



EL – 150 Commercial Panel Lab

3-Phase Commercial Panel

Program: Electrician Technician

Course: EL150 Commercial Applications

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

- Properly Make up and phase a commercial panel.

Lab Equipment:

- Commercial three phase panel

Required Tools:

- 1 – Pair of strippers
- 1 – Flathead screwdriver
- 1 – Phillips screwdriver

Materials:

- 1 – 15 -amp 3-pole breaker
- 3 – 15-amp 2-pole breaker
- 2 – 15-amp single pole breaker
- 30' – #14 THHN black
- 10' – #14 THHN red
- 10' – #14 THHN blue
- 20' – #14 THHN white
- 20' – #14 THHN green
- 12' - #14/2 MC cable
- 2 – MC connectors
- 4' – ½" EMT pipe
- 4 – ½" EMT connectors

Safety:

- Safety Glasses

Resources: N/A



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Required Time: One day

Procedure: *(Eye protection must always be worn, and power must be turned off till testing)*

- If not done, take our five ½" knockouts in a commercial panel.
- Install one ½" EMT connector in each of the four holes.
- Add one foot of ½" EMT conduit in each connector.
- Install wire into the following conduits:
 - Conduit one: 1-black, 1-red, 1-blue
 - Conduit two: 2-black, 2-red, 1-blue,
 - Conduit three: 1-black, 1 red
 - MC cable one and two
- Based on Three phase knowledge, the students should be able to figure out how many white and green wires go in each conduit. Please have the student explain why.
- Leave about 3 feet in the panel and bend the remaining wires above the conduit around the pipe.
- The commercial panel is different than the residential in a few ways, often they will use wire ties to keep wires together in the panel. The wires must be straight and at 90-degree angles when possible.
- Instructor will inspect panel for accuracy, phasing, and cleanliness.
- Students must answer the 3 questions to complete this lab.

1. The maximum approval electrical trade size of IMC is _____ :?
2. How many circuits can one neutral carry in commercial? _____
3. Load where the maximum current is expected to exist for _____ hours or more is termed as continuous load: