Specification for the Qualification of Welding Inspectors
Specification for
the Qualification of
Welding Inspectors

1st Edition

Prepared by the
AWS B5 Subcommittee on Welding Inspectors

Under the Direction of the
AWS Personnel and Facility Qualification Committee

Approved by the
AWS Board of Directors

Abstract

This standard defines the qualification requirements to qualify welding inspectors. The qualification requirements for visual welding inspectors include experience, satisfactory completion of an examination which includes demonstrated capabilities, and proof of visual acuity. The examination tests the inspector’s knowledge of welding processes, welding procedures, nondestructive examinations, destructive tests, terms, definitions, symbols, reports, welding metallurgy, related mathematics, safety, quality assurance and responsibilities.
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On occasion, text, tables, or figures are printed incorrectly, constituting errata. Such errata, when discovered, are posted on the AWS web page (www.aws.org).

Official interpretations of any of the technical requirements of this standard may only be obtained by sending a request, in writing, to the appropriate technical committee. Such requests should be addressed to the American Welding Society, Attention: Managing Director, Technical Services Division, 550 N.W. LeJeune Road, Miami, FL 33126 (see Annex B). With regard to technical inquiries made concerning AWS standards, oral opinions on AWS standards may be rendered. These opinions are offered solely as a convenience to users of this standard, and they do not constitute professional advice. Such opinions represent only the personal opinions of the particular individuals giving them. These individuals do not speak on behalf of AWS, nor do these oral opinions constitute official or unofficial opinions or interpretations of AWS. In addition, oral opinions are informal and should not be used as a substitute for an official interpretation.

This standard is subject to revision at any time by the AWS Personnel and Facility Qualification Committee. It must be reviewed every five years, and if not revised, it must be either reaffirmed or withdrawn. Comments (recommendations, additions, or deletions) and any pertinent data that may be of use in improving this standard are required and should be addressed to AWS Headquarters. Such comments will receive careful consideration by the AWS Personnel and Facility Qualification Committee and the author of the comments will be informed of the Committee’s response to the comments. Guests are invited to attend all meetings of the AWS Personnel and Facility Qualification Committee to express their comments verbally. Procedures for appeal of an adverse decision concerning all such comments are provided in the Rules of Operation of the Technical Activities Committee. A copy of these Rules can be obtained from the American Welding Society, 550 N.W. LeJeune Road, Miami, FL 33126.
Foreword

This foreword is not part of AWS B5.1:2003, Specification for the Qualification of Welding Inspectors, but is included for informational purposes only.

The purpose of welding inspection is to determine if a weldment meets the acceptance criteria of a specific code, standard, or other document. The welding inspector must be thoroughly familiar with welding processes, welding procedures, welder qualifications, materials, the limitation of weld testing, be able to read drawings, prepare and keep records, prepare and make reports and make responsible judgments. For welding inspectors to be effective, the activities performed should be consistent with the requirements and technical and ethical principles.

The Qualification and Certification Committee of the American Welding Society was formed in 1973. AWS QC1, Standard for Certification of AWS Welding Inspectors was first published in 1975. The first examinations for the certification of AWS Certified Welding Inspector were conducted in the spring and fall of 1976. Over 30,000 individuals have met the requirements of AWS QC1, worldwide, since the start of the program. The last revision to AWS QC1 was published in 1996 and was approved by the American National Standards Institute. In 1996, the AWS Qualification and Certification Committee was divided into two freestanding committees. The Personnel and Facility Qualification Committee is now responsible for creating ANSI American national standards for welding personnel and welding facility qualification requirements. The AWS Certification Committee is now responsible for creating certification programs from these and other recognized standards.

This standard supersedes the part of AWS QC1 that concerns qualification requirements to be met by a welding inspector. For the certification process, refer to AWS QC1 or equivalent. This document establishes the qualification requirements for welding inspectors of all levels. The intent of this subcommittee is to set qualification requirements for welding inspectors that will be equal to those that have been used for the past twenty years by AWS.

Comments and suggestions for the improvement of this standard are welcome. They should be sent to the Secretary, AWS Personnel and Facility Qualification Committee, American Welding Society, 550 N.W. LeJeune Road, Miami, FL 33126.

Errata

The following Errata have been identified and incorporated into the current reprint of this document.

Page 3, Table 1, under “Procedure Qualification”—repeated line—delete “(5) witness procedure qualification” and two “X”s on same line in far columns.

Page 4, Table 1, under “Inspection”—incorrect placement of “X” (two places)—for items #4 and #5 under inspection, the “X” in the column for AWI should be deleted, and an “X” should be added in the column for SWI for both #4 and #5.
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1. Scope

1.1 Requirements. This standard establishes the requirements for qualification and defines the body of knowledge for welding inspection personnel.

1.2 Levels. There are three levels of qualification: Associate Welding Inspector (AWI), Welding Inspector (WI), and Senior Welding Inspector (SWI).

1.3 Responsibility. It shall be the responsibility of the employer to determine that the AWI/WI/SWI is capable of performing the duties involved in his/her particular welding inspection assignment.

1.4 Employer. This standard is intended to supplement the requirements of an employer, code, or other documents and shall not be construed as a preemption of the employer’s responsibility for the work or for the performance of the work.

1.5 Terminology Guideline. As used in this standard, the word shall denotes a requirement, the word should denotes a guideline, and the word may denotes a choice. As used in this specification the word welders includes welding operators, brazers, and brazing operators.

1.6 Safety Precautions. Safety and health issues and concerns are beyond the scope of this standard, and therefore are not fully addressed herein. Safety and health information is available from other sources, including, but not limited to, ANSI Z49.1, Safety in Welding, Cutting, and Allied Processes and applicable federal and state regulations.

1.7 Referenced Documents

   (1) ANSI Z49.1, Safety in Welding, Cutting, and Allied Processes
   (2) AWS A3.0, Standard Welding Terms and Definitions

2. Terms and Definitions

Terms used in this standard are defined below. All other terms, are defined by AWS A3.0, Standard Welding Terms and Definitions.

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

AWS. The American Welding Society, 550 N.W. LeJeune Road, Miami, FL 33126.

candidate. The person attempting to qualify to this standard.

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

code. A standard consisting of a set of conditions and requirements relating to a particular subject and indicating appropriate procedures by which it can be determined that the requirements have been met. A standard suitable for adoption in whole or in part by a governmental authority as a part of a law or regulation or as specified by other mandatory documents.

Committee. The Personnel and Facility Qualification Committee of the American Welding Society.

nondestructive examination (NDE). The act of determining the suitability of some material or component for its intended purpose using techniques that do not affect its serviceability.

qualification. Demonstrate training, skill, knowledge and experience required for personnel to perform the duties of a specific job or function typically demonstrated by passing a performance test.

qualified. In compliance with specific requirements.

quality assurance (QA). All the planned and systematic activities implemented within the quality system, and demonstrated as needed, to provide adequate confidence that an entity will fulfill requirements for quality.

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1. ANSI Z49.1 and AWS standards are published by the American Welding Society, 550 N.W. LeJeune Road, Miami, FL 33126.