# Prestressing Concrete – General – Quality Assurance – Department Acceptance

## Revision and Approval

| Revision | Date | Nature of Changes | Approved By |
|---|---|---|---|
| 0 | 11-16-2018 | Original issue. | Steve Altman |

Click here for previous versions

## Background

This process establishes Structure Construction (SC) responsibilities and procedures for performance of departmental acceptance activities for accepting prestressing concrete components, including sample testing, grout testing, and verification of prestressing forces.

The contract documents have specific requirements for each of these activities for the purpose of verification that each prestressed structure performs as designed.

## Process Inputs

1. CEM-3101, *Notice of Materials to be Used*[1]
2. Authorized prestressing submittals per BCM 50-1.01C, *Prestressing Concrete – General – Submittals*, including Daily Grouting Reports
3. Lot numbers and tags for prestressing materials[2]
4. Calibration data for prestressing equipment proposed for prestressing per Standard Specifications (SS)[3]

## Procedure

1. All work associated with this process is charged as Project-Direct – Construction.
2. Inspection of field work for this process is:
   a. Continuous for all Department Acceptance activities performed during prestressing operations.

[1] 2015 SS, Section 6-1.01, *Control of Materials – General*
[2] 2015 SS, Section 50-1.01D(1), *Prestressing Concrete – Quality Assurance – General*
[3] 2015 SS, Section 50-1.01D(2)(b), *Equipment and Calibration*

3. Before construction begins:
   a. Obtain a pressure cell unit and a standby unit.
   b. Contact SC equipment manager (916-227-7777) if repairs are needed.
   c. Verify all material released by Materials Engineering and Testing Services (METS) matches individual lot numbers and release tags.
   d. Verify any physical damage to prestressing steel, reject if not in compliance.
   e. Perform field samples for couplers used to extend bars. Verify compliance with tensile strength of bars as specified, reject if not in compliance.
   f. Prepare Form SC-4301, *Post-Tensioning Field Monitoring Chart*, for field operations:
      i. Verify calculated prestressing steel elongations using authorized shop drawings and METS material release data
   g. Prepare Form SC 4302, *Prestress Calibration Monitoring Sheet*, and Form SC-4302A, *Prestress Calibration Gage Pressure vs. Jacking Force.*
   h. Understand the operational procedure for the use of strain indicator.
4. During construction:
   a. During prestressing operations:
      i. Verify Contractor's jack and gauges using Department's pressure cell and strain indicator using the following:
         1. *Prestressing Manual*, Appendix B, *Strain Indicator Pressure Cell,* is used as reference information.
         2. Caltrans *Prestress Manual,* Section 7*, Prestressing Jacks* and Section 8*, Prestressing Operation*
         3. Complete Form SC 4302, *Prestress Calibration Monitoring Sheet*, and Form SC-4302A, *Prestress Calibration Gage Pressure vs. Jacking Force.*
      ii. Complete Form SC-4301, *Post-Tensioning Field Monitoring Chart*, as prestressing operation is completed[4].
      iii. Verify grouting operation takes place within 10 days after strand installation. If it is more than 10 days, corrosion inhibitor in ducts is required.
   b. During grouting operations:

[4] *Prestress Manual,* Section 8, *Prestressing Operation*

i. Perform California Test Methods (CTM) 541, *Method of Test for Flow of Grout Mixtures (Flow Cone Method),* at the point of introduction and egress of grout from the duct. Document test results in the inspector's daily report[5].

5. Complete documentation of quality assurance activities, which include METS sample testing, physical condition of prestressing steel, verification of prestressing forces, and grout testing.
6. Document all inspection, construction, and quality assurance activities in the Daily Reports per BCM C-4.04, *Daily and Weekly Reports.*

## Process Outputs

1. Daily Reports
2. Completed Forms SC-4301, *Post-Tensioning Field Monitoring Chart*, SC-4302, *Prestress Calibration Monitoring Sheet*, and SC-4302A, *Prestress Calibration Gage Pressure vs. Jacking Force.*

## Attachments

None

[5] *Prestress Manual,* Section 9, *Grouting Operation*