



## Fabrication Quality Manual Sample for Welded and Non-welded Components

Selected pages (not the complete manual)

Sample includes:

- ✓ Quality Manual Pages
- ✓ Standard Operating Procedures Pages
- ✓ Quality System Forms Examples

Contact:

First Time Quality

410-451-8006

[www.firsttimequalityplans.com](http://www.firsttimequalityplans.com)

# [CompanyName]

## Fabrication Quality Manual

### Operating Policies and Procedures of the [CompanyName] Quality System

Management acceptance

This Quality Assurance Manual has been reviewed and excepted

Endorsed By: (Name / Title)	[VicePresidentName], Vice President		
Signature:	<i>[VicePresidentName]</i>	Date:	[Date]

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Revision History

DATE	DOCUMENT#	REVISION	COMMENTS	APPROVED BY
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Selected Pages

# FABRICATION QUALITY MANUAL

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# 1. [COMPANYNAME] FABRICATION QUALITY MANUAL

## 1.1. SCOPE

The [CompanyName][CompanySuffix] Quality Management System applies to all fabrication projects, contracts, requests, and bids.

## 1.2. [COMPANYNAME] QUALITY POLICY

[CompanyName] is committed to quality. Our objective is to safely deliver 100 percent complete fabrication projects that meet all contract and customer expectations the first time, every time. Our commitment to quality means:

- Every [CompanyName] employee is responsible for fully implementing and complying with all provisions of the [CompanyName] quality system.
- Our quality standards meet or exceed all applicable regulations, codes, industry standards, and manufacturer specifications as well as with our customers' contract and individual requirements.
- We stand behind our work. We inspect every work task to assure conformance to the project requirements. Should problems be found, we correct them.
- We are always improving. All employees receive regular training to make systematic improvements to remove quality risks and enhance quality performance.

We conduct our work with dignity and respect for the customer, our subcontractor and supplier partners, and ourselves.

## 6. MATERIAL CONTROL

### 6.1. MATERIAL SPECIFICATIONS

The Quality Manager ensures that all types of materials and equipment that affect quality are identified and controlled.

The Quality Manager evaluates the expected use of materials and equipment and identifies types of materials and equipment that may affect project quality. For each item, the Quality Manager sets specifications for their intended use, including:

- Compliance to contract requirements
- Compliance to code and industry standards and listing requirements
- Structural integrity
- Performance
- Durability
- Appearance
- Product identification for traceability.

### 6.2. MATERIAL PURCHASE ORDER APPROVALS

Only approved materials are used in the fabrication process. Only approved materials are specified in purchase and/or subcontracts. Specifications for procurement will vary depending on material and will be in conformance with company standards, contract specifications, and governing fabrication codes.

The Quality Manager ensures that contracts and purchase orders are issued only to qualified outside organizations.

#### 6.2.1.1. WELD FILLER MATERIAL PURCHASE ORDERS

For all weld filler material purchase orders, the relevant specifications will be included in the Terms and Conditions of procurement. Specifications for procurement will vary depending on material and will be in conformance with ANSI/AWS A.5, *Filler Metal Procurement Guidelines*. If AWS filler metals are not used, then procedure qualification testing is required.

The supplier must agree to the purchase order terms and specifications, and then sign the contract or purchase order.

### 6.3. MATERIAL RECEIVING INSPECTION

The Field Superintendent or qualified receiving inspector inspects materials for conformance to the purchase order and project quality requirements. The receiving inspection includes a verification that the

- Correct material has been received
- The material is identified and meets the traceability requirements for the material
- Material certifications and/or test reports meet the specified requirements if required
- Materials are tested and approved for the specific application if required

Material receiving inspections are performed in accordance with Standard Operating Procedure SOP 6.3. Material Receiving Inspection.

For additional details on weld filler material receiving, see section Filler Material Receipt in this subsection of the Quality Manual.



#### **6.4. MATERIAL INSPECTION AND TEST STATUS**

The status of each material quality control inspection or test is clearly marked by tape, tag, or other easily observable signal to ensure that only items that pass quality inspections are used.

For each quality-controlled material, the Quality Manager determines the appropriate method for identifying quality inspection and test status.

#### **6.5. MATERIAL STORAGE**

The Field Superintendent ensures that all materials received and inspected will be stored and handled in a manner that protects them from damage, moisture, dirt and intrusion of foreign materials.

#### **6.6. FILLER MATERIAL**

The Quality Manager ensures that filler material use will conform to the specifications of the D1.1/D1.1 M code.

