

The new Florida I Beam (FIB) was introduced over two years ago and has been used successfully all over the state. However, the camber growth of these beams as predicted by designers with currently available methods can be less accurate than it was for predicting the camber growth of the previously used AASHTO or Bulb-T beams. Specifically, the actual camber of the beams as produced in the prestressing plant can be less than the predicted camber as shown in the plans by more than expected. In general, FIBs have developed less camber than have Bulb-T or AASHTO girders for comparable span lengths. The State Structures Design Office is in the process of developing a more accurate camber prediction method for future use. In the interim, the following considerations shall be discussed with the Contractor to ensure that the effects of FIB camber growth are properly addressed.

- Specification 450-16.2 (see excerpt below) requires the FIB Producer to measure and record the camber dimension each month for each girder while stored in the prestressed plant. It is very important for the Contractor to request and review these recorded values in order to accurately determine the elevations of girder pedestals and deck forms. If these reviews do not take place, excessive girder build-ups can result which may have the following consequences: an undesirable increase in dead load that reduces the factor of safety of the substructure and the superstructure; large increases in concrete quantities; and the possible need for supplemental rebars to extend girder stirrups to properly engage the deck concrete. The Project Administrator shall discuss these requirements and concerns with the Contractor well in advance of the start of substructure and superstructure construction.
- The Beam Camber and Build-Up Note in Standard Index 20199 (see note below) requires the Contractor to notify the Engineer for approval of modifications when field cambers are greater or less than 1/2" of what is predicted in the plans. This also allows the Engineer to consult with the EOR if adjustments result in build-ups that may impact the final load rating. The EOR may be required to perform an As-Built load rating in order to verify that the adjusted build-ups do not negatively affect the load rating to an unacceptable degree. The Project Administrator shall report all significant build-up adjustments to the EOR and shall discuss whether or not their impact on the load rating is a concern and if so, an As-Built load rating shall be performed. When the EOR finds significant load rating impacts, the Project Administrator shall coordinate discussions between the EOR, District Structures Design Engineer and the District Structures Maintenance Engineer to decide on an appropriate course of action.

Please share this e-mail with all CEIs that are actively managing FIB projects or that will be managing projects in the near future. If further discussion of these issues is desired by you or your CEIs, please contact me directly.

450-16.2: Measure and record the sweep and camber of beams monthly. Keep the measurement records on file for review at any time by the Engineer, and upon request, transmit a copy of these measurements to the Engineer. If the camber exceeds by 1 inch the design camber shown in the Plans, take appropriate actions in accordance with 400-7.13.1 to accommodate the product in the structure.

From Standard Index 20199

BEAM CAMBER AND BUILD-UP NOTES:

The build-up values given in the Data Table are based on theoretical beam cambers. The Contractor shall monitor beam cambers for the purpose of predicting camber values at the time of the deck pour. If the predicted cambers based on field measurements differ more than $\pm \frac{1}{2}$ " from the theoretical "Net Beam Camber @ 120 Days" shown in the Data Table*, obtain approval from the Engineer to modify the build-up dimensions as required. When the measured beam cambers create a conflict with the bottom mat of deck steel, notify the Engineer a minimum of 21 days prior to casting.*