



The Official Book of D1.1 Interpretations

**A Collection of
Responses to Formal
Inquiries about the
Requirements of AWS
D1.1 (1976–2008)**



American Welding Society

THE OFFICIAL BOOK of D1.1 INTERPRETATIONS

Second Edition, 2008

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American Welding Society

550 N.W. LeJeune Road, Miami, FL 33126

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American Welding Society

550 N.W. LeJeune Road, Miami, FL 33126

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NOTE: This Publication contains interpretations of AWS D1.1, Structural Welding Code—Steel, by the AWS D1 Committee. The interpretations contained herein are the results of balloted responses to submitted inquiries approved by the D1 Structural Welding Committee, made for specific Code editions. The concept of assembling D1 Committee inquiry responses into one convenient source came forward from the AWS Product Development Committee in 1995.

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INTRODUCTION

AWS D1.1, *Structural Welding Code—Steel*, is prepared by the AWS Structural Welding Committee. Because the Code is written in the form of a specification, it cannot present background material or discuss the committee's intent.

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 others 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 judgement. 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.

The format of this document presents Code interpretations grouped according to the Code date. Individual inquiries for the specific issue date of the Code are arranged by the applicable section number within the Code. To assist the reader, an index is provided that is compiled by subject matter, and a second index is provided that supplies the various section numbers referenced in the document in numerical order, regardless of Code date.

Readers are reminded that the basic format of the Code was reorganized extensively in the 1996 edition. Therefore, the provision numbers of the interpretations included herein in most cases will not be similar to the provision numbers of editions for 1996 or later.

This is the second edition of this document, and it is the intent of the Society to provide an updated version of this publication on a frequent schedule. The first edition of this document was published in 2000.

Recent official interpretations of AWS D1.1 technical requirements are published regularly in the July and November issues of the *Welding Journal*. Original requests for official interpretation of any Code requirement shall be submitted in writing to the Managing Director of Technical Services, American Welding Society, 550 N.W. LeJeune Road, Miami, FL 33126.

D1.1-76

Subject: Essential Variables
Code Edition: D1.1-76
Code Provision: Subsection 5.5
AWS Log: D1-86-011

Inquiry: In procedure qualification, does the Code permit the use of several different variations of current, voltage, travel speeds, or wire feed speeds during the course of the qualifications?

Response: Yes, provided that the variables used during qualification are recorded on a form similar to Appendix E, Form E-2, Welding Qualification Test Record.

D1.1-79

Subject: Code Thickness Limitations
Code Edition: D1.1-79
Code Provision: Subsection 1.2.2
AWS Log: D1-85-017(1)

Inquiry: What is the meaning of the thickness limitation provisions of 1.2.2 in AWS D1.1-79 (1.2.3 in AWS D1.1-83 through D1.1-94 editions)?

- Response:**
- (1) When the thickness of the material is over 0.18 in., the rules of AWS D1.1 apply.
 - (2) When the thickness of the material is between 1/8 and 0.18 in., either AWS D1.1 or AWS D1.3 apply, as applicable.
 - (3) When the thickness of the material is less than 1/8 in., the rules of AWS D1.3 should apply.
 - (4) When welding a material less than 1/8 in. thick to a material more than 0.18 in. thick, the rules of AWS D1.3 should apply, but they are to be supplemented by the provisions of AWS D1.1 (e.g., adequate preheat, low hydrogen electrode, etc.).

Subject: Code Thickness Limitations for Performance and WPS Qualification
Code Edition: D1.1-79
Code Provision: Subsection 1.2.2
AWS Log: D1-85-017(2)

Inquiry: May a fabricator qualify welding procedures and welders for flare-bevel-groove welds and fillet welds on material having thickness less than 1/8 in. in accordance with the provisions of AWS D1.1?

Response: No. The provisions of AWS D1.1 are not intended to apply to the welding of base metals having a thickness less than 1/8 in.

Subject: Prequalified Skewed T-Joints
Code Edition: D1.1-79
Code Provision: Subsection 2.7.4, Figure 2.7.1
AWS Log: D1-85-026

Inquiry: Are welds made in skewed T-joints, (e.g., Figure 2.7.1), where the groove angle is less than 60°, accorded prequalified status?

Response: Yes. Welds made in skewed T-joints, where the groove angle is less than 60°, are accorded prequalified status provided that the welds are made with a prequalified joint welding procedure in accordance with 5.1.1 and the welder is qualified for groove welding.

Subject: Inspector Responsibilities
Code Edition: D1.1-79
Code Provision: Subsections 6.5.4, 6.5.5
AWS Log: D1-84-010

Inquiry:

- (1) Does 6.5.5 require that all welding related activities listed in Section 3, including preparation of base metal and assembly, [have] 100% documentation of inspection by the Inspector?
- (2) Is the inspector required to systematically verify that the criteria in Section 3 are met by random checks to assure compliance with the workmanship requirements?

Response:

- (1) No.
- (2) Yes. 6.5.4 and 6.5.5 require observation of the work at suitable intervals to verify that applicable requirements of Section 4 and Section 3, respectively, are met.

D1.1-80

Subject: Web Flatness Tolerances
Code Edition: D1.1-80
Code Provision: Subsections 3.5, 9.23
AWS Log: D1-85-024

Inquiry: What tolerances should be used for the flatness of the panel between the bearing stiffener and the end of the web?

Response: These dimensional tolerances are not addressed by AWS D1.1 except in 8.13.3 and 9.23.3 when end panels are connected to other girders by bolted splices. Agreement between the contractor and the owner should be in accordance with 3.5.1.13.

D1.1-81

Subject: Mill Scale on Flange Surfaces
Code Edition: D1.1-81
Code Provision: Subsection 3.2.1
AWS Log: D1-85-021

Inquiry: Is the flange surface directly under the web considered to be a weld surface requiring all mill scale to be removed?

Response: Yes.

Subject: Prequalified WPS Requirements
Code Edition: D1.1-81
Code Provision: Subsection 5.1.1 and Appendix E
AWS Log: D1-84-014(5)

Inquiry: Why does 5.1.1 not specifically state the required information to be presented on Form E-1 for prequalified joint welding procedures, and reference at least one qualified procedure with a history of satisfactory performance?

Response: Table E-1 lists the mandatory Code requirements for prequalified joint welding procedures; listing in 5.1.1 would be awkward and redundant.

Subject: Welding Personnel Qualification Responsibility
Code Edition: D1.1-81
Code Provision: Subsection 5.3
AWS Log: D1-84-014(7)

Inquiry: Who should actively participate in the qualification of welders and welding operators?

Response: It is clearly the responsibility of the contractor, although the actual mechanism of qualification varies with the individual organization.

Subject: Witness of Tests
Code Edition: D1.1-81
Code Provision: Subsections 5.13, 5.31
AWS Log: D1-84-014(1)

Inquiry: Does 5.13 and 5.31 require the contractor to witness all tests and record all data on suggested forms in Appendix E?

Response: Yes.

Subject: Performance Qualification WPS
Code Edition: D1.1-81
Code Provision: Subsections 5.25, 5.36
AWS Log: D1-84-014(2)

Inquiry: Do qualification provisions in 5.25 and 5.36 require a welder or welding operator to follow a qualified or a prequalified joint procedure specification?

Response: Yes. Either a qualified or prequalified procedure specification is acceptable.

Subject: Performance Qualification RT/Bend Requirements
Code Edition: D1.1-81
Code Provision: Subsections 5.26, 5.37
AWS Log: D1-84-014(4)

Inquiry: Why are not both radiographic testing and mechanical testing required for welder or welding operator qualification in 5.26 and 5.37?

Response: In the Committee's opinion, either radiography or mechanical bend tests are acceptable for determining the soundness of the weld.

Subject: Evidence of Qualification
Code Edition: D1.1-81
Code Provision: Subsection 5.29
AWS Log: D1-84-014(3)

Inquiry: What constitutes evidence; what are the specific time intervals; and what degree of further training or practice must be established before a retest is valid in 5.29?

Response: The contractor must determine the individual requirements.

Subject: Ultrasonic Inspection
Code Edition: D1.1-81
Code Provision: Section 6, Part C
AWS Log: D1-SUT

Inquiry: (1) One of the questions concerns the evaluation of discontinuities once they have been located by one of the scanning methods specified in Table 6.19.5.2, Page 117 and 118 of the 1980 Edition. The method numbers are derived from the procedure chart, based upon the type of joint and material thickness. The number in the left side of the box refers you to the procedure legend,

which specifies the angles that will be used to scan the various weld areas. In the procedure chart, the only way you get to the right side of the box under the asterisk, is when a fusion zone discontinuity is suspected. In the case of a T-joint in 2 in.-thick material, the procedure chart refers you to “F” or “XF” for further evaluation of a suspected fusion zone discontinuity. Paragraph F reads as follows:

Further evaluate fusion zone indications, with either 70°, 60°, or 45° search unit, whichever sound path is nearest to being perpendicular to the suspected fusion surface.

“X” Check From Face “C”

In the type joints in question, face “C” always has a continuity plate shop-welded between flanges, thereby nullifying examinations from face “C.”

We interpret this to mean that if the indication being evaluated is suspected of being in the vertical member fusion zone, we would use a 70° search unit to evaluate the severity of the discontinuity regardless of its elevation in the weld throat. Further, if the indication found is suspected to be in the horizontal member fusion zone (i.e., flange bevel), an angle which most nearly intersects the fusion zone perpendicularly would be used for evaluation. For example, if the fusion zone bevel is 30°, you should use a 60° search unit along the entire 30° bevel. If the fusion zone bevel is 45°, you should use a 45° search unit along the entire 45° bevel.

Question: Are you limited to making evaluation of a discontinuity from face “A” only, or can you evaluate from face “B”?

- (2) In the past, we have evaluated discontinuities from whichever face (A or B), that allowed us to perform the evaluation in Leg 1. We use a search unit whose sound path angle is nearest to being perpendicular to the largest plane of the discontinuity for further evaluation.

Question: Are you limited to using only the angles specified in the procedure legend for the upper, middle, and bottom portions of the weld, when evaluating a discontinuity?

- (3) Another question which has been raised concerns discontinuity indications which are not in the vertical column fusion zone or in the horizontal member fusion zone bevel. Indications of discontinuities may occur anywhere in the weld area and may be indicative of slag inclusions, cracks, or lack of fusion between individual weld beads or layers. It has been our practice to evaluate these indications with a 70°, 60°, or 45° search unit to determine at what angle the largest reflecting surface of the indications is perpendicular to. Then, an accept or reject evaluation is made using the attenuation formula and the appropriate severity level from Table 8.15.3 for the angle used.

