

SECTION 527

DETECTABLE WARNINGS ON WALKING SURFACES

527-1 Description.

Furnish and install Detectable Warning devices on newly constructed and/or existing concrete curb ramps and sidewalks constructed in accordance with the Design Standards, where indicated in the plans.

527-2 Materials.

527-2.1 Detectable Warning: Provide Detectable Warnings in accordance with the Americans with Disabilities Act Accessibility Guidelines (ADAAG) Section 4.29.2 - Detectable Warnings on Walking Surfaces. Use Detectable Warnings of materials intended for exterior use applied to concrete and subject to routine pedestrian traffic and occasional vehicular traffic. Use Detectable Warnings with size and pattern shown in the plans comprised of truncated domes aligned in parallel rows in accordance with Index No. 304 of the Design Standards. Do not use detectable warnings with a diagonal pattern.

527-2.1.1 Preformed Materials: Use Detectable Warnings consisting of weather-resistant tiles, pavers or mats that are adhered to concrete and have mechanical bond or fasteners, or torch-applied preformed thermoplastic. Preformed products may be used only if listed on the Qualified Products List in accordance with 527-2.4.

527-2.1.2 Field-Formed Materials: Use Detectable Warnings applied as a secondary application to cured concrete. Products applied as a secondary application on cured concrete, may be used only if listed on the Qualified Products List in accordance with 527-2.4.

527-2.2 Material Properties: Provide Detectable Warnings that meet the following minimum material property requirements when tested in accordance with the indicated Standard.

PROPERTY	STANDARD	MINIMUM THRESHOLD
Slip Resistance	ASTM C1028, F609, F1677, F1678, F1679; E303	Dry Coefficient of Friction – 0.8 min. and Wet Coefficient of Friction – 0.65 min.; Or 35 BPN (include recessed areas between truncated domes)
Wear Resistance	ASTM C501	Average wear depth on dome ≤ 0.030 " after 1000 abrasion cycles.
Water Absorption ¹	ASTM D570	Not to exceed 5%.
Adhesion/Bond Strength	ASTM C482	No adhesion failure
Fade (UV) Resistance	ASTM G151/G154	$\Delta E \geq 3$ after 2000 hrs.
Non-Hazardous Classification	RCRA Subtitle C	Non-Hazardous

¹ Applies only to pavers and tiles consisting of concrete materials.

527-2.3 Color/Contrast: Use Detectable Warnings providing a light-on-dark or dark-on-light color contrast with adjoining surfaces that meet a 70% contrast ratio as described in ADAAG Appendix Section A4.29.2. Acceptable colors include: black, brown, brick-red, green and safety yellow (US-ANSI Z535.1-1991, 6.3; International-ISO 3864-1984(3)) as described in the drawings or as approved by the Engineer. The color must be integral with and consistent throughout the material. Do not use the color blue.

527-2.4 Qualified Products List: Methods or products used to form Detectable Warnings in wet concrete will not be permitted. Use Detectable Warnings listed on the Department Qualified Products List (QPL). Manufacturers of Detectable Warnings seeking evaluation of their product shall submit an application in accordance with Section 6. Manufacturers must demonstrate performance in accordance with the requirements of these Specifications and with the acceptance criteria detailed in Index No. 304 of the Design Standards. Submit Applications that include certified test reports from an independent laboratory that shows the Detectable Warning meets the material properties and all requirements specified herein. Application must include manufacturer's installation drawings that describe detailed quality control requirements for installation including, but not limited to: special materials and/or equipment; recommendations for cleaning/preparing substrate surfaces; bonding method describing thickness, spread rate and/or curing time(s) of grout or adhesive materials; mechanical anchorage; and protection of Detectable Warning materials during set-up/curing period.

In addition, manufacturer's drawings must provide recommended quality control procedures for touch-up and repair of localized areas of installations, for compliance with the acceptance criteria provided in Index No. 304 of the Design Standards.

527-3 Installation Procedures.

527-3.1 Surface Preparation and Installation: Prepare the surface in accordance with the Detectable Warning manufacturer's recommendations. Install Detectable Warnings in accordance with the manufacturer's instructions, using materials and/or equipment recommended and approved by the Detectable Warning manufacturer for adherence to cementitious substrate surfaces. Ensure that all installations are made in accordance with the manufacturer's installation drawings referenced by the QPL.

527-4 Method of Measurement.

Detectable Warnings applied to newly constructed concrete sidewalk/curb ramps will be included in the cost of the concrete sidewalk/curb ramp. Detectable Warnings applied to existing curb ramps will be paid per each Detectable Warning that is furnished, installed and accepted.

527-5 Basis of Payment.

Price and payment will be full compensation for all work specified in this Section, including all labor, surface preparation, materials and incidentals necessary to complete the work for Detectable Warnings installed on each curb ramp.

Payment will be made under:

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| Item No. 522- | 1- | Concrete Sidewalk, 4" Thick - per square yard. |
| Item No. 527- | 1- | Detectable Warnings on Walking Surfaces - each. |