

Specification for AWS Certification of Welders and Accreditation of Test Facilities



Specification for AWS Certification of Welders and Accreditation of Test Facilities

1st Edition

Revises AWS QC47:2016-AMD1

Prepared by the
American Welding Society (AWS) Subcommittee on Welding Test Facilities and Welders

Under the Direction of the
AWS Qualification and Certification Committee

Approved by the
AWS Board of Directors

Abstract

This specification describes a program administrated by the American Welding Society (AWS) for accreditation of test facilities used to perform welder qualification and testing for the certification of welders. The AWS Certified Welder Program provides a means for the transference of welder qualifications from employer to employer without retesting. This specification defines the minimum requirements for welder participation in the program and the methods to be used by employers for adopting the program. This specification defines the minimum requirements for welder participation in the program and the methods to be used by employers for adopting the program.

ISBN Print: 978-1-64322-352-0

ISBN PDF: 978-1-64322-353-7

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Foreword

This foreword is not part of this standard but is included for informational purposes only.

The American Welding Society (AWS) Certified Welder Program was established to identify all elements necessary to implement an AWS National Registry of Certified Welders. Five key elements are identified:

- (1) Welder Performance Qualification Standards Criteria
- (2) AWS B2 Standard Welding Procedure Specifications
- (3) Accredited Performance Qualification Test Facilities
- (4) Accredited Custom Programs
- (5) AWS Welder Certification Requirements

The purpose of AWS QC47, *Specification for AWS Certification of Welders and Accreditation of Test Facilities*, is to establish that Welder Performance Qualification Test Facilities have the personnel, organization, experience, procedures, knowledge, equipment, capability, and commitment to conduct proper welder performance qualification testing. This specification describes the requirements and functions of the test facility and custom programs to achieve AWS QC47 accreditation and defines the responsibilities of the test facility and AWS. The purpose of the AWS National Registry of Certified Welders is to document the ability of welders to deposit sound welds and to impose controls on the documentation and maintenance of certification.

AWS QC47:2016, *Specification for AWS Certification of Welders and Accreditation of Test Facilities* combined AWS QC4, *Standard for Accreditation of Test Facilities for AWS Certified Welder Program* and AWS QC7, *Standard for AWS Certified Welders*, and revisions include major changes in the format of the combined documents. This specification superseded AWS QC4 and AWS QC7 and all its supplements.

AWS QC47:2016-AMD2 contains the criteria for the AWS National Registry of Certified Welders and AWS Certified Welder Custom Programs. Public listing or disclosure is the option of the individual welder. In many cases, this specification shall allow the transfer of welder qualification from employer to employer. This potential transfer of welder qualification may result in financial savings for the welding industry. Underlined text in the clauses, subclauses, tables, figures, or forms indicates a change from AWS QC47:2016-AMD1.

The evolution of AWS QC47, *Specification for AWS Certification of Welders and Accreditation of Test Facilities*, is shown below:

AWS QC4	<i>Standard for Accreditation of Test Facilities for AWS Certified Welder Program</i>
AWS QC7	<i>Standard for AWS Certified Welders</i>
AWS QC47:2016	<i>Specification for AWS Certification of Welders and Accreditation of Test Facilities</i>
AWS QC47:2016-AMD1	<i>Specification for AWS Certification of Welders and Accreditation of Test Facilities</i>
AWS QC47:2016-AMD2	<i>Specification for AWS Certification of Welders and Accreditation of Test Facilities</i>

Comments and suggestions for the improvement of this specification are welcome. They should be sent to the Managing Director, AWS Certification Department, American Welding Society, 8669 NW 36 St, # 130, Miami, FL 33166.

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Specification for AWS Certification of Welders and Accreditation of Test Facilities

1. General Requirements

1.1 Scope. This specification describes the accreditation of AWS Accredited Test Facilities (ATF); the testing of welders; and the certification of welders desiring to be listed in the AWS National Registry of Certified Welders (NRCW). The Program establishes the controls and methods to maintain an AWS NRCW. This specification supersedes AWS QC4, *Standard for Accreditation of Test Facilities for AWS Certified Welder Program*, and AWS QC7, *Standard for AWS Certified Welders* and all its supplements. The elements of this program establish requirements for:

- (1) Certified Welders
- (2) Accredited Test Facilities
- (3) Qualifiers

Users wishing to set up welder test facilities not leading to AWS accreditation are advised to consult AWS B5.4, *Specification for the Qualification of Welder Test Facilities*. Users wishing to obtain AWS accreditation as an AWS ATF and certify welders for entry into the AWS NRCW shall meet the requirements of this specification.

ATFs accredited to QC47 will have a scope of testing that covers the four basic arc welding processes in compliance with relevant American codes and standards (AWS, ASME, API, etc.). Additionally, ATFs applying for accreditation may choose to extend the scope of testing to include other processes and testing methods by documentation and/or demonstration of the ATF's capabilities in those processes or testing methods. Users of this specification who seek to extend the scope of testing are required to contact the AWS Accreditation Department for specific requirements.

1.2 Program. This specification shall be used by welders, qualifiers, Certified Welding Inspectors (CWI), Senior Certified Welding Inspectors (SCWI), employers, non-destructive examination (NDE) technicians, and AWS Accredited Test Facility personnel to recognize and implement their responsibilities in the program.

Certification under the AWS Certified Welder Program for inclusion in the NRCW shall be conducted using AWS B2 Standard Welding Procedure Specifications (SWPSs) or an alternative Welding Procedure Specification (WPS), as described in Annex A. Performance testing methods and visual acceptance criteria are derived from the governing standard chosen by the candidate or candidate's employer. It is the responsibility of the candidate or candidate's employer to select the SWPS and governing standard that is suitable for the work planned for production.

When no governing standard is specified, the performance testing method and acceptance criteria shall be selected from the current revisions of AWS B2.1, *Specification for Welding Procedure and Performance Qualification*.

Participants (ATFs and qualifiers) in this program conduct performance qualification tests that can result in certification in the AWS Certified Welder Program. Participants in this program may also conduct performance qualification tests that do not result in certification in the AWS Certified Welder Program.

1.3 Other Requirements. This specification shall be used for all welder performance testing conducted by the AWS Accredited Test Facility for welders that will be entered into the NRCW. In situations where the AWS ATF is requested to conduct welder performance testing in accordance with programs that have requirements different from this specification, the requirements of this specification may be waived. In all such circumstances, the ATF bears the responsibility for establishing that all variations comply with the published requirements of the governing standard and are included in the ATF's quality manual.

1.4 Safety. Safety and health issues and concerns are beyond the scope of this standard and therefore are not addressed herein. It is the responsibility of the user to establish appropriate safety and health practices. Safety and health information is available from the following sources:

American Welding Society:

- (1) ANSI Z49.1, *Safety in Welding, Cutting, and Allied Processes*
- (2) AWS Safety and Health Fact Sheets
- (3) Other safety and health information on the AWS website

Material or Equipment Manufacturers:

- (1) Safety Data Sheets supplied by materials manufacturers
- (2) Operating Manuals supplied by equipment manufacturers

Applicable Regulatory Agencies

Work done in conformance with this specification may involve materials that are classified as hazardous. The user should determine the applicability of any regulatory limitations prior to use.

2. Normative References

The documents listed below are referenced within this publication and are mandatory to the extent specified herein. For undated references, the latest edition of the referenced standard shall apply. For dated references, subsequent amendments or revisions of the publications may not apply since the relevant requirements may have changed.

American Welding Society (AWS) standards:

AWS A3.0M/A3.0, *Standard Welding Terms and Definitions*

AWS A5.32 (ISO 14175 MOD), *Welding Consumables—Gases and Gas Mixtures for Fusion Welding and Allied Processes*

AWS B2, *Standard Welding Procedure Specifications (SWPSs)*

AWS B2.1/B2.1M, *Specification for Welding Procedure and Performance Qualification*

AWS B4.0, *Standard Methods for Mechanical Testing of Welds*

AWS B5.4, *Specification for the Qualification of Welder Test Facilities*

AWS D1.1/D1.1M, *Structural Welding Code—Steel*

AASHTO/AWS D1.5, *Bridge Welding Code*

AWS QC1, *Specification for AWS Certification of Welding Inspectors*

AWS QC9, *Administrative Procedures for Alleged Violations of AWS Certification Programs*

ANSI Z49.1, *Safety in Welding, Cutting, and Allied Processes*

AWS Best Practices for Performing a Welder Qualification Test

American Petroleum Institute (API) standard:

API 1104, *Welding of Pipelines and Related Facilities*

American Society of Mechanical Engineers (ASME) standard:

ASME Boiler and Pressure Vessel Code, Section IX: *Welding, Brazing, Qualifications and Fusing*

American Society for Nondestructive Testing (ASNT) standard:

ASNT SNT-TC-1A, *Personnel Qualification and Certification in Nondestructive Testing*

ASTM International standard:

ASTM E94, *Standard Guide for Radiographic Examination*

International Organization for Standardization (ISO) standard:

ISO 19011, *Guidelines for Auditing Management Systems*

3. Terms and Definitions

Terms used in this specification are defined in AWS A3.0, *Standard Welding Terms and Definitions* (current edition). Terms applicable to auditing shall be as defined in ISO 19011, *Guidelines for Auditing Management Systems* (current edition). As used in this specification, the word **shall** denotes a requirement; the word **should** denotes a guideline; and the word **may** denotes a choice. The following terms are not found in AWS A3.0, *Standard Welding Terms and Definitions*, or are modified for the purposes of this certification specification:

acceptance criteria. Specified limits placed on characteristics of an item, process, or service as defined in governing welding standards or other contract documents.

accreditation. Official certification that a school or course has met standards set by external regulators.

Accredited Custom Program. An organization that owns and maintains direct oversight and responsibility of the Custom Program with the endorsement of AWS.

Accredited Test Facility (ATF). A facility that applies to AWS and receives accreditation. An Accredited Test Facility may be a laboratory that does not perform welder qualification testing.

AWS Certified Welder. A welder who meets the requirements of QC47 for welder performance qualification.

AWS National Registry of Certified Welders. A database of welders who have successfully passed a performance qualification test in accordance with this specification and who have met all requirements for maintenance of certification. Access to information in the AWS National Registry of Certified Welders may provide for the acceptance of welder proficiency from employer to employer.

Certificate of Conformance (COC). A document attesting that a base or filler metal is manufactured in accordance with industry-recognized requirements.

certification. The act of determining, verifying, and attesting in writing to the qualification of personnel in accordance with specified requirements.

electronic signature. An electronic identifier that is created by a computer and is intended by the party using it to have the same intent, effect, and authority as the use of a manual (either written or facsimile) signature.

facility manager. An individual(s) designated by the ATF who can make legally binding commitments and statements on behalf of the ATF.

facility representative. An individual(s) designated by the ATF, who is a manager with administrative responsibility for the ATF and is also responsible for the direction and implementation of all the requirements defined in this certification specification for the ATF.

governing standard. The industry standard that is selected and used to determine the specific test method and acceptance criteria for visual inspection and NDE of test coupons. A standard may be a code, specification, recommended practice, method, classification, or guide. Some common choices are AWS D1.1, *Structural Welding Code—Steel*, AWS D1.5, *Bridge Welding Code*, API 1104, *Welding of Pipelines and Related Facilities* and ASME Boiler and Pressure Vessel Code, Section IX: *Welding, Brazing, Qualifications and Fusing*.

inspection. Examination or measurement to verify whether an item or activity conforms to specified requirements.

inspector. An individual performing activities to verify conformance to specification requirements.

Material Test Report (MTR). A document provided by the supplier indicating the material conforms with the requirements of the standard or specification referenced by the purchase order. The MTR typically lists the acceptable ranges

of the elements present and the acceptable ranges for the mechanical properties, e.g., ultimate tensile strength, yield strength, elongations, hardness, etc. as specified by the applicable material specification. The chemistry and the mechanical properties listed on the MTR are specific to a particular heat number or the specific material delivered.

program owner. The organization that owns and maintains direct oversight and responsibility of the Custom Program with the endorsement of AWS.

qualifier. A CWI or SCWI who has successfully passed the AWS Welder Performance Qualifier Endorsement, and employed or contracted by the ATF, who is considered qualified to conduct welder qualification tests.

quality manager. An individual designated by the ATF to be responsible for quality management system compliance by maintaining documentation, document control, quality policies, procedures, processes, programs, and practices to assure the ATF's continuous conformance with the QC47.

quality procedure. Documentation of how a particular operation is performed.

quality record. Documentation providing evidence that activities have been performed or results have been achieved.

routing sheet. A document used by qualifiers to capture test information and provide consistent sequential test information to the test candidate, including a sequential list of mandatory hold points where the qualifier must indicate acceptance before the qualification process proceeds.

test. The overall activity leading to the qualification of an individual as an AWS Certified Welder.

test candidate. A person who is applying to be certified or qualified as a welder in accordance with the requirements of QC47.

verification. The act of reviewing, inspecting, testing, checking, auditing, or otherwise determining and documenting whether items, processes, services, and documents conform to specified requirements.

welder. One who performs manual, semiautomatic, mechanized, or automatic welding. The term welder as used in this document also refers to operators, brazers, and plastics welders.

Welder Performance Qualifier Endorsement. A unique endorsement to the AWS QC1 Program that tests the CWI or SCWI's knowledge and capability of conducting welder performance qualification tests.

