

AWS B5.16:2006
An American National Standard



Specification for the Qualification of Welding Engineers



American Welding Society



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Specification for the Qualification of Welding Engineers

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Prepared by the
American Welding Society (AWS) B5C Subcommittee on Qualification of Welding Engineers

Under the Direction of the
AWS Personnel and Facility Qualification Committee

Approved by the
AWS Board of Directors

Abstract

This specification establishes the requirements for qualification of Welding Engineers employed in the welding industry. The minimum experience, examination, application, qualification, and requalification requirements and methods are defined herein. This specification is a method for engineers to establish a record of their qualification and abilities in welding industry work such as development of procedures, processes controls, quality standards, problem solving, etc.



American Welding Society

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American Welding Society

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Foreword

This foreword is not a part of AWS B5.16:2006, *Specification for the Qualification of Welding Engineers*, but is included for informational purposes only.

The Qualification and Certification Committee of the American Welding Society was formed in 1973. In 1996, it was divided into two committees. The Personnel and Facility Qualification Committee is now responsible for creating 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 is the second edition of this specification. Several minor editorial changes were made. This specification for the qualification of welding engineers was developed to provide a qualification basis which defines minimum requirements for a welding engineer to demonstrate competence through a combination of education, experience, and examination.

The welding engineer is a person who determines weld requirements which may be governed under a specific code, contract, drawing, specification, purchase order, or other documents. The welding engineer either prepares or reviews written instructions for the production of welded joints. The welding engineer must be thoroughly familiar with various codes, specifications, other standards, base materials, filler materials, heat treatment, mechanical properties, welding and joining processes, procedures, weld joint design, welding equipment, thermal cutting, inspection methods, acceptance criteria, tests, welding qualification requirements, fabrication tolerances, and other aspects of fabrication and assembly. The welding engineer shall also prepare and produce reports which accurately reflect professional judgment. For the welding engineer to be effective, the activities they perform must be consistent with specified requirements, technical and ethical principles. The welding engineer must be able to work with management representatives, inspection personnel, welders and support crafts, and should be able to understand the role of each in the development of weldments.

It is recommended that an individual pursue certification as a Welding Engineer by a recognized authorized body. Certification is defined as *the act of determining, verifying, and attesting in writing to the qualification of personnel in accordance with specified requirements*.

Comments and suggestions for the improvement of this standard are welcome. They should be sent to the Secretary, AWS B5 Committee on Qualification, American Welding Society, 550 N.W. LeJeune Road, Miami, FL 33126.

Official interpretations of any of the technical requirements of this standard may be obtained by sending a request, in writing, to the Managing Director, Technical Services Division, American Welding Society (see Annex B). A formal reply will be issued after it has been reviewed by the appropriate personnel following established procedures.

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Specification for the Qualification of Welding Engineers

1. Scope

1.1 This specification establishes qualification requirements for Welding Engineers. It describes how qualifications are determined, and the practice by which qualification may be attained and maintained.

1.2 The user of this specification will evaluate the qualifications of each individual, and provide examinations to test the individual's knowledge in engineering skills and knowledge as well as their ability to apply the principles of welding engineering.

1.3 This specification is intended to supplement the minimum requirements of employers, codes, other standards, or documents and shall not be construed as a preemption of the employer's responsibility for the work or for the performance of the work.

1.4 It shall be the responsibility of employers to determine that their employee, who, having qualified as a Welding Engineer, is capable of performing the specific duties involved in their career assignments.

1.5 As used in this specification, the word *shall* denotes a requirement, the word *should* denotes a guideline, and the word *may* denotes a choice.

2. Referenced Documents

1. AWS A3.0, *Standard Welding Terms and Definitions*.¹

3. Qualification

3.1 Welding Engineer. A person with the demonstrated education, experience, and knowledge in accordance

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with Clauses 6, 7, and 9 of this specification and who successfully passes the required examinations, shall be considered qualified as a Welding Engineer.

3.1.1 The title of Welding Engineer, as specified herein, **DOES NOT** imply the status of a registered Professional Engineer (P.E.) under the laws of any state or other governmental entity.

PRECAUTION: While the Welding Engineer has established excellent credentials, qualification to this specification alone may not legally qualify the engineer to provide technical services to the public. Contract documents, and building or jurisdiction laws may require technical services to be performed under the direction and responsibility of others such as a registered Professional Engineer. The Welding Engineer designation **DOES NOT** imply the status of a registered Professional Engineer (P.E.) under the laws of any state or other governmental entity.

4. Terms and Definitions

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

Committee. The Personnel and Facility Qualification Committee of the American Welding Society, 550 N.W. LeJeune Road, Miami, FL 33126.

contact hours. One contact hour has been defined as 50 minutes of classroom time (lecture or lab hours).

continuing education unit (CEU). One CEU is defined as 10 contact hours.

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.