

Figure 11-5

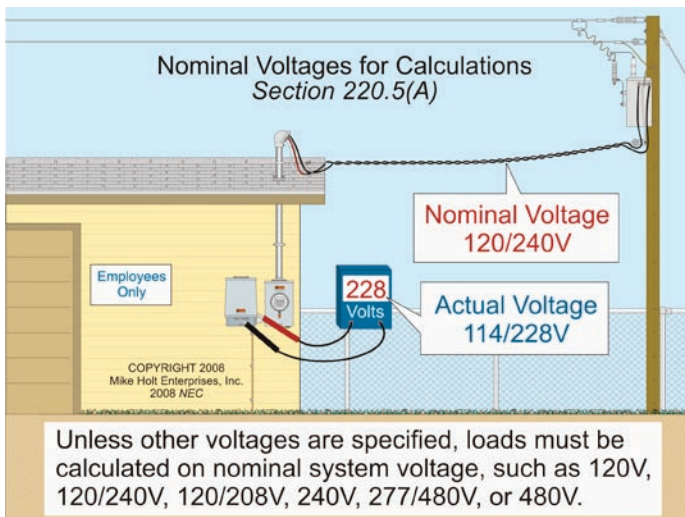


Figure 11-6

### 11.5 Rounding an Ampere [220.5(B)]

Where calculations result in a fraction of less than 0.50A, such fractions can be dropped.

**Author's Comment:** When do you round—after each calculation, or at the final calculation? The *NEC* isn't specific on this issue, so I guess it all depends on the answer you want to see!

#### ► Rounding Example

**Question:** According to 424.3(B), the branch-circuit conductors and overcurrent device for electric space-heating equipment must be sized no less than 125 percent of the total load. What size conductor is required to supply a 9 kVA (37.50A), 240V, single-phase fixed space heater with a 3A blower motor if the equipment terminals are rated 75°C? **Figure 11-7**

- (a) 10 AWG    (b) 8 AWG    (c) 6 AWG    (d) 4 AWG

**Answer:** (c) 6 AWG

**Step 1:** Determine the total load

$$I = VA/E$$

$$I = 9,000 \text{ VA}/240\text{V}$$

$$I = 37.50\text{A}$$

**Step 2:** Conductor sized at 125 percent of the load.

$$\text{Conductor Size} = (37.50\text{A} + 3\text{A}) \times 1.25$$

$$\text{Conductor Size} = 50.63\text{A, round up to 51A}$$

If we round down, then 8 AWG rated 50A at 75°C can be used, but since we have to round up, 6 AWG rated 65A at 75°C is required.

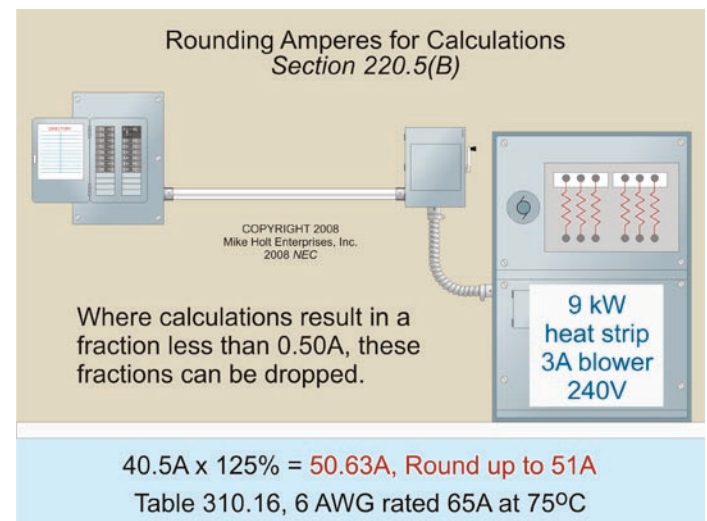


Figure 11-7