



Building Construction – General Requirements

Revision and Approval

Revision	Date	Nature of Changes	Approved By
0	03-30-2023	Original Issue	Richard Foley

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Background

This process establishes Structure Construction (SC) roles and responsibilities for building construction, including:

- Coordination between the Contractor and the Department (e.g. service interruption to the State facility where building work is to be performed)
- Review and authorization of submittals
- Review and authorization of schedule of values for payments
- Review and authorization of as-built project plans
- Coordination with internal stakeholders for inspection and testing

Prior to reviewing this Bridge Construction Memo (BCM), it is essential to review [Contract Specifications](#), Section 99-1, *Building Construction – General Requirements*, that this BCM is based on as identified in the title block above. The information in the *Contract Specifications* (CS) typically will not be repeated in the text of this BCM.

Process Inputs

1. Contract work includes building construction

Procedure

1. All work associated with this process is charged as [Project Direct – Construction](#).
2. Inspection of field work for this process is:
 - a. [Benchmark](#) as deemed appropriate.
 - b. [Intermittent](#) for all work except:
 - i. Concrete placement operations
 - ii. Other contractor operations where benchmark inspection is deemed appropriate.
 - c. [Continuous](#) for concrete placement operations.
3. Before construction begins:
 - a. Review the [contract documents](#) (follow the link to the Building and LEED SSP's) for building construction work, and the [Building Construction Manual](#).
 - i. Determine responsible parties for inspection of each component of work, including:
 1. Structure Construction (SC) staff
 2. Project Design Team per the *Building Construction Manual*, Chapter 3, section titled *Caltrans Project Design Team*.
 - a. Note that many of the functional units which comprise the Project Design Team may be found within DES [Structures & Engineering Services](#) (SES), and would include the Project Engineer.
 - b. The District Landscape Architect would also be involved in the site improvements.
 3. Special inspectors
 4. Local agency
 5. Utilities (gas, water, wastewater, sanitary sewer, telephone, fiber, etc.)
 - ii. Determine who the Facility Supervisor is by checking the District Maintenance website, which contains organizational charts, or by contacting the Maintenance Regional Manager.
 - iii. Review Divisions 0200 through 1600 of the [Building Construction Manual](#) as applicable and note which inspection tasks will be done by the Division of Engineering Services (DES) Mechanical, Electrical, Water, Wastewater or Architectural units, as many items are outside the expertise of SC staff. These items should be discussed at the internal preconstruction meeting.

1. Note that on a building project, the primary contact would likely be the Project Architect, from SES.
- b. Review the RE Pending File from the Project Architect. The RE Pending File is typically prepared in accordance with DES TAEMW&W Memo to Designers ([MTD 4-2](#)), *Resident Engineer's Pending File for Structures Projects*.
 - i. Note that TAEMW&W is an acronym which encapsulates the DES functional units mentioned above, Transportation Architecture, Electrical, Mechanical, Water, and Wastewater.
- c. Conduct an internal preconstruction meeting with the Project Design Team and RE. Discuss the following with the Project Architect, Material Engineering and Testing Services Representative ([METS Rep](#)), Geotechnical Services, and Caltrans Maintenance personnel including the Facility Supervisor (if the project is modifying an existing building):
 - i. Inquire about any design concerns or complex situations.
 - ii. Review all Americans with Disabilities Act (ADA) requirements and verify plans for compliance. Initiate communication with the District ADA Coordinator to discuss inspection milestones and/or requirements. Refer to the [Office of ADA Administration](#) website for the District ADA Coordinator contact information.
 - iii. Discuss inspection responsibilities and required inspection frequency.
 - iv. Discuss the building construction submittal and shop drawing requirements, procedures, and roles and responsibilities including those described in:
 1. TAEMW&W [MTD 9-4](#), *Shop Submittals*.
 2. TAEMW&W [MTD 12-4A](#), *Fire Alarm System Submittal Process*, for [State Fire Marshal](#) requirements, when applicable.
 - v. Discuss the request for information (RFI) process, change order process, and any process for alternative product proposal/authorization.
 - vi. Confirm which activities the RE will take the lead on. These typically include:
 1. Coordinating service interruption requests with State Facility Supervisor.
 2. Monitoring the Contractor's use of the State Facility Supervisor's utility services.
 3. Potholing.

