

1725 - DETECTABLE WARNING SURFACE PANELS FOR CURB RAMPS AND MEDIANS

SECTION 1725

DETECTABLE WARNING SURFACE PANELS FOR CURB RAMPS AND MEDIANS

1725.1 DESCRIPTION

This specification governs fabrication of panels compliant with the Public Rights-of-Way Accessibility Guidelines (PROWAG). The panels are required to comply with all dimensional requirements as stipulated within the PROWAG.

1725.2 REQUIREMENTS

a. General.

(1) Any manufacturer producing panels under this specification must be currently prequalified. Procedures for prequalification are outlined in **subsection 1725.4**.

(2) Unless shown otherwise in the Contract Documents, manufacture all panels provided under this specification to comply with the applicable subsections.

(3) Provide in the appropriate color stipulated in the Contract Documents. Warrant the color for 10 years.

b. Prestressed Concrete Panels.

(1) Provide a non-rusting prestressed support system integrated into the lower portion of the panel. The system is required to impart pressure in excess of 200 psi in both horizontal directions on a fully cured panel.

(2) Dimensions. Provide a 2 X 2 foot panels that comply with the dimensions and details specified by the PROWAG. Larger panels may be used if approved by the Engineer.

(3) Material Specifications. Provide panels that comply with **TABLE 1725-1**.

Table 1725-1: REQUIREMENTS FOR PRESTRESSED CONCRETE PANELS		
Property	Test Method	Requirement
Accelerated Weathering	ASTM G 155	No visible change (2915 hrs)
Compressive Strength	ASTM C 39	≥ 8,000 psi
Slip Resistance	ASTM D 2047	≥ 0.80

c. Polymer Concrete Panels.

(1) Provide a polymer concrete panel. For this specification, polymer concrete is defined as having a cementitious material blended with an epoxy material to create a high-strength, tough and durable panel. Fibers may be used.

(2) Dimensions. Provide a 2 X 2 foot panels that comply with the dimensions and details specified by the PROWAG. Larger panels may be used if approved by the Engineer.

(3) Material Specifications. Provide a polymer concrete panel that complies with **TABLE 1725-2**.

Table 1725-2: REQUIREMENTS FOR POLYMER CONCRETE PANELS		
Property	Test Method	Requirement
Accelerated Weathering	ASTM G 155	No visible change (2915 hrs)
Compressive Strength	ASTM C 39 or ASTM C 170	≥ 8,000 psi
Slip Resistance	ASTM D 2047 or ASTM C 1028	≥ 0.80

d. Composite Panels.

(1) Provide an anchored cast-in-place design that is replaceable without removing or damaging the surrounding hardened concrete.

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(2) Panel. Provide a homogeneous, monolithic, glass-reinforced polymer composite panel that is colorfast and UV stable. Disperse coloring pigments and chemicals to enhance UV stability uniformly throughout the product. Panels using a coating to achieve color fastness or UV stability will not be approved.

If provided, a reinforcing flange or wedge along the perimeter of the panel can be no more than 0.75 inch deep (total depth, including panel thickness) and must be shaped in such a fashion so that it does not prevent panel removal and replacement in hardened concrete. Provide breaks in the perimeter flange to allow for air evacuation from under the panel during installation.

Cast the manufacturer's name into the top surface of the panel.

(3) Dimensions. If possible, provide a single, standard size panel large enough to comply with the length and width requirements in the contract documents. If a single panel will not satisfy the dimensional requirements in the contract documents, arrange the fewest number of standard size panels to minimize total joint length and panel cutting.

Provide a panel whose dome size and in-line spacing is compliant with PROWAG.

(4) Anchor. Provide nylon composite or HDPE, corrosion resistant anchors. Provide a self-threading anchor design that allows for repeated panel removal and re-installations.

Provide a minimum 2.0 inch long spike type anchor whose shape facilitates insertion into stiff, plastic concrete by minimizing concrete displacement while maximizing aggregate/anchor interlock. Other anchor shapes and lengths will be considered as part of the prequalification review on a case-by-case basis provided the panel manufacturer can provide a 3-year history of satisfactory anchor performance, especially in relation to anchor insertion under less than ideal concrete conditions and anchor pullout.

The outer "ring" of anchors can be centered no more than 5 inches from the nearest edge of the panel, measured perpendicular to the edge. The center-to-center spacing between adjacent anchors can be no more than 24 inches in any direction.

(5) Anchor Fastener. Provide minimum #10 size, tamper-proof, countersunk, flathead, stainless steel fasteners that sets flush with the dome or field surface and provides at least 1 inch of embedment into the anchor. As part of the prequalification review of alternate anchors as described in **subsection 1725.2d.(4)**, a shorter fastener embedment or different type of fastener will be considered on a case-by-case basis.

(6) Panel Modification. Provide a panel which, when cut, is engineered to conveniently facilitate the drilling of additional countersunk holes at thickened auxiliary anchor points to accommodate the maximum anchor spacing and edge distance requirements of **subsection 1725.2d.(4)**. If this requirement cannot be met, the panel will be approved for uncut applications only.

(7) Surface Protection. Provide a removable plastic film to protect the panel surface during installation.

(8) Material Specifications. Provide a composite panel that complies with **TABLE 1725-3**.

Table 1725-3: REQUIREMENTS FOR COMPOSITE PANELS		
Property	Test Method	Requirement
Water Absorption	ASTM D 570	≤ 0.50%
Accelerated Weathering	ASTM G 155	No visible change (2915 hrs)
Flexural Strength	ASTM D 790, Procedure A	≥ 15,000 psi
Slip Resistance	ASTM C 1028	≥ 0.80 wet or dry
Abrasion Resistance	ASTM C 501	I _w > 130
Salt Spray	ASTM B 117	No visible change (120 hrs)
Freeze/Thaw/Heat	ASTM C 1026	No chipping, cracking, or peeling

1725.3 TEST METHODS

Perform all test methods as specified in **subsection 1725.2** for the given product.

1725.4 PREQUALIFICATION

To prequalify concrete panels, send three (3) 6 x 6 inch samples of each color to be prequalified to the Engineer of Tests along with test results from a certified laboratory (CCRL, A2LA or NVLP).

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To prequalify composite panels, send a single 1 x 1 foot panel (w/installed anchors) of any color and three (3) 6 x 6 inch sample of each color to be prequalified to the Bureau Chief of Construction and Materials along with test results from an approved laboratory. In addition, provide detailed product information, including all dimensional information, and step-by-step procedures covering original installation and panel removal/re-installation. Consideration of alternate anchors shapes will require additional information as described in **subsection 1725.2d.(4)**. Material or physical changes to panels or anchors requires re-prequalification. Changes in panel size or additions to the number of standard panel sizes does not require re-prequalification as long as the spacing and edge distance requirements of **subsection 1725.2d.(4)** continue to be satisfied.

Panels must be able to comply with the general and product specific requirements of **subsection 1725.2**.

The Bureau of Construction and Materials will maintain a prequalified list of all complying manufacturers. Products will remain on the prequalified list as long as performance in the field is satisfactory.

1725.5 BASIS OF ACCEPTANCE

The manufacturer must be currently prequalified as specified in **subsection 1725.4**.

Receipt and approval of a Type C certification as specified in **DIVISION 2600**.

Visual inspection for cracked or damaged panels.