Welding Procedure Qualifier Endorsement. A unique endorsement to the AWS QC1 Program that tests CWI or SCWI's knowledge and capability to qualify welding procedure specifications.

4. Welders—General Responsibilities

Welders shall:

- (1) Complete the application using accurate information.
- (2) Be aware and agree to the applicable welding code/standard, process, test description, WPS, type of qualification test to be administered, and the applicable visual acceptance criteria.
- (3) Provide government-issued picture identification at the time of the welding test.
- (4) Arrive at the ATF or test site properly attired and with appropriate tools and personal protective equipment (PPE) to take the test.
- (5) Be prepared to follow the applicable WPS and all directions given by the qualifier.
- (6) Complete the assigned task to the best of their ability.
- (7) Conduct all operations in a safe manner and bring to the attention of the qualifier any issues related to safety or the conduct of the performance test. Be prepared to take a welder performance qualification test.
- (8) Safeguard all credentials that are issued.
- (9) Maintain the continuity requirements and other program requirements.

- (10) Sign a completed mandatory AWS-provided routing sheet.

5. Employers of AWS Certified Welders—Responsibilities

The employers shall:

- (1) Accept responsibility for the work of their employees.
- (2) For initial certification, choose an appropriate SWPS or alternative WPS as per Annex A.
- (3) Be fully aware of the provisions and limitations of the requirements in this specification and how the listed actual values used in the welder performance qualification test are correctly applied to determine ranges of qualification in accordance with the indicated code or standard used. Employers should be fully aware of external requirements that may affect the transferability of the welder certification to other applications.

6. AWS—General Responsibilities

AWS shall be responsible for the development and maintenance of this specification. For specific requirements, see Clause 9.

7. Accredited Test Facilities (ATF)—General Responsibilities

7.1 This specification establishes minimum requirements for ATFs, their personnel, and equipment for accreditation to test and certify welders in the AWS Certified Welder Program. This facility accreditation program is open to all test facilities that meet the accreditation requirements of this specification, whether they are members of AWS. When testing is performed offsite all provisions of this specification apply, and the testing shall be under the control of the test facility.

The test facilities may be part of an independent laboratory, manufacturing plant, educational institution, or other party. Test facilities may also choose as a scope of accreditation to be a test laboratory only. Relative to welder qualification the ATF must be capable of performing visual, destructive, and/or radiographic tests on performance test coupons.

Individuals meeting the requirements of the Welder Performance Qualifier Endorsement may also conduct any defined portion of the required testing for the program. The ATF's quality management system shall address all the requirements of this specification for its operation and testing regardless of whether the results of the welder performance tests shall be included by AWS in the AWS National Registry of Certified Welders.

7.2 Facilities seeking accreditation under this specification shall:

- (1) Be a legally identified entity,
- (2) Maintain a quality management system and organization that demonstrates the capability to perform the technical and administrative functions required by this specification,
- (3) Have the ability to demonstrate welder qualification tests required by this specification that are within the scope of accreditation,
- (4) Have adequate security rules and measures for protection of proprietary and confidential information,
- (5) Be an organization that protects staff from undue pressure or inducement that might influence their judgment or the results of their work,
- (6) Be an organization in which each staff member is aware of both the extent and limitation of their area of responsibility, and
- (7) Use individuals qualified in accordance with Clause 10. For specific requirements, see Clause 10.

8. Welders—Specific Requirements of AWS National Registry of Certified Welders

8.1 AWS Welder Credentials. When all the requirements for inclusion in the NRCW are met, AWS shall make available a welder certification credential. This welder credential shall identify the Performance Qualification Test Record (PQTR), the identification number of the WPS used for the test, the actual parameters used in the test, the governing standard (for pertinent test details) used for the test, and a photograph of the Certified Welder.

The information contained in the Certified Welder credential package shall be made available through suitable digital technology. The information remains the property of the American Welding Society and access to that information may be withdrawn for misuse or failure to maintain certification (see 8.3.1).

8.2 Suspension and Revocation of Credentials. Allegations of tampering with the welder credentials or falsification of information contained on the welder credentials shall result in the suspension of access to the welder credential package. If the allegations are validated, or other good cause found, the credentials may be suspended or revoked.

8.3 Certification Maintenance. The AWS certification of a welder shall remain in effect for six months past the date of the initial performance qualification test or the last documented date of using the process that was used during the performance test. The certification of welders who are in conformance with 8.3.1 shall remain in effect indefinitely.

8.3.1 Demonstrate continuity of certification by documenting continued satisfactory (judged by visual inspection at a minimum) performance of the process. The certified welder is responsible for participating in the AWS system for logging and tracking qualification maintenance (continuity) requirements. Details on participating will be distributed at the time of certification (see Clause 9(4)).

8.3.2 When a welder's certification has expired, renewal of certification for each welding or joining process shall meet the requirements for a new applicant, as described in this specification.

8.3.3 Current contact information shall be maintained with the AWS Accreditation Department.

NOTE: Contact information provided to AWS will update both membership and certification accounts, when applicable. Welders shall notify the AWS Accreditation Department of any changes.

9. AWS—Specific Requirements

AWS shall:

- (1) Operate a program to certify and maintain the qualification of AWS qualifiers;
- (2) Operate an authorization system to initially accredit and maintain the accreditation of official AWS Accredited Test Facilities;
- (3) Issue the welder access to the information contained in the welder credential package as described in 8.1. Directions to the welder as to how to maintain certification for each weld test performed will be provided [see Clause 9 (4)];
- (4) Provide access and directions to AWS Certified Welders to provide evidence of maintenance of certification (continuity);
- (5) Provide access to end-users to determine ranges of qualification based on actual welding parameters permitted under the governing code;
- (6) Maintain the AWS National Registry of Certified Welders for verification of credentials; and
- (7) Issue ATF certificate, see 11.5, Granting Accreditation within a specified scope of authorization.

10. ATF—Specific Requirements

10.1 ATF Quality Management System. The ATF quality management system shall address each of the subordinate clauses in this subclause. The following subordinate clauses are elements of the required quality management system. The requirements in these subordinate clauses shall be addressed in a quality manual. Separate procedures and work

instructions shall be governed by and referred to in the quality manual. The ATF's quality management system shall meet the required controls for all the elements of Clause 10. For welder performance tests that shall result in inclusion in the AWS National Registry of Certified Welders, the ATF's quality management system shall meet the required controls for all the elements of Clause 10.

10.1.1 References. The ATF shall have access to and use current references needed to perform a performance qualification test. Reference materials shall include, but are not limited to AWS QC47, AWS B2 Standard Welding Procedure Specifications (SWPSs), and any applicable codes and standards needed to administer the welder performance test.

