

4501101 Precast Prestressed Concrete Construction - Detensioning  
COMMENTS FROM INTERNAL/INDUSTRY REVIEW

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Comments: (5-23-11)

I recommend the following modifications: 1- The time limit of detensioning should not exceed 5 calendar days. 2- Add a sentence regarding the use of the same test method for release strength. The modified version will read as follows: For products cured using methods other than accelerated curing, release the prestressing force within a detensioning time limit, not to exceed five calendar days after the verification of the release strength by compressive strength cylinder test or other approved strength gain monitoring system. For all products in a casting line, use the same test method for determining their release strengths. Ensure that the detensioning time limit is included in the Plant's Quality Control Plan. Cure concrete cylinders used for detensioning strength tests in the same manner and location as the prestressed concrete products.

Response:

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Ken Zinck

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Comments: (6-13-11)

Comments by Ken Shartle D5 Concrete Production Manager: <<>> I believe the intent of this change is to allow prestress producers to detension beyond the 24 hour time limit currently in the specification whether it be on the weekend/holiday or not. As far as I know, the change is to facilitate two day pours. Many prestressers have limited FIB side forms and need to move the forms down the bed to complete an entire line of beams. <<>> Our main concern with the change is release strengths exceeding the lesser of 0.8 f'c or 6 kips at the time of detension, as the Structures Design Guidelines recommend.

Response:

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Katie Bettman

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Comments: (6-16-11)

"Make a minimum of two compressive strength release test cylinders daily for each individual mix, or for each LOT of 50 cy or fraction of given concrete mix design where the daily consumption exceeds this volume or when non-continuous batching or dissimilar curing is used." Shouldn't release cylinders be made per bed to know when the strength of the concrete in each bed has reached the minimum compressive strength in order to detension? I don't think most prestressed plants are making release cylinders per LOT of concrete. It makes more sense to use the last concrete poured for the bed. Once the last concrete poured has attained the required

strength, the producer will know the bed is ready to be detensioned. The comment was previously made that the samples should be taken randomly. I agree with this for acceptance, but not for release cylinders. The random sample could be taken from the first trucks and once it met strength, this would not necessarily mean the entire bed had met the required release strength. “For products cured using methods other than accelerated curing, release the prestressing force within a time limit subsequent to the verification of the release strength by compressive strength cylinder test or other approved strength gain monitoring system. Ensure that the detensioning time limit is included in the Plant’s Quality Control Plan. Cure concrete cylinders used for detensioning strength tests in the same manner and location as the prestressed concrete products.” This Specification still requires the Producer to verify release strength no later than 24 hours after casting and every 24 hours thereafter until release strength is developed. Does the time limit included in the QCP need to be in reference to the release strength? Is the producer required to break cylinders every 24 hours? It doesn’t state that they can stop breaking cylinders during a weekend or holiday. Should the maximum amount of time the product is allowed to stay in the bed prior to detensioning be based on the specific product? Should there be a maximum time stated in the Specification? I don’t think the time frame should be in the producer’s QCP for the individual Districts to approve. There would be no Specification to base our approvals on.

**Response:**

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**Comments (6-16-11):**

Comments by Daniel Haldi D5/M&R Construction Materials:<>450 Currently awkward to me. May say ... release the prestressing force within “the time limit indicated” in the Plant’s Quality Control Plan”, after verification of the release strength by compressive strength cylinder tests or other approved strength monitoring systems.

**Response:**

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