##### **6.6.1. WELD FILLER MATERIAL (WFM) CONTROL PROGRAM**

[CompanyName] has a Weld Filler Material Control Program in place that includes procurement, receipt, storage, issuance, and return of filler materials. The Quality Manager ensures that issuers, welders and procurement / receipt inspectors are trained on the WFM controls.

###### **6.6.1.1. FILLER MATERIAL PROCUREMENT**

The Operations Manager considers the end use of the weldment when procuring filler materials. Requirements will vary depending on the application. WFM procurement will be in accordance with ANSI/AWS A5.01, *Filler Metal Procurement Guidelines*.

###### **6.6.2. FILLER MATERIAL RECEIPT**

To confirm that the requirements of the Purchase Order are met, the Field Superintendent or a qualified receipt inspector will perform a material receipt inspection for all WFM in accordance with section 5. Material Control in this Manual. Specifically, the inspector will observe the condition of the container(s) for dents, broken seals, and overall damage; ensure markings are legible and meet specified criteria; review documented test reports (CMTR / MTR's, etc.) against the PO, the SFA, and AWS classification requirements for required test results and chemistry ranges.

###### **6.6.3. FILLER MATERIAL STORAGE**

Filler materials of different filler metal types, sizes and heat numbers (if applicable) will be labeled and stored separately to prevent intermixing.

Filler materials will be stored in a controlled environment to prevent contamination and degradation. The storage environment will conform to any elevated temperature holding requirements of the filler metal manufacturer and the applicable AWS code or filler metal specification.

Electrodes, particularly low hydrogen, have specific storage conditions, temperatures, and rebaking requirements. The Quality Manager ensures that storage ovens are clearly labeled to trace the specific heat and lot information.

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The Quality Manager ensures that WFM is stored in temperature and humidity-controlled area. Segregation within storage and issuance areas will be maintained. Alloyed materials will be clearly identified, and containers segregated from other materials and alloys.

When control of material is lost, it will be taken out of service and salvaged / scrapped.

### 6.6.4. FILLER MATERIAL ISSUE

The Quality Manager will maintain a filler material issue system that includes verification review of the welder range of qualification and expiration date before issuing material. Issuance of multiple filler materials (classifications) to the welder is not permitted except when the welder is performing multi-process welds, e.g., GTAW root, SMAW fill & cap. This is acceptable only when permitted by the WPS.

Weld filler material issue will be logged and tracked on the Weld Filler Material Issue Log form. A sample form is in Section of this Quality Manual. The Weld Filler Material Issue Log includes the following information:

- Job number
- Heat
- AWS class
- Welder name
- Welder ID
- Issue date
- Quantity
- WPS

Low hydrogen electrodes will be issued in heated rod caddies. If this is not possible, then the amount of time they are out of a heated oven will be controlled. Welders are given an “issue ticket” with all applicable information regarding the filler material.

The Quality Manager issues filler materials in accordance with Standard Operating Procedure SOP 6.6.4. Filler Material Issue.

### 6.6.5. FILLER MATERIAL RETURN

The Quality Manager ensures that filler material that is damaged or where control has been lost will be discarded / scrapped. Stubs must be controlled to prevent unauthorized use. WFM may be placed back into storage if in good usable condition and traceability has been maintained. Low hydrogen electrodes may require segregation and re-baking before being placed in controlled issue locations.

Filler metals which have exceeded the maximum allowable exposure time to the atmosphere must not be used. They may be used only after redrying (baking) requirements of the filler manufacturer are met.

Unusable or damaged filler metals must be clearly marked to prevent inadvertent use and removed from the filler material storage area.

## 6.7. CONTROLLED USE OF MATERIALS

The Field Superintendent ensures that fabrication uses only materials specified in the contract technical specifications, contract drawings, and approved submittals. Substitutions are made only by agreement of the customer and documented by a Change Order.

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The Field Superintendent ensures that each work task that uses the inspected materials proceed only after the material has been accepted by the material quality inspection or test if required.

Materials that are defective, deteriorated, damaged, or not approved are not used. The Field Superintendent clearly marks such materials for non-use or otherwise holds them aside.

### **6.8. CONTROLLED MATERIAL IDENTIFICATION AND TRACEABILITY**

The Quality Manager determines types of project materials that require quality controls.

For each type of quality-controlled material, the Quality Manager determines lot control traceability requirements, if any, and specifies the means of lot identification. Identification methods may include physical labels, tags, markings and/or attached certification documents.

The Quality Manager follows Standard Operating Procedure SOP 6.8 Controlled Material Identification and Traceability to specify which project materials are subject to lot control and traceability and the method for identification of approved inspection status.

