[CompanyName]

Fabrication and Installation
Quality Assurance/Quality Control Plan

[ProjectName]
[ProjectNumber]

Management acceptance

This Fabrication and Installation Quality Assurance/Quality Control Plan has been reviewed and accepted.

Endorsed By: (Name / Title)	[QualityManagerName], Quality Manager		
Signature:	*[QualityManagerName]*	Date:	[Date]
Version	1.0	Notes	Initial Issue

QUALITY SYSTEM TABLE OF CONTENTS

SIGNATURE SHEET

Plan Preparer

This [CompanyName] Project Quality Control Plan was prepared in accordance with the contract specifications and requirements of the [CompanyName] quality system and approved by:

[QualityManagerName] / [Date]

[QualityManagerName], Quality Manager /Date

Approval by Company Officer

This [CompanyName] Project Quality Control Plan is approved by:

[PresidentName] / [Date]

[PresidentName] President /Date

Plan Concurrence

[CompanyName] Project Quality Control Plan concurrence by:

[ProjectManagerName] / [Date]

[ProjectManagerName], Project Manager /Date

[SuperintendentName] / [Date]

[SuperintendentName], Superintendent /Date

PROJECT-SPECIFIC QUALITY PLAN

TABLE OF CONTENTS

PROJECT QC ORGANIZATION CHART

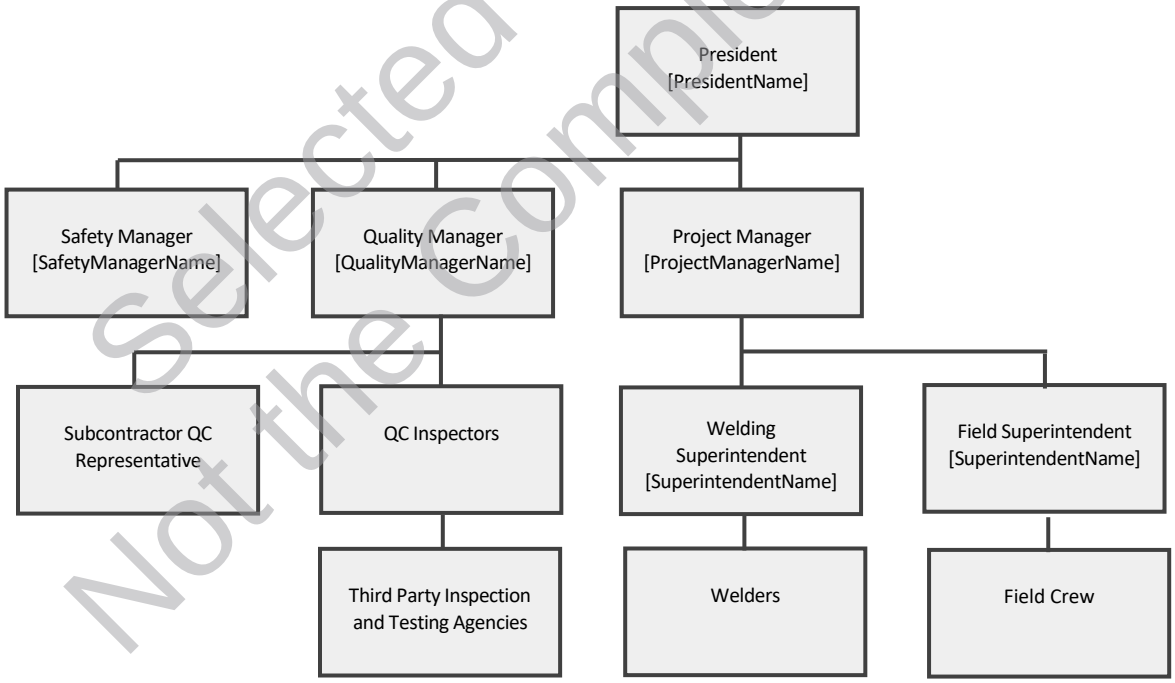
The Project QC Organization Chart shows the QC organizational structure. The chart includes job positions along with the name of each person appointed to that position. Figure B-1 shows the QC Organization Chart for this project.

The President defines the organization chart for the project. The organizational chart includes job titles, names of assigned personnel, and organizational and administrative interfaces with the customer. The organization chart defines lines of authority as indicated by solid connection; dotted lines indicate lines of communication. The lines of authority preserve independence of quality control personnel from the pressures of production.

When a person with authority is unavailable only a person with higher authority may assume the responsibility of the unavailable person.

The President assesses the qualification requirements for each position on the project organization chart, qualifications of each person, and then appoints only qualified persons to the project organization.

Figure B-1



E. Personnel Qualifications and Technical Certifications

[CompanyName] ensures that only knowledgeable, capable employees carry out the planning, execution, and control of the project.

We train our employees on quality standards and procedures based on project requirements as well as their job positions. Then we validate their capabilities before they are assigned to carry out their quality job responsibilities on the project. Ongoing monitoring of performance continually validates qualifications of each employee.

The Quality Manager qualifies employee capabilities to ensure that they are capable of completely carrying out their assigned quality responsibilities including the following capabilities:

- Knowledge of Company quality standards
- Knowledge of job responsibilities and authority
- Demonstrated skills and knowledge
- Demonstrated ability
- Demonstrated results
- Required training
- Required experience

The Quality Manager also evaluates independent contractor personnel on the same standards that apply to employees.

Personnel Certification and Qualification Requirements

Personnel certifications are required for the following:

Certification or License Title	Reference Standard No.	Reference Standard Title
Welders of structural steel	G40.20-13/ G40.21-13 W59-13	Structural Welding Code – Steel
Inspectors of structural steel welds	G40.20-13/ G40.21-13 W59-13	Structural Welding Code – Steel
Ultrasonic Inspectors	ASNT SNT-TC-1A	Personnel Qualification and Certification in Nondestructive Testing

Certified Welder Qualification Requirements

Only certified welders may perform welding activities. A welder must be certified to the CSA welding code, and any welding procedures.

For each project, the Quality Manager will determine welder certification requirements for codes and welding procedures

Certified welders must meet the requirements of CSA Standards W47.1, W47.2, W55.3 or W186 for CWB Certified Welders. Only a Certified Welding Inspector can conduct welding tests for the purposes of welder certification.

The Quality Manager approves the qualification of all welders before they begin welding on a specific project.

Qualification of Welders for Specific Welding Codes

When indicated on the welding procedure, the Quality Manager approves qualification of welders to the specific welding procedure.

Qualification of Welders for Specific Welding Procedures

When indicated on the welding procedure, the Quality Manager approves qualification of welders to the specific welding procedure.

Certified Welding Inspector Requirements

Certified welding inspectors must be certified by the CWB to CSA Standards W47.1, W47.2, W55.3 or W186 for CWB Certification of Welding Inspectors to the applicable code that applies to the inspections they perform.

The Quality Manager approves the qualification of all certified welding inspectors.

NDE Welding Inspector Requirements

Radiographic Interpreters shall be certified in accordance with CSA.

Non-Radiographic NDE welding inspectors must be certified by the Canadian Standards Association Standard for CSA Certification of Welding Inspectors to the applicable code that applies to the inspections they perform.

The Quality Manager approves the qualification of all NDE welding inspectors.

