

ELECTRICAL CURRENTS

A Newsletter from the Office of L&I Chief Electrical Inspector Wayne Molesworth

April 2025

Question of the Month -See Page 2 for the answer.

When selecting overcurrent protection for conductors, at what overcurrent protective device (OCPD) rating is it not permitted to round up to the next higher standard rating?

Update for Proposed Electrical Fee Increase

The department is proposing a 6.41% fee increase to support operating expenses for electrical inspections and other electrical public safety activities. The increase is the Office of Financial Management's maximum allowable fiscal growth factor rate for fiscal year 2025.

We held a public hearing on the proposed rules on March 25, 2025. Learn more on our [Rule Development](#) page.

Here is what happens next:

- May 19, 2025: CR-103 to be signed by director and new fee rules are adopted.
- July 1, 2025: New fees tentatively become effective.
- Fees will increase on the effective date.

Sections affected by this rule making are 296-46B-906, 296-46B-909, and 296-46B-911.

Documentation of Hazardous Location Boundaries Required Before Inspection

Electrical inspectors are not the AHJ responsible for documenting boundaries of hazardous (classified) locations.

According to 2023 NEC 500.4:

"Areas designated as hazardous (classified) locations or determined to be unclassified shall be documented on an area classification drawing and other associated documentation. This documentation shall be available to the authority having jurisdiction (AHJ) and those authorized to design, install, inspect, maintain, or operate electrical equipment at the location."

Documentation must provide contact information for determining parties and must be available at the jobsite for the duration of the electrical inspection process.

Result of Fresh Look Reconsiderations Pilot Project

After nearly a year of the Fresh Look Reconsiderations (FLR) pilot project, ended the program on April 1, 2025. The project focused on exploring, identifying and implementing opportunities to enhance the Plumbing and Electrical Program's reconsideration of trainee's submitted affidavits of hours.

Ending the FLR project does not mean programs will not take another look at denied affidavits if new information becomes available. For questions about denied affidavit please contact ElectricalProgram@Lni.wa.gov

Safety Tip of the Month

Maintain a Safe Work Environment

WISHA (the Washington Industrial Safety and Health Act of 1973) obligates your employer to provide a safe place for you to work. Notify your employer immediately if you feel that a hazard exists. Both workers and employers can find assistance with safety issues at:

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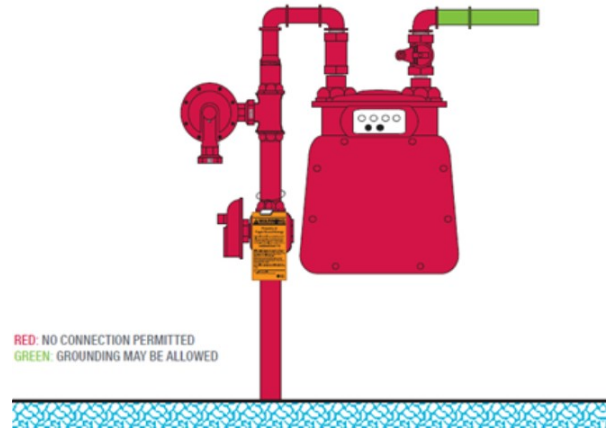


Natural Gas Meter? Double-Check Your Bonding!

If it is metal, bond it? Not always. NEC 250.53(B) prohibits the use of underground metal natural gas piping as a grounding electrode. To bond metal gas piping according to NEC 250.104 and WAC 296-46B-250, the connection must be on the customer side of the meter, never on the supply side of the meter.

Why? Hubs on natural gas meters are fitted with insulating bushings that isolate building piping from underground natural gas piping that is protected by the utility's corrosion control system (cathodic protection).

Bonding on the wrong side of the meter does not bond the interior piping and can lead to a gas leak, injury or a structure fire. Avoid return trips, always bond on the customer side of a natural gas meter!



Interested in becoming an electrical construction inspector? We have postings!

Look for available positions at careers.wa.gov. To apply, you must first pass an open-book assessment. To schedule, contact electricalassessment@lni.wa.gov. You must pass the assessment no later than two weeks after the closing date of the job announcement.

