We appreciate your interest in our **Armor-Tile Detectable Warning Surface Tile Systems**, and as requested we are enclosing our recently updated submittal package.

This informative compilation includes a copy of our brochure, product specifications, installation manuals, blueprints, laboratory test results, cleaning and maintenance instructions, a sample warranty form, a letter of compliance, and our standard colors. This information should prove useful in determining the **Armor-Tile System** (Cast In Place or Surface Applied) best suited to your project requirements. However, if additional information is required, such as project specific blueprints and specifications, we would be pleased to produce a detailed proposal specific to your project requirements.

The principal features that have established **Armor-Tile** as the industry leader in tactile systems are:

- “Diamond hard” vitrified polymer composite, with high wear resistance derived from the aluminum oxide composition (wear index <0.06 ASTM D 2486, >500 ASTM C 501)
- Extremely slip resistant, wet or dry (>0.8 ASTM C 1028)
- High density, non-porous material for freeze/thaw resistance and ease of maintenance (water absorption <0.05% ASTM D 570)
- High impact resistance and compressive strengths as compared to concrete, porcelain or granite (impact >550 in.-lb f/in ASTM D 5420, compressive > 28,000 psi ASTM D 695)
- Chemical and stain resistant surface (ASTM D 543)
- UV stable weather resistant composite with color throughout the tile matrix (3000 hrs. ASTM G 155-05a)
- Enhanced design of detectable warning surface to provide a safer, more accessible walking surface for all disability groups, including mobility impaired, the elderly and women in high heels.
- Three tile systems engineered to accommodate various installation conditions, including Cast In Place, Surface Applied, and Modular Paver Tiles.

We trust this overview of the **Armor-Tile Systems**, together with the information contained in our submittal package is helpful in determining the **Armor-Tile System** best suited to your project requirements. Please feel free to contact our technical support department (tech@engplastics.com) or our sales department (sales@engplastics.com) for any additional information you may require, or for a quotation on your project. If you would like to speak directly with our sales or engineering representatives please call us directly by dialing toll free **1-800-682-2525**.

Yours very truly,

John Heffner
**Vice President**
Product Presentation
Armor-Tile is the market leader in detectable warning and way finding solutions for the visually impaired with a variety of installation systems for use in any construction application. Armor-Tile Detectable Warning Surface Systems are fully compliant with the Americans with Disabilities Act (ADA) and California Building Code Title 24.

Applications
Armor-Tile has application systems that can be used anywhere the safety of the visually impaired is a concern such as, curb ramps, depressed curb walkway systems, shopping malls, transit platforms, parking areas, stairwells, and escalator approaches.

Features
Armor-Tile is available in various sizes and colors to suit your project specific requirements. Cast-In-Place Tiles can be installed during the casting of new concrete, Surface Applied Tiles can be used to retrofit existing concrete surfaces and Modular Pavers can be installed on compacted granular fill or wet set into a mortar bed. Directional Tiles can be installed in areas where the visually impaired need to be directed to shelters, doorways or general walkway approaches and Guidance Tiles are used as a tactile pathway across a vehicular way.

Benefits
Armor-Tile is consistently ranked number one in government reports as the most durable and detectable warning surface available.

- Armor-Tile is in full compliance with Americans with Disabilities Act (ADA), California Building Code (Title 24).
- Department of Transportation approved and the specified product of choice by cities and counties from Alaska to Florida.
- Vitrified Polymer Composite employing aluminum oxide for outstanding abrasion resistance as well as excellent resistance to chemicals and salt, freeze thaw resistance and high Gardener Impact resistance even in cold weather.
- Leading technology in ultra violet protection.
- Cast-In-Place, Surface Applied and Modular Paver available in sizes 12”x12”, 24”x24”, 24”x36”, 24”x48”, 24”x60, 36”x48”, 36”x60”

Installations
Step-by-step installation procedures can be viewed in slide show format on our web site or by request in CD format. Written installation procedures for all applications are included in sales literature and can be downloaded from our web site. Please contact us directly for a distributor in your area.

