Essentials Fabrication
Quality Plan Sample
Selected pages not a complete plan

Includes Standards and Forms for Structural Steel Fabrication

Contact:
First Time Quality
410-451-8006
[CompanyName]

Fabrication
Quality Assurance/Quality Control Plan

[ProjectName]
[ProjectNumber]

Version: 20150308
Effective Date: 20150308

<table>
<thead>
<tr>
<th>Version</th>
<th>Version notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>20150308</td>
<td>Initial issue</td>
</tr>
</tbody>
</table>

Approved

[QualityManagerName], Quality Manager

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PROJECT-SPECIFIC WELDING QUALITY PLAN

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G. 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.

<table>
<thead>
<tr>
<th>Division</th>
<th>Description</th>
<th>Reference Standard No.</th>
<th>Reference Standard Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>Minimum spacings and edge distances for screws</td>
<td>AISI SG02-KIT</td>
<td>North American Specification for the Design of Cold-Formed Steel Structural Members</td>
</tr>
<tr>
<td>5</td>
<td>Installation of bracing and permanent bracing and bridging</td>
<td>CFSEI</td>
<td>Field Installation Guide for Cold-Formed Steel Roof Trusses</td>
</tr>
<tr>
<td>5</td>
<td>Installation of chimneys, vents, and smokestacks</td>
<td>NFPA 211</td>
<td>Standard for Chimneys, Fireplaces, Vents, and Solid Fuel-Burning Appliances</td>
</tr>
<tr>
<td>5</td>
<td>Framing and reinforcing openings through a steel deck</td>
<td>SDI DDP</td>
<td>Deck Damage and Penetrations</td>
</tr>
<tr>
<td>5</td>
<td>Install high-strength bolts</td>
<td>RCSC’s &quot;Specification for Structural Joints Using ASTM A325 or A490 Bolts&quot;</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Structural steel joints</td>
<td>RCSC Specification for Structural Joints Using ASTM A325 or A490 Bolts</td>
<td>RCSC Specification for Structural Joints Using ASTM A325 or A490 Bolts</td>
</tr>
</tbody>
</table>
The Quality Manager approves welding procedures before they can be used to fabricate metal.

Welding procedures shall be qualified and approved, in accordance with the applicable AWS Welding Code(s) or Specification(s) (i.e., D1.1., D1.5) or AWS B2.1, Specification for Welding Procedure and Performance Qualification.

The welding procedure must identify the filler material.

When the governing AWS Welding Code(s) mandates that welding procedures be qualified by test, the Welding Fabricator shall have PQRs that support the applicable WPSs. When prequalified WPSs or Standard Welding Procedure Specifications (SWPSs) published by the AWS are permitted, PQRs are not required.

The Quality Manager or Certified Welding Inspector (CWI) reviews and approves the welding procedure before being used in production welding operations.

The WPSs and PQRs are controlled by the Quality Manager according by the document and record control procedures specified in the relevant section of this Quality Manual.

The applicable WPSs shall be available to welders or welding operators during testing and production welding.
Form N-1 Welding Procedure Specification Prequalification

<table>
<thead>
<tr>
<th>Identification #</th>
<th>Revision Date</th>
<th>By</th>
</tr>
</thead>
<tbody>
<tr>
<td>Authorizd By Date</td>
<td>Type Manual Semi Automatic</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Mechanized Automatic</td>
<td></td>
</tr>
</tbody>
</table>

**JOINT DESIGN USED**
- **Type**: Single
- **Backing**: Yes No
- **Double Weld**: Yes
- **Root Opening**: Root Face Dimension
- **Groove Angle**: Radius (J-U)
- **Back Gouging**: Yes No Method

**ELECTRICAL CHARACTERISTICS**
- **Transfer Mode (GMAW)**: Short-Circuiting
- **Current**: AC DC EDC DCEN Pulsed
- **Power Source**: CC CV Other
- **Tungten Electrode (GTAW)**: Size
- **Technique**: Stringer or weave bead
- ** Electrode Spacing**: Longitudinal Lateral Angle
- **Contact Tube to Work Distance**: Peening
- **Interpass Cleaning**: 

