**Exercise – NFPA 101 – Egress and Life Safety**

Find the answers in **NFPA 101-2009**, and include the paragraph reference number below. (If there are any concepts you’re not clear on, I’m happy to review them with you.) There is a separate exercise for Classification of Occupancy on the Class 3 web page (http://idighardware.com/decoded-life-safety-and-egress/).

1. Use NFPA 101 to calculate the occupant load of one floor of an office building, which contains individual offices and cubicles only.  The floor area measures 120 feet x 80 feet.
2. Do the doors serving the floor of the office building in Question 1 require panic hardware, per NFPA 101?
3. According to NFPA 101, what is the clear opening width of a 3-foot-wide door, 1 ¾” thick, hung on 4 ½” hinges (1/4” hinge backset), with a 5/8” stop on the strike jamb?
4. Per NFPA 101, what is the egress capacity of a pair of doors with vertical rod panic hardware and 68 inches of clear opening width, which serve a large college lecture hall?
5. What is the minimum width of the touchpad for panic hardware used on a 48-inch wide egress door in an auditorium?
6. Can panic hardware be installed on a fire door?
7. Which occupancy classifications in NFPA 101 require panic hardware for doors serving a certain occupant load?
8. What are the 3 components of a Means of Egress?
9. Are Special Locking Arrangements (delayed egress, access controlled egress doors, elevator lobby locks) allowed by NFPA 101 to be used in a New Health Care occupancy?
10. Are new cross-corridor horizontal exit doors required to be automatic-closing (self-closing not allowed), according to NFPA 101?
11. Based on which criteria does NFPA 101 require egress doors to swing in the direction of egress?
12. When analyzing the encroachment of a door into the required egress width, two points in the opening cycle are important – A) the point at which the door projects furthest into the required egress width (often 90 degrees), and B) the door’s fully-open position. What is the maximum amount that a door can restrict or project into the required egress width at points A and point B?
13. What is the maximum allowable travel distance for a fully-sprinklered new Educational occupancy, per NFPA 101?
14. In an existing day care center that is not equipped with a sprinkler system, what is the maximum length of the common path of travel allowed by NFPA 101?
15. Where automatic flush bolts are used in a means of egress, would it be acceptable to install a dummy lever on the egress side of the inactive leaf?
16. For a new Educational occupancy, what occupant load would trigger the need for a multi-purpose room to have panic hardware, according to NFPA 101?
17. For a door where a key-operated lock is acceptable, what is stated on the required signage?
18. What is the required fire rating for a fire door assembly (opening protective) in a 1-hour stair enclosure wall?
19. Does NFPA 101 allow a residential dwelling unit entrance door to have a separate deadbolt in addition to the lockset with an active latchbolt that is required for fire protection?
20. According to NFPA 101, is it acceptable for the doors leading to a stair serving 3 stories to be mechanically locked (no remote release) on the stair side?
21. What is the minimum clear opening width for a cross-corridor smoke barrier door leaf in a new hospital?
22. Does NFPA 101 require positive latching hardware on cross-corridor smoke barrier doors in a new hospital?
23. What is the maximum opening force allowed by NFPA 101 for interior hinged doors without closers?

**Answers:**

1. Area = 9600 SF / 100 SF/person = 96 person occupant load; paragraph 7.3.1.2 (including table)
2. No, because chapters 38 and 39 for new and existing Business occupancies do not require panic hardware.
3. 32 7/8” [36” - (2 ¼” (half of the hinge width) + ¼” (hinge backset)) – 5/8” (frame stop) = 32 7/8”]; paragraph 7.2.1.2.1
4. 68 inches divided by 0.2 inches of egress width per person = egress width is provided by that door opening for 340 people; paragraph 7.3.3 (including table)
5. 24”; paragraph 7.2.1.7.1(1)
6. No, fire doors must have fire exit hardware; paragraph 7.2.1.7.2
7. Assembly, Educational, Day Care, and High Hazard (new and existing); paragraphs 12/13.2.2.2.3, 14/15/16/17.2.2.2.2, 7.11.6
8. The exit, the exit access, and the exit discharge; paragraph 3.3.161
9. Yes; paragraph 20.2.2.2
10. Yes; paragraph 7.2.4.3.11
11. When serving an occupant load of 50 or more, when swinging into an exit enclosure, or when serving a high hazard area; paragraph 7.2.1.4.2
12. Cannot restrict more than half of the required width at point A, and can’t encroach on the required width more than 7” at point B; paragraph 7.2.1.4.3
13. 200 feet; paragraph 14.2.6.3
14. 75 feet; paragraph 17.2.5.3.2
15. No; paragraph 7.2.1.5.10(2)(a)
16. 100 occupants (IBC is 50 occupants); paragraph 14.2.2.2.2
17. THIS DOOR TO REMAIN UNLOCKED WHEN THE BUILDING IS OCCUPIED; paragraph 7.2.1.5.4(2)
18. 1 hour; table 8.3.4.2
19. Yes; paragraph 7.2.1.5.9.3
20. Yes; paragraph 7.2.1.5.7 refers to stairs serving more than 4 stories
21. 41 ½”; paragraph 18.3.7.6(4)
22. No; paragraphs 8.5.4.3 and 18.3.7.11
23. 5 pounds; paragraph 7.2.1.4.5(2)