

4001400 – CONCRETE STRUCTURES-REMOVAL OF FORMS
RESPONSE TO COMMENTS FROM INDUSTRY REVIEW

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Comments:

Does the required % of design strength for form stripping apply to precast incidental concrete products, drainage products and for precast box culvert using 346 concrete? If the answer is yes, then the % of design strength must be lowered to 50% for the purpose of stripping forms.

In addition, how would you propose to handle products made using "dry cast" concrete production equipment where de-molding of the product occurs within minutes of the pour?

Response: Section 400 does not apply to precast incidental products. 400-1 says for precast concrete structures, they must meet the requirements of Section 450 for storage, shipping and erection. We will share this comment with Ghulam Mujtaba.

Ghulam Mujtaba
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Comments:

1. The "time versus strength curve" should be changed to "strength versus time" curve.

Response: Change made.

2. The three point curve is not adequate to establish the strength development curve. In case of error in one of the strength test data, strength development curve will be established based on the assumption that curve should pass through the remaining two data points or any of the data points, including the wrong test data point. It is possible that the incorrect strength data point will be used to establish the correlation equation.

Response: No change made. The specification says the Engineer must approve the curve and supporting data. He can request more data if he doesn't like the 3 point curve. The three data points actually come from 6 results. Also the specification says that the Contractor is still responsible for the work even if the Engineer approves the early form removal.

3. The proposed specification should mention that for each mix design there should be a correlation curve.

Response: Change made.

4. The proposed specification allows the average of two cylinders for the strength test data of the curve establishment. This is in conflict with 346-9.1, which requires three cylinders for the strength test. It is important to test three cylinders and take their average for strength development curve, especially when 4 x 8- in test cylinders are used.

Response: 346-9.1 is for acceptance of material. This is for early removal of forms. The cylinders required under 346-9.1 will still have to be cast for acceptance of the material.

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Comments:

We have retrieved the referenced document from the State Specifications Office's Industry Review webpage. Pursuant to request, we have reviewed the document, entitled "Concrete Structures – Removal of Forms," and offer the following comments for your consideration.

Does this allow the maturity method to formulate the time/strength curve?

Thank you for the opportunity to provide input. If you have any questions or need additional assistance, please do not hesitate to contact our office.

Response: No. The Department is conducting research on the maturity method, but it is not part of the Standard Specifications at this time.