

AWS B5.1:2013
An American National Standard



Specification for the Qualification of Welding Inspectors



American Welding Society®



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An American National Standard

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Specification for the Qualification of Welding Inspectors

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Prepared by the
American Welding Society (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 and 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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Foreword

This foreword is not part of AWS B5.1:2013, *Specification for the Qualification of Welding Inspectors*, but is included for informational purposes only.

This is the second edition of this specification. The first edition superseded, in part, AWS QC1, *Standard for Certification of AWS Welding Inspectors*. AWS QC1 sets the requirements for the AWS Certified Welding Inspector program. AWS B5.1 establishes a basic definition of a welding inspector, and is referenced by QC1. Companies or individuals wishing to establish in-house or internal qualification programs for inspection personnel may use AWS B5.1 as the basis for their program. Companies or individuals wishing to obtain AWS certification must follow the requirements in AWS QC1. Individuals who comply with AWS B5.1 but not with AWS QC1 should not be labeled as AWS Certified Welding Inspectors; only individuals who comply with AWS QC1, as determined by AWS, may obtain that title.

This second edition includes revisions to nearly every area of the specification: duties, capabilities, education, experience, and testing. An alternative to taking the Senior Welding Inspector exam has been added, see 7.3.

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 2007 and was approved by the American National Standards Institute. In 1996, the AWS Qualification & Certification Committee was divided into two freestanding committees. The Personnel & 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.

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.

Comments and suggestions for the improvement of this standard are welcomed. They should be sent to the Secretary, AWS Personnel and Facility Qualification Committee, American Welding Society, 8669 Doral Blvd., Suite 130, Doral, FL 33166.

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Specification for the Qualification of Welding Inspectors

1. Scope

1.1 Requirements. This standard establishes the requirements for qualification and defines the body of knowledge applicable to 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. Qualification of AWI/WI/SWI personnel to the requirements of this standard does not eliminate the need of an employer to determine the ability of the individual to perform the duties involved in a 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 Definitions. As used in this standard, the word *shall* denotes a requirement, the word *should* denotes a guideline, and the word *may* means it is permissible. As used in this specification the word *welders* includes welding operators, brazers, and brazing operators.

1.6 Units. This standard does not require units of measure. Therefore, no equivalents or conversions are contained except when they are cited in examples.

1.7 Safety

1.7.1 Safety and health issues and concerns are beyond the scope of this standard; some safety and health information is provided, but such issues are not fully addressed herein.

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

Applicable Regulatory Agencies

1.7.3 Work performed in accordance with this standard may involve the use of materials that have been deemed hazardous, and may involve operations or equipment that may cause injury or death. This standard does not purport to address all safety and health risks that may be encountered. The user of this standard should establish an appropriate safety program to address such risks as well as to meet applicable regulatory requirements. ANSI Z49.1 should be considered when developing the safety program.