10.1.2 Quality Manual and Required Documentation. The ATF shall prepare and operate in accordance with a written quality manual meeting the requirements of this specification. The requirements described in the quality management system shall be addressed directly in a quality manual or controlled by separate procedures, work instructions, or both referenced by the quality manual. All requirements shall be addressed as minimums.

10.1.3 ATF Quality Policy Statement. The ATF's quality manual shall address all of the requirements of this specification for its operation and testing and shall contain the ATF's Quality Policy Statement. This must be addressed regardless of whether the results of the welder performance tests shall be certified by AWS for inclusion in the AWS National Registry of Certified Welders.

10.1.4 Organizational Structure. The ATF shall provide an organizational chart or other document that shows the titles and relationships of the key personnel at the facility.

10.1.5 Personnel—Duties and Job Descriptions. The ATF shall provide job descriptions for key personnel at the facility showing their duties, responsibilities, and authorities in the quality management system. The job descriptions shall show the level of decision-making (authority) assigned to the position. The documents shall be kept in the quality manual, personnel files, or other suitable location at the facility. If not kept in the quality manual, the quality manual shall reference where this documentation is located. Each staff member of the ATF shall be aware of the extent of their responsibilities.

10.1.6 Quality Records. The records produced by the quality management system shall be identified. Responsibility for preparing, completing, and reviewing the records shall be assigned and a retention time shall be a minimum of three years. No quality records shall be discarded between AWS audits.

10.1.7 Testing Procedure. The quality management system shall document how the ATF controls the conduct of welder tests and the requirements of Clause 10. The procedure shall address how testing is conducted in each of these conditions that apply to the applicant ATF:

- (1) Welder performance tests conducted completely at the ATF.
- (2) Welder performance tests conducted remotely in the field by ATF personnel.
- (3) Welder performance tests that are conducted using an ATF field mobile lab which also destructively or non-destructively complete the full testing process onsite.

10.1.8 Test Records. The PQTR shall list all actual test values. All records shall be legible and verifiable. The qualifier shall sign the record. When volumetric examination is used in lieu of mechanical testing, the PQTR shall reference the involvement of an outside testing facility that performed the volumetric examination, the NDE Level II or Level III, the company name, and the test ID.

NOTE: Electronic signatures are acceptable if addressed effectively by the ATF's quality manual.

10.1.9 Internal Audit. The ATF shall perform at least one internal audit per year. The quality management system shall define the frequency of internal audits and how internal auditors are qualified.

10.1.10 Management Review. The quality management system is reviewed by top management to assure the continued effectiveness of the organization, personnel, and procedures. It is reviewed annually at a minimum. The review is documented as well as any corrective actions initiated because of the review.

10.1.11 Nonconformance and Corrective Action. Timely feedback and corrective action are required whenever nonconformances are detected. Nonconformances shall be documented.

10.1.12 Complaints. The facility's documentation shall describe how complaints from welders and employers are addressed. The complaints and the resolutions are documented. Complaints concerning ethical violations by qualifiers shall be made as per AWS QC9, *Administrative Procedures for Alleged Violations of AWS Certification Programs* by the individual making the complaint.

10.1.13 Subcontracted Services. Subcontractors for services such as machining, NDE, or other services impacting the quality of testing shall be reviewed to ensure that their services comply with the quality management system requirements of the ATF. If approved suppliers are utilized, a list of subcontractors, including qualifiers, shall be maintained.

10.2 ATF Personnel. ATF management shall be responsible for ensuring that personnel with adequate education, training, technical knowledge, and experience are assigned to perform their assigned functions. Information on the relevant qualifications, training, and experience of technical staff is maintained by the ATF. Written job descriptions for management positions and other key personnel are required.

10.2.1 Facility Manager. ATF management shall designate a facility manager. The facility manager shall be the duly designated individual authorized by the ATF to make legally binding commitments and statements on behalf of the ATF. The facility manager shall designate qualifiers and facility representatives who are technically competent and appropriately qualified to perform their responsibilities.

10.2.2 Quality Manager. ATF management shall designate a quality manager. The quality manager shall be responsible for maintaining the quality management system and documentation on a regular basis.

10.2.3 Facility Representative. ATF management shall designate a facility representative. This position has the responsibility for the direction and implementation of all the requirements defined in this certification specification for the ATF. The facility representative may also be a qualifier or facility manager.

10.2.4 Qualifier. The qualifier shall conduct the welder performance test in a professional manner and be responsible for the final and in-process inspection before, during, and after the weld testing process. This includes the final visual inspection of the completed weld. The qualifier can be an employee or contractor who is part of the ATF organization.

10.2.4.1 Qualifier Qualifications. The qualifier shall be a current CWI or SCWI and have successfully completed the Welder Performance Qualifier Endorsement.

10.2.4.2 Qualifier Responsibilities. Within the ATF's authorized scope of testing, the qualifier shall be responsible for:

- (1) Assuring that the technical requirements of the facility's quality management system are implemented and maintained, including material control and traceability.
- (2) Conducting welder performance tests and performing visual inspection.
- (3) Signing a completed mandatory AWS-provided routing sheet, or equivalent ATF-generated routing sheet.
- (4) Conducting or supervising destructive tests on welder test coupons.
- (5) Receiving and processing of welder test coupons from qualifiers working in the field and completing records of testing activities.

10.2.4.3 Limitations on Training. The qualifier shall not conduct or influence any portion of the test if they were directly involved in training the applicant on the welding process to be tested within six months prior to the test date.

10.2.4.4 NDE Technicians. Personnel performing Radiographic Testing (RT) on test coupons shall be qualified in accordance with an ASNT SNT-TC-1A Level II or Level III qualification program, or equivalent, at a minimum. Personnel performing radiographic interpretation shall hold a current AWS CRI (Certified Radiographic Interpreter) or an equivalent certification. The ATF shall have available on file the SNT-TC-1A written practice of third-party RT vendors if they are used and applicable RT procedures. If the ATF does its own RT, then the ATF's written practice and procedure shall be made available to the AWS auditor.

10.3 ATF Equipment

10.3.1 Welding Equipment. Ensure the welding equipment is designed for the process to be used and is capable of operating at the parameters specified in the welding procedure specification. Welding equipment shall be checked for

proper operation before and during use for testing purposes. Machine controls to change or adjust parameters shall be fully operational.

10.3.2 Measuring and Test Equipment. Measuring and test equipment used in this program shall be verified to confirm that it is in the proper operating condition. Certain tools require calibration and should be included in a calibration program. Specifically, welding power supply meters may be calibrated directly or verified with a calibrated volt-amp meter.

10.3.2.1 Calibration Program. There shall be a procedure describing the ATF's calibration program. At a minimum, each piece of equipment, tools, etc. shall bear a label, tag, serial number, or unique number for the purpose of identification. A calibration record, traceable to the specific machine or tool, shall show the following information:

- (1) Date of last calibration.
- (2) Frequency of calibration or calibration interval (one-year minimum).
- (3) Due date of next required calibration.
- (4) Work instruction or checklist that describes the method of calibration including the accuracy required.

