

APPENDIX A: SOP/FORMS CROSS REFERENCE

This index maps each Standard Operating Procedure (SOP) to its supporting forms and records. It ensures traceability between documented procedures and the quality records maintained by [CompanyName].

SOP #	SOP Name	Supporting Forms	Forms
SOP-01	Document and Record Control	System Document Control Form, Records Control Form	WPS/PQR Revision Log (optional)
SOP-02	Management Review	Quality Program Audit Form	Management Review Record
SOP-03	Welder Qualification & Continuity	Welding Personnel Qualification Form, Welding Personnel Certifications and Licenses	Welder Continuity Log (updated)
SOP-04	QC Inspector & NDE Personnel Qualification	Subcontractor and Supplier Certifications and Licenses	Vision Examination Record, NDE Subcontractor Qualification Review
SOP-05	Training	Training Record	Annual Training Plan (optional)
SOP-06	Material Receiving & MTR Review	Material Inspection and Receiving Report, Metals Material Receiving Inspection Report	Signed/dated MTRs
SOP-07	Filler Metal Control	Weld Filler Material Issue Log	Electrode Oven Log
SOP-08	WPS & PQR Control	Form N-1, N-3, N-4 (WPS/PQR forms)	WPS/PQR Revision Log
SOP-09	Production Welding	Project-specific weld maps/travelers	Traveler Template
SOP-10	Weld Inspection	Visual Weld Inspection Report	N/A
SOP-11	NDE Procedure Control	AWS Forms (M-8, M-11, N-7, N-8, etc.)	N/A
SOP-12	NDE Subcontractor Approval	Subcontractor and Supplier Certifications and Licenses	NDE Subcontractor Qualification Review
SOP-13	Nonconformance Control	Nonconformance Report	N/A
SOP-14	Corrective Action	N/A	Corrective Action Report
SOP-15	Calibration & Equipment Verification	Test Equipment Calibration Plan and Log	Calibration Certificates (if not vendor-issued)
SOP-16	Internal Audit	Quality Program Audit Form	Audit Checklist (Excel/Word)
SOP-17	Continuous Improvement	Preventive Action training/records	Continuous Improvement Log

APPENDIX B: STANDARD OPERATING PROCEDURES (SOPs)

These SOPs contain the documented procedures that support the [CompanyName] Quality Program. Each SOP is controlled, reviewed, and approved in accordance with AWS B5.17:2025 Clause 6.

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SOP 01: DOCUMENT AND RECORD CONTROL

Purpose

To define the process for preparing, reviewing, approving, issuing, revising, distributing, and archiving quality documents and records to ensure accuracy, consistency, traceability, and compliance with AWS B5.17:2025 Clause 6.4.

Scope

This SOP applies to all quality-related documents and records at [CompanyName], including the Quality Manual, welding procedure documents, inspection and test records, calibration records, training records, subcontractor qualifications, nonconformance reports, and forms used to demonstrate compliance with the Quality Program.

References

- AWS B5.17:2025, Specification for the Qualification of Welding Fabricators (Clause 6.4)
- AWS QC17, Specification for AWS Accreditation of Certified Welding Fabricators
- [CompanyName] Quality Manual, Section 4 Document Control and Records Retention
- System Document Control Form
- Records Control Form

Responsibilities

- Quality Manager: Administers document and record control, approves revisions, maintains master list, ensures compliance.
- Document Control Clerk or Designee: Maintains distribution lists, ensures obsolete documents are removed, tracks records, archives files.
- Department Managers: Ensure controlled documents in their work area are current and obsolete copies are removed.
- All Employees: Use only current, approved documents and records in daily work.

Procedure

1. Preparation and Review: Documents are drafted by the responsible party and reviewed for accuracy and completeness.
2. Approval: The Quality Manager or authorized senior management approves all controlled documents prior to release.
3. Issuance and Distribution: Controlled copies are distributed by the Document Control Clerk. Distribution records are kept on the System Document Control Form.
4. Revision Control: Revisions are identified by date, letter, or number. Revision indicators such as vertical bars or change logs are used. Obsolete documents are removed or marked 'VOID' to prevent unintended use.
5. Record Retention: Records are maintained for a minimum of project completion or as specified by contract, but not less than five years. Records are stored securely in either paper or electronic format.

