

4501205 PRECAST PRESTRESSED CONCRETE CONSTRUCTION
COMMENTS FROM INTERNAL/INDUSTRY REVIEW

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Comment: (1-2-14)

The only thing I see here is there is much more length allowed for round piles than Square is that intended?

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Response: Thanks for the comment. The proposed change is related to poles and not piles. Yes, for the same cross-sectional area of round and square poles, the crack allowance for round poles will be slightly higher compared to square pole.

In order to simplify the process, the base width of the pole has been used as a measure of the length of the crack in lieu specifying variable allowable crack sizes based on different sizes and shapes of the poles. The proposed specification simplifies it. In case of square pole the measure will be based on its width and for round pole it will be its diameter. The term "width" covers width for square pole and diameter of round pole.

No changes made.

Miles Zeman
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Comment: (1-10-14)

I've made alterations (highlighted) to the 450-12 specification which I believe will address the issue of cracks in poles. As poles are so very similar in construction to piles, the changes are only a few words in the entirety of the text, but should make all the difference. This option is simple, effective, and requires only minor adjustments to the existing specification.

In anticipation of potential arguments against this option, I'll point out that A) while poles are above ground for much of their length, piles typically carry a much greater load; B) both piles and poles have a portion that's buried, and a portion that's exposed to the air; and C) end zones are not currently defined for either piles or poles.

1.

450-12.3.1 Pile and Pole Ends: Make square pile or pole ends which are outside this Section's tolerances by grinding in accordance with 450-13.7, or any other means of removal as approved by the Engineer. Reshape the pile chamfer if more than 0.25 inch from the cast pile end is removed and such removal affects the chamfer dimension.

Response: Thanks for the review comment. I concur with the suggested change. However, since this suggestion is regarding language not included in this revision, it will be considered for future revisions.

No changes made.

2.

450-12.5 Cracks: A crack is the separation of a product or portion thereof which may appear before or after de tensioning and may or may not cause separation throughout the product thickness or depth. Identify cracks by the classifications and locations described below and subject them to the disposition

required by the identified crack. If the total surface length of all cracks within a single product, regardless of width, located between the end zones exceeds one-quarter of the product's length, an engineering evaluation and disposition in accordance with 450-14 is required. Establish crack sizes subsequent to release of all pre-tensioning forces.

The Engineer will reject any pile **or pole** that is cracked to the point that a transverse or longitudinal crack extends through the pile **or pole**, shows failure of the concrete as indicated by spalling of concrete on the main body of the pile **or pole** adjacent to the crack, or which in the opinion of the Engineer will not withstand **pile** driving stresses. Occasional hairline surface cracking caused by shrinkage or tensile stress in the concrete from handling will not be cause for rejection.

Response: Thanks for the comment. The proposed 450-12.5.3.7 will cover the allowable extent of the crack in the pole. Also, it covers the edge crack. There is no need for the duplication of the requirements in two separate sub-articles.
No changes made.

3.

450-12.5.1 Classification and Treatment of Cracks: Regardless of cause and for the purposes of Section 450, cracks in precast pre stressed components, excluding piling **and poles**, will be identified according to their surface appearance...

Response: Thanks for the comment. The proposed specification 450-12.5.3.7 will cover the allowable extent of the crack in the pole. The 450-12.5.1 sub- article has excluded pile. Piles are mainly below the ground and during the driving it will be exposed to impact load. The loading condition during the installation of poles is different than piles. Therefore, poles should not be excluded.
No changes made.

4.

450-12.5.3 Non-critical Locations of Cracks by Product Type:
450-12.5.3.1 Piles **or Poles:** Surface cracks in any direction and of a length not exceeding twice the width of the pile, **or the pole at the butt end**.

I believe the solution outlined herein is the best from both a production and quality control standpoint. However, should FDOT personnel object to the proposed changes, then the earlier missive (included below) applies. The existing proposal espoused by the FDOT is fraught with issues, and needs heavy revision should that route be chosen. In fact, if the aforementioned changes are denied, I would suggest a more drastic modification to the 450-12 specification to address the real problem, namely, that poles were never included in the 450 specification.

Response: Thanks for the comment. The proposed specification 450-12.5.3.7 will cover the allowable extent of the cracks in the pole.
No changes made.