10.3.3 Mechanical and NDE Equipment Requirements. All mechanical test equipment required for the testing being performed shall meet the dimensions and requirements of the governing standard. In the absence of standards for mechanical testing for welding and brazing, AWS B4.0, *Standard Methods for Mechanical Testing of Welds* shall be used; for thermoplastics, the test method requirements in AWS B2.4, *Specification for Welding Procedure and Performance Qualification for Thermoplastics* shall be used. Testing equipment when required by the program includes:

- (1) Bend test jig per AWS B4.0, *Standard Methods for Mechanical Testing of Welds*, or an applicable governing welding standard.
- (2) Radiographic testing equipment (maintained in accordance with ASTM E94, *Standard Guide for Radiographic Examination Using Industrial Radiographic Film*), may be present and maintained at a qualified subcontractor to the ATF.

10.4 ATF Material Control

10.4.1 Purchasing. All materials purchased for welder qualification shall meet the following requirements:

10.4.1.1 Base Materials. Base materials supplied to the ATF for testing shall be purchased to the requirements of a specific industry-recognized material specification. Material Test Reports (MTRs) or Certificates of Conformance (COCs) shall be requested from the supplier. Documents received at delivery or referenced by the supplier or welder shall show that the material conforms to the specific material type, grade, and the applicable code or standard being utilized for the performance test.

10.4.1.2 Filler Materials. Filler materials shall be purchased in accordance with the appropriate filler material specification. Receiving documents, certificates of conformance, packaging identification, or other documents referenced by the supplier shall demonstrate that the material received conforms to the appropriate AWS specification.

10.4.1.3 Shielding Gases. Shielding gases shall be classified in accordance with AWS A5.32, *Welding Consumables—Gases and Gas Mixtures for Fusion Welding and Allied Processes*, or as specified on the welding procedure specification.

10.4.2 Material Handling

10.4.2.1 Material Identification and Traceability. Test materials used for test plates, pipe, and backing material are identified in a way that ensures the correct material is used for each test. Material Test Reports (MTRs) or COCs for base metals shall be retained as per document retention procedures.

10.4.2.2 Test Coupon Identification. Each test coupon and completed test specimen is identified in a way that is traceable to the welder qualification test given. The method shall survive the defined retention time. The minimum retention times for test specimens at the ATF shall be 30 days from completion of the test unless returned to the customer.

10.4.2.3 Consumables. Storage of consumables shall be in accordance with the applicable code or the manufacturer's recommendations if storage conditions are not mandated by a contract-imposed code, standard, or specification. Where low-hydrogen consumables are used, a written Filler Materials Control procedure shall be in place to address

exposure and storage requirements that meet AWS D1.1/D1.1M, *Structural Welding—Steel*, or that is in accordance with an applicable code, standard, or specification invoked by the contract.

10.5 ATF—Conducting the Test

10.5.1 Selecting a WPS for Testing. All tests shall be performed using AWS B2 Standard Welding Procedure Specifications (SWPSs) or an alternative WPS as per Annex A. The candidate or candidate's employer shall specify the WPS to be used and the governing standard to be followed.

10.5.2 Identification of Governing Standard. The PQTR and the routing sheet shall identify the governing standard that shall determine the number of tests, test methods, and acceptance criteria used for the welder performance test. In the absence of a governing standard, all testing shall be in accordance with AWS B2.1/B2.1M, *Specification for Welding Procedure and Performance Qualification*.

10.5.3 Welder Performance Testing. At a minimum, the following shall apply:

10.5.3.1 The ATF shall maintain traceability of the test material used for the qualification test.

10.5.3.2 Prior to welding, identification unique to the test shall be affixed to the test coupon.

10.5.3.3 Visual Inspection of Test Coupons. Visual inspection of the test coupon in the unground, as-welded condition in accordance with the governing code. Power tools cannot be used to clean the completed weld or to improve the weld profile prior to the final visual examination but can be used for feathering tacks.

10.5.3.4 Mechanical Testing of Test Coupons. The ATF shall have a procedure that verifies that the following mechanical testing activities are in accordance with a governing standard. The following shall be addressed at a minimum:

- (1) Proper layout of test coupon and selection of test specimens,
- (2) Verification that proper identification has been transferred to all test specimens prior to cutting,
- (3) Cutting of test specimens,
- (4) Grinding and orientation of grinding of test specimens,
- (5) Verification of finished test specimen thickness after grinding,
- (6) Proper radius of test specimen edges,
- (7) Verification of operation and dimensions of bend test equipment,
- (8) Verification of direction of bending,
- (9) Verification of position of weld and heat-affected zone (HAZ) is within the bent portion, and
- (10) Proper evaluation of results in accordance with governing standard.

10.5.3.5 Radiographic Testing of Test Coupons. Where permitted by the applicable welding standard, Radiographic Testing (RT) may be substituted for mechanical testing. Where RT is performed in lieu of mechanical testing, the qualification test assemblies shall be in the as-welded condition. Both the coupon and film shall be retained for a term of not less than 30 days. If RT is substituted for mechanical testing, the requirement of the governing standard being tested to shall apply.

10.5.4 Retests. If one or more welds fail to meet the requirements of the governing standard, rules for retesting the applicant shall be in accordance with that governing standard. In the absence of a governing standard, AWS B2.1/B2.1M, *Specification for Welding Procedure and Performance Qualification* shall be used.

10.5.5 Inquiries about Test Results. The procedure shall address how inquiries from clients, employers, client relatives, or customers in the supply chain are handled. If the ATF is part of a larger organization, separation, and access to these sensitive records shall be defined and implemented effectively.

11. Accreditation of Test Facilities

11.1 General. Upon receipt of the candidate's application and application fee, AWS will review the candidate's quality manual and schedule an audit to verify that the requirements of the quality manual are properly implemented. Upon suc-

successful completion of the audit and payment of the appropriate auditor expenses, the facility will be accredited as an AWS ATF.

11.2 Application Requirements. Facilities shall meet the following requirements in applying to become an AWS ATF:

- (1) Apply for accreditation directly to AWS;
- (2) Complete an application form (available from the AWS Accreditation Department);
- (3) Submit an uncontrolled copy of the facility quality manual and/or procedures;
- (4) Complete an internal audit checklist (available from the AWS Accreditation Department);
- (5) Submit an organizational chart. This can be included in the quality manual or may be a separate document;
- (6) Supply job descriptions for key personnel;
- (7) Provide a scope of testing declaration; this can be included in the quality manual or may be a separate document; a listing of applicable scopes of testing is available from the AWS Accreditation Department;
- (8) Provide certification credentials for qualifiers that are part of the facility's organization;
- (9) Provide a letter or other written documentation from the facility representative that describes any current or past accreditation related to weld testing from another body or private organization; and
- (10) Provide documentation of the legal name and type of business organization.

