainless steel panel torn from concrete surface after edge pulled up at 2nd Street and E. Washington Ave.



Stainless steel panel removed after citizen report of sharp and peeling edges



Stamped Surface – Domes removed from wear and/or snow removal operations



Composite Panel – Domes removed from wear and/or snow removal operations

Few composite panels are used throughout the City.