[CompanyName]
Personnel Qualification Form

Name:		Job Position:	
Project ID	**Project Name**	**Approval**	**Approved By**
[ProjectNumber]	[ProjectName]	☐Yes ☐No	

Review Topics	**Project-Related Job Credentials**	
	Certification required:	Certifications and expiration dates:
	Training required:	Training completed and expiration date:
	Licenses required:	License and expiration dates:
	Type and length of experience required:	Certifications and expiration dates:
	Qualifications	
	☐Knowledge of Company quality standards ☐Knowledge of Company job responsibilities and authority ☐Demonstrated skills and knowledge ☐Demonstrated ability ☐Demonstrated results	
	Qualification Notes:	

Provisional Approval: Action plan for improvement

Follow-up results and date

[CompanyName]
Personnel Certifications and Licenses

Project ID	Project Name	Preparer	Date
[ProjectNumber]	[ProjectName]		

Person	Certification, License, or Credential	Expiration Date

G. SUBMITTALS

SUBMITTALS

Lists of documents and records that will be submitted to the customer appear on the Submittal Schedule and Log form. The Submittal Schedule and Log Form exhibit is included in this subsection.

SUBMITTAL SCHEDULE AND LOG

The Project Manager identifies submittals that apply to a specific contract and when they should be submitted, including:

- Contract requirement reference (if applicable)
- Submittal type: Shop drawing, product data, quality inspection and test plan, request for information, or allowances and unit prices
- Description
- Due date for submission to customer by [CompanyName]
- Due date for approval by the customer. Due dates may be a number of days after a project plan milestone.
- Approval date

SUBMITTAL REVIEW AND APPROVAL

The Quality Manager prepares submittals that provide additional details of how [CompanyName] plans to carry out quality-related aspects of the customer contract, contract technical specifications, and contract drawings and reporting of quality records to the customer.

The Quality Manager lists, schedules, and approves all quality-related submittals that are required by the project including submittals prepared by subcontractors and suppliers. The Quality Manager must review all submittals for compliance with the requirements of the [CompanyName] Quality System. The Quality Manager must sign approval of each contract submittal.

[CompanyName] extends compliance to contract specifications to all customer approved submittals. All [CompanyName] activities comply with customer approved submittals.

SUBMISSION TO CUSTOMER

See Submittal Forms exhibits in this subsection for all the forms that will be used to submit submittals on this project.

CUSTOMER APPROVED SUBMITTALS

The Project Manager obtains the signature of an authorized customer representative on the submittal form.

[CompanyName] extends compliance to contract specifications to customer approved submittals.

Work in the affected area of a pending submittal requirement does not start until the customer approves the submittal.

CONTRACT SUBMITTAL SCHEDULE

The Project Manager identifies submittals that apply to a specific contract and when they should be submitted, including:

- Contract requirement reference (if applicable)
- Submittal type: Shop drawing, product data, quality inspection and test plan, request for information, or allowances and unit prices
- Description
- Due date for submission to customer by [CompanyName]
- Due date for approval by the customer. Due dates may be a number of days after a project plan milestone.
- Approval date

[CompanyName]
Project Submittal Form

Submittal ID#	Project ID	Project Name	Date
	[ProjectNumber]	[ProjectName]	

To:	From: [CompanyName] Location:
Type of Submittal: ☐ Shop drawing ☐ Product data ☐ Request for information ☐ Completed form or quality record ☐ Quality system document ☐ Other:	Description of submittal:
List of attachments:	Remarks:
Submittal Prepared by: [CompanyName] Name: Title: Signature / Date:	Submittal Approved by [CompanyName] Quality Manager: Name: Title: Signature / Date:
Customer Disposition: ☐ Approved ☐ Conditionally approved, resubmission not required (see comments) ☐ Disapproved, resubmission required ☐ Other:	Customer Representative: Name: Title: Signature / Date:
Comments:	

[CompanyName]
Project Submittals Schedule and Log

Contract ID	Contract Name	Preparer	Date	Notes
[ProjectNumber]	[ProjectName]	[ProjectManagerName]		

Contract Section Activity ID	Technical Specification Reference / Version Date	Type/Description of Submittal	Version /Date	Required Submittal Date	Date Submitted to Customer	Required Customer Approval Date	Customer Approval Date

I. PROJECT QUALITY SPECIFICATIONS

Fulfilling customer contract expectations is a primary objective of the [CompanyName] Quality System. To ensure that customer expectations will be fulfilled, [CompanyName] clearly defines the requirements for each contract before it is approved.

The Project Manager ensures that the information in customer contracts clearly defines customer expectations and that the necessary details are provided to set requirements for fabrication and Installation.

[CompanyName] personnel and subcontractors and suppliers are accountable for compliance to standards-based written specifications.

To achieve expectations reliably and consistently, specifications are clearly spelled out, not only for results but also for processes. Specifications apply to materials, work steps, qualified personnel and subcontractors and suppliers, safe work rules, and environmental work conditions.

Standards ensure that results are specified rather than left to discretionary practices.

All [CompanyName] fabrication and Installation activities comply with generally accepted good workmanship practices and industry standards.

COMPLIANCE WITH INDUSTRY WELDING STANDARDS

Codes that may apply to this project include those listed below.

Description	Reference Standard No.	Reference Standard Title
Minimum spacings and edge distances for screws	AISI SG02-KIT	North American Specification for the Design of Cold-Formed Steel Structural Members
Qualifying Welders and Procedures	CSA W47.1	Certification of Companies for the fusion welding of steel
Qualifying Welders and Procedures	CSA W55.3	Certification of companies for resistance welding of steel and aluminum
Qualifying Welders and Procedures	CSA W186	Welding of reinforcing bars
Qualifying Welders and Procedures	CSA W47.2	Certification of Companies for the fusion welding of aluminum”
Welded fabrication & techniques/Weld Design	CSA W59	Welded steel construction
Welded fabrication & techniques/Weld Design	CSA W59.2	Welded aluminum construction
Welding Consumables Standard	CSA W48	Filler Metals and Allied Materials for Metal Arc Welding
Installation of bracing and permanent bracing and bridging	CFSEI	Field Installation Guide for Cold-Formed Steel Roof Trusses
Framing and reinforcing openings through a steel deck	SDI DDP	Deck Damage and Penetrations
Welding Safety Standard	CSA W117.2	Safety in welding, cutting, and allied processes

L. INSPECTIONS AND TESTS

INSPECTION OF WELDING WORK

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 applicable Welding Code(s) or Specification(s) as specified in the detail drawings; and that no unspecified welds have been added without the approval of the contract Engineer.

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 endure that the applicable requirements of the Welding Code(s) or Specification(s) are met.

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 the welding code are met. Other acceptance criteria, different from those described in the applicable Welding Code(s) or Specification(s) 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.

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.

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

The Inspector will record inspection results on the Visual Weld Inspection Report or other form if approved by the contract Engineer.

An example of the Visual Weld Inspection Report is included in the Forms section at the end of this Manual.

CONTROL OF INSPECTION, MEASURING, AND TEST EQUIPMENT

Inspection, measuring, and test equipment that will be controlled, calibrated, and maintained.

The Quality Manager evaluates the project requirements and determines if there are measuring devices that require controls to assure quality results.

For each type of device, the Quality Manager identifies:

- Restrictions for selection
- Limitations on use.
- Calibration requirements including the frequency of calibration. All calibrations must be traceable to national measurement standards.

When a measurement device is found not to conform to operating tolerances, the Quality Manager validates the accuracy of previous measurements.

IDENTIFICATION OF QUALITY INSPECTED WORK TASKS

A listing of project work tasks is included on the Quality Control work task List and included as an exhibit in this subsection.

REQUIRED INSPECTIONS FOR EACH WORK TASK

Each work task is subject to a series of inspections before, during, and at completion as described below. Results of inspections are recorded.

