BUREAU OF MATERIALS
MATERIALS PROCEDURES

MP NUMBER: 6-25

EFFECTIVE DATE: 03/03/2025

APPROVAL: *Edward Inman*

STRUCTURAL STEEL PLANT INSPECTION DUTIES

PURPOSE:

To establish standard procedures for the plant inspection of structural steel.

SUPERSEDES:

Materials Procedure Number 6 – Dated 07/01/2008.

REFERENCES:

Special Provisions, Supplemental Specifications, NJDOT Standard Specifications, Addenda and Attachments
Approved Shop Drawings
American Welding Society Specifications for Welded Highway and Railway Bridges and
ASTM A-123 - Specification for Zinc Coating on Products Fabricated from Rolled, Pressed, and Forged Steel Products, Galvanized Steel Shapes, Plates, Bars, and Strips
ASTM B-22 - Bronze Coatings for Bridges and Turntables
ASTM B-100 - Rolled Copper Alloy Bearing and Expansion Plate for Bridge and Other Structural Use.
ASTM D-1186 - Measurement of Dry Film Thickness of Nonmagnetic Organic Coatings Applied on a Magnetic Base.
AASHTO - Stand Specifications for the Construction of Highway Bridges Structural Steel Painting Council Procedure SSPC-2-63-Surface Preparation

FORMS

LB-906SS Site Manager Steel Bridge Structure
LB-906SIGN Sign Structure
LB-296 Notice of Non-Complying Material

INSTRUCTIONS:

I. Assignment Procedures

The inspector shall receive from his supervisor the following:

A. Plant location and starting time.

B. Quantity and type of steel to be fabricated.

C. All required specifications, equipment, and other pertinent data.

D. The designated project and the job code number to which time is to be charged.

II. Duties - Prior to Fabrication

The inspector shall:

A. Determine that welders are certified to perform the type of welds shown on the plans.

B. Obtain certification of compliance for the electrodes.

C. Ensure that drying ovens used for the storage of electrodes are maintained at the proper temperature and that stored electrodes are retained for the period specified.

D. Determine that the fabricator has shop drawings approved by the Bureau of Structural Design.

E. Obtain, review mill test reports for steel to be used on the project for compliance, initial and date.

F. Assure that only NJDOT approved paint is to be used.

III. Duties - During Fabrication

The inspector shall:

A. Ascertain and record the heat numbers for each plate used in the fabrication of girders and stringers for the project.

B. Take samples of each of the following materials:

Material	Sample Size	Sampling Rate
Structural Steel	2" x 4" Min. (50x100mm)	Minimum of one sample per structure or if a structure is larger than 2500 linear feet, one sample per 2500 linear feet.
Hardware	1 bolt, nut, washer	One sample for each lot.
Paint	1 quart (.95L)	Samples of previously approved paint shall be taken when it appears to have been altered. The reason for sampling shall be recorded.

C. Inspect all plate material to determine that it complies with the requirements of ASTM A-6 regarding length, width, thickness, straightness, lamination, and the possible presence of roller defects on the surface.

D. Ensure that buttweld and plate preparation is in accordance with the plans and specifications.

E. Establish that the surfaces of plates to be connected by fillet welds are clean, plane and fit-up is within tolerance.

F. Establish that American Welding Society welding procedures are being followed. Ensure that welding procedures are in accordance with A.W.S. welding society.

G. Examine buttweld area carefully to determine that the proper grinding of reinforcement has been carried out. Grinding more than allowable tolerances must be repaired by welding and regrinding.

H. Verify the camber on each girder and stringer.

I. Measure any weld that appears unsatisfactory in size or profile.

J. Visually inspect all fillet welds for: undercut, porosity, cracks, and irregular shape. All defects shall be marked and brought to the attention of the foreman. Record defects and conversations with the foreman.

K. Determine if there is any sweep present in each girder.

L. Use Tempil sticks to establish that specified preheat requirements are being adhered to.

M. Make certain that all painted stencils, dirt, and contaminants are removed from the steel before blasting and painting.

N Just before painting, carefully examine the entire girder to determine if any defects in the steel or weldments require repair. (This is important because in many cases, the paint application will hide defects.) Ensure that NJDOT approved paint is being used.

O. Monitor paint application procedures to be sure that good painting practices are being followed. As per specifications, allow the paint to be thinned only to the manufacturer's recommendations.

P. Inspect painted girders for unpainted areas. Measure the paint film thickness with a coatings thickness gauge at various locations on each girder and record readings on LB-906SS. Compare all machined surfaces with a finish gauge to determine that they comply with the plans.

Q. Inspect all connectors and diaphragms. (The same requirements for all aspects of the fabrication of structural steel girders apply to diaphragms).

R. Inspect painted girders prior to being placed in the yard for storage. (Many defects that cannot be seen in the shop become obvious when viewed in sunlight).

S. Perform a final inspection when all work on the item is completed. (Do not seal or stamp any girders until you are sure that they fully comply with the specifications and requirements).

IV. Additional Duties

The inspector shall:

A. Complete a daily report for each project inspected and maintain organized files and records.

B. Complete LB-142 at the time of shipment.

C. Submit all written communications to the fabricator with copies to the Supervisor and document in your diary.

V. Authorities and Responsibilities

The inspector shall:

Notify Plant Foreman and order corrective action when any minor defects or questionable fabrication procedures are discovered. When defects of a serious nature are found, beyond the A.W.S. welding code and AASHTO, this notification must be in writing. Documentation of corrective action shall be included in the daily report and in the diary. In addition, the Supervisor and/or Bureau of Materials Headquarters must be notified immediately.

VI. Distribution of Forms

Forms	Distribution
LB-906SS LB-906SIGN	1. Bureau of Materials Headquarters 2. RE 3. Producer/Supplier
LB-296	1. Bureau of Materials Headquarters 2. RE 3. Producer/Supplier 4. Regional Materials Office