We have been challenged relative to our ultrasonic examinations, as questioned and exemplified above, due to the fact that the Code does not state specifically that examinations may be conducted in these manners. It has been suggested that the intent of the Code was to evaluate only flaws in the fusion zone, as these are the only flaws of interest.... We feel it is evident that the Code procedure chart does not cover all situations as evidenced by paragraph 6.13.2 under Part C.

Question: Do we ignore flaws other than fusion zone flaws, which exceed the critical limits of Table 8.15.3? Also, should we not try to make the evaluation in Leg 1 where possible and should we not also use whatever angle most nearly intersects the largest plane of the flaw perpendicularly?

Response:

- 1) It is correct to interpret that flaws in the vertical member fusion zone be evaluated with a 70° search unit, and that flaws in the horizontal member fusion zone be evaluated with either a 45°, 60°, or 70° search unit angle using the search unit that produces a sound beam most nearly normal to the intersecting fusion zone. The evaluation should be made from Face A only. It is the intent of the Code that other faces be used only where the full volume of weld cannot be tested from Face A, except as required by the Procedure Legend on Page 121 and 6.19.5.

- (2) For discontinuities in the weld, only the angles listed in Table 6.19.5.2 are to be used. It is the intent of the Code that all T-joints be tested from one face only; Legs II and III are to be used when necessary to achieve full coverage (see Table 6.19.5.2, Notes 3, 4, and 5). It is not the intent of the Code that such discontinuities be calculated with search unit angle selected to maximize the amplitude responses.
- (3) It is not the intent of the Code that any flaw be ignored. It is the intent of the Code that flaws in the weld metal and heat-affected zone be evaluated to the weld criteria. As stated in the response above, it is not the intent of the Code that discontinuities be evaluated by selecting an angle based on discontinuity reflected characteristics. While searching at scanning level with angle(s) selected as prescribed in the first column of Table 6.19.5.2, it is the intent of the Code that fusion zone(s) be further evaluated. Either a 70°, 60°, or 45° transducer—whichever sound path is nearest to being normal to the vertical face of the column or the bevel surface of the beam—shall be used for evaluation.

Subject: Qualification Supervision
Code Edition: D1.1-81
Code Provision: Subsection 6.4.1
AWS Log: D1-84-014(6)

Inquiry: Does the Code require individuals, observing qualifications, to be qualified to supervise qualification?
Response: No.

Subject: Minimum Requirements
Code Edition: D1.1-81
Code Provision: Appendix E
AWS Log: D1-84-014(8)

Inquiry: Are the mandatory requirements for test record data, as presented on Appendix E forms to be completed, a minimum requirement?
Response: Yes.

D1.1-82

Subject: Reentrant Corners
Code Edition: D1.1-82
Code Provision: Subsection 3.2.4
AWS Log: D1-84-016

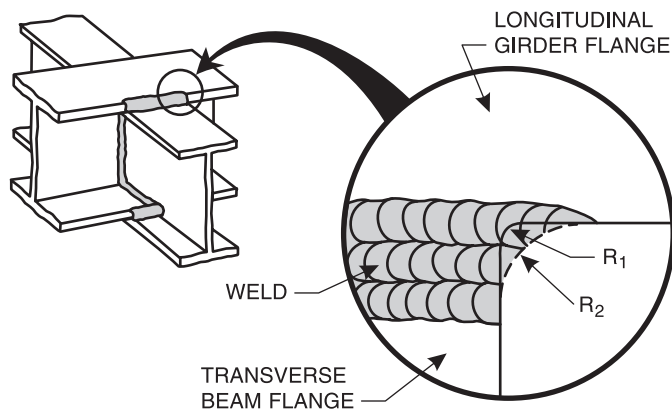
Inquiry:

- (1) What is the definition of reentrant corners as used in 3.2.4 of AWS D1.1?
- (2) Is it readily deducible by a user of D1.1 that 3.2.4 applies in general to welded joints at intersections between members?
- (3) In the specific case illustrated in the attached sketch, does D1.1 automatically require a 3/4 in. or any certain radius at intersections between the flanges, as are shown in the sketch?
- (4) If the designer requires a specified minimum radius at intersections between members, should it be detailed clearly in design drawings or specifications?

- Response:**
- (1) Reentrant corners are defined in *Webster's New Collegiate Dictionary* and in *Webster's Third International Dictionary*. (See also *AISC Manual of Steel Construction*, 8th Edition, Page 4-167.)
 - (2) No.
 - (3) No. (Sketch does not illustrate a "reentrant corner.")
 - (4) Yes.

Attachment to D1-84-016

<p align="center">Typical Girder/Beam</p> <p>Flange-to-flange welds are complete penetration, all others are fillets.</p> <p>Girder flanges are 1 in. thick, beam flanges are 1 in. or 1/2 in.</p> <p align="center">Typical Flange Intersection Detail in Plan View</p> <p align="center">True Scale</p> <p>F_1 = Unspecified normal good workmanship radius governed by the radius of the grinding wheels used.</p> <p>R_2 = 3/4 in. radius directed by our customer.</p>
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Subject: WPS Qualification Tables
Code Edition: D1.1-82, D1.1-90
Code Provision: Tables 5.10.5 and 5.4
AWS Log: ID1-90-021-03

- Inquiry:**
- (1) Do AWS D1.1-82, Table 5.10.5 and D1.1-90, Table 5.4, have text stating that groove weld testing on plate will also qualify for fillet?
 - (2) Will a pipe groove 6GR procedure qualification test qualify for complete and partial penetration groove (butt and T) joints and fillets on plates?

- Response:**
- (1) No. Information contained in tables need not have supporting text. Provisions stated in tables of the Code are as equally binding as textual material.
 - (2) Yes. See Table 5.4 of D1.1-90 and applicable footnotes for joints qualified.

Subject: Welding of Nuts
Code Edition: D1.1-82
Code Provision: Subsections 5.16.1, 5.24, 10.2
AWS Log: D1-85-023

- Inquiry:** May welding procedures and welders be qualified for the purpose of welding an ASTM A563 nut to a structural member?

Response: AWS D1.1 does not cover the application of welding a nut to a structural member.

D1.1-83

Subject: Root Openings
Code Edition: D1.1-83
Code Provision: Figure 2.10.2
AWS Log: D1-85-012

Inquiry: Since zero root openings have a tendency to crack, should Figure 2.10.2 be revised to remove zero as an allowable fit-up condition?

Response: No. Figures 2.9.1 and 2.10.2 are recommendations only. A zero opening is a possible fit-up condition.

Subject: Welder/Welding Operator Qualification
Code Edition: D1.1-83
Code Provision: Section 5, Part D
AWS Log: D1-84-013

Inquiry: (1) Does qualification as a welder under Part C, Section 5, qualify the welder as a welding operator under Part D, Section 5?
 (2) Under what condition, if any, does a welder qualified in accordance with Part C, Section 5, [also] qualify as a welding operator in accordance with Part D, Section 5?

Response: (1) No.
 (2) None.

Note: For AWS D1.1-85, the Committee has approved provisions for a welder under certain specified conditions to be qualified as a welding operator.

Subject: Fillet Welder Qualification
Code Edition: D1.1-83
Code Provision: Subsections 5.10.3, 5.17.1.2
AWS Log: D1-85-022

Inquiry: May a welder who has successfully performed a procedure qualification test for fillet welds using a fillet weld test plate qualify as a welder for fillets welds only?

Response: No. The performance qualification requirements for fillet welds are different from the procedure qualification requirements for fillet welds.

Subject: NDT Operator Responsibilities
Code Edition: D1.1-83
Code Provision: Subsection 6.7.7
AWS Log: D1-84-011

Inquiry: Should the phrase "...working under..." be interpreted as follows:

- (1) Must a Level II be watching over the shoulder of the Level I as he performs NDT?
- (2) Does the Level II NDT operator, working as a supervisor of Level I operators, and providing surveillance or guidance or both to the Level I operator(s), retain responsibility for the work of the Level I operator(s)?

Response: (1) No.
 (2) Yes.

Subject: NDT Level III Qualifications
Code Edition: D1.1-83
Code Provision: Subsection 6.7.7
AWS Log: D1-84-012

Inquiry:

- (1) Is it the intent of the Code to prohibit Level III NDT individuals from performing NDT testing if they are not qualified as Level II NDT operators?
- (2) Is a Level III who also has been qualified as a Level II NDT operator, and who maintains his Level II NDT operator status on a regular basis, qualified to perform NDT testing under the Code?

Response:

- (1) Yes.
- (2) Yes.

D1.1-84

Subject: Earlier Code Editions
Code Edition: D1.1-84
Code Provision: None
AWS Log: D1-84-015

Inquiry: May the current Code (e.g., AWS D1.1-84) requirements be applied to contract documents that specify an earlier edition of the Code (e.g., AWS D1.1-80)?

Response: The Code edition specified in the contract documents governs the work under that contract. However, when requested by the contractor, the Committee recommends to the Engineer that the provisions of the current AWS D1.1 be permitted in lieu of the edition specified in the contract documents.

Subject: Prequalified Partial Joint Penetration Groove Welds
Code Edition: D1.1-84
Code Provision: Subsection 2.10.1.1
AWS Log: D1-85-027

Inquiry: Is it the intent of the Code in 2.10.1.1 to restrict all such prequalified welds to the design category “partial joint penetration groove welds” in Tables 8.4.1, 9.3.1, and 10.4.1—Allowable Stresses in Welds?

Response: Yes. However, the procedure may be qualified for a full joint penetration groove weld under the provisions of 5.2 for other appropriate stress categories and allowable stresses.

Subject: Notches and Gouges on Oxygen Cut Surfaces
Code Edition: D1.1-84
Code Provision: Subsection 3.2.2
AWS Log: D1-85-025

Inquiry:

- (1) Does 3.2.2 mean just oxygen cut areas adjacent to welds, or areas to be welded?
- (2) What is meant by “occasional notches or gouges”; and how close or far away is “occasional”?

- (3) Is repair required for notches and gouges up to 3/16 in., or is repair required for notches and gouges 3/16 in. and larger?
- (4) What are the requirements pertaining to other conditions such as ends of girder flanges, ends of beams, cope and notches in beams, base plate and gusset plates?

