CITY OF DETROIT

SPECIAL PROVISION
FOR
SIDEWALK RAMP, ADA, MODIFIED

DET: JJ

Rev. 01-14-08
Rev. 06-18-09

DESCRIPTION: Construct Concrete Sidewalk Ramp(s) with Detectable Warning Tiles, at the specified locations(s). Furnish and install Vitrified Polymer Composite (VPC) Cast in Place Tiles where indicated and in accordance with the details shown on the plans and/or as directed by the Engineer. Complete the work in accordance with Section 803 of the 2003 Michigan Department of Transportation (MDOT) Standard Specifications for Construction and as detailed in the MDOT Standard Plan R-28-F and as specified in this City of Detroit Special Provision for "Sidewalk Ramp, ADA, Modified".

Prior to placing concrete for ramps the contractor shall notify the Engineer to receive layout approval. The Composite Cast in Place Tiles specified in this special provision, approved by the Engineer, must be used to achieve the Detectable Warning Surface for the sidewalk ramp(s).

The contractor will stamp all concrete with a legible stamp bearing the name of the company and the year constructed. No construction will commence without a contractor's stamp on site.

VPC Cast in Place Tiles for Detectable Warning Surface shall be installed by an experienced Installer certified in writing by the Cast In Place Detectable Warning Surface Tile manufacturer as qualified for installation, and who has successfully completed installations similar in material, design, and extent to that indicated for Project.

It is the responsibility of the contractor to be familiar with the MDOT Standard Plan R-28-F for "Sidewalk Ramp and Detectable Warning Details" reflecting ADA accessibility requirements and the current MDOT standard specifications for construction and the City of Detroit Special Provision for "Sidewalk Ramp, ADA, Modified". It is also the contractor's responsibility to incorporate any changes made to the ADA accessibility requirements that may take effect prior to the start date of actual construction. If the contractor determines that any changes significantly alter the original bid cost, the contractor may submit a written request to the Engineer or his representative for approval and compensation. The request shall include a cost comparison between the original bid cost and the cost of the ADA required changes.

Any constructed Concrete Sidewalk Ramps or Landings that do not meet the MDOT Standard Plan R-28-F and the 2003 MDOT standard specifications for construction and this Special Provision and the latest ADA accessibility requirements shall be removed and replaced by the contractor, as directed by the Engineer or his representative, at no additional cost to the City of Detroit.

MATERIAL:

The materials for Concrete Sidewalk Ramp Construction shall be as per the Section 803.02 of the 2003 MDOT Standard Specifications for Construction and the Detectable Warning Surface shall be Vitrified Polymer Composite (VPC) Cast in Place Tiles, an epoxy polymer composition with an ultra violet stabilized coating employing aluminum oxide particles in the truncated domes as specified in this Special Provision section, Quality Assurance. The tile color shall be of Brick Red conforming to Federal Color No. 22144. However, if the abutting ramp surface is of a similar color, a contrasting different color shall be used as approved by the Engineer. The Color shall be homogeneous throughout the tile.

MANUFACTURERS:

A. The Vitrified Polymer Composite (VPC) Cast In Place Detectable Warning Surface Tile shall be Armor-Tile (as manufactured by Engineered Plastics Inc.) or ADA Solutions Cast in Place Tile or an approved equivalent Cast In Place Detectable Warning Surface Tile.

SUBMITTALS:

A. Product Data: Submit manufacturer's literature describing products, installation procedures and routine maintenance.

B. Samples for Verification Purposes: Submit two (2) tile samples minimum 6"x6" of the kind proposed for use.

C. Shop drawings are required for products specified showing fabrication details, composite structural system, tile surface profile, sound on cane contact amplification feature, plans of tile placement including joints, and material to be used as well as outlining installation materials and procedure.

D. Material Test Reports: Submit complete test reports from qualified accredited independent testing laboratory's to qualify that materials proposed for use are in compliance with requirements and meet or exceed the properties indicated on the specifications. All tests shall be conducted on a Cast In Place Detectable Warning Surface Tile system as certified by a qualified independent testing laboratory and be current within a 24-month period.

E. Maintenance Instructions: Submit copies of manufacturer's specified installation and maintenance practices for each type of Detectable Warning Surface Tile and accessory as required.