PREPARATORY SITE INSPECTION

The 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 task to begin
- Identifies potential problems

TASK-READY INSPECTIONS

For each work task, the Superintendent 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.

WORK IN PROCESS QUALITY INSPECTIONS

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

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

WORK TASK COMPLETION QUALITY 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.

DAILY QUALITY CONTROL REPORT

The Superintendent records a summary of daily work activities. The report will include:

- Schedule Activities Completed
- General description of work activities in progress.
- Problems encountered, actions taken, problems, and delays
- Meetings held, participants, and decisions made
- Subcontractor and Supplier and Company Crews on site
- Visitors and purpose
- General Remarks
- Improvement Ideas
- Weather conditions

[CompanyName]
Quality Controlled Work Task List

Project ID	Project Name	Preparer	Date
[ProjectNumber]	[ProjectName]		

Project Work Tasks / Contract Section	Quality Controlled work task	Method for identification of Approved Inspection Status

[CompanyName]
Visual Weld Inspection Report

Report ID #	Unique Part ID (Serial #, Shop order, or batch number)	Project ID	Project Name	Drawing # & Rev.	Date of Inspection

Procedure and Acceptance Criteria / Ref#	Inspection Result Pass/Fail	Nominal	Actual	Tolerance	Comments

Final acceptance of completed work (sign and date)

Inspector Sign and Date	Supervisor Sign and Date

[CompanyName]
Daily Production Report

Project ID	Project Name	Preparer*/Date
[ProjectNumber]	[ProjectName]	

* On behalf of the contractor, I certify that this report is complete and correct and equipment and material used, and work performed during this reporting period is in compliance with the contract drawings and specifications to the best of my knowledge except as noted in this report.

	Description
Job-ready and WIP Inspections (Active work tasks)	
Work Tasks Completion Inspections	
Sampling/Tests Performed	
Nonconformance Reports	
Problems encountered, actions taken, problems, and delays	
On Site Subcontractors and Suppliers, Company Crews, and Visitors	
Meetings held and decisions made	
General Remarks and improvement ideas	
Weather conditions	Temperature: Low: _____ F High:_____F Precipitation: ❑ No ❑ Yes, type and amount: _____

[CompanyName]
Work Task Inspection Form

Work Task :		
Project: Id# [ProjectNumber]	Project Name: [ProjectName]	Subcontractor and Supplier Company ID/Name:
Location/Area:	Reference drawing version #:	Crew ID/Name

Compliance Verification	**Heightened Awareness Checkpoints**
☐ Compliance with initial job-ready requirements ☐ Compliance with material inspection and tests ☐ Compliance with work in process first article inspection requirements ☐ Compliance with work in process inspection requirements ☐ Compliance with work task completion inspection requirements ☐ Compliance with inspection and test plan	☐ [Insert items identified at project startup and preparatory meetings] ☐ ☐ ☐ ☐

Production Notes:

Reported Nonconformances:

Verification of Work Task Completion (sign and date)

Subcontractor and Supplier Sign and date*: Work task verified complete to specifications (sign and date)	
Project Superintendent Sign and date*: Work task verified complete to specifications (sign and date)	
Project Superintendent score subcontractor/crew performance and feedback notes	**Quality:** 5 4 3 2 1 **Safety:** 5 4 3 2 1 **Delivery:** 5 4 3 2 1
Quality Manager Sign and date*: Work task verified complete to specifications (sign and date)	
Quality Manager score quality performance and feedback notes	**Quality: 5 4 3 2 1**

* On behalf of the contractor, I certify that this report is complete and correct and equipment and material used, and work performed during this reporting period is in compliance with the contract drawings and specifications to the best of my knowledge except as noted in this report.

N. CONTROL OF CORRECTIONS AND NONCONFORMANCES

Should a problem occur in the quality of work, we systematically contain the issue and quickly make corrections. Our first action is to clearly mark the item by tape, tag, or other easily observable signal to prevent inadvertent cover-up.

Then we expedite a corrective action that brings the workmanship or material issue into conformance by repair, replacement, or rework. Previously completed work is reinspected for similar nonconformances. In the event that we cannot correct the item to meet contract specifications, the customer will be notified, and customer approval of corrective actions is required before proceeding.

Fixing problems found is not sufficient. [CompanyName] systematically prevents recurrences to improve quality. First enhanced controls and management monitoring are put into place to assure work proceeds without incident. Then using a structured problem-solving process, [CompanyName] identifies root causes and initiates solutions. Solutions may involve a combination of enhanced process controls, training, upgrading of personnel qualifications, improved processes, and/or the use of higher-grade materials. Follow-up ensures that a problem is completely resolved. If problems remain, the process is repeated.

Nonconformances and their resolution are recorded on a Nonconformance Report form. A Nonconformance Report form exhibit is included in this subsection.

MARKING OF NONCONFORMANCES AND OBSERVATIONS

When the Quality Manager, Superintendent, inspector, or customer identifies a nonconformance or an observation, the item is quickly and clearly marked by tape, tag, or other easily observable signal to prevent inadvertent cover-up.

CONTROL THE CONTINUATION OF WORK

After the item is marked, the Superintendent determines if work can continue in the affected area:

CONTINUE WORK: When continuing work does not adversely affect quality or hide the defect, work may continue in the affected area while the disposition of the item is resolved. The Superintendent may place limitations on the continuation of work.

STOP WORK ORDER: When continuing work can adversely affect quality or hide the defect, work must stop in the affected area until the disposition of the item resolved. The Superintendent identifies the limits of the affected area. The Superintendent quickly and clearly identifies the boundaries of the stop work area.

RECORDING OF NONCONFORMANCES

If nonconformances or observed items exist by the work task completion inspection, the Superintendent or inspector records the nonconformances on a nonconformance report.

The Superintendent sends the nonconformance report to the Quality Manager.

QUALITY MANAGER DISPOSITION OF NONCONFORMANCE REPORTS

When the Quality Manager receives a Nonconformance Report, he or she makes an assessment of the affect the reported nonconformance has on form, fit, and function. The Quality Manager may assign a disposition of either:

REPLACE: The nonconformance can be brought into conformance with the original specification requirements by replacing the nonconforming item with a conforming item.

REPAIR: The nonconformance can be brought into conformance with the original requirements through completion of required repair operations.

REWORK: The nonconformance can be made acceptable for its intended use, even though it is not restored to a condition that meets all specification requirements. The Quality Manager may specify standards that apply to the completion of rework. Rework nonconformances must be approved by the customer.

USE AS-IS: When the nonconforming item is satisfactory for its intended use. Any use as-is items that do not meet all specification requirements must be approved by the customer.

CORRECTIVE ACTIONS

The Superintendent verifies that corrective actions eliminate the nonconformance to the requirements of the original specifications or as instructed by the disposition of the nonconformance report, and then removes, obliterates, or covers the nonconformance marker.

Furthermore, the Superintendent ensures that previously completed work is reinspected for similar nonconformances and corrective actions are taken to avert future occurrences (see section 12.3 Corrective Actions).

CONTROL OF CORRECTIVE ACTIONS

When a nonconformance is found, the Superintendent ensures that:

- Previously completed work is reinspected for similar nonconformances
- Corrective actions are taken to avert future occurrences

The Quality Manager identifies requirements for corrective actions with respect to frequency, severity, and detectability of quality nonconformances items found during and after completion of work activities.

When a solution requires changes to [CompanyName] quality standards, the Quality Manager makes modifications as necessary by making changes to:

- Material specifications
- Personnel qualifications
- Subcontractor and Supplier qualifications
- Company standards
- Inspection processes

CORRECTIVE ACTION TRAINING

The Superintendent initiates corrective action training to address quality nonconformances. Personnel and subcontractors and suppliers performing or inspecting work participate in the training.