***People with a disability who need accommodation in the testing process may call 360-902-5700. TTY users should first call 711 to access the Washington Relay Service.*

The schedule for assessments is:

1st Tuesday of each month: [7273 Linderson Way SW, Tumwater](#)

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3rd Tuesday of each month: [3001 W Broadway Avenue, Moses Lake](#)

The assessment covers the electrical code, laws and rules, theory, and wiring diagrams. In addition to the National Electrical Code (NEC) and [WAC/RCW](#), many candidates bring in other copyrighted materials such as a keyword indexes to the NEC, electrical formula pocketbook guides, handbooks on electrical theory and a non-programmable calculator. Being familiar with your reference material will greatly improve your chances of success. Use of a computer or cell phone is not allowed during the assessment.

The assessment can take up to seven hours, including a one hour lunch break.

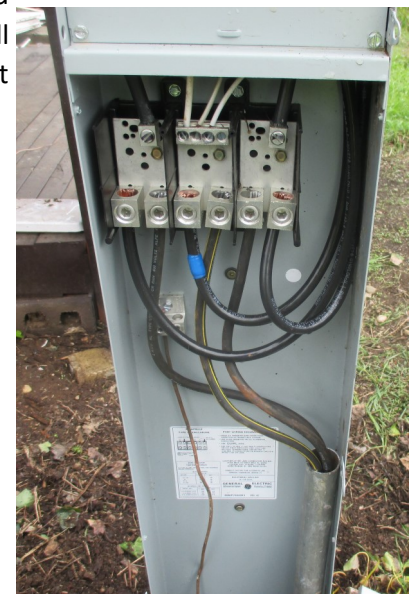
Answer to Question of the Month:

NEC 240.4(C) Over 800 amps.

When the rating of the OCPD is over eight hundred amps, the ampacity of the conductors must meet or exceed the rating of the OCPD as found in 240.6(A).

Picture of the Month:

An electrical inspector found this equipment being used as service entrance. How many corrections can you find?



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March 2025

Question of the Month - What size copper equipment bonding jumper is required to be run with the 3/0 copper phase conductors from the source of a separately derived system to the first disconnecting means sized at 200 amps? *See Page 2 for the answer.*

A message from Chief Molesworth

There is a great product that L&I offers that may have been forgotten. Have you ever been in a situation where you sent someone out to do a price quote and the property owner wants to start the job right then and there? It may be very difficult to get a permit purchased and posted quickly. For that reason and others, Provisional Permits were created to cover that gap.

A provisional permit is a sticker that can be adhered to the electrical panel cover allowing work to start immediately. You must then obtain a normal permit within 2 working days, see [WAC 296-46B-907](#).

Provisional permits do not remove the need to purchase a normal permit for the work, it just covers the gap between starting the work and posting the permit on site. This product was developed to be a cost effective way to keep the work moving while obtaining a permit and avoiding a citation for no permit. One of the intentions for citations is to help change how we do business and stay within the law.

Provisional permits are sold in books of twenty at your local service location for \$291.10. This is cheaper than the complications of receiving a citation for no permit.

Update for Proposed Electrical Fee Increase

The department is proposing increasing fees by 6.41%. This is the Office of Financial Management's (OFM) maximum allowable fiscal growth rate for fiscal year (FY) 2026. It is based on the [average personal income growth over the past decade](#).

The agency filed a [CR-102 Proposed Rulemaking](#) on Feb. 18. If adopted, the fee increase would take effect July 1, 2025.

A public hearing on the proposed rules will take place **March 25, 2025, at 10 a.m.** at [L&I headquarters, 7273 Linderson Way S.W., Tumwater, WA](#). Besides attending in-person, you can also join by:

To join virtually (Zoom):

<https://lni-wa-gov.zoom.us/j/85243532931?pwd=OEs1h736V0GiAnbexZsagTfmfjDdls.1>

Passcode: Uiu7sE+?

To join by phone (audio only): 253-215-8782 Meeting ID: 852 4353 2931 Passcode: 11642264

Safety Tip of the Month

Planning some projects this spring that require digging?

