Washington State Department of Labor & Industries

# Electrical Currents

Newsletter from the Office of the Chief Electrical Inspector

**Wayne Molesworth, Chief Electrical Inspector** | **Vol. 24 No. 6** | **June 2021**

## This Month's Question of the Month

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Where and how would you bond a flexible metal gas piping system? *See correct answer on Page 2*

## Safety Tip of the Month

Arc flash hazards are a real threat to electricians. There have been great advancements in PPE to reduce injuries and technologies to prevent property damage from arc flashes.

There is no practical protection from an arc blast. The concussive force is more than enough to cause physical trauma and lung damage even if you are wearing protective clothing.

Do not work on an energized electrical system. Remember to follow Lock Out/Tag Out procedures for setup, maintenance, service or repair of any system.

## Exams Updated to the 2020 NEC Beginning July 1, 2021

Starting July 1, 2021, all electrical examinations are based on the 2020 NEC, WAC 296-46B, and RCW 19.28.

The Electrical Board, having responsibility for coordination with the department in preparation and administration of examinations, endorsed this change.

Like the codes, laws, and rules they are based on, exam questions do not change significantly over time.

All examinations are open-book and exam candidates can bring any original copyrighted reference material into the exam with them. Copies of RCW 19.28 and WAC 296-46B may be used and are available to print from the Electrical Laws and Rules page of our website. You can also update your printed copies with recent WAC and RCW changes by printing the insert pages available on this web page.

For more information about the exams, you can refer to WAC 296-46B-960 or visit the Electrical Examination page of our website.

## Electrical Fee Increase – Effective July 1, 2021

For a few months, we have been updating you about the change in our fee schedule. Fees have remained unchanged for the last four years.

To keep up with higher costs associated with inspection and licensing services, we have adopted rules to increase electrical fees based on the Office of Financial Management (OFM) 5.79% fiscal growth factor projections.

A fee increase allows the program to continue providing quality and timely services to assure safe electrical installations in homes, businesses, industry, and institutions to protect people and property from electrical hazards.

The electrical program accepted public comments, and held a public hearing on May 11, 2021. We adopted the rules and filed the CR-103 rulemaking order on May 18, 2021.

You can view or download the rulemaking documents including a copy of the revised fees by visiting the Electrical Laws and Rules web page.

## Enforcement for Metering Centers Begins July 1

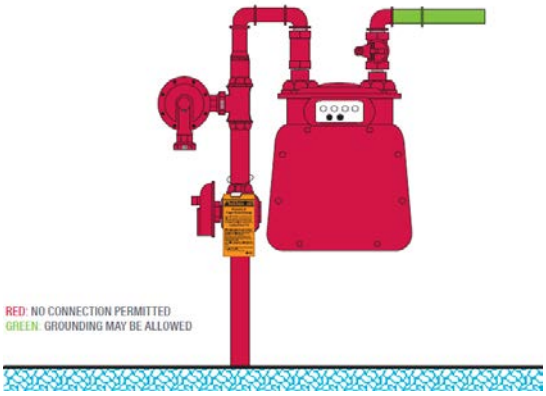
In the November 2020 newsletter, we announced the delay of adopting NEC 230.71(B)(4) requirement for service disconnects in metering centers to be in separate compartments if within the same enclosure. This delay was to give manufactures more time to produce and distribute metering centers that meet the new requirements.

Enforcement of NEC 230.71(B)(4) will begin on July 1, 2021 requiring all metering centers with two to six service disconnects to have each service disconnect located in a separate compartment.

This requirement will still not apply to equipment certified to UL 231 Standard for Power Outlets. Some of the common uses of power outlets are service equipment for recreational vehicles and temporary power on construction sites.

## Natural Gas Meter? Double-Check Your Bonding.

A common mindset among electricians is, if it is metal, bond it. That is not always the case. Natural gas utilities use a corrosion control system (cathodic protection) to protect metallic fuel lines from deteriorating. When we include these fuel lines in our grounding and bonding installation it defeats this important safety system putting others at risk.




Electricians need to be aware of the requirements of other mechanical and energy systems on site. NEC 250.53(B) prohibits the use of underground gas lines as a grounding electrode. If you need to bond the fuel lines within the building according to NEC 250.104 and WAC296-46B-250, the bonding connection must be on the customer side of the meter.

Each gas utility meter has insulated fittings to keep their system isolated from the mechanical and electrical systems of a customer. If an electrician bonds the wrong side of the meter, they have not bonded the building metal piping system, and circumvented the cathodic protection system, which can lead to a gas leak, injury or a structure fire.

## Answer to Question of the Month:

WAC 296-46B-250 (9) states for flexible metal gas piping, installed new or extended from an existing rigid metal piping system the installer will either provide a copy of the manufacturer's bonding instructions and follow those instructions, or install a bonding conductor that is:

1. At a minimum 6 AWG copper; and
2. Terminated at an accessible location at the gas meter end of the gas piping system on either a solid iron gas pipe or a cast flexible gas piping fitting using a listed grounding connector; And, connect to either the service equipment enclosure, service grounding electrode conductor or electrode, or neutral conductor bus in the service enclosure.

## Ugly Picture of the Month:

*If viewing this document online, click on the picture to open a larger image.* This is an installation found by a Puget Sound Energy employee. What is wrong? Does the ground clamp on the supply side of the gas meter defeat the utility's cathodic protection system and violate NEC 250.53(B)? – YES. Is the gas piping system inside the building bonded as required? – NO. Did the installer use a ground clamp that is rated for outdoors? – NO.