

Code revisions allow one-time qualification for multi-contractor projects

*The following summarizes changes to ASME Section IX per the 1992 addenda, **mandatory July 1, 1993**. Prepared by Walter J. Sperko, P.E., this summary represents his opinion only and not necessarily the official opinion of ASME. For more information, contact Mr. Sperko, Sperko Engineering Services, Inc., Greensboro, N.C., at (919) 674-0600.*

The requirement for visual examination (VT) of welder-test coupons that will be mechanically tested is elevated from an obscure footnote to QW-452.1 to more-evident locations throughout the Code. Previously obscured in notes 8 and 9 of QW-452.1, this testing is now specified in QW-304 and QW-305. QW-302.4 addresses the extent of examination, and QW-190 covers acceptance criteria.

In conjunction with this change, welder-operator-qualification-record-form QW-484 now includes a space for documentation of this visual inspection. VT of coupons that will undergo radiography is not required, though this can

save time and money.

The last addenda moved requirements for corrosion-resistant and hardfacing weldmetal overlays into QW-250 making the tables unwieldy and confusing. This revision keeps the overlay variables in QW-250, but it separates the tables showing the variables for normal groove and fillet welding from those for overlays.

Rules for multi-contractor projects

Revisions to QW-300.3 reduce the cost of qualifying welders when many contractors are working on a job. It allows multiple contractors to simultaneously witness the welding of test coupons by one or more welders. Each contractor must have a welding-procedure specification (WPS) virtually identical to all of the other contractor WPSs; a single WPS may be used, provided that each participating contractor has procedure-qualification records to support the WPSs. Also, each contractor must have a supervising representative present to supervise and verify the welder's

identification, test coupon size and thickness, its orientation, type of electrode, and other variables used during the qualification and to visually examine the completed test coupon and test specimens.

Finally, each organization must complete and sign its own records for each welder tested. When a welder changes employers within the group that qualified him at one time, the new employer need only verify that the welder's qualification is current under QW-322 (the 6-month rule) and obtain from the previous employer the last date that the welder was observed welding. The welder may then make production welds with no further testing.

Filler qualifications relaxed

QW-404.15, which deals with essential variables for procedure qualification for SMAW, is revised to say, "A change from one F number in QW-432 to any other F number or to any filler metal except qualification under any F number up to and including F-4 shall qualify welder for all lower F numbers

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for welding *with backing*—the italicized words were added to this latest addenda.

Allowing welders who qualify using higher F-number electrodes to use lower F-number electrodes reflects industry practice of years ago, when welder training began with the easiest electrodes, like E7024 or similar F-1 electrodes, progressed to slightly more difficult E6013 or similar F-2 electrodes, then to E6010 and similar F-3 electrodes; only the best welders progressed to use of low-hydrogen F-4 electrodes. Today, most welders train directly on F-4 electrodes without learning to use the lower-numbered electrodes. This makes the code provision that allows higher F numbers to qualify lower F numbers questionable. The counter argument is that a welder who can use F-4 electrodes can easily learn to weld with the others. Everyone agrees that welding without backing using an E6010, for example, should not qualify welding with E7024 without backing. The added words prohibit this.

Changes to QW-423 allow welders who are qualified to weld on metals

that are recognized by Section IX to weld on metals not recognized by Section IX without retesting, provided that those metals are of similar composition as those that are recognized. For example, a welder who passed a test using a test coupon of P-1 carbon steel has always been allowed to weld any metal recognized by ASME by assignment to P-1 through P-11 or P-41 through P-46. With the change to QW-423, that welder is now allowed to weld on metals that are not ASME-recognized, provided that the composition of the unrecognized metal is similar to that of any metal assigned to P-1 through P-11 or P-41 through P-46.

A second change to this section allows welders who qualify by welding a test coupon of any alloy of titanium or zirconium to weld all alloys of titanium and zirconium without requalification. These metals use similar welding procedures and do not require separate welder qualifications.

Table QW-452.3 states explicitly that the upper diameter limit for welding of pipe, heretofore not specified, is unlimited, in a column added to QW-452.3.

Equalizing bend-test strain

Note b of QW-466, which specified dimensions for bend-testing fixtures, now gives a more-accurate formula for calculating percent outer-fiber elongation used when bend testing metals that do not carry a P number. Readers should note that the fixture is specified to make the amount of strain on the outside fibers of the test specimen the same regardless of the thickness of the specimen. To achieve this, the figure requires that the radius of the male portion of the figure, dimension A, be reduced in proportion to thickness of the test specimen. For example, the normal test-specimen thickness for carbon steel is $\frac{3}{8}$ inch and the corresponding radius of the fixture is $\frac{3}{4}$ inch. If test-specimen thickness goes to $\frac{1}{4}$ inch, bend radius goes to $\frac{1}{2}$ inch.

In the brazing section, H numbers are eliminated. Brazing procedures and brazers must still qualify for every process they will use in production. Also, brazing position for socket joints is redefined for joints where the pipe axis is horizontal from the 'flat' to the 'horizontal' position. ■



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