Specification for the Qualification of Welding Inspectors
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.
Statement on the Use of American Welding Society Standards

All standards (codes, specifications, recommended practices, methods, classifications, and guides) of the American Welding Society (AWS) are voluntary consensus standards that have been developed in accordance with the rules of the American National Standards Institute (ANSI). When AWS American National Standards are either incorporated in, or made part of, documents that are included in federal or state laws and regulations, or the regulations of other governmental bodies, their provisions carry the full legal authority of the statute. In such cases, any changes in those AWS standards must be approved by the governmental body having statutory jurisdiction before they can become a part of those laws and regulations. In all cases, these standards carry the full legal authority of the contract or other document that invokes the AWS standards. Where this contractual relationship exists, changes in or deviations from requirements of an AWS standard must be by agreement between the contracting parties.

AWS American National Standards are developed through a consensus standards development process that brings together volunteers representing varied viewpoints and interests to achieve consensus. While AWS administers the process and establishes rules to promote fairness in the development of consensus, it does not independently test, evaluate, or verify the accuracy of any information or the soundness of any judgments contained in its standards.

AWS disclaims liability for any injury to persons or to property, or other damages of any nature whatsoever, whether special, indirect, consequential, or compensatory, directly or indirectly resulting from the publication, use of, or reliance on this standard. AWS also makes no guarantee or warranty as to the accuracy or completeness of any information published herein.

In issuing and making this standard available, AWS is neither undertaking to render professional or other services for or on behalf of any person or entity, nor is AWS undertaking to perform any duty owed by any person or entity to someone else. Anyone using these documents should rely on his or her own independent judgment or, as appropriate, seek the advice of a competent professional in determining the exercise of reasonable care in any given circumstances. It is assumed that the use of this standard and its provisions is entrusted to appropriately qualified and competent personnel.

This standard may be superseded by new editions. This standard may also be corrected through publication of amendments or errata or supplemented by publication of addenda. Information on the latest editions of AWS standards including amendments, errata, and addenda is posted on the AWS web page (www.aws.org). Users should ensure that they have the latest edition, amendments, errata, and addenda.

Publication of this standard does not authorize infringement of any patent or trade name. Users of this standard accept any and all liabilities for infringement of any patent or trade name items. AWS disclaims liability for the infringement of any patent or product trade name resulting from the use of this standard.

AWS does not monitor, police, or enforce compliance with this standard, nor does it have the power to do so.

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, 8669 Doral Blvd., Suite 130, Doral, FL 33166 (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, 8669 Doral Blvd., Suite 130, Doral, FL 33166.
Personnel

Personnel & Facilities Qualification Committee

W. F. Behnke, Chair United Technical, LLC
P. A. Michalski, 1st Vice Chair Dominion East Ohio
P. A. Grimm, 2nd Vice Chair Modern Welding Company
S. P. Hedrick, Secretary American Welding Society
K. W. Coryell Consultant
I. A. Cross Valiant Machine and Tool
R. Dines United Technical, LLC
K. M. Gilgenbach Airgas North Central
M. D. Ison Tampa Tank Florida Structural Steel
V. Kuruvilla Genesis Quality Systems
B. W. Phillips Aker Solutions
J. R. Reid Reid Consulting
M. R. Stone Flint Field Services Ltd.
D. L. Twitty Dona Ana Community College

AWS B5A Subcommittee on Welding Inspectors

P. A. Grimm, Chair Modern Welding Company
S. P. Hedrick, Secretary American Welding Society
W. F. Behnke United Technical, LLC
K. W. Coryell Consultant
R. E. Dines United Technical, LLC
F. J. Fascenda Mitsubishi Power Systems Americas, Incorporated
J. E. Greer Moraine Valley College
M. D. Ison Tampa Tank Florida Structural Steel
P. A. Michalski Dominion East Ohio
C. K. Nicholson MACTEC Engineering & Consulting, Incorporated
J. R. Reid Reid Consulting
D. L. Twitty Dona Ana Community College
R. K. Wiswesser Dona Ana Community College

Advisors to the AWS B5A Subcommittee on Welding Inspectors

S. P. Fugate Fought & Company, Incorporated
A. S. Gallant Applus RTD
V. Kuruvilla Genesis Quality Systems
J. Olvera Sanchez Bombardier Transportation
Z. Turner City & County of San Francisco
# Table of Contents

AWS B5.1:2013

**Personnel** ........................................................................................................................................................................... v
**Foreword** .................................................................................................................................................................................. vii
**List of Tables** ............................................................................................................................................................................. x

1. **Scope** .................................................................................................................................................................................. 1
   1.1 Requirements ........................................................................................................................................................................ 1
   1.2 Levels ..................................................................................................................................................................................... 1
   1.3 Responsibility ....................................................................................................................................................................... 1
   1.4 Employer ............................................................................................................................................................................... 1
   1.5 Terminology Guideline ....................................................................................................................................................... 1
   1.6 Units ..................................................................................................................................................................................... 1
   1.7 Safety .................................................................................................................................................................................. 1
   1.8 Referenced Documents ...................................................................................................................................................... 2

2. **Terms and Definitions** ......................................................................................................................................................... 2

3. **Levels of Qualification** ......................................................................................................................................................... 2
   3.1 Associate Welding Inspector (AWI) ..................................................................................................................................... 2
   3.2 Welding Inspector (WI) ....................................................................................................................................................... 2
   3.3 Senior Welding Inspector (SWI) ...................................................................................................................................... 2

4. **Functions** ................................................................................................................................................................................ 2
   4.1 Duties ..................................................................................................................................................................................... 2
   4.2 Capabilities ......................................................................................................................................................................... 2

5. **Education and Experience Requirements** ............................................................................................................................ 5
   5.1 Associate Welding Inspector .............................................................................................................................................. 5
   5.2 Welding Inspector ............................................................................................................................................................... 5
   5.3 Senior Welding Inspector .................................................................................................................................................... 6
   5.4 Documentation .................................................................................................................................................................. 6
   5.5 Qualifying Experience ......................................................................................................................................................... 6

6. **Examination Requirements** .................................................................................................................................................. 7
   6.1 Visual Requirements ........................................................................................................................................................... 7
   6.2 Written Test Requirements ................................................................................................................................................... 7

7. **Examination Structure** ......................................................................................................................................................... 7
   7.1 WI/AWI Examination ....................................................................................................................................................... 7
   7.2 SWI Examination .............................................................................................................................................................. 8
   7.3 SWI Alternate Qualification ............................................................................................................................................. 8

8. **Maintenance of Qualification** ............................................................................................................................................... 8

Annex A (Informative)—Reference Documents ................................................................................................................................. 9
Annex B (Informative)—Guidelines for the Preparation of Technical Inquiries ............................................................................... 11
## List of Tables

<table>
<thead>
<tr>
<th>Table</th>
<th>Page No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Welding Inspection Capabilities Based on Qualification Level</td>
</tr>
</tbody>
</table>


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.