



Install a 3-Way Dimmer Set Lighting Control

Program: Electrician Technician

Course: EL150 – Commercial Applications

Objectives: Under the supervision of your instructor, you should be able to do the following:

- Identify the special wiring and dimming systems and their components

Lab Equipment:

- 1 – Project board (plywood sheet or equivalent)
- 1 – 120-volt pigtail
- 3 – 4" Square metal boxes
- 2 – Single gang ring cover
- 1 – Round ring cover

Required Tools:

- 1 – Pair of MC cutters
- 1 – Pair of wire strippers
- 1 – Screwdriver set
- 1 – Cordless screw gun
- 1 – Pair of Lineman pliers

Materials:

- 3' – 14/2 (with gr.) MC cable
- 3' – 14/3 (with gr.) MC cable
- 10 – Yellow wire nuts
- 8 – Sheet metal or wood screws for mounting device boxes
- 1 – Three-way dimmer switch set
- 1 – Keyless light fixture
- 1 – Light bulb

Safety (PPE):

- Safety glasses

Resources: N/A



Time Required: 120 Minutes

Shop Maintenance:

- All work will cease 20 minutes prior to the end of class.
- All work areas must be cleaned.
- Tools and equipment must be cleaned and returned to the designated areas (cage, tool room, cabinets etc.)
- Any broken or missing tools must be reported immediately.
- Tools and equipment are student's responsibility

Procedures:

This performance project requires the trainee to mount, and wire interconnected dimming switches in an incandescent lighting control circuit.

- 1) Review the drawing and wiring schematic in Figure 1.
- 2) Mount the two switch boxes and one ceiling outlet box to the project board as shown in Figure 1.
- 3) Install the 120-volt pigtail into Box A.
- 4) Install a short piece of 14/3 MC cable between Box A and Box B.
- 5) Install a short piece of 14/2 MC cable between Box B and the ceiling box.
- 6) Prepare all wire ends for termination by stripping them to the proper length.
- 7) Terminate Sw. A in its box using yellow wire nuts.
- 8) Terminate Sw. B in its box using yellow wire nuts.
- 9) Terminate the keyless fixture in the ceiling outlet box using yellow wire nuts.
- 10) Have your instructor check your terminations.
- 11) Secure switch A and switch B in their boxes.
- 12) Secure the keyless fixture in the outlet box.
- 13) Plug in the 120-volt pigtail and check the operation of the switches.

