

Power PE References Exam Errata

This product has been updated to incorporate all changes shown in the comments on the webpage and email comments as of January 01, 2020. If you have purchased this product prior to this date and wish for the latest version then please email Justin Kauwale at contact@engproguides.com.

The following changes have not been incorporated into the product as of the date above and should be noted.

PROBLEM 19

What is the minimum size THHW insulated copper conductor, rated at a design temperature of 167 F, direct buried, required to serve two continuous duty 230-V, 5-hp (FLC = 12 A), three-phase induction motors? Assume a power factor of 1.0. **Assume the lowest temperature rating of any connected termination, conductor, or device is 167 F.**

- (A) 10 AWG
- (B) 8 AWG
- (C) 6 AWG
- (D) 4 AWG

PROBLEM 20

What minimum size conductor should be used to feed an induction motor that has the following nameplate values: 500 hp, 2,300 volts, 75 amps, 1,700 rpm, 60 hz, 3 Phase, 0.75 pf, code G, insulation class F, AC, continuous duty? Assume conductors are MV-90 (194 °F), insulated, single copper, isolated in air and ambient air is 104 °F.

- (A) 8 AWG
- (B) 6 AWG
- (C) 4 AWG
- (D) 2 AWG



$$PV \text{ Conductor Ampacity} = 125\% * 125\% * 9.48A * 5 = 74A$$

Find the conductor sizing in **Table 310.15(B)(16)**. At 74A, the most appropriate wire size is 3 AWG.

The answer is most likely **(D) 3 AWG**.

SOLUTION 38

The feeder of an emergency power system passes through a space that does not have a fire suppression system. The emergency power system serves a 20 story condominium. Which of the following construction practices would be an acceptable form of protection for the feeder-circuit wiring, in accordance with NEC?

- (A) Install the feeder circuit wiring in a rigid metal conduit
- (B) Install the feeder circuit in a PVC conduit
- (C) Install the feeder in a thick gypsum duct
- (D) Install the feeder in an encasement of 2" concrete

NEC 2017 Article 700 Emergency Systems, 700.10 Wiring, Emergency System, (D) Fire Protection indicates that emergency systems shall meet the requirements of (D) (1) through (D)(3). (D)(1) indicates that the feeder circuit wiring shall meet one of the following conditions. The only condition that is present in the solutions is (5) Be encased in a minimum of 2 in concrete.

The correct answer is most nearly, **(D) Install the feeder in an encasement of 2" concrete**.

SOLUTION 39

All conductors in the junction box below are size #10 AWG. What is the minimum standard box size for the installation below?