For Additional Information
Visit the Armor-Tile Web Site at www.armor-tile.com

Contact
Engineered Plastics Inc.
300 International Drive, Suite 100
Williamsville, NY 14221

Tel: 800 682-2525  Fax: 800-769-4463

Website: http://www.armor-tile.com  Email: sales@engplastics.com
Armor-Tile™
Setting the standard for **durability and detectability** in tactile systems.
Who we are......

Armor-Tile™ is the world leader in detectable warning systems. Manufactured of a diamond-hard vitrified polymer composite, Armor-Tile™ truncated dome and directional tiles are the industry leader for durability, weather and wear resistance. Armor-Tile™ is your one stop source for all tactile systems for the visually impaired. Only Armor-Tile™ provides a complete range of products designed for the safety and convenience of the visually impaired, in full compliance with the Americans with Disabilities Act (ADA).

Please visit www.Armor-Tile.com for information on ADA regulations, detailed products specifications, detail drawings, installation instructions and videos, distributor information and more.......

ASTM and UL Testing

Water Absorption - ASTM D570-98 - Less than 0.08%
Slip Resistance - ASTM C1028-96 - Greater than 0.80
Compressive Strength - ASTM D695-02a - Greater than 28,000 psi
Tensile Strength - ASTM D638-02a - Greater than 19,000 psi
Flexural Strength - ASTM D790-03 Greater than 25,000 psi
Chemical Stain Resistance - ASTM D543-95 - No discoloration or staining
Abrasive Wear - ASTM D2486-00 - Less than 0.060 after 6000 cycles
Wear Resistance - ASTM C501-84 - Greater than 500
Accelerated Weathering - ASTM G155-05a for 3000 hrs no fading or chalking
Freeze/Thaw - ASTM D1037-99 no cracking, delamination, or other defects
Salt Spray - ASTM B117-03 for 200 hours no deterioration

AVAILABLE IN THE FOLLOWING SIZES AND COLORS:
12"X12" • 24"X24" • 24"X36" • 24"X48" • 24"X60" • 36"X48" • 36"X60"

- Federal Yellow (YW) FED 33538
- Ochre Yellow (OCR) FED 23594
- Colonial Red FED 20109
- Brick Red (RD) FED 22144
- Onyx Black (BK) FED 17038
- Dark Gray (DG) FED 36118
- Light Gray (LG) FED 26280
- Pearl White FED 37875
- Ocean Blue FED 15187

Easy to Install
Please see www.Armor-Tile.com for detailed installation instructions and videos.

Manufacturer training is available to establish the highest quality standards.

Armor-Tile.com
Replaceable Cast in Place - Herculite Series
The Herculite Series Cast in Place system features the ability to easily replace the tile surface without the removal and replacement of concrete. The tamper-proof stainless steel fastener maintains a flush tile surface and the corrosion resistant hexagonal anchor integrates with the concrete for optimal anchoring power.

Cast in Place
The traditional cast in place detectable warning tile is an ideal solution for tactile needs and boasts the lowest installation cost available. The integral embedment flanges are the complete anchoring system and the tile is easily cut for angle or radius applications.

Surface Applied
A cost effective solution for retrofit applications or new construction the surface applied tile is supplied as a complete system including the Tile, Adhesive, Fasteners and Sealant. The beveled perimeter edge ensures a smooth transition from the substrate to the detectable warning surface and meets ADA requirements. In addition the surface applied tile is easily cut to conform to angle or radius ramps.

Modular Paver
The Armor-Tile™ Modular Paver is the solution of choice to integrate with landscape pavers, the high strength modular paver can be dry laid on compacted fill or set in a grout bed or drypac. It is also easily cut for angle or radius ramps and available in 12"x12" or 24"x 24”.

