

API Standards 620, 650, and 653 Interpretations— Tank Construction and In-Service Inspection

Answers to Technical Inquiries

API PUBLICATION 850
FIRST EDITION, NOVEMBER 1997





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Manufacturing, Distribution and Marketing Department

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1. **Format:** Include your name and mailing address on all correspondence. Your letter should be typewritten (although legible handwritten letters will be considered), and mailed to:

American Petroleum Institute
MDM Department
1220 L Street, Northwest
Washington, D.C. 20005

2. **Scope:** Limit your inquiry to a single subject or closely related subjects. An inquiry letter concerning unrelated subjects will be returned.
3. **Background:** State the purpose of your inquiry and your understanding of the standard's requirements. Provide all information needed for a complete understanding of your inquiry. Refer to the applicable edition, revision, paragraphs, figures, and tables. Include sketches, if needed.
4. **Inquiry:** State your inquiry in a condensed, precise question format, omitting any superfluous background information. The question itself should be technically and editorially correct. Try to compose your question in such a way that "yes" or "no," with provisos if needed, would be a suitable reply. For example, you could ask whether or not your understanding of a standard's requirements is correct.
5. **Suggestion for a Revision:** When proposing a revision to an API standard, you should include supportive technical reasons and data, along with proposed new wording. Comments made concerning the technical basis for a requirement of an API standard should include relevant notes and suggestions. These suggestions and comments will be forwarded to the appropriate API subcommittee for the next review of that standard.

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API Standards 620, 650, and 653 Interpretations— Tank Construction and In-Service Inspection

INTRODUCTION

This publication is a compendium of responses to technical inquiries on API Standards 620, Design and Construction of Large, Welded, Low-Pressure Storage Tanks, API 650, Welded Steel Tanks for Oil Storage, and API 653, Tank Inspection, Repair, Alteration, and Reconstruction. Its purpose is to further the understanding of tank designers, fabricators, owners, and operators on technical issues related to these standards and their application. API Publication 850 includes technical inquiry responses issued from 1987 through 1997.

These inquiries can often lead to revisions or additions to the requirements in the standards. In cases where a change in the standard is warranted, the committee responsible for maintaining the document will ballot the proposed changes according to the procedures of the American National Standards Institute (ANSI) for comment and approval by API committee members and other interested parties.

STANDARD 620

Full Document Set: API Publications 1950-1997

**STANDARD 620, SEVENTH EDITION, SEPTEMBER 1982;
REVISION 1, APRIL 1985**

Standard 620, Seventh Edition, Revision 1—General

Issue Date:	September 2, 1987
Publication:	API Standard 620, <i>Recommended Rules for Design and Construction of Large, Welded, Low-Pressure Storage Tanks</i>
Edition/Date:	Seventh Edition, September 1982; Revision 1, April 1985
Question:	Is it permissible to use umbrella-shaped dome roofs for low-pressure storage tanks per Standard 620?
Reply:	No.

This interpretation was issued as a result of a question on the above edition. It applies to all previous and subsequent editions in which the text remains substantially unchanged.

Standard 620, Seventh Edition, Revision 1—Section 3.5

Issue Date:	March 8, 1988
Publication:	API Standard 620, <i>Recommended Rules for Design and Construction of Large, Welded, Low-Pressure Storage Tanks</i>
Edition/Date:	Seventh Edition, September 1982; Revision 1, April 1985
Question:	If T and T_2 are calculated using Equations (6) and (7), can paragraphs 3.5.3.2 and 3.5.3.3 be used to calculate the allowable compressive stress by taking $R = R_2$?
Reply:	Yes.

This interpretation was issued as a result of a question on the above edition. It applies to all previous and subsequent editions in which the text remains substantially unchanged.

Standard 620, Seventh Edition, Revision 1—Section 3.10

Issue Date:	March 8, 1988
Publication:	API Standard 620, <i>Recommended Rules for Design and Construction of Large, Welded, Low-Pressure Storage Tanks</i>
Edition/Date:	Seventh Edition, September 1982; Revision 1, April 1985
Question:	Can Standard 620 be used as a basis for design of conical heads under external loads of snow, insulation, etc., and zero internal pressure?
Reply:	Yes.

