



Shotcrete – General

Revision and Approval

Revision	Date	Nature of Changes	Approved By
0	04-22-2019	Original issue.	Steve Altman

[Click here](#) to request previous versions Contact [SC Technical Team F](#) for questions

Background

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

This process applies generally to all applications of shotcrete. Specific requirements for structural and sculpted shotcrete are included in [BCM 53-2, Structural Shotcrete](#), and [BCM 53-3, Sculpted Shotcrete](#).

Prior to reviewing this BCM, it is essential to review [Contract Specifications \(CS\)](#), Section 53-1, *Shotcrete – General*, applicable to your specific contract, 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. [Form CEM-3101](#), *Notice of Materials to be Used*.
2. Concrete Mix Design and other submittals.
3. Structure Resident Engineer (RE) Pending File (verification of quantities for payment)

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 inspection earthwork.
 - b. [Intermittent](#) inspection of rebar placement and form construction.
 - c. [Continuous](#) inspection for shotcrete application.
3. References:
 - a. [AASHTO Inspector's Guide for Shotcrete Repair of Bridges](#).
 - b. [Standard Practice for Shotcrete](#).
4. Before construction begins:
 - a. Review process criteria:
 - i. Contract documents.
 - ii. Structure RE Pending File for verification of quantities.
 - iii. *Construction Manual*, [Chapter 4-53](#), *Construction Details – Shotcrete*.
 - b. Review and authorize or reject submittals. Notify the Contractor in writing.
 - i. Review the Stormwater Pollution Prevention Plan/Water Pollution Control Plan for compliance with shotcrete work.
 - c. Review guidelines on sampling, testing, and release of material:
 - i. *Construction Manual*, [Chapter 6-2](#), *Sampling and Testing*.
 - ii. [Section 1-25](#), CS, [Section 6-2](#), *Control of Materials – Quality Assurance*, of Attachment 2 of BCM A-1, *SC Staff Responsibilities for Processes Owned by Others*.
 - d. Verify all structural materials are included in [Form CEM-3101](#), *Notice of Materials to be Used*.
 - e. For colored shotcrete, coordinate with designer and architect for color approval.
 - i. If colored shotcrete, propose test panel to verify color.
5. During construction:
 - a. Follow steps of *Construction Manual*, [Section 4-5303](#), *Construction Details – Shotcrete – During the Course of Work*:
 - i. Submit survey request if needed.
 - b. Confirm that all field personnel have copies of authorized submittals.
 - c. Perform additional required sampling and testing per [BCM 53-2](#), *Shotcrete – Structural Shotcrete* and [BCM 53-3](#), *Shotcrete – Sculpted Shotcrete*.

- d. Monitor vertical surfaces and verify no slough-off occurs especially during the wet-mix process. Notify the SR if sloughing occurs.
 - e. Verify field measurements for payment. See [Section 1-38](#), CS, *Section 9-1.03, Payment – Payment Scope*, of Attachment 2, of BCM A-1, *SC Staff Responsibilities for Processes Owned by Others*, and [BCM C-9](#), *Preparation of Progress Payment Documents*, for additional information.
 - f. Record as-built changes on designated as-built plans per [BCM C-6](#), *Required Documents to be Submitted During Construction*.
 - g. Document all inspection, construction, and quality assurance activities in the daily reports per [BCM C-7](#), *Daily and Weekly Reports*.
 - h. File all test results and daily reports in the appropriate category in the project records as specified in the *Construction Manual*, [Section 5-102](#), *Organization of Project Documents*.
6. Following Construction:
- a. Submit Final Completion Records to SC headquarters per [BCM C-6](#), *Required Documents to be Submitted During Construction*, for the:
 - i. Report of Completion
 - ii. As-builts.

Process Outputs

- 1. Authorized materials and submittals (as required):
- 2. Concrete testing results
- 3. Daily reports
- 4. As-builts

Attachments

None