Wood and Plastic Lumber Structures – Wood Structures

Revision and Approval

Revision	Date	Nature of Changes	Approved By
0	02-09-2023	Original Issue	Richard Foley

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Background

This process establishes Structure Construction (SC) responsibilities and procedures for review and authorization of submittals, quality assurance, materials, and construction of wood structures.

Prior to reviewing this Bridge Construction Memo (BCM), it is essential to review the *Contract Specifications*, Section 57-1, *Wood and Plastic Lumber Structures – General*, and Section 57-2, *Wood and Plastic Lumber Structures – Wood Structures*, that this BCM is based on as identified in the title block above. Information in the *Contract Specifications* typically will not be repeated in the text of this BCM.

Process Inputs

1. Contract documents describe work involving wood structures.

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 for wood structure material verification upon delivery to the project site and immediately prior to installation.
   b. Intermittent for all other work involving wood structures.

3. Before construction begins:
    a. Review the following:
        i. Contract documents:
            1. If industry standards (e.g., American Society for Testing and Materials standards) are referenced in the contract documents, these references can be accessed via the "Engineering Workbench" section of the Caltrans Transportation Library (note – registration required).
            2. Contact the Bridge Design (BD) Structure Project Engineer for technical assistance if questions arise.
        ii. *Construction Manual*, Chapter 4, *Construction Details*, Section 4-57, *Wood and Plastic Lumber Structures*.
        iii. SC *Building Construction Manual*, Division 6, *Wood and Plastic*.
        iv. BCM 75, *Miscellaneous Metal*, for hardware and structural metal components of wood structures.
        v. BCM 78-4, *Incidental Construction – Miscellaneous Coatings*, for painting timber.
        vi. BCM 99-1, *Building Construction – General Requirements*, for wood components of building structures.
        vii. Caltrans Division of Construction, *Code of Safe Practices*.
        viii. Manufacturer's safety data sheets (SDS) and installation instructions.
    b. Verify with the Resident Engineer (RE) that the Contractor has submitted a completed Form CEM-3101, *Notice of Materials to Be Used,* including all materials to be used for wood structures, and that the form has been routed to Materials Engineering and Testing Services (METS).
    c. Identify which wood structure materials will be released by METS and which items will be field-released by the SR or an Assistant Structure Representative by reviewing:
        i. *Construction Manual*, Chapter 6, *Sampling and Testing*, Section 6-2, *Acceptance of Manufactured or Fabricated Materials and Products*
        ii. Form TL-608, *Notice of Materials to Be Furnished*
        iii. Form TL-28, *Notice of Materials to Be Inspected at Jobsite.*
    d. Review the following informational submittals required for wood structures:
        i. Certificate of compliance for timber and lumber stating the species of the material to be shipped, and a certified grading report. For treated timber, a certified treating report must also be included.
        ii. Certificate of compliance for glued laminated timbers and glued laminated decking.

e. Review and authorize the following action submittal if required in the *Contract Specifications*:

   i. Shop drawings for abutment lumber blocking. Coordinate with the BD Structure Project Engineer for review assistance if needed.

f. For abutment lumber blocking, verify that the contract documents describe removal of existing forms and debris that interfere with the blocking. If required, discuss with the RE to potentially develop a change order to address the removal of existing forms and debris.

g. Review the baseline schedule and updates to determine when the Contractor intends to perform work related to wood structures.

4. During construction:

   a. Upon delivery to the project site, verify that wood structure materials comply with the contract documents and authorized submittals by:

      i. Verifying that timber and lumber are stored and handled per the requirements of the *Contract Specifications*, Section 57-1.02A, *Wood and Plastic Lumber Structures – General – Materials – General.*

      ii. Contacting the METS Representative for questions regarding acceptability of material.

      iii. Comparing certified grading report and/or certificate of compliance against lumber grade shown on delivered materials.

   b. Field-release wood structure materials using Form CEM-4102, *Material Inspected and Released on Job*, and in accordance with the *Construction Manual*, Table 6-2.3, *Materials Accepted by Certificate of Compliance.*

   c. Inspect wood structure materials again immediately prior to installation to verify that there has been no damage to those materials during handling or degradation during storage.

   d. Inspect installation of wood structure components, including the following:

      i. If treated timber is cut or bored after treatment, verify that the Contractor swabs the cut or hole with preservative as required in the *Contract Specifications*.

      ii. For timber lagging, verify that the required gaps between members are maintained, depending on the thickness of the material.

      iii. For timber catwalks, verify the requirements in the *Contract Specifications* are followed, including the size, grade, and finish of planks, as well as the wire rope for the cable handrails.

      iv. If questions arise, contact the BD Structure Project Engineer for construction support.

e. Verify the following,if filter fabric is shown on the project plans:

   i. The material is free of defects such as wrinkles, punctures, and tears during installation. If the filter fabric is damaged, it must be repaired or replaced.

   ii. Filter fabric shall be placed per the manufacturer's guidelines and the requirements of the *Contract Specifications*.

   iii. Individual filter fabric pieces must overlap by a minimum of 12 inches and be oriented so that water will flow over the lapped pieces rather than into them.

f. Record quantities for bid items related to wood structures and/or their components.

g. Document all inspection, construction, and quality assurance activities, pertinent to this BCM, in the daily reports per BCM C-7, *Daily and Weekly Reports.*

h. Maintain accurate as-built drawings in accordance with BCM C-6, *Required Documents to be Submitted During Construction.*

i. Provide final acceptance of the work if all requirements have been met.

5. File all materials acceptance documentation (e.g., certificates of compliance) and daily reports in the appropriate category in the project records as specified in the *Construction Manual,* Section 5-102, *Organization of Project Documents.*

Process Outputs

1. Completed wood structures conforming with contract requirements
2. Daily reports for work related to wood structures (completed Form CEM-4601, *Assistant Resident Engineer's Daily Report*)
3. Completed Form CEM-4102, *Material Inspected and Released on Job*, for waterproofing materials, with attached supporting documentation
4. Material certifications and supporting documentation

Attachments

None