This interpretation was issued as a result of a question on the above edition. It applies to all previous and subsequent editions in which the text remains substantially unchanged.

Standard 620, Seventh Edition, Revision 1—Section 3.11

Issue Date:	September 2, 1987
Publication:	API Standard 620, <i>Recommended Rules for Design and Construction of Large, Welded, Low-Pressure Storage Tanks</i>
Edition/Date:	Seventh Edition, September 1982; Revision 1, April 1985
Question:	Does Standard 620 contain rules for tanks with cylindrical side-walls and flat bottoms to design for uplift?
Reply:	Yes; see applicable provisions of paragraph 3.11.2.

This interpretation was issued as a result of a question on the above edition. It applies to all previous and subsequent editions in which the text remains substantially unchanged.

Standard 620, Seventh Edition, Revision 1—Section 4.15

Issue Date:	October 27, 1988
Publication:	API Standard 620, <i>Recommended Rules for Design and Construction of Large, Welded, Low-Pressure Storage Tanks</i>
Edition/Date:	Seventh Edition, September 1982; Revision 1, April 1985
Question 1:	Does 4.15 of Standard 620 require both plates to be greater than $\frac{1}{2}$ inch in thickness before a taper is required?
Reply 1:	No.
Question 2:	Does a 1 inch rim angle in Figure 3.4 (g) have to be tapered per 4.15 if butt welded to a $\frac{3}{8}$ inch roof plate?
Reply 2:	Yes, but all requirements of 3.12 must be met.

This interpretation was issued as a result of a question on the above edition. It applies to all previous and subsequent editions in which the text remains substantially unchanged.

Standard 620, Seventh Edition, Revision 1—Appendix Q

Issue Date:	July 5, 1988
Publication:	API Standard 620, <i>Recommended Rules for Design and Construction of Large, Welded, Low-Pressure Storage Tanks</i>
Edition/Date:	Seventh Edition, September 1982; Revision 1, April 1985
Question:	Does the concept to have an open top inner tank with suspended insulation deck comply with Standard 620, Appendix Q?
Reply:	Yes.

This interpretation was issued as a result of a question on the above edition. It applies to all previous and subsequent editions in which the text remains substantially unchanged.

STANDARD 620, EIGHTH EDITION, JUNE 1990

Standard 620, Eighth Edition—General

Issue Date:	August 1, 1991
Publication:	API Standard 620, <i>Design and Construction of Large, Welded, Low-Pressure Storage Tanks</i>
Edition/Date:	Eighth Edition, June 1990
Question:	Does API Standard 620 have dimensional tolerances for flatness on flat bottom tanks?
Reply:	No. The committee will take under consideration establishing tolerances for flat bottom tanks.

This interpretation was issued as a result of a question on the above edition. It applies to all previous and subsequent editions in which the text remains substantially unchanged.

Standard 620, Eighth Edition—General

Issue Date:	April 30, 1993
Publication:	API Standard 620, <i>Design and Construction of Large, Welded, Low-Pressure Storage Tanks</i>
Edition/Date:	Eighth Edition, June 1990
Question 1:	Does API Standard 620 provide rules for the design of frangible roof joints?
Reply 1:	No.
Question 2:	Does API Standard 620 provide rules and procedures for operating tanks?
Reply 2:	No.

This interpretation was issued as a result of a question on the above edition. It applies to all previous and subsequent editions in which the text remains substantially unchanged.

Standard 620, Eighth Edition—Section 3.5

Issue Date:	September 17, 1992
Publication:	API Standard 620, <i>Design and Construction of Large, Welded, Low-Pressure Storage Tanks</i>
Edition/Date:	Eighth Edition, June 1990
Question:	May Equations 18 and 19 on pages 3 to 5 of API Standard 620 be used to calculate the thickness of a conical roof under external pressure?
Reply:	No. See paragraphs 3.5.4.1 and 3.10.5.1.