11.3 Audit. Audits should be in accordance with ISO 19011, *Guidelines for Auditing Management Systems*.

11.3.1 Document Review. The quality documentation of the candidate ATF shall be reviewed for compliance with the requirements of this standard.

11.3.2 Onsite Audit. The onsite audit will determine that the requirements in the quality manual are properly implemented by the ATF. A welder qualification test shall be conducted during the initial onsite audit or when there is a change in the ATF qualifier since the last onsite audit.

11.4 Reporting

11.4.1 Closing Meeting. At the end of the onsite audit, a closing meeting shall be held with the applicant ATF's management team to present the findings of the audit and ensure that they are understood. The AWS Auditor shall present a written Nonconformance Report (NCR) for each nonconformance that requires corrective action. The AWS Auditor shall review the process for resolving nonconformances with the applicant ATF's management team.

11.4.2 Addressing Nonconformances. Nonconformances should be reviewed with the auditee to obtain acknowledgment that the audit evidence is accurate and that the nonconformities are understood. Every attempt should be made to resolve any diverging opinions concerning the audit evidence or findings, and unresolved points shall be recorded.

11.4.2.1 The applicant ATF shall address the nonconformances found during the onsite audit within 30 days of the conclusion of the closing meeting. Objective evidence that the nonconformance is addressed can be in the form of new or revised procedures, training records, pictures, or other evidence that shall demonstrate that the nonconformance itself has been addressed and that corrective action has been taken to prevent the recurrence of the nonconformance.

11.4.2.2 A completed NCR form and accompanying objective evidence is sent to the onsite AWS Auditor as soon as possible, but before the 30-day requirement. The onsite AWS Auditor may request additional information or evidence.

11.4.2.3 When all the nonconformances from an audit are resolved, the AWS Auditor signs each NCR as closed and sends the completed forms and evidence to AWS for administrative review with a recommendation for accreditation.

11.4.2.4 The AWS Auditor may request additional time on behalf of the applicant ATF when the work to resolve a nonconformance is reasonable. The AWS Auditor shall inform AWS when this time is requested. The total resolution may not extend beyond 90 days from the date of the closing meeting.

11.4.2.5 If the nonconformances cannot be addressed effectively to the satisfaction of the AWS Auditor, a revisit may be necessary. Revisits are approved through the AWS Lead Auditor supervising the program and the acknowledgment of the applicant ATF representative.

11.4.3 Post Onsite Reporting. A full written report is prepared by the AWS Auditor and transmitted to AWS and to the applicant ATF no later than two weeks after the onsite audit closing meeting. The report is reviewed for compliance by AWS staff or AWS Lead Auditor.

11.5 Granting Accreditation

11.5.1 When the nonconformances have been addressed to the satisfaction of the AWS Auditor, the AWS Auditor makes a recommendation for accreditation. The AWS shall issue accreditation and shall issue a certificate showing the scope of testing and the expiration date.

11.5.2 The ATF and status shall be published on the AWS website and in other appropriate documents to the public. The ATF shall place the certificate of accreditation on display to show clients or potential clients. AWS also uses each ATF's scope of accreditation to respond to inquiries. Accreditation status continues for renewing ATFs during the audit process and resolution of any nonconformances found during the documentation or onsite audit. Accreditation status shall discontinue 90 days after the date of the onsite audit closing meeting if the accreditation requirements are not met.

12. Accreditation Appeals Procedure

The test facility has the right to appeal adverse accreditation decisions to the AWS Qualification and Certification Committee. Adverse decisions of the AWS Qualification and Certification Committee may be appealed to the AWS Board of Directors.

13. Maintaining Accreditation

13.1 Period. Accreditation shall be granted for three years. Submission of an annual report is required to maintain the accreditation during that three-year period. A successful onsite re-audit shall be completed every three years to reaccredit the facility.

13.2 Annual Report. Each year, the ATF shall be responsible for completing an annual report in the form of a checklist, provided by AWS. The ATF shall conduct an internal audit using this checklist and return it to AWS. The accreditation expires when the annual report is not returned within 90 days following the original certification expiration date or the most current renewal date. No testing can be done during this 90-day period. The annual report also communicates changes in key personnel.

Significant changes in the organization or operation of the facility may require review by an AWS Auditor. The results of the review may trigger an additional audit. AWS requires immediate notification of changes in location, ownership, personnel indicated on the organization chart, or major capabilities of the ATF. AWS reserves the right to audit any ATF at any time if it considers that audit activity necessary to protect the integrity of the program.

13.3 Expiration. Applicants whose accreditation has expired shall be considered as new applicants.

13.4 Errors and Omissions. All submissions for welder certification to AWS are subject to technical and administrative review. Errors and/or omissions on welder applications will be brought to the attention of the ATF and may not lead to certification pending the review. Failure to address the causes of such errors and/or omissions may subject the ATF to suspension.

14. Revocation of Accreditation

14.1 Complaints. Complaints against the ATF should be filed with the AWS Qualification and Certification Committee.

14.2 Disciplinary Actions. The AWS Qualification and Certification Committee shall have the power to suspend, refuse to renew, or revoke the ATF's accreditation at any time for good cause as determined by the AWS Qualification and Certification Committee, including but not limited to misrepresentation of facts regarding the AWS Certified Welder program or any test pertaining to the program.

14.3 Enforcement. AWS may apply to any court of competent jurisdiction for further enforcement of its administrative decisions and rulings.

15. Reinstatement of Accreditation

Reinstatement of a revoked ATF accreditation may be allowed, provided the reason for such revocation has been rectified to the AWS Qualification and Certification Committee's satisfaction. A re-audit is required before reinstatement.

16. Custom Programs

This clause and its subordinate clauses apply to organizations that operate and maintain a custom certification program under an agreement with AWS for the certification of welders. The organization that owns and maintains direct oversight and responsibility of the custom program with the endorsement of AWS shall be referred to as the "Program Owner."

Organizations applying for "Custom Program" status under this specification are expected to meet all mandatory requirements of this specification. However, certain special practices may not meet the exact letter of this specification and such custom programs are responsible for developing additional elements of their quality management system to address the intent of this specification.

All requests for waivers to the requirements of this specification shall be made to the AWS Qualification and Certification Committee accompanied by documentation of how those exceptions shall be addressed. Custom programs may be excluded from the AWS National Registry of Certified Welders database. Approval of waivers for the custom program by the AWS Qualification and Certification Committee shall precede any business contracts entered into between AWS and the program owner.