**BASE METALS**
- **Material Spec**: 
- **Type or Grade**: 
- **Thickness**: Groove Fillet
- **Diameter (Pipe)**: 

**FILLER METALS**
- **AWS Specification**: 
- **AWS Classification**: 

**SHIELDING**
- **Flux**: 
- **Composition**: Gas
- **Electrode-Flux (Class)**: Gas Cup Size

**PREHEAT**
- **Preheat Temp. Min.**: 
- **Max.**: 
- **Interpass Temp. Min.**: 
- **Max.**: 

**WELDING PROCEDURE**

<table>
<thead>
<tr>
<th>Pass or Layer(s)</th>
<th>Filler Metals</th>
<th>Current</th>
</tr>
</thead>
<tbody>
<tr>
<td>Process</td>
<td>Class</td>
<td>Diam.</td>
</tr>
</tbody>
</table>

Form N-1 (Front)
# ANNEX N

## Procedure Qualification Record (PQR) # __________

### Test Results

<table>
<thead>
<tr>
<th>Specimen No.</th>
<th>Width</th>
<th>Thickness</th>
<th>Area</th>
<th>Ultimate Tensile Load, lb</th>
<th>Ultimate Unit Stress, psi</th>
<th>Character of Failure and Location</th>
</tr>
</thead>
<tbody>
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</tbody>
</table>

### GUIDED BEND TEST

<table>
<thead>
<tr>
<th>Specimen No.</th>
<th>Type of Bend</th>
<th>Result</th>
<th>Remarks</th>
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<tbody>
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</tbody>
</table>

### VISUAL INSPECTION

- Appearance
- Undercut
- Piping porosity
- Convexity
- Test date
- Witnessed by:

- Radiographic-ustasonic examination
- RT report no.
- UT report no.

### FILLET WELD TEST RESULTS

- Minimum size multiple pass: Maximum size single pass

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<th>Machetchn</th>
<th>Macroetch</th>
<th>Machetchn</th>
<th>Macroetch</th>
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</thead>
<tbody>
<tr>
<td>1.</td>
<td>3.</td>
<td>1.</td>
<td>3.</td>
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<tr>
<td>2.</td>
<td>2.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- Other Tests
- Tensile strength, psi
- Yield point/strength, psi
- Elongation in 2 in, %
- Laboratory test no.

- Welder's name
- Clock no.
- Stamp no.

- Tests conducted by
- Laboratory

- Test number
- P# __________

- We, the undersigned, certify that the statements in this record are correct and that the test welds were prepared, welded, and tested in conformance with the requirements of Clause 4 of AWS D1.1/D1.1M__ Structural Welding Code—Steel (year)

- Signed
- Manufacturer or Contractor
- By
- Title
- Date

---

[http://www.aws.org/technical/forms/N-1.pdf](http://www.aws.org/technical/forms/N-1.pdf)
Form N-3 WPS QUALIFICATION TEST RECORD_ELECTROSLAG and ELECTROGAS WELDING

ANNEX N

WPS QUALIFICATION TEST RECORD FOR ELECTROSLAG AND ELECTROGAS WELDING

PROCEDURE SPECIFICATION

Material specification
Welding process
Position of welding
Filler metal specification
Filler metal classification
Filler metal
Flux
Shielding gas
Flow rate
Gas dew point
Thickness range this test qualifies
Single or multiple pass
Single or multiple arc
Welding current
Preheat temperature
Postheat temperature
Welder's name
Guide tube flex
Guide tube composition
Guide tube diameter
Vertical rise speed
Traverse length
Traverse speed
Dwell
Type of molding shoe

VISUAL INSPECTION (Table 6.1, Cyclically loaded limitations)
Appearance
Undercut
Piping porosity
Test date
Witnessed by

TEST RESULTS

Reduced-section tensile test
Tensile strength, psi
1.
2.