This interpretation was issued as a result of a question on the above edition. It applies to all previous and subsequent editions in which the text remains substantially unchanged.

Standard 620, Eighth Edition—Section 3.5

Issue Date:	December 30, 1991
Publication:	API Standard 620, <i>Design and Construction of Large, Welded, Low-Pressure Storage Tanks</i>
Edition/Date:	Eighth Edition, June 1990
Question 1:	Can Figure 3-1 in API Standard 620 be used for steels with yield strengths below 30,000 psi and above 38,000 psi?
Reply 1:	No.
Question 2:	Does API Standard 620 provide a method for determining the combined tension and compression for steels with yield points below 30,000 psi and above 38,000 psi?
Reply 2:	No.

This interpretation was issued as a result of a question on the above edition. It applies to all previous and subsequent editions in which the text remains substantially unchanged.

Standard 620, Eighth Edition—Section 3.19

Issue Date:	December 30, 1991
Publication:	API Standard 620, <i>Design and Construction of Large, Welded, Low-Pressure Storage Tanks</i>
Edition/Date:	Eighth Edition, June 1990
Question:	Is the thickness in paragraph 3.19.2.2 of Standard 620 the nominal wall thickness of standard weight pipe as listed in B36.10 less 12½ percent mill tolerance?
Reply:	No. However, the committee will review this requirement to see if a change should be made.

This interpretation was issued as a result of a question on the above edition. It applies to all previous and subsequent editions in which the text remains substantially unchanged.

Standard 620, Eighth Edition—Section 5.17

Issue Date:	August 1, 1996
Publication:	API Standard 620, <i>Design and Construction of Large, Welded, Low-Pressure Storage Tanks</i>
Edition/Date:	Eighth Edition, June 1990
Question:	Does API 620 permit the use of gamma radiation, as well as X radiography?
Reply:	Yes.

This interpretation was issued as a result of a question on the above edition. It applies to all previous and subsequent editions in which the text remains substantially unchanged.

Standard 620, Eighth Edition—Appendix F

Issue Date:	March 17, 1995
Publication:	API Standard 620, <i>Design and Construction of Large, Welded, Low-Pressure Storage Tanks</i>
Edition/Date:	Eighth Edition, June 1990
Question:	Is the note at the end of Example 3 in F.1.3 of API Standard 620 correct?
Reply:	No. In using the alternative approach by the application of Figure F-1, a check shall be made that the compressive stress does not exceed the compressive stress value bounded by the line OABC in Figure 3-1. In your case, it is 12,230 pounds per square inch. This correction will be included in the next edition of the standard.

This interpretation was issued as a result of a question on the above edition. It applies to all previous and subsequent editions in which the text remains substantially unchanged.

Standard 620, Eighth Edition—Appendix Q

Issue Date: April 30, 1993

Publication: API Standard 620, *Design and Construction of Large, Welded, Low-Pressure Storage Tanks*

Edition/Date: Eighth Edition, June 1990

Question: Is it the intent in Q.6.3.3 of API Standard 620 to require Charpy impact testing of HAZ specimens for austenitic stainless steel welds for service temperatures below –200°F?

Reply: No.

This interpretation was issued as a result of a question on the above edition. It applies to all previous and subsequent editions in which the text remains substantially unchanged.

Standard 620, Eighth Edition—Appendix Q

Issue Date:	April 9, 1996
Publication:	API Standard 620, <i>Design and Construction of Large, Welded, Low-Pressure Storage Tanks</i>
Edition/Date:	Eighth Edition, June 1990
Question:	Does API 620, Appendix Q, regarding secondary components (e.g., the outer wall of an LPG tank), permit the material to be selected from Table 2-1 using (a) the design metal temperature of the inner tank, or (b) the design metal temperature based on the lower of the minimum atmospheric temperature conditions and the vaporized liquefied gas temperature if the components are in contact with the vapor?
Reply:	Refer to paragraph Q.3.2 for the definition of “design metal temperature” for secondary components. Then refer to paragraph Q.2.3.1, which permits the use of Table 2-1, selecting based on item (b) above, but only for temperatures down to -35°F .