Detectable Directional
Tactile Pathway
The typical areas of use for the detectable directional are university campuses, parks, sidewalks, and transit facilities. The detectable directional is a cost effective solution for both retrofit conditions or new construction and supplied as a complete system with the Tile, Adhesive, Fasteners, and Sealant and is available in the following sizes: 12"x12", 6"x48", 12"x48,24"x48", 36"x48", 36"x60"

Detectable Guidance
Pedestrian Crossing Guide Strip
The Detectable Guidance Tile is to be used as a tactile pathway for the visual community at pedestrian crossings in roadways. The integral embedment flanges are the complete anchoring system for a new construction application and is available in 4"x24"
Engineered Plastics Inc.
300 International Drive #100
Williamsville NY 14221

Tel: (800) 682-2525
Fax: (800) 769-4463

Armor-Tile.com
CAST IN PLACE DETECTABLE/TACTILE WARNING SURFACES

SECTION 09614
DETECTABLE/TACTILE WARNING SURFACES

PART 1 GENERAL

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

1.02 DESCRIPTION
A. This Section specifies furnishing and installing Cast In Place Detectable/Tactile Warning Surface Tiles where indicated. Not recommended for asphalt applications.

1.03 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 12”x12” 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 laboratories 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/Tactile Warning Surface Tile system as certified by a qualified independent testing laboratory.
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.

1.04 QUALITY ASSURANCE
A. Provide Cast In Place Detectable/Tactile Warning Surface Tiles and accessories as produced by a single manufacturer with a minimum of five (5) years’ experience in the manufacturing of Cast In Place Detectable/Tactile Warning Surface Tiles.
B. Installer’s Qualifications: Engage an experienced Installer certified in writing by Cast In Place Detectable/Tactile Warning Surface Tile manufacturer as qualified for installation, who has successfully completed installations similar in material, design, and extent to that indicated for Project.
C. Americans with Disabilities Act (ADA): Provide Surface Applied Detectable/Tactile Warning Surface Tiles which comply with the detectable warnings on walking surfaces section of the Americans with Disabilities Act (Title III Regulations, 28 CFR Part 36 ADA STANDARDS FOR ACCESSIBLE DESIGN, Appendix A, Section 4.29.2 DETECTABLE WARNINGS ON WALKING SURFACES).
D. California Code of Regulations (CCR): Provide only approved DSAAC detectable warning products as provided in the California Code of Regulations (CCR) Title 24, Chapter 2, Section 202 definition of "Detectable Warning." Section 11B-247 and 11B-705 "DetectableWarnings And Detectable Directional Texture"
E. Vitrified Polymer Composite (VPC) Cast In Place Detectable/Tactile Warning Surface Tiles shall be an epoxy polymer composition with an ultra violet stabilized coating employing aluminum oxide particles in the truncated domes. The tile shall incorporate an in-line pattern of truncated domes measuring nominal 0.2” height, 0.9” base diameter, and 0.45” top diameter, spaced center-to-center 2.35” to 2.40 as measured "In Line". For wheelchair safety the field area shall consist of a non-slip surface with a minimum of 40 - 90° raised points 0.045” high, per square inch; "Armor-Tile" as manufactured by Engineered Plastics Inc., Tel: 800-682-2525, or approved equal.

1. Dimensions: Cast In Place Detectable/Tactile Warning Surface Tiles shall be held within the following dimensions and tolerances:
Specifiers Note: Edit section below by selecting desired length and width. Delete non-relevant dimensions.