All-weld-metal tension test
Tensile strength, psi
Yield point/strength, psi
Elongation in 2 in, %

Side-bend tests
1.
2.
3.
4.

Radiographic-ultrasonic examination
RT report no
UT report no

Impact tests
Size of specimen
Test temp
F/t: 1.
2.
3.
4.
5.
6.
Avg
High
Low
Laboratory test no

WELDING PROCEDURE

Pass No. Electrode Size Welding Current
Ampereas Volts Joint Detail

We, the undersigned, certify that the statements in this record are correct and that the test welds were prepared, welded, and tested in conformance with the requirements of Clause 4 of AWS D1.1/D1.1M (_______) Structural Welding Code—Steel (year)

Procedure no.
Revision no.
Form N-3

Manufactured or Contractor
Authorized by
Date

Form N-4 WELDER, WELDING OPERATOR, OR TACK WELDER QUALIFICATION TEST RECORD

<table>
<thead>
<tr>
<th>Variables</th>
<th>Record Actual Values Used in Qualification</th>
<th>Qualification Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Process/Type [Table 4.12, Item (1)]</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Electrode (single or multiple) [Table 4.12, Item (7)]</td>
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<td></td>
</tr>
<tr>
<td>Current/Polarity</td>
<td></td>
<td></td>
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<tr>
<td>Position [Table 4.12, Item (4)]</td>
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<tr>
<td>Weld Progression [Table 4.12, Item (5)]</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Backing (YES or NO) [Table 4.12, Item (6)]</td>
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<tr>
<td>Material Spec.</td>
<td></td>
<td></td>
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<tr>
<td>Base Metal</td>
<td></td>
<td></td>
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<tr>
<td>Thickness (Plate)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Groove</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fillet</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Thickness (Pipe/Tube)</td>
<td></td>
<td></td>
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<tr>
<td>Groove</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fillet</td>
<td></td>
<td></td>
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<tr>
<td>Diameter (Pipe)</td>
<td></td>
<td></td>
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<tr>
<td>Groove</td>
<td></td>
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</tr>
<tr>
<td>Fillet</td>
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<tr>
<td>Filler Metal (Table 4.12)</td>
<td></td>
<td></td>
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<tr>
<td>Spec. No</td>
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<tr>
<td>Class</td>
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<tr>
<td>F-No. [Table 4.12, Item (2)]</td>
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<tr>
<td>Gas/Flux Type (Table 4.12)</td>
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<tr>
<td>Other</td>
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<table>
<thead>
<tr>
<th>VISUAL INSPECTION (4.9.1)</th>
<th>Acceptable YES or NO</th>
<th>Guided Bend Test Results (4.31.5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type</td>
<td>Result</td>
<td>Type</td>
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</table>

<table>
<thead>
<tr>
<th>Fillet Test Results (4.31.2.3 and 4.31.4.1)</th>
<th>(Describe the location, nature, and size of any crack or tearing of the specimen.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>Test Number</td>
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<tr>
<td>Fracture Test Root Penetration</td>
<td>Macroetch</td>
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<tr>
<th>RADIOGRAPHIC TEST RESULTS (4.31.3.2)</th>
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<tbody>
<tr>
<td>Film Identification Number</td>
<td>Results</td>
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<tr>
<th>Interpreted by</th>
<th>Test Number</th>
<th>Date</th>
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<tbody>
<tr>
<td>Organization</td>
<td></td>
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</tbody>
</table>

We, the undersigned, certify that the statements in this record are correct and that the test welds were prepared, welded, and tested in conformance with the requirements of Clause 4 of AWS D1.1, M. (_____ year) Structural Welding Code—Steel.

