

WEST VIRGINIA DEPARTMENT OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
MATERIALS CONTROL, SOILS AND TESTING DIVISION

MATERIALS PROCEDURE

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INSPECTION AND ACCEPTANCE PROCEDURES  
FOR PRESTRESSED CONCRETE BRIDGE BEAMS

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- 1.0 PURPOSE
- 1.1 To set forth procedures for the inspection and acceptance of prestressed concrete bridge beams.
- 2.0 SCOPE
- 2.1 This procedure will apply to all prestressed concrete bridge beams supplied for use on West Virginia Division of Highways projects and to all prestressed concrete bridge beam fabricators that supply material for use on West Virginia Division of Highways projects.
- 3.0 INSPECTION
- 3.1 Prior to beginning fabrication of any prestressed concrete bridge beams, the prestressed concrete bridge beam fabricator (hereafter referred to as the Fabricator) shall provide written notification to Materials Control Soils and Testing (MCS&T) Division at least one calendar week in advance of the date on which fabrication is to begin. After fabrication has begun, the Fabricator shall keep MCS&T Division and the Inspector (whether a WVDOH employee or a contract employee representing the WVDOH) informed in advance of the days on which fabrication will take place.
- 3.1.1 Shop Drawings must be approved by the West Virginia Division of Highways, and the Inspector must have a copy of these approved shop drawings prior to start of any work by the Fabricator.
- 3.1.2 The Inspector, as a minimum, shall be registered with the Precast/Prestressed Concrete Institute (PCI) as a Level II Quality Control Technician.

- 3.2 The Inspector may be present at any or all times during fabrication. After fabrication is completed, the Fabricator shall provide MCS&T Division with a written request for final inspection a minimum of one calendar week prior to the desired date of inspection.
- 3.3 Upon receipt of the written request for final inspection from the Fabricator, MCS&T Division will notify the Fabricator of the earliest possible date of this inspection.
- 3.4 After the final inspection is completed, the Inspector shall provide the Fabricator with a copy of the inspection report documenting the findings of the final inspection and any other observations or notes taken by the Inspector during fabrication. The final report shall also include a completed copy of the Inspector's checklist. A copy of the Inspector's daily reports, a copy of the final inspection report, and all other pertinent information provided to the Inspector by the Fabricator shall be kept on file by MCS&T Division.
- 4.0 ACCEPTANCE
- 4.1 Upon completion of the inspection of a beam, the subject beam shall be classified in one of two ways. The first way is that the beam does not contain any defects. The second way is that the beam contains some type of defect.
- 4.1.1 If a beam does not contain any defects, the Inspector will stamp the subject beam as accepted by MCS&T Division.
- 4.2 If a beam contains some type of defect, it will be classified into one of the three following categories.
- 4.2.1 The first category is cosmetic defects (minor spalls, bug holes, and minor surface irregularities) and cracks (up to and including cracks 16 mils in width for which repair procedures are addressed by the standard specifications). Prior to the start of fabrication, the Fabricator shall submit to MCS&T Division, for approval, the proposed repair procedures for the cosmetic defects listed at the beginning of this section. Any defect(s) in this classification will first be noted by the Inspector and may be subsequently repaired by the Fabricator as per the Fabricator's pre-approved repair procedure. After the repair(s) has been made, the Inspector will inspect the repairs within one calendar week of notification by the Fabricator, and if the repair(s) is satisfactory, and if all other aspects of the beam meet specifications, the Inspector will stamp the subject beam as accepted by MCS&T Division.