Length and Width: [36x48] [36x60] nominal
Depth: 1.375 (1-3/8”) (+/-) 5% max.
Face Thickness: 0.1875 (1-3/8”) (+/-) 5% max.
Warpage of Edge: 0.5% max.
Embedment Flange Spacing: shall be no greater than 3.1”

2. Water Absorption of Tile when tested by ASTM D 570-98 not to exceed 0.05%.
3. Slip Resistance of Tile when tested by ASTM C 1028-96 the combined Wet and Dry Static Co-Efficients of Friction not to be less than 0.80 on top of domes and field area.
4. Compressive Strength of Tile when tested by ASTM D 695-02a not to be less than 28,000 psi.
5. Tensile Strength of Tile when tested by ASTM D 638-03 not to be less than 19,000 psi.
6. Flexural Strength of Tile when tested by ASTM D 790-03 not to be less than 25,000 psi.
7. Chemical Stain Resistance of Tile when tested by ASTM D 543-95 (re approved 2001) to withstand without discoloration or staining - 10% hydrochloric acid, urine, saturated calcium chloride, black stamp pad ink, chewing gum, red aerosol paint, 10% ammonium hydroxide, 1% soap solution, turpentine, Urea 5%, diesel fuel and motor oil.
8. Abrasive Wear of Tile when tested by BYK - Gardner Tester ASTM D 2486-00 with reciprocating linear motion of 37± cycles per minute over a 10” travel. The abrasive medium, a 40 grit Norton Metalite sand paper, to be fixed and leveled to a holder. The combined mass of the sled, weight and wood block is to be 3.2 lb. Average wear depth shall not exceed 0.060 after 1000 abrasion cycles when measured on the top surface of the dome representing the average of three measurement locations per sample.
9. Resistance to Wear of Unglazed Ceramic Tile by Taber Abrasion per ASTM C501-84 (re approved 2002) shall not be less than 500.
10. Gardner Impact to Geometry "GE" of the standard when tested by ASTM D 5420-04 to have a mean failure energy expressed as a function of specimen thickness of not less than 550 in. lbf/in. A failure is noted when a crack is visible on either surface or when any brittle splitting is observed on the bottom plaque in the specimen.
11. Accelerated Weathering of Tile when tested by ASTM G 155-05a for 3000 hours shall exhibit the following result – ΔE <4.5, as well as no deterioration, fading or chalking of surface of tile color No 33538.
12. Accelerated Aging and Freeze Thaw Test of Tile and Adhesive System when tested to ASTM D 1037-99 shall show no evidence of cracking, delamination, warpage, checking, blistering, color change, loosening of tiles or other detrimental defects.
13. Salt and Spray Performance of Tile when tested to ASTM B 117-03 not to show any deterioration or other defects after 200 hours of exposure.
14. AASHTO HB-17 single wheel HS20-44 loading “Standard Specifications for Highways and Bridges”. The Cast In Place Tile shall be mounted on a concrete platform with a ½” airspace at the underside of the tile top plate then subjected to the specified maximum load of 10,400 lbs., corresponding to an 8000 lb individual wheel load and a 30% impact factor. The tile shall exhibit no visible damage at the maximum load of 10,400 lbs.
15. Embedment flange spacing shall be no greater than 3.1” center to center spacing as illustrated on the product Cast In Place drawing.

1.05 DELIVERY, STORAGE AND HANDLING

A. Cast In Place Detectable/Tactile 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/Tactile Warning Surface Tiles shall be delivered to location at building site for storage prior to installation.

1.06 SITE CONDITIONS
A. Environmental Conditions and Protection: Maintain minimum temperature of 40°F in spaces to receive Cast In Place Detectable/Tactile 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.

1.07 GUARANTEE

A. Cast In Place Detectable/Tactile Warning Surface Tiles shall be guaranteed in writing for a period of five (5) years from date of final completion. The guarantee includes defective work, breakage, deformation, fading and loosening of tiles.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. The Vitrified Polymer Composite (VPC) Cast In Place Detectable/Tactile Warning Surface Tile specified is based on Armor-Tile manufactured by Engineered Plastics Inc. (800-682-2525). No equal substitutions allowed after bidding process.

