



Section 2: PRESTRESS SHOP DRAWINGS

The *Standard Specifications* (SS)⁴ requires that the Contractor submit shop drawings of the prestressing systems that will be used on the project. It is the Contractor's responsibility to use post-tensioning systems that are pre-authorized by Caltrans or obtain approval from METS for the systems that are proposed for use.

The prestress shop drawings are to be submitted by the Contractor to the Structure Design (SD) documents unit in Sacramento. The documents unit will distribute the various sets of drawings for review and approval. The distribution process is outlined in *Bridge Memo to Designers*, Section 11-1. All SD technical publications are available at <http://www.dot.ca.gov/hq/esc/techpubs/>.

The responsibility for checking the shop drawings is shared by the Designer and the Structure Representative. Shop drawings will not be returned to the Contractor until the Designer has discussed and resolved the details with the Structure Representative. The comments returned to the Contractor must be acceptable to both the Designer and the Structure Representative.

The normal time allowed for prestress shop drawing review by Caltrans is 45 days for structures not involving railroads, and 60 days for structures involving railroads.⁵

The *Standard Specifications*, *Special Provisions*, contract plans, *Bridge Construction Records and Procedures Manual*, and the Resident Engineer's pending file should be carefully reviewed before and during the shop drawing review process. All dimensions, layouts, and calculations must be checked. Items of specific concern are as follows:

1. Prestressing force and theoretical elongations.
2. The initial and final force variations between girders.
3. Bearing plate stresses and concrete stresses behind the bearing plates.
4. Whether one or two end stressing is used.
5. Conflicts between the layout of the ducts and bar reinforcing steel.
6. Block-out sizes, duct alignment at anchorage, and possible utility conflicts.
7. Grouting Plan⁶ (see Appendix C).

Bridge Memo to Designers, Section 11-1, defines the roles and responsibilities of the Prestressed Concrete Committee, Designer, and Structure Representative for post-tensioning shop drawing review. In addition, a checklist for reviewing shop drawings is included in this manual in Appendix C, *Inspection Checklist*.

⁴ 2010 SS, Section 50-1.01C(3), *Shop Drawings*.

⁵ 2010 SS, Section 50-1.01C(3), *Shop Drawings*.

⁶ 07-19- 2013 Revised Standard Specifications (RSS), Section 50-1.01C(3), *Shop Drawings*.



It is important that all parties involved (Designer, Structure Representative, Assistant Structure Representative, Contractor, and prestressing subcontractor) are working from an *authorized* set of shop drawings.

It is possible that the Contractor will begin construction from an unauthorized set of shop drawings. The Contractor should be reminded (and noted in the daily report) that all work will be checked with an authorized set of shop drawings, any deficiencies require correction, and that concrete will not be placed until the corrections have been made.

At the completion of each structure on the contract, the Contractor must submit electronic copies of the as-built shop drawings⁷ to the Structure Representative. Drawings shall be arranged in the order of numbers shown on the index. The Structure Representative shall review the drawings for accuracy and then forward the drawings, if complete, to Structures Design Documents Unit, 1801 30th Street, Mail Station 9-4/4I, Sacramento, CA 95816, as outlined in *Bridge Construction Memo 2-12.1* of the *Bridge Construction Records and Procedures Manual*.⁸

⁷ 2010 SS, Section 5-1.23B(2), *Shop Drawings*.

⁸ http://dschq.dot.ca.gov/sc_manuals/construction_records_and_procedures_vol_1/2-12.1_BCM.pdf.