This interpretation was issued as a result of a question on the above edition. It applies to all previous and subsequent editions in which the text remains substantially unchanged.

Standard 620, Eighth Edition—Appendix R

Issue Date:	December 30, 1991
Publication:	API Standard 620, <i>Design and Construction of Large, Welded, Low-Pressure Storage Tanks</i>
Edition/Date:	Eighth Edition, June 1990
Question 1:	Is it the intent of Section R.6.3.3 of API 620, Eighth Edition, to require more than one set of test plates when one test plate thickness cannot be selected to qualify all thicknesses in the shell?
Reply 1:	Yes.
Question 2:	Is $\frac{5}{8}$ inch the minimum value of $t/2$ in the second sentence of R.6.3.3?
Reply 2:	Yes.
Question 3:	In the third sentence of R.6.3.3, if the t - to - $2t$ range does not cover the range of shell thicknesses less than $\frac{5}{8}$ inch, is more than one test required?
Reply 3:	Yes.

This interpretation was issued as a result of a question on the above edition. It applies to all previous and subsequent editions in which the text remains substantially unchanged.

Standard 620, Eighth Edition—Appendix R

Issue Date:	April 15, 1994
Publication:	API Standard 620, <i>Design and Construction of Large, Welded, Low-Pressure Storage Tanks</i>
Edition/Date:	Eighth Edition, June 1990
Question:	Does API Standard 620 allow the use of material less than $\frac{3}{16}$ -inch thick for suspended decks in double wall tanks?
Reply:	No. Refer to Tables R-2 and R-5.

This interpretation was issued as a result of a question on the above edition. It applies to all previous and subsequent editions in which the text remains substantially unchanged.

Standard 620, Eighth Edition—Appendix R

- Issue Date:** April 9, 1996
- Publication:** API Standard 620, *Design and Construction of Large, Welded, Low-Pressure Storage Tanks*
- Edition/Date:** Eighth Edition, June 1990
- Question 1:** Does API 620, Appendix R, allow the use of ASTM A20, *Charpy V-Notch Test Acceptance Criteria for Various Sub-Size Specimens* (Table A1.16), to be applied to the WPS qualification Charpy Impact test coupons for shell plate welding or nozzle-to-shell welding?
- Reply 1:** Paragraph R.6.1.5 refers to Table R-2 for the required impact levels to be met for the weld material and HAZ for the WPS. Table R-2 covers the impact requirements for primary component plate, HAZ, and weld deposit. Footnote a of Table R-2 refers to R.2.1.2. R.2.1.2.3 refers to ASTM A20 for subsize specimen acceptance criteria.
- Question 2:** Does API 620, Appendix R, require the PQR Charpy Impact test coupons for the welding of nozzles to the shell and nozzle pipe butt welding to be performed at least 30° lower than the design metal temperature of the tank?
- Reply 2:** No; refer to R.6.1.4. The 30° rule applies only to pipe, bolting, and forging testing by the mill.

This interpretation was issued as a result of a question on the above edition. It applies to all previous and subsequent editions in which the text remains substantially unchanged.

STANDARD 620, NINTH EDITION, FEBRUARY 1996

Standard 620, Ninth Edition—General

Issue Date:	August 1, 1996
Publication:	API Standard 620, <i>Design and Construction of Large, Welded, Low-Pressure Storage Tanks</i>
Edition/Date:	Ninth Edition, February 1996
Question:	Is a draw-off sump permitted in an API 620 tank?
Reply:	API 620 does not include rules for sumps but does not prohibit them.

This interpretation was issued as a result of a question on the above edition. It applies to all previous and subsequent editions in which the text remains substantially unchanged.

