



**Fabrication # j ° j #**  
**h ° (Canadian Standards)**  
**Selected pages (not a complete plan)**

**Part 1: Project-Specific Quality Plan**

**Part 2: Quality Manual**

**Part 3: Submittal Forms**

**Part 4: @ # 7**

**Contact:**

**FirstTimeQuality**

**410-451-8006**

# PROJECT-SPECIFIC WELDING QUALITY PLAN

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## **A. WELD 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.

[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 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.

<b>Regulatory Codes and Industry Standards</b>			
<b>Division</b>	<b>Description</b>	<b>Reference Standard No.</b>	<b>Reference Standard Title</b>
5	Minimum spacings and edge distances for screws	S136-12	North American Specification for the Design of Cold-Formed Steel Structural Members
5	Beveling, alignment, heat treatment, and inspection of weld	G40.20-13/G40.21-13	Power Piping
5	Requirements for piping of fluids	G40.20-13/G40.21-13	Process Piping
5	Welding standards	W59-13	Specification for Welding Procedure and Performance Qualification
5	Workmanship and techniques for welded construction	G40.20-13/G40.21-13	Structural Welding Code – Steel
5	Installation of bracing and permanent bracing and bridging	S136-12	Field Installation Guide for Cold-Formed Steel Roof Trusses
5	Installation of chimneys, vents, and smokestacks	CAN/ULC-S604-M91 CAN/ULC-S605-M91 ULC-S632-99 B415.1-10	Standard for Chimneys, Fireplaces, Vents, and Solid Fuel-Burning Appliances
5	Framing and reinforcing openings through a steel deck	CAN/CGSB-7.1-M86	Deck Damage and Penetrations

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<b>[CompanyName] Quality Inspection and Test Plan</b>												
Project ID			Project Name						CONTRACTOR			
[ProjectNumber]			[ProjectName]						[CompanyName]			
SPECIFICATION SECTION AND PARAGRAPH NUMBER		SCHEDULE ACTIVITY ID	TEST REQUIRED	ACCREDITED/ APPROVED LAB YES /NO		SAMPLED BY	TESTED BY	LOCATION OF TEST ON/OFF SITE/SITE		DATE COMPLETED	DATE FORWARDED TO CUSTOMER	REMARKS

## **M. WORK TASK QUALITY INSPECTIONS**

[CompanyName] identifies a list of work tasks which will be quality controlled. Each work task is subject to a series of inspections; before, during, and after completion.

Each inspection verifies compliance with full scope of the relevant specifications; not limited to inspection form checkpoints.

The initial work task-ready inspection occurs when work is ready to start and ensures that work begins only when it does not adversely impact quality results.

Incoming material inspections verify that materials are as specified and meet all requirements necessary to assure quality results.

Work-in-process inspections continuously verify that work conforms to project specifications and quality expectations. Work continues only when it does not adversely impact quality results.

At completion of the work task an inspection verifies that work has been completed in accordance with project quality requirements.

Inspection results are recorded and maintained as part of the project files.

The Quality Manager identifies each 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.

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

Fabrication 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.

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

### **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

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### **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.

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# **QUALITY MANUAL**

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## **7. PROCESS CONTROLS**

### *HOW WORK IS CARRIED OUT*

#### **7.1. OVERVIEW**

The fabrication process plan defines how project work is to be done and approved for the overall project. The fabrication 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.

#### **7.2. 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

#### **7.3. PREPARATORY PROJECT QUALITY ASSURANCE/QUALITY CONTROL PLAN PLANNING**

##### **7.3.1. 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

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### 7.3.2. 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

### 7.3.3. 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

### 7.4. 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.

## **9. NONCONFORMANCES AND CORRECTIVE ACTIONS**

### **9.1. OVERVIEW**

Should a nonconformance be identified by an inspection there is a systematic method to control the item, correct it, and ensure that project quality is not adversely impacted by the event.

A nonconformance is any item that does not meet project specifications or [CompanyName] Quality System requirements.