16.1 AWS Responsibilities. AWS shall be responsible for performing audits of the program owner's custom program to assess the custom program in accordance with the program owner's agreement. Audits performed by AWS are performed by the AWS audit team. Audits shall be conducted by AWS or their agent at least every three years but can be conducted as frequently as necessary to ensure compliance with just cause. The results of these audits are reported to the AWS Qualification and Certification Committee.

16.1.1 Audit Administrative Headquarters. The audit includes a visit to the program owner's administrative headquarters. Depending on how the program owner is structured, this office may be an office in a central location or in a mobile or regional office. It shall be the central location from which the custom program is controlled, and records are kept. The audit includes a review of the internal audits performed by the program owner. AWS shall also review the audit reports performed by the program owner's auditors. This shall include the program owner's auditor's application of the requirements in the approved quality manual.

16.1.2 Oversight of Program Owner's Auditors. AWS shall conduct oversight or monitoring of the owner's auditors and audit practices. This shall be accomplished by reviewing and monitoring of all generated audit reports, checklists, NCRs and their resolution, and any other related activity. If warranted, an onsite audit of the program owner's auditor shall be conducted.

16.1.3 Auditor Training. When the program owner is managing auditors for the QC47 program, AWS training of auditors is required. AWS shall conduct auditor training seminars as needed and these shall be made available to program owner's auditors at least once every year. Each program owner's auditor shall complete AWS ATF auditor training at least once every two years and before a new auditor conducts any audits.

16.1.4 Program Auditor Performance. When the program owner is managing auditors for the QC47 program, the AWS auditor shall verify the program owner is assessing the performance of the program owner's auditors in accordance with the approved quality manual.

16.1.5 Audit of Program Owner by AWS

16.1.5.1 Audit. Audits should be in accordance with ISO 19011, *Guidelines for Auditing Management Systems*.

16.1.5.2 Audit Team. The audit team may be comprised of one or more staff members and contractors that present the best combination of administrative and technical expertise to execute the audit plan covering the elements of AWS QC47.

16.1.5.3 Audit Plan. The audit plan shall be drafted from a standardized plan. At a minimum, the audit plan shall include a pre-on-site review of the program's quality manual and the past year's documentation and records received by AWS.

The custom agreement is used as a reference for the scope of the audit. When the program owner is auditing ATFs for the QC47 program, the audit plan shall include a sampling plan of the number of ATFs that shall be visited. The sampling plan may be adjusted based on the initial, continuing, or critical status of the custom program.

The audit plan is agreed in advance by AWS and the program owner.

16.1.6 Components of the AWS Audit Plan. The audit plan of AWS shall address the following components of the program owner's custom program at a minimum:

16.1.6.1 Administration

- (1) Quality manual or set of procedures
- (2) Document controls
- (3) Documentation flow to AWS
- (4) Security rules and confidential information protection
- (5) Results of internal audits
- (6) Annual documented management reviews
- (7) Corrective actions initiated
- (8) Record retention
- (9) How credentials are issued based on original test information
- (10) Records sent and received by AWS

16.1.6.2 AWS Auditors. When the program owner is managing auditors for the QC47 program:

- (1) Identification of AWS auditors
- (2) Training records
- (3) AWS auditor selection process

16.1.6.3 ATF System

- (1) Record keeping—documentation flow to AWS
- (2) Identification of current ATF(s)
- (3) Review of personnel records (training, qualification, activity level, etc.)
- (4) Audit records for ATF(s)—AWS auditor reports
- (5) Typical audit plans for AWS auditors
- (6) Policies on equipment calibration, measuring equipment
- (7) Corrective action from audits of ATF(s)
- (8) Determining continuing qualification of AWS auditors
- (9) Review a sampling of ATF audit reports

NOTE: 16.1.6.3 (5), 16.1.6.3 (8), and 16.1.6.3 (9) only apply when the program owner is managing auditors and ATF audits for the QC47 program.

16.1.6.4 Welder Certification Activities

- (1) Identification of current welders
- (2) Paperwork sequence for welder lifecycle—info to AWS
- (3) Correlation to a Welding Procedure Specification (WPS)
- (4) Review documentation for performance testing of welder
- (5) Issuance of welder certifications

16.1.6.5 Revisions to the Audit Team and Audit Plan. The audit team and audit plan shall be shared with the auditee. The auditee may submit to the lead auditor requested revisions to the audit team or audit plan. A revised plan may be sent to the auditee for review and final approval. The auditee may make a one-time request to replace one or more members of the audit team. A full new team or partial team shall be created.

16.2 Program Owner Responsibilities. The program owner shall perform an internal audit of their entire program and document the results. Those results shall be sent to AWS annually for review.

When the program owner is managing audits for the QC47 program, the program owner shall conduct onsite audits of each facility listed with AWS at least once every three years. The program owner shall observe and audit the methods and implementation of the entire program requirements used by the auditors for compliance. The facilities shall perform an internal audit of their own facility annually at a minimum. All audit results shall be sent to AWS annually for review.

16.3 AWS Qualification and Certification Committee Responsibilities. Annually, the AWS Qualification and Certification Committee shall receive a report and recommendation from AWS staff on continuing each custom program. This recommendation shall be based upon audit activities conducted. Based on reports received, the AWS Qualification and Certification Committee will renew the accreditation of the custom program.

16.4 Post Onsite Audit Process. At the conclusion of all audit activities, a meeting is held with the program owner's representative. This date shall be considered the "close of the audit." At a minimum, the nonconformances that shall require corrective action shall be shared in "writing."

The requests for corrective action shall require a response from the program owner's representative. The response timeline and the details of the corrective actions shall be agreed with the program owner's representative and the lead auditor. The lead auditor shall review responses in advance and request input from the audit team.

16.4.1 Resolution of Requests for Corrective Action. The resolution of corrective actions shall be addressed and closed by the lead auditor assigned to the audit.

16.5 Mandatory Requirements for Custom Programs. Organizations applying for "Custom Program" status under this specification are expected to meet 16.5. These requirements represent minimum mandatory conditions that shall be met in order for any organization to apply as a custom program:

- (1) Welder testing shall be conducted by current AWS CWIs/SCWIs with a Welder Performance Qualifier Endorsement.
- (2) Welder testing facilities shall be audited to conform to stated requirements.
- (3) All performance qualification tests shall be welded using an approved WPS.
- (4) All programs for welder testing shall have a quality management system in place meeting the requirements of this specification.

17. AWS Mandatory Administrative Forms

The following administrative forms are mandatory for ATFs operating outside of a Custom Program designation,

- (1) ATF Application (including proposed scope(s) of authorization),
- (2) ATF Extension of Scope Application,

(3) Certified Welder Application,

(4) ATF Audit Checklist(s) (specific to scopes of authorization), and

(5) AWS Routing Sheet (or ATF customized form with identical entries).

Contact the AWS Accreditation Department to obtain these forms.

