



# THE WIRE

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MAY 2023

## The Presidents' Letter

The May 8<sup>th</sup> general membership meeting will be our last before the summer break. We will resume our meetings on Monday September 11<sup>th</sup> at the Elks Lodge. I would like to take a moment to thank Dennis Steier and Norb Thorpe for their help in finding electrical topics and their effort with putting together presentations for our members. I have had more positive feedback from our members regarding the presentations that were conducted this past fall, winter, and spring. And this feedback is supported by all the questions and discussions our meetings have experienced.

I would also like to thank David True for his continuing work on our website and his effort with sending the *Wire* out via an email. If you have not given Marilyn your email address yet, please do so as soon as you can.

Regarding our meetings, please do not hesitate to request a particular topic be covered. Members' suggestions resulted in most of the topics covered this past session. Metro Inspector Norb Thorpe will be conducting our May 8<sup>th</sup> meeting continuing where he left off in April with the basics of grounding and bonding.

Our April 10<sup>th</sup> general membership meeting was attended by 47 members. The 50/50 drawing was for \$47 and was won by Judy Reed. Please remember, if you have any questions get with one of the board members.

As I mentioned in last month's newsletter, the Department of Housing, Building, and Construction Advisory Committee is developing a task force to explore the adoption of National Electrical Code. The Department hopes to have this task force in place by May to begin the process.

As mentioned in the last several newsletters, the Department of Housing, Building, and Construction has

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## MAY 8, 2023 Code Program

**Sign-in 6:30 P.M. - Program at 7:00 P.M.**  
**ELKS LODGE # 8 - 2824 KLONDIKE LN -**

Our May program will be a continuation of the April program. Presentation by Norb Thorpe, Louisville Metro Inspector. Norb has put together a program on Grounding and Bonding. It was very well presented and everyone took part.

We encourage you to ask questions.

Bring a friend and enjoy the program.

Dennis Steier will also go over the Code Questions in the May 2023 Wire.

## Supporting our Industry

**\*\* Electrical Equipment Needed \*\***

ECHL is committed to supporting the electrical industry and the training required to further the trade. In doing so, we ask for your old equipment / inventory to use for training.

ECHL contractors and or suppliers - if you are cleaning out your old Inventory and have material (electrical Equipment) that is taking up space in your warehouse, the Iroquois High School Electrical Program is seeking material that can be used for teaching students about electrical products they may encounter in the field. Educating our future apprentices is the goal.

IEC is the hub for most of the surrounding area's for the electrical trade training schools. She has contacts for Jefferson County, Bullitt County, to Hardin County.

If you would call, Erin Pretorius or Stephanie at 502-493-1590 or email Erin at erin@iec-kyin.com to make arrangements for pick up or delivery.

**MAY Code Questions**

1. What code making panel is responsible for Article # 517?

Code Panel \_\_\_\_\_

2. What page of the 2017 NEC has listing requirements for Communications Systems?

Page \_\_\_\_\_

3. What is the allowable continuous load amps for a #18 copper conductor? Where would you find this answer in the 2017 NEC?

AMPS \_\_\_\_\_

Section \_\_\_\_\_

4. Can fuses or circuit breaker permitted to be connected in parallel? Where would you find this answer in the 2017 NEC?

YES      NO

Section \_\_\_\_\_

5. How many feet are you allowed for the secondary conductors in an Industrial application supplying a switchboard? Where would you find this answer in the 2107 NEC?

Feet \_\_\_\_\_

Section \_\_\_\_\_

6. You have a column-width panelboard enclosure is the neutral conductor required to originate from the panelboard with a pull box with a neutral termination? Where would you find this answer in the 2017 NEC?

YES      NO

Section \_\_\_\_\_

**Code Corner**

Article 312

Article 312 of the NEC is titled Cabinets, Cutout Boxes and Meter Socket Enclosures. If you are designing or size a Cabinet or Box for you application you need to refer to this Article for the requirements set by the NEC.

**312.1 Scope.** Covers the installation and construction specifications of cabinets, cutout boxes and meter sockets **enclosures**. It does not apply to equipment operating at over 1000 volts, except as specifically elsewhere in the *Code*.

**312.2 Damp and Wet Locations.** If you read the Section you will see where you may have violated the Code at some time in your career. Did you mount the Box or Enclosure with a 1/4" of airspace between the Box and Enclosure? Well this section requires that you install it in that fashion. You are also required to use a Box or Enclosure that is listed for Wet Location.

**312.3 Position in Wall.** This requires you to install boxes on or enclosure to be not set back more than a 1/4" in noncombustible material wall and are require to be flush in combustible material walls.

**312.6 (B) Wire Bending Space at Terminal.** This was an issue raised by Toyota engineering recently at their facility in Georgetown and they were correct in calling this out to the contractor. Table 312.6(B) has the Bending radius for the size conductor you may be installing. Don't have the end user call you out on violating the NEC.

**312.8(B) Power Monitoring Equipment.** This is a new section added in the 2107 NEC this allows you to mount these type of devices in the wring space on you enclosure or panelboard. The monitoring equipment shall be identified as a field installable accessory as part of a listed equipment or is a listed kit evaluated for installation in a switch or overcurrent device enclosure. The total area of this equipment cannot exceed 75% of the cross sectional area of this space.