Standard 620, Ninth Edition—Section 2.2

Issue Date:	August 1, 1996
Publication:	API Standard 620, <i>Design and Construction of Large, Welded, Low-Pressure Storage Tanks</i>
Edition/Date:	Ninth Edition, February 1996
Question:	For a tank design to basic API 620 requiring impact testing of plate material per paragraph 2.2.5: (a) Should the long dimension of impact test specimen be parallel to direction of maximum stress (biaxial stresses are not equal) and the minimum absorbed energy value per Table R-5? or (b) Should the impact test specimen be taken transverse to the final plate rolling and the absorbed energy value per Table R-2?
Reply:	As stated in API 620, paragraph 2.2.5, the direction of the axis of the impact test specimen is dependent upon the direction of plate rolling by the mill. The direction of maximum stress when installed in the tank is not a factor. The impact test energy criteria applicable to either type of specimen is per Table R-2, or per Table R-5 where applicable.

This interpretation was issued as a result of a question on the above edition. It applies to all previous and subsequent editions in which the text remains substantially unchanged.

Standard 620, Ninth Edition—Section 3.3

Issue Date: August 1, 1996

Publication: API Standard 620, *Design and Construction of Large, Welded, Low-Pressure Storage Tanks*

Edition/Date: Ninth Edition, February 1996

Question: Are paragraphs 3.3.1.2, 5.18.3.2, 5.18.5.1, and 5.18.10 erroneously referring to incorrect paragraph numbers?

Reply: Yes. These will be corrected in the addendum to API 620 as follows:

Paragraph:	Erroneous Reference:	Should Be:
3.3.1.2	5.23.4	5.18.4
5.18.3.2	5.23.2	5.18.2
5.18.5.1	5.23.4	5.18.4
5.18.10	5.23.3 and 5.23.4	5.18.3 and 5.18.4

This interpretation was issued as a result of a question on the above edition. It applies to all previous and subsequent editions in which the text remains substantially unchanged.

Standard 620, Ninth Edition—Section 3.3

Issue Date:	February 18, 1997
Publication:	API Standard 620, <i>Design and Construction of Large, Welded, Low-Pressure Storage Tanks</i>
Edition/Date:	Ninth Edition, February 1996
Question:	Are there hydrostatic test guidelines for stresses allowed in API 620?
Reply:	No. Refer to paragraph 3.3.3.

This interpretation was issued as a result of a question on the above edition. It applies to all previous and subsequent editions in which the text remains substantially unchanged.

Standard 620, Ninth Edition—Sections 3.5 and 3.6

Issue Date:	February 18, 1997
Publication:	API Standard 620, <i>Design and Construction of Large, Welded, Low-Pressure Storage Tanks</i>
Edition/Date:	Ninth Edition, February 1996
Question 1:	Is there a conflict between paragraph 3.5.6 and paragraph 3.6.5?
Reply 1:	No. Paragraph 3.5.6 is in Section 3.5 and applies to walls. Tank wall is identified in Appendix A, paragraph A.3.
Question 2:	Does paragraph 3.6.5 allow an increase of 25 percent for seismic loading of roof structural members?
Reply 2:	No, this paragraph addresses the external structural members subject to stresses produced by combination of wind and other applicable loads. API Standard 620 does not address seismic design of roof framing members, nor does it address allowable stresses for seismic loading of roof framing.

This interpretation was issued as a result of a question on the above edition. It applies to all previous and subsequent editions in which the text remains substantially unchanged.

Standard 620, Ninth Edition—Section 3.10

Issue Date: February 18, 1997

Publication: API Standard 620, *Design and Construction of Large, Welded, Low-Pressure Storage Tanks*

Edition/Date: Ninth Edition, February 1996

Question: Does “*t*” as determined by calculation method detailed in paragraph 3.10 apply to roofs and bottoms as well as sidewalls with respect to calculating nozzle reinforcement as defined in paragraph 3.16.5?

Reply: Yes.

This interpretation was issued as a result of a question on the above edition. It applies to all previous and subsequent editions in which the text remains substantially unchanged.