When lot-controlled materials are received, the Field Superintendent verifies that materials have the specified lot identifications.

The Field Superintendent maintains lot identification at all production phases from receipt, through production, installation, or assembly, to final completion. Acceptable methods for preserving lot identification include physically preserving observable lot identifications, recording the lot identification on a work task quality inspection form or other work record, or collecting the physical lot identifier as a record supplemented with location.

If lot-controlled materials are without lot identification, the Field Superintendent deems the materials as nonconforming and segregates them and/or clearly marks them to prevent inadvertent use. The Field Superintendent treats the material according to the company policy for nonconformances. Only the Quality Manager can re-identify or re-certify the materials.

#### **6.8.1. HEAT TRACEABILITY OF METALS**

Heat numbers are traced for metals including:

- Carbon steel
- Galvanized steel
- Aluminum
- Stainless steel

Heat identification of metals includes:

- Material supplier heat number is either marked by the material supplier or reproduced by the Field Superintendent or other competent person. As an alternative an adhesive label or tag on the bundle is an acceptable method.
- When metal is cut into pieces, the heat number is marked on each piece (except scrap)
- Color code is painted on all four corners of each piece of plate material.
- Color code is painted on both ends of strip material.
- Bundles of material may be marked on one piece. If a piece is removed from the bundle, heat trace information must be transferred so that both the piece and the bundle are identified. When the bundle is separated, each individual piece is marked.

### **6.9. CONTROL OF CUSTOMER PROPERTY**

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Care will be exercised for customer property used by or under [CompanyName] control. [CompanyName] will identify, inspect, verify, control, and protect customer property with the procedures that apply to company purchased materials. If any customer property is lost, damage, or otherwise found to be unsuitable for use [CompanyName] will report this to the customer.

Selected Pages

# 11. WELDING INSPECTION AND NONDESTRUCTIVE TESTING

## 11.1. INSPECTION OF WELDING WORK

### 11.1.1. DIMENSIONAL INSPECTIONS – SIZE, LENGTH, AND LOCATION OF WELDS

A qualified welding inspector inspects all weld dimensions to ensure that the size, length, and location of all welds conform to the requirements of the D1.1/D1.1 M code and to the detail drawings; and that no unspecified welds have been added without the approval of the contract Engineer.

### 11.1.2. WELD INSPECTIONS

During the welding process, at suitable intervals, weld inspections are performed by a qualified welding inspector. Such inspections will be conducted, on a sampling basis, prior to assembly, during assembly, and during welding. The welding inspector will observe joint preparation, assembly practice, and the welding techniques, and performance of each welder, welding operator, and tack welder to ensure that the applicable requirements of the D1.1/D1.1 M code are met.

### 11.1.3. FINAL INSPECTIONS

After completion of the work, a certified welding inspector performs a final visual inspection of every weld to ensure that the requirements of the applicable sections of code are met. Other acceptance criteria, different from those described in the D1.1/D1.1 M code, may be used when approved by the Engineer on the contract.

Size and contour of welds will be measured with suitable gages. Visual inspection for cracks in welds and base metal and other discontinuities will be observed with the aid of a strong light, magnifiers, or such other devices as may be found helpful.

### 11.1.4. WELD INSPECTION AND TEST STATUS

The inspector identifies final acceptance or rejection of the work either by marking on the work or with other recording methods.

Final product acceptance inspection shall be indicated by permanent stamping or marking adjacent to the weld or must be unambiguously identified in the inspection report.

### 11.1.5. VISUAL WELD INSPECTION RECORDS

The inspector shall make a record of the inspection which shall include the following information:

- Unique part identifier (serial number, shop order, or batch number)
- Drawing number and revision
- Procedure and applicable acceptance criteria
- Inspector identity and date of inspection
- Record of defect findings
- Nominal
- Actual
- Tolerance

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The Inspector will record visual inspection results on the Visual Weld Inspection Report or other form if approved by the contract Engineer in accordance with Standard Operating Procedure SOP 11.1.5. Visual Weld Inspection Report.

### 11.1.6. WELD TEST RECORDS

Test result data will include as appropriate:

- Reference to the inspection and test plan item
- Description or title of the inspection activity
- Drawing identification number and version, if applicable
- Technical specification number and version, if applicable
- Location of the inspection activity
- Acceptance criteria
- Nonconformances
- Validation that nonconformances are corrected, reinspected or retested, and confirmed to meet Quality Program requirements.
- Any open items to be completed at a later date.
- Inspector's name and signature indicating compliance with all requirements of the Quality Program
- Quality rating scores as appropriate
- Date of inspection or test
- Certificate, if applicable
- Conspicuous statement of final result as either "CONFORMS" or "DOES NOT CONFORM"

AWS Forms will be used for recording Magnetic Particle Examination, Radiographic Examination, and Reporting of UT Welds unless otherwise specified by the contract or contract Engineer.