[Washington 811](#) has resources to help you find buried utilities.

Dial 811 or check out

www.callbeforeyoudig.org.

Contractor's Portion	Job Site Portion
Provisional Electrical Work Permit Label VALID FOR TWO (2) WORKING DAYS P000 018381	Provisional Electrical Work Permit Label VALID FOR TWO (2) WORKING DAYS P000 018381
Date of work	Date of work
Elec Contractor Name	Elec Contractor Name
Elec Contractor License #	Elec Contractor License #
Electrician Certificate #	Electrician Certificate #
Site Address	Site Address
City County	City County
Job site owner name	Job site owner name
Description of work	Description of work
<small>Return this portion to your local L&I office or: Department of Labor and Industries Electrical Section PO Box 44460 Olympia WA 98504-4460 P500-092-000 provisional electrical permit label 10-2004</small>	<small>Use sunlight and weather resistant permanent marker Clean and dry surface before adhering P500-092-000 provisional electrical permit label 10-2004</small>

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Result of Fresh Look Reconsiderations Pilot Project

After nearly a year of the Fresh Look Reconsiderations pilot project, we are ending the program, as of April 1, 2025. The project focused on exploring, identifying and implementing opportunities to enhance the Plumbing and Electrical Program's reconsideration of trainee's submitted affidavits of hours.

The FLR process confirmed the accuracy of our program's initial decisions. Over the 51 total cases received by the electrical and plumber programs, one was overturned due to additional information provided by the customer; the other 50 were upheld. As a result of our learnings, we've made the following changes;

- Updated our letters and engaged in rulemaking to make the outcome of violating the law even more clear.
- Our licensing processes was reviewed and sharpened to provide support for customers who may have questions after the FLR process is closed.

Ending the FLR project does not mean programs will not take another look at denied affidavits if new information becomes available. For questions about the project, please contact HoursReconsideration@Lni.wa.gov or ElectricalProgram@Lni.wa.gov.

What to expect at PSI testing locations

Congratulations on qualifying for an open-book examination. Be prepared by knowing which reference material you can bring in and what to expect at the testing facility. PSI, has two good resources to give you the information you need:

- Video: [PSI Test Center Experience](#)
- [PSI Exam Bulletin](#)

The examination is not about what you have memorized. You will need to be familiar with reference material used in the industry. In addition to the NEC and [WAC/RCW](#), many candidates bring in other copyrighted materials such as a keyword indexes to the NEC, electrical formula pocketbook guides and handbooks on electrical theory. Being familiar with your reference material will greatly improve your chances of success.

Answer to Question of the Month: 4 AWG copper – NEC 250.30(A)(2), NEC , 250.102(C), Table 250.66

Picture of the Month:

An electrical inspector noticed a damaged CT enclosure, meter and service disconnect for an irrigation system. The equipment was pushed sideways, conduits were pulled apart with unfused service entrance conductors exposed. The inspector reached out to the utility to inform them of the hazard. The utility was able to contact the land owner and repairs done the next day getting the system back into a safe condition. This was a great example of everybody working for the safety of the community. *If viewing this document online, click on the picture to open a larger image.*



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Question of the Month - When does the NEC require service equipment to be marked with the maximum available fault current?

See Page 2 for the answer.

Inspector Training—No Electrical Inspections Wednesday, February 12, 2025

A statewide approach to training improves consistency and is the most efficient way to educate our staff. Please plan accordingly.

Electrical Program Proposed Increase to Electrical Fees

The department is considering increasing fees by 6.41% for the Electrical Program to support increased expenses associated with inspections and licensing. This is the Office of Financial Management's (OFM) maximum allowable fiscal growth rate for fiscal year (FY) 2026. Each November, OFM's Expenditure Limit Committee adjusts the limit for the previous and current fiscal year for fiscal growth factors, and projects a limit for the following two years. The fiscal growth factor of 6.41% is based upon OFM's projections and is subject to revision.

The last fiscal growth factor increase took effect on July 1, 2024. A fee increase enables the program to continue providing quality and timely services to assure safe electrical installations and inspection in homes, businesses, industry and institutions to protect people and property from electrical hazards.