B. Color: Yellow conforming to Federal Color No. 33538. Color shall be homogeneous throughout the tile. Tiles are also available in Light Grey (Federal Color No. 26280), Dark Grey (Federal Color No. 36118), Onyx Black (Federal Color No. 17038), Pearl White (Federal Color No. 37875), Brick Red (Federal Color No. 22144), Ocean Blue (Federal Color No. 15187), Ochre Yellow (Federal Color No. 23594), and Colonial Red (Federal Color No. 20109).

PART 3 EXECUTION

3.01 INSTALLATION

A. During Cast In Place Detectable/Tactile 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.

B. Prior to placement of the Cast In Place Detectable/Tactile 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.

C. 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. Not recommended for asphalt applications.

D. The physical characteristics of the concrete shall be consistent with the contract specifications while maintaining a slump range of 4 - 7 to permit solid placement of the Cast In Place Detectable/Tactile 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.

E. 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 such as that manufactured by Vibco can be employed, if desired. The vibrating unit should be fixed to a soft base such as wood, at least 1 foot square.

F. 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.

G. 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.

H. 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 in accordance with the contract drawings. The Cast In Place Detectable/Tactile 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.

I. In cold weather climates it is recommended that the Cast In Place Detectable/Tactile Warning Surface Tiles be set deeper such that the top of domes are level to the adjacent concrete on the top and sides of ramp and that the base of domes allow water drainage. This installation will reduce the possibility of damage due to snow clearing operations.

J. Immediately after placement, the tile elevation is to be checked to adjacent concrete. The elevation and slope should be set consistent with contract drawings to permit water drainage to curb as the design dictates. Ensure that the field surface of the tile is flush with the surrounding concrete and back of curb so that no ponding is possible on the tile at the back side of curb.

K. 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.

L. 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.

M. Following tile placement, review installation tolerances to contract drawings and adjust tile before the concrete sets. Two suitable weights of 25 lb each may be required to be placed on each tile as necessary to ensure solid contact of the underside of tile to concrete.

N. 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.

O. If desired, individual tiles can be bolted together using ¼ inch or equivalent hardware. This can 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.

P. 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.

Q. 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.

3.02 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. Clean Tactile Tiles 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 Tile by method specified by Tactile Tile manufacturer.
D. Comply with manufacturers maintenance manual for cleaning and maintaining tile surface and it is recommended to perform annual inspections for safety and tile integrity.

END OF SECTION
A. During Cast In Place Detectable/Tactile 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.

B. 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. Not recommended for asphalt applications.

C. The physical characteristics of the concrete shall be consistent with the contract specifications while maintaining a slump range of 4 - 7 to permit solid placement of the Cast In Place Detectable/Tactile 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.

D. Prior to placement of the Cast In Place Detectable/Tactile Warning Surface Tile system, the contract drawings shall be reviewed.

E. 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 such as that manufactured by Vibco can be employed, if desired. The vibrating unit should be fixed to a soft base such as wood, at least 1 foot square.

F. 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.

G. 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.

H. 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 in accordance with the contract drawings. The Cast In Place Detectable/Tactile 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.

I. In cold weather climates it is recommended that the Cast In Place Detectable/Tactile Warning Surface Tiles be set deeper such that the top of domes are level to the adjacent concrete on the top and sides of ramp and that the base of domes to allow water drainage. This installation will reduce the possibility of damage due to snow clearing operations.

J. Immediately after placement, the tile elevation is to be checked to adjacent concrete. The elevation and slope should be set consistent with contract drawings to permit water drainage to curb as the design dictates.

K. 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.

L. 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.

M. Following tile placement, review installation tolerances to contract drawings and adjust tile before the concrete sets. Two suitable weights of 25 lb each shall be placed on each tile as necessary to ensure solid contact of the underside of tile to concrete.

N. 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.

O. If desired, individual tiles can be bolted together using 1/4 inch or equivalent hardware. This can help to ensure that adjacent tiles are flush to each other during the installation process. Tape or caulkings 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.

