

Path #3. API 653. In this path we will see 50 more closed book questions to be studied for the API 653 Certification Examination

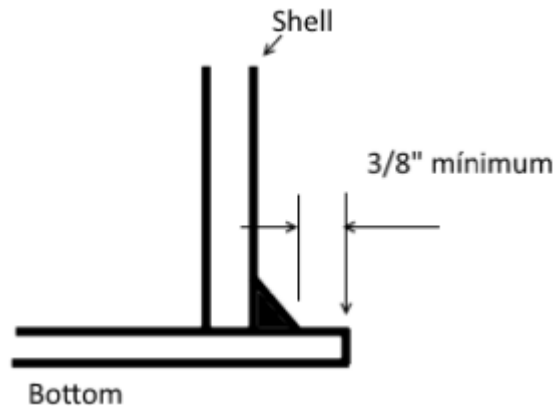
The following questions were extracted from the standards by me, or remembered by me or other students that took the exam before.

The format is a Q&A one, different from the multiple choice question format from other courses I have seen online. I prefer this method because it takes away all the clutter that leads to confusion when treating these standards. I advise you to copy this info and paste it in a spaced repetition software like Anki or Supermemo, as the Q&A format allows, and start studying right away. You could choose to print flashcards too. When days pass by, you will see who you remember all of the information with no problem.

101. Q: When the results of a tank inspection show that a change has occurred from the original physical condition of that tank, should it be repaired?
A: No, an examination shall be made for suitability of service Ref: 4.1.1 API 653
102. Q: Roof plates to be repaired are those with an average thickness of less than ____ in any 100 in^2
A: 0.09in Ref: 4.2.1.2 API 653
103. Q: Before changing the service of a tank to operation at temperatures above 200 °F, the requirements of which appendix shall be considered?
A: Appendix M of API 650 Ref: 4.2.4.3 API 653
104. Q: The evaluation of the existing tank shell shall be conducted by a _____
A: Storage tank engineer Ref: 4.3.1.2 API 653
105. Q: When there is a shell corroded area with a thickness lower than allowed, there are 3 options, which are...
A: damaged areas shall be repaired, or the allowable liquid level of the tank reduced, or the tank retired Ref: 4.3.1.5 API 653

106. Q: How many types of shell distortion does API 653 consider
A: 5 types. out-of-roundness, buckled areas, flat spots, and peaking and banding at welded joints
Ref: 4.3.5.1 API 653
107. Q: Cracks in the shell-to-bottom weld are allowed under which condition?
A: None. They are never allowed
Ref: 4.3.6 API 653
108. Q: If a repair is needed, what is the first step you have to take?
A: a repair procedure shall be developed and implemented
Ref: 4.3.6 API 653
109. Q: The condition of wind girders is part of the shell analysis?
A: Yes
Ref: 4.3.7 API 653
110. Q: Grinding to eliminate weld defects is permissible?
A: Yes, if the resulting profile satisfies base thickness and weld size requirements
Ref: 4.3.9.1 API 653
111. Q: In the evaluation of a tank shell for a tank at elevated temperature, the value of allowable stress for each shell course should be ____ minimum yield strength?
A: 0.8
Ref: 4.3.10.1.1 API 653
112. Q: When evaluating a shell of a tank at elevated temperature, what value of yield strength should be assumed if the material is not known?
A: 30.000 lb/pulg²
Ref: 4.3.10.1.1 API 653
113. Q: Which RP covers a selection basis for cathodic protection?
A: API 651
Ref: 4.4 API 653
114. Q: Plate thickness in the critical zone of the bottom of a tank in no case shall be less than ____
A: 0,1inch
Ref: 4.4.5.4 API 653

115. Q: The projection of the bottom plate beyond the outside toe of the shell-to-bottom weld shall be at least _____
A: 3/8 inch Ref: 4.4.5.7 API 653



Q.115 Minimum bottom projection

116. Q: Unless special reasons indicate different, the interval between inspections of a tank (both internal and external) should be determined by _____
A: its service history Ref: 6.2.2. API 653
117. Q: If inspecting an insulated tank during the five-year external inspection, do you need to remove all of the isolation?
A: No. You only need to remove isolation to the extent necessary. Ref: T-762 ASME SEC V
118. Q: During a five-year external inspections, to what extent shall be tank grounding systems inspected?
A: Visually inspected Ref: 6.3.1.3 API 653
119. Q: If corrosion rates are known, external UT measurements of a new tank shell shall be made
A: the smaller of RCA/2N years or 15 years Ref: 6.3.3.2 API 653

120. Q: When a new tank has no Release Prevention Systems, the interval from initial service until the initial internal inspection shall not exceed ____ years.

A: 10

Ref: 6.4.2.1 API 653

121. Q: When a tank has an RPS consisting of an original nominal bottom thickness 5/16 in. or greater, which is the initial internal inspection interval?

A: 12 years

Ref: 6.4.2.1 API 653

122. Q: When a tank has an RPS consisting of Cathodic protection of the soil-side of the primary tank bottom, which is the initial internal inspection interval?