The Inspector will record inspection and test results on the Inspection and Test Report or other form if approved by the contract Engineer in accordance with Standard Operating Procedure SOP 11.1.6. Weld Inspection and Test Report.

### 11.1.7. WELD INSPECTION AND TEST ACCEPTANCE CRITERIA

Inspections assess conformance of materials or work for each welding task to project quality requirements, including applicable:

- D1 .1 /D1 .1 M code standards for Visual Inspections
- D1 .1 /D1 .1 M code standards for NDT, RT, and UT
- Contract technical specification
- Contract drawings
- Approved shop drawings
- Approved product submittals
- Approved allowances and unit prices
- Product identification requirements
- Approved submittals
- [CompanyName] quality standards

The material or completed welding task is accepted only when it meets all project quality requirements. Inspection and test acceptance criteria may include but are not limited to those listed in Table 11.1. included in this subsection.

## 11.2. WELD AND NDE TRACKING LOG

## Questions? Call First Time Quality 410-451-8006

The Field Superintendent records weld and NDE information on the Weld and NDE Tracking Log (if required) in accordance with Standard Operating Procedure SOP 11.2. Weld and NDE Tracking

### 11.3. WELD INSPECTION AND TESTING STANDARDS

Welding Inspection and testing standards that may apply to [CompanyName] projects include those listed below. Specifications that determine the rules for controlling the welding process and weld acceptance include but are not limited to the inspection and testing standards listed on Table 4. Inspection and Testing Standards.

Table 4. Inspection and Testing Standards

Description	Reference Standard No.	Reference Standard Title
Identification markings to conform to ASTM standards specified in the approved construction documents	AISC 360 Section A3.3 and applicable ASTM material Standards	Material verification of high-strength bolts, nuts and washers
Identification markings to conform to AWS specification in the approved construction documents	AISC 360, Section A3.5 and applicable AWS A5 documents	Material verification of weld filler materials
Inspection of high-strength bolting	AISC 360, Section M2.5	Inspection of high-strength bolting
For structural steel, identification markings to conform to AISC 360	AISC 360, Section M5.5 and applicable ASTM material standards	Material verification of structural steel and cold-formed steel deck
Ultrasonic weld inspecting techniques	ASNT SNT-TC-1A Q&A Bk C	Ultrasonic Testing Method
Ultrasonic Inspection	ASTM E 164	Standard Practice for Contact Ultrasonic Testing of Weldments
Liquid Penetrant Inspection	ASTM E 165	Standard Practice for Liquid Penetrant Examination for General Industry
Magnetic Particle Inspection	ASTM E 709	Standard Guide for Magnetic Particle Testing
Radiographic Inspection	ASTM E 94.D	Standard Guide for Radiographic Examination
Non-destructive weld testing and visual examination	AWS B1.11	Guide for the Visual Examination of Welds
Specification for Welding Procedure and Performance Qualification	AWS B2.1/B2.1M	Specification for Welding Procedure and Performance Qualification
Test frequency for ferrous materials	AWS D1.1/D1.1M	Structural Welding Code – Steel
Visual inspection of welds	AWS D1.1/D1.1M	Structural Welding Code – Steel
Structural Welding Code - Sheet Steel	AWS D1.3	Structural Welding Code - Sheet Steel
Inspection of Reinforcing Steel welding	AWS D1.4 ACI 318, Section 3.5.2	REQUIRED VERIFICATION and INSPECTION OF CONCRETE CONSTRUCTION

#### **11.4. WELD INSPECTOR QUALIFICATIONS**

[CompanyName] uses only qualified weld inspectors. If an AWS Certified Welding Inspector is not used, the Quality Manager will ensure that the weld inspector is qualified and certified in accordance with [CompanyName]'s written practice based on current ASNT (American Society for Nondestructive Testing) SNT-TC-1A (VT). The certification process will include the educational, training, experience and testing provisions described in SNT-TC-1A (VT).

The Quality Manager will ensure that inspectors are knowledgeable with the code(s) which applies to the fabrication work being performed.

