

## ADA SURFACE APPLIED CONCRETE TACTILE TILE

### SECTION 09305

#### **PART 1 GENERAL**

##### **1. related documents**

- A. Drawings and general provisions of Contract, including General and Special Conditions and Division 1 Specifications Section, apply to this Section.

##### **2. DESCRIPTION**

- A. This Section specifies furnishing and installing surface applied concrete tactile tiles where indicated, using an exterior grade tactile warning surface tile herein.

##### **3. SUBMITTALS**

- A. Product Data: Submit manufacturer's literature describing products, installation procedures and routine maintenance.
- B. Samples for Verification Purposes: Submit three (3) samples of full size surface applied concrete tactile tiles of the kind proposed for use.
- C. Shop drawings are required for products specified showing fabrication details; tile surface profile; fastener locations; plans of tile placement including joints, and material to be used as well as outlining installation materials and procedure.
- D. Material Test Reports: Submit test reports from qualified independent testing laboratory indicating that materials proposed for use are in compliance with requirements and meet the properties indicated.
- A. Maintenance Instructions: Submit copies of manufacturer's specified maintenance practices for each type of tactile tile and accessory as required.

##### **4. QUALITY ASSURANCE**

- A. Provide surface applied tactile tiles and accessories as produced by a single manufacturer.

- B. Installer's Qualifications: Engage an experienced Installer certified in writing by tactile flooring manufacturer as qualified for installation, who has successfully completed tile installations similar in material, design, and extent to that indicated for Project. Manufacturer's supervisor shall be present at all times.
- A. Americans with Disabilities Act (ADA): Provide tactile warning surfaces which comply with the detectable warnings on walking surfaces section of the Americans with Disabilities Act (Title 49 CFR TRANSPORTATION, Part 37.9 STANDARDS FOR ACCESSIBLE TRANSPORTATION FACILITIES, Appendix A, Section 4.29.2 DETECTABLE WARNINGS ON WALKING SURFACES. In addition products must comply with CALIFORNIA TITLE 24 requirements regarding patterns, color and sound on cane contact.
- B. Vitrified Polymer Composite (VPC) surface applied concrete tactile tiles shall be an epoxy polymer composition with an ultra-violet coating employing aluminum oxide particles in the truncated domes:
1. Water Absorption of Tile when tested by ASTM-D 570 not to exceed 0.35%.
  2. Slip Resistance of Tile when tested by ASTM-C 1028 the combined wet/dry static coefficient of friction not to be less than 0.80.
  3. Compressive Strength of tile when tested by ASTM-D 695-91 not to be less than 18,000 psi.
  4. Tensile Strength of Tile when tested by ASTM-D 638-91 not to be less than 10,000 psi.
  5. Flexural Strength of Tile when tested by ASTM - C293-94 not to be less than 24,000 psi.
  6. Gardner Impact to geometry "GE" of the standard when tested by ASTM-D 5420-93 to have a mean failure energy expressed as a function of specimen thickness of not less than 450 in. lbf/in. A failure is noted if a hairline fracture is visible in the specimen
  7. Chemical Stain Resistance of Tile when tested by ASTM-D 543-87 to withstand without discoloration or staining - 1% hydrochloric acid, urine, calcium chloride, stamp pad ink, gum and red aerosol paint..
1. Abrasive Wear of Tile when tested by BYK - Gardner Tester ASTM-D 2386\* with reciprocating linear motion of  $37 \pm$  cycles per minute over a 10" travel. The abrasive medium, a 40 grit Norton Metallite sand paper, was fixed and leveled to a holder. The combined mass of the sled, weight and wood block is 3.2 lb. Average wear depth shall not exceed 0.030 after 1000 abrasion cycles measured on the top surface of the dome representing the average of three measurement locations per sample.
1. Fire Resistance: When tested to ASTM E84 flame spread shall be less than 25.
  2. Accelerated Weathering of Tile when tested by ASTM-G26-95 for 2000 hours shall exhibit the following result - no deterioration, fading or chalking of surface of tile.
- E. Vitrified Polymer Composite (VPC) Surface Applied Concrete Tactile Tiles adhered to concrete shall meet or exceed the following test criteria:

1. Accelerated Aging and Freeze Thaw Test of Tile and Adhesive System when tested to ASTM-D 1037 shall show no evidence of cracking, delamination, warpage, checking, blistering, color change, loosening of tiles or other defects.
2. Salt and Spray Performance of Tile and Adhesive System when tested to ASTM-B 117 not to show any deterioration or other defects after 100 hours of exposure.

## **5. DELIVERY, STORAGE AND HANDLING**

- A. Tiles shall be suitably packaged or crated to prevent damage in shipment or handling. Finished surfaces shall be protected by sturdy wrappings, and tile type shall be identified by part number.
- B. Tiles shall be delivered to location at building site for storage prior to installation.

## **6. SITE CONDITIONS**

- A. Environmental Conditions and Protection: Maintain minimum temperature of 40 degrees F in spaces to receive tactile tiles for at least 48 hours prior to installations, during installation, and for not less than 48 hours after installation. Store tactile tiles material in spaces where they will be installed for at least 48 hours before beginning installation. Subsequently, maintain minimum temperature of 40 degrees F in areas where work is completed.
- B. The use of water for work, cleaning or dust control, etc. shall be in contained and controlled and shall not be allowed to come into contact with the passengers or public. Provide barricades or screens to protect passengers or public.
- C. Disposal of any liquids or other materials of possible contamination shall be made in accordance with federal state and local laws and ordinances.
- D. Cleaning materials shall have code acceptable low VOC solvent content and low flammability if used on the site.
- E. Contractor shall coordinate phasing and flagging personnel operations as specified elsewhere.