A: 12 years

Ref: 6.4.2.1 API 653

123. Q: When a tank has an RPS consisting of a thin-film lining of the product-side of the tank bottom, which is the initial internal inspection interval?

A: 12 years

Ref: 6.4.2.1 API 653

124. Q: When a tank has an RPS consisting of fiberglass-reinforced lining of the product-side of the tank bottom, which is the initial internal inspection interval?

A: 13 years

Ref: 6.4.2.1 API 653

125. Q: When a tank has an RPS consisting of cathodic protection plus a thin-film lining, which is the initial internal inspection interval??

A: 14 years

Ref: 6.4.2.1 API 653

126. Q: When a tank has an RPS consisting of cathodic protection plus fiberglass-reinforced lining, which is the initial internal inspection interval?

A: 15 years

Ref: 6.4.2.1 API 653

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127. Q: When a tank has an RPS consisting of a release prevention barrier and a similar service assessment, which is the initial internal inspection interval?
A: 20 years Ref: 6.4.2.1 API 653
128. Q: When a tank has an RPS consisting of a release prevention barrier when a Risk based Inspection was performed, which is the initial internal inspection interval?
A: 25 years Ref: 6.4.2.1 API 653
129. Q: RBI assessment shall consist of a systematic evaluation of both the _____ and the associated consequence of failure
A: Likelihood of failure Ref: 6.4.2.4 API 653
130. Q: RBI assessment shall consist of a systematic evaluation of both the likelihood of failure and the associated _____
A: Consequence of failure Ref: 6.4.2.4 API 653
131. Q: How many types of records should an operator keep at all times?
A: 3 types. Construction records, inspection history and repair/alteration history Ref: 6.8.1. API 653
132. Q: All new shell joints shall be _____ joints with complete penetration and complete fusion
A: Butt-welded Ref: 8.2.2. API 653
133. Q: Each existing shell joint should comply with _____
A: The as-built standard Ref: 8.3. API 653
134. Q: Who can authorize a repair?
A: The inspector or an engineer experienced in storage tank design Ref: 9.1.3 API 650
135. Q: The minimum dimension for a replacement shell plate is _____
A: 12inches Ref: 9.2.2.1. API 653

136. Q: When welding shell seams, which seams should go first: horizontal or vertical?
A: Vertical Ref: 9.2.2.2. API 653

Questions 137 through 143 are for all kinds of repairs using lapped patch shell plates.

137. Q: Lapped patch shell repairs shall not be used on any shell course thickness that exceeds _____
A: 1/2 in Ref: 9.3.1.2 API 653
138. Q: Lapped patch shell repair plates shall not be less than _____
A: 3/16 Ref: 9.3.1.3 API 653
139. Q: The shape of the repair plate may be circular, oblong, square, or rectangular. All corners, except at the shell-to-bottom joint, shall be rounded to a minimum radius of _____
A: 2 inches Ref: 9.3.1.4. API 653
140. Q: Lapped patch repair plates positioned on the shell interior shall be located such that the toe-to-toe weld clearances are a minimum of _____ to the shell-to-bottom weld
A: 6 inches Ref: 9.3.1.6. API 653
141. Q: The minimum lapped patch repair plate dimension is _____
A: 4 inches Ref: 9.3.1.7 API 653
142. Q: What is the maximum vertical dimension of a lapped patch repair plate?
A: 48 inches Ref: 9.3.1.7 API 653
143. Q: What is the maximum horizontal dimension of a lapped patch repair plate?
A: 72 inches Ref: 9.3.1.7 API 653

Questions 144 through 146 are for a repair using lapped patch shell plates for the closure of holes caused by the removal of existing shell openings or the removal of severely corroded or eroded areas.

144. Q: Can you put a patch plate over a $\frac{1}{2}$ " diameter hole, then weld the inner perimeter of the hole?

A: No. The hole must be at least 2" diameter Ref: 9.3.2.1 API 653

145. Q: The repair plate thickness selection shall be used a joint efficiency not exceeding _____

A: 0.7 Ref: 9.3.2.3. API 653

146. Q: Can you use a $\frac{3}{8}$ " patch plate over an existing $\frac{1}{4}$ " shell?

A: No Ref: 9.3.2.4. API 653

Questions 144 through 146 are lapped patch shell plates used to reinforce areas of severely deteriorated shell plates that are not able to resist the service loads or that are below the retirement thickness.

147. Q: The repair plate thickness selection shall be used a joint efficiency not exceeding _____

A: 0.35 Ref: 9.3.3.1. API 653

148. Q: Lapped patch shell plates shall not exceed _____

A: 1/2 in Ref: 9.3.3.2. API 653

149. Q: The repair plate thickness shall not exceed _____

A: One third of the shell plate or $\frac{1}{8}$ " maximum Ref: 3.18 API 653

The following questions are for lapped patch shell plates used to repair small shell leaks

150. Q: If there is a leak and the product stored is corrosive, can you use this method?

A: No Ref: 9.3.4 API 653

For more articles on the API 653 questions series, see the following

1. [Path #1](#)
2. [Path #2](#)

For more information and more questions go to www.apiexam.com