

ORIGINATION FORM

THE INFORMATION BELOW IS TO BE PROVIDED BY THE ORIGINATOR
(The person who receives or originates the issue and needs to forward the issue for action.)

Modify Specification 527.
Section/File number

New Section _____.
Section number

SUBJECT: **Detectable Warnings for Walking Surfaces**

Origination date: March 19, 2009

Originator: H. Dean Perkins
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Problem statement: Revise Spec 527, table after paragraph 527-2.3: Replace LRV-Cap Y values from ~~25-40~~ to **35-50**. State Specifications Office 4/28/09: After talking with Dean the range will be 25- 45.

Revise Spec 527 to delete entire paragraph 527-1 and replace with:
“Furnish and install Detectable Warning devices on newly constructed and/or existing concrete or asphalt walking surfaces (curb ramps, sidewalks, share-use paths, etc.) constructed in accordance with the Design Standards, where indicated in the plans.” State Specifications Office 4/28/09: After talking with Dean, “Where indicated in the plans” will be deleted to avoid confusion with the placement locations shown in Index 304.

Information source: FDOT – Dean Perkins, ADA Coordinator

Background data: Original LRV-Cap Y values were established under ambient conditions during a limited time period, which are difficult to achieve and do not reflect actual, real world conditions. The colors available within the stated range are not classified as ‘yellow’ according to the federal specification tables; they are considered ‘oranges’.

The current 527 Specification addresses ‘concrete’ (curb ramps and sidewalks) as the only acceptable substrate for the installation of detectable warnings. Some projects may have asphalt as a substrate (shared-use path, etc.) With the current language in the Spec, asphalt may not be used, potentially increasing project costs to add a small



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M E M O R A N D U M

DATE: June 3, 2009
TO: Specification Review Distribution List
FROM: Rudy Powell, Jr., P.E., State Specifications Engineer
SUBJECT: Proposed Specification: 527000 Detectable Warnings on Walking Surfaces

In accordance with Specification Development Procedures, we are sending you a copy of a proposed specification change.

This change was proposed by Dean Perkins to allow the installation of detectable warnings on asphalt walking surfaces.

Please share this proposal with others within your responsibility. Review comments are due within four weeks and should be sent to Mail Station 75 or to my attention via e-mail at ST986RP or rudy.powell@dot.state.fl.us. Comments received after July 1, 2009, may not be considered. Your input is encouraged.

RP/dt
Attachment

DETECTABLE WARNINGS ON WALKING SURFACES.

(REV ~~4-1-0828-09~~ **6-1-09**)

SECTION 527 (Pages 598-600) is deleted and the following substituted:

**SECTION 527
DETECTABLE WARNINGS ON WALKING SURFACES**

527-1 Description.

Furnish and install Detectable Warning devices on newly constructed and/or existing concrete *or asphalt walking surfaces* (curb ramps, ~~and~~ sidewalks, *shared-use paths, etc.*) 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 *the substrate* ~~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 *the substrate* ~~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 appropriate to the material.

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
Non-Hazardous Classification	RCRA Subtitle C	Non-Hazardous

¹ Applies only to pavers and tiles consisting of *plastic* materials.

527-2.3 Color/Contrast: Use *s*Safety *y*Yellow, *b*Brick *r*Red or *b*Black colored Detectable Warnings, that provide an acceptable color/contrast on concrete *walking surfaces* sidewalk. *Use safety yellow colored Detectable Warnings on asphalt walking surfaces.* Acceptable Detectable Warnings as listed on the Qualified Products List will meet the following criteria for a duration of three years.

COLOR	LIGHT REFLECTANCE VALUES (LRV) CAP Y*
Safety Yellow	25 – 40 45
Brick Red	5 – 15
Black	0 – 5

*When measured with a spectrophotometer

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

5270000

All Jobs

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 *existing walking surfaces* ~~each curb ramp~~.

Payment will be made under:

Item No. 527- 1- Detectable Warnings on Walking Surfaces - each.

'patch' of concrete where detectable warnings are installed for shared-use paths, etc.

Recommended

Usage Note:

The recommendation is to expand the range of the Cap Y value to include 'yellow' colors from the federal specification. State Specifications Office 4/28/09: The usage note will be ALL JOBS.

**Desired
implementation
date:**

Beginning with the July 2009 letting. State Specifications Office 4/28/09: These changes will be implemented in January 2010.