#### **11.5. NDE INSPECTOR QUALIFICATIONS**

[CompanyName] uses only qualified NDE Inspectors. The Quality Manager will ensure that Radiographic Interpreters are certified in accordance with AWS B5.15, *Specification for the Qualification of Radiographic Interpreters*. Alternatively, Radiographic Interpreters may be qualified and certified in accordance with [CompanyName]'s written practice based on ASNT SNT-TC-1A. The certification process will include the educational, training, experience, and testing provisions described in SNT-TC-1A. These requirements will also apply to personnel performing other NDE methods, (e.g., MT, PT, and UT).

#### **11.6. NDE PROCEDURES**

The Quality Manager ensures that NDE shall be performed in accordance written NDE procedures by a certified NDE inspector.

The NDE procedures shall be approved by a Level III in the NDE method(s) that the procedure is based on. The Level III shall be qualified and certified in accordance with the [CompanyName]'s written practice based on ASNT SNT-TC-1A: *Personnel Qualification and Certification in Nondestructive Testing*. The certification process shall include the educational, training, experience, and testing provisions described in SNT-TC-1A.

The Quality Manager ensures that NDE test procedures will be issued, revised and distributed according to the Documents and Record control procedures described in the Document Controls section of this Quality Manual.

##### **11.6.1. NDE SUBCONTRACTOR**

If subcontractors are used, The Quality Manager ensures that NDE Subcontractor personnel meet the same qualification requirements as [CompanyName] personnel. The Quality Manager will review and approve all NDE Subcontractor personnel.



## 12. INSPECTION AND TESTING FOR NON-WELDING TASKS

### 12.1. REQUIRED WORK TASK QUALITY INSPECTIONS AND TESTS

The Quality Manager identifies each non-welding task that is a phase of fabrication that requires separate quality controls to assure and control quality results. Each task triggers a set of requirements for quality control inspections before, during and after work tasks.

Tasks are divided into two categories:

- Discrete Tasks are standard type of work where a completion inspection is performed one time at the completion of a phase of work.
- Process Tasks are tasks where completion inspections are performed continuously. Continuous inspections are required when there is a limited window of time to perform a completion inspection before the next task begins. Process tasks may also be characterized by independent monitoring of a work process, such as welding, where the observer verifies conformance to work procedures.

Process tasks undergo additional quality controls that continuously monitor compliance to specifications.

Independent quality audits are conducted to verify that the task quality controls are operating effectively.

Fabrication and erection projects may execute a work task multiple times in a project, in which case a series of quality inspections are required for each work task.

### 12.2. WORK IN PROCESS INSPECTIONS

Work in process quality inspections continuously verify compliance to project quality standards beginning at the start of a work task, as work is conducted, and continues until the work task is complete.

#### 12.2.1. PREPARATORY SITE INSPECTION

The Field Superintendent performs a quality inspection of the work area and:

- Assesses completion of required prior work
- Verifies field measurements
- Assures availability and receiving quality inspection status of required materials
- Identifies any nonconformances to the requirements for the work task to begin
- Identifies potential problems

##### 12.2.1.1. INITIAL JOB-READY INSPECTIONS

For each work task, the Supervisor or a qualified inspector performs job-ready quality inspections to ensure that work activities begin only when they should begin. Job-ready quality inspections verify that conditions conform to the project quality requirements.

##### 12.2.1.2. INITIAL WORK IN PROCESS INSPECTION

For each work task, the Supervisor or a qualified inspector performs an initial work in process inspection when the first representative portion of a work activity is completed.

##### 12.2.1.3. FOLLOW-UP WORK IN PROCESS INSPECTIONS

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The Supervisor or a qualified inspector performs ongoing work in process quality inspections to ensure that work activities continue to conform to project quality requirements. Punch Items

If the Supervisor or inspector observes an item for correction prior to a work task completion inspection, the item is identified for correction. During the work task completion inspection each punch item correction is verified.

Any outstanding punch items remaining after the work task completion inspection is deemed a nonconformance.

### **12.2.2. ADDITIONAL INSPECTION REQUIREMENTS FOR PROCESS TASKS**

For each process task, a qualified person inspects the ongoing completion work for conformance to project quality requirements. This is in addition to discrete task completion inspections that are performed one time at the end of a phase of work.

The continuous monitoring inspections are conducted before starting other work activities that may interfere with an inspection.

### **12.3. WORK TASK COMPLETION INSPECTIONS**

For each work task, the Quality Manager or a qualified inspector inspects the completion of each work task to verify that work conforms to project quality requirements.

Completion quality inspections are performed for each work task. Completion quality inspections are conducted before starting other work activities that may interfere with an inspection.

Any outstanding punch items remaining after the work task completion inspection is deemed a nonconformance.