This Article can be overlooked and need to be used in sizing and type of box or enclosure and the installation

**Top Three Code Violations  
Louisville Metro Inspections  
MAY 2023**

**These violations are costing you time and money.**

1. NEC Article # 250.64 (C) Grounded Conductor Terminations.

Except as provided in 250.30 (A) (5) and (A)(6), and 250.68(C), grounding electrode conductor(s) shall be made as permitted in (1) through (4):

250.64(C) (1) Splicing of the wire-type grounding electrode conductor shall be permitted only by irreversible compression-type connectors listed as grounding and bonding equipment or by the exothermic welding process.,

2. NEC Article # 408.4(A) Circuit Directory or Circuit Identification

Every circuit and circuit modification shall be legibly identified as to its clear, evident, and specific purpose or use. The identification shall include an approved degree of detail that allows each circuit to be distinguished from all others. Spare positions that contain unused overcurrent devices or switches shall be described accordingly. The identification shall be included in a circuit in a circuit directory that is located on the face or inside of the panel door in the case of a panel door in the case of a panelboard and at each switch or circuit breaker in a switchboard or switchgear.

3. NEC Article # 408.7 Unused Openings.

Unused openings for circuit breakers and switches shall be closed using identified closures, or other approved means that provide protection substantially equivalent to the wall of the enclosure.

You lose money when you are turned down on a project. It also cost you time, when you have to

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**Top Three Code Violations Cont'd**

return to the job site to make the necessary changes to correct the violation, that too, cost you money. Time is money.

We hope this will help save you time and money on inspection fees by reviewing the articles and making sure you have not violated the code before calling for the initial inspection.

**President's Letter Cont'd**

gone to a new data base system which will no longer allow users to search for their licenses or their continuing education hours. We have had several members whose hours were not transferred from the old data base into the new one. So, for more information or any problem please call the Department at (502) 573-2002.

Do not forget, our last general membership meeting before the summer break is Monday May 8th at the Elks Lodge located at 2824 Klondike Lane. The meeting starts at 7:00 pm with sign-ins beginning at 6:30 pm. Hope you will be able to attend. If the opportunity arises, mention the Clearing House to your coworkers. I think they would

**LG&E NEWS**

The past few years have brought a number of challenges to our industry. It seems like every time we turn around there is another "hiccup" in the supply chain. Be it splice boxes, meter bases, transformers etc. etc. When these situations arise, there is a temptation to come up with creative solutions in an attempt to "just make it work". Unfortunately, what seems like a work around for a problem can create unsafe situations or cost more money for the customer and their contractors in the long run. If you find yourself in a situation that is abnormal, please contact the respective LG&E locator and discuss with them before using unapproved materials. Our goal is to provide safe and reliable energy in a timely fashion to our customers. Having these discussions upfront will help everyone.

**Submitted by Joel McCauley  
Team Leader Electric Design Svcs  
LG&E and KU Energy LLC**

## **NEC: Air-Conditioning and Refrigerating Equipment**

Art. 440, Part I provides the NEC general requirements for air-conditioning and refrigerating equipment. This article has an unusual aspect to it, compared to other NEC articles — it's essentially a supplement to Art. 430 (motors). It covers a special type of motor, namely ones that are hermetically sealed. They are hermetically sealed because they are immersed in the refrigerant the motor-compressor system is pumping.

So, you won't find all the hermetic motor requirements in Art. 440. Because they are motors, they are covered by Art. 430, more or less. You apply Art. 430, except as amended by Art. 440.

Always look at the nameplate before installing; it will provide information such as the following [440.4]:

- Manufacturer's name, trademark, or symbol.
- Identifying designation.

Phase, voltage, and frequency.

The motor nameplate should also show the rated-load current (in amperes). If it does not, then look at the nameplate of the equipment in which the motor compressor is used. You will need this value to determine the rating of the disconnecting means, branch-circuit conductors, controller, branch-circuit short circuit and ground-fault protection, and the separate motor overload protection [440.6(A)].

You will find other useful information on these nameplates. It's a good idea to photograph them and attach the images to the work report. The manufacturer also must mark the motor controllers with information [440.5]; the requirements echo those of 440.4.

To size the conductors, use Table 310.16 through

## **NEC: Air-Conditioning Cont'd**

19, or calculate per 310.14 as applicable [440.6].

What if you have more than one motor in the system? Do you use the highest-rated motor rule, as in Art. 430? Yes, use the hermetic motor with the highest rated-load current [440.7]. But how do you identify the largest motor that isn't hermetic? Use the full-load current corresponding to the motor horsepower rating selected from Table 430.248, 430.249, or 430.250.

Many HVAC units are installed on a roof. All such units must have an equipment grounding conductor of the wire type in outdoor portions of metallic raceway systems that use compression fittings [440.9]. If the building has a lightning protection system, these units must also be bonded to it to prevent flashovers.

There's a condition under which you cannot install motor controllers or industrial control panels of multimotor and combination-load equipment. The condition is the

## **ECHL ANNOUNCEMENT**

The ECHL Board of Directors would like wish all our members a safe and prosperous summer. Our May 8th program will be our last program before our summer break. We will return in September.

Please work safe and follow the code. We will see you all in September with exciting programs.

Mark your Calendars for September 11, 2023, which is our next Membership meeting.

It would be nice to pass the word about our organization to your co-workers, they may enjoy our programs and it's a good way to network and obtain you CEU hours.

If you need anything regarding your CEU Hours, please contact the State at 502-573-2002, they will be more than happy to provide you with your hours.