

ORIGINATION FORM

Date: July 25, 2011
Originator: Susan Blazo
Contact Information: State Materials Office

Specification Title: LAP 120, LAP 334, LAP 344
Specification Section, Article, or Subarticle Number:
EARTHWORK AND RELATED OPERATIONS FOR LAP (OFF-SYSTEM)
HOT MIX ASPHALT FOR LAP (OFF-SYSTEM)
CONCRETE FOR LAP (OFF-SYSTEM)

Why does the existing language need to be changed? Current LAP requirements include language that require or seem to require Contractor Quality Control for acceptance. The earthwork, asphalt and concrete sections have been revised to clarify that acceptance testing for off-system projects are accepted based on agency testing for category 3 work.

Summary of the changes: Each section defines acceptance for off-system contracts performed by Local Agencies. Each section defines categories of work with different acceptance criteria. In all 3 sections, category 3 work is defined as acceptance sampling and testing. The earthwork and concrete sections are being revised to define acceptance testing as performed by the Local Agency. The asphalt section is being revised to clarify contractor process control testing and Agency performed acceptance testing.

Are these changes applicable to all Department jobs? If not, what are the restrictions? These changes are applicable to Local Agency Program projects which are off-system in cases where the Local Agency opts to use the Department pre-approved “Big Four” specification sections. They do not apply to on-system Department contracts or contracts that meet the definition of a critical project as defined by the Local Agency Program Manual.

Will these changes result in an increase or decrease in project costs? If yes, what is the estimated change in costs? These changes should result in a decrease in project costs to the Local Agencies as they will not be required to apply Contractor Quality Control requirements to the acceptance of materials for category 3 work.

With who have you discussed these changes? Construction, Specifications, the Local Agency Program Community of Practice team.

What other offices will be impacted by these changes? Local Agencies who use the Department pre-approved Big Four Specifications

Are changes needed to the PPM, Design Standards, SDG, CPAM or other manual? No

Is a Design Bulletin, Construction Memo, or Estimates Bulletin needed? No

Contact the State Specifications Office for assistance in completing this form.

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M E M O R A N D U M

DATE: October 19, 2011

TO: Specification Review Distribution List

FROM: Rudy Powell, Jr., P.E., State Specifications Engineer

SUBJECT: Proposed Specification: 344LAP Concrete for LAP (Off-System)

In accordance with Specification Development Procedures, we are sending you a copy of a proposed specification change.

The changes are proposed by Susan Blazo of the State Materials Office to clarify that acceptance testing for Local Agency Program off-system projects are accepted based on acceptance testing as performed by the Local Agency.

Please share this proposal with others within your responsibility. Review comments are due within four weeks and should be sent to Mail Station 75 or to my attention via e-mail at SP965RP or rudy.powell@dot.state.fl.us. Comments received after **November 16, 2011** may not be considered. Your input is encouraged.

RP/ft
Attachment

CONCRETE FOR LAP (OFF-SYSTEM).

(REV 45-527-11) (~~FA-4-15-11~~)

SECTION 344 CONCRETE FOR LAP (OFF-SYSTEM)

344-1 Description.

344-1 General: Construct Concrete based on the type of work as described in the Contract and the Concrete Work Categories as defined below.

344-1.2 Work Categories: Construction will fall into one of the following Concrete Work Categories:

344-1.2.1 Concrete Work Category 1: Includes the construction of sidewalks, curb and gutter, ditch and slope pavement, or other non-reinforced cast-in-place ~~or precast~~ elements.

344-1.2.2 Concrete Work Category 2: Includes the construction of precast concrete including concrete barriers, traffic railing barriers, parapets, sound barriers, inlets, manholes, junction boxes, pipe culverts, storm sewers, box culverts, prestressed concrete poles, concrete bases for light poles, highway sign foundations, retaining wall systems, traffic separators or other structural precast elements.

344-1.2.3 Concrete Work Category 3: Includes the work associated with the placement and/or construction of structural cast-in-place concrete requiring a class of concrete specified in FDOT Section 346.

344-2 Materials.

