

# **Chapter 4**

# **Construction Details**

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## **Section 0 Introduction**

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### Section 0 Introduction

#### 4-001 Scope

Each section in this chapter of the manual corresponds to a section in the *Standard Specifications*. All sections in the *Standard Specifications* are included here except Division I, “General Provisions,” and Division XII, “Building Construction.” Division II, Section 10, “General Construction,” includes specifications for general construction that are applicable to every contract unless specified as applicable only under certain conditions. Materials specifications for a material specified in Division XI, “Materials,” apply to the material specified in any section of the *Standard Specifications*.

Each section in Chapter 4 contains guidance discussed in the following: “General,” “Before Work Begins,” “During the Course of Work,” “Level of Inspection,” “Quality Control,” and “Payment.”

“General” briefly describes the work covered in the section.

“Before Work Begins” describes the actions the resident engineers and assistant resident engineers must take before the contractor begins the construction work.

Before beginning work, it is essential to study the contract plans, *Standard Plans*, *Standard Specifications*, special provisions, and the work site.

Check that aggregate material or borrow sources comply with Section 7-103H (2), “Surface Mining and Reclamation Act,” of this manual. For more information, refer to Sections 3-603, “Local Materials,” and 6-103, “Field Sampled Material Identification for Testing,” of this manual.

Verify that Form DOT CEM-3101, “Notice of Materials to Be Used,” includes all materials. Refer to Section 6-202, “Responsibilities for Acceptance of Manufactured or Fabricated Materials and Products,” of this manual for additional information.

“During the Course of Work” describes the actions the resident engineers and assistant resident engineers must take when the contractor is performing the work.

Make sure that job-produced materials are sampled and tested for acceptance in conformance with Section 6-107, “Materials Acceptance Sampling and Testing,” of this manual.

Upon delivery, check the materials’ identification marks or inspection tags using Form TL-0624, “Inspection Release Tag,” and match these marks and tags against those listed in Form TL-29, “Report of Inspection of Material.” Refer to Section 6-2, “Acceptance of Manufactured or Fabricated Materials and Products,” of this manual for more explanation.

“Level of Inspection” provides suggested frequency of inspection. Level of inspection is not included for sections that include work that is typically the responsibility of Structure Construction.

The level of engineering inspection varies, depending on the type of work being performed, and is categorized into three basic levels:

- Continuous Inspection—Inspect 80 to 100 percent of the time work is in progress with assistant resident engineers assigned only to one operation.
- Intermittent Inspection—Inspect 30 to 80 percent of the time work is in progress with assistants assigned to two or three operations simultaneously.
- Benchmark Inspection—Inspect up to 30 percent of the time work is in progress.

“Quality Control” provides guidelines for inspecting the contractor’s quality control activities for which the specifications require specific levels of inspection, sampling, and testing. When specific levels of quality control inspection, sampling, and testing are not detailed in the *Standard Specifications*, the contractor is responsible for providing quality control under Section 5-1.01, “General,” of the *Standard Specifications*.

Caltrans inspection, sampling, and testing are performed for compliance verification and payment of the materials but do not relieve the contractor of the responsibility to provide quality control on these materials as they are processed and incorporated into the project.

Section 6-2.01A, “General,” of the *Standard Specifications* states that quality control includes sampling, testing, and inspections performed by the contractor under the contractor’s quality control program to control material quality and make sure the specified quality characteristics for the project are met. Generally, the quality characteristics will be identified within the material section of the specifications, but additional requirements may also be found in the quality assurance and construction sections of the specifications.

Section 6-2.02, “Quality Control,” of the *Standard Specifications* further describes general requirements for the contractor’s quality control, including minimum quality control program requirements for personnel, testing equipment, and testing laboratories. Check that the contractor is actively performing quality control throughout production operations by reviewing copies of quality control records, including quality control test results. Where review of the contractor’s quality control program information or absence thereof shows a failure to actively perform quality control, the production operations should be suspended until the contractor identifies what actions will be taken to comply with the contract.

If quality control test results show questionable material quality, the contractor should make corrections to assure materials meeting specified requirements are incorporated into the work. Where repeated concerns are found, provide a written request to the contractor to identify what corrective actions are being taken to address the material quality.

It is important to note that contractor quality control inspection, sampling, and testing is not to be used for rejection, acceptance, or payment of items of work unless allowed by the specifications. However, quality control test results indicating material

quality issues should result in increased frequency of acceptance sampling and testing until quality issues have been resolved.

“Payment” provides guidelines for measuring and paying for the work covered in the section.

#### **4-002 Purpose**

Although each section in Chapter 4 of this manual closely follows the corresponding section in the *Standard Specifications*, the intent of this chapter is not to repeat or paraphrase the specifications, but to offer guidelines for action to assure compliance with the specifications and to measure work done. Therefore, for resident engineers and assistant resident engineers, Chapter 4 provides guidelines for inspecting, measuring, and paying for contract item work.

For structures-related work covered in Division VI, “Structures,” of the *Standard Specifications*, the guidelines in Chapter 4 of this manual are general in nature. The guidance for technical structures issues, including inspecting, measuring, and paying for structures contract item work, is included in Structure Construction’s construction records and procedures manuals available at:

<https://dot.ca.gov/programs/engineering-services/>

For the most part, only the *Standard Specifications* are considered in the guidance provided in Chapter 4. Special provisions may require actions different from or in addition to those described in these guidelines.

Assistant resident engineers are usually assigned some specific portion of contract work. The first duty in carrying out the assignment is to become thoroughly familiar with the contract plans, standard plans, special provisions, and standard specifications that apply to that particular work. This chapter of the manual does not substitute for and does not diminish the need to have a good understanding of the planned work and the specifications.