

Specification for Qualification and Certification for Level III—Expert Welders



American Welding Society



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Key words — expert level welder, participating organization, performance tests, acceptance criteria, National Registry

AWS QC12-96

Specification for Qualification and Certification for Level III - Expert Welders

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AWS Education and Certification Departments

Under the Direction of the
AWS Education Grant Committee

Approved by the
AWS Board of Directors

Abstract

This standard defines the requirements and program for the American Welding Society to certify expert level welders. The certification of Level III - Expert Welders requires performance qualification and practical knowledge tests. These tests require more detailed skills of reading, computational, and manual skills to complete.



American Welding Society

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Foreword

(This Foreword is not a part of AWS QC12-96, *Specification for Qualification and Certification of Level III - Expert Welders*, but is included for information purposes only).

This standard extends the work of the American Welding Society to further define a national skill standard for Level III - Expert Welders. The American Welding Society was awarded Grant #V244B30006-95 for \$1,059,626 by the U.S. Department of Education to develop standards and a certification program for welders during the period from July 1993 to July 1996. The total program cost is \$2,132,094, of which 49.7% (\$1,072,468) is an in-kind contribution by AWS.

To accomplish its goals, AWS organized an Education Grant Committee, which has representatives from all segments of the welding industry, including labor organizations and educational institutions. This Committee has overseen the efforts toward a standard for the qualification and certification of the Level III - Expert Welder.

The development of this National Skill Standard has involved the participation of the welding industry through a survey designed to determine a consensus of welder skills and competencies required for individuals seeking to continue the development of their welding skills.

The results of this industry survey were an occupational task analysis that formed the basis for curriculum guidelines to guide the training of the Level III - Expert Welder candidate.

This standard defines the requirements for the certification of such individuals and their entry into the National Registry of Level III - Expert Welders.

Comments and suggestions for improvement of this standard are welcome. They should be sent in writing to the Secretary, AWS Certification Committee, American Welding Society, 550 N.W. LeJeune Road, Miami, Florida 33126.

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Specification for Qualification and Certification for Level III - Expert Welders

1. Scope

1.1 This standard establishes the minimum requirements for an organization to participate with the American Welding Society (AWS) in the qualification and certification of expert welders.

1.2 This standard specifies practical knowledge and performance tests that require a more detailed level of reading, computational, and manual skills to successfully complete.

1.3 All individuals that meet the specified performance at a facility meeting **3. Requirements for Participating Organizations** will be listed in The National Registry of Level III - Expert Welders at the American Welding Society.

1.4 Organizations not meeting **3. Requirements for Participating Organizations** may use this standard, but individuals they certify will not be listed in the National Registry of Level III - Expert Welders.

1.5 Although a written test including questions on safety is required by this standard, this standard is not intended to address safety and health. Safety and health requirements are provided in ANSI Z49.1, *Safety in Welding and Cutting*, other safety and health standards, and federal, state, and local government regulations. The responsibility for safety of the Level III - Expert Welder is primarily with the welder, the Participating Organization during training and testing, and afterwards, with the employer.

1.6 The requirements of this standard shall not supersede the authority of the training facility as established by the local evaluation guidelines.

2. Definitions

The terms used in this standard are defined in ANSI/AWS A3.0, *Standard Welding Terms and Definitions*. Other terms are defined as follows:

- 1) Participating Organization - Any organization meeting **3. Requirements for Participating Organizations**.
- 2) Level III - Expert Welder - An individual employed in this position is considered to possess a prerequisite amount of knowledge, attitude, skills, and habits required to perform tasks autonomously, including the selection and use of appropriate techniques and equipment, and to apply theoretical knowledge and motor skills with minimum supervision.

3. Requirements for Participating Organizations

3.1 Participating Organizations may be training-and-testing or testing-only facilities.

3.2 Participating Organizations shall maintain and follow a quality manual that assures compliance with this standard.

3.3 An application for registration as a Participating Organization shall be submitted with a cover letter signed by the Senior Official at the Facility. The cover letter shall certify to AWS that the Facility has a Quality Program which will be rigorously followed, and that the requirements of this standard will be met.

3.3.1 If the Participating Organization is a training-and-testing organization, the letter shall also state that their curriculum follows AWS EG4.0, *Guide for Training and Qualification of Welding Personnel, Level III - Expert Welders*.

3.3.2 Participating Organizations already registered for the Entry Level Welder and Level II - Advanced Welder training program must notify AWS of their intention to administer the Level III - Expert Welder curriculum.

