



Miscellaneous Metal

Revision and Approval

Revision	Date	Nature of Changes	Approved By
0	04-25-2023	Original Issue	Richard Foley

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Background

This process establishes Structure Construction (SC) responsibilities and procedures for:

- Galvanizing miscellaneous bridge metal, including determining when galvanizing is required, and repair of damaged galvanized surfaces.
- Review and authorization of submittals, quality assurance, materials, construction, and payment of miscellaneous bridge metal, pumping plant metal work, isolation casing, and tie rod assemblies.

Prior to reviewing this Bridge Construction Memo (BCM), it is essential to review the following [Contract Specifications \(CS\)](#), Section 75, Miscellaneous Metal, that this BCM is based on as identified in the title block above. Information in the CS typically will not be repeated in the text of this BCM.

Process Inputs

1. Required submittals which may include:
 - a. Manufacturers' instructions and data sheets
 - b. Work plan for nonskid surface placement
 - c. Corrosion inhibiting grease sample and test results
2. Quality assurance documentation:
 - a. Certificates of compliance

- b. [Form CEM-3101](#), *Notice of Materials to be Used*
- c. Laboratory test results when required

Procedure

1. All work associated with this process is charged as [Project Direct – Construction](#).
2. Inspection of field work for this process is [Intermittent](#).
3. Before construction begins:
 - a. Review the *Construction Manual*, Chapter 4, [Section 4-75](#), *Construction Details – Miscellaneous Metal*, for the requirements of miscellaneous metal installation work.
 - b. Review [Attachment 1](#), *Expansion Anchorages*
 - c. Review the contract documents and identify:
 - i. All miscellaneous metal materials to be installed on the project.
 - ii. All items that require galvanization and their limits.
 - iii. The locations of isolation casings and tie rod assemblies.
 - iv. Materials subject to the Buy America requirements; refer to CS, Section 6-1.04, *Control of Materials – General – Buy America*.
 - d. SC staff to review steel material inspection requirements and submittals prior to any field work.
 - e. Review and authorize work plan for nonskid surfaces if applicable. Coordinate the witnessing and authorization of test samples with the Materials Engineering and Testing Services Representative ([METS Rep](#)).
 - f. Discuss miscellaneous bridge metal material requirements, including material storage, delivery, and handling with the Contractor.
 - g. Verify that [Form CEM-3101](#), *Notice of Materials to be Used*, is completed by the Contractor, forwarded to METS, and that a response is provided with either:
 - i. [Form TL-28](#), *Notice of Materials to be Inspected at the Jobsite*, which signals to prepare for field release. Refer to the *Construction Manual*, Chapter 6, [Section 6-203D](#), *Sampling and Testing – Acceptance of Manufactured or Fabricated Materials and Products – Manufactured or Fabricated Materials and Products Acceptance – Field Inspection and Release by the Resident Engineer*.

- ii. [Form TL-608](#), *Notice of Materials to be Furnished*, which signals that METS will inspect and release the material.
 - h. Confirm that the Contractor understands that a request for material inspection by METS is completed using the [Form TL-38](#), *Inspection Request*.
4. During construction:
- a. For general inspection and verification of miscellaneous metal items:
 - i. Confirm no damage occurred during transportation and if damaged:
 - 1. Formally notify the Contractor that corrective action and submittal of a repair plan for approval is required if material is damaged or improperly stored.
 - 2. Verify that damaged material is repaired. Refer to contract documents or solicit assistance from the METS Rep.
 - ii. Document findings in the daily report.
 - iii. Collect Form TL-0624, *Inspection Release Tag* (commonly referred to as “orange tags”) from materials released by METS and pair up with the [Form TL-29](#), *Report of Inspection of Material*.
 - iv. Coordinate with the METS Rep for materials delivered to the site without METS release, and field release if required.
 - b. For field released material:
 - i. Refer to *Construction Manual*, Chapter 6, [Section 6-203B](#), *Sampling and Testing – Acceptance of Manufactured or Fabricated Materials and Products –Manufactured or Fabricated Materials and Products Acceptance –Materials Accepted on the Basis of Authorized Material List*, and [Section 6-203C](#), *Materials Accepted on the Basis of a Certificate of Compliance*.
 - ii. Inspect material, review certificates of compliance and test reports, and consult with the METS Rep for questions regarding compliance.
 - iii. Complete [Form CEM-4102](#), *Material Inspected and Released on Job*, for field released materials.
 - c. For projects involving specific miscellaneous metal items such as:
 - i. Bridge deck drainage system:
 - 1. Inspect grates and confirm quality of galvanization. If damaged, inform the Contractor, and verify that the damage is corrected to meet the contract requirements.

2. Verify that elevations of drainage system components comply with the contract documents and provide the required slope for proper drainage.
 3. Witness the Contractor's system test. Verify that the joints of the system are watertight; document acceptance.
- ii. Anchorage devices:
1. Verify the anchorage devices are on the Authorized Material List
Verify they are installed per the manufacturer's recommendations. See [Attachment 1](#), *Expansion Anchorages*, for additional guidance on mechanical expansion anchors. See [Attachment 2](#), *Sign Structure Fastener Installation Guide*, of BCM 56-2.03, *Overhead Sign Structures – General – Construction*, for resin capsule anchors.
- iii. Nonskid surface:
1. Verify the epoxy with grit to be used, or the authorized commercial-quality 2-component UV-resistant epoxy and grit.
 2. Verify that the color of the nonskid surface is light grey.
- iv. Bearing devices:
1. Verify that bearing plates are set level and parallel to girders.
 2. Verify that rockers and expansion devices are set to comply with the temperature at the time of erection.
- v. Isolation casings:
1. Verify isolation casings are placed as planned and undamaged by structure backfill methods, and provide for the minimum required clearance between the column and entire length of isolation casing.
 2. Verify the isolation casing material has not been damaged by the backfill operation.
- vi. Tie rod assemblies:
1. Verify a sample of the corrosion inhibiting grease and test results are received before work starts.
 2. Verify that structural concrete backfill complies with the CS, Section 51-5, *Concrete Structures – Approach Slabs*.
- vii. Pumping plant metal work:
1. Verify concrete anchorage devices comply with Section 75-3.02C, *Miscellaneous Metal – Miscellaneous Bridge Metal – Materials – Anchorage Devices*, of the CS.

2. Verify safety padlock hasp and staple assembly are made of heavy-duty galvanized steel.
 - d. Verify that the Contractor has supplied all required miscellaneous metal material and information in accordance with the contract documents.
 - e. 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. 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 miscellaneous metals, installed per contract documents
2. Daily reports
3. Completed field release [Form SC-4102](#), *Materials Inspected and Released at the Job*
4. Material certifications, inspection reports, and test reports

Attachments

1. [Attachment 1](#), *Expansion Anchorages*