



AWS D1.1 Interpretation

Subject: Qualification of CJP Welds with Ceramic Backing
Code Edition: D1.1:2002
Code Provision: Section 4, Subsection 3.12.1, and Subsection 5.9
AWS Log: Inq.2.61

Inquiry 1a: If we qualify a complete joint penetration, ceramic-backed, one-sided groove weld in accordance with Section 4, is this weld then acceptable as a qualified complete joint penetration groove weld?

Response 1a: Yes, if the welding procedure complies with the requirements of Section 4.

Inquiry 1b: We plan to use ceramic backings for production welds with a TC-U4a-F joint design. What qualification test plate is required to qualify this weld?

Response 1b: See Figures 4.10 and 4.11 for selection of the appropriate test plate (based on thickness) and the general notes to the figures which require the production groove shape to be used.

Inquiry 1c: If we qualify this welding procedure without backgouging, will this be an acceptable qualified weld?

Response 1c: Yes, with approval of the engineer as indicated in 4.1.1.

Inquiry 2: If the root surface of a weld is sound and free from defects after the removal of a ceramic backing, is further backgouging required before welding is started on the second side?

Response 2: The Code does not require backgouging if the weld root surface is sound and free from defects and:
(1) The qualification test weld complies with all requirements of Section 4 and specifically the visual inspection, NDT, and mechanical test requirements of 4.8.
(2) The production weld meets the visual acceptance criteria of Section 6 and the contract required NDT. The NDT information required to be furnished to bidders is described in 6.1.1.

Inquiry 3: If the root surface must be backgouged after the removal of a ceramic backing, what standard shall be used to determine how much of the root surface shall be removed?

Response 3: The root surface of the weld after back gouging is to be the same as in Question 2.

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Since the publication of the first edition of the Code, the nature of inquiries directed to the American Welding Society and the Structural Welding Committee has indicated that there are some requirements in the Code that are either difficult to understand or not sufficiently specific, and other that appear to be overly conservative.

It should be recognized that the fundamental premise of the Code is to provide general stipulations applicable to any situation and to leave sufficient latitude for the exercise of engineering judgment. Another point to be recognized is that the Code represents the collective experience of the committee; and, while some provisions may seem overly conservative, they have been based on sound engineering practice.



Inquiry 4: Sections 3.12.1 states that a two sided groove weld without backgouging is a partial joint penetration groove weld, while section 5.9 states that a complete joint penetration groove weld may be made with backing or backgouging before welding is started on the second side. What is the correct interpretation of these sections in regard to complete penetration groove weld, welded from both sides using ceramic backing for the first side, without backgouging before starting the weld on the second side?

Response 4: Section 3 is for prequalified welding procedures and 3.12.1 states that "...groove welds welded from **both sides** but **without backgouging**, are considered PJP groove welds." Section 5 covers Fabrication requirements and the provisions are observed as applicable. 5.9 states that CJP groove welds may be made with or without the use ofbacking....., or may have the root of the initial weld gouged, chipped, or otherwise removed to sound metal before welding is started on the second side. The provisions of 5.9 are not applicable when prohibited by Section 3.

Comments:

- (1) CJP groove welds may be welded with ceramic backing and without back gouging if the WPS is in compliance with Section 4 and has been approved by the engineer.
- (2) Sections 2, 3, and 5 are complimentary with respect to backing.

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