

***SUGGESTED SPECIFICATIONS  
FOR  
DETECTABLE WARNING PANELS***

**1.0 General Requirements**

1.1 This specification states the requirements for wet cast detectable warning panels for installation in curb ramps and hazardous areas.

**1.2 Sample and Certified Test Reports**

A representative sample of the proposed panel to be furnished must be submitted along with the required certified test reports for approval.

**1.3 Standards**

1.3.1 Detectable warning surface panels must comply with detectable warnings on walking surfaces section of the American 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.

**2.0 Materials Requirements**

Polymer concrete cast-in-place Detectable Warning Panels shall be manufactured using polymer concrete material. Polymer concrete material shall consist of calcareous and siliceous stone, glass fibers and thermo set polyester resin. The polymer concrete material shall be tested by an independent testing laboratory for chemical resistance and mechanical properties.

**2.1 Chemical Resistance**

Chemical Resistance	ASTM D-543
Simulated Sunlight	ASTM D-1501
Accelerated Service Test	ASTM D-756 Procedure "E"
Water Absorption	ASTM D-570

Material shall be determined to be acceptable if the following criteria are met. For chemical resistance, simulated sunlight, accelerated service test, and water absorption: retention of 75 percent of the control specimen values for load and deflection and no more than 2 percent change in weight. For flammability test, specimen should be self-extinguishing. For fungus resistance test the material should not allow any fungus growth. Smoke density shall be less than 0.5 at 1.5 minutes and less than 15 at 4 minutes. Surface flammability shall be less than 25.

## 2.2 Mechanical Properties

The mechanical properties of polymer concrete material shall be tested by an independent testing laboratory. Polymer concrete material shall have the following mechanical properties:

<u>Mechanical Properties</u>	<u>Average Value</u>	<u>Test Method</u>
Compressive Strength	11,430 PSI	ASTM C-170-99
Flexural Strength	3,330 PSI	ASTM C-580-02
Tensile Strength	1,710 PSI	ASTM C307-99
Shear Strength	11,670 PSI	ASTM D-372-02
Modulus of Elasticity	1,776,400 PSI	ASTM C-580

## 2.3 Construction

1. For consistency, detectable warning panels shall be manufactured using matched die molds under heat and pressure for superior material compaction, controlled chemical curing and uniform dimensions.
2. Polymer concrete detectable warning panels shall be reinforced with fiberglass mats for superior strength.
3. Polymer concrete detectable warning panels shall have ½” thick material sectional thickness excluding truncated domes height or reinforcement ribs.
4. Polymer concrete detectable warning panels shall be fitted with Zinc alloy concrete anchors and stainless steel bolts.
5. Polymer concrete panel surface shall be coated to keep the panel surface clean during installation. The coating shall be easily removable immediately after installation.
6. Polymer concrete detectable warning panels shall be fitted with hot dipped galvanized angles to facilitate installation in wet concrete.
7. Polymer concrete detectable warning panels shall be field replaceable without the need of cutting the existing concrete or pouring new concrete.
8. Slip Resistance of Polymer concrete detectable warning panel when tested by ASTM-C 1028 shall not to be less than 0.80.
9. Chemical Resistance of Tile when tested by ASTM-D 543 to withstand without any degradation or discoloration-1% hydrochloric acid, Acetic Acid, Sulfuric Acid, Sodium Chloride Sodium Hydroxide, Sodium Sulfate, Sodium Carbonate, Kerosene and Oil.
10. The material shall be abrasive resistant and shall be warranted for 5 years against excessive wear.
11. The polymer concrete material shall not sustain burning and be self extinguishing when tested in accordance with ASTM D 635.
12. The polymer concrete material shall not promote fungus growth when tested in accordance with ASTM G21.

13. The polymer concrete material surface flammability shall be tested in accordance with ASTM E-162 and shall be less than 25.
14. Smoke density shall be tested in accordance with ASTM E-662-03 and shall be less than 0.5 at 1.5 minutes and less than 15 at 4 minutes.

3.0 **Testing and Documentation Requirements**

- 3.1 The Polymer concrete Cast-In-Place Detectable Warning Panels specified is based on Armorcast Products Company (818-982-3600) or approved equal.
- 3.2 Certified test report must be submitted to demonstrate conformance to this specifications. Testing must be conducted by an independent testing laboratory.
- 3.3 Installation procedures must be submitted along with product drawings.