



Existing Structures – Structure Rehabilitation – Methacrylate Resin Bridge Deck Treatment

Revision and Approval

Revision	Date	Nature of Changes	Approved By
0	07-15-2021	Original Issue	Michael Francis

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Background

This process establishes Structure Construction (SC) responsibilities and procedures for submittal review, quality assurance, materials inspection, construction of, and payment for methacrylate resin bridge deck treatment.

Requirements for deck surface preparation are detailed in:

- [BCM 60-3.02](#), *Existing Structures – Bridge Deck Repair and Preparation*

Requirements for friction testing are detailed in:

- [BCM 51-1.01](#), *Concrete Structures – General*

Prior to reviewing this Bridge Construction Memo (BCM), it is essential to review the [Contract Specifications](#), Section 60-3.03B, *Existing Structures – Structure Rehabilitation – Methacrylate Resin Bridge Deck Treatment*, that this BCM is based on as identified in the title block above. The information in the contract specification(s) typically will not be repeated in the text of this BCM.

Process Inputs

1. Submittals required by the *Contract Specifications* for work that requires methacrylate

Procedure

1. All work associated with this process is charged as [Project Direct – Construction](#).
2. Inspection of field work for this process is:
 - a. [Continuous](#) during methacrylate placement.
3. Before construction begins:
 - a. Review the following:
 - i. Contract documents
 - ii. [Concrete Technology Manual](#), Chapter 6, *Structure Concrete Repair and Rehabilitation*
 - iii. [Attachment 1](#), *Methacrylate Deck Treatment Inspection Guidelines*
 - b. Review and authorize the following:
 - i. Work plan for applying the methacrylate resin treatment
 - ii. Manufacturer’s product data and material Safety Data Sheets
 - iii. Contingency Plan
 - c. Review the Resident Engineer authorized:
 - i. Traffic Management Plan
 - ii. Lead Compliance Plan
 - iii. Public Safety Plan.
 - d. Verify the methacrylate was tested and released by Materials Engineering and Testing Services (METS):
 - i. Call METS Translab to verify the lot number on the Certification of Compliance.
 - ii. If necessary (when material storage condition is of concern), collect a sample for additional testing and send to Translab with Form TL-0101, *Sample Identification Card*.
 - e. Verify SC staff have trained and fit tested to use respirators per the SC Code of Safe Practices, found on the SC Intranet under the “[Safety](#)” tab.
 - f. Verify the location to be treated meets contract requirements as outlined in BCM 60-3.02, *Bridge Deck Repair and Preparation*.
 - g. Hold preconstruction meeting with the Contractor to discuss the required test area, skid testing, pretreatment deck repair (if needed), application equipment, safety, abrasive cleaning methods, and contingency plan if the resin does not cure in time.

- h. The Structure Representative should ensure that Assistant Structure Representatives are made aware of the applicable submittals for performing work.
 - i. Review the Contractor's look ahead schedule and discuss with the METS representative for upcoming test for the surface skid resistance.
 - j. Verify and authorize the location of test area:
 - i. Perform steps 4.a. thru 4.h.
 - ii. Verify the completed test area demonstrates compliance with the contract requirements, applicable authorized submittals and the manufacturer's recommendations (i.e., application rate, initiator/promotor amount, set time, coefficient of friction, mixing guidance/sequence, equipment, tools, etc.).
 - iii. Review and authorize airborne emissions monitoring of the test area. Refer to the *California Code of Regulations*, Title 8, Chapter 4, Subchapter 7, *General Industry Safety Orders § 5155, Airborne Contaminants*, for information regarding Permissible Exposure Limit (PEL).
 - iv. Arrange for coefficient of friction test, [California Test 342, Method of Test for Surface Skid Resistance with the California Portable Skid Test](#); see BCM 51-1.01, *Concrete Structures – General* for additional information.
 - v. Authorize or reject the treated surface at the test area.
4. During construction:
- a. Verify that material arrived at the site has been tested by METS.
 - b. Verify the concrete surface is cleaned prior to methacrylate application per *Contract Specifications 60-3.02C(7), Existing Structure – Bridge Deck Repair and Preparation – Prepare Concrete Deck Surface*.
 - c. Prior to application of methacrylate, check if conditions, relative humidity, and deck surface temperature are within the requirements of contract documents.
 - d. Coordinate lane closures with the District.
 - e. Track the amount of methacrylate resin, sand, and diatomaceous material that is placed and produce pay quantities.
 - f. Verify manufacturer mixing guidance/sequence in the field to avoid accidents resulting in fire or explosion.
 - g. Review the production airborne emissions monitoring after completing treatment activities.
 - h. Monitor the production applications and finished deck texture for similarity with the test area.

- i. If production application and texture differ from test area, arrange for Coefficient of Friction test, CTM 342, *Method of Test for Surface Skid Resistance with the California Portable Skid Test*; and BCM 51-1.01, *Concrete Structures, General*.
 - j. Document all inspection, construction, and quality assurance activities, pertinent to the BCM in the daily reports per [BCM C-7](#), *Daily and Weekly Reports*.
5. Prior to opening the treated area to traffic verify Standard Specifications Section 60-3.03(B)(3), *Existing Structures – Bridge Deck Treatment – Methacrylate Resin Bridge Deck Treatment – Construction*, conditions are met.
 6. After construction:
 - a. Record any changes to the as-built project plans.
 7. File all materials acceptance documentation and daily reports in the appropriate category in the project records as specified in the *Construction Manual*, [Section 5-102](#), *Contract Administration – Project Records and Reports – Organization of Project Documents*.

Process Outputs

1. Authorized submittals
2. Materials certification documentation
3. Lane closure coordination
4. Methacrylate placement quantities
5. Rehabilitated bridge deck
6. Skid test results
7. Daily reports for the work performed
8. As-built project plans

Attachments

1. [Attachment 1](#), *Methacrylate Deck Treatment Inspection Guidelines*