



*Florida Department of Transportation*

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SECRETARY

August 2, 2016

Khoa Nguyen  
Director, Office of Technical Services  
Federal Highway Administration  
3500 Financial Plaza, Suite 400  
Tallahassee, Florida 32312

Re: State Specifications Office  
Section **921**  
Proposed Specification: **9210100 Portland Cement Blended Concrete.**

Dear Mr. Nguyen:

We are submitting, for your approval, two copies of the above referenced Supplemental Specification.

The changes are proposed by Donnie Bagwell of the State Materials Office (SMO) to modify the language in response to Industry and Department input.

Please review and transmit your comments, if any, within two weeks. Comments should be sent via email to [dan.hurtado@dot.state.fl.us](mailto:dan.hurtado@dot.state.fl.us).

If you have any questions relating to this specification change, please call me at 414-4130.

Sincerely,

Signature on File

Dan Hurtado, P.E.  
State Specifications Engineer

DH/dt

Attachment

cc: Florida Transportation Builders' Assoc.  
State Construction Engineer

**PORTLAND CEMENT AND BLENDED CEMENT.**(REV ~~6-8-166-22-167-27-168-2-16~~)

ARTICLE 921-1 is deleted and the following substituted:

**921-1 General.**

Cement shall conform to the requirements of AASHTO M85 or AASHTO M240, as applicable, except as defined below or as specifically restricted in Section 346.

**921-1.1 Type of Cement:** Cement may be Types I, II, II (MH), III, IV, V (AASHTO M85), or IL, IP, ~~IP (MS)~~, IS (AASHTO M240). Different brands of cement, cement of the same brand from different facilities, or different types of cement shall be stored separately and shall not be mixed.

**921-1.2 Alkali Content:** Portland cement containing a maximum of 0.60% alkali, or less, calculated as Na<sub>2</sub>O (% Na<sub>2</sub>O plus 0.658% K<sub>2</sub>O), may be used with no further testing. High Alkali Cement containing a maximum of 1.00% alkali, or less, calculated as Na<sub>2</sub>O (% Na<sub>2</sub>O plus 0.658% K<sub>2</sub>O), may be used with the following. When high alkali cement is used in concrete, the test results shall verify improved or comparable strength, sulfate resistance, corrosion protective properties and other durability requirements of concrete, as compared to AASHTO M85 low alkali cement. The strength and durability tests of concrete shall be performed in accordance with AASHTO T3758, ASTM C39, ASTM C157, FM 3-C1012, and FM 5-516 ~~and FM 5-578~~.

**921-1.3 Heat of Hydration:** The cement heat of hydration for Type II (MH) or Type IL (<15) shall be 8873 cal/g or less at 7 three days when tested in accordance with ASTM C1861702. ~~For Type II (MH) used in mass concrete, the cement heat of hydration shall be 8066 cal/g or less at 7 three days when tested in accordance with ASTM C1861702 and reported at three days.~~

SUBARTICLE 921-5.1 is deleted and the following substituted:

**921-5.1 General:** The Quality Control Program of a cement supplier shall conform to Section 105. Cement suppliers shall submit a proposed QC Plan to the State Materials Office for plan approval. In addition to the QC Plan, the supplier must submit test reports from an approved laboratory which certifies that the cement in current production or supply conforms to these Specifications. Upon initial QC Plan approval and receipt of the cement mill test report, the suppliers will be placed in an approved source status with an approved quality control plan. An approved laboratory shall perform one quality control test per day. Submit the monthly mill test report to the State Materials Office. The mill test report shall indicate that the cement meets the requirements of this Specification. Also, the corresponding samples along with mill test reports shall be submitted to the Department, upon request.

Producers intending to use limestone as a component material in the production of cement shall describe the type and source of the limestone. In addition, the producer shall supply the Department with a sample of the limestone, a sample of the cement prior to the limestone being added and a sample of the cement after the limestone has been added. The analysis of these materials will be used as a baseline for information. In the event that the source of limestone

used by the cement producer changes, additional samples of both the limestone and the cement with the limestone added shall be provided to the State Materials Office for evaluation.