QUALITY ASSURANCE:

Provide Cast In Place Detectable Warning Surface Tiles and accessories as produced by a single manufacturer with a minimum of three (3) years experience in the manufacturing of Cast In Place Detectable/Tactile Warning Surface Tiles.

DELIVERY, STORAGE AND HANDLING

A. Cast In Place Detectable Warning Surface Tiles shall be suitably packaged or crated to prevent damage in shipment or handling. Finished surfaces shall be protected by sturdy plastic wrappings to protect tile from concrete residue during installation and tile type shall be identified by part number.

B. Cast In Place Detectable Warning Surface Tiles shall be delivered to contractor for storage prior to installation.

SITE CONDITIONS:

A. Environmental Conditions and Protection: Maintain minimum temperature of 40°F in storage areas to receive Cast In Place Detectable Warning Surface Tiles for at least 24 hours prior to installation, during installation, and for not less than 24 hours after installation.
B. The use of water for work, cleaning or dust control, etc. shall be contained and controlled and shall not be allowed to come into contact with the general public. Provide barricades or screens to protect the general public.

INSTALLATION:

A. It is recommended that the first element of the most Curb Ramps to be installed will be the curb section, as the street and gutter elevations will dictate the elevations and the remaining ramp elements. After the gutter has set, the contractor shall then use the gutter elevations and ramp slopes, in combination, to confirm the new landing elevations and cross slopes. After landing forms are set, the ramp(s) running and cross slopes should be verified as compliant before the landing is poured. Finally the ramp and flare sections as well as and necessary transition sections necessary to merge retrofitted forms are set the running slope and cross slope for the ramp and any transitions (if any) should be checked before pouring.
B. During Cast In Place Detectable Warning Surface Tile installation procedures ensure adequate safety guidelines are in place and that they are in accordance with the applicable industry and government standards.
C. Prior to placement of the Cast In Place Detectable Warning Surface Tile system, review manufacturer and contract drawings with the Contractor prior to the construction and refer any and all discrepancies to the Engineer.
D. The specifications of the structural embedment flange system and related materials shall be in strict accordance with the contract documents and the guidelines set by their respective manufacturers.
E. The physical characteristics of the concrete shall be consistent with the contract specifications while maintaining a slump range of 3 - 5 to permit solid placement of the Cast In Place Detectable Warning Surface Tile system. An overly wet mix will cause the tile to float. Under these conditions, suitable weights such as 2 concrete blocks or sandbags (25 lb) shall be placed on each tile.

F. The concrete pouring and finishing operations require typical mason's tools, however, a 4' long level with electronic slope readout, 25 lb. weights, and a large non-marring rubber mallet are specific to the installation of the Cast In Place Detectable/Tactile Warning Surface Tile system. A vibrating mechanism can be employed, if desired. The vibrating unit should be fixed to a soft base such as wood, at least 1 foot square.

G. The factory-installed plastic sheeting must remain in place during the entire installation process to prevent the splashing of concrete onto the finished surface of the tile.

H. If desired, individual tiles can be bolted together using ¼ inch or equivalent, non-rusting, hardware. This will help to ensure that adjacent tiles are flush to each other during the installation process. Tape or caulking can be placed on the underside of the bolted butt joint to ensure that concrete does not rise up between the tiles during installation. Any protective plastic wrap, which was peeled back to facilitate bolting or cutting, should be replaced and taped to ensure that the tile surface remains free of concrete during the installation process.

I. Tiles can be cut to custom sizes, or to make a radius, using a continuous rim diamond blade in a circular saw or mini-grinder. Use of a straightedge to guide the cut is advisable where appropriate.

J. Any sound-amplifying plates on the underside of the tile, which are dislodged during handling or cutting, should be replaced and secured with construction adhesive. The air gap created between these plates and the bottom of the tile is important in preserving the sound on cane audible properties of the Armor-Tile system as required in various jurisdictions.

K. When preparing to set the tile, it is important that no concrete be removed in the area to accept the tile. It is imperative that the installation technique eliminates any air voids under the tile. Holes in the tile perimeter allow air to escape during the installation process. Concrete will flow through the large holes in each embedment flange on the underside of the tile. This will lock the tile solidly into the cured concrete.

