

**Warren L. Barlow Training Center**

420 E. 57<sup>th</sup> Street, #96

Loveland, CO 80538

(719) 948-7245

## **NEC 2023 UPDATE AND REVIEW**

### **Purpose of the Course:**

The purpose of this course is to bring the participants to a better understanding of the requirements of NFPA 70, National Electric Code (NEC). This course will include updates to the 2023 code from the 2020 code and will include review of different articles and sections in the NEC.

### **Intended Audience:**

The intended audience for this course is electrical trade workers. This course is intended to meet the requirements for continuing education with 12.0 hours of core competency credit.

### **Instructor:**

The instructor for this course is Warren Barlow. Warren is a licensed journeyman electrician and electrical apprentice instructor. Warren is a qualified instructor trainer through Mike Holt Enterprises®. His engaging style of teaching will include hands on practice and tools for simplifying the math in those areas discussed.

### **Course Format:**

This course will be conducted in a classroom setting with some activities being conducted in a hands-on format. It will include the use of PowerPoint presentations, a course workbook with practice problems, and tabletop exercises with some of the common equipment/materials related to the topics discussed.

### **Course Objectives:**

#### *1. 2023 NEC Update*

- a. Upon completion of this portion of the course, the participant will have a better understanding of changes in the NEC 2023 Version from the NEC 2020 Version. Changes and updates will reference the NEC and discuss what was previously in place and what the new changes are.
- b. This portion of the course will take approximately 4.5 hours.

#### *2. Box Fill Calculations*

- a. Upon completion of this portion of the course, the participant will have an increased understanding of the importance of sizing boxes according to the code and will have participated in practice problems on selecting the proper size of outlet, device, pull, and junction box based on sizing requirements of Article 314.
- b. This portion of the course will take approximately 1.5 hours.

#### *3. Raceway Fill Calculations*

- a. Upon completion of this portion of the course, the participant will have increased understanding of the importance of not overfilling raceways and will have participated in practice problems in determining raceway fill limitations utilizing Chapter 3, Chapter 9, Tables 1, 4, 5 and Annex C.
- b. This portion of the course will take approximately 1 hour.

#### 4. *Sizing Current Carrying Conductors*

- a. Upon completion of this portion of the course, the participant will have a greater perspective of the importance of appropriately sizing current carrying conductors. In addition, the participant will participate in practice problems determining appropriate conductor size based on voltage drop, temperature, and number of current carrying conductors. This section will focus on Sections 310.15(A), 310.15(B), 310.15(C), and Ampacity Tables 310.16 through 310.21.
- b. This portion of the course will take approximately 1 hour.

#### 5. *Grounded, Grounding and Bonding Conductors*

- a. Upon completion of this portion of the course, the participants will be more familiar with using one of the largest articles in the code book, Article 250. Emphasis will be placed on understanding the Grounding Electrode System, the Grounded Conductor, the Grounding Conductor, and use of the tables within the article to appropriately size conductors for installation.
- b. This portion of the course will take approximately 1.5 hours.

#### 6. *Understanding Transformers*

- a. Upon completion of this portion of the course, the participants will have reviewed some of the possible configurations of transformers and some of the code requirements related thereto. Emphasis will be placed on delta, wye, auto, grounded and ungrounded transformer configurations. Discussion will include separately derived systems.
- b. This portion of the course will take approximately 1 hour.

#### 7. *Lockout/Tagout – Control of Hazardous Electrical Energy*

- a. Upon completion of this portion of the course, the participant will understand the relationship of current, voltage, and resistance as it applies to the human body and conventional power systems. This course will focus on understanding the why of control of hazardous electrical energy and the importance of utilizing LOTO every time. This course will emphasize the importance of not performing work on energized circuits.
- b. This portion of the course will take approximately 1.5 hours.