Response:

- (1) Applies to all oxygen cut areas.
- (2) [The meaning of “occasional” is] as defined in *Webster’s New Collegiate Dictionary* (i.e., “infrequent occurrence”) and as explained in the Commentary 3.2.2. [Spacing is] determined by the fabricator, together with the Inspector or Engineer, or both. (Also see Commentary 3.2.2.)
- (3) For notches and gouges up to and including 3/16 in., repair is to be made by fairing, grinding, or machining. Notches or gouges over 3/16 in. are repaired by welding only with approval of the Engineer.
- (4) All oxygen cut edges must meet the requirements of 3.2.2.

Subject: Camber Tolerances
Code Edition: D1.1-84
Code Provision: Subsection 3.5.1.3
AWS Log: D1-85-028

Inquiry:

- (1) In 3.5.1.3 there are three different tolerances available to determine the variation from camber of welded beams or girders, and the Code states that when the calculations are made that the greatest variation from specified camber is to be used. Are these tolerances appropriate?
- (2) In 3.5.1.3 it states, “camber of welded beams or girders.” Do these tolerances also apply to rolled beams?

Response:

- (1) The tolerances of 3.5.1.3 are appropriate.
- (2) No. Tolerances in 3.5.1.3 are applicable to beams with weldments, such as cover plates. For unwelded beams, AISC specifications should apply.

Subject: Shelf Bars for Horizontal Column Splice Welds
Code Edition: D1.1-84
Code Provision: Subsection 3.6.2
AWS Log: D1-85-018

Inquiry:

During the welding of column splices in the horizontal position, it appears to be standard practice in building construction to provide a shelf to facilitate completely filling the joint. The shelf, attached to the lower member (similar to a weld tab), supports the excess weld metal beyond the joint.

- (1) Is the use of a shelf for welding column splices in the horizontal position permitted by the Code?
- (2) Does the use of a shelf in column splices welded in the horizontal position violate the 1/8 in. maximum reinforcement permitted by 3.12.2?

Response:

- (1) Yes. The use of a shelf or weld tab is acceptable when welding compression members. For removal, see 3.12.2.
- (2) No. The 1/8-in. reinforcement refers to face of unsupported weld metal only; when a shelf or welded tab is used this requirement does not apply.

Subject: Tools for Welder Qualification Test
Code Edition: D1.1-84
Code Provision: Section 5, Part C
AWS Log: D1-86-010

Inquiry: In performing the welder qualification test, does the Code prohibit the use of power tools (mechanical, pneumatic, electrical, or other) to remove weld imperfections?

Response: No.

Subject: Combination of Qualified and Prequalified WPSs
Code Edition: D1.1-84
Code Provision: Subsection 5.1.3
AWS Log: D1-85-019

Inquiry: Does 5.1.3 permit a welding procedure to be used that combines a welding procedure qualified in accordance with 5.2 for the root of the weld and a prequalified procedure for the remainder of the weld?

Response: Yes. A combination of qualified or prequalified joint welding procedures may be used without qualification provided the limitation of essential variables applicable to each process is observed.

Subject: 6GR Test
Code Edition: D1.1-84
Code Provision: Table 5.10.5 and Figure 5.21A
AWS Log: D1-85-029

Inquiry:

- (1) In the welded 6GR test joint (Figure 5.21A), is it permissible to machine the ID of the heavier wall pipe to the other pipe before performing radiographic examination?
- (2) In joints between parts of unequal thickness, does the term “complete joint penetration” refer to the situation where the weld metal completely fills the groove and is fused to the thinner base metal throughout its total thickness?
- (3) When removing side bend specimens from the 6GR welded test joint, is it permissible, prior to bending, to machine sufficient metal from the thicker wall pipe section to obtain a uniform test specimen cross section?
- (4) When removing test specimens from the 6GR welded test joint for tension testing, is it permissible to machine the ID of the heavier wall pipe to the ID of the other pipe to obtain a test specimen of uniform cross section?
- (5) For qualification of T-, Y-, and K-connections, is it permissible to use job size pipe?
- (6) In qualifying in the 6GR position, may job size pipe of different wall thickness other than shown in Figure 5.12A be used?
- (7) Does procedure qualification of pipe or tubing in the 6GR position qualify for all positions of plate and pipe welding?
- (8) Are there prerequisites for procedure or personnel qualification?

Response:

- (1) Yes, if so stated in the contract documents. (See also 6.10.3 of the Commentary.)
- (2) Yes.
- (3) Yes. Figure 5.10.1.3H shows the pipe thickness the same as the size of the weld.
- (4) Yes. In AWS D1.1-86, Figure 5.10.1.3F, the specimen thickness is shown as being uniform throughout the test specimen except for the edges of a pipe specimen.

- (5) Yes. See Table 5.10.1-2.
- (6) Yes. The specific thickness and root “high-low” conditions need not be met, but the thickness differential between the pipes should be maintained to the extent possible. (See Table 10.12, Single Welded T-, Y-, and K-Connections, Other.)
- (7) Yes.
- (8) No. The contractor need only have a qualified (or prequalified) joint welding procedure for the work to be performed; the contractor only needs to have qualified personnel for the work they will perform.

Subject: Qualification Requirements
Code Edition: D1.1-84
Code Provision: Figure 5.10.1.3 and Subsections 5.18, 5.19
AWS Log: D1-85-031

Inquiry:

- (1) Does Note 4 in Figure 5.10.1.3F, Reduced Section Tension Specimens, apply to the capacity of the testing machine?
- (2) In Figure 5.10.1.3D, Location of Test Specimens on a Welded Test Plate Over 3/8 in. Thick—Procedure Qualification, is the 20 in. minimum plate width required?
- (3) Is the rolling direction important for test plate validity?
- (4) Is a welder who qualified using groove details of 5.18 or 5.19 qualified to weld other groove details?
- (5) Is it permissible for a welder to qualify using a test plate with thickness larger than 3/8 in. and smaller than 1 in.?
- (6) Must only the standard joint details specified for plate in Figures 5.18 and 5.19 be used for qualifying welders?

Response:

- (1) No. Note 4 applies to specific cases where small diameter tubing is tested.
- (2) Yes.
- (3) Yes.
- (4) Yes, within the limits of Section 5, Part C.
- (5) Yes. Table 5.26.1 permits groove welding qualification on plate with thickness larger than 3/8 in. and smaller than 1 in.
- (6) No.

Subject: Bend Jigs
Code Edition: D1.1-84
Code Provision: Figure 5.27.1
AWS Log: ID1-85-010

Inquiry: Figure 5.27.1(A, B, or C) shows three test jigs for the testing of guided bend specimens. May any device which uniformly bends the specimen around the radius as required by Figure 5.27.1(A, B, or C) be used, provided the entire weld is located in the bent portion?

Response: Yes.

D1.1-85

Subject: Single Pass Fillet Weld Sizes
Code Edition: D1.1-85
Code Provision: Table 2.7 and Subsection 5.2
AWS Log: D1-86-012

Inquiry: In Table 2.7, is it permissible to make a single pass fillet weld that is less than the weld size specified?

Response: Yes, by procedure qualification test in accordance with 5.2 and as mutually agreed upon with the Engineer.

Subject: Corner Radii
Code Edition: D1.1-85
Code Provision: Subsections 3.2.4, 3.12.1
AWS Log: D1-85-020

Inquiry:

- (1) Is it the intent of 3.2.4 that the intersections of built-up plate girders shall have filleted corners of no less than 3/4-in. radius in bridge construction and in building construction?
- (2) Is it the fabricator's obligation to build-up such radii in weld metal in which such transitions have not been created in the base metal?
- (3) Is it the intent of 3.12.1 that the ends of welds not create a sharp cornered "stress riser" condition?

Response:

- (1) No.
- (2) No.
- (3) Yes. 3.12.1 covers termination of welds to ensure sound welds.

Subject: Test Plate Root Opening Tolerances
Code Edition: D1.1-85
Code Provision: Figure 5.22A
AWS Log: D1-85-030

Inquiry: Is it permissible to have a 0–1/16-in. root opening between the test plates shown in Figure 5.22A?

Response: Yes. The Committee has not specified any tolerances for the dimensions in Figure 5.22A. The dimensions shown are nominal and need not be exact. (The contractor may place dimensional tolerances on shop drawings, such as those required in 3.3.)

D1.1-86

Subject: Backgouged Double-Welded Joints
Code Edition: D1.1-86
Code Provision: Figure 2.9.1
AWS Log: D1-88-003

Inquiry: For double-welded joints, may the detailed weld groove on the second side of the joint be prepared simultaneously with the backgouging operation after welding one or more passes on the first side?

Response: Yes.

Subject: Qualification to Other Codes
Code Edition: D1.1-86, D1.1-92
Code Provision: Commentary C5.4.2, C5.4.3
AWS Log: ID1-90-045-03

Inquiry: (1) Is it the intent of D1.1 to address qualification to other codes?
(2) May the Engineer accept qualification of welders qualified to other codes?

Response: (1) No. See C5.4.2 (D1.1-86) or C5.4.3 (D1.1-92).
(2) Yes. See C5.4.2 (D1.1-86) or C5.4.3 (D1.1-92).

Subject: Welder Qualification (Allowable Undercut)
Code Edition: D1.1-86
Code Provision: Subsection 5.28.6
AWS Log: D1-88-001

Inquiry: In 5.28.6, directions are provided for visually evaluating a welder qualification test plate in accordance with 9.25.1. There are two maximum limits of allowable undercut in 9.25.1; which of these values should be used for evaluation of the welder qualification test plate?

Response: Undercut shall be no more than 1/32 in. (0.8 mm) deep. Note that the maximum allowable undercut for qualifying procedures, welders, welding operators, and tack welders was revised to 1/32 in. maximum in AWS D1.1-88.

Subject: Welder Qualification Retests
Code Edition: D1.1-86
Code Provision: Subsection 5.30
AWS Log: D1-88-002

Inquiry: When a welder fails the requalification tests permitted by 5.30, do the rules of 5.29, 5.29.1, and 5.29.2 for retests apply?

Response: No. The welder must be retested as a new welder.

D1.1-88

Subject: Fillet Weld Qualification by Pipe WPS
Code Edition: D1.1-88
Code Provision: Tables 5.10.1(2) and 5.6
AWS Log: IR1-90-004-03

Inquiry: Does the procedure qualification on 8-in. Schedule 80 pipe described in Table 5.10.1(2) of D1.1-88 also qualify fillet welds in thickness from 1/8 in. to unlimited?

Response: See AWS D1.1-90, Table 5.6, and Note 2.

