347   PORTLAND CEMENT CONCRETE – CLASS NS.
(REV 11-28-18) (FA 2-11-19) (7-19)

SECTION 347 is deleted and the following substituted:

SECTION 347
PORTLAND CEMENT CONCRETE - CLASS NS

347-1 Description.
The requirements of this Section are applicable to concrete designated as nonstructural portland cement concrete, (Class NS) hereinafter referred to as concrete. Use concrete composed of a mixture of portland cement, aggregates, water; and where specified chemical admixtures, slag, or supplementary cementitious materials. Deliver concrete to placement site in a freshly mixed, unhardened state. Ensure the concrete is placed and cured in a manner to ensure that the strength and durability of the concrete is maintained.

347-2 Materials.
347-2.1 General: Certify that all materials used in concrete are from Department approved sources, and free from detrimental matter.
Meet the following requirements:

Portland Cement.....................................Section 921
Coarse Aggregate*.................................Section 901
Fine Aggregate*....................................Section 902
Water..Section 923
Chemical Admixtures ....Section 924
Pozzolans and Slag ....Section 929
* Recycled Asphalt Pavement (RAP) may replace up to 20% of the total aggregate in the design mix. Use RAP from a Department approved stockpile.

347-3 Production, Mixing and Delivery.
347-3.1 Concrete Production Requirements: Provide concrete from a production facility certified by the National Ready-Mixed Concrete Association (NRMCA) or meets the requirements of Section 346.
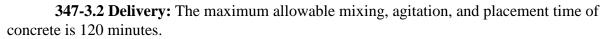When Volumetric Mixers are used, deliver concrete in accordance with the Volumetric Mixer Standards of the Volumetric Mixer Manufacturers Bureau (VMMB) VMMB 100-01. Ensure the batcher is qualified through the VMMB Volumetric Mixer Operator Certification Program and the mixer has a VMMB registered rating plate.
Substitution of structural concrete in lieu of non-structural concrete may be used if approved by the Engineer. If structural concrete is used in lieu of non-structural concrete, obtain the concrete from a production facility meeting the requirements of Section 346. Acceptance is based on the requirements of Section 347.
The Engineer may disqualify any concrete production facility for non-compliance with Specification requirements.

347-3.2 Delivery: The maximum allowable mixing, agitation, and placement time of concrete is 120 minutes.

347-3.3 Small Quantities of Concrete: With approval of the Engineer, small quantities of concrete, less than 3 cubic yards placed in one day and less than 0.5 cubic yards placed in a single placement may be accepted using a pre-bagged mixture.

347-4 Certification and Acceptance.

347-4.1 General: Furnish a Delivery Ticket with each batch of concrete before discharging concrete at the placement site. Ensure the Delivery Ticket includes material quantities incorporated into the batch, sources of materials, batch adjustments, batch size, time loaded, time discharged, and the allowable jobsite water addition.

Ensure the batcher responsible for producing the concrete signs the Delivery Ticket, certifying that the batch was produced in accordance with the Contract Documents.

Record water added at the jobsite. Sign the Delivery Ticket certifying that the concrete was placed in accordance with the Contract Documents.

Acceptance by the Department will be by Certification on the Delivery Ticket, signed by the batcher and the Contractor. Certify that the concrete meets a minimum compressive strength of 2,500 psi at 28 days. The Engineer may verify the strength of the concrete.

347-4.2 Remedial Action: Delineate, remove to the full depth and width, and replace, at no cost to the Department, concrete that has:

1. Any cracking greater than 1/4 inch in vertical displacement.

2. Any spalling or flaking off of the surface layer that exposes the rough, pitted aggregate surface in excess of 10 square inches.

3. Any intersecting cracks visible in the hardened concrete (regardless of size) in sidewalk, ditch pavement, slope pavement, traffic separator, curb and gutter.

4. Any uncontrolled cracks that appear during the life of the Contract unacceptable to the Engineer.