Name:

Course and Year: BEET 3 C

Self Evaluation

1. How are standard sectional switch (device) boxes mounted?

- An offset bar hanger is a device on which boxes are fastened so they can be mounted between joists or studs. The hangers are available in adjusting types for different joist spacings.

1. What is an offset bar hanger?

- An offset bar hanger is a device on which boxes are fastened so they can be mounted between joists or studs. The hangers are available in adjusting types for different joist spacings.

1. What types of boxes may be used with offset bar hangers?

- Practically any outlet or switch box which has a trade size in. knockout can be used with offset bar hangers.

1. What methods may be used to mount luminaires to an outlet box fastened to an offset bar hanger?

- Luminaires are mounted to an outlet box using a luminaire stud or No. 8-32 screws.

1. What advantage does a 4-in. octagon box have over a 3/4-in, octagon box?

Post Test

1. What does a plan show about electrical cutlets?

- Electrical symbols used on an architectural plan show the location and type of electrical device required.

1. What is an outlet?

- An electrical outlet is the source of electrical power you use to plug in many of your appliances, which is how you create that circuit in your home.

1. Match the following switch types with the proper symbol
2. single-pole **S**
3. three-way **S3**
4. four-way **S4**
5. single-pole with pilot light **Sp**
6. The plans show curved lines running between switches and various outlets. What do these lines Indicates?

- Switch leg; connects switched outlets with control points

1. Why are the lines referred to in Question 4 usually curved?

- Curved lines are used to differentiate the electrical circuitry from the building construction drawing lines.

1. What advantage does a 4-in octagon box have over a 314-in octagon box?

- The additional size will allow a greater number of conductors to enter and exit the box. The depth of the box can also be greater with a 4-in. octagon box than a 3 ¼-in.

1. What is the size of the opening of a switch (device) box for a single device?

- The dimensions of a standard switch box is 2 in. x 3 in.

1. The space between a door casing and a window casing is 312 in. (88.9 mm). Two switches are to be installed at this location. What type of switches wit be used?

- A piggy-back switch, which means the switches are stacked in the same area as a single switch. A standard 2-gang square box requires 4 inches so you can only use a single-gang box.

1. Three switches are mounted in a 3-gang switch (device) box The wall plate for this assembly is called a three-ganged cover plate.
2. The mounting holes in a device (switch) box are tapped for No. 6-32 screws. The mounting holes in an outlet box are tapped for No. 8-32 screws. The mounting holes in metal box attaching equipment grounding conductors are tapped for 10-32 screws.
3. How high above the finished floor in the living room are switches located?

* 46 in.

1. How high above the garage floor are switches located?

* 46in.

1. How high above the finished floor in the living room are receptacles located?

* 12in

1. How high above the garage floor are receptacles located?

* 46 in

1. Outdoor receptacle outlets in this dwelling are located 18 in. above grade.

VII. SELF EVALUATION:

1. What is the meaning of calculated load?

* Estimated load based on nominal values.

1. How are branch circuits rated? See NEC 210.3

* Branch circuit rating is based on the overcurrent protection (breaker)

1. How is the rating of the branch-circuit protective device affected when the conductors used are of a larger size than called for by the Code? See NEC 210.3.

* It is not affected. Rating of the branch circuit is determined by the overcurrent protection and not the conductor ampacity

1. What dimensions are used when measuring the area of a building? See NEC 220.12.

* Dimensions form the occupied areas of the building.

1. What spaces are not included in the floor area when computing the load in volt-amperes per square foot? See NEC 220.12.

* Open porches, garages, or other unfinished or unused spaces if they are not adaptable for future use.

Post Test

1. According to NEC 210.50(C), a laundry equipment outlet must be placed within 6ft. (1.8m) of the intended location of the laundry equipment.
2. How is the total load in volt-amperes for lighting purposes determined? See NEC

* To find the general lighting load, the outside dimensions must be multiplied by a unit load of 3 volt-amperes per square foot. The minimum lighting load for this dwelling is 5,775 volt-amperes (55 x 35 x 3 = 5,775). With a voltage of 120/240, the general lighting load is 48 amperes (5,775 ÷ 120 = 48).

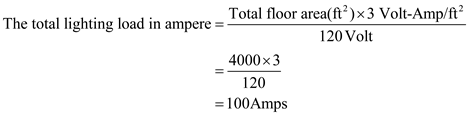
1. How is the total lighting load in amperes determined?

* National Electrical Code considers a residence a listed occupancy at 3 VA per square foot; therefore, the general lighting load is determined by multiplying the square footage.

1. How is the required number of branch circuits determined?

* The minimum number of branch circuits shall be determined from the total computed load and the size or rating of the circuits used.

1. What is the minimum number of 15-ampere lighting branch circuits required if the dwelling has an occupied area of 4000 ft2 (368 m2)? Show all calculations.



1. How many lighting branch circuits are provided in this dwelling?

-27

1. What is the minimum load allowance for small-appliance circuits for dwellings?

-2

1. An individual 15-ampere branch circuit is run to the receptacle outlet behind the refrigerator instead of connecting it to one of the two 20-ampere small-appliance branch circuits that are required in kitchens. For this separate circuit, an additional 1500 volt-amperes (**shall**) (does not have to) be added to the load calculations for dwellings. Circle the correct answer
2. What is the smallest size wire that can be used in a branch circuit rated at 20 amperes?

* 12AWG

14. How is the load determined for outlets supplying specific appliances? See NEC 220.14.

- Considering a correction or derating factor of 80%

1. What type of circuits must be provided for receptacle outlets in the kitchen, pantry, dining room, and breakfast room? See NEC 210.11(C)(1).

* General purpose circuits.

1. How is the minimum number of receptacle outlets determined for most occupied rooms? NEC 210.52(A)

* No point on the wall more than 6ft from a receptacle.

1. In a single-family dwelling, what types of overload protection for circuits are used? See NEC 240.6.

* Overcurrent protection (breaker) should be smaller than wire ampacity.