Manufacturer or Contractor | Authorized By |
<table>
<thead>
<tr>
<th></th>
<th></th>
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<tbody>
<tr>
<td>Form N-4</td>
<td>Date</td>
</tr>
</tbody>
</table>

Form N-9 STUD WELDING APPLICATION QUALIFICATION TEST DATA

ANNEX N

STUD WELDING APPLICATION QUALIFICATION TEST DATA FORM PER SUBCLAUSE 7.6  Yes [ ]
PRE-PRODUCTION TEST PER SUBCLAUSE 7.7.1 (WPS) Yes [ ]
OR PROCEDURE QUALIFICATION RECORD (POR) Yes [ ]
OR WELDER QUALIFICATION RECORD (WQR) Yes [ ]

Company name
Operator name
Test number
Weld stud material
Weld stud size and PN/Manufacturer
Base Material
Specification
Alloy and temper:
Surface condition HR CR
Coating
Cleaning method
Decking gauge
Shape of Base Material
Flat Round Tube
Angle Inside Outside Inside radius
Thickness
Ferrule
Part No./Manufacturer
Ferrule description
Equipment Data
Application Settings, Current, and Time Settings
Make Model
Stud gun: Make Model
Weld time (seconds)
Current (amperage)
Polarity: DCEN DCEN DCEN
Lift
Plunge (protrusion)
Weld cable size Length
Number of grounds (workpiece leads)
Welding Position
Flat (Down hand) Horizontal (Side hand) Angular—degrees from normal Overhead
Shielding Gas
Shielding gas(es)/Composition
Flow rate

WELD TEST RESULTS

<table>
<thead>
<tr>
<th>Stud No.</th>
<th>Visual Acceptance</th>
<th>Option #1 Bend Test</th>
<th>Option #2 Tension Test</th>
<th>Option #3 Torque Test</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
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<td></td>
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<td>2</td>
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<tr>
<td>10</td>
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</tbody>
</table>

*Note: Torque test optional for threaded fasteners only.

Mechanical tests conducted by [Company]
Data [Date]

We, the undersigned, certify that the statements in this record are correct and that the test welds were prepared, welded, and tested in conformance with the requirements of Clause 7 of AWS D1.1/D1.1M, [Year] Structural Welding Code—Steel.

Signed by [Contractor/Applicant/Other]
Title [Title]
Data [Date]

Form N-9

H. MATERIAL TRACEABILITY

Products and materials are controlled to assure the use of only correct and acceptable items. Controls include identification of the inspection status. Materials that require lot control traceability and the method of traceability are listed on the Controlled Materials form included as an exhibit in this subsection.

IDENTIFICATION OF LOT CONTROLLED MATERIALS

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

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

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

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

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

Version: 20150308

<table>
<thead>
<tr>
<th>Contract ID</th>
<th>Contract Name</th>
<th>Preparer</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>[ProjectNumber]</td>
<td>[ProjectName]</td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Contract Section/ Activity ID</th>
<th>Material</th>
<th>Intended Use (if description is necessary)</th>
<th>Lot Traceability Requirements</th>
<th>Method for identification of Approved Inspection Status</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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</table>

Questions? Call First Time Quality 410-451-8006
## Material Inspection and Receiving Report

**Version 20150308**

<table>
<thead>
<tr>
<th>Contract ID</th>
<th>Contract Name</th>
<th>Purchase Order No.</th>
<th>Supplier</th>
<th>Bill of Lading No.</th>
<th>Date</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>[ProjectName]</td>
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<table>
<thead>
<tr>
<th>Item No.</th>
<th>Stock/Part No.</th>
<th>Description</th>
<th>Quantity Received</th>
<th>Condition</th>
<th>Marking</th>
<th>Accept</th>
<th>Conditional Use</th>
<th>Reject</th>
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### Receiving Quality Control

**ACCEPTANCE**

Listed items have been accepted by me or under my supervision

- [ ] Conform to contract specifications EXCEPT as noted herein or on supporting documents.
- [ ] Received in apparent good condition EXCEPT as noted

Signature of authorized person and date: ________________________________________________________________

**EXCEPTIONS:**
For More Information:
Contact: FirstTimeQuality

410-451-8006

www.FirstTimeQuality.com

EdC@FirstTimeQuality.com