

Origination Form

Specifications

Name:	Oliver Chung	Specification Number:	450-2.4, 450-3, 450-14.3
Email:	oliver.chung@dot.state.fl.us	Associated Specs:	None
Date:	2024-06-17T20:45:17Z	Verified:	VERIFIED

Summary:

1. Formatting changes based on APL/BABA program. 2. Administrative update to Standard Specifications for accuracy. Current language references a "QC Managers stamp", which is incorrect. These should read "Production Facility Quality Control Stamp".

Justification:

The current specification refers to QC Managers stamp which is incorrectly worded.

Do the changes affect other types of specifications?

Neither

List Specifications Affected:

Other Affected Documents/Offices	Contacted	Yes/No
Other Standard Plans		No
Florida Design Manual		No
Structures Manual		No
Basis of Estimates Manual		No
Approved Product List		No
Construction Office		No
Maintenance Office		No
Materials Manual		No
Traffic Engineering Manual		No

Are changes in line with promoting and making progress on improving safety, enhancing mobility, inspiring innovation, and fostering talent; explain how?

No, these are formatting and administration changes.

What financial impact does the change have; project costs, pay item structure, or consultant fees?

None

What impact does the change have on production or construction schedules?

None

How does this change improve efficiency or quality?

The stamp affixed to precast elements is the Production Facility Quality Control Stamp, not the QC Manager quality control stamp. This stamp is the indicator that the structure has met all contract requirements before leaving the precast yard.

Which FDOT offices does the change impact?

District Materials and State Materials Offices

What is the impact to districts with this change?

None

Does the change shift risk and to who?

No

Provide summary and resolution of any outstanding comments from the districts or industry.

Comments and Responses are available on the Track the Status of Revisions hyperlink located on the Specifications landing page: <https://www.fdot.gov/programmanagement/Specs.shtm>

What is the communication plan?

Through the established specification revision process (e.g., Internal and Industry Review)

What is the schedule for implementation?

The Standard Specifications eBook and Workbook are effective July 1st every year.

PRECAST PRESTRESSED CONCRETE CONSTRUCTION
(REV 6-17-24)

SUBARTICLE 450-2.4 is deleted and the following substituted:

450-2.4 Product Certification: Ensure the QC inspector inspects all completed products at the plant not less than 24 hours before shipment to verify that all Contract Documents requirements are met. Upon verification that all Contract Document requirements have been met and all necessary repairs have been satisfactorily completed, the product will be stamped with the approved ~~QC Manager stamp~~ Production Facility Quality Control Stamp identified in the Producer QC Plan.

With each monthly request submitted for payment, attach a certification stating that the listed precast prestressed products have been produced under the Producer QC Plan and meet the Contract Document requirements. Ensure the certification is signed by a legally responsible person of the plant and is submitted on the plant's letterhead.

ARTICLE 450-3 is deleted and the following substituted:

450-3 Materials.

450-3.1 General: Meet the following requirements:

Concrete ¹	Section 346
Steel Strands ^{*1,2}	Section 933
Carbon Fiber Reinforcing Polymer (CFRP)	
Strands ^{*1,2}	Section 933
Steel Prestressing Bars ¹	Section 933
Steel Accessories ¹	Section 933
Steel Spirals ¹	Section 931
Reinforcing Steel and Metal Welded Wire	
Reinforcement ¹	Sections 415 and 931
FRP Reinforcing ¹	Sections 415 and 932
FRP Spirals ^{**1,3}	Section 932
Embedded Ducts ¹	Section 960
Membrane Curing compounds ^{***1,4}	Section 925
Epoxy Resin Compounds ¹	Section 926
Burlap.....	Section 925
Curing Blanket.....	400-16
Penetrant sealer ^{***1,4}	Section 413
<u>High Molecular Weight Methacrylate</u> ¹	Section 413
Epoxy Injection of Cracks ¹	Section 411

¹Use products and producers on the Department's Approved Product List (APL).

^{*2} Do not use strands from more than one source in any individual prestressed element, with the exception of the partially tensioned strands (dormant strands).

^{**3} The FRP spirals cannot be used in combination with steel prestressing strand.

^{***4} Use membrane curing compounds and sealers that are compatible with coating or other materials that are applied to concrete surface.

Use inserts in accordance with the recommendations of the manufacturers and within their certified capacities and application qualifications. Do not use aluminum inserts.

Use draped strand devices of sufficient rigidity having adequate support to retain the position of the strand unchanged under the induced load. Do not allow the devices to induce friction to the strands such that the required jacking force and elongation cannot be attained.

450-3.2 Strand Chucks and Splice Chucks: For pretensioning, use strand chucks that are capable of anchoring the strands without slippage after seating and ensure against strand failure within the grips at loads less than 95% of ultimate tensile strength of the prestressing strand.

Submit manufacturer's certification that splice chucks used to transmit the prestressing force from one prestressing strand to another are capable to hold at least 95% of the ultimate tensile strength of the prestressing strand.

Do not use wedges that become worn, cracked, deformed, or that allow dead end seating in excess of 3/8 inch. Use components from the same manufacturer to make up chucks and to provide proper wedge fit.

Use chucks as complete units. Clean, inspect, and lubricate the chucks between each use. Use wedges and housing that are compatible and made for the specific type and size of prestressing strand used. Ensure proper fit and proper seating of wedges on the strands.

The Engineer will allow one splice per strand subject to the following:

1. Splices are located outside the concrete products (except for precast piling where up to two splices are permitted to be used in each pile, so long as they are not located in the same vertical cross section, perpendicular to longitudinal axis of the pile).

2. Strands which are being spliced have the "lay" or "twist" in the same direction.

SUBARTICLE 450-14.3 is deleted and the following substituted:

450-14.3 Shipping: Do not ship precast prestressed concrete products to the project site prior to the completion of the 72 hour curing period and attainment of the required 28-day strength. Verification of the shipping strength test, before 28 days, is permitted by testing compressive strength cylinders that are cured under the conditions similar to the product or by testing temperature match cured cylinders.

The use of maturity method, ASTM C1074, pulse velocity method in accordance with ASTM C597, or any other nondestructive test method acceptable to Engineer, is permitted to estimate the strength before its verification by test cylinders. The shipping strength test is the average compressive strength of two test cylinders. Do not ship products until accepted and stamped by the QC Manager or the inspectors under the direct observation of the QC Manager or designee.

In the case of elements repaired due to major defects, notify the Engineer at least 72 hours in advance of shipping to verify compliance with the Specification.

At the beginning of each project, provide a notarized statement to the Engineer from a responsible company representative certifying that the plant will manufacture the products in accordance with the requirements set forth in the Contract Documents and Producer QC Plan.

The ~~QC Manager's stamp~~ Production Facility Quality Control Stamp on each product indicates certification that the product was fabricated in conformance with the Producer

QC Plan, the Contract, and the Specifications. Ensure that each shipment of prestressed concrete products to the project site is accompanied with a signed or stamped delivery ticket providing the description and the list of the products.

Evaluate the temporary stresses and stability of all products during shipping and locate supports, generally within 18 inches from the beam end, in such a manner as to maintain stresses within acceptable levels. Include impact loadings in the evaluation. Do not support slab beams on the outer 6 inches of the product width.