



Florida Department of Transportation

CHARLIE CRIST
GOVERNOR

605 Suwannee Street
Tallahassee, FL 32399-0450

STEPHANIE KOPELOUSOS
SECRETARY

July 6, 2009

Monica Gourdine
Program Operations Engineer
Federal Highway Administration
545 John Knox Road, Suite 200
Tallahassee, Florida 32303

Re: Office of Design, Specifications
Section 527
Proposed Specification: 5270000 Detectable Warnings on Walking Surfaces

Dear Ms. Gourdine:

We are submitting, for your approval, two copies of the above referenced Supplemental Specification.

These changes were proposed by Dean Perkins to allow the installation of detectable warnings on asphalt walking surfaces.

Please review and transmit your comments, if any, within two weeks. Comments should be sent via Email to ST986RP or rudy.powell@dot.state.fl.us.

If you have any questions relating to this specification change, please call Rudy Powell, State Specifications Engineer at 414-4280.

Sincerely,

Rudy Powell, Jr., P.E.
State Specifications Engineer

RP/dt

Attachment

cc: Gregory Jones, Chief Civil Litigation
Florida Transportation Builders' Assoc.
State Construction Engineer

DETECTABLE WARNINGS ON WALKING SURFACES.**(REV 4-1-0828-096-1-097-6-09)**

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 *Index No. 304*, 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 or asphalt substrates* ~~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

PROPERTY	STANDARD	MINIMUM THRESHOLD
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 *location where* Detectable Warnings *are* ~~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 *existing walking surfaces* ~~each curb ramp~~.

Payment will be made under:

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

DETECTABLE WARNINGS ON WALKING SURFACES.**(REV 7-6-09)**

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, sidewalks, shared-use paths, etc.) constructed in accordance with the Design Standards Index No. 304.

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 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 or asphalt substrates 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. Products applied as a secondary application 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 safety yellow, brick red or black colored Detectable Warnings on concrete walking surfaces. 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 – 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. 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 will be included in the cost of the walking surface. Detectable Warnings applied to existing walking surfaces will be paid per each location where Detectable Warnings are 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 existing walking surfaces.

Payment will be made under:

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