PART QG
GENERAL REQUIREMENTS

(a) This Section contains requirements for the qualification of welders, welding operators, brazers, brazing operators, plastic fusing operators, and the material joining processes they use during welding, brazing, and fusing operations for the construction of components under the rules of the ASME Boiler and Pressure Vessel Code, the ASME B31 Codes for Pressure Piping, and other Codes, standards, and specifications that reference this Section. This Section is divided into four parts.

(1) Part QG contains general requirements for all material-joining processes.

(2) Part QW contains requirements for welding.

(3) Part QB contains requirements for brazing.

(4) Part QF contains requirements for plastic fusing.

(b) Whenever the referencing Code, standard, or specification imposes qualification requirements different than those given in this Section, the requirements of the referencing Code, standard, or specification shall take precedence over the requirements of this Section.

(c) Some of the more common terms relating to material joining processes are defined in QG-109. Whenever the word "pipe" is used, "tube" shall also be applicable.

(d) New editions to Section IX may be used beginning with the date of issuance and becomes mandatory 6 months after the date of issuance.

(e) Code Cases are permissible and may be used, beginning with the date of approval by ASME. Only Code Cases that are specifically identified as being applicable to this Section may be used. At the time a Code Case is applied, only the latest revision may be used. Code Cases that have been incorporated into this Section or have been annulled shall not be used for new qualifications, unless permitted by the referencing Code. Qualifications using the provisions of a Code Case remain valid after the Code Case is annulled. The Code Case number shall be listed on the qualification record(s).

(f) Throughout this Section, references are made to various non-ASME documents. Unless a specific date is referenced, the latest edition of the reference document in effect at the time of performance or procedure qualification is to be used.

QG-102 PROCEDURE QUALIFICATION RECORD

The purpose of qualifying the procedure specification is to demonstrate that the joining process proposed for construction is capable of producing joints having the required mechanical properties for the intended application. Qualification of the procedure specification demonstrates the mechanical properties of the joint made using a joining process, and not the skill of the person using the joining process.

The procedure qualification record (PQR) documents what occurred during the production of a procedure qualification test coupon and the results of testing that coupon. As a minimum, the PQR shall document the essential procedure qualification test variables applied during production of the test joint, and the results of the required tests. When toughness testing is required for qualification of the procedure specification, the applicable supplementary essential variables shall be recorded for each process. The organization shall certify the PQR by a signature or other means as described in the organization’s Quality Control System. The PQR shall be available for review. A procedure specification may be supported by one or more PQR(s), and one PQR may be used to support one or more procedure specification(s).
performance of nondestructive examination and mechanical tests, provided the organization accepts full responsibility for any such work.

(c) If the effective operational control of procedure qualifications for two or more companies of different names exists under the same corporate ownership, the companies involved shall describe in their Quality Control System or Quality Assurance Program the operational control of procedure qualifications. In this case, separate procedure qualifications are not required, provided all other requirements of this Section are met.

QG-106.2 Performance Qualifications. Each organization is responsible for the supervision and control of material joining performed by persons for whom they have operational responsibility and control. The organization shall conduct the tests required by this Section to qualify the performance of those persons with each joining process they will use for the construction of components under the rules of the Codes, standards, and specifications that reference this Section. This requirement ensures that the qualifying organization has determined that the personnel using its procedures are capable of achieving the minimum requirements specified for an acceptable joint. This responsibility cannot be delegated to another organization.

(a) The personnel who produce test joints for performance qualification shall be tested under the full supervision and control of the qualifying organization.

(b) The performance qualification test shall be performed following either a qualified procedure specification or a standard procedure specification acceptable under the rules of the applicable Part for the joining process. The Part addressing any specific joining process may exempt a portion of the procedure specification from being followed during production of the performance qualification test coupon.

(c) Production of test joints under the supervision and control of another organization is not permitted. It is permitted to subcontract any or all of the work necessary for preparing the materials to be joined in the test joint, and the subsequent work for preparing test specimens from the completed test joint, and the performance of nondestructive examination and mechanical tests, provided the organization accepts full responsibility for any such work.

(d) The performance qualification test may be terminated at any stage, whenever it becomes apparent to the supervisor conducting the tests that the person being tested does not have the required skill to produce satisfactory results.

(e) When a procedure qualification test coupon has been tested and found acceptable, the person who prepared the test coupon is also qualified for the joining process used, within the ranges specified for performance qualification for the applicable process(es).

(f) Persons who are successfully qualified shall be assigned an identifying number, letter, or symbol by the organization, which shall be used to identify their work.

(g) If effective operational control of performance qualifications for two or more companies of different names exists under the same corporate ownership, the companies involved shall describe in their Quality Control System or Quality Assurance Program the operational control of performance qualifications. In this case, qualification of persons working within the companies of such an organization are not required, provided all other requirements of this Section are met.

QG-106.3 Simultaneous Performance Qualifications. Organizations may participate in an association to collectively qualify the performance of one or more persons for material-joining processes simultaneously and may share performance qualification information with other participating organizations within the association. When simultaneous performance qualifications are conducted, each participating organization shall be represented by an employee with designated responsibility for performance qualifications.

(a) The essential variables of the procedure specifications to be followed during simultaneous performance qualifications shall be compared by the participating organizations, and shall be identical, except as otherwise provided in the Part addressing the specific joining method. The qualified thickness ranges need not be identical but shall include the test coupon thickness.

(b) Alternatively, the participating organizations shall agree to follow a single procedure specification, or PQR or shall have accepted responsibility for using a standard procedure specification having a range of variables consistent with those to be followed during the performance qualification test, in accordance with the applicable Part for the joining method.

(c) Each participating organization’s representative shall

(1) positively identify the person whose performance is to be tested
(2) verify the markings on the test coupon correspond to the person’s identification
(3) verify that the positional orientation markings on the test coupon reflect the test position of the coupon as required to identify the location of test specimen removal
(4) perform a visual examination of each completed test coupon and each test specimen to determine its acceptability

(a) When the test coupon(s) is prepared and the test specimens are mechanically tested by an independent laboratory, the laboratory’s report may be used as the basis for accepting the test methods and their results.