Subject: Fatigue Figures
Code Edition: D1.1-88
Code Provision: Figures 9.4B, 9.4C
AWS Log: ID1-90-034-01

Inquiry: Are the stress ranges shown in the ordinate of Figure 9.4B and 9.4C in D1.1-88 for completely reversed stresses (i.e., alternately tensile and compressive) or for zero-to-maximum stresses (i.e., application and removal of load)?

Response: The stress range is the algebraic difference of stress variation caused by the cyclic load. For example, 5 ksi tensile to 20 ksi tensile is 15 ksi; however, 5 ksi compression on 20 ksi tensile is 25 ksi.

D1.1-90

Subject: Unequal Leg Fillet Welds
Code Edition: D1.1-90
Code Provision: None
AWS Log: ID1-90-035-1

Inquiry: Is it AWS's intent by not addressing unequal leg fillets in the AWS D1.1 and D1.3 (Sheet Steel) Codes that this type of weld is not applicable to weld a structure?

Response: No.

Subject: Groove Depth
Code Edition: D1.1-90
Code Provision: None
AWS Log: ID1-90-038-02/03

Inquiry: (1) Is a joint design (in D1.1) in which the shallow groove equals 1/16 in. or less technically still identified as a double-V-groove?
 (2) What is the reason for limiting the shallow groove depth to "no less than T/4"?

Response: (1) No. Code requires S_2 to be $>T/4$.
 (2) See Foreword of D1.1 ("History of Satisfactory Performance").

Subject: Surface Porosity
Code Edition: D1.1-90
Code Provision: None
AWS Log: ID1-91-010-09

Inquiry: (1) Is surface porosity a requirement for visual inspection?
 (2) Is surface porosity acceptable?

Response: (1) No, the Code has no requirement for surface porosity relative to visual inspection.
 (2) If surface is of concern to the Engineer, the limit of porosity shall be established by agreement between the owner and contractor.

Subject: Depth of Fusion
Code Edition: D1.1-90
Code Provision: Subsection 5.12.3
AWS Log: ID1-90-041-03

Inquiry:

- (1) Is there any requirement in the D1.1 Code for a specified “depth of fusion or penetration” along each leg of the joint as distinguished from “fusion to the root of the joint?”
- (2) Is the Committee aware of any code or standard which requires a specified “depth of fusion or penetration” along the legs of a standard 90° T-joint fillet weld and as described in D1.1-90, 5.12.3?

Response:

- (1) No.
- (2) It is beyond the Committee’s responsibility to reference or comment on other codes and their requirements.

Subject: Designer’s Responsibility
Code Edition: D1.1-90
Code Provision: None
AWS Log: ID1-90-016-05

Inquiry: For D1.1, is it the designer’s responsibility to identify which welds on a structure are tension or compression?

Response: Yes.

Subject: Ultrasonic Acceptance Tables
Code Edition: D1.1-90
Code Provision: Tables 8.2 and 9.3
AWS Log: ID1-91-013-05

Inquiry:

- (1) Is Note 3 of Tables 8.2 and 9.3 of D1.1-90 applicable to backgouged joints?
- (2) Is the term “root face area” to be interpreted to mean the root face dimension times the groove length?
- (3) Are “reversal-of-stress joints” considered tension joints?

Response:

- (1) Yes.
- (2) Yes.
- (3) Yes.

Subject: Base Material Approval
Code Edition: D1.1-90
Code Provision: Subsection 1.2
AWS Log: I-8/91-01-02

Inquiry: How does a base material become approved in the AWS D1.1 as a prequalified material?

Response: Material suppliers advise the D1 Committee of their particular material type, including the applicable ASTM or API designation, and furnish to the Committee, upon request, a variety of Welding Procedure Qualification records, history of usage, and other mechanical testing properties (e.g., impact properties, hardness test results, etc.). The D1 Committee determines if the material has demonstrated successful weldability in the industry. If all of the above information is favorable, then the Committee, utilizing these operating parameters, can translate them into the applicable Code requirements for prequalification status of the material.

Subject: Code Thickness Limitation
Code Edition: D1.1-90
Code Provision: Subsection 1.2.3
AWS Log: I-91-01-03

Inquiry:

- (1) Does D1.1-90 place a minimum thickness of 1/2 in. on the materials welded within the scope?
- (2) Does D1.1-90 specify a tolerance below 1/8 in. for base metal thickness that can be welded within the scope?
- (3) If the answer to Inquiry 2 is no, may material of thickness 0.105 in. be welded using prequalified welding procedures?

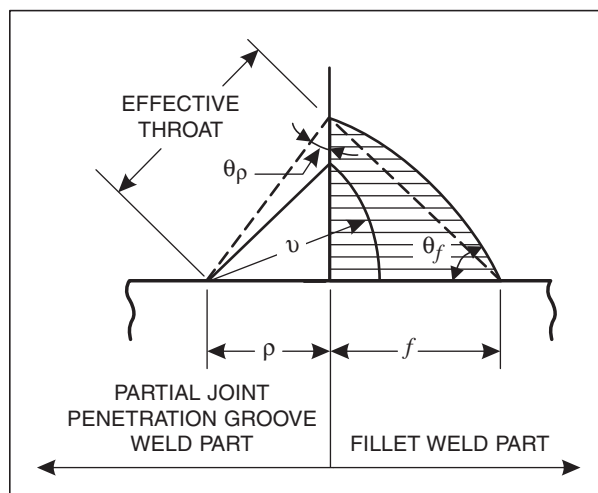
Response:

- (1) Subsection 1.2.3 states, "The provisions of this Code are not intended to apply to welding base metals less than 1/8 in. (3.2 mm) thick."
- (2) Subsection 1.2.3 does not address a tolerance for base metal thickness. Tolerances for base material thickness are addressed by other recognized industry standards or practices, such as ASTM, which may be used in conjunction with the D1.1 Code.
- (3) The Code does not prohibit the use of prequalified procedures on 0.105-in. thick material.

Subject: Reinforcing Fillet Welds
Code Edition: D1.1-90
Code Provision: Subsection 2.3.4 and Appendix I
AWS Log: I-91-01-01

Inquiry: Does the sketch [below] depict a partial joint penetration groove weld reinforced with a fillet weld?

I-91-01-01



Response: The Inquiry sketch accurately depicts the AWS D1.1 definition of effective throat for a partial joint penetration groove weld reinforced with a fillet weld.

Subject: Prequalified Flare Bevel Groove Weld Radius
Code Edition: D1.1-90
Code Provision: Figure 2.5 and Table 2.1
AWS Log: IR1-90-009-01/02

Inquiry: Should not the dimension “C” in Figure 2.5(10) of D1.1-90, flare-bevel-groove weld, be stated as a radius to be consistent with Table 2.1?

Response: No. Figure 2.5(10) is a special case applicable to cold formed tubes. Practical experience has shown that corners of cold formed tubes are not standardized, for all manufacturers do not have symmetrical corners or quadrant corners. The designer cannot reliably know the radius of cold formed tubes; however, he may specify thickness. A reliable average ratio of radius-to-wall thickness is 2; therefore, Table 2.1 and Figure 2.5(10) are essentially equivalent.

Subject: Excessive Root Opening
Code Edition: D1.1-90
Code Provision: Subsection 3.3.1
AWS Log: ID1-90-042-04

Inquiry: In accordance with 3.3.1 of the AWS D1.1-90 Code, the root opening of parts joined by fillet welds shall not exceed 3/16 in. in plates or shapes under 3 in. in thickness and 5/16-in. root opening for plates or shapes 3 in. in thickness or greater.

What needs to be done, other than qualifying a procedure, if the root opening exceeds the above dimensions in each case?

Response: For root openings in excess of 3.3.1, qualification testing is not an option, but the Engineer’s approval is required for acceptance of any remedial measures or the *in situ* condition.

Subject: Runoff Tab Welds
Code Edition: D1.1-90
Code Provision: Subsections 3.12.1, 3.12.2
AWS Log: ID1-90-011-01/04

Inquiry: (1) Does the Code require welds to be terminated on runoff tabs or extensions in a sound manner?
 (2) Should the Engineer require removal of runoff tabs or extensions where erection loads may result in cracking?

Response: (1) No, insofar as weld tabs are concerned (see 3.12.1). AWS D1.1 is silent on “runoff extensions” in the sense of full cross-section material extending beyond the design length.
 (2) Subsection 3.12.2 is clear and speaks for itself.

Subject: A5.29 FCAW Electrodes
Code Edition: D1.1-90
Code Provision: Tables 4.1 and 4.2
AWS Log: D1-90-033-02

Inquiry: Is A5.29, E71T8-Ni1 electrode prequalified in D1.1 to weld ASTM A36, A572 Gr. 50, and A588 base metals?

Response: A36, No; A572 Gr. 50, No (see Table 4.1); A588, Yes (see Table 4.2).

Subject: Base Metal Qualifications

Code Edition: D1.1-90

Code Provision: Table 4.1 and Subsection 5.5.1.3

AWS Log: ID1-90-027-03

Inquiry:

- (1) A Group V to Group V metal of Table 4.1 weld qualifications is made. Is the procedure and/or the welder qualified to weld a Group V metal to any other Group V metal listed in Table 4.1?
- (2) A Group V steel to a nonlisted metal weld qualification is made. Is the procedure and/or welder qualified to weld the nonlisted metal to any other Group metal listed in Table 4.1?

Response:

- (1) No. Subsection 5.5.1.3 covers welding Group V to Group V base metals. However, the procedure applies only to welds made [using] the specific ASTM material specification and minimum specified yield strength as the base metal [for running] the procedure, without regard for Group number. See the example cited in 5.5.1.3. However, the welder is qualified to weld all steels in Table 4.1 by virtue of the fact that the material grouping of the steel is not a welder variable.
- (2) No. Steels that are not listed in Table 4.1 require procedure qualification and the procedure only qualifies on the combination of materials tested (see 1.2.2). The welder in this situation again is qualified to weld on any Table 4.1 material by virtue of the answer given to Inquiry (1) above.

Subject: Vibratory Stress Relief

Code Edition: D1.1-90

Code Provision: Subsection 4.4

AWS Log: ID1-90-010-02

Inquiry:

- (1) In accord with D1.1, subsection 4.4, may vibratory stress relief be used as an alternate to thermal stress relief?
- (2) If the drawing/spec. is silent relative to vibratory stress relief, may vibratory stress relief be used?

Response:

- (1) No. See 4.4. Postweld heat treatment does more than relieve stress.
- (2) If compliance with D1.1, subsection 4.4, is not required, this is not a Code question.