Representatives from the Department may take samples from the cement production facility at a minimum of once per year to verify compliance with the producer's QC Plan.

The supplier's QC Plan shall be sufficient to insure that more than 97% of all cement delivered for ~~FDOT~~ department work shall meet all Specification requirements. Upon request of the Department, the supplier shall provide split samples of the cement collected for quality control testing. Split samples shall be delivered to the State Materials Office and shall be identified as representing a designated LOT of cement.

**PORTLAND CEMENT AND BLENDED CEMENT.****(REV 8-2-16)**

ARTICLE 921-1 is deleted and the following substituted:

**921-1 General.**

Cement shall conform to the requirements of AASHTO M85 or AASHTO M240, as applicable, except as defined below or as specifically restricted in Section 346.

**921-1.1 Type of Cement:** Cement may be Types I, II, II (MH), III, IV, V (AASHTO M85), or IL, IP, IS (AASHTO M240). Different brands of cement, cement of the same brand from different facilities, or different types of cement shall be stored separately and shall not be mixed.

**921-1.2 Alkali Content:** Portland cement containing a maximum of 0.60% alkali, or less, calculated as  $\text{Na}_2\text{O}$  (%  $\text{Na}_2\text{O}$  plus 0.658%  $\text{K}_2\text{O}$ ), may be used with no further testing. High Alkali Cement containing a maximum of 1.00% alkali, or less, calculated as  $\text{Na}_2\text{O}$  (%  $\text{Na}_2\text{O}$  plus 0.658%  $\text{K}_2\text{O}$ ), may be used with the following. When high alkali cement is used in concrete, the test results shall verify improved or comparable strength, sulfate resistance, corrosion protective properties and other durability requirements of concrete, as compared to AASHTO M85 low alkali cement. The strength and durability tests of concrete shall be performed in accordance with AASHTO T358, ASTM C39, ASTM C157, FM 3-C1012, and FM 5-516.

**921-1.3 Heat of Hydration:** The cement heat of hydration for Type II (MH) or Type IL shall be tested in accordance with ASTM C1702 and reported at three days.

SUBARTICLE 921-5.1 is deleted and the following substituted:

**921-5.1 General:** The Quality Control Program of a cement supplier shall conform to Section 105. Cement suppliers shall submit a proposed QC Plan to the State Materials Office for plan approval. In addition to the QC Plan, the supplier must submit test reports from an approved laboratory which certifies that the cement in current production or supply conforms to these Specifications. Upon initial QC Plan approval and receipt of the cement mill test report, the suppliers will be placed in an approved source status with an approved quality control plan. An approved laboratory shall perform one quality control test per day. Submit the monthly mill test report to the State Materials Office. The mill test report shall indicate that the cement meets the requirements of this Specification. Also, the corresponding samples along with mill test reports shall be submitted to the Department, upon request.

Producers intending to use limestone as a component material in the production of cement shall describe the type and source of the limestone. In addition, the producer shall supply the Department with a sample of the limestone, a sample of the cement prior to the limestone being added and a sample of the cement after the limestone has been added. The analysis of these materials will be used as a baseline for information. In the event that the source of limestone used by the cement producer changes, additional samples of both the limestone and the cement with the limestone added shall be provided to the State Materials Office for evaluation.

Representatives from the Department may take samples from the cement production facility at a minimum of once per year to verify compliance with the producer's QC Plan.

The supplier's QC Plan shall be sufficient to insure that more than 97% of all cement delivered for Department work shall meet all Specification requirements. Upon request of the Department, the supplier shall provide split samples of the cement collected for quality control testing. Split samples shall be delivered to the State Materials Office and shall be identified as representing a designated LOT of cement.