ERRATA for

PE Fire Protection Practice Exam

ISBN 978-1-947801-07-3

Errata posted 04/01/2023

Revisions are shown in red.

Question 34, p. 25:

- ○ A. 0.41
- ○ B. 1.48
- ○ C. 2.20
- ○ D. 2.71

Question 61, p. 37:

- ○ A. 0.14
- ○ B. 0.74
- ○ C. 3.41
- ○ D. 80.88

Question 67, p. 40:

- ○ A. Type I (443)
- ○ B. Type I (442)
- ○ C. Type I (332)
- ○ D. Type II (222)

Question 68, p. 42:

- ☐ A. Existing health care occupancies on floors with 31 or more inpatient sleeping
- ☐ B. Existing ambulatory health care occupancies where the area is less than 5,000 ft^2 and provided with automatic smoke detection throughout the area
- ☐ C. New detention and correctional occupancies on any story not used for resident sleeping where the occupant load is ≥ 50
- ☐ D. Every floor of new health care occupancies
- ☐ E. Every floor of new high-rise hotel occupancies

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Solution Table, p. 52

No. 25 should be A

Solution 15, p. 56:

15. NFPA 13, *Standard for the Installation of Sprinkler Systems*, Section 20.4, correctly identifies gypsum board as a Class I commodity and oil-based paint in a metal container as a Class IV commodity. All requirements of 20.4.14.3 must be met. The facility does not meet subsection (2).

Solution 25, p. 59:

25. $\Sigma\Delta H_f$ (Products) – $\Sigma\Delta H_f$ (Reactants) = –1,270 kJ/mol

Heat of combustion can be calculated by subtracting the summation of heats of formation of the reactants from the summation of heats of formation of the products, as shown: $\Delta H_c = \Sigma\Delta H_f$ (Products) – $\Sigma\Delta H_f$ (Reactants). Heats of formation can be found in the Fire Dynamics Fundamentals chapter in the *PE Fire Protection Reference Handbook*.

$$\begin{aligned}\Sigma\Delta H_f\text{ (Products)} &= 2CO_2 + 4H_2O\\ &= 2(-393.52) + 4(-241.83) = -1{,}754.36\text{ kJ/mol}\\ \Sigma\Delta H_f\text{ (Reactants)} &= 2CH_3OH + 3O_2\\ &= 2(-242.1) + 3(0) = -484.2\text{ kJ/mol}\end{aligned}$$

A value of 0 is used for O_2 since the calculation is for heat of combustion for methanol.

THE CORRECT ANSWER IS: A

Solution 52, p. 67:

52. Per NFPA 72, *National Fire Alarm and Signaling Code*, 2016 ed., Table 14.4.3.2, Item 17(f), the testing frequency for radiant energy fire detectors (i.e., a category that includes flame detectors) is semiannually.

THE CORRECT ANSWER IS: C

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Solution 61, p. 70:

61. Refer to the Smoke Control chapter in the *PE Fire Protection Reference Handbook*.

$$F = F_{\text{DC}} + \frac{k_{\text{d}} W A \Delta P}{2(W - d)}$$

Convert N to lb

$$11.24 \text{ lb} = 1.12 \text{ lb} + \frac{(5.2)(4 \text{ ft})(24 \text{ ft}^2)\Delta P}{2(4 \text{ ft} - 0.5 \text{ ft})}$$

$$\Delta P = 0.14 \text{ in. H}_2 0$$

THE CORRECT ANSWER IS: A

Solution 73, p. 74:

73. Refer to NFPA 101, *Life Safety Code*, 2018 ed., Sections 7.6.

As shown in the figure, the various segments of exit travel are the distance to the hallway, the distance from the hallway to the stairs, the distance down the stairs, and the distance across the landing to outside. Since there are doors at either end of the room, the most remote point to an exit will be from the center of the balcony. Because of the pews, the travel to the center of the hallway is 25 ft + 20 ft + 2.5 ft. The travel distance down the hallway to the top of the stairs is 45 ft + 2.5. The travel distance down the stairs is taken along the nose of the tread of the stairs. That makes 22 ft the travel distance.

Since the two sets of exit stairs are equidistant in either direction, the remote point of the room is at the center front. The total distance to either exit is thus 25 + 20 + 2.5 + 45 + 2.5 + 3 + 22 + 6 = 126 ft. The actual travel distance would be slightly less than this as the natural path of travel would not be perpendicular.

THE CORRECT ANSWER IS: B

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Solution 78, p. 75:

78. 7,000 ft^2/100 ft^2/person = 70 persons

18,000 ft^2/300 ft^2/person = 60 persons

120,000 ft^2 – 7,000 ft^2 – 18,000 ft^2 = 95,000 ft^2

95,000 ft^2/30 ft^2/person = 3,167 persons

3,167 + 70 + 60 = 3,297 persons

3,297 persons × 0.2 in./person = 659.4 in.

THE CORRECT ANSWER IS: C