- vii. Coordinate with the RE to pothole existing utilities as needed, to avoid potential project delays. The exposed utility service connections should be compared to the project plans to confirm the designed connections will work with the existing conditions.
- viii. Discuss the following with the State Facility Supervisor:
 - 1. Existing equipment in the State facility.
 - 2. Coordination of facility operations with contract work.
 - 3. Schedule of upcoming inspections.
- d. Establish contact with all third-party stakeholders to coordinate inspection and other project requirements, including:
 - i. State Fire Marshal
 - ii. Third party utilities (pre-service installation inspection, service authorization)
 - iii. Manufacturer product representatives
 - iv. Local fire department (inspection of existing and new fire hydrants)
 - v. [Cal/OSHA Pressure Vessel Unit](#) (inspection and operating permits for gas tanks, propane tanks, and compressors – refer to the Building Construction Manual for applicable pressure vessels)
 - vi. Water well inspector (for all well work, refer to [BCM 76, Wells](#))
- e. Schedule and hold a preconstruction conference with the Contractor, as outlined in the CS, Section 8-1.03, *Prosecution and Progress – Preconstruction Conference*. Establish communication protocols between subcontractors, designer, and third parties. Discuss building construction requirements, including:
 - i. CS, [Section 99-01000-1-1.4 Building Construction – General Requirements – Coordination with the Department](#):
 - 1. For planned construction operations and necessary service interruptions, site access or space constraints, etc.
 - 2. For coordinating operations with the State Facility Supervisor, including security policies (if any). When applicable, consider periodic meetings with the Contractor and the facility supervisor to review upcoming construction schedule and activities:
 - a. To avoid impact to critical or emergency operations at the facility
 - b. To minimize impact of the existing facility operations on construction, and vice versa.

- ii. CS, [Section 99-01000-1-1.5](#), *Building Construction – General Requirements – Submittals*:
 - 1. For the Contractor’s required notification protocols to inform the RE and SR of submittals. The Contractor must include the date and contents of the submittal in the notification.
 - 2. For distribution protocols followed by the SC Office Associates (formerly OSD Documents Unit) to forward submittals to the SR and Project Lead in accordance with TAEMW&W [MTD 9-4](#), *Shop Submittals*.
 - 3. To remind the Contractor to include building construction submittals and inspection requests on their baseline critical path method (CPM) schedule and subsequent updates.
 - 4. To inquire whether the use of alternative products will be considered. Encourage the Contractor to submit product data for proposed use of alternative products as early as possible so as not to negatively impact project schedule. SR to forward any material substitution requests to the appropriate SES functional unit (TAEMW&W).
- iii. CS, [Section 99-01000-1-1.7](#), *Building Construction – General Requirements – Schedule of Values*:
 - 1. To remind the Contractor to submit the schedule of values within 20 days of Contract approval in accordance with CS, [Section 99-01000-1-1.5](#), *Building Construction – General Requirements – Submittals* . Review time for all action submittals, including the schedule of values, is 20 days. The Department does not process a progress payment for building construction work without an authorized schedule of values.
- iv. CS, [Section 99-01000-1-1.10](#), *Building Construction – General Requirements – As-Built Drawings*:
 - 1. To establish monthly as-built status/review meetings. Conduct these meetings each month prior to progress payments. The Contractor is responsible for documenting all changes.
- v. CS, [Section 10-2.03E](#), *Department Commissioning* (of the LEED Specifications):
 - 1. To establish the inspection request process.
- vi. CS, Section 5-1.13A, *Control of Work – Subcontracting – General*:
 - 1. To verify which subcontractors, if any, will be utilized and for which building construction operations. Prior to the preconstruction conference, review the *Construction Manual (CM)*, Chapter 3, [Section 3-507A](#), *General Provisions – Control of Work – Amount of*

Work Subcontracted and CM, Section 3-507C(1), Subcontracting in the Bidding Process. Note that:

- a. CS, Section 5-1.13, *Control of Work – Subcontracting*, requires that the prime contractor perform at least 30 percent of work using the contractor’s own employees and equipment, unless a different percentage is specified in the project *Special Provisions*. This requirement does not apply if the work is for a building construction contract without federal aid.
- b. Unusual subcontracting situations should be discussed with the RE and/or District Construction Engineer.
- f. Review [Form CEM-3101](#), *Notice of Materials to Be Used*, for completeness and identify materials that require submittals.
- g. Review and provide authorization concurrence for building construction submittals. As part of this process:
 - i. Create a list of required submittals and the governing CS section. This list is used to log and track submittals. Make sure to:
 1. Share the submittal list with the Contractor and the designers for concurrence.
 2. Enter submission dates in the submittal log and compute the corresponding “review by” dates. Note that when the designer is a consultant, the *Special Provisions* may allow a longer submittal review period than usual.
 3. Monitor the contractually allotted versus actual review time, and update the submittal log accordingly. Track positive and adverse impacts to the project schedule and be proactive to discuss any mitigations with the Contractor and/or project team.
 - ii. Perform a cursory review for submittal completeness prior to performing a detailed submittal review.
 - iii. Note that building construction submittals routed through SC Office Associates are authorized or rejected by the Designer of Record (DOR) once comments from all reviewing parties have been compiled and concurrence has been provided. The SR only provides review comments to the DOR via SC Office Associates as opposed to directly authorizing these submittals. Authorized building construction submittals are returned to the SR by SC Office Associates. For rejected building construction submittals:
 1. To minimize adverse impact to the project schedule, the SR must understand and communicate the reasons for rejection to the

Contractor. Consider coordinating with the Contractor to set up a meeting (between the Contractor/fabricator/supplier and the DOR) to discuss any required corrections.

- iv. Note that the *Standard Special Provisions* (SSPs) require the Contractor to submit shop drawings, material lists, product and descriptive data, and samples within 50 days of contract approval. However, on large or complex projects, submittals may come in throughout the life of the project. SRs must ensure submittals are received in a timely fashion to be authorized prior to incorporation into the project.
 - v. Review the schedule of values portion of [Building Construction Manual](#), Chapter 3, *Project Design – Contract Administration and Management* (page 8). A schedule of values example is shown in [Attachment 1](#), *Sample Schedule of Values for a Building Project*, of this BCM.
 - vi. Review [BCM 90-1](#), *Concrete – General*, for concrete mix design submittal review procedures.
 - vii. Distribute authorized submittals to the Assistant Structure Representative (ASR).
 - h. Create a log for RFIs related to building construction work.
 - i. Determine if lead training will be required. If so, refer to [BCM B-2](#), *SC Lead Compliance Plan*.
 - j. Determine if the use of respirators will be necessary during field inspection of lead or asbestos abatement. Refer to [Respirators \(Frequently Asked Questions\)](#) on the Structure Construction website. Contact the Bridge Construction Engineer to arrange for fit testing, if necessary.
4. During construction:
- a. Review authorized submittals prior to inspecting work. Compare all materials installed and/or to be installed with their corresponding submittals. A good practice is to sign or initial and date the authorized submittal to verify that the inspected material matches the authorized submittal.
 - b. When a building requires foundation construction, review the foundation report, if available, to verify existing soil conditions and consult with Geotechnical Services for construction support as needed.
 - i. Refer to [BCM 19-3.03B\(1-4\)](#), *Earthwork – Structure Excavation and Backfill – Construction – Structure Excavation*, for additional guidance.
 - c. Perform daily site inspections. Take progress photos of all work prior to being concealed/covered up.

- d. For contractor coordination with the Department for utility service interruptions at existing facilities:
 - i. Discuss any contractor requests for utility service interruptions with the RE and the State Facility Supervisor. There should not be any agreements made directly between the Contractor and Facility Supervisor.
 - ii. When issues arise regarding contractor requests for utility service interruption, proactively facilitate a resolution.
 - iii. Verify that the RE has authorized contractor requests for utility service interruptions prior to their implementation.
 - iv. Monitor contractor use of utility services at existing State facilities (note that this may be the RE's responsibility as discussed at the internal preconstruction meeting).
- e. Process monthly progress payments in accordance with the authorized schedule of values.
- f. Conduct monthly meetings to perform on-going review of the details recorded in the contractor maintained as-built plans, as mentioned in preceding Step 3.e.iv. At these monthly meetings:
 - i. Use the independent SC set of as-built project plans to compare against the contractor's plans.
 - ii. Verify that the Contractor's in-progress as-built project plans conform to the CS and accurately reflect:
 - 1. Change orders
 - 2. RFIs
 - 3. Locations of any underground utilities
 - 4. Location, size, type, and manufacturer of major products or components incorporated into the work.
- g. Coordinate 3rd party inspection and testing:
 - i. Utilize daily site inspections to anticipate the Contractor's 3rd party inspection needs.
 - ii. Update the Project Design Team of progress and upcoming stages of work to avoid project delays caused by required 3rd party inspections.
 - iii. Forward the Contractor's requests for inspection to the appropriate party. Verify that the work will be ready for inspection on the date requested.