- 4.2.2 The second category is dimensional tolerance. If any aspect of a beam exceeds the dimensional tolerances set forth in the specifications, the Inspector will document any variances, but MCS&T Division will not accept the subject beam. At this point, if the Fabricator still seeks acceptance of the subject beam, the Fabricator shall provide the Contractor with a copy of the Inspector's report and any other pertinent data. The Contractor shall then contact the Designer (either the Consultant Review or In-House Design sections of the Engineering Division, or the appropriate District) and forward this information to them. In the case of the Consultant Review section, they will forward the information to the appropriate Consultant. The Designer will then analyze the dimensional variation(s) and provide a written statement to the Contractor, the Fabricator, MCS&T Division, and District Construction as to whether or not it will affect the structural performance of the subject beam. If the Designer feels that this dimensional variation(s) will not adversely affect the structural performance of the beam and if District Construction feels that it will not create any construction difficulties, the District may, if they so desire, accept the subject beam by means of a District Materials Inspection Report (DMIR).
- 4.2.2.1 If a beam contains any defects as set forth in section 4.2.2 and any defect(s) in one or both of the other two categories (as set forth in sections 4.2.1 and 4.2.3), the Inspector will inspect the repair(s) required by section 4.2.1 or (and) section 4.2.3, in the manner set forth in these two sections. After the inspection of the repair(s), the Inspector will either approve the repair(s) by means of a Repair Approved (R/A) stamp, or the Inspector will not approve the repair(s). However, the beam is still not accepted by MCS&T Division (only the repair is being approved if it is satisfactory), and acceptance of the beam may be handled by the District by means of a DMIR as set forth in section 4.2.2.
- 4.2.3 The third category is structural defects (spalls that expose prestressing strand, honeycombed areas, etc.) and cracks for which the specifications require evaluation by the Engineer. If a beam contains any structural defect(s), the defect(s) will be noted in the Inspector's report. The Fabricator shall then provide the Contractor with detailed information regarding the type, size, and location of the defect(s). It is then the Contractor's responsibility to contact the Designer (either the Consultant Review or In-House Design sections of the Engineering Division, or the appropriate District) and provide them with all of the pertinent information supplied by the Fabricator. In the case of the Consultant Review section, they will forward the information to the appropriate Consultant. The Designer will then analyze the subject defect(s) and provide a written statement to the Contractor, the Fabricator, District Construction, and to MCS&T Division as to the effect of the defect(s), if the beam will be structurally adequate, if a repair may be made, and if the service life of the beam will be reduced because of the defect. If the Designer states that the

defect(s) will adversely affect the structural performance of the subject beam, the Division will not accept the subject beam. If the Designer does not feel qualified to make that decision, the Fabricator may elect to have the defect(s) evaluated by a Division approved, qualified, independent Engineer in the same manner that the Designer would analyze the defect(s). The Division would then review and take into consideration this Engineer's analysis as part of the acceptance decision.

4.2.3.1 If the Designer states that the defect(s) will not adversely affect the structural performance of the subject beam, and that a repair should be made, and that the service life of the beam will not be reduced, the Fabricator shall submit a repair procedure to MCS&T Division for approval. If the repair procedure is approved, and after the repair(s) have been made, the Fabricator will contact MCS&T Division and schedule an inspection of the repair(s). The Inspector will then inspect the repair(s) within one calendar week of notification by the Fabricator. If the repair(s) is satisfactory, the Inspector will stamp the subject beam as accepted by MCS&T Division.

4.2.3.2 If the Designer states that the defect(s) will not adversely affect the structural performance of the subject beam, and that a repair should be made, but that the service life of the beam will be reduced, the Fabricator may submit a repair procedure to MCS&T Division for approval. If the repair procedure is approved, and after the repair(s) have been made, the Fabricator will contact MCS&T Division and schedule an inspection of the repair(s). The Inspector will then inspect the repair(s) within one calendar week of notification by the Fabricator. After the inspection of the repair(s), the Inspector will either approve the repair(s) by means of a Repair Approved (R/A) stamp, or the Inspector will not approve the repair(s). At this point, based on the quality of the repairs and the degree to which the service life of the beam will be reduced, it is the District's option whether or not to accept the subject beam. If the District decides to accept the beam, it will be paid for at a reduced contract unit bid price based on the invoiced cost of the fabricated beam as billed by the Fabricator. If the District accepts the subject beam with this type of defect and reduced service life, it shall be accepted by means of a DMIR.



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