Subject: Change from “Bridges” to “Dynamically Loaded Structures”

Code Edition: D1.1-90

Code Provision: Subsection 4.15

AWS Log: ID1-90-005-03

Inquiry: Why were the words “bridge members” in subsection 4.15.2 of D1.1-88 changed to “dynamically loaded structures” in D1.1-90?

Response: Subsection 4.15 was changed by the 1990 Edition of the Code to be consistent with the other sections of the Code. However, the intent has remained the same. In the 1985 Edition of the Code, Section 9 was titled “Design of New Bridges.” In the 1988 Edition, this section was changed to “Dynamically Loaded Structures.”

Subject: Welder Qualification Documentation
Code Edition: D1.1-90
Code Provision: Subsection 5.1.2
AWS Log: ID1-90-040-02

Inquiry: Are welder qualification records sufficient documentation for prequalified welding?

Response: No. See D1.1, subsection 5.1.2. The fabricator shall also prepare a written WPS for the prequalified WPS.

Subject: Qualification of Mixtures of Shielding Gases
Code Edition: D1.1-90
Code Provision: Subsection 5.2
AWS Log: ID1-91-006-02/03

Inquiry: Can 95% Ar + 5% O₂ shielding be used to weld with EXXT-1 electrode?

Response: This mixture cannot be used in a prequalified WPS. However, gas mixtures not in compliance with A5.20 may be qualified in accordance with 5.2.

Subject: GMAW-S Welder Qualification
Code Edition: D1.1-90
Code Provision: Subsection 5.3.2
AWS Log: I-9/91-011-03

Inquiry: Is the bend test essential for welder qualification even when only one pass of GMAW (short circuiting transfer) is used (as a weld metal backing)?

Response: Yes.

Subject: Engineer Acceptance of Welder Qualification
Code Edition: D1.1-90
Code Provision: Subsection 5.4.2
AWS Log: ID1-90-028-03

Inquiry: For D1.1, if a fabricator submits documentation to the Engineer of tests conducted by a municipality, state agency or government agency, should the Engineer accept the documentation for qualification purpose of welders?

Response: As stated in 5.4.2 of D1.1-90, the Engineer has the discretion to accept or reject the documentation.

Subject: Qualification of Multiple Welding Processes
Code Edition: D1.1-90
Code Provision: Subsection 5.5
AWS Log: I-9/91-10-03

Inquiry: (1) Can one or more welding processes be deleted from a qualified welding procedure in accordance with AWS D1.1, subsection 5.5, if each of the essential variables for each of the remaining processes is maintained?

- (2) Based on a qualified welding procedure involving a GMAW root pass, SMAW backweld, and SAW fill and cap passes; [can this WPS] be separated into its component parts to qualify other WPSs, as shown in the Inquiry letter?

Response: (1) No.
(2) No, the acceptance or rejection of specific WPSs is beyond the authority of the D1 Committee.

Subject: Gas Mixtures
Code Edition: D1.1-90
Code Provision: Subsection 5.5.2.3(5)
AWS Log: ID1-90-023-03

Inquiry: We use a gas mixture of 90% argon and 10% CO₂ for the GMAW process. When we measure CO₂ levels, we sometimes get 9% or 11% CO₂. Is this acceptable under the Code?

Response: Yes. See section 5.5.2.3(5) of D1.1-90.

Subject: Fillet Weld Qualification by Pipe WPS
Code Edition: D1.1-88, D1.1-90
Code Provision: Tables 5.10.1(2) and 5.6
AWS Log: IR1-90-004-03

Inquiry: Does the procedure qualification on 8-in. Schedule 80 pipe described in Table 5.10.1(2) of D1.1-88 also qualify fillet welds in thickness from 1/8 in. to unlimited?

Response: See AWS D1.1-90, Table 5.6, and Note 2.

Subject: WPS Qualification Tables
Code Edition: D1.1-82, D1.1-90
Code Provision: Tables 5.10.5 and 5.4
AWS Log: ID1-90-021-03

Inquiry: (1) Do AWS D1.1-82, Table 5.10.5 and AWS D1.1-90, Table 5.4 have text stating that groove weld testing on plate will also qualify for fillet welds?
 (2) Will a pipe groove 6GR procedure qualification test qualify for complete and partial penetration groove (butt and tee) joints and fillets on plates?

Response: (1) No. Information contained in tables need not have supporting text. Provisions stated in tables of the Code are equally as binding as textual material.
 (2) Yes. See Table 5.4 of D1.1-90 and applicable footnotes for joints qualified.

Subject: Welding Procedure Qualification Using Plate for Pipe Application
Code Edition: D1.1-90
Code Provision: Subsection 5.10.5 and Table 5.4
AWS Log: 2.24

Inquiry: A contractor has qualified weld procedures using FCAW with gas shielding in the 1G, 2G, 3G, and 4G positions using plate as test coupons. According to AWS D1.1-90, subsection 5.10.5, are these procedures qualified to weld in the 5F position on a pipe, rolled from steel plate, with a diameter range of 33 through 144 in., with the same welding process?

Response: Yes. See Table 5.4, Footnote 1.

Subject: Fillet Weld WPS Qualification
Code Edition: D1.1-90
Code Provision: Subsection 5.12.3
AWS Log: I-91-03-03

Inquiry: What are the D1.1-90 requirements for a fillet weld procedure qualification test?

Response: Subsection 5.12.3 sets forth the requirements for D1.1-90 fillet weld procedure qualifications.

Subject: Third Party Welder Qualification
Code Edition: D1.1-90
Code Provision: Section 5, Part C
AWS Log: ID1-90-026-03

Inquiry: Does the D1.1 Code state that we have to qualify our welders by a third party service company, or can we qualify our welders by ourselves in accordance with D1.1?

Response: AWS D1.1 does not indicate the use of a third party inspection service to qualify welders, welding operators, or tack welders.

Subject: Bend Specimen Requirements for Pipe Welder Qualification
Code Edition: D1.1-90
Code Provision: Table 5.6
AWS Log: ID1-90-036-03

Inquiry: Table 5.6 of D1.1-90, under the heading “Job Size Pipe or Tubing,” requires four side bends for material >4 in. in diameter, with a wall thickness >3/8 in. Figure 5.30 requires two side bends and two face bends for pipe with a wall thickness <3/8 in. When qualifying a welder for a groove weld in the 6G position using 5-in. pipe, 3/8 in. wall thickness, which is required—four side bends, or two face and two root bends?

Response: According to AWS D1.1-90, the material size and thickness would require four side bends (per Table 5.6). Figure 5.30 is to be used for location of the bend samples only.

Subject: Qualification of Welder to Fillet Weld Studs
Code Edition: D1.1-90
Code Provision: Subsection 5.17
AWS Log: ID1-91-001-03

Inquiry: Does Section 5, Part C, provide the requirements for welder qualification using the SMAW process to fillet weld studs?

Response: Yes, subsection 5.17 describes qualification test requirements.

Subject: Welder Qualification (Backgouged Joints)
Code Edition: D1.1-90
Code Provision: Subsection 5.19
AWS Log: ID1-90-024-03

Inquiry: Are welders qualified to subsection 5.19 of the D1.1-90 Code also qualified to weld a full-penetration groove weld without backing, provided the root is backgouged prior to the second side?

Response: Yes, within the limitations of variables.

Subject: Pipe Welding Qualification
Code Edition: D1.1-90
Code Provision: Subsection 5.23.1.1 and Tables 5.4 and 5.1
AWS Log: ID1-90-022-03

Inquiry: (1) Does a groove weld procedure qualification test plate welded in the 1G (flat) position qualify longitudinal pipe seam welding procedures to be welded in the 1G position?
 (2) Does a maximum 16-in. diameter weld test pipe qualify circumferential welding procedures for welding 16-in. and 24-in. diameter pipe, provided wall thickness requirements are met?

Response: (1) Yes. See 5.23.1.1 and Table 5.4 of D1.1-90.
 (2) Yes. See Table 5.1 of D1.1-90.

Subject: Welder Qualification for Partial Penetration T-, Y-, and K-Connections
Code Edition: D1.1-90
Code Provision: Subsection 5.23.2.4
AWS Log: ID1-90-031-03/06

Inquiry: If a welder qualifies in the 6G position on pipe with backing, is the welder qualified to make partial joint penetration groove welds in T-, Y-, and K-connections?

Response: Yes.

Subject: Nationally Approved NDT Qualification Schemes
Code Edition: D1.1-90
Code Provision: Subsection 6.7.8
AWS Log: ID1-90-048-05

Inquiry: If NDT operators are qualified to other nationally approved NDT certification schemes, such as that of the South African Qualification and Certification Committee for NDT (SAQCC-NDT), and are operating within a manufacturer's quality assurance program with its own section on NDT training, qualification and certification, would AWS consider that its requirements had been met?

Response: Refer to 6.7.8 of D1.1-90. The owner has the prerogative to compare the South African NDT requirements to ASNT-TC-1A. If their requirements meet or exceed the ASNT-TC-1A requirements, then it meets the intent of the AWS D1.1 Code.

Subject:	Definition of “Partial” and “Spot”
Code Edition:	D1.1-90
Code Provision:	Subsection 6.8
AWS Log:	I-7/91-02-05, ID1-91-014-05, ID1-91-015-05
Inquiry:	We request a definition of the terms “partial” and “spot” examination (in D1.1 subsection 6.8).
Response:	The requirements for exploration of discontinuities and additional testing are identical for “partial” and “spot” testing. See Commentary C6.8 for additional information.