Heightened awareness during quality inspections verifies and documents compliance with the corrective action improvement items. A qualified Superintendent inspects corrective actions during regular quality inspections and records observations on the quality inspection form.

The Superintendent notifies affected subcontractors and suppliers of selected preventive action training requirements.

The Superintendent evaluates the effectiveness of the improvements. The Quality Manager reviews improvement results recorded on quality inspection records and monthly field reviews. When the Quality Manager determines that the improvement actions are effective, the item is no longer treated as a preventive action.

NONCONFORMANCE PREVENTIVE ACTIONS

Fixing problems found during quality inspections is not sufficient. Systematic prevention of recurrences is essential for improving quality.

[CompanyName] makes changes to solve the problem. Solutions may involve a combination of enhanced process controls, training, upgrade personnel qualifications, improved processes, or use of higher-grade materials.

Follow-up ensures that a problem is completely resolved. If problems remain, the process is repeated.

[CompanyName]
Nonconformance Report

Nonconformance Report Control ID	Project ID	Project Name
	[ProjectNumber]	[ProjectName]
Preparer Signature/ Submit Date		**Quality Manager Signature / Disposition Date**
Description of the requirement or specification		
Description of the nonconformance, location, affected area, and marking		
Disposition	☐Replace ☐ Repair ☐ Rework ☐ Use As-is	
	Approval of disposition required by customer representative? Yes ☐ No ☐ Customer approval signature /date: _____	
Corrective Actions	☐Corrective actions completed Name/Date:_____ Customer acceptance of corrective actions required? Yes ☐ No ☐ Name/Date:_____	
Preventive Actions		
	☐Preventive actions completed Name/Date:_____	

P. PROJECT QUALITY RECORDS AND DOCUMENTS

On this project, [CompanyName] will keep specific documents and records of quality activities that occur throughout the duration of the project.

Project quality records will be stored in the project field office. As a backup, copies of records will be held offsite. The exact location will be determined at quality coordination meeting.

A Record of current version of project documents is listed on the Document Control Form included as an exhibit in this subsection. When new version approved, the Quality Manager updates the Project Document Control form.

A list of project records is maintained on the Project Records Control Form included as an exhibit in this subsection.

[CompanyName]
System Document Control Form

Project ID	Project Name	Responsible Person				
[ProjectNumber]	[ProjectName]					

Document Title	Version Identifier	Approved by	Approval Date	Document Distribution (Name / Organization)	Method of Control (hard copy or computer file)	Document Return Date
Quality Manual	Version Date	Quality Manager	October 12, 2014	Field Office	Computer file	n/a
Quality Standard Operating Procedures	Version Date	Quality Manager	October 12, 2014	Field Office	Computer file	n/a
Quality Assurance/Quality Control Plan	Version Date	Quality Manager	October 12, 2014	Field Office	Computer file	n/a
Drawings	Version Date	Quality Manager	October 12, 2014	Field Office	Computer file	n/a
Specifications	Version Date	Quality Manager	October 12, 2014	Field Office	Computer file	n/a
Inspection Procedures	Version Date	Quality Manager	October 12, 2014	Field Office	Computer file	n/a
Test Procedures	Version Date	Quality Manager	October 12, 2014	Field Office	Computer file	n/a
Operational Procedures	Version Date	Quality Manager	October 12, 2014	Field Office	Computer file	n/a
QA Program and Procedures	Version Date	Quality Manager	October 12, 2014	Field Office	Computer file	n/a

[CompanyName]
Project Records Control Form

Project ID	Project Name	Responsible Person				
[ProjectNumber]	[ProjectName]					

Document/Record Title	Version Identifier	Approved by	Approval Date	Document Distribution (Name / Organization)	Method of Control (hard copy or computer file)	Document Return Date

Q. Quality Assurance Surveillance

We manage overall project performance by setting performance objectives, measuring actual performance, and managing performance improvements. Overall performance objectives will be designed to extend our customer's performance work objectives into [CompanyName] operations. Each objective will have specific and verifiable measures.

Project Quality Performance Surveillance

We expect to measure quality performance in the following areas:

- Customer satisfaction through customer feedback, surveys, complaints, and quality assurance surveillance reports.
- On-time task completion as measured by a monthly on-time performance assessment
- Contract administration compliance as measured by a monthly project contract administration assessment
- Safety Plan compliance as measured by safety violations and a monthly safety assessment
- Quality Plan conformance as measured by a monthly Quality Plan assessment

Every month, [CompanyName] holds a performance improvement meeting with the participation of key project and customer personnel. They review past performance, project quality risks, and quality issues. An action plan is set for improvement and progress is reviewed at the next meeting.

Project Audit Plan

The Quality Manager identifies the frequency of project quality audit that will be conducted during the project and the job position that will conduct the audits. Considerations include:

- The size of the project
- The complexity of processes and their interactions
- The duration of the project

Project Audit Requirements

The Quality Manager conducts monthly Project Quality System audits that verify proper operation of the Quality System on a project. At least monthly, the Quality Manager audits:

- Quality system framework
- Quality system management and responsibilities
- Customer contract specifications
- Design control
- Project-specific quality standards
- Project purchasing
- Process control plans
- Inspections and tests
- Nonconformances and corrective actions
- Preventive actions
- Quality records and documents

The Quality Manager takes corrective actions to ensure compliance with Quality System requirements. The effectiveness of changes is then evaluated and documented.

[CompanyName]
Project Quality System Audit Form

Project ID	Project Name	Auditor	Date
[ProjectNumber]	[ProjectName]		

Review Topics:
(Place check mark next to each item audited)

- ❑ Customer satisfaction
- ❑ On-time task completion
- ❑ Contract administration
- ❑ Safety compliance
- ❑ Quality risk planning and mitigation
- ❑ Performance improvement results
- ❑ Action plan for improvements

Quality Plan Conformance:

- ❑ Project QC Personnel
- ❑ Project Quality Coordination and Communication
- ❑ Employee Qualifications
- ❑ Qualification of subcontractors and suppliers
- ❑ Project Quality Specifications
- ❑ Testing Plan
- ❑ Test Reports
- ❑ Work Task Quality Inspections
- ❑ Daily Quality Control Report
- ❑ Control of Punch Items and Nonconformances
- ❑ Project Records and Documents

Nonconformance Notes and observations

Action plan for improvement

Follow-up results and date

[CompanyName]

Fabrication and Installation

Quality Manual

Operating Policies of the
[CompanyName] Quality System

Management acceptance

This Quality Manual has been reviewed and accepted.

Endorsed By: (Name / Title)	[PresidentName], President		
Signature:	*[PresidentName]*	Date:	[Date]
Version	1.0	Notes	Initial Issue

QUALITY MANUAL

TABLE OF CONTENTS

4. CONTRACT SPECIFICATIONS

DEFINE CUSTOMER QUALITY EXPECTATIONS

4.1. OVERVIEW

Fulfilling customer contract expectations is a primary objective of the [CompanyName] Quality System. To ensure that customer expectations will be fulfilled, [CompanyName] clearly defines the requirements for each contract before it is approved.

The Project Manager ensures that the information in customer contracts clearly defines customer expectations and that the necessary details are provided to set requirements for fabrication and Installation.

4.2. CONTRACT TECHNICAL SPECIFICATIONS

The Project Manager obtains contract technical specifications from the customer.