3.4 Test supervisors for training-and-testing or testing-only Participating Organizations should be AWS Certified Welding Inspectors.

3.5 Instructors for testing-and-training Participating Organizations should be AWS Certified Welding Educators.

3.6 Quality System Audits. Audits may be required if evidence of nonconformance with the Participating Organization's Quality Program or this standard exists.

3.6.1 Allegations of nonconformance supported by documentary evidence will be presented to the AWS Certification Committee. The Committee may require:

- 1) A written statement by the Senior Official of the Participating Organization with supporting evidence refuting the allegations, and a statement by the Senior Official of the Participating Organization that the requirements of the Participating Organization Quality Program and this standard have been met in the past, and will be met in the future, or
- 2) An on-site quality audit by an AWS-approved assessor to verify that the requirements of the Quality Program and this standard have been and are being met.

3.6.2 If a quality audit is required by the Committee, then the Participating Organization has two options, as follows:

- 1) The Participating Organization may decline to be audited and resign from the program, or
- 2) The Participating Organization may agree to be audited, in which case the Senior Official of the Participating Organization shall issue a purchase order to AWS for administrative fees and expenses of the assessor.

4. Education and Work Experience

4.1 Trainees desiring AWS Level III - Expert Welder Certification through training under the requirements of AWS QC12 shall meet the requirements of sections 1.3.7 and 1.3.8 of the EG4.0-96 *Guide for the Training and Qualification of Welding Personnel, Level III - Expert Welder* and document two years of multiple welding process work experience (with a minimum of 6 months fabrication experience that includes drawing interpretation, layout and fitup duties) that has a direct relationship to weldments fabricated to a code, specification or employer's qualified welding procedure.

4.2 Trainees desiring AWS Level III - Expert Welder Certification through testing and examination under the requirements of AWS QC12 shall meet the requirement of sections 1.3.7 and 1.3.8 of the EG4.0-96 *Guide for the Training and Qualification of Welding Personnel, Level III - Expert Welder* and document seven years welding work experience. Said work experience shall consist of three years in a single process and 4 years using multiple processes, (with a minimum of 6 months fabrication experience that includes drawing interpretation, layout and fitup duties) that have a direct relationship to weldments fabricated to a code, specification or employer's qualified welding procedure.

4.3 At the discretion of a Participating Organization, credit for completion of individual training requirements and work experience may be simultaneously granted to an AWS QC12 Level III - Expert Welder applicant provided the work experience or experiential learning meets or exceeds the requirements for either work experience or training.

5. Written Examination

5.1 The written examination is designed to show that the Level III - Expert Welder understands the following subjects:

- Mathematics
- Safe Practices
- Fabrication Principles and Practices
- Nondestructive Examination and Piping Symbol Interpretation
- Use of Welding Codes and Standards
- Welding Inspection and Testing
- Cutting and Welding Theory
- Welding Metallurgy and Weldability
- Cutting and Welding Terms and Definitions

5.2 Trainees desiring AWS Level III - Expert Welder Certification shall pass a three part examination consisting of Part A - Welding Fundamentals and Safety (based on the applicable subject matter identified in section 3 of the EG4.0-96 *Guide for the Training and Qualification of Welding Personnel, Level III - Expert Welder*, Part B - *Practical Welding Specification Interpretation* (visual examination of weld samples), and Part C - Open Code Book (open book examination based on one of the following: AWS D1.1, API 1104 or ASME Section IX).

5.3 A minimum passing grade of 75% is required with at least 90% of the safety questions answered correctly, with no limits on retests. Individuals failing one part of the written examination must retest on all parts of the examination.

5.4 As an option, Level III - Expert Welder applicants may substitute the AWS QC1 Certified Welding Inspector (CWI) examination for the Level III - Expert Welder written examination. The applicant shall pass the AWS QC1 Certified Welding Inspector exam with a minimum cutoff score equal to or greater than the passing score required for CWI.

5.4.1 Current AWS Certified Welding Inspectors (CWI) or Certified Associate Welding Inspectors (CAWI) with an examination score of 72% or higher shall be recognized as having met the requirements for AWS QC12 Expert Welder written examination provided they pass a supplemental safety examination with a minimum passing score of 90% accuracy.

5.4.2 In accordance with the requirements of this standard, all applicants for written examinations administered under AWS *QC1, Standard for AWS Certification of Welding Inspectors* shall be required to take a supplemental written safety examination and pass with 90% accuracy.