

ASME BOILER AND PRESSURE VESSEL CODE: Section IX, Welding and Brazing Qualifications

This course covers the requirements of ASME Section IX.

- ☑ Learn how to achieve economical compliance with ASME Section IX when writing and qualifying welding and brazing procedures.
- ☑ Gain insights into Section IX to facilitate interpreting, understanding and complying with ASME Section IX.
- ☑ Review welding processes, common variables and basic welding metallurgy.
- ☑ Find out how to qualify welders and brazers the easy way.

WHO SHOULD ATTEND

Welding engineers, quality assurance personnel, auditors, testing laboratory personnel, maintenance personnel and jurisdictional inspection personnel; also anyone involved in qualifying welders, brazers and operators; or others involved in writing and qualifying welding and brazing procedure specifications; those responsible for reviewing supplier procedures, auditing or reviewing in-house procedures and qualifications; and those who estimate jobs where compliance of ASME Section IX is mandatory.

SPECIAL FEATURES

- Emphasis is placed on writing and qualifying welding procedures that comply with Section IX with an in-depth understanding of the requirements.
- Requirements for welder and operator qualification are examined in detail and made easy to understand.
- Selection of test coupons to minimize overall cost of qualification and writing WPSs so that they provide optimum flexibility are presented.

COURSE HIGHLIGHTS

History and Structure

- Historical Development of Section IX; Relationship of Section IX to Other Codes; Organization, Structure and Mechanics of Using Section IX - Essential, Nonessential and Supplemental Essential Variables.

Review of welding processes and common variables

- Shielded metal arc welding; gas tungsten arc welding; gas metal arc welding; submerged arc welding; plasma arc welding; electroslag welding; electrogas welding; electron beam welding; stud welding; friction welding; resistance welding. Variables for common processes will be examined in detail.

- **Basic welding metallurgy**
 - Steel metallurgy; hardenability; preheat and postweld heat treatment; P-numbers, S-numbers and non-code metals.
- **Filler metal specifications**
 - F-numbers, A-numbers, SFA specifications, non-SFA filler metals.
- **Writing the welding procedure specification**
 - meeting code requirements, addressing customer requirements; providing direction to the welder; sources of information for preparing intelligent and meaningful welding procedure specifications.
- **Selecting and preparing the test coupon**
 - obtaining maximum cost-effectiveness from test coupons; preparation and welding of the test coupon;

recording both necessary and worthwhile data; demonstrating code compliance.

- **Practical session: writing the welding procedure specification**
 - use of Section IX form; other formats; procedure qualification record forms; revisions to records and procedures. take-home test
- **Welder and welding operator qualifications**
 - selection of test coupons to minimize testing costs and simplify record keeping; conducting performance test; organizational responsibility and ownership of test records; testing of coupons and recording of test data; maintaining continuity of qualification.
- **Supplemental variables - special considerations for notch-toughness**
 - how welding influences toughness; toughness requirements of construction codes; measuring and recording heat input data; translating heat input data into useful directions for a welder; typical construction code requirements.
- **Brazing**
 - brazing processes and variables; differences between the QW-(welding) and QB-(brazing) sections; preparation of the brazing procedure specification; qualification of the brazing procedure; types of tests; qualification of brazers and brazing operators.

ABOUT THE INSTRUCTOR

Walter J. Sperko, P.E., is President of Sperko Engineering Services, Inc., a consulting firm specializing in metal fabrication technology. Mr. Sperko is vice chairman of Subcommittee IX. He is also a member of the Subcommittee III Sub-group on Materials, Fabrication and Examination; the ASME B31.9, *Building Services Piping*; Chairman of AWS Committee D10, *Piping and Tubing*; the ASME B31 Standards Committee; AWS TAC and Chairman of AWS International standards Activities Committee.

COURSE DATES AND LOCATIONS

Houston, October 3/5, 2000

Las Vegas, May 1/3, 2001

3 days / 2.1 CEUs

\$895 ASME Member / \$995 Non-Member

Contact ASME Professional Development at 212-951-7161 or www.asme.org (click on "Professional Development") for more details and to register.