There is a tentatively scheduled public hearing in March 2025 and more information about this rule making in the coming months. You can find more information about this rule making activities on the [Rule Development](#) tab of our web page.

Schedule a Virtual Electrical Inspection Today

The Virtual Electrical Inspection (VEI) program has been very successful and continues to grow in popularity among electrical contractors and their electricians. During the last six months, the VEI program has averaged over 4,500 inspections per month. During a virtual inspection, an electrician on the jobsite with a mobile device interacts with a virtual inspector in real time. Same day appointments for virtual electrical inspections are available until filled.

Here are some important points to keep in mind:

- To use VEI, you will need to download the [Microsoft Teams](#) app and create a profile.
- Use our [website](#) to schedule your inspection for the day and time you want.
- VEI electrical inspections take up to 15 minutes. They do not involve new services or final approvals.
- On the jobsite, make sure you have at least a high speed internet connection on your mobile device.

Here are some reasons to use VEI:

- Get your jobs approved faster
- Quicker follow-up inspections on corrections
- Inspections the same day as requested saves time and money.

For complete details on how to use this service, check out the [VEI webpage](#).

Safety Tip of the Month

Maintain a Safe Work Environment

WISHA (the Washington Industrial Safety and Health Act of 1973) obligates your employer to provide a safe place for you to work. Notify your employer immediately if you feel that a hazard exists. Both workers and employers can find assistance with safety issues at:

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You are required to pass an assessment prior to the recruitment closing date as part of the application process for Electrical Construction Inspector positions. This is an open book assessment that covers the NEC, WAC, RCW, electrical theory and wiring diagrams. Applicants must bring all the materials they intend to use to include but not limited to codebooks and non-programmable calculators. Use of a computer or cell phone is not allowed during testing.

If you do not schedule and pass the assessment within two weeks of the position closing, you will not be considered for the position.

The assessment can take up to a total of 7 hours in which includes a one hour lunch break.

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Answer to Question of the Month:

NEC 110.24 (A) &(B) Available Fault Current. Back in the 2014 NEC, maximum available fault current markings became required for new non-dwelling service installations and any time modifications to the electrical installation occur that affect the available fault current at the service. If you are trying to determine the severity of the exposure, [NFPA-70E, Standard for Electrical Safety in the Workplace](#) is a great resource.

Picture of the Month:

If viewing this document online, click on the picture to open a larger image.

A lineman working for a utility discovered this older installation in a building. They shared this image with us.

Notice the hole in the roof, open spliced conductors, water piping used as conduit, flexible cord used as a permanent wiring method, missing covers and unknown wire sizes.

There is a lot going on here, do you see anything else?



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ELECTRICAL CURRENTS

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January 2025

Question of the Month - In the 2023 NEC what is the load calculation requirement for EV charging equipment?

See Page 2 for the answer.

Inspector Training—No Electrical Inspections

Wednesday, February 12, 2025

A statewide approach to training improves consistency and is the most efficient way to educate our staff. We regret the inconvenience this causes, please plan accordingly.

Electrical Program is Considering a Proposed Increase to Electrical Fees

The department is considering increasing fees by 6.41% for the Electrical Program to support increased expenses associated with inspections and licensing. This is the Office of Financial Management's (OFM) maximum allowable fiscal growth rate for fiscal year (FY) 2026. Each November, OFM's Expenditure Limit Committee adjusts the limit for the previous and current fiscal year for fiscal growth factors, and projects a limit for the following two years. The fiscal growth factor of 6.41% is based upon OFM's projections and is subject to revision.

The last fiscal growth factor increase took effect on July 1, 2024. A fee increase enables the program to continue providing quality and timely services to assure safe electrical installations and inspection in homes, businesses, industry and institutions to protect people and property from electrical hazards.

Watch for more information about this rule making in the coming months. You can find more information about these and other rule making activities on the [Rule Development](#) tab of our web page.

Can Construction Contractors Install, Remove or Replace PV panels?