For each specific contract, The President identifies supplemental technical specifications on the Project Quality Assurance/Quality Control Plan when they are not otherwise specified by the contract or the approved drawings. Superintendents have jobsite access to contract technical specifications for the fabrication and Installation activities they supervise.

All [CompanyName] activities comply with the contract technical specifications.

4.3. CONTRACT DRAWINGS

The Project Manager obtains customer supplied drawings that have been approved by local government regulators. Superintendents have jobsite access to approved architectural drawings for the fabrication and Installation they supervise.

All [CompanyName] activities comply with the drawing details and specifications cited in the drawings.

4.3.1.1. AS-BUILT RED-LINE DRAWINGS

As the project progresses, the Superintendent will mark the original design drawings to indicate as-built conditions including changes to specified materials, dimensions, locations, or other features.

4.4. CONTRACT SUBMITTALS

The Quality Manager prepares submittals that provide additional details of how [CompanyName] plans to carry out quality-related aspects of the customer contract, contract technical specifications, and contract drawings and reporting of quality records to the customer.

The Quality Manager lists, schedules, and approves all quality-related submittals that are required by the project including submittals prepared by subcontractors and suppliers. The Quality Manager must review all submittals for compliance with the requirements of the [CompanyName] Quality System. The Quality Manager must sign approval of each contract submittal.

[CompanyName] extends compliance to contract specifications to all customer approved submittals. All [CompanyName] activities comply with customer approved submittals.

4.4.1. CONTRACT SUBMITTAL SCHEDULE

The Project Manager identifies submittals that apply to a specific contract and when they should be submitted, including:

- Contract requirement reference (if applicable)
- Submittal type: Shop drawing, product data, quality inspection and test plan, request for information, or allowances and unit prices
- Description
- Due date for submission to customer by [CompanyName]
- Due date for approval by the customer. Due dates may be a number of days after a project plan milestone.
- Approval date

4.4.2. SHOP DRAWING SUBMITTALS

The Project Manager or Purchasing and Estimating Manager prepare shop drawing submittals that supplement contract drawings. Shop drawings are required when additional details are necessary for fabrication or installation. The following information is included, as applicable:

- Dimensions established by field measurement
- Relationships to adjoining fabrication
- Identification of products and materials
- Fabrication and installation drawings
- Diagrams showing locations of field-installations
- Shop fabricated manufacturing instructions
- Templates and patterns
- Design calculations
- Compliance with specified standards
- Seal and signature of professional engineer if required
- Additional requirements as specified in the contract, contract technical requirements, or contract drawings.

[CompanyName] extends contract specifications to include customer approved shop drawings.

4.4.3. PRODUCT DATA SUBMITTALS

The Project Manager prepares product data submittals that consist of the manufacturer's product information. The information included in this submittal is:

- Manufacturer, trade name, model or type number
- Description
- Intended use
- Size and physical characteristics including drawings when applicable
- Finish and color characteristics
- Product manufacturer's installation instructions, when applicable
- Additional requirements as specified in the contract, contract technical requirements, or contract drawings.

4.4.4. Allowances and Unit prices Submittals

When customer contracts specify allowances and unit prices that the customer will select after the contract is awarded, the Project Manager prepares an allowance and unit price submittal for customer approval.

When a customer selects or approves an allowances and unit prices, the customer indicates the allowance and unit price selection on the signed submission return.

[CompanyName] extends compliance to contract specifications to customer approved allowances and unit prices.

4.4.5. Request for Information (RFI) Submittals

The Project Manager submits a request for additional information to the customer when errors are found or when required information is not contained in the contract, contract technical specifications, or contract drawings.

Should any number of contract technical specifications or contract drawings result in conflicting requirements, the Quality Manager submits a request for information to the customer to select the standard that applies.

[CompanyName] extends compliance to contract specifications to customer requests for information.

4.4.6. Change Order Submittals

Contract requirements or contract technical specifications may require a change after the contract is awarded. The Project Manager submits the change order to the customer for approval, including any contract price adjustments.

When a customer approves a change order, the customer signs the submission return.

[CompanyName] extends contract specifications to include customer approved change orders.

4.4.7. Mock-up Submittals

The Superintendent prepares mock-up submittals as required by contract. Additionally, the Quality Manager specifies mock-up requirements when they are necessary to ensures customer expectations are clearly identified.

The Quality Manager ensures that each mock-up demonstrates specific elements of form and/or function, and that they are specified in the submittal documents.

[CompanyName] extends contract specifications to include customer approved mock-up submittals.

4.5. Customer Submittal Approval

The Project Manager obtains the signature of an authorized customer representative on the submittal form.

[CompanyName] extends compliance to contract specifications to customer approved submittals.

Work in the affected area of a pending submittal requirement does not start until the customer approves the submittal.

4.6. CONTRACT WARRANTY

The Project Manager ensures that customer contracts clearly specify warranty coverage including:

- Scope
- Starting date
- Duration

The Project Manager ensures that customer contracts also clearly specify owner responsibility for:

- Restrictions of use
- Maintenance requirements
- Exclusions for customer supplied materials or equipment
- Timely notification of problems

4.7. CONTRACT REVIEW AND APPROVAL

The President conducts customer contract reviews to ensure that:

- Customer requirements and specifications are complete
- Customer requirements and specifications are compatible with the relevant regulations, [CompanyName] quality standards, and Quality System requirements
- [CompanyName] has the capability to deliver the completed project in the time allotted

Before fabrication and Installation begins, the President makes sure that all contract requirements are clearly understood, all discrepancies are resolved, and all requirements are agreed upon. Once these requirements are met, the President signs the contract.

5. DESIGN REVIEW AND CONTROL

5.1. OVERVIEW

[CompanyName] ensures that the designs have well defined specifications, stakeholders have input as the designs progress, qualified personnel carry out the design work, and final designs are verified to meet all contract and regulatory requirements. Design control applies to architectural and engineering design. Process controls apply to approved designs that have additional detail provided by shop drawings, product selections, or requests for information.

5.2. DESIGN INPUT REVIEW

The Quality Manager ensures that the information in design inputs clearly defines customer expectations and that the necessary details are provided to set requirements for design.

The Quality Manager obtains design specifications from the customer and conducts a customer design input review to ensure that:

- Customer design input requirements and specifications are complete
- Design process review milestones are specified when necessary
- Customer design output requirements and specifications are complete for review milestones as well as the completed design
- Customer design requirements and specifications are compatible with the relevant regulations, [CompanyName] quality standards, and Quality System requirements
- [CompanyName] has the capability to deliver the completed design in the time allotted

The Quality Manager identifies supplemental design specifications that supplement customer specifications when they are needed to ensure a quality design.

Before design work begins, the Quality Manager makes sure that all design requirements are clearly understood, all discrepancies are resolved, and all requirements are agreed upon. Once these requirements are met, the Quality Manager approves the design input.

The Quality Manager ensures that design input documents are verified by qualified personnel. The person responsible must verify:

- Design input specification are approved by a customer authority
- Design input specifications are complete
- Design input requirements and specifications are compatible with the relevant regulations, [CompanyName] quality standards, and Quality System requirements
- [CompanyName] has the capability to deliver the completed project in the time allotted

5.3. PROJECT DESIGN QUALITY ASSURANCE/QUALITY CONTROL PLAN

The Quality Manager prepares a project-specific design review plan that includes:

- A listing of company and customer stakeholders, reviews they will participate in, and how their input will be used to amended design requirements. The project organization chart Includes interfaces between various groups and personnel for producing and reviewing the design.
- Design output deliverables, including required drawings, and engineering calculations
- Identification of who will perform design output verification activities and the criteria they will use.