P. 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.

Q. 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 detectability properties of the Armor-Tile system as required in various jurisdictions.
1. Maintaining a 4-7 slump range, pour and float the concrete.

2. Without removing any concrete, place the tile on the curb ramp 6”-8” from the curb line (face of curb).

3. Tamp the tile in grid pattern across the top face, embedding the tile into the concrete using a white or (non-marring) rubber mallet or vibrate into place using a vibrating mechanism fixed with a soft base such as wood, at least 1 foot square.

4. Place two cinder blocks or 25lb weights on the tile to prevent floating.

5. Create an edge around the perimeter of the tile using a 3/8” radius edging tool then float the concrete around the tile’s perimeter using a steel trowel.

6. Apply a broom-finish to the curb ramp.

7. After the concrete has substantially cured, remove the protective plastic wrap by cutting the plastic with a sharp knife tight to the concrete/tile interface.

8. If concrete bled under the plastic, a soft wire brush will clean the residue without damage to the tile surface.
INTRODUCTION
The Armor-Tile Detectable Warning Tile is unique in its visual and tactile properties and requires a slight variation in maintenance and cleaning procedures as compared to other pedestrian surfaces. Due to the truncated domes undulation and texture of the tile surface, it is necessary to reach the grime that rests on the low parts of the tile. Standard wet mopping will not be completely effective in cleaning these textured surfaces. A major benefit of the polymer composite tile is that the composition is virtually non-porous, and prevents liquids, dust and grime seeping into the body of the tile. The unique, non-porous nature of the tile therefore lends itself to regular and frequent cleaning in order to maintain and enhance the visual contrast that the tile provides. Visual contrast is an essential safety feature of the tactile tiles, and this contrast must be rigorously maintained with regular cleaning in order to provide the contrast that the visually impaired rely on for their safety.

INSPECTION
The Armor-Tile Detectable Warning Tile installation should be regularly inspected to ensure it is not being used for purposes other than the intended use as a tactile warning device for the visually disabled where a pedestrian environment leads into a hazardous area. Ensure this route of travel is only used by pedestrians. Non-Mobility Wheeled devices such as delivery carts and refuse container traffic should be avoided and may prematurely wear or leave residue on the surface of the tile. It is the responsibility of the owner to ensure the tile and installation remain compliant with current federal and local regulations. We recommend the owner or responsible party in charge of maintaining the detectable warning installation contact their local ADA coordinator or building departments enforcing entity and have them review the surface and installation for compliance and safety in accordance with their building standards and specifications.

The Armor-Tile Detectable Warning Tile surface should also be regularly checked for loose debris or damage as part of the preventative maintenance procedures set forth by the owner. Hazardous conditions created by ice, snow, loose debris, damage and excessive wear as determined by the enforcing entity must be immediately eliminated if possible. The area must be blocked off and an alternative accessible route provided until surface is cleaned or repaired in accordance with federal and local requirements. Remove loose debris with a stiff bristle broom. Ensure any snow and/or ice accumulation is addressed in accordance with federal and local laws and regulations. *

MAINTENANCE
*Do not use snow plows, shovels or sharp metal tools to remove snow, ice and debris from tile surface.
We recommend the removal and replacement of the detectable warning surface if there is any question about the compliance or safety of the existing installation once in service.

**CLEANING**

Many neutral general purpose cleaners are effective for the regular maintenance and cleaning of Armor-Tile. It is important that the cleaner to be used has a non-oil, non-animal fat, non-soap base. Cleaners with these bases may cause problems due to oil-residues which tend to trap dirt in the cleaning process.

Please remember to treat any cleaning product you wish to use on a small, out of the way test area of the tactile surface and adjacent floor area before applying it to the entire Armor-Tile surface. This will ensure that it performs as desired, not only on the Armor-Tile surface but also on the adjacent floor finish, thus avoiding unexpected problems.