### **9.2. NONCONFORMANCES**

#### **9.2.1. 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.

#### **9.2.2. 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.

#### **9.2.3. NONCONFORMANCE REPORT**

##### **9.2.3.1. 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.

##### **9.2.3.2. 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:

## **List of Included Forms**

### **Standard Forms:**

- Point Of Contact List
- Project Organization Chart
- Project Quality Communications Plan
- Quality Manager Appointment Letter
- Project Manager Appointment Letter
- Superintendent Appointment Letter
- Personnel Certifications and Licenses
- Project Personnel Resumes
- Project Subcontractor and Supplier List
- Training Plan
- Training Log
- Regulatory Codes and Industry Standards
- Project Regulatory Building Codes
- Controlled Materials Form
- Metals Material Receiving Inspection Report
- Material Inspection and Receiving Report
- Inspection and Testing Standards
- Quality Inspection and Test Plan
- Test Equipment Calibration Plan and Log
- Quality Controlled Work Task List
- Daily Production Report
- Work Task Inspection Form
- Nonconformance Report
- Punch List
- Project Completion Inspection Form
- System Document Control Form
- Project Records Control Form
- Project Quality System Audit Form

<b>[CompanyName]</b> <b>Nonconformance Report</b> <small>Version 20141006</small>		
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	<input type="checkbox"/> Replace <input type="checkbox"/> Repair <input type="checkbox"/> Rework <input type="checkbox"/> Use As-is	
	Approval of disposition required by customer representative? Yes <input type="checkbox"/> No <input type="checkbox"/> Customer approval signature /date: _____	
Corrective Actions	<input type="checkbox"/> Corrective actions completed Name/Date: _____ Customer acceptance of corrective actions required? Yes <input type="checkbox"/> No <input type="checkbox"/> Name/Date: _____	
Preventive Actions		
	<input type="checkbox"/> Preventive actions completed Name/Date: _____	

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## **LIST OF INCLUDED INSPECTION FORMS FOR WELDING**

### **METALS**

- Metal Decking
- Metal Railings
- Metal Stairs
- Structural Steel Framing

### **HVAC**

- Air Outlets and Inlets
- Air Terminal Units
- Breechings//Chimneys// and Stacks
- Central Cooling Equipment
- Commissioning of HVAC
- Cooling Towers
- Facility Fuel-Oil Piping
- Facility Fuel-Storage Tanks
- Facility Natural-Gas Piping
- Furnaces
- Heating Boilers
- HVAC Air Cleaning Devices
- HVAC Ducts and Casings
- HVAC Fans
- HVAC Insulation
- HVAC Piping and Pumps
- HVAC Water Treatment
- Indoor Central-Station Air-Handling Units
- Instrumentation and Control for HVAC
- Refrigerant Piping
- Testing// Adjusting// and Balancing for HVAC

### **PLUMBING**

- Electric Domestic Water Heaters
- Facility Potable-Water Storage Tanks
- Facility Sanitary Sewerage
- Facility Storm Drainage
- Facility Water Distribution
- Fuel-Fired Domestic Water Heaters
- Plumbing Fixtures
- Plumbing Insulation



## Metals - Metal Railings 05.52.00

Project:	Phase:	Contract#:	Subcontractor:	Crew:
----------	--------	------------	----------------	-------

### Compliance Verification

- ☐ 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 Task completion inspection requirements
- ☐ Compliance with inspection and test plan
- ☐ Compliance with safety policies and procedures

Reported Nonconformances and incomplete items:

### FTQ 2TQ Heightened Awareness Checkpoints

- ☐ ☐ Shop applied primer and galvanizing intact and without blemishes
- ☐ ☐ Connecting bolts, washers, and nuts tight and clean of dirt/rust
- ☐ ☐ Welded connections continuous, even, clean, and free of blow holes or other irregularities
- ☐ ☐ Connecting hardware and welds primed with paint of the same quality as the shop coat
- ☐ ☐ Exposed welds ground smooth and flush with adjoining surfaces
- ☐ ☐ Exposed fasteners countersunk to provide a smooth surface
- ☐ ☐ Bases and stanchions level, plumb, and secure
- ☐ ☐ Railing system securely mounted and free of movement
- ☐ ☐ Railing parallels buildings and walking surface grade
- ☐ ☐ Railing free of burrs, crimps, and other surface irregularities

### FTQ Scores and Completion Sign-off

#### Field Mgmt.-91.45.01

**Quality**      5   4   3   2   1   *Notes:*

**On-Time**      5   4   3   2   1   *Notes:*

**Safety**      5   4   3   2   1   *Notes:*

Sign and date\*: Cell # / ID #: \_\_\_\_\_ Signed: \_\_\_\_\_ Date: \_\_\_\_\_

Task has been has been verified complete and in compliance with contract drawings and specifications except for non-conformances and incomplete items reported above.

#### Quality Score

5 = 100% NO problems

4 = 1 minor problems

3 = Hotspot or 2-3 minor

2 = 6+ or major problems

1 = Excessive problems

#### On-Time Score

5 = On Time

4 = Late

3 = Late by 1 day

2 = Late by 2 days

1 = Late more than 2 days

#### Safety Score

5 = 100% NO problems

4 = 1 minor problem

3 = Hotspot or 2-3 minor

2 = 4+ or major problem

1 = Injury

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