The short answer is no. Photovoltaic (PV) panels, often referred to as solar panels, generate electricity and are part of the electrical construction trade regulated by the electrical laws—RCW 19.28.

Individuals and contractors performing installations or maintenance of PV systems must be [licensed electrical contractors](#) and employ properly [certified electricians](#), unless exempt pursuant to RCW [19.28.091](#) or [261](#). For building integrated PV panels that function as windows or roofing materials, see WAC [296-46B-690](#).

"Electrical construction trade" activities are described by the definition in RCW [19.28.006](#)(7) which includes, but is not limited to, installing or maintaining electrical wires and equipment that are used for light, heat, or power and installing and maintaining remote control, signaling, power limited, or communication circuits or systems. Find the definition of the term "installation" in WAC [296-46B-100](#).

Safety Tip of the Month

As an electrical professional, be alert for electrical hazards on the jobsite that may injure or kill unsuspecting coworkers. Never leave an energized electrical panel without a cover. Make sure receptacles used for temporary power are GFCI protected, and be on the lookout for improper temporary wiring splices and damaged cords or tools.

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Working clearances for transformers

Transformers that have no operable parts are not considered “*equipment likely to require examination, adjustment, servicing, or maintenance while energized*”. What is the minimum working clearance?

There is not a set minimum distance. Installers must provide adequate clearance to access, repair, or service interior parts of transformers once

If you have any doubt, working clearances in compliance with NEC 110.26, 110.32, and 110.34 will always be considered adequate. If you are still not sure, check with your local electrical inspector.

NFPA seeks feedback on proposed reorganization of the 2029 National Electrical Code

December 19, 2024 –The [National Fire Protection Association](#)® (NFPA®) today announced that the National Electrical Code® (NEC) Correlating Committee is seeking feedback on its proposed reorganization of the 2029 edition of [NFPA 70®](#), [National Electrical Code](#)®. The NEC is the most widely used installation safety code in the U.S. and utilized globally to safeguard people and property from electrical hazards.

The NEC Correlating Committee is seeking feedback on the [proposed reorganization of the 2029 NEC](#). Restructuring the existing document, according to NFPA, will enhance the ease of learning, understanding, and applying NEC requirements in today’s rapidly advancing energy landscape.

As is the case each time the NEC is revised, stakeholders will have the opportunity to participate in the 2029 NEC revision process and are encouraged to submit public inputs and comments for consideration by the NEC Code-Making Panels.

To learn more about the revised organizational structure of the 2029 NEC, visit [nfpa.org/NEC_reorg](#) and download the free PDF to review the proposed changes. Submit feedback to the NEC restructure team before July 1, 2025, at NECrestructure@nfpa.org.

For the full article of this release and other announcements about NFPA initiatives, research, and resources, please visit the [NFPA press room](#).

Answer to Question of the Month: NEC 220.57 requires EVSE loads to be calculated at either 7200 watts or the nameplate rating whichever is greater. 625.42 provides additional guidance that EVSE are continuous loads, and must be able to supply the load, with provisions for energy management systems and adjustable settings.

Find the definition of term “EVSE” in NEC Article 100.

Picture of the Month: *If viewing this document online, click on the picture to open a larger image.* This disconnect was reconnected during a panel replacement. Immediate concerns are unclosed openings, corrosion/debris in electrical equipment, identification of conductors and foil wrapped ruptured fuses.



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ELECTRICAL CURRENTS

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Question of the Month - Calculation of loads in accordance with the National Electrical Code (NEC) requires knowledge of the amount of power consumed by the circuits, feeders, and service. Power is expressed in volt-amperes or watts. How many volt-amperes are drawn by the following (assume 100 percent power factor).

- 1) A 4.5 kilowatt (kw), 240-volt single-phase water heater.
- 2) A 10 ampere, 120-volt dishwasher.
- 3) A 5 horsepower, 460-volt three-phase air compressor.

See correct answer on Page 2.

Safety Tip of the Month

Winter has arrived and this is a good time for reminders about the importance of proper preparation and what to do in the event of damage to your electrical wiring. Wind, flooding, snow and ice will occur and with them, the likelihood of downed power lines and electrical outages.

