Quality Control Guidelines for Structural Steel Fabricators

The fabricator will prepare, maintain and follow a Quality Control Plan that describes the roles, activities and procedures associated with executing the minimum quality control requirements listed herein.

The Quality Control Plan may be maintained in electronic format, however, one or more copies of the plan must be maintained by the fabricators Quality Control Manager in a printed and bound format (3 ring or other). The Quality Control Plan shall be available to all employees. Each document in the plan shall indicate its preparation date and all pages shall be numbered. If a document is revised, the date of revision shall be indicated on the document and recorded in a table of revisions.

The following Quality Control items were adopted from the AASHTO/NSBA Steel Bridge Collaboration, S4.1-2002 ‘Steel Bridge Fabrication QC/QA Guide Specification’.

I. Organization
   A. Organization, Certification and Qualifications
      1. Describe the level of AISC certification and any other applicable certifications. Include copies of the latest certificates in the Quality Control Plan.
      2. Provide an organizational chart that establishes functions, duties, responsibilities, position titles, names and lines of authority.
      3. Illustrate a separate chain of command from quality control to Plant Management/Engineering, independent of Production.
      4. Identify any Certified Welding Inspector(s) which will oversee welding.
      5. List any independent testing laboratories that will be utilized for testing, inspection or qualification

   2. Inspection and Testing Equipment
      A. Describe the method and frequencies for calibration/verification of welding and testing equipment as per the applicable standards.
      1. Include any standard forms used.

   3. Control of Raw Materials
A. Describe the method(s) used to inspect incoming materials for conformance to the drawings, plans or specifications.
   a. Inspections should include verification that no repairs have been performed at the producing mill except grinding or welded repairs as allowed in ASTM A6. Fracture critical materials must not include any welded repairs unless authorized in writing by the Owner.

1. Include any forms used.

4. Welding Procedures, Consumables, and Welder Qualifications

   A. Describe the procedure for documenting welder qualifications, Weld Procedure Specifications, and Procedure Qualification Records

   1. Include any standard forms used
      a. Utilize only standard PaDOT forms for PQR, WPS and macroetch submission and testing. Use a unique and traceable identification number for each.

   B. Describe the process(es) for distribution of the approved WPS to the shop floor and use by production/QC during fabrication.

   C. Describe the procedures used to properly store and handle welding consumables of all types. Include methods for fracture critical materials, if applicable. Include the following:
      a. Use of approved consumables
      b. Warehouse storage, including inventory and stock rotation
      c. Storage in the fabrication shop
      d. Procedures for holding and re-drying SMAW electrodes
      e. Control for time out of storage oven for SMAW electrodes
      f. Drying and recycling of SAW flux
      g. Storage of SAW flux and electrodes
      h. Storage and moisture control for FCAW electrodes
      i. Storage of GMAW electrodes

5. Coatings (If applicable)

   A. Describe the plant’s level of AISC/SSPC paint certification and any other applicable certifications.

   1. Include copies of the latest certificates in the Quality Control Plan.

   D. Describe methods and or procedures used to verify, control and or document the following Identify items which are documented. Include standard forms used:
1. oil/moisture in air lines
2. mixing and agitation
3. monitoring pot life
4. ambient and steel temperature
5. relative humidity
6. dew point
7. cure assessment
8. wetfilm / dry film thickness
9. repairs for damage, dry spray, runs, sags and under/over thickness

6. Nondestructive Examination (NDE)

   A. Submit the written practice used to control and qualify each NDE method employed. The written practice must meet the requirements of ASNT-SNT-TC-1A.

   E. Identify the certified ASNT Level III personnel for each method.

   D. Identify any ASNT Level II certified employees.

   E. Identify any ASNT Level I certified employees and his/her Level II supervisor.

   Note: When third party services are used for NDE, obtain a copy of that company’s ASNT SN-TC-1A written practice and include within the Quality Control Manual.

7. Nonconformance Control

   A. Describe the methods and procedures for identifying, controlling and disposing of nonconforming materials.

   B. Describe procedures for submitting repair procedures to the Department for approval. The following minimum criteria must be included.

      1. State Route, Section and County.

      2. Piece mark, type, size, location and cause (if known) of the defect.

      3. Proposed method(s) for correcting the defect.

      4. NDT method(s) to be utilized.

   Note: Pre-approved repairs listed in Publication 135 do not require prior authorization.