Subject:	UT Transducers
Code Edition:	D1.1-90
Code Provision:	Subsection 6.15.6 and Table 6.3
AWS Log:	I-91-01-05
Inquiry:	<p>(1) Subsection 6.15.6 of D1.1 states in part that straight beam (longitudinal wave) search unit transducers shall have an active area of not less than 1/2 in.² (323 mm²) nor more than 1 in.² (645 mm²). Areas of 1/2 in.² and 1 in.² convert to diameters of 0.8 in. and 1.13 in., respectively. Since all commercially available straight beam transducers are round, the only transducers capable of meeting this requirement have a diameter of 1 in. Since a range of transducer areas is specified, can these dimensions be interpreted as diameters (1/2 in. to 1 in.) rather than areas?</p> <p>(2) Table 6.3 of D1.1, procedure numbers 4 and 5, specify lower refracted angles (45° and 60°, respectively) for the top quarter of the weld than for the middle half and bottom quarter (70°) of the weld. This is contrary to the other procedures, and it appears to violate the intent of the inspection requirements.</p>
Response:	<p>(1) No.</p> <p>(2) See Table 6.3 for the application of procedure numbers 4 and 5. The intent is to use a 10-in. screen.</p>

Subject:	IIW Blocks
Code Edition:	D1.1-90
Code Provision:	Subsection 6.21.2.3
AWS Log:	IR1-91-032-05
Inquiry:	This inquiry covers Section 6, subsection 6.21.2.3 of AWS D1.1-90, <i>Structural Welding Code—Steel</i> . The use of the International Institute of Welding (IIW) reference block, Type 2, is discussed. We have found that using the Type 2 reference block for calibration doesn’t follow the Code. The Code states that there should be an indication at 4 in. and 8 in. on the CRT for a Type 2 block. Yet, when the Type 2 reference block is used, there isn’t an indication at 8 in. An 8-in. indication is not obtained because the signal travels in this fashion: the signal leaves the transducer, and attenuates out into the block.
Response:	The calibration procedure referenced in 6.21.2.3 is correct as written. The 8-in. indication is attained from the two milled slots which are shown as the reference point for the 4-in. radius on the Type 2 IIW Block.

Subject: Stud Material Selection
Code Edition: D1.1-90
Code Provision: Subsection 7.3.1
AWS Log: I-12/91-01-07

Inquiry: Does ASTM recommended practice govern the selection of materials used for AWS D1.1, subsection 7.3.1?

Response: No. The mechanical property, as verified by the certified copies of the stud manufacturer's reports, govern. ASTM A400 is a recommended practice only.

Subject: Auxiliary Attachments
Code Edition: D1.1-90
Code Provision: Subsection 8.2.3.3
AWS Log: I-8/91-02-01

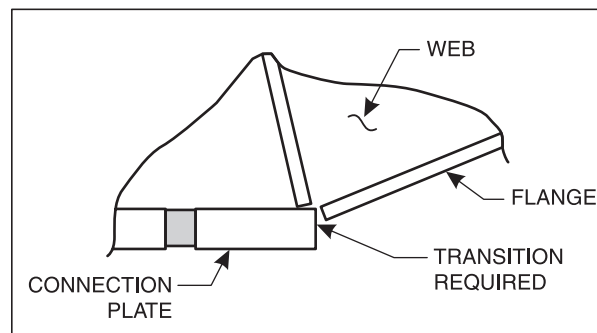
Inquiry: What does the statement in 8.2.3.3, i.e., "auxiliary attachments or components" apply to?

Response: The applicability of the statement "auxiliary attachments or components" is the responsibility of the Engineer. Therefore, the answer to the inquiry would be "yes" or "no," depending on the Engineer's judgment.

Subject: Transition Joints
Code Edition: D1.1-90
Code Provision: Subsection 8.10
AWS Log: ID1-88-008-01

Inquiry: Is a transition required in the joint per the sketch shown [below]?

ID1-88-008-01



Response: Yes, if the joint is in tension (see 8.10 of D1.1-90).

Subject: Alignment of Members
Code Edition: D1.1-90
Code Provision: Subsection 8.10
AWS Log: ID1-90-037-01

Inquiry: (1) Do provisions of 8.10 (of D1.1) apply to axially aligned members only?
(2) Do the provisions of 8.10 also apply to intersecting members not axially aligned i.e., normal or angled intersections?

Response: (1) Yes. The subcommittee is reviewing the wording of 8.10.
(2) No.

Subject: Welding Procedure Qualification for T-, Y-, and K-Connections
Code Edition: D1.1-90
Code Provision: Subsection 10.12.3.3 and Table 10.5
AWS Log: ID1-90-047-03/06

Inquiry: Can a procedure used to qualify T-, Y-, and K-connections (i.e., Figure 5.25) use a groove angle less than 37-1/2° and still meet all other Code requirements?

Response: Yes. See Table 10.5 and 10.12.3.3.

Subject: Low Hydrogen Welding Process for Base Metal Repair
Code Edition: D1.1-90
Code Provision: Appendix XI
AWS Log: ID1-91-004-02/04

Inquiry: Are GMAW and FCAW low-hydrogen processes in relation to base metal repair?

Response: See AWS D1.1, Appendix XI, Page 287 (D1.1-90), subsection XI6.2.2 for low-hydrogen definitions. See D1.1, subsection 3.2.2.2, for base metal repairs.

D1.1-92

Subject: Company Name Change
Code Edition: D1.1-92
Code Provision: None
AWS Log: 3.8

Inquiry: (1) Is it permissible to use our new company name on all previously qualified WPSs without requalification?
(2) Is additional documentation required?

Response: (1) Yes.
(2) No.

Subject: Recrushed Slag
Code Edition: D1.1-92
Code Provision: Subsection 4.8.5
AWS Log: I-8/91-06-03, I-8/91-07-03

Inquiry: Does AWS D1.1 permit the use of recrushed slags?

Response: Yes, per subsection 4.8.5 of AWS D1.1-92.

Subject: Welder Qualification to Other Standards
Code Edition: D1.1-92
Code Provision: Section 5
AWS Log: I-1/92-03-03

Inquiry: Does a welder who has been certified according to the requirements of a welder qualification standard other than AWS D1.1 *Structural Welding Code—Steel* (e.g., AWS QC3, *Standard for AWS Certified Welders*) also qualify to the welder qualification requirements of AWS D1.1?

Response: No, unless the requirements of subsections 5.3, 5.4.2, 5.4.3, 5.16, 5.33, and 5.44 of AWS D1.1-92 (or later editions) have been complied with.

Subject: Effect on WPS Qualification Because of Changes in Filler Metal Classification
Code Edition: D1.1-92
Code Provision: Subsections 5.4.4, 5.15
AWS Log: 2.23

Inquiry:

- (1) Are welding procedures that have been previously qualified by test, and that employ filler metals previously classified under a separate filler metal specification with a different classification, required to be requalified when the filler metal specification committee makes a change that results in a reclassification of the electrode?
- (2) Are welders who are currently qualified to weld with a specific electrode required to be requalified when the activities of the filler metal committee cause the electrode to be reclassified under a different filler metal specification?

Response:

- (1) No, subsection 5.4.4 of D1.1-92 would permit the continued use of these procedures without requalification. The written WPS, however, should be changed to reflect the new filler metal classification.
- (2) No. The Code intent is expressed in subsection 5.15 of D1.1-92. If there is no change in the electrode, there is no need to redetermine the ability of the welder to produce sound welds.

Subject: Qualification of Welders for Structural Shapes and Tubular Joints over 24 in. in Diameter
Code Edition: D1.1-92
Code Provision: Table 5.4
AWS Log: 2.27

Inquiry: Is a welder who is qualified by a plate test also qualified to weld grooves and fillets on rolled structural shapes or tubulars that are over 24 in. in diameter?

Response: Yes.

Subject: Welder Qualification Limitations
Code Edition: D1.1-92
Code Provision: Table 5.6
AWS Log: 3.4

Inquiry: Is a welder who qualified on a 3/8-in. CJP groove weld test coupon qualified to make a groove weld a size less than or equal to 3/4 in. on a base metal(s) greater than 3/4 in. thick?

Response: No. See Table 5.6.

Subject: Ultrasonic Inspection
Code Edition: D1.1-92
Code Provision: Subsections 6.13.1, 6.13.4, 6.15.6, 6.15.7.2, 6.21.2.4, 8.15.4
AWS Log: 5.7

Inquiry:

- (1) Why is there no screen height setting for reference line height indication when angle beam testing? Refer to 6.21.2.2 of D1.1.
- (2) Does subsection 8.15.4 cover welds, base metals, or both?
- (3) Is it acceptable to use smaller diameter transducers on thin material? Refer to 6.15.6.
- (4) Is it acceptable to use smaller transducers (or circumferential transducers) when joint configuration does not permit 0.62 × 0.62 in. transducers? Refer to 6.15.7.2.

Response:

- (1) The reference line is relative and can be set at any convenient level the technician wants to work with.
- (2) Weld and HAZ only. See 6.13.1 and 6.13.4.
- (3) No.
- (4) No.

Subject: Qualification to Other Codes
Code Edition: D1.1-86, D1.1-92
Code Provision: Commentary C5.4.2, C5.4.3
AWS Log: ID1-90-045-03

Inquiry:

- (1) Is it the intent of D1.1 to address qualification to other codes?
- (2) May the Engineer accept qualification of welders qualified to other codes?

Response:

- (1) No. See C5.4.2 (D1.1-86) or C5.4.3 (D1.1-92).
- (2) Yes. See C5.4.2 (D1.1-86) or C5.4.3 (D1.1-92).

D1.1-94

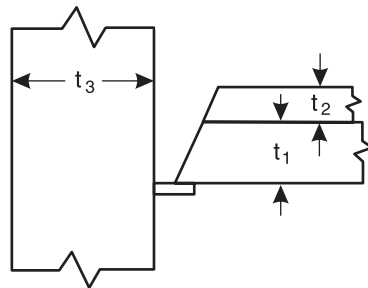
Subject: Prequalified Welds
Code Edition: D1.1-94
Code Provision: Subsection 2.3.2.4
AWS Log: D1-1.4

Inquiry: Is the effective throat the same as the theoretical throat?

Response: No, 2.3.2.4 of D1.1-94 does not accept additional penetration for prequalified welds.

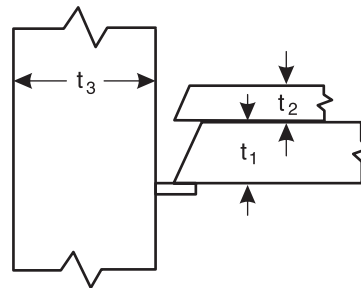
Subject: Prequalified Joints
Code Edition: D1.1-94
Code Provision: Figure 2.4
AWS Log: 2.28

Inquiry: Are the joint details (see figure) prequalified according to D1.1-94, Figure 2.4?



Joint A

Note: All dimensions meet requirements of Figure 2.4, TC-U4a-X, except $T_1 = t_1 + t_2$



Joint B

Note: After CJP groove weld t_1 to t_3 is complete, then plate t_2 is added and welded to t_3 . Dimensions of both CJP welds meet requirements of TC-U4a-X.

Response: Yes.

Subject: New Electrode Classification
Code Edition: D1.1-94
Code Provision: Table 4.1
AWS Log: D1-2.34

Inquiry: Does a prequalified WPS specifying a metal-cored electrode, which was formerly classified as E70T-1 or E71T-1 per AWS A5.20-79, and is now required to be classified as E70C-XX per AWS A5.18-93, remain as prequalified even though the new AWS classification, E70C-XX, is not listed in Table 4.1 of AWS D1.1-94?