- The Quality Manager reviews the design process project plan with the customer and other interested parties. The customer approves the plan after any discrepancies are resolved and the plan is agreed upon. Design work may begin only after the customer approves the plan.

5.4. Design Progress Reviews

The Quality Manager holds review meetings with interested parties at key design milestones. The Quality Manager identifies the key design milestones, the design output required for the review, and a list of reviewers.

Two design reviews are required: one is an input design review, and the other is the final design review. The Quality Manager identifies other design reviews necessary to ensure a quality result. Design reviews may be specified at the completion of design work tasks, site assessments, preliminary engineering, preliminary design, percentage completion stages, and on a calendar schedule.

The Quality Manager identifies customer and company reviewers appropriate for each design milestone. Reviewers may include persons that have a stake in any of the following: quality, safety, constructability, scheduling, maintenance, purchasing, estimating, or cost control.

At each review, the Quality Manager reviews reviewer recommendations for amendments to the design specifications. The Quality Manager submits selected design amendments for customer approval. Customer approved design amendments are design requirements.

5.5. Design Output Verification and Approval

The Quality Manager ensures that design output documents are verified by qualified personnel independent of the person performing the work. The person responsible must verify:

- The completed design meets requirements specified by the design input
- The completed design meets approved design amendments
- Engineering calculations are correct
- Completeness of records per the Design Project Quality Assurance/Quality Control Plan including inputs, reviews, communications, and verification activities.

8. PROCESS CONTROLS

HOW WORK IS CARRIED OUT

8.1. OVERVIEW

The fabrication and Installation process plan defines how project work is to be done and approved for the overall project. The fabrication and Installation process plan is communicated to all key personnel, subcontractors and suppliers in a startup meeting. As the project proceeds, work task plans provide additional details of how each individual work task is carried out. Work tasks planning meetings are used to communicate expectations of the work task plan to key personnel responsible for carrying out the work task.

8.2. PROJECT STARTUP AND QUALITY CONTROL COORDINATION MEETING

Prior to the commencement of work, the Project Manager holds a meeting to discuss and coordinate how project work will be performed and controlled. Key personnel from [CompanyName], subcontractors and suppliers meet to review expectations for project quality results as well as quality assurance and quality control policies and procedures including:

- Key requirements of the project
- The Project Quality Assurance/Quality Control Plan
- Required quality inspections and tests
- The project submittal schedule
- Quality policies and heightened awareness of critical quality requirements
- Project organization chart and job responsibilities
- Methods of communication and contact information
- Location of project documents and records

8.3. PREPARATORY PROJECT QUALITY ASSURANCE/QUALITY CONTROL PLAN PLANNING

8.3.1. WORK TASK REQUIREMENTS REVIEW

In preparation for the start of an upcoming work task, the Superintendent reviews an integrated and coordinated set of documents that collectively define quality requirements for the work task including:

- Objectives and acceptance criteria of the work task
- Quality standards that apply to the work task
- Work instructions, process steps, and product installation instructions that apply to the work task
- Shop drawings
- Submittals
- Tools and equipment necessary to perform the work
- License, certification, or other qualification requirements of personnel assigned to work
- Required records of the process and resulting product
- The subcontractor contracted to perform the work, if applicable
- Customer contract requirements
- Required quality inspections and tests
- Method for clearly marking nonconformances to prevent inadvertent use
- Location of quality system records and documents

- Personnel training

8.3.2. PREPARATORY SITE INSPECTION

The Superintendent also 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

8.3.3. WORK TASK PREPARATORY QUALITY PLANNING MEETINGS

Prior to the start of a work task, the Superintendent conducts a meeting with key company, subcontractor personnel responsible for carrying out, supervising, or inspecting the work, and interested customer representatives.

During the meeting, the Superintendent communicates the work task quality requirements and reinforces heightened awareness for critical requirements. Topics for a work task quality plan meeting include:

- Conflicts that need resolution
- Required quality documents and a verification of availability to personnel carrying out, supervising, or inspecting the work task
- Record keeping requirements and the availability of necessary forms
- Review methods and sequences of installation
- Special details and conditions
- Standards of workmanship
- Heightened awareness of critical quality requirements
- Quality risks
- Work tasks quality inspection form

8.4. WEEKLY QUALITY PLANNING AND COORDINATION MEETINGS

The Superintendent conducts a meeting with key company, subcontractor and supplier personnel responsible for carrying out, supervising, or inspecting the work, and interested customer representatives.

The meeting is held on a nominal weekly schedule. During the meeting, the Superintendent facilitates coordination among the participants, communication among the participants, and reinforces heightened awareness for critical requirements.

The Superintendent maintains a record of the meeting event on the Daily Quality Control Report.

8.5. PROCESS CONTROL STANDARDS

8.5.1. CONTROL OF CUSTOMER PROPERTY

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.

8.5.2. JOB-READY START WORK STANDARDS

Work on a work task starts only when conditions do not adversely impact quality, comply with government regulations, contract technical specifications, industry standards, or product installation instructions.

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

8.5.3. WORK IN PROCESS STANDARDS

Work is conducted only when conditions do not adversely impact quality; comply with government regulations, contract technical specifications, industry standards, or product installation instructions.

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

8.5.4. PRESERVATION 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 so as to maintain so that compliance with project requirements and standards. This includes handling, storage, protection from natural elements, and reducing risks of damage.

Completed work is protected from damage as specified by government regulations, contract technical specifications, industry standards, or product installation instructions.

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

8.5.5. MATERIAL STORAGE

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

Delivery of materials will be planned according to the work progress to minimize storage on site, where there are higher possibilities of damages and deterioration of materials.

Stored materials will be segregated to prevent cross contamination and limit losses should a delivery be rejected.

The Superintendent surveys stored materials during daily jobsite reviews and identifies any material that have incurred damage or otherwise become defective and therefore unfit for use.

8.5.6. CONTROLLED USE OF MATERIALS

The Project Manager ensures that contracts and purchase orders are awarded only to outside organizations qualified to perform the work task and/or supply materials as required for the specific project.

Only approved materials are used in the fabrication and Installation process. Only approved materials are specified in purchase and/or subcontracts.

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

When customer-supplied materials are lost, damaged, or otherwise found unsuitable for use, the Superintendent reports such findings to the customer.

When subcontractor–supplied materials are damaged or otherwise found unsuitable for use, the Superintendent reports such findings to the subcontractor.

The Superintendent ensures that fabrication and Installation use 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 (see section 2.1.3.6).

8.5.6.1. Filler Materials Controls

Welders must verify the filler material meets specification and welding procedure requirements before welding.

Filler materials of different filler metal types, sizes and heat numbers (if applicable) will be labeled and stored in 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 CSA W48 “Filler Metals and Allied Materials for Metal Arc Welding” standard or filler metal specification.

Filler material issuance and return log sheets will be used to control time sensitive filler materials.

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.

8.5.6.2. Controlled Product Use and Installation

[CompanyName] fabrication and Installation activities conform to manufacturers’ product use and installation instructions that apply to the fabrication and Installation process.

When installing a product, the Superintendent has access to all applicable product installation instructions.