344-2.1 General: Use concrete composed of a mixture of Portland cement, aggregates, and water, with or without chemical or mineral admixtures that meet the following requirements:

344-2.1.1 Portland Cement: Cement shall conform to the requirements of the AASHTO or ASTM designations. 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. Portland cements meeting the requirements of ~~AASHTO~~-AASHTO M-85 or ~~ASTM~~-ASTM C-150 are allowed.

344-2.1.2 Coarse and Fine Aggregates: Aggregates shall meet current FDOT requirements except that source approval by the FDOT is not required.

344-2.1.3 Water: Water shall meet current FDOT requirements.

344-2.1.4 Chemical Admixtures: Chemical admixtures shall meet current FDOT requirements. Admixtures may be added at the dosage rates recommended by the manufacturer.

344-2.1.5 Pozzolans and Slag: Pozzolans and Slag shall meet the current FDOT requirements.

~~**344-2.2 Material Storage:** Use a concrete production facility that meets the following requirements.~~

~~**344-2.2.1 Cementitious Materials Storage:** Provide a separate and clearly labeled weatherproof facility to store each brand or type of cementitious material without mixing or contamination. Provide a suitable, safe and convenient means of collecting cementitious material samples at each storage facility.~~

~~**344-2.2.2 Aggregate Storage:** Provide suitable bins, stockpiles or silos to store and identify aggregates without mixing, segregating or contaminating different grades or types of~~

materials. Identify aggregate type/gradation. Handle the aggregates in a manner to minimize segregation and meet the specification requirements when recovered from storage. Continuously and uniformly sprinkle coarse aggregate with water, for 24 hours preceding introduction into the concrete mix. Timers may be used to facilitate the sprinkling of aggregate stockpiles using an alternating on/off method. However, in no event shall the top surface of the stockpile be permitted to become dry prior to batching of concrete. Moisture probes may be used to determine the moisture content of the aggregate. Ensure that the accuracy of the probe is certified annually and verified weekly. Maintain stored aggregates in a well drained condition to minimize free water content. Provide access for the Engineer to sample the aggregates from the recovery side of the storage facility.

344-3 Production, Mixing and Delivery of Concrete.

344-3.1 Concrete Production Requirements: *The Engineer may disqualify any production facility for non-compliance with specification requirements.* Use concrete production facilities certified by the National Ready Mixed Concrete Association (NRMCA), approved by the FDOT.

Produce concrete utilizing equipment that is in good operating condition and operated in a manner to ensure a consistent product. When moisture probes are not used, ensure that the concrete production facility determines the free moisture for the coarse and fine aggregates within two hours prior to each day's batching. On concrete placements expected to exceed three hours, perform an additional moisture test approximately half way through the batching operations and adjust batch proportions accordingly.

Ensure that the calibration of the measuring devices of the concrete production facilities meets the requirements of Chapter 531 of the Florida Statutes, and are in accordance with Chapter 9.2 of the FDOT Materials Manual. At least quarterly, ensure that all scales, meters and other weighing or measuring devices are checked for accuracy by a qualified representative of a scale company registered with the Bureau of Weights and Measures of the Florida Department of Agriculture. As an alternative, the producer may have this frequency identified in an FDOT approved QC plan. The accuracy of admixture measuring dispensers will be certified annually by the admixture supplier.

When Volumetric Mixers are used for Category I applications, deliver concrete in accordance with the requirements of Volumetric Mixer Manufacturers Bureau (VMMB) and ensure that the vehicle has a VMMB registered rating plate.

344-3.1.1 Category 1: *Use a concrete production facility that is certified by the National Ready Mixed Concrete Association (NMRCA) or approved by the Florida Department of Transportation for non-structural concrete.- Concrete production facilities listed on the FDOT Producers with Accepted QC Programs list for structural concrete may also be used for Category 1.*

344-3.1.2 Category 2: *Use a prestressed and or precast facility listed on the FDOT Producers with Accepted QC Programs list.*

344-3.1.3 Category 3:- *Use a structural concrete facility listed on the FDOT Producers with Accepted QC Programs list.*

344-3.2 Classes of Concrete:

344-3.2.1 Category 1: Classes of concrete to be used on the project ~~will~~ *are as* be defined in the Contract Documents.