Standard 620, Ninth Edition—Section 3.26

- Issue Date:** September 26, 1997
- Publication:** API Standard 620, *Design and Construction of Large, Welded, Low-Pressure Storage Tanks*
- Edition/Date:** Ninth Edition, February 1996
- Question 1:** Does API 620 require full radiography of a butt-welded tank wall when the wall thickness is designed using a joint efficiency of 1.0, for a) the case of the wall thickness, t , greater than $1\frac{1}{4}$ inch and $S_t > 0.1 T_s$, b) the case of t less than or equal to $1\frac{1}{4}$ inch and $S_t > 0.1 T_s$, and c) the case of $t > 1\frac{1}{4}$ inch and $S_t < 0.1 T_s$?
- Reply 1:** a) Yes, full radiography is required, because a joint efficiency of 1.0 is being used and, per paragraph 3.26.2, both the thickness and stress level requirements are met. b) Radiography is required because the joint efficiency of 1.0 is being used, per Table 3-2. Otherwise, spot radiography could be used, per Table 3-2 and paragraph 3.26.2. c) Full radiography is required because of the joint efficiency of 1.0 is being used, per Table 3-2. Otherwise, spot radiography could be used, per Table 3-2 and paragraph 3.26.2.
- Question 2:** In the Ninth Edition of API Standard 620, Table 3-2, Note 4, should “5.15” be “5.17” instead?
- Reply 2:** No. The reference to paragraph 5.15 is correct. Paragraph 5.17 should also be utilized however.

This interpretation was issued as a result of a question on the above edition. It applies to all previous and subsequent editions in which the text remains substantially unchanged.

Standard 620, Ninth Edition—Section 5.18

Issue Date: August 1, 1996

Publication: API Standard 620, *Design and Construction of Large, Welded, Low-Pressure Storage Tanks*

Edition/Date: Ninth Edition, February 1996

Question: Are paragraphs 3.3.1.2, 5.18.3.2, 5.18.5.1, and 5.18.10 erroneously referring to incorrect paragraph numbers?

Reply: Yes. These will be corrected in the addendum to API 620 as follows:

Paragraph:	Erroneous Reference:	Should Be:
3.3.1.2	5.23.4	5.18.4
5.18.3.2	5.23.2	5.18.2
5.18.5.1	5.23.4	5.18.4
5.18.10	5.23.3 and 5.23.4	5.18.3 and 5.18.4

This interpretation was issued as a result of a question on the above edition. It applies to all previous and subsequent editions in which the text remains substantially unchanged.

Standard 620, Ninth Edition—Section 5.18

Issue Date: August 1, 1996

Publication: API Standard 620, *Design and Construction of Large, Welded, Low-Pressure Storage Tanks*

Edition/Date: Ninth Edition, February 1996

Question: Is a tank designed and fabricated in accordance with API 620 Appendix R required to be tested per paragraph 5.18.25 of API 620, 9th Edition?

Reply: Yes.

This interpretation was issued as a result of a question on the above edition. It applies to all previous and subsequent editions in which the text remains substantially unchanged.

Standard 620, Ninth Edition—Appendix Q

Issue Date:	February 18, 1997
Publication:	API Standard 620, <i>Design and Construction of Large, Welded, Low-Pressure Storage Tanks</i>
Edition/Date:	Ninth Edition, February 1996
Question:	What are the maximum allowable tensile stresses in API 620 for stainless steel materials used for shell plate, nozzles, piping, flanges, etc.?
Reply:	API 620 permits the use of materials specifically identified in the document. Except for Appendix Q, stainless steel is currently not acceptable for an API 620 tank. (Note that API 650 recently added Appendix S to permit the use of stainless steels for tanks covered by API 650.)

This interpretation was issued as a result of a question on the above edition. It applies to all previous and subsequent editions in which the text remains substantially unchanged.

Standard 620, Ninth Edition—Appendix R

Issue Date:	September 26, 1997
Publication:	API Standard 620, <i>Design and Construction of Large, Welded, Low-Pressure Storage Tanks</i>
Edition/Date:	Ninth Edition, February 1996
Question 1:	Referring to API 620, paragraph R.7.3.1, 9th Edition, is stress relieving of a nozzle assembly prior to installation required only if the nozzle assembly is fitted with a thickened insert plate?
Reply 1:	No. Paragraph R.7.3.1 requires all nozzle assemblies in primary components to be stress relieved, with specific exceptions. The use of a thickened insert plate is not a factor.
Question 2:	Is local stress relieving acceptable if the above nozzle is welded directly to the shell with a reinforcing pad?
Reply 2:	No. The rules in Appendix R take precedence over those in the basic document. See paragraph R.7.3.1.