8.6. Daily Quality Control Report

The Superintendent records a summary of daily work activities. The report will include:

- Schedule Activities Completed
- General description of work activities in progress.
- Problems encountered, actions taken, problems, and delays
- Meetings held, participants, and decisions made
- Subcontractor and Supplier and Company Crews on site
- Visitors and purpose
- General Remarks
- Improvement Ideas
- Weather conditions

8.7. Monthly Quality Control Report

When a monthly quality control report is required by the Project Quality Plan, the Superintendent records a monthly status report. The report includes:

- A summary of work completed and work in progress
- Outstanding issues
- Issues resolved during the reporting period
- Outstanding potential change orders
- Project status with current project costs and estimated completion date
- A cost analysis summarizing actual costs to date and estimated future costs
- Project pictures as appropriate

10. NONDESTRUCTIVE EXAMINATION

10.1. OVERVIEW

Nondestructive Examination (NDE) required for code compliance is specified on the drawings or in the contract specifications, and is performed by a qualified NDE subcontractor, whose written procedures, personnel qualifications and certifications and equipment calibration records have been reviewed and approved by the Quality Manager. Some NDE activities (PT, MT, and VT) may be performed in-house after approval of NDE procedures and personnel qualifications by the Quality Manager.

10.2. SUBCONTRACTED NDE PROCEDURES

All NDE performed by the NDE subcontractor is performed using written procedures that are approved by a Level III Examiner qualified in the method. The Quality Manager will review and approve all NDE Subcontractor personnel.

10.3. SUBCONTRACTOR NDE PERSONNEL

The Quality Manager will review and approve qualification records after he has assured himself that subcontracted NDE personnel used on code work have the training, experience, qualifications and are certified for the methods in accordance with their employers Written Practice and the Code.

NDE personnel qualification records are available for review by the Welding Inspector, who may request re-qualification if he has reason to question an examiner's ability to perform the examination.

Copies of the following Subcontractor NDE personnel qualification and certification records for all examiners performing Code NDE are kept on file by the Quality Manager, and made available for review:

- Name, level of certification and examination method.
- Educational background and experience of examiner.
- Statement indicating satisfactory completion of training in accordance with the employer's written practice
- Results of annual visual acuity examination.
- Copies of current examinations, or documentation or successful completion of examinations in each method qualified.
- Composite grades, or documented grades for each of the above examinations.
- Dates of each certification and or recertification in each method qualified, and dates of assignment to NDE.
- Signature of the Employer's designated representative.

10.4. NDE RECORDS

All reports of NDE, including RT film, are reviewed and accepted by a qualified NDE subcontractor and the Quality Manager before submittal to the Welding Inspector for acceptance.

NDE reports, including RT film are filed by the Quality Manager for retention.

11. CALIBRATION OF MEASUREMENT AND TEST EQUIPMENT

11.1. OVERVIEW

The Quality Manager evaluates the project requirements and determines if there are measuring devices that require controls to assure quality results.

For each type of device, the Quality Manager identifies:

- Restrictions for selection
- Limitations on use.
- Calibration requirements including the frequency of calibration. All calibrations must be traceable to national measurement standards.

When a measurement device is found not to conform to operating tolerances, the Quality Manager validates the accuracy of previous measurements.

11.2. CALIBRATION PROCEDURE

All measurement, examination and test equipment are identified by marking the item or its container with a unique serial number (I.D. number).

The Quality Manager is responsible for maintaining all equipment in calibration, unless out of service and clearly marked “NOT CALIBRATED-DO NOT USE”.

Calibration may be performed by an outside testing agency which provides certified records of calibration and has suitable standards whose accuracy is traceable to N.I.S.T. standards or similar.

The frequency of calibration is as determined from the manufacturer’s recommendations, or experience with the instrument.

Pressure gauges are calibrated against a dead weight tester or a calibrated master gauge yearly and whenever there is reason to question their accuracy.

Master gauges are recalibrated at a frequency of one year.

Calibration of micrometers or calipers will be performed using a known thickness block every (3) years or whenever there is reason to question the accuracy.

11.3. CALIBRATION RECORDS

Each calibrated instrument will be logged on the Calibration Record, maintained by the Quality Manager in the calibration file. The Calibration Record shall include a description of the equipment, unique number on the gauge, date calibrated, date due, and identification of the person (testing agency when applicable) performing the calibration.

11.4. VERIFICATION AND VALIDATION OF WELDING MACHINES

At least annually, The Quality Manager ensures that welding machines are verified as specified by the manufacturer. At a minimum, the following will be checked:

- Condition of volt meters, amp meters and gas flow meters (if equipped)
- Condition of cables
- Condition of hoses (if equipped)
- Condition of wire feeders (if equipped)

11.5. CALIBRATION IDENTIFICATION

The Quality Manager ensures that a calibration identification label or tag is securely fixed to each piece of measuring and test equipment that will be controlled, calibrated and maintained.

The calibration identification label or tag will include the item serial number, date of last calibration, identification (initials or employee ID) of the person who performed the calibration, and due date of the next calibration. If the equipment is too small to place a sticker on it, the container box will have the calibration sticker attached to it.

11.6. DISCREPANT EQUIPMENT

When instruments are found out of calibration or damaged, the QC Inspector tags the item “DO NOT USE UNTIL CALIBRATED”, removes it from the work area and arranges for calibration or replacement.

All Code items checked with such discrepant equipment are nonconforming until the Quality Manager has verified that they meet all Code requirements, or they are retested with accurate instruments.

Traceability is provided by recorded serial numbers of instruments used from examination and inspection records.

14. STORAGE, SHIPPING AND HANDLING

14.1. 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.

16. RECORD AND DOCUMENT CONTROLS

16.1. OVERVIEW

[CompanyName] ensures that quality related documents and records are created, current versions are in use, complete, identifiable, and stored properly.

16.2. QUALITY SYSTEM DOCUMENTS

16.2.1. QUALITY MANUAL

The Quality Manager maintains the [CompanyName] Quality Manual that documents [CompanyName] quality policies. Each policy identifies the titles of personnel responsible.

The Quality Manager ensures that the Quality Manual and documents related to a work task are accessible to personnel performing the work.

The Quality Manager maintains, improves, and updates the manual as necessary. At least annually, the Quality Manager determines if updated versions of standards and product installation instructions are available. If so, the Quality Manager updates the Quality System documentation accordingly.

The President approves revisions to the Quality Manual, then signs and dates the cover.

16.3. DOCUMENT CONTROLS

The Quality Manager assigns a new version number to each version of quality system documents, including the Quality Manual.

The Quality Manager and President control all company-wide quality system documents including:

- Approval of all quality system documents and for adequacy prior to issue or reissue.
- Ensures that applicable documents are available and usable at points of use
- Prevents unintended use of obsolete documents

The Quality Manager controls project-specific quality system documents including:

- Approval of all project quality documents and for adequacy prior to issue or reissue.
- Ensures that applicable documents are available and usable at points of use
- Prevents unintended use of obsolete documents

16.3.1. CONTROL OF SYSTEM DOCUMENTS

The Quality Manager controls documents related to the [CompanyName] Quality System including:

- Quality System Manual
- Quality System Procedures
- Project Management Procedures (including interface and coordination with customers and regulatory agencies with jurisdiction over jobsites)
- Government regulations
- Industry standards
- Procurement specifications

The Quality Manager ensures that records of the distribution of Quality System documents are kept. When new versions are distributed, obsolete versions are destroyed or controlled to prevent inadvertent use.

16.3.2. CONTROL OF PROJECT DOCUMENTS

The Project Manager controls documents related to specific customer contracts including:

- Customer contracts
- Contract technical specifications
- Contract drawings
- Shop drawing submittals and approvals
- Product data submittals and approvals
- Allowances and unit price submittals and approvals
- Requests for information and customer responses
- Subcontracts
- Inspection and test plans

The Quality Manager ensures that records of the distribution of project documents are kept. When new versions are distributed, obsolete versions are destroyed or controlled to prevent inadvertent use.