### **12.4. INSPECTION OF SPECIAL PROCESSES**

The Quality Manager identifies special processes where the results cannot be verified by subsequent inspection or testing and determines if continuous work in process inspections are required. For these special processes, a qualified inspector continuously inspects the work process.

### **12.5. INDEPENDENT MEASUREMENT AND TESTS**

The Quality Manager ensures that quality tests that apply to a specific project are clearly identified. Tests for a project include:

- Customer required quality tests as specified by the contract, contract technical specifications, contract drawings, and approved submittals.
- Additional quality tests necessary to assure quality results.

### **12.6. HOLD POINTS FOR CUSTOMER INSPECTION**

The Supervisor stops work when reaching a hold point specified on the inspection and test plan. The Supervisor ensures that work proceeds only with customer approval.

### **12.7. QUALITY INSPECTION AND TEST SPECIFICATIONS**

Specifications for each inspection or test are clearly understood before the inspection or test is performed including:

## Questions? Call First Time Quality 410-451-8006

- Items to be inspected/tested
- Inspections/tests to be performed
- Testing schedule frequency
- Specification references including contract drawing identification number and version, if applicable, and/or contract technical specification number and version, if applicable
- Performing party
- Witness parties
- Certificates required
- Checklists/procedures
- Reference standards

### 12.8. INSPECTION AND TEST ACCEPTANCE CRITERIA

Inspections assess conformance of materials or work for each work task to project quality requirements, including applicable:

- Applicable Codes
- Contract technical specification
- Contract drawings
- Approved shop drawings
- Approved product submittals
- Approved allowances and unit prices
- Product identification requirements
- Approved submittals
- [CompanyName] quality standards

The material or completed work task is accepted only when it meets all project quality requirements.

### 12.9. INSPECTION AND TEST RECORDS

The Field Superintendent follows Standard Operating Procedure to record and store the results of quality inspections and tests.

#### 12.9.1. INSPECTION RECORDS

The Quality Manager prepares an inspection form for each work task. The Quality Manager lists on the form checkpoints for heightened awareness including:

- Initial job-ready inspection requirements
- Inspection and tests
- Work in process inspection requirements
- Completion quality inspections
- Other quality requirements as necessary to reduce quality risks

The person responsible for the inspection, records work task inspection results on the work task inspection form.

The Quality Manager follows Standard Operating Procedure SOP 12.9.1 Inspection Records – Non-welded Components to prepare a work task quality inspection form for planned work tasks on a project when an adequate quality inspection form is not available and to provide a document for recording the results of work task quality inspections.

#### 12.9.2. TEST RECORDS

## Questions? Call First Time Quality 410-451-8006

Test result data include as appropriate:

- Reference to the inspection and test plan item
- Description or title of the inspection activity
- Drawing identification number and version, if applicable
- Technical specification number and version, if applicable
- Location of the inspection activity
- Acceptance criteria
- Nonconformances
- Validation that nonconformances are corrected, reinspected or retested, and confirmed to meet Quality System requirements.
- Any open items to be completed later.
- Inspector's name and signature indicating compliance with all requirements of the Quality System
- Quality rating scores as appropriate
- Date of inspection or test
- Certificate, if applicable
- Conspicuous statement of final result as either "CONFORMS" or "DOES NOT CONFORM"

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# 15. STORAGE, PROTECTION, SHIPPING AND HANDLING OF COMPLETED WORK

## 15.1. PRESERVATION, STORAGE AND PROTECTION OF MATERIALS AND COMPLETED WORK

[CompanyName] will preserve and protect work in process, completed work, component parts, materials, and when applicable, delivery to the destination, to maintain compliance with project requirements and standards. This includes handling, storage, protection from natural elements, and reducing risks of damage.

Completed work is protected from dirt, oil, ferrous material, other foreign matter, and damage as specified by government regulations, contract technical specifications, industry standards, or product installation instructions.

Protections will be employed that prevent water from collecting and pooling.

Aluminum will be packaged and stored in a manner that prevents damage to the material properties of the metal.

The Quality Manager identifies supplemental protection requirements that apply to a specific project when they are necessary to assure quality results.

### 15.1.1. ALUMINUM

The QC Manager ensures that aluminum in contact with grout or concrete will be protected with a coat of zinc chromate primer and a coat of aluminum paint to protect it from galvanic or corrosive action.

The QC Manager ensures that aluminum in contact with structural steel will be protected with a coat of zinc chromate primer and a coat of aluminum paint to protect it from galvanic or corrosive action.