344-3.2.2 Category 2: -Concrete barriers, traffic railing barriers, parapets, sound barriers (346), classes of concrete are defined in Section 548. -Inlets, manholes, junction boxes, pipe culverts (449), storm sewers, and box culverts classes are defined in Section 346.

Prestressed concrete poles, concrete bases for light poles, highway sign foundations are defined in Section 346. -Retaining wall systems (548) are defined in Section 346. Traffic separators

344-3.2.3 Category 3: Classes of concrete are as defined in Specifications Section 346.

344-3.3 Contractors Quality Control: For eCategory 1, inspect the element after placement. -For eCategory 2, inspect the precast element before placement. -For eCategory 3, ~~The Contractor will supply~~ furnish a Quality Control (QC) plan to ~~identity~~ identify to the Agency Engineer how quality will be ensured at the project site. During random inspections, the Agency Engineer will use this document to verify that the construction of the project is in agreement with ~~his~~ the QC plan.

344-3.4 Concrete Mix Design: Before producing any eCategory 1 or eCategory 2 concrete, submit the proposed mix designs to the Engineer on a form provided by the Agency. ~~Otherwise~~ For eCategory 3, ~~the agency will accept~~ submit to the Engineer for approval, ~~mix designs previously described in an~~ FDOT approved QC plan ~~mix designs~~. In any event, Do not use ~~only~~ concrete mix designs ~~having~~ without prior approval of the Engineer.

Materials may be adjusted provided that the theoretical yield requirement of the approved mix design is met. Show all required original approved design mix data and batch adjustments ~~and substituted material~~ on an Agency approved concrete delivery ticket. ~~The Engineer may disqualify any concrete production facility for non-compliance with specification requirements.~~

344-3.5 Delivery: For cast-in-place applications, the maximum allowable mixing and agitation time of concrete is ~~90~~ 90 minutes.

Furnish a delivery ticket on a form approved by the Agency Engineer with each batch of concrete before unloading at the placement site. ~~The delivery ticket shall be printed.~~ Record material quantities incorporated into the mix on the delivery ticket. Ensure that the Batcher responsible for producing the concrete certifies that the batch was produced in accordance with these Specifications and signs the delivery ticket. ~~The Contractor shall s~~ Sign the delivery ticket certifying that the concrete was batched, delivered and placed in accordance with these Specifications.

~~—————The Contractor shall be responsible for rejecting loads of concrete that do not meet the plastic properties of the approve mix design or the minimum compressive strength requirements.~~

~~—————At the sole option of the Agency, the Engineer may accept concrete at a reduced pay when it is determined that the concrete will serve its intended function.~~

~~—————~~ **344-3.6 Placing Concrete:**

344-3.6.1 Concreting in Cold Weather: Do not *mix or* place concrete when the temperature of the concrete at placement is below 45°F.

Meet the air temperature requirements for mixing and placing concrete in cold weather as specified in Section 346. During the curing period, if NOAA predicts the ambient temperature to fall below 35°F for 12 hours or more or to fall below 30°F for more than ~~4~~ four hours, enclose the structure in such a way that the concrete and air within the enclosure can be kept above 60°F for a period of ~~3~~ three days after placing the concrete or until the concrete reaches a minimum compressive strength of 1,500 psi.

Assume all risks connected with the placing and curing of concrete. Although the Engineer may give permission to place concrete, the Contractor is responsible for satisfactory results. If the placed concrete is determined to be unsatisfactory, remove, dispose of, and replace the concrete at no expense to the Agency.

344-3.6.2 Concreting in Hot Weather: ~~For eCategory 3, Meet-meet~~ the temperature requirements and special measures for mixing and placing concrete in hot weather as specified in Section 346.

When the temperature of the concrete as placed exceeds 75°F, incorporate in the concrete mix a water-reducing retarder or water reducer if allowed by Section 346.

Spray reinforcing steel and metal forms with cool fresh water just prior to placing the concrete in a method approved by the Engineer.

Assume all risks connected with the placing and curing of concrete. Although the Engineer may give permission to place concrete, the Contractor is responsible for satisfactory results. If the placed concrete is determined to be unsatisfactory, remove, dispose of, and replace the concrete at no expense to the Agency.