6. Archiving and Disposal: After retention requirements are met, obsolete records are disposed of by shredding (paper) or deletion (electronic) with Quality Manager approval.
7. Contract documents, drawings, and quality records are controlled in accordance with the policies defined in the Quality Manual (Sections 4.2–4.5).

Records and Forms

- System Document Control Form
- Records Control Form
- Document distribution lists
- Change logs and revision histories

Revision History

REV.	DATE	DESCRIPTION OF CHANGE	APPROVED BY
0	[Date]	Initial issue	[Name/Title]

SOP 15: CALIBRATION AND EQUIPMENT VERIFICATION

Purpose

To establish the process for calibrating, verifying, and maintaining measuring and welding equipment to ensure accuracy, traceability, and compliance with AWS B5.17:2025 Clause 6.10.

Scope

This SOP applies to all measuring devices, test equipment, and welding machines used in fabrication and inspection at [CompanyName].

References

- AWS B5.17:2025, Specification for the Qualification of Welding Fabricators (Clause 6.10)
- [CompanyName] Quality Manual, Section 9 Measuring and Testing Equipment
- Test Equipment Calibration Plan and Log

Responsibilities

- Quality Manager: Maintains calibration program, ensures records are complete, verifies compliance with standards.
- Calibration Technician / Designee: Performs calibration and verification of equipment, applies calibration labels, records results.
- Department Managers: Ensure equipment under their control is made available for calibration on schedule.

Procedure

1. Identification: All equipment requiring calibration is logged in the Test Equipment Calibration Plan and Log with unique ID numbers.
2. Calibration: Equipment is calibrated at specified intervals against national standards or manufacturer specifications. Load banks, auxiliary meters, and wire-feed tachometers are calibrated annually.
3. Verification: Welding machines are verified at least annually for condition and accuracy of meters, cables, hoses, and feeders.
4. Labeling: Calibrated equipment is tagged with last calibration date, next due date, and technician initials.
5. Records: Calibration records include type, serial number, frequency, tolerance, date calibrated, next due date, and standard used.
6. Disposition: Equipment found out of tolerance is removed from service until recalibrated or repaired.

Records and Forms

- Test Equipment Calibration Plan and Log
- Calibration certificates and reports
- Calibration labels/tags

Revision History

REV.	DATE	DESCRIPTION OF CHANGE	APPROVED BY
0	[Date]	Initial issue	[Name/Title]

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PROCEDURE CAL-02: WELDING MACHINES (VERIFICATION WITH LOAD BANK / AUXILIARY METERS)

1. Purpose

To define the method for verifying welding machines for accuracy and condition.

2. Scope

Applies to all welding machines used in fabrication.

3. Responsibility

The Quality Manager ensures annual verification using qualified personnel or service providers.

4. Frequency

Annually, and after repair or suspected malfunction.

5. Method

1. Inspect exterior, cables, hoses, feeders.
2. Connect calibrated auxiliary meters or load bank.
3. Set machine to typical operating ranges.
4. Compare readings against calibrated meters.
5. Check gas flow meter accuracy if equipped.
6. Document results in Calibration Log.

6. Acceptance Criteria

Within $\pm 10\%$ of set values or as required by WPS/contract.

7. Records

Verification results logged with ID, serial, readings, date, initials.

8. Identification

Verification sticker with last/next date, initials affixed.