The aluminum paint will consist of an aluminum paste conforming to ASTM D962, spar varnish, and thinner compatible with the varnish. Field mixing of the aluminum paint will be in proportion of 2 pounds of paste, and not more than one gallon of spar varnish, and not more than one pint of thinner.

## 15.2. SHIPPING AND HANDLING

The QC Manager ensures that proper handling methods will be employed to prevent distortion or other damage to components during fabrication, assembly, loading, shipment, and unloading of components.

# 19. STANDARD OPERATING PROCEDURES & FORMS

## STANDARD OPERATING PROCEDURES

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<b>SOP 3.3 COMPANY PROJECT LICENSE AND QUALIFICATION REQUIREMENTS</b>			
Date	Version	Approved by:	Notes
[Date]	1.0	Quality Manager	Initial issue

**Purpose:**

To assess and record the company licenses and qualifications as required by a project or contract.

**Scope:**

All projects

**Definitions:**

None:

**Responsible Person(s):**

Project Manager has overall responsibility

Quality Manager

**References:**

Quality Manual Section 3.3. Company Project License and Qualification Requirements

Quality Manual Section 17.4. Project Records Control

**Procedure:**

1. Use the Company Project License and Qualifications form contained in this procedure unless the customer contract specifies the use of a modified or customer supplied form. In that case, the specified form replaces the standard form for that contract.
2. The Responsible Person identifies required company and/or company department licenses and qualifications for a specific contract or project as required by the Quality Manual.
3. The Responsible Person completes the Company Project License and Qualifications form.
4. When no qualifications are required "none required" is entered and then this procedure is regarded as complete.
5. When all qualification requirements are met, the Project Manager signs the form.
6. The Responsible Person stores the completed form in the main office as required by Quality Manual Section 17.4. Project Records Control



<b>[CompanyName] Company Project License and Qualifications</b>		
Project ID	Project Name	Notes
[ProjectNumber]	[ProjectName]	
<b>Review Topics</b>	<b>Project quality–related credential requirements</b>	
	Licenses required:	License and expiration dates:
	Certification required:	Certifications and expiration dates:
	Training required:	Training completed and expiration date:
	Type and length of experience required:	Certifications and expiration dates:
	Personnel license, certification, and training required:	List each person’s credentials on the Subcontractor and Supplier Certifications and Licenses form.
	<b>Qualifications</b>	
	<b>QUALIFICATION NOTES:</b>          	

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<b>SOP 6.6.4. FILLER MATERIAL ISSUE</b>			
Date	Version	Approved by:	Notes
[Date]	1.0	Quality Manager	Initial issue

**Purpose:**

To control the issue and return of filler material to prevent inadvertent use of filler materials that do not meet the manufacturer’s specifications, applicable welding code or company requirements for filler material quality.

**Scope:**

All quality-controlled filler material

**Definitions:**

None:

**Responsible Person(s):**

Quality Manager or Production Manager depending on who controls filler materials

**References:**

Quality Manual Section 6.6.4. Filler Material Issue

Quality Manual Section 17.4. Project Records Control

**Procedure:**

1. Use the Filler Material Issue form contained in this procedure unless the customer contract specifies the use of a modified or customer supplied form. In that case, the specified form replaces the standard form for that contract.
2. The Responsible Party reviews the qualification and expiration date of filler material before releasing to production.
3. The Responsible Person logs weld filler material issued to a welder or welding department on the Filler Material Issue form.
4. Low hydrogen electrodes will be issued in heated rod caddies. If this is not possible, then the amount of time they are out of the heated oven will be controlled.
5. The Responsible Person issues the welder an “Issue Ticket” with all applicable information regarding the filler material.
6. The Welder returns the unused filler material along with the “Issue Ticket” to the Responsible Person.
7. Filler materials which have exceeded the maximum allowable exposure time to the atmosphere must not be used unless redrying (baking) requirements of the filler manufacturer are met.
8. The Responsible Person clearly marks unusable or damaged filler materials to prevent inadvertent use and removes them from the filler material storage area.
9. The Responsible Person stores the completed form in the shop office as required by Quality Manual Section 17.4. Project Records Control



<b>SOP 6.8 CONTROLLED MATERIAL IDENTIFICATION AND TRACEABILITY</b>			
Date	Version	Approved by:	Notes
[Date]	1.0	Quality Manager	Initial issue

**Purpose:**

To specify which project materials are subject to lot control and traceability and to identify the method for identification of approved inspection status.