Response: Yes. See 4.12.1 whereas the Code states the latest edition, which could be a different document number but technically equal in content due to subsequent revisions. (Note: The electrode can no longer be classified to the latest issue of AWS A5.20 as specified in 4.12.1 AWS D1.1-94.)

Subject: Essential Variables
Code Edition: D1.1-94
Code Provision: Table 4.5
AWS Log: D1-2.50

Inquiry: There is an inconsistency in Table 4.5, under the heading “Essential Variable Changes to PQR Requiring Requalification” Item 32 and Item 33. In Item 32 the Code states, “A change in groove type (e.g., single-V to double-V) qualification of any CJP groove weld qualifies for any groove detail complying with the requirements of 3.12 or 3.13.” Subsection 3.12 permits the use of several square-groove welding joint designs: B-P1a, B-P1b, and B-P1c. Subsection 3.13 permits the use of several square-groove welding joint designs: B-L1b, B-L1b-GF, B-L1-S, B-L1a-S, TC-L1b, TC-L1-GF, and TC-L1-S.

In Item 33 the Code states: “A change in the type of groove to a square groove and vice versa.” I would understand that statement to mean that, for example, a process such as GMAW-S, qualified using B-U6-GF under the provisions of Item 32 would not be allowed application to ANY of the prequalified square-groove welding joint designs that are permitted by Item 32.

These items conflict with each other.

Response: No, essential variables 32 and 33 are not in conflict. What may be allowed in 32 regarding the use of non-square-groove weld details to qualify a square-groove joint is further restricted by 33. The Code is correct as written.

Subject: Visual Inspection of Test Plate
Code Edition: D1.1-94
Code Provision: Figure 4.21 and Subsection 4.8.1
AWS Log: D1-2.58

Inquiry: For a welder qualification test plate, such as depicted in Figure 4.21, visual inspection of the weld is required by Table 4.9, Note 1. Visual inspection is to be performed to the acceptance criteria of 4.8.1.

- (1) The question is whether the entire 5-in. length of the Figure 4.21 test requires the visual inspection acceptance criteria to be applied, or whether it is the intent to exclude the 1-1/4 in. at each end of the weld from evaluation, as is done for radiographic evaluation by subsection 4.30.3.
- (2) As a follow-on question, if the entire 5-in. length is to be evaluated, can the backing strip shown in the figure be extended to allow a run-on/run-off area?

Response: (1) Yes. The entire length of the test plate must be subjected to visual inspection.
 (2) Yes. Weld tabs may be used but are outside the area of visual inspection.

Subject: Welder Requalification
Code Edition: D1.1-94
Code Provision: Subsection 5.16.1
AWS Log: D1-2.37

Inquiry: Does subsection 5.16.1 of D1.1-94 require requalification for qualified welders on any unlisted steel which the engineer has specified or accepted?

Response: No. See 5.16.1 of D1.1-94.

Subject: Valid Level III Certification
Code Edition: D1.1-94
Code Provision: Subsection 6.7.8.1 and Commentary C6.7.8
AWS Log: D1-5.4

Inquiry: (1) In reference to 6.7.8.1 of D1.1-94, can a NDT Level III individual independently perform a nondestructive examination, if he was previously certified as a Level II technician and now has been certified as a NDT Level III by successfully completing the Basic, Method, and Specific examinations as required by SNT-TC-1A?

- (2) Is it the intent of subsection 6.7.8.2 of D1.1-94 to require that all NDT Level III personnel must have been certified by written examination by either successfully completing the written examinations administered by ASNT or by completing the examinations required by the SNT-TC-1A document?

Response: (1) Yes, Level III individuals may also perform NDT tests provided they meet the requirements of NDT Level II. (This is from Commentary C6.7.8.)
 (2) Yes, the Level III must be qualified by written examination (see Commentary.)

D1.1-96

Subject: Ceramic Backing
Code Edition: D1.1-96
Code Provision: Subsection 2.27.2
AWS Log: D1-259

Inquiry: For one-sided groove welds, 2.27.2 of D1.1-96 prohibits the use of backing, other than steel, without qualification of the Welding Procedure Specification (WPS). The subsection specifically requires qualification in accordance with Section 4 of the Code. However, subsection 3.6, by reference of Table 4.5, indicates that addition of backing does not affect the prequalification status of a WPS. For a WPS with ceramic backing, subsection 3.6 allows prequalification while subsection 2.27.2 prohibits prequalification.

Response: Yes. Ceramic backing is not prequalified under this Code. A change from steel backing to ceramic backing will require a new WPS to be qualified in accordance with Section 4 of the Code.

Subject: Welder Qualification
Code Edition: D1.1-96
Code Provision: Table 4.8
AWS Log: D1-2.27

Inquiry: Is a welder who is qualified by plate test per D1.1-96 also qualified to weld grooves and fillets on rolled structural shapes or tubulars that are over 24-in. diameter?

Response: Yes. See Table 4.8.

Subject: Condition of Adjacent Weld Areas
Code Edition: D1.1-96
Code Provision: Subsection 5.15
AWS Log: D1-3.24

Inquiry: Except for girders in cyclically loaded structures, is it required that all surfaces to be welded, and surfaces adjacent to a weld, be free of the foreign material described in 5.15 of D1.1-96, even if they would not prevent proper welding?

Response: No, provided the quality requirements for the welded connection were met.

D1.1-98

Subject: Test Plate Repair
Code Edition: D1.1-98
Code Provision: Subsection 4.8.2
AWS Log: D1-2.71

Inquiry: Does the 1998 edition of AWS D1.1 allow a Welding Procedure Specification test plate to be repaired if it does not pass the nondestructive testing as specified in 4.8.2?

Response: No.

Subject: Flux Electrode Classification Essential Variable
Code Edition: 1998
Code Provision: Table 4.5
AWS Log: D1.1-98-I01

Inquiry:

- (1) Since the original flux-electrode class no longer exists (for the flux/wire combination under consideration), is it reasonable to presume that during the process of updating the original WPS/PQR, it would be acceptable to revise the old class F7A6-EG-G to F7A6-EM14K?
- (2) The F7A6-EM14K class used for WPS qualification also qualifies the WPS for the use of filler metals possessing lower strength levels, i.e., F7A6-EM14K also qualifies: F7A4-EXXX, F6A2-EXXX, F6A2-EXXX.... The use of the lower classifications, depending on the flux manufacturer's recommendation, may result in the use of a differing wire class, such as EM13K or EM12K. Is it reasonable to assume that these wires can be used without requiring requalification of the WPS?

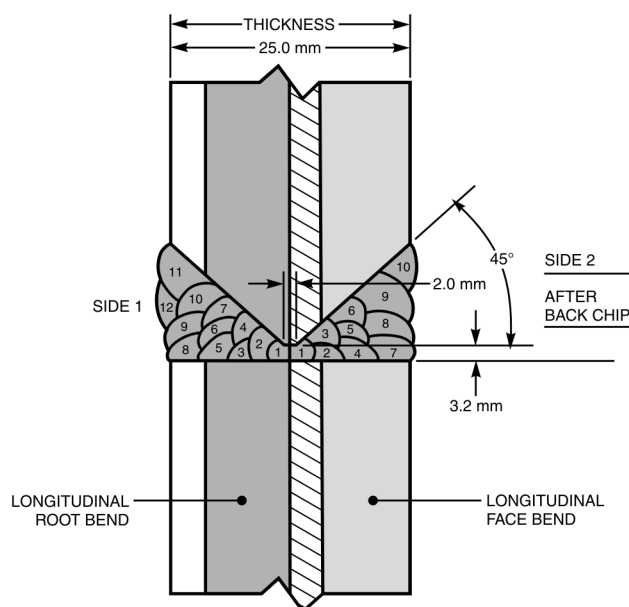
Response:

- (1) Yes, the electrode designation or electrode/flux designation on the WPS may be changed, providing that there has been no other change in the electrode/flux designation other than the electrode classification. The filler metal manufacturer and manufacturer's trade name(s) must be unchanged.
- (2) No, a change in electrode classification other than a decrease in tensile strength requires requalification.

Subject: Substituting Bend Specimens
Code Edition: D1.1-98
Code Provision: Subsection 4.8.3.2
AWS Log: INQ-25

Inquiry: Can we use longitudinal root and face bend specimens in lieu of transverse side bend specimens as shown in the sketch enclosed.

Response: Yes, as permitted in Section 4.8.3.2 of D1.1/D1.1M:2002 Code, longitudinal root and face bend specimens (for material combinations of markedly different material bending properties) may be substituted for transverse side bend specimens and prepared for testing as shown in Figure 4.12.



D1.1:2000

Subject: Imperial and Metric Pipe Sizes
Code Edition: 2000
Code Provision: Table 4.2
AWS Log: D1.1-00-I01

Inquiry:

- (1) Could the committee confirm that the Standard Test Pipe sizes in both the Imperial and Metric tables are the same?
- (2) Does the committee have any guidance on how the ranges of deposited thicknesses should be determined in the AWS Code?

Response:

- (1) The standard test pipe sizes in Table 4.2 of AWS D1.1:2000 with dimensions in both inches and millimeters are the same pipe sizes; however, the inquirer should refer to the new paragraph 1.8 Standard Units of Measurement in the D1.1/D1.1M:2002 Code for cautionary information.
- (2) No guidance on how the ranges of deposited thicknesses should be determined for multi-processes in the AWS D1.1/D1.1M:2000 Code can be given as Subcommittee 2 on Qualification is currently considering new thickness rules for qualified multi-processes procedures for publishing in the 2006 Code.

Subject: Variable Parameters on Welding Procedures
Code Edition: D1.1:2000
Code Provision: Table 4.5
AWS Log: INQ-21

Inquiry:

- (1) For a prequalified WPS, is it the intent of AWS D1.1:2000 that a single value or mean value be specified and the limitations of Table 4.5 be applied to the specified value?
- (2) For a prequalified WPS, is it the intent of the AWS D1.1:2000 that a range of values may be specified and the limitations of Table 4.5 be applied to the specified range?

Response:

- (1) No. Use of a single value or mean value is neither required nor prohibited.
- (2) Yes, as long as the range of values is within the range of the manufacturer's recommendations (see 5.3.1.2).