## **7. EXTRA STOCK**

- A. Deliver extra stock to warehouse designated by engineer. Furnish new materials from same manufactured lot as materials installed and enclose in protective packaging with appropriate identification. Furnish not less than two (2)% of the supplied materials for each type, color and pattern installed.

## **8. GUARANTEE**

- A. Surface applied concrete tactile tiles shall be guaranteed in writing for a period of five years from date of final completion. The guarantee includes defective work, breakage, deformation, fading and chalking of finishes, and loosening of panels.

## **Part 2 PRODUCTS**

### **1. MANUFACTURERS**

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated in the Work include, but are not limited to, the following:
- B. The Vitrified Polymer Composite (VPC) Surface Applied Concrete Tactile Tiles specified is based on Armor-Tile manufactured by Engineered Plastics Inc. (800-682-2525). Existing engineered ADA and California Title 24 field tested products in service for a minimum of 2 years which are subject to compliance with requirements, may be incorporated in the work and shall meet or exceed the specified test criteria and characteristics.

Color: Yellow conforming to Federal Color No. 33538. Color shall be homogenous throughout the tile.

### **2. MATERIALS**

- A. Stainless steel low profile expansion anchors ¼ inch diameter by 2-1/8 inch long to be positioned in the molded recess of fourteen truncated domes per tile minimum.
- B. Heavy duty elastomeric polyurethane adhesive as manufactured by Boiardi, Mapei, Bostik or approved equal.
- C. Heavy duty elastomeric polyurethane sealant as manufactured by Boiardi, Mapei, Bostik or approved equal.

## **PART 3 EXECUTION**

### **1. INSTALLATION**

- A. During all surface preparation and tile installation procedures ensure adequate safety guidelines are in place and that they are in accordance with the applicable industry and government standards.

- B. The application of all adhesives, sealants and mechanical fasteners shall be in strict accordance with the guidelines set by their respective manufacturers.
- C. Throughout the installation phases of surface preparation and tile setting, ensure that care is taken to prevent damage to any work.
- D. Lay out area to receive tile and mark with an indelible felt pen a reference line for the saw cut to be made.
- E. Make saw cut in existing substrate straight and true. Ensure all dimensions and tolerances are as shown on the contract drawing. The saw cut at the leading edge of the installed tile is to be approximately ¼" wide x ¾" deep and 2'0" from the platform edge. A trial of the saw cut approximately 10' long shall be done on each platform to allow for checking to the contract drawing and fitting two tiles confirming tolerances are maintained.
- F. After the saw cut is made, the surface between saw cut and platform edge is ready for planing. Setting the diamond head planer to the appropriate depth, plane approximately 10 feet of platform edge. Use two of the tactile tiles shipped as a template to check all tolerances are within that of the contract drawing. Make necessary adjustments and continue to plane platform edge ensuring planing is straight and true and the depth of the cut is within tolerances.
- G. After planing has been completed, the surface is to be vacuumed and flushed with clean clear water, free from all dirt and debris. Visually inspect all surface and saw cut for obtrusions or foreign matter. If obtrusions are present, promptly grind away, making sure saw cut is not chipped or damaged.
- H. Immediately prior to installing the surface applied tactile tiles, all surfaces must be inspected to ensure that they are clean, dry, free of voids, curing compounds, projections, loose material, dust, oils, grease, sealers and determined to be structurally sound before the application of the setting adhesive. The setting adhesive requires that the substrate and the ambient temperature are 40 degree F minimum.
- I. Spread the adhesive to provide complete coverage over the planed concrete surface and platform edge, using a clean, well-maintained ¼" x ¼" V notch trowel. The adhesive is also to be applied to the leading edge saw cut to a depth of ½" for proper tile embedment.
- J. Inspect the tile and clean with acetone all dust and other contaminants from the surfaces to be adhered, then set the tile in place, true and square to the platform edge. Drill holes true and straight to the depth required using the recommended bit with holes located by the molded recesses provided in the tile. Clean dust from the holes to provide clear passage for the anchor.
- K. Mechanically fasten tiles to the floor surface using a punch pin and hammer to set the stainless steel impact anchors provided. Ensure the fastener has been set to full depth, straight and true. Care should be taken when setting the fastener to avoid any inadvertent blows with the hammer to the tile surface.
- L. The leading edge of the tile should be checked to ensure that the tolerance provided is in accordance with the contract drawings. Adjustment to the tiles leading edge is accomplished with a small shim driven into the leading edge saw cut to wedge the tile flange against the side walls of the groove and hold the tile to the desired elevation.

- M. All subsequent tiles are set following the same procedures as outlined in I, J, K, and L. The gap of 1/8" allowed between tiles for expansion and contraction is mandatory.
- N. Following the installation of the tiles and allowing the tile setting adhesive 12 hours for curing, the urethane sealant system color matched to the adjacent floor finish should be applied to the leading edge saw cut to finish the tile flush with the adjacent floor finish. Follow the manufacturer's recommendations when mixing or applying the sealant system and ensure that the joint is clean and free of debris, and any excess adhesive is cut away to provide sufficient depth for the sealant in the saw cut in accordance with the contract drawings.
- O. After the platform edge has been fully tiled and sealant system applied, the tile surface shall be cleaned, following the recommended maintenance and cleaning procedures.

## **2. CLEANING AND PROTECTING**

- A. Protect panels against damage during construction period to comply with tactile panel manufacturer's specification.
- B. Protect panels against damage from rolling loads following installation by covering with plywood or hardwood.
- C. Clean tactile panels not more than four days prior to date scheduled for inspection intended to establish date of substantial completion in each area of project. Clean tactile panel by method specified by tactile panel manufacturer.

**--- End of Section ---**