**Scope:**

All projects

**Definitions:**

None:

**Responsible Person(s):**

Quality Manager has overall responsibility

Project Manager

**References:**

Quality Manual Section 6.8 Controlled Material Identification and Traceability

Quality Manual Section 17.4. Project Records Control

**Procedure:**

1. Use the Controlled Material form contained in this procedure unless the customer contract specifies the use of a modified or customer supplied form. In that case, the specified form replaces the standard form for that contract.
2. The Responsible Person identifies lot-controlled materials, their traceability requirements and the method for identification of approved inspection status.
3. The Responsible Person completes the Controlled Materials Form in this procedure. When no controlled materials are required to supplement contract requirements, "none required" is recorded.
4. The Responsible Person updates the Controlled Materials Form as necessary during the project.
5. When a material is listed on the Controlled Materials Form, only that material may be purchased for the intended purpose.
6. The Responsible Person stores the completed form in the main office as required by Quality Manual Section 17.4. Project Records Control.



<b>SOP 8.3. MEASURING DEVICE CONTROL AND CALIBRATION</b>			
Date	Version	Approved by:	Notes
[Date]	1.0	Quality Manager	Initial issue

**Purpose:**

To clearly define measuring devices that require calibration and to keep calibration records.

**Scope:**

All measuring devices that require calibration

**Definitions:**

None:

**Responsible Person(s):**

Quality Manager

**References:**

Quality Manual Section 8.3 Measuring Device Control and Calibration

Quality Manual Section 17.4. Project Records Control

**Procedure:**

1. Use the Measuring Devices and Calibration Form contained in this procedure unless the customer contract specifies the use of a modified or customer supplied form. In that case, the specified form replaces the standard form for that contract.
2. The Responsible Person completes the Measuring Devices Calibration Form (contained in this procedure) with information as required by the Quality Manual.
3. The Responsible Person stores the completed form in the main office as required by Quality Manual Section 17.4. Project Records Control

[CompanyName] Test Equipment Calibration Plan and Log				
Project ID	Project Name	Preparer	Date	
[ProjectNumber]	[ProjectName]			

Type of measuring device	Calibration Type and Frequency	Measuring Device ID	Calibrated By/ Calibration Date	Calibration certificate #	Next Calibration Due Date
					Project Start

Selected Pages

<b>SOP 11.2. WELD AND NDE TRACKING</b>			
Date	Version	Approved by:	Notes
[Date]	1.0	Quality Manager	Initial issue

**Purpose:**

To log and track weld and NDE information

**Scope:**

When required

**Definitions:**

None:

**Responsible Person(s):**

Field Superintendent

**References:**

Quality Manual Section 11.2 Weld and NDE Tracking Log

Quality Manual Section 17.4. Project Records Control

**Procedure:**

1. Use the Weld and NDE Tracking Log Form contained in this procedure unless the customer contract specifies the use of a modified or customer supplied form. In that case, the specified form replaces the standard form for that contract.
2. When weld and NDE tracking is required, the Responsible Person records weld and NDE information on the Weld and NDE Tracking Log form.
3. The Responsible Person stores the completed form in the main office as required by Quality Manual Section 17.4. Project Records Control





<b>SOP 12.9.2 INSPECTION AND TEST REPORT</b>			
Date	Version	Approved by:	Notes
[Date]	1.0	Quality Manager	Initial issue

**Purpose:**

To record and store the results of quality inspections and tests

**Scope:**

Visual Weld Inspection

**Definitions:**

None:

**Responsible Person(s):**

Qualified Inspector

**References:**

Quality Manual Section 12.9.2. Inspection and Test Report

Quality Manual Section 17.4. Project Records Control

**Procedure:**

1. Use the Inspection and Test Report form contained in this procedure unless the customer contract specifies the use of a modified or customer supplied form. In that case, the specified form replaces the standard form for that contract.
2. The Responsible Person records quality inspection and test results on the Inspection and Test Report form.
3. The Responsible Person stores the completed form in the main office as required by Quality Manual Section 17.4. Project Records Control

<b>[CompanyName] Inspection and Test Report</b>						
Inspection Report ID #	Project ID	Project Name	Preparer Signature	Date		
	[ProjectNumber]	[ProjectName]				
Work Activity:			Item inspected and/or tested:			
Ref#	Specification reference documents (titles or description with version/date)					
Inspection/Test Record (additional items on next page)						
Inspection/ Test/ ID #	Inspection/Test Points/Location	Acceptance Criteria / Ref#	Test Result, Nonconformance	Non-conformance Disposition rework/reject/Non-conformance Report	Corrections Made / Final Acceptance	
					Initial	Date
Acceptance of completed work activity (sign and date)						
Inspector/Tester		Subcontractor and Supplier/Supplier		Field Superintendent		



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