L. The concrete shall be poured and finished true and smooth to the required dimensions and slope prior to the tile placement. Immediately after finishing concrete, the electronic level should be used to check that the required slope is achieved. The tile shall be placed true and square to the curb edge, or to the grade break in a directional ramp, in accordance with the contract drawings. The Cast In Place Detectable Warning Surface Tiles shall be tamped (or vibrated) into the fresh concrete to ensure that the field level of the tile is flush to the adjacent concrete surface. The embedment process should not be accomplished by stepping on the tile as this may cause uneven setting, which can result in air voids under the tile surface. The contract drawings indicate that the tile field level (base of truncated dome) is flush to adjacent surfaces to permit proper water drainage and eliminate tripping hazards between adjacent finishes.

M. Immediately after placement, the tile elevation is to be checked to adjacent concrete. The elevation and slope should be set consistent with contract drawings

or the standard plan to permit water drainage as the design dictates. Ensure that the field surface of the tile is flush with the surrounding concrete and back of curb, where required, so that no ponding is possible on the tile.

N. While concrete is workable, a 3/8" radius edging tool shall be used to create a finished edge of concrete, then a steel trowel shall be used to finish the concrete around the tile's perimeter, flush to the field level of the tile.

O. During and after the tile installation and the concrete curing stage, it is imperative that there is no walking, leaning or external forces placed on the tile that may rock the tile causing a void between the underside of tile and concrete.

P. Following tile placement, review installation tolerances to contract drawings and adjust tile before the concrete sets.

Q. Following the concrete curing stage, protective plastic wrap is to be removed from the tile surface by cutting the plastic with a sharp knife, tight to the concrete/tile interface. If concrete bled under the plastic, a soft brass wire brush will clean the residue without damage to the tile surface.

CLEANING, PROTECTING AND MAINTENANCE:

A. Protect tiles against damage during construction period to comply with Tactile Tile manufacturer's specification.

B. Protect tiles against damage from rolling loads following installation by covering with plywood or hardwood.

C. Comply with Manufacture's maintenance manual for cleaning and maintaining tile surface.

METHOD OF MEASUREMENT AND BASIS OF PAYMENT:

The completed work for "Sidewalk Ramp, ADA, Modified" will be measured and paid for at the following contract unit price for the following contract items:

Pay Item	Pay Unit
Sidewalk Ramp, ADA, 6 inch, Modified.....	Square Foot
24 inch x 60 inch Detectable Warning Surface Tiles, Modified.	Each

Construction of Concrete Sidewalk Ramp will be measured by the area in square foot of the Sidewalk Ramp in place, including landing and flared sides, and will be paid for as "Sidewalk Ramp, ADA, 6 inch, Modified". Payment includes all labor, materials and equipment required to construct the concrete sidewalk ramp pavement as shown on the plans and in the MDOT Standard Plan R-28-F, monolithic rolled curbs along the longitudinal edges of the ramp, the curb opening or the curb integral with the pavement at the opening. Any additional earth excavation or granular material backfill required to construct sidewalk ramps shall be included in the pay item "Sidewalk Ramp, ADA, 6 inch, Modified" and will not be paid for separately. The installation of the Detectable Warning Surface Tiles for the construction of concrete sidewalk ramps will be measured for the unit "each" and will be paid for the contract pay item, "24 inch x 60 inch

Detectable Warning Surface Tiles, Modified". Payment includes furnishing and placing of all materials, installing of tiles, tools, equipment, all labor and incidentals necessary to complete the work.

Replacement of Sidewalk, Curb, Curb and Gutter, Curb Integral with the Pavement Integral Curb and Sidewalk, 2 Feet, outside the area measured for "Sidewalk Ramp, ADA, 6 inch, Modified" will be paid for separately for the respective contract items involved. Any earth excavation or granular material backfill 4 inches or less required outside the ramp area to construct the sidewalk ramps for ADA compliance shall be included in the contract item " Sidewalk, Conc, __ inch, Modified" and will not be paid for separately.

Replacement of Hot Mix Asphalt (HMA) surface for the construction of the sidewalk ramp for ADA compliance will be paid for separately for the respective contract items involved.

Adjustments and/or reconstruction of Drainage Structures for the construction of the sidewalk ramp for ADA compliance will be paid for separately for the respective contract items involved.

Placement of pavement markings for aligning with the constructed sidewalk ramps for ADA compliance will be paid for separately for the respective contract items involved. Removal of the existing pavement markings will be included with the contract cost and will not be paid for separately.