Structural Steel Coatings – General

Revision and Approval

Revision	Date	Nature of Changes	Approved By
0	10-28-2022	Original Issue	Richard Foley

Click here to request previous versions Contact SC Technical Team G for questions

Background

This process establishes Structure Construction (SC) responsibilities and procedures for coating structural steel that apply generally to all types of structural steel coatings, including:

1. Review and authorization of submittals for blast cleaning material.
2. Quality assurance, including measurement of coating thickness, coating adhesion strength, and sealing compounds.
3. Review and authorization of general materials, including water, sealing compounds, abrasives, and coatings.
4. Construction, including protective devices, weather conditions, cleaning, and painting. Painting quality assurance, including measurement of coating thickness, coating adhesion strength, and sealing compounds.
5. Documentation of cleaning and painting activities.

Specific contract requirements for painting structural steel, galvanized surfaces, and sign structures are included in the *Contract Specifications*:

- Section 59-2*, Structural Steel Coatings – Painting Structural Steel*
- Section 59-3, *Structural Steel Coatings – Painting Galvanized Surfaces*
- Section 59-4, *Structural Steel Coatings – Painting Sign Structures*
- Section 91-1, *Paint – General.*

Prior to reviewing this BCM, it is essential to review *Contract Specifications*, Section 59-1, *Structural Steel Coatings – General*, that this BCM is based on, as identified in the

title block above. The information in the *Contract Specifications* typically will not be repeated in the text of this BCM.

Process Inputs

1. Submittals for water, blast cleaning materials, sealing materials, and paint.
2. Form CEM-3101, *Notice of Materials to Be Used,* to include the paint materials.

Procedure

1. All work associated with this process is charged to the project as Project Direct - Construction.
2. Field work for this process is:
   a. Intermittent inspection for surface cleaning.
   b. Benchmark inspection for surface preparation and painting.
3. Before construction begins:
   a. Consult with the Resident Engineer (RE) and/or the District Environmental Branch regarding any issues with environmental requirements, workspace, lead compliance, hazardous materials (including lead coatings), and traffic control requirements.
   b. Review the project water pollution control program and the requirements as they pertain to the cleaning and application processes.
   c. Review BCM B-2, *SC Lead Compliance Plan*, for information on SC responsibilities in administering the Caltrans Injury and Illness Prevention Program (CT IIPP) in the *Caltrans Safety and Health Manual*, and any project specific lead compliance plans if the potential for lead exposure is present on the contract.
   d. Discuss any questions regarding the coating systems, manufacturer's recommendations, and application methods with the:
      i. Structures Maintenance & Investigations (SM&I) Bridge Paint Program Advisor or Materials Engineering and Testing Services Representative (METS Reps) for technical assistance with regards to the Society for Protective Coatings (SSPC) Qualification Procedure (QP) Certifications, surface preparation, painting and coating systems, etc.
      ii. SC Technical Team G, Structural Steel.
   e. Procure necessary:

i. Personal protective equipment (PPE) which may include respirators and fall protection:

1. Refer to the *Caltrans Safety and Health Manual*, Chapter 15, *Respiratory Protection Program* and coordinate with the Bridge Construction Engineer, to comply with respirator safety protocols.

ii. Paint inspection tools contained in the SC Paint Kit including dry film thickness gauges, hygrometer, or sling psychrometer, chalk or other marking media, and magnetic surface temperature gauge:

1. Calibrate equipment including hygrometers, and DFT gauges.

f. Arrange with the Bridge Construction Engineer to complete SC's training course # 101059, *Contract Administration of Field Clean & Paint Steel*, which is provided on demand.

i. If the training is not available, review the course material on the SC Intranet under the Training tab.

g. Communicate coating issues, concerns, and methods to address them with the Assistant Structure Representative (ASR).

h. As required by the project, verify that the painting contractor and/or fabrication shops have obtained and maintain specific credentials including American Institute of Steel Construction (AISC) Certification Endorsement and SSPC QP certificates.

i. Verify that the Contractor has submitted form CEM-3101, *Notice of Materials to Be Used*, for the paint materials.

j. Discuss the following requirements for structural steel coatings with the Contractor:

i. Protective devices

ii. What environmental controls will be implemented during the course of work.

iii. Cleaning and painting

iv. Placement of paint orders with sufficient time to allow for testing and authorization of material lots.

v. Local requirements, including local Air Quality Board requirements.

k. In addition to verifying contract compliance for informational submittals (certificate of compliance, safety data sheet (SDS), etc.), refer to BCM 59-2, *Structural Steel Coatings – Painting Structural Steel*, BCM 59-3, *Structural Steel Coatings – Painting Galvanized Surfaces*, and the *Contract Specifications* listed in the Background section for authorizing action submittals for specific coatings.

l. Review and verify requirements for water used for cleaning, sealing compounds, and abrasives are being met as they are delivered to the work site.

m. Coordinate the inspection and release of materials with the METS Rep.

n. Coordinate with the SC Falsework Engineer for temporary structure submittals (i.e., scaffolding, containment structures, etc.) for work involving the railroad. Verify the requirements for agreements with the railroad company and preservation of property are met per the *Contract Specifications*, Section 5-1.20C, *Control of Work – Coordination with Other Entities – Railroad Relations*, and Section 5-1.36, *Control of Work – Property and Facility Preservation*.

4. During construction:

   a. Verify materials comply with authorized work plans and submittals. Reject any unauthorized material and provide written notification to the Contractor.

   b. Verify environmental conditions are within the limits specified in the contract documents and any Contractor environmental controls are maintained if utilized.

   c. Verify that protective devices are operating as intended. Notify the Contractor immediately if corrective action or adjustments are required for containment.

   d. Review water sample test results for compliance.

   e. Verify contractor compliance with requirements for cleaning using pressure rinsing, pressure washing, steam cleaning, or blast cleaning methods as applicable or specified for the work:

      i. Document cleaning daily on Form SC-4601, *Daily Clean and Paint Record.*

      ii. Document spot blast cleaning daily on Form SC-4807, *Spot-Sandblasting Report.*

   f. When independent adhesion testing is requested by the Engineer or required following ASTM D4541, *Standard Test Method for Pull-Off Strength of Coatings Using Portable Adhesion Testers*, coordinate inspection with the METS Rep.

      i. The ASTMs can be accessed using the "Engineering Workbench" section of the Caltrans Transportation Library (Note – registration required).

   g. Provide written notification to the Contractor for non-compliant work and request mitigation plan.

   h. Verify *"*Date Painted*"* is stenciled on the bridge at two locations, as required by the *Contract Specifications*.

i. Document all inspection, construction, and quality assurance activities pertinent to this BCM, in the Daily Reports per BCM C-7, *Daily and Weekly Reports.* In addition to documenting daily cleaning and painting activities on Form SC-4601, include the following on the daily report:

   i. Limits of activities

   ii. Environmental conditions

   iii. Painting system utilized

5. After construction:

   a. Document cleaning and painting costs for each structure using Form SC-6302, *Clean and Paint Cost Summary,* using data from Form SC-4601, *Daily Clean and Paint Record.*

   b. Document cleaning and painting work for each structure using Form SC-6305, *Paint Record,* using data from Form SC-4807, *Spot-Sandblasting Report,* and submit to Structure Construction Headquarters by email per guidance in BCM C-6, *Required Documents to be Submitted During Construction.*

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, *Organization of Project Documents.*

Process Outputs

1. Submittals
2. Completed cleaning and painting forms
3. Certificates of compliance and SDS
4. Daily reports

Attachments

None