This interpretation was issued as a result of a question on the above edition. It applies to all previous and subsequent editions in which the text remains substantially unchanged.

Full Document Set: API Publications 1950-1997

STANDARD 650

Full Document Set: API Publications 1950-1997

STANDARD 650, SEVENTH EDITION, NOVEMBER 1980; REVISION 1, FEBRUARY 1984

Standard 650, Seventh Edition, Revision 1—Foreword

Issue Date:	August 17, 1987
Publication:	API Standard 650, <i>Welded Steel Tanks for Oil Storage</i>
Edition/Date:	Seventh Edition, November 1980; Revision 1, February 1984
Question:	Foreword: With the end user's consent, is it permissible to design, fabricate, erect, and test new oil storage tanks using an outdated edition of Standard 650?
Reply:	No.

This interpretation was issued as a result of a question on the above edition. It applies to all previous and subsequent editions in which the text remains substantially unchanged.

Standard 650, Seventh Edition, Revision 1—General

Issue Date:	March 23, 1988
Publication:	API Standard 650, <i>Welded Steel Tanks for Oil Storage</i>
Edition/Date:	Seventh Edition, November 1980; Revision 1, February 1984
Question:	Why was the minimum top angle size changed from 2 inches $\times$ 2 inches $\times$ $\frac{3}{16}$ inch in the Sixth Edition to 2 $\frac{1}{2}$ inch $\times$ 2 $\frac{1}{2}$ inch $\times$ $\frac{1}{4}$ inch in the Sixth Edition, Revision 3?
Reply:	Please be advised that the American Petroleum Institute issues interpretations in response to questions concerning the meaning of its standards and is always ready to consider suggestions for revisions to its standards. API does not normally respond to questions seeking the rationale for requirements in its standards. These requirements are based upon consideration of technical data, and the judgment and skill of experienced engineering and technical personnel representing both users and manufacturers who serve on the standards committees. However, in Revision 1 to the Seventh Edition, February 1984, top angles of 2 inches $\times$ 2 inches $\times$ $\frac{3}{16}$ inch are permitted for tanks 35 feet and smaller in diameter (paragraph 3.1.5.8.5).

This interpretation was issued as a result of a question on the above edition. It applies to all previous and subsequent editions in which the text remains substantially unchanged.

Standard 650, Seventh Edition, Revision 1—General

Issue Date:	July 5, 1988
Publication:	API Standard 650, <i>Welded Steel Tanks for Oil Storage</i>
Edition/Date:	Seventh Edition, November 1980; Revision 1, February 1984
Question 1:	Can you cut an opening in a horizontal or vertical seam?
Reply 1:	According to Standard 650, Seventh Edition, you cannot cut an opening in a vertical or horizontal seam. However, the API Pressure Vessels and Tanks Subcommittee is reviewing these options.
Question 2:	Can a repad cover a horizontal or vertical seam?
Reply 2:	See reply for question 1.

This interpretation was issued as a result of a question on the above edition. It applies to all previous and subsequent editions in which the text remains substantially unchanged.

Standard 650, Seventh Edition, Revision 1—General

Issue Date:	October 27, 1988
Publication:	API Standard 650, <i>Welded Steel Tanks for Oil Storage</i>
Edition/Date:	Seventh Edition, November 1980; Revision 1, February 1984
Question:	Is the required area of reinforcing the product of the vertical hole dimension times the <i>actual shell thickness used</i> or the required shell thickness?
Reply:	Standard 650, Seventh Edition, 1980, Revision 1, 1984, states that the required minimum area of reinforcing is the product of the vertical opening and the actual plate thickness used. The Eighth Edition, when published, should be consulted.

This interpretation was issued as a result of a question on the above edition. It applies to all previous and subsequent editions in which the text remains substantially unchanged.