

Polymer Concrete Barrier Panels

Visi-Barrier™

Visi-Barrier™ is an innovative high visibility traffic barrier as well as a stay-in-place form. Visi-Barrier™ solves poor delineation roadway problems prevalent under nighttime, rainy conditions while doing its job as a safety barrier. The continuous visi-stripe is an integral part of each panel consisting of highly retro-reflective glass beads placed in a wide vertical stripe that results in year round, all weather, high driver visibility. Visi-Barrier™ is manufactured by Castek[®], Inc., a wholly owned subsidiary of Transpo[®] Industries, Inc.

Specification

The work shall consist of furnishing and installing precast polymer concrete barrier panels to act as a stay-in-place form with recessed retro-reflective stripe in conformity with the details shown on the project plans and specifications and as directed by the Owner's Engineer/Architect.

Materials

Resin Binder: The binder shall be a thermosetting resin that develops high strength and good resistance to the roadside elements and corrosive attack. The quantity of binder resin used shall not be less than 8% nor exceed 12% of the total weight of the polymer matrix.

Aggregates: The pre-dried blended aggregates are to comprise the balance of the polymer matrix. These shall be a combination of silica flours, granite and silica aggregates.

Reinforcement: Fiberglass mesh is placed in the panels during casting for additional reinforcement.

Anchors: Threaded anchor inserts (3/8" diameter) shall be cast into the back face of the panel to accept threaded hooked rods. Pull out values for each cast-in insert shall meet or exceed 1000 lbs. Alternately, recessed anchor pockets can also be cast into the panels for easy retrofit applications from the traffic side. Special caps are available and can be used to cover the recessed anchor pockets after panel installation.

Retro-reflective Surface: A four-inch wide horizontal recess shall be cast into the face of barrier panel and shall have a depth of 1/4" from the face of the surface. Glass beads shall be placed such that the retro-reflective surface shall have an illumination angle of 4°. Minimum performance for the retro-reflective surface shall be 1000 mcd/Lx/m² (milli-candelas/lux/m²) at a geometric arrangement equivalent to an EcoLux Reflectometer that is at a 3.5° co-entrance angle and 1° observation angle.

Gel Coat: The polymer concrete barrier panels shall be gel coated on the traffic side to facilitate easy cleaning and to enhance panel aesthetics and color. The gel coat resin shall be flame-retardant for indoor applications (tunnel wall panels) or UV resistant for outdoor applications (median barriers, parapet wall etc.). The gel coat shall have a minimum thickness of 18 mil. upon cure.

Size: The polymer concrete barrier panels shall be cast in 10 feet long sections, with the height and shape as called for in the project specifications.

Properties*

Property	Value	Test Method
Water Absorption	0.12-0.20%	
Freeze Thaw Resistance	No change	
Compressive Strength	14000 psi (96 MPa) average	ASTM C109
Flexural Strength	3200 psi (22 MPa) average	ASTM C384
Splitting Tensile Strength	1600 psi (11 MPa) average	ASTM D570
Impact Strength	100 ft. lbs. min (0.23 kg.m.sec.) average	ASTM D-2444
Fire Resistance	Class "A"	
Flame Spread	<25	ASTM E-84
Smoke Development	<75	ASTM E-84

* To be used as general guidelines only

Construction Details

- (a) The contractor shall furnish and install the precast polymer concrete barrier panels with integral retro-reflective delineation to conform to the plans and specifications. The contractor shall submit shop drawings of the barrier panel to the Engineer/Architect prior to manufacture. The shop drawings shall also show the installation methods proposed by the contractor.
- (b) The manufacturer shall submit a 12" x 12" sample of the proposed barrier panel material for approval by the owner's Engineer/Architect.
- (c) Foam backer rod shall be placed at each panel joint with a white silicone caulking applied to seal the joint.

Method of Measurement

The work shall be measured on a linear foot basis for furnishing and installing the barrier panels.

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