Learn more: [After Floods & Other Natural Disasters](#).

July 1, 2026 Deadline to Qualify for the 01 Journey Level Exam Without Completing an Apprenticeship.

According to RCW [19.28.195](#), if you have 3000 hours of experience worked before July 1, 2023, you may qualify for the journey level electrician certification examination without completing the work and education requirements of an apprenticeship program. Before you can qualify, you must have 8000 hours of experience, 4000 hours of which must be new commercial or industrial installations. To qualify under this provision, L&I must receive all affidavits and your application for examination before July 1, 2026.

Learn about how to report hours of experience and deadlines that apply: www.Lni.wa.gov/ElectricalTrainee. Find out how to apply for examination: www.Lni.wa.gov/ElectricalLicensing and select Electrician.

Learn more: www.Lni.wa.gov/ElectricalApprenticeship.

When Will Exams be Based on the 2023 National Electrical Code?

Spring 2025 is the target. We will announce a date in future editions of this newsletter. Candidates receive the latest exam version, even when they started testing on prior versions. Very few things change between code cycles. Exams focus on foundational elements, not all the changes in the new version. New or revised definitions and any changes to load calculations always get updated.

Exams are open-book. The key to success is preparation. Candidates get the best results when they are familiar with the NEC, [WAC/RCW](#) and electrical theory reference books. Learn more about what to study and what you can bring in: [PSI Exam Bulletin](#).

Exams are not an opportunity to study. Approval for electrical exams expires year from the date of approval. If you fail to pass three times, during this one-year exam period, you have to wait 3 months between all future attempts until you pass the exam.

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Inspector Training—No Electrical Inspections on January 8, February 12, 2025

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Who Enforces and Interprets State Energy Codes?

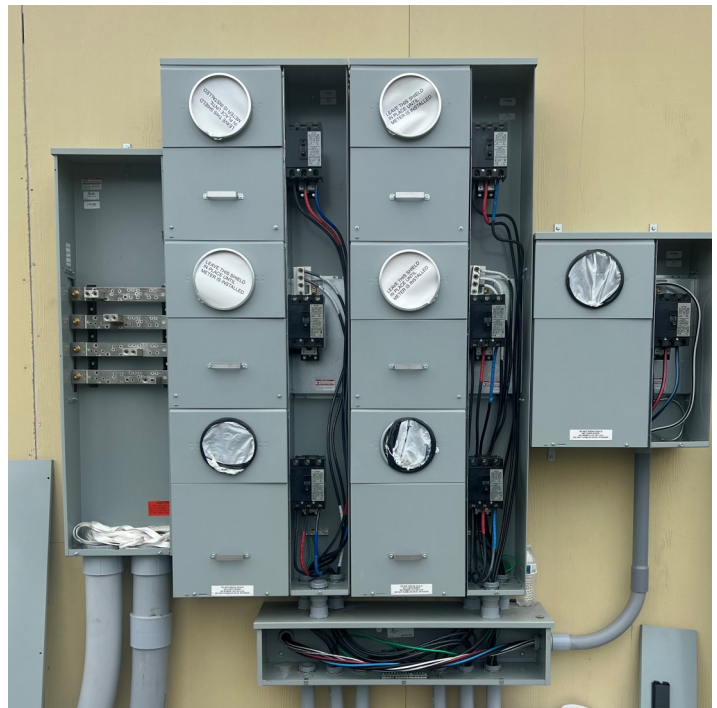
According to [19.27.050](#), only counties and cities have authority to enforce energy codes that are part of the State Building Code.

Answer to Question of the Month:

- 1) 4,500 volt-amperes (4.5 kW X 1,000 W/kW ÷ 1.0 power factor);
 - 2) 1,200 volt-amperes (10 amperes X 120 volts);
 - 3) 6,311 volt-amperes (7.6 amperes X 480V X $\sqrt{3}$)
- See NEC Table 430.250 for 3-phase motor full-load current.
 $\sqrt{\text{(square root) of 3}} = 1.73$ (3-phase power formula).

Picture of the Month: An electrical inspector found this installation of the side of a building. Does this installation conform to NEC 230.71(B)? If you say no, you are correct!