16.4. RECORD CONTROLS

The Quality Manager verifies records for conformance to the Quality System Requirements and approves all Quality System records.

Records demonstrating conformance with and operation of the Quality System are retrievable for at least five years. The Quality Manager verifies records for conformance to the Quality System Requirements.

16.4.1. QUALITY SYSTEM RECORDS CONTROL

The Quality Manager verifies the completeness, accuracy, and retention of project-specific Quality System records including:

- Annual reviews
- Quality improvement records

16.4.2. PROJECT RECORDS CONTROL

The Quality Manager verifies the completeness, accuracy, and retention of project-specific Quality System records including:

- Inspection and test records
- Quality submittals to the customer
- Project quality system audits
- Field reviews
- Calibration certificates
- Daily log reports
- Incident reports
- Redline drawings
- Qualified personnel approvals
- Qualified subcontractor approvals

- Quality improvement records
- Project Quality records specified by customer contract, or contract technical specifications
- Welding quality records, forms, and reports including:
  - ❑ welder performance qualification records (WPQRs)
  - ❑ welding procedure specifications (WPSs)
  - ❑ procedure qualification records (PQRs)
  - ❑ material test reports (MTRs) (when required by the contract, governing welding code or specification)
  - ❑ nondestructive examination (NDE) reports (when required by the contract, governing welding code, or specification)
  - ❑ nondestructive examination personnel qualification records
  - ❑ weld identification reports (weld mapping) when required
  - ❑ record of final inspection (i.e., traveler, inspection record, check off list)
  - ❑ heat treatment records (when required by the contract, governing welding code, or specification)
  - ❑ receiving material inspection reports
  - ❑ nonconformance reports (NCRs)
  - ❑ calibration records of test equipment
  - ❑ internal quality audit rep

The Quality Manager assigns record control responsibilities and document location that apply to a specific project.

Project Quality Records will be maintained for a minimum of five years or more as specified by project specifications, or by the Quality Manager for a specific project. Project Quality Records will be filed in the project office during the project. After the project is complete, project records will be stored in file storage area of the main office.

17. APPENDIX

17.1. DEFINITIONS OF TERMS

Acceptance - The process of deciding, through inspection, whether to accept or reject a product.

Audit – An audit determines if the quality system is performing as documented and whether the quality system is implemented. An audit consists of a systematic and objective examination to determine whether quality management activities and associated results comply with planned arrangements, and whether these arrangements are implemented effectively and suitably to achieve set objectives.

Certification - Statements by inspectors, officials, engineers, or product manufacturers attesting that product, system or material meets stated specification requirements.

Conformance – An item meets the requirements of relevant specifications, contracts or regulations; also, the state of meeting the requirements.

Contract Project Quality Assurance/Quality Control Plan – See Project Quality Assurance/Quality Control Plan.

Corrective Action – a specific action to resolve a known condition or conditions, which adversely affect quality. Corrective Action must address remedial action to correct the known discrepancy whereas preventive action prevents reoccurrence based on the identified root cause.

Definable feature of work – See Task.

Design Data - Calculations, mix designs, analyses or other data pertaining to a part of work.

Disposition – A statement describing the manner in which a nonconformance is to be resolved.

Experienced - When used with an entity or individual, "experienced" means having successfully completed work similar in nature, size, and extent.

Feature of Work – See Task.

FOW – Feature of Work

Inspection and Test Plan – A record of requirements, frequency and responsibilities for activities such as measuring, examining, testing and gauging one or more characteristics of a product or service, and comparing the results with specified requirements to determine conformity to the Contract Specification. Inspections and tests are detailed in the applicable procedures and results recorded on forms appended to these procedures.

Inspection - The act of examining, measuring, or testing to determine the degree of compliance with requirements.

ISO 10005 – an international standard titled *"Quality Management – Guidelines for Quality Plans"* that specifies required elements of a project-specific quality plan.

ISO 9001 – an international standard titled *"Quality Management System – Requirements"* that specifies required elements of a quality management system.

Mock-up Sample – an assembly or portions of an assembly constructed on the project site that establishes standards by which the ensuring work can be judged. Mockups are constructed to verify selections made

under sample submittals; to demonstrate aesthetic effects and, where indicated, qualities of materials and execution; to review coordination, testing, or operation; to show interface between dissimilar materials; and to demonstrate compliance with specified installation tolerances. Mockups are not Samples.

Nonconformance – Non-fulfillment of a specification which affects form, fit or function and renders the quality of an item or service unacceptable or indeterminate in regard to meeting all relevant specifications. Examples of nonconformance include physical defects, test failures, incorrect or inadequate documentation or deviation from prescribed processing, inspection or test procedures.

Non-conformance Report – A record of the identification, and resolution of a nonconformance.

Product Data - Catalog cuts, illustrations, schedules, diagrams, performance charts, instructions and brochures illustrating size, physical appearance and other characteristics of materials, systems or equipment for some portion of the work.

Observation – Feedback provided to work crews for the purposes of heightened awareness of an item that if not addressed by a completion inspection may result in a nonconformance.

Procedure -- Specified way to perform an activity.

Product Samples - Physical examples of materials, equipment or workmanship that illustrate functional and aesthetic characteristics of a material or product and establish standards by which the work can be judged. Color samples from the manufacturer's standard line (or custom color samples if specified) to be used in selecting or approving colors for the project

Project – Unique process cons1stmg of a set of coordinated and controlled activities with start and finish dates, undertaken to achieve an objective conforming to specific requirements, including the constraints of time, cost and resources.

Project Quality Assurance/Quality Control Plan - A document setting out the specific quality objectives, practices, resources and sequence of activities relevant to a particular Contract or project.

Quality Assurance - Activities, actions, and procedures performed before and during execution of the Work to guard against defects and deficiencies and substantiate that proposed work will comply with requirements.

Quality Audit - A formal review/investigation to determine whether the quality characteristics of a product or service meet the defined quality criteria.

Quality Control – the performance of tasks which ensure that work is performed according to plans and specifications

Quality Manual – Documents consisting of [CompanyName] policies for quality management methods instituted as a company. This manual is copy right 2011CaldreriaQuality. Forms are also part of this manual with step-by-step instructions.

Records - Documentary evidence of the specification of individual items, standards of work, and compliance with the Quality Management System requirements.

Reject – A disposition of a nonconformance for an item unsuitable for its intended purpose and economically or physically incapable of being reworked or repaired.

Repair – A disposition of a nonconformance for an item acceptable for its intended use even though it is not restored to a condition which meets all specification requirements.

Rework – A disposition of a nonconformance for an item that can be brought into conformance with the original requirements through re-machining, reassembling, reprocessing, reinstallation, or completion of the required operations.

Shop Drawings - Drawings, diagrams and schedules specifically prepared to illustrate some portion of the work. Diagrams and instructions from a manufacturer or fabricator for use in producing the product and as aids to integrate the product or system into the project. Shop drawings show how multiple systems and interdisciplinary work will be coordinated

Subcontractor - A company, organization or individual providing a service or product, which may include labor, plant, materials or other facilities or resources

Task – A definable features of work. A task which is separate and distinct from other tasks and has separate control requirements. A task could be identified by different trades or disciplines, or it could be separate phases of work by the same trade. At minimum each section of the specifications is a task; however, there are frequently more than one definable feature under a particular section.

Test Reports - Report signed by authorized official of testing laboratory that a material, product or system identical to the material, product or system to be provided has been tested in accord with specified requirements.

Use-As-Is – A disposition of a nonconformance for an item that will satisfy its intended use, even though it does not meet all design/functional requirements.

Verify - The process of confirming the soundness or effectiveness.