Annex A (Normative)

Procedure for the Use of Alternative Welding Procedure Specifications for Welder Qualification (other than AWS B2 SWPSs)

This annex is part of this standard and includes mandatory elements for use with this standard.

It is recommended that AWS B2 *Standard Welding Procedure Specifications* (SWPSs) be used for welder performance qualification testing if the SWPS corresponds to the anticipated production welding. The purpose of this annex is to provide requirements for how non-SWPS WPSs shall be accepted for use during welder qualification testing.

Any WPS, other than AWS B2 SWPSs, shall be reviewed by a current CWI/SCWI who has successfully passed the AWS Welding Procedure Qualifier Endorsement. At the time of welder application, the reviewed WPS must be submitted to AWS along with the Acceptance Form for Alternate WPS that indicates that the subject WPS has been reviewed and meets the requirements of the governing standard and the scope of testing for the ATF. If the governing standard permits the use of prequalified WPSs, those also must be reviewed and accepted for use by the reviewing CWI/SCWI. The reviewing CWI/SCWI may be an employee of the ATF or a subcontractor. Supporting documents, such as PQRs, do not have to be submitted to AWS with the reviewed WPS. The Acceptance Form for Alternate WPSs must clearly indicate the identity of the reviewer and evidence that the reviewer has passed the Welding Procedure Qualifier Endorsement.

The review and acceptance of the WPS used for welder testing must occur before any weld tests are performed using that WPS. Acceptance of any WPS used to support a welder performance qualification does not constitute approval of that WPS for production purposes.

The quality manual of the ATF must clearly state that the ATF takes full responsibility that the WPS used for welder testing is valid and properly supported in accordance with the governing standard.

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Annex B (Informative)

Requesting an Official Interpretation on an AWS Standard

This annex is not part of this standard but is included for informational purposes only.

B1. Introduction

The following procedures are here to assist standard users in submitting successful requests for official interpretations to AWS standards. Requests from the general public submitted to AWS staff or committee members that do not follow these rules may be returned to the sender unanswered. AWS reserves the right to decline answering specific requests; if AWS declines a request, AWS will provide the reason to the individual why the request was declined.

B2. Limitations

The activities of AWS technical committees regarding interpretations are limited strictly to the interpretation of provisions of standards prepared by the committees. Neither AWS staff nor the committees are in a position to offer interpretive or consulting services on (1) specific engineering problems, (2) requirements of standards applied to fabrications outside the scope of the document, or (3) points not specifically covered by the standard. In such cases, the inquirer should seek assistance from a competent engineer experienced in the particular field of interest.

B3. General Procedure for all Requests

B3.1 Submission. All requests shall be sent to the Managing Director, Certification. For efficient handling, it is preferred that all requests should be submitted electronically through certification@aws.org. Alternatively, requests may be mailed to:

Managing Director
Certification
American Welding Society
8669 NW 36 St, # 130
Miami, FL 33166

B3.2 Contact Information. All inquiries shall contain the name, address, email, phone number, and employer of the inquirer.

B3.3 Scope. Each inquiry shall address one single provision of the standard unless the issue in question involves two or more interrelated provisions. The provision(s) shall be identified in the scope of the request along with the edition of the standard (e.g., D1.1:2006) that contains the provision(s) the inquirer is addressing.

B3.4 Question(s). All requests shall be stated in the form of a question that can be answered 'yes' or 'no'. The request shall be concise, yet complete enough to enable the committee to understand the point of the issue in question. When the point is not clearly defined, the request will be returned for clarification. Sketches should be used whenever appropriate, and all paragraphs, figures, and tables (or annexes) that bear on the issue in question shall be cited.

B3.5 Proposed Answer(s). The inquirer shall provide proposed answer(s) to their own question(s).

B3.6 Background. Additional information on the topic may be provided but is not necessary. The question(s) and proposed answer(s) above shall stand on their own without the need for additional background information.

B4. AWS Policy on Interpretations

The American Welding Society (AWS) Board of Directors has adopted a policy whereby all official interpretations of AWS standards are handled in a formal manner. Under this policy, all official interpretations are approved by the technical committee that is responsible for the standard. Communication concerning an official interpretation is directed through the AWS staff member who works with that technical committee. The policy requires that all requests for an official interpretation be submitted in writing. Such requests will be handled as expeditiously as possible, but due to the procedures that must be followed, some requests for an official interpretation may take considerable time to complete.

B5. AWS Response to Requests

Upon approval by the committee, the interpretation is an official interpretation of the Society, and AWS shall transmit the response to the inquirer, publish it in the *Welding Journal*, and post it on the AWS website.

B6. Telephone Inquiries

Telephone inquiries to AWS Headquarters concerning AWS standards should be limited to questions of a general nature or to matters directly related to the use of the standard. The AWS *Board Policy Manual* requires that all AWS staff members respond to a telephone request for an official interpretation of any AWS standard with the information that such an interpretation can be obtained only through a written request. Headquarters staff cannot provide consulting services. However, the staff can refer a caller to any of those consultants whose names are on file at AWS Headquarters.

Annex C (Informative)

List of AWS Documents on Qualification and Certification

This annex is not part of this standard but is included for informational purposes only.

Qualification Designation	Title
B5.1	<i>Specification for the Qualification of Welding Inspectors</i>
B5.2	<i>Specification for the Training, Qualification, and Company Certification of Welding Inspector Specialists and Welding Inspector Assistants</i>
B5.4	<i>Specification for the Qualification of Welder Test Facilities</i>
B5.5	<i>Specification for the Qualification of Welding Educators</i>
B5.9	<i>Specification for the Qualification of Welding Supervisors</i>
B5.14	<i>Specification for the Qualification of Welding Sales Representatives</i>
B5.15	<i>Specification for the Qualification of Radiographic Interpreters</i>
B5.16	<i>Specification for the Qualification of Welding Engineers</i>
B5.17	<i>Specification for the Qualification of Welding Fabricators</i>

Certification Designation	Title
QC1	<i>Specification for AWS Certification of Welding Inspectors</i>
QC5	<i>AWS Standard for Certification of Welding Educators</i>
QC9	<i>Administrative Procedures for Alleged Violations of AWS Certification Programs</i>
QC13	<i>Specification for the Certification of Welding Supervisors</i>
QC14	<i>Specification for the Certification of Welding Sales Representatives</i>
QC15	<i>Specification for AWS Certification of Radiographic Interpreters</i>
QC17	<i>Specification for AWS Accreditation of Certified Welding Fabricators</i>
QC19	<i>Specification for AWS Certification of Robotic Arc Welding Personnel</i>
QC20	<i>Specification for AWS Certification of Resistance Welding Technicians</i>
QC47	<i>Specification for AWS Certification of Welders and Accreditation of Test Facilities</i>

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