- iv. Receive written results of the inspection and transmit to the Contractor. If corrective work is needed, determine whether follow-up inspection is needed.
- h. Coordinate timely inspection of the facility by appropriate SES Functional Units/ Project Design Team members as follows:
 - i. As items of building construction work are considered to be complete, individual designers from Electrical, Mechanical, etc., must have an opportunity to perform a detailed inspection of their corresponding items.
 - 1. Verify that the team members performing inspection are utilizing the latest plans, authorized shop drawings, change orders, etc.
 - 2. Be available to assist in this final inspection as needed.
 - 3. This final inspection will likely entail specialized knowledge and testing equipment outside the scope of SC competency, and result in detailed punch list items.
 - i. As requested by the Contractor before completion of the work, review the Contractor's proposed final as-built project plans for accuracy and completeness.
 - j. Compile a punch list of items for the Contractor to address prior to relief of maintenance. Provide this list to the Contractor.
 - k. Once all punch list items have been addressed, relief of maintenance for the facility can be granted by the RE after completion of the following:
 - 1. Final ADA inspection by the ADA Coordinator.
 - 2. Issuance of Certificate of Occupancy by the State Fire Marshal.
 - 3. Pressure vessel inspection by Cal/OSHA, if applicable.
 - l. Document all inspection, construction, and quality assurance activities pertinent to this BCM in the daily reports per [BCM C-7](#), *Daily and Weekly Reports*.
- 5. Following construction:
 - a. The Contractor submits electronic copies of as-built project plans and as-built shop drawings electronically to SR, who will then verify that all sheets are signed and dated with the "As-Built" stamp before providing authorization concurrence. The SR will then submit them to the [SC Office Associates](#).
 - b. Verify that the Contractor has furnished the following documentation for each component of the facility:
 - i. Manufacturer's warranty information, including contacts for service and/or corrective work.

- ii. Operation and maintenance instructions, including parts lists.
- c. Compose a transmittal letter to the State Facility Supervisor which must contain a comprehensive itemized list of the as-built project plans, all as-built shop drawings, and all facility information documents. Include the end date of the one-year guarantee period and contact information if corrective work is required.
- d. Coordinate with the RE to schedule a walk-thru meeting with the State Facility Supervisor, operators of the facility, and others who have a vested interest in the facility. During this meeting:
 - i. Hand over the as-built project plans, all as-built shop drawings, and all facility information documents furnished by the Contractor, accompanied by the SR's transmittal letter.
 - ii. Review operation of the facility.
 - iii. Inform the State Facility Supervisor and operators of the facility of the end date for the one-year guarantee period and end dates for the warranty periods for each facility component, as well as provide contacts from construction who can facilitate the coordination of warranty work.
 - iv. Discuss work that may be required after contract acceptance.
- e. Conduct a project review meeting with the Project Design Team. During this meeting, discuss:
 - i. Administrative and technical issues that may need refinement.
 - ii. Procedures that worked well and should be considered for future projects.
- 6. File all project documentation (correspondence, materials acceptance documentation, daily reports, etc.) in the appropriate category in the project records as specified in the *Construction Manual*, Chapter 5, [Section 5-102](#), *Contract Administration – Project Records and Reports – Organization of Project Documents*.

Process Outputs

1. Completed building project, conforming to the contract requirements
2. Daily reports
3. Authorized building construction submittals
4. As-built shop drawings
5. Final as-built project plans submittal

Attachments

1. [Attachment 1](#), *Sample Schedule of Values for a Building Project*