344-3.7 Mixers: ~~Ensure that mixers are capable of combining the components of concrete into thoroughly mixed and uniform mass, free from balls or lumps of cementitious materials, and capable of discharging the concrete uniformly. Operate concrete mixers at speeds per the manufacturer's design. Do not exceed the manufacturer's rated capacity for the volume of mixed concrete in the mixer, mixing drum, or container. For eCategory 3 concrete, do not place concrete from a truck mixer that does not have a current FDOT mixer identification card.~~

344-3.8 Small Quantities of Concrete: With approval of the Engineer, small quantities of concrete, less than ~~3~~ *three cubic yards* yd^3 -placed in one day and less than ~~0.5~~ *five cubic yards* yd^3 -placed in a single placement may be accepted using a pre-bagged mixture. The ~~Agency~~ *Engineer* may verify that the pre-bagged mixture is prepared in accordance with the manufacturer's recommendations and will meet the requirements of this Specification.

344-3.9 Sampling and Testing:

344-3.9.1 Category 1: The Engineer may sample and test the concrete at his discretion to verify its quality. The minimum ~~28~~ *28* day compressive strength requirement for this concrete is 2,500 psi.

344-3.9.2: Category 2: Provide a statement of certification from the manufacturer of the precast element that the element meets the quality control and inspection testing requirements of the Contract Documents.

344-3.9.3 Category 3: The ~~Agency~~ *Engineer* will randomly select a sample from each ~~200~~ *200* yd^3 -*cubic yards* or one day's production to determine plastic properties and to make three 4 x 8 inch cylinders for testing by the ~~Agency~~ *Engineer* at ~~28~~ *28* days to ensure that the design compressive strength has been met *for the class of concrete as specified in Section 346*. The ~~Agency~~ *Engineer* may, at its discretion, test additional concrete samples to ensure compliance with the specifications.

344-3.10 Records: Maintain the following records *are available* for review for at least ~~3~~ *three* years after final acceptance of the project:

1. Approved concrete mix designs.
2. Materials source (delivery tickets, certifications, certified mill test reports).
3. A copy of the scale company or testing agency report showing the observed deviations from quantities checked during calibration of the scales and meters.

4. A copy of the documentation certifying the admixture weighing/measuring devices.

~~5. For non-structural concrete, the Agency will accept recent NRMCA, VMMB or FDOT inspection records certifying the plant or truck can produce concrete. In addition, documentation will be available at the plant or in the truck showing that action has been taken to correct deficiencies noted during the inspections.~~

344-4 Acceptance of the Work.

344-4.1 Category 1 Work: Category 1 work will be accepted based ~~upon compliance with Production, Mixing and Delivery Requirements specified in 334-3~~ *Certification by the Batchers and Contractor on the Delivery Ticket.*

344-4.2 Category 2 Work: *Certify that the* ~~precast elements will be accepted based upon certification from the Contractor that the elements~~ were produced by a production facility on the FDOT's current approved plant list. In addition, the ~~producers-producer's QC logo stamp~~ will be ~~displayed~~ *stamped* on the element. *The producer shall not use the Florida Department of Transportation QC stamp on elements used on off-system projects.*

344-4.3 Category 3 Work: Category 3 ~~work-concrete will be accepted based on the Engineer's test results for plastic properties and compressive strength requirements for the class of concrete as defined in~~ ~~shall be in full compliance with this Specification, and with current FDOT Specifications, Section 346 and associated Contractor Quality Control (QC) specifications governing cast-in-place concrete.~~ In addition, a Delivery Ticket as described in 344-3.5 will be required for acceptance of the material at the project site. *At the sole option of the Engineer, the concrete may be accepted at reduced pay when it is determined that any failing concrete will serve its intended function.*

344-4.4 Small Quantities of Concrete:- *Concrete meeting the definition of 344-3.8 will be accepted in accordance with 344-4.3 based on test results for plastic properties and compressive strength.*

344-5 Method of Measurement.

The quantities to be paid for will be the items shown in the plans, completed and accepted.

344-6 Basis of Payment.

Prices and payments will be full compensation for all work and materials specified in this Section.