Subject: Ultrasonic (UT) Acceptance Criteria
Code Edition: D1.1:2000
Code Provision: Table 6.2, Note 3
AWS Log: INQ-31

Inquiry:

- (1) Do you apply the note #3 D1.1:2000 to a double groove weld (4 dB more sensitive) if you have no root face? For example, when the joint is without a root face because the "f" dimension is "0."
- (2) Do you apply the note #3 D1.1:2000 to a double groove weld (4 dB more sensitive) if you have completely removed the root face by gouging?

Response:

- (1) Yes.
- (2) Yes.

Subject:	Ultrasonic (UT) Acceptance Criteria
Code Edition:	D1.1:2000
Code Provision:	Table 6.2, Note 1
AWS Log:	INQ-32
Inquiry:	Why is the weld in Case I which includes Class B, C, and D discontinuities acceptable but the weld in Case II which includes only Class C and D discontinuities rejectable? The weld quality is worse in Case I than it is in Case II.
Response:	The weld in Case I is also rejectable because the indications are not separated by a length of 2L.

Subject:	Edge Blocks
Code Edition:	D1.1:2000
Code Provision:	Subsection 6.17.13 and 6.17.5
AWS Log:	INQ-33
Inquiry:	<ol style="list-style-type: none"> (1) Does the 1/16-inch (2 mm) maximum gap specified in paragraph 6.17.13 of D1.1:2000 refer to the physical distance between the weld edge and the edge block at the time of the radiographic set-up for exposure? (2) Does an image of the gap allowed by paragraph 6.17.13 D1.1:2000, in excess of 1/16 in. (2 mm) on the final radiograph, disqualify the radiograph when the excess is due to geometric enlargement? (3) Does the radiographic set-up, as delineated in paragraph 6.17.5 D1.1:2000 (i.e., “as near as practical”), allow for positioning the source off the center of the length being examined for the purpose of favoring the weld edge/edge block interface (granting that all other code specified parameters are met)?
Response:	<ol style="list-style-type: none"> (1) Yes. See also C6.17.13. (2) No. (3) No. See also C6.17.5.

Subject:	Inspector Qualifications, Technician
Code Edition:	D1.1:2000
Code Provision:	Subsection 6.1.4.1(3)
AWS Log:	INQ-34
Inquiry:	<ol style="list-style-type: none"> (1) Can a welder, with documented work history, training, etc., be classified by this section as a technician per 6.1.4.1(3) D1.1:2000? (2) If the answer to Question No. 1 is Yes, can said welder visually check size, contour, etc., per 6.9 D1.1:2000 of other welders?
Response:	<ol style="list-style-type: none"> (1) Yes, providing the welder is also an individual who by training or experience or both, in metals fabrication, inspection, and testing, is competent to perform inspection of the work. (2) Yes.

D1.1:2002

Subject: OEM's Engineer
Code Edition: D1.1:2002
Code Provision: Section 1.3.1
AWS Log: D1.1-02-I01 (INQ-48)

Inquiry: Is it permissible for the Original Equipment Manufacturer (OEM) to designate a technically qualified competent and capable Engineer from his organization as "the Engineer" to make engineering evaluations based on design analysis, and to accept previous WPS Qualifications and previous Performance Qualifications (in accordance with paragraphs 4.1.1.2 and 4.1.2.1)?

Response: Yes.

Subject: Crushed Slag
Code Edition: 2002
Code Provision: Table 4.5, Table 4.6
AWS Log: D1.1-02-I02

Inquiry: If the flux is changed to a crushed slag, is requalification required even if all other classifications remain the same?

Response: Yes, requalification is required because a change to crushed slag requires the addition of "S" to the flux prefix which is a change in the flux-electrode classification.

Subject: Fillet Weld Procedure Qualification
Code Edition: D1.1:2002
Code Provision: Table 4.4 and Table 4.5
AWS Log: D1.1-02-I04

Inquiry: We have had a running question regarding the application of Table 4.5, Essential Variable 16), and the application of Note 3.

When the procedure qualified is only used as a single pass weld, does the code permit the qualification of the WPS described in Table 4.4—Plate T-test, "Single pass, maximum size to be used in production" without qualification of the "Multiple pass, minimum size to be used in construction" and subsequently using Table 4.5, Essential Variable 16), Note 3 to determine the WPS travel speeds for smaller size fillets by increasing the travel speed while maintaining the PQR wire feed speed?

Response:

- (1) Yes, qualification of a single pass, maximum size fillet weld to be used in construction may be performed without performing the multiple pass, minimum size fillet weld to be used in construction qualification that is shown in Table 4.4.
- (2) Yes, for the same PQR wire feed speed (as permitted in Note 3 of Table 4.5), smaller single pass fillet welds may be performed by increasing travel speed as restricted by Essential Variable 16.

Subject: Qualification Plate Thicknesses for Fillet Weld Soundness Test
Code Edition: D1.1:2002
Code Provision: Figure 4.19
AWS Log: D1.1-02-I05 (INQ-53)

Inquiry: What are the qualification test plate thicknesses that should be used for a 1/8" minimum fillet weld size on 3/16 in. (T2) to 1/4 in. (T1) plate using Tiny Twin SAW in the horizontal position?

Response: The current code has sufficient references regarding the qualification plate sizes for joining 3/16 in. plate to 1/4 in. plate using a 1/8 in. minimum fillet weld which are listed as follows:

- (1) See 4.11 Fillet Weld Qualification requirements for Tubular and Nontubular Connections and the reference to Figure 4.19 for plate qualification in 4.11.2.
- (2) See the General Note to Figure 4.19 which states "Where the maximum plate thickness used in production is less than the value shown above, the maximum thickness of the production pieces may be substituted for T1 and T2."
- (3) See Table 5.8 Minimum Fillet Weld Sizes (see 5.14) for T1/4 in. which indicates 1/8 in. minimum except for cyclically loaded structures.

Subject: Welder Qualification—Pipe Diameters Qualified
Code Edition: D1.1:2002
Code Provision: Table 4.9 and Table 4.10
AWS Log: D1.1-02-I06 (INQ-29)

Inquiry: For a welder who is qualified by a plate groove test, what diameter of pipe is the welder qualified to weld fillet welds and PJP welds?

Response: A welder qualified by a plate groove test is also qualified to weld fillet welds on all diameters of pipe and PJP welds over 24 in. diameter within the position and thickness limitations of Tables 4.9 and 4.10.

Subject: Fillet Weld Inspection
Code Edition: D1.1:2002
Code Provision: Section 6
AWS Log: INQ-45

Inquiry:

- (1) Does D1.1:2002 require fillet welds to be subject to RT requirements?
- (2) Fillet welds subject to MT shall be evaluated based on visual inspection criteria. If these welds have successfully passed the MT test based on visual acceptance criteria Table 6.1 but do not pass the RT criteria applicable to CJP welds, will it be considered as Gross Non Conformance to D1.1:2002 Section 6.6.5?
- (3) Does D1.1:2002 require the fillet welds which are permitted to have a gap of up to 5 mm by AWS section 5.22 to comply with the same acceptance criteria as applied to the CJP welds?

Response:

- (1) No.
- (2) Since the Code does not address the RT of fillet welds, the acceptability of RT-detected discontinuities is exclusively a contractual issue. The application of 6.6.5 to the detection of flaws unacceptable to such contractual criteria is an issue to be decided between the contracting parties.
- (3) No.

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: <ol style="list-style-type: none"> (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 Inquiry 2.
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 of ...backing..., 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:	<ol style="list-style-type: none"> (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.

D1.1:2004

Subject: Visual Inspection of Studs
Code Edition: D1.1:2004
Code Provision: Subclause 7.5.5
AWS Log: D1.1-04-I03

Inquiry: Are studs that are welded using the SMAW, GMAW, or FCAW processes subject to the visual inspection requirements of paragraph 5.26, Figure 5.4, and the visual acceptance criteria listed in Table 6.1?

Response: Studs welded using an approved welding process as listed in subclause 7.5.5 must meet the fillet weld profile requirements of Clause 5.24 and the requirements of Table 6.1, Visual Inspection Acceptance Criteria for the applicable service conditions (static, cyclic, or tubular). Visual inspection of hand-welded studs is specified in subclause 7.5.5.7 (this subclause in turn refers to subclause 6.6.1 which refers to Table 6.1 which references to subclause 5.2.4.)

Subject: Qualification Responsibility
Code Edition: D1.1:2004
Code Provision: Sections 1.4.1, 4.1.1.1, and 4.1.2.1
AWS Log: D1.1-04-I05

Inquiry: (1) Can a subcontractor use the manufacturer's qualified WPS to perform welder qualification testing?
 (2) Can the manufacturer's Engineer, documenting a specific qualified WPS, accept subcontractor's welder qualification test based on the same manufacturers specific qualified WPS including performance qualification to other standards?

Response: (1) Yes, for the purposes of welder qualification.
 (2) Yes, per Section 4.21, and only if 1.3.1 is satisfied.

D1.1:2006

Subject: Electrodes and Procedure Qualification
Code Edition: D1.1:2006
Code Provision: Table 4.6, Variable No. 5
AWS Log: D1.1-06-I01

Inquiry: Are the words 'type of electrode' intended to require a separate procedure qualification for each manufacturer's filler metal designator? (Example: a change from "Filler metal No. 1—AWS A5.20 Class E71T-1M; manufactured by ABC Co., called ABC WELD—FLUXCORE-1" to "Filler metal No. 2—AWS A5.20 Class E71T-1M; manufactured by ABC Co., called ABC WELD—FLUXCORE-2.")

Response: Yes, see AWS D1.1:2006 Table 4.6, Variable No. 5.

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New official interpretations of AWS D1.1 technical requirements are published twice a year, in the July and November issues of the *Welding Journal*. The space below is provided for the purpose of maintaining a log of these additions so that the user may keep this publication current.

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LIST OF AWS DOCUMENTS ON STRUCTURAL WELDING

Designation	Title
D1.1/D1.1M	<i>Structural Welding Code—Steel</i>
D1.2/D1.2M	<i>Structural Welding Code—Aluminum</i>
D1.3/D1.3M	<i>Structural Welding Code—Sheet Steel</i>
D1.4/D1.4M	<i>Structural Welding Code—Reinforcing Steel</i>
D1.5M/D1.5	<i>Bridge Welding Code</i>
D1.6/D1.6M	<i>Structural Welding Code—Stainless Steel</i>
D1.8/D1.8M	<i>Structural Welding Code—Seismic Supplement</i>
D1.9/D1.9M	<i>Structural Welding Code—Titanium</i>

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