4501106 PRECAST PRESTRESSED CONCRETE CONSTRUCTION
COMMENTS FROM INTERNAL/INDUSTRY REVIEW

Art Berger
Arthur.Berger@dot.state.fl.us

Comments: (5-26-20, Internal)
QUESTION: Should it say calendar days?
Response: Agree, language will be changed to calendar days.

****

David Henderson
(239) 240-5976
david.henderson@dot.state.fl.us

Comments: (6-8-20, Industry)
1) Are we assured that epoxy pop outs will not exist after beam installation? Considering the environmental effects on the beams, the service loading, and the possible inability to see beam ends during maintenance inspections, could be considered undetermined. 2) Is 3 days prior to shipment, sufficient time to monitor beam ends? Currently, our local producers, monitor the epoxy coatings, and when necessary, they will remove the coating over the strand, recut for recessing, and reapply coating. Reports are that this has been a successful process in the production facility. 3) Will application of coatings of up to 42 days, be detrimental to the formation of corrosion? More than likely yes, as inspectors, we look for instances of pitting, 450-7.3 Cleanliness of Prestressing Strand: Inspect the prestressing strand for any evidence of contamination. Use strand that is free of deleterious materials such as grease, oil, wax, dirt, paint (except that used for marking identification) or other similar contaminants. Remove any contaminants detected from the strand before proceeding with fabrication activities. Rust on prestressing steel that can be removed by light rubbing is acceptable. Streaks or spots which may remain after rust removal are acceptable if no pitting is present. Studies have shown that pitting at the microscopic level, will be enough to start the corrosion process. COMMON THREAD, most transportation departments, regard corrosion as one of top priority, with protective coatings happening as soon as 48hours post detensioning. 4) Should we recommend additional corrosion protection in the early stages. 5) Should we recommend testing of alternative materials and techniques for beam end treatments.
Response: This change is supported by SMO as a practical approach to solving the ongoing issue of strands breaking out of the epoxy layer. Specifying a waiting period to apply the epoxy, allowing most of the camber and creep to occur, should offer a better solution than the current approach of applying the epoxy as soon as possible. Gravity should help wick out water as the beam camber develops, and the strand tails sitting out in the sunshine should also help the drying process. The 42 days was selected since beams typically reach about 80% of the expected creep and camber in 4 to 6 weeks. Based on discussions with SMO, the waiting period was not considered as a corrosion concern for the strands. Epoxy pop outs are not expected to frequently occur after beam installation. No appreciable camber or creep is anticipated once the beams are erected and the deck is placed.

****

Jerry Shannon
(239) 992-8685
jerryshannon51@comcast.net

Comments: (6-15-20, Industry)
Precast Prestressed Concrete Construction - 450-11.6.1 S&S Precast does not have any objection or comments per the proposed changes
Response: Thank you.

****

Deborah Ihsan
(954) 777-4387
deborah.Ihsan@dot.state.fl.us

Comments: (6-25-20, Industry)
450-11.6.1= Subsection 2 mentions about 42 days, which looks too lengthy period ; if this 42 days is based on AASHTO or Structural designs, it is suggested to provide cross reference.
Response: Please see response to David's comment above.

****

No Name

Comments: (6-26-20, Industry)
450-11.6.1 Beams Ends that will not be Permanently Encased in Concrete Diaphragms: 2. Apply two layers of epoxy to the exposed beam ends (including clipped and chamfered surfaces) the earlier of: three days maximum prior to shipping, or forty two days after detensioning Hyphenate "forty-two" and suggest changing to "Apply two layers of epoxy to the exposed beam ends (including clipped and chamfered surfaces) a maximum of three days prior to shipping, or forty-two days after detensioning, whichever occurs first."
Response: The language has since been revised based on feedback from SMO.

****

Sean Alderman
(813) 352-7752
seanalderman@standardconcrete.org

Comments: (7-1-20, Industry)
We have reviewed the proposed changes to the 450 spec in relation to "Beam Ends that will not be Permanently Encased in Concrete Diaphragms" (450-11.6.1). We are without doubt open to any new procedure that will help prevent the re-work related to the epoxy on the end of our FIB's. This has been an ongoing issue for us here at SCP. I have discussed these changes with key personnel here and we have a few concerns. First of all, the way the spec is written is a bit confusing. I was able to understand better once I called Thomas Frank at the SMO to clarify. As we understand, we would wait 42 days after detention before we would apply the epoxy to the strand area of the end of beams or 3 days prior to shipping in situations where the beam would ship in less than 42 days. Waiting 42 days before we can complete the detail work on the end of beams would definitely change the way we store our beams but production is open to this if it saves the re-work we're currently doing. What we plan on doing is trimming the strand off as we normally do then applying the epoxy to the top flange and down the web but stopping just above the strand cluster to minimize as much of the end work as possible until after the 42 day hold. Also, is there a need to wait 42 days if the beam has no debonded strand??? Another concern is the amount of time we have to complete the epoxy process after the 42 days has been achieved. What will the grace period be after 42 days?? Would it be 42 days and then a grace period up to 56 days?? We appreciate the fact that the Department is trying to resolve this issue and the

opportunity we have been given to comment on this subject. If there is anything I can do to help, please do not hesitate to contact me. I am the QC Manager at Standard Concrete Products (Tampa)
Response: The language has been revised to address beams with and without debonded strands. For beams with debonded strands, the language has been revised to apply the epoxy between 42 and 50 calendar days and also allow application of the epoxy in two steps as described in the comment. The timeframes were established based on feedback from SMO.

****

David Konz
(813) 281-5458
David.Konz@atkinsglobal.com

Comments: (7-1-20, Industry)
450-9.2.1.1 Placement:...non-metallic or stainless-steel (Type 304 or 316) ... Does this include 304L & 316L? Typically low-carbon stainless is dual certified with higher strength stainless. Does this exclude duplex stainless steel? Suggest removing reference to type of stainless steel used and state that same stainless used in prestressing be used for inserts and lifting devices.
Response: This comment is not applicable to the proposed change; however, the following response is from Chase Knight with SMO: The intent was to align the content of this revision with the existing language in 450-9.2.1.2 “If Type 304 or 316 stainless steel lifting devices are used, non-shrink grout meeting the requirements of Section 934 may be used to backfill the block-out within it limits.” Since the revision is closed, the suggestion to include the option of using the same stainless steel for prestressing (meets Section 933) will be considered for future revisions.

****