**Exercise – ICC A117.1 – Accessibility**

Find the answers in ICC A117.1 – 2017 and include the paragraph reference number below.

1. The term “detectable warning” is sometimes misinterpreted to mean tactile warning on door hardware. What is the definition of detectable warning?
2. For a manual swinging door with a closer and a latch, with a latch side approach on the pull side, what is the required maneuvering clearance?
3. If a door frame has a 14-inch jamb depth, which section of A117.1 describes the maneuvering clearance requirements for that opening?
4. What is the maximum opening force set by A117.1 for interior, non-fire-rated doors?
5. What is the maximum closing speed for a door on an accessible route, when it is equipped with a door closer?
6. In an accessible multi-stall toilet room, clear turning space is required. Is the door to the toilet room allowed to swing into this clear floor space?
7. Unlike the 2010 ADA, A117.1 does not require hardware to be operable with 5 pounds of force. How much operable force is allowed by A117.1-2017 for operable hardware?
8. What is the limit set by A117.1 for the maximum opening force on a fire door?
9. Are spring hinges allowed by A117.1?
10. For a portal, or a doorway without a door, with a depth of 30 inches, what is the minimum clear opening width?
11. What is the minimum vertical clearance (height) for a door on an accessible route?
12. Does A117.1 state a requirement for maximum threshold height on automatic doors?
13. Operable parts of hardware for doors on an accessible route must be installed within what mounting height range?
14. What is the minimum depth of a standard vestibule with two single doors in series – if each door is 3 feet wide and outswinging?
15. If a door on an accessible route has a vision lite, what is required location of the lite?
16. What is the minimum clear width of a single door opening, measured with the door open to 90 degrees, between the face of the door and the stop on the strike jamb?
17. If both leaves of a manually operated pair are active, would a pair of 30-inch-wide doors be acceptable per A117.1?
18. What is the maximum opening force allowed by A117.1 for exterior doors?
19. How does A117.1 describe the requirements for the shape of operating hardware?
20. In a new building, what is the size of the clear floor space required by A117.1 for a wheelchair?
21. For a manual swinging door with a front approach, what is the required maneuvering clearance on the pull side?
22. For a threshold with a vertical rise rather than a beveled/sloped rise, what is the maximum allowable height of the vertical change in level?
23. For a rise of more than 1/2-inch, a ramp must be used instead of a threshold. What slope is required for the ramp?
24. For signage on an accessible route, which letter of the alphabet is used to measure the character height to check for compliance with A117.1?
25. Projections of up to 4 inches into the clear opening width are allowed in what portion of the door height?
26. If a door is equipped with a door closer or overhead stop, what is the minimum height dimension allowed by A117.1 between the floor and the closer/stop arm?
27. Are automatic doors required to provide 32 inches of clear width?
28. What is the unobstructed forward reach range defined by A117.1 for a person in a wheelchair?
29. Is a sliding door subject to the A117.1 requirements for a 10-inch-high flush bottom rail?
30. How is the meaning of a term determined, if it is not defined in A117.1 or a referenced document?
31. What is a dwelling unit?

**Answers:**

1. A standardized surface feature built in or applied to floor surfaces to warn of hazards on a circulation path. Paragraph 107.5
2. 54 inches perpendicular to the door x (door width + 24 inches beyond the latch). Table 404.2.3.2
3. Recessed Doors. Paragraph 404.2.3.5
4. 5 pounds. Paragraph 404.2.8
5. 5 seconds to move from an open position of 90 degrees to 12 degrees from the latch. Paragraph 404.2.7.1
6. No. Paragraph 603.2.2
7. In the ADA, paragraph 404.2.7 refers to Section 309.4-Operation, which requires operable components to operate with 5 pounds of force. A117.1 does not contain this reference, and instead requires hardware to be operable with a maximum force of 15 pounds in a forward pushing or pulling motion, or 28 inch-pounds of rotational motion. Paragraph 404.2.6
8. No limit is set by A117.1 for fire doors. Paragraph 404.2.8
9. Yes, spring hinges are allowed. Paragraph 404.2.7.2
10. 36 inches. Paragraph 404.2.2
11. 80 inches, with an exception for 78 inches measured to the door closer or door stop. Paragraph 307.4
12. Yes, thresholds must meet the requirements of Paragraph 404.2.4. Paragraph 404.3.5
13. Between 34 inches and 48 inches above the floor. Paragraph 404.2.6.1
14. 7 feet deep. Paragraph 404.2.5
15. Bottom of the lite at 43 inches maximum above the floor. Paragraph 404.2.10
16. 32 inches clear. Paragraph 404.2.2
17. No. Paragraph 404.2.1
18. No limit is set by A117.1 for exterior doors – refer to the adopted building code, fire code, or local accessibility standard. Paragraph 404.2.8
19. Shall have a shape that is easy to grasp with one hand, and does not require tight grasping, pinching, or twisting of the wrist to operate. Paragraph 404.2.6
20. 52 inches x 30 inches. Paragraph 305.3.1
21. 60 inches perpendicular to the door x (door width plus 18 inches beyond the latch side). Table 404.2.3.2
22. 1/4 inch. Paragraphs 404.2.4 and 303.2
23. Greater than 1:20, but not steeper than 1:12. Paragraphs 303.4 and 405.2
24. The uppercase letter “I”. Paragraph 703.7.4
25. Between 34 inches and 80 inches above the floor (projections are not limited above 80 inches AFF). Paragraph 404.2.2
26. 78 inches. Paragraph 404.2.2, Exception 1
27. Yes. Paragraph 404.3.3
28. Between 15 inches above the floor and 48 inches above the floor. Paragraph 308.2.1
29. No. Paragraph 404.2.9, Exception 1
30. Use a collegiate dictionary. Paragraph 107.3
31. A single unit providing complete, independent living facilities for one or more persons including permanent provisions for living, sleeping, eating, cooking and sanitation. Section 107.5

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