APPENDIX C: SAMPLE FORMS

[CompanyName] System Document Control Form	2
[CompanyName] Records Control Form.....	3
[CompanyName] Controlled Materials Form	4
[CompanyName] Material Inspection and Receiving Report	5
[CompanyName] Metals Material Receiving Inspection Report	6
[CompanyName] Weld Filler Material Issue Log	7
[CompanyName] Change Order Form	8
[CompanyName] Project Submittal Form.....	9
[CompanyName] Nonconformance Report.....	10
[CompanyName] Test Equipment Calibration Plan and Log	11
[CompanyName] Welding Personnel Certifications and Licenses.....	12
[CompanyName] Project Subcontractor and Supplier List.....	13
[CompanyName] Sample Inspection and Test Plan (ITP) – Structural Steel Welding	14
[CompanyName] Visual Weld Inspection Report	16
[CompanyName] Welding Personnel Qualification Form	17
[CompanyName] Subcontractor and Supplier Certifications and Licenses	18
[CompanyName] Training Record.....	19
[CompanyName] Quality Program Audit Form	20
[CompanyName] Management Review Record	22
[CompanyName] Vision Examination Record.....	23
[CompanyName] Corrective Action Report (with Threshold Field).....	24
[CompanyName] NDE Subcontractor Qualification Review	25
[CompanyName] Continuous Improvement Log.....	26
[CompanyName] Welder Continuity Log.....	27
[CompanyName] Electrode Oven Log.....	28
[CompanyName] Traveler.....	29
[CompanyName] WPS / PQR Revision Log	30
Form N-1 Welding Procedure Specification Prequalification	31
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Form N-4 WELDER, WELDING OPERATOR, OR TACK WELDER QUALIFICATION TEST RECORD .	34
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Form M-11 Report of UT of Welds	39
Form N-7 REPORT OF RADIOGRAPHIC EXAMINATION OF WELDS	41
Form N-8 REPORT OF MAGNETIC-PARTICLE EXAMINATION OF WELDS	42
Form S-15 Report of UT (Alternative Procedure)	43

[CompanyName] Sample Inspection and Test Plan (ITP) – Structural Steel Welding				
Project ID	Project Name	Prepared By	Date	Notes
[ProjectNumber]	[ProjectName]			

Activity / Inspection Point	Inspection Method / Check	Acceptance Criteria	Reference Standard / Code	Responsibility	Record / Form
Material Receiving	Verify steel grade, dimensions, MTR review (signed & dated)	Matches PO and AWS D1.1 requirements	AWS D1.1, Project Specs	QC Inspector, Receiving	Material Inspection and Receiving Report; MTRs
Material Storage	Check segregation, protection, condition	Materials protected, filler metals stored per procedure	AWS A5.xx, Manufacturer Specs	Welding Supervisor, QC Inspector	Storage/Oven Log
Fit-Up / Joint Preparation	Dimensional check of bevel angle, root opening, alignment	Within tolerances of WPS and drawings	AWS D1.1, WPS	QC Inspector	Fit-up Inspection Report (or Traveler)

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Nondestructive Testing (if required by contract)	MT/PT on selected welds; UT/RT on CJP welds	Per project specification or contract (typically UT on CJP > 5/16")	AWS D1.1 Clause 6; AWS B1.11	NDE Level II / III	MT/PT/UT/RT Report
Dimensional Inspection – Final	Verify member dimensions, hole locations, camber	Within project tolerances	AWS D1.1, Project Drawings	QC Inspector	Dimensional Inspection Report

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Or Call: 443-292-9514

Activity / Inspection Point	Inspection Method / Check	Acceptance Criteria	Reference Standard / Code	Responsibility	Record / Form
Nonconformance Control	Document and segregate defects	NCR disposition: Rework, Repair, Scrap, Use-as-is (with approval)	AWS B5.17 Clause 6.8	QC Inspector, QM	Nonconformance Report
Corrective Action (if required)	Issue CAR for recurring defects or systemic issues	CAR defines root cause, corrective action, verification	AWS B5.17 Clause 6.9	Quality Manager	Corrective Action Report
Final Acceptance	Review of ITP, records, and inspection reports	All inspections/tests complete and signed	Project Specs, Contract	Quality Manager, Client Rep	Signed ITP with records

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[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			Welding Supervisor Sign and Date		

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ANNEX N

AWS D1.1/D1.1M:2010

Procedure Qualification Record (PQR) # _____
Test Results

TENSILE TEST

Specimen No.	Width	Thickness	Area	Ultimate Tensile Load, lb	Ultimate Unit Stress, psi	Character of Failure and Location

GUIDED BEND TEST

Specimen No.	Type of Bend	Result	Remarks

VISUAL INSPECTION

Appearance _____
Undercut _____
Piping porosity _____
Convexity _____
Test date _____
Witnessed by _____

Radiographic-ultrasonic examination
RT report no.: _____ Result _____
UT report no.: _____ Result _____

FILLET WELD TEST RESULTS

Minimum size multiple pass Maximum size single pass
Macroetch 1. _____ 3. _____
2. _____ 2. _____

Other Tests

All-weld-metal tension test
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 _____

Per _____

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 _____

Form N-1 (Back)



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