

# QUALIFICATION AND CERTIFICATION



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## CHAPTER 15

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# QUALIFICATION AND CERTIFICATION

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## INTRODUCTION

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To ensure that manufacturing processes and professionals render quality products and services, many local, state, and federal codes and regulations require the qualification and certification of fabrication procedures, inspection personnel, and engineering professionals. An example of one such regulation is the Occupational Safety and Health Administration's (OSHA) *Process Safety Management*, 29 CFR 1910.119, which requires that employers provide documentation of the qualifications of personnel in industries having recognized certification programs. Though this particular code is geared toward the chemical industry, it exemplifies the manner in which the federal government is becoming increasingly involved in qualification and certification. On the whole, government codes and regulations provide assurance that individuals are technically competent to perform work and provide inspection services in their industries.<sup>1</sup>

In the field of welding, qualification and certification programs are offered by organizations such as the American Welding Society (AWS) and the American Society for Nondestructive Testing (ASNT). In addition to their respective welding and welding-related qualification and certification programs, AWS and ASNT have embarked on a joint initiative to offer a certification program for inspection personnel. In the field of inspection, certification programs are offered by organizations such as AWS, ANST, and the National Board of Boiler and Pressure Vessel Inspectors. For example, the latter certifies Authorized Inspectors (AIs) in the local, state, and federal jurisdictions where the *National Board*

*Inspection Code*<sup>2,3</sup> has been adopted as law. These authorized inspectors provide assurance that boilers and pressure vessels have been built, modified, or repaired in accordance with the requirements established by the National Board of Boiler and Pressure Vessel Inspectors and the American Society of Mechanical Engineers (ASME). Qualification and certification programs such as these have one main goal—to ensure that design practices, manufacturing processes, fabrication techniques, and inspection activities are performed by personnel who are qualified in accordance with good engineering practices and standards.

The qualification of welding procedures applies to all joining processes covered by a code or specification. These processes include arc welding (shielded metal arc welding [SMAW], gas tungsten arc welding [GTAW], and gas metal arc welding [GMAW]), oxyfuel gas welding (OFW), and other processes such as electron beam (EBW) and electroslag welding (ESW) and brazing (B). Each manufacturer is required to establish welding procedure specifications (WPSs) and brazing procedure qualifications (BPSs). These procedure specifications are the directions to be followed by the welder and brazer during the welding and brazing manufacturing processes. The manufacturer then demonstrates that the specification meets the standards required by the manufacturing

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1. This chapter includes general discussions of the qualification and certification requirements specified by various codes and standards. These discussions should not be considered a substitute for reading and comprehending the actual governing codes or standards.

2. National Board of Boiler and Pressure Vessel Inspectors, *National Board Inspection Code*, NB-23, Columbus, Ohio: National Board of Boiler and Pressure Vessel Inspectors.

3. At the time of the preparation of this chapter, the referenced codes and other standards were valid. If a code or other standard is cited without a date of publication, it is understood that the latest edition of the document referred to applies. If a code or other standard is cited with the date of publication, the citation refers to that edition only, and it is understood that any future revisions or amendments to the code or standard are not included; however, as codes and standards undergo frequent revision, the reader is encouraged to consult the most recent edition.