The use of general purpose commercial floor cleaners or machine bristle scrubbing will not harm Armor-Tile. However, as these cleaning practices may weaken or dissolve the adjacent floor finish, careful attention must be paid to the selection and application of the cleaning solution. It is advisable to check with the manufacturer of the cleaning solution in order to be certain that the product intended to be used will not harm the Armor-Tile, grout, or the adjacent floor finish in any way.

**AVOID SURFACE COATINGS**

Armor-Tile does not require the use of sealants or waxes. Adding surface coatings increases the number of unnecessary steps in maintenance procedures without improving either the appearance of the tile, or the resistance to dirt build-up. In fact, using a surface coating turns a low maintenance composite finish into a high maintenance tile.

In addition, surface coatings will actually diminish the unique performance characteristics that make Armor-Tile exceptional among tactile tiles. Such surface coatings create a thin barrier that may modify the skid resistance and visibility properties, thereby reducing an important safety feature of the flooring.

**REPLACEMENT OF TILES**

The replacement of an Access Tile Detectable Warning Tile should be performed once it is determined the surface is worn or damaged to the point where it is no longer in compliance with local laws and regulations. It is recommended the tile be inspected and replaced as part of the preventative maintenance program of the municipality or building owner. In the event you have any questions or concerns about replacement of an Access Tile Detectable Warning Tile you should check with the local ADA coordinator (see the Americans With Disabilities Act) or the local/municipal building inspector.
October 8, 2015

Certificate of Compliance

Engineered Plastics Inc. certifies that the Armor-Tile and the specified installation materials are in compliance with following:

Americans with Disabilities Act (ADA) (Title III Regulations, 28 CFR Part 36 ADA STANDARDS FOR ACCESSIBLE DESIGN, Appendix A, Section 4.29.2 DETECTABLE WARNINGS ON WALKING SURFACES).

California Code of Regulations (CCR): Provide only approved DSAAC detectable warning products as provided in the California Code of Regulations (CCR) Title 24, Chapter 2, Section 202 definition of “Detectable Warning”. Section 11B-247 and 11B-705 “Detectable Warnings and Detectable Directional Texture”

Please visit our web site www.armor-tile.com or call us directly for additional information regarding our products and services.

Sincerely,

John A Heffner
Vice President
Engineered Plastics Inc.
MATERIAL WARRANTY*

Contract No./Date:
Project Description:
Contractor/Sub:
Owner:
Product Installed:

*issued on a per project basis

Engineered Plastics Inc. warrants to the Owner that Armor-Tile Detectable Warning Tiles manufactured by Engineered Plastics Inc. are free from defects in workmanship and material including deformation, breakage and delamination for a period of Five (05) years from the date of acceptance of the project.

EXCLUSIVE REMEDIES. Engineered Plastics Inc., at its cost, will repair or replace defective material promptly reported to Engineered Plastics Inc. during the warranty period. This warranty includes labor costs and cost of removal of the product. Repair or replacement will be done on site.

WARRANTY LIMITATIONS. Engineered Plastics Inc. warranty of Armor-Tile products does not apply to conditions resulting from improper installation, improper use, external causes, intentional misuse or abuse, neglected or improper annual maintenance, vandalism, modifications to the Armor-Tile products or installation procedures with the exception of the Owner’s right to immediately eliminate an unsafe condition.

DISCLAIMER OF WARRANTIES The above warranties are the Owner’s exclusive warranties. No other warranty, express or implied, shall apply. Engineered Plastics Inc. specifically makes no warranty of merchantability and/or fitness for a particular purpose.

IN NO EVENT WILL ENGINEERED PLASTICS INC. BE LIABLE FOR ANY DAMAGES, LOST PROFIT, DIRECT, CONSEQUENTIAL OR ECONOMIC DAMAGES.

MATERIAL SUPPLIER:

Engineered Plastics Inc.

________________________
Authorized Signature

Name: _________________
Tile: _________________
Date: _________________