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Question of the Month - Who's jurisdiction are the requirements of the WA State Energy Codes? *See Page 2.*

Who Can Install Wiring for Office Furnishings, Cubicles, and Other Furnishings?

Anybody can assemble wall panels, work surfaces, cabinets, shelves, seating, and structural elements but not wiring. This includes switches, receptacles, flexible electrical cable assemblies with quick-connect electrical interconnections, etc.

Installation of wiring by someone other than property owners or leaseholders and their regularly employed employees is subject to laws requiring electrical contractor [licensing](#) and electrician [certification](#). Electrical apprenticeship requirements also apply: www.lni.wa.gov/ElectricalApprenticeship

What does this mean? All work installing electrical devices and wiring must be done by properly certified electricians and licensed electrical contractors unless the work is done by the property owner or leaseholder and their regularly employed employees who are not required to be contractors or electricians according to RCW [19.28.261](#)(5)(a). Leaseholders doing such work must meet conditions in WAC [296-46B-925](#)(13).

Except for some limited device replacement – see WAC [296-46B-901](#)(7)(b)(i) for a list of permit exempt work – the work will generally require an electrical permit and inspection. The permit must be obtained prior to beginning any electrical work. Permit fees are generally based upon the addition or alteration of commercial branch circuits described in WAC [296-46B-906](#)(2)(c). Learn more about office furnishings, see NEC® Article 605.

Avoid Delays and Permit Refund Processing Fees

Sometimes it is difficult to figure out who issues permits and performs inspections. This is particularly complex in Pierce County. [Tacoma Power](#) issues permits and performs inspections for properties they serve in the cities of Tacoma, Fircrest, University Place, Fife, parts of Steilacoom, Lakewood, and unincorporated Pierce County as far south as Roy. Here is a [more detailed map](#) of their service area. You can verify your jurisdiction before purchasing a permit to avoid inspection delays and refund processing fees.

Find out if your project is within one of the [city inspection jurisdictions](#) with this tool: <https://webgis.dor.wa.gov/taxratelookup/SalesTax.aspx>. Start by entering the street address and zip code. If no city is named under the Sales & Use tab, the address is in the county named. A city name is present only when the address is within a city. There is no guarantee that the tool is always up to date, but it is highly accurate. Learn more: <https://www.lni.wa.gov/licensing-permits/electrical/electrical-licensing-exams-education/electrician>.

Safety Tip of the Month

As an electrical professional, be alert for electrical hazards on the jobsite that may injure or kill unsuspecting coworkers. Never leave an energized electrical panel without a cover. Make sure receptacles used for temporary power are GFCI protected, and be on the lookout for improper temporary wiring splices and damaged cords or tools.

What Hours Count as Electrical Experience?

We are often asked what kind of experience counts toward qualifying for an examination. We now have a webpage dedicated to the subject:

<https://www.lni.wa.gov/licensing-permits/electrical/electrical-licensing-exams-education/electrical-trainee#what-hours-count-as-electrical-experience>.

If you have a training certificate, make sure to turn in your hours of experience on time and complete required education and renew it before it expires. Learn more: www.lni.wa.gov/ElectricalTrainee

Become an Electrical Construction Inspector

Have you been a Washington (01) journey level electrician for four years? Have you applied for and passed the open book electrical assessment? If so you may qualify to become an electrical inspector.

You will be required to pass an Electrical Program Technical Assessment as part of the application process for Electrical Construction Inspector positions. This is an open book assessment that covers the NEC, WAC, RCW, Electrical theory and wiring diagrams. Applicants must supply all of the materials they intend to use to include but not limited to codebooks and non-programmable calculators. Computers and cell phones will not be allowed.

The schedule for assessments is:

1st Tuesday of each month: [7273 Linderson Way SW, Tumwater](#)

2nd Tuesday of each month: [12806 Gateway Drive S, Tukwila](#)

3rd Tuesday of each month: [3001 W Broadway Avenue, Moses Lake](#)

Please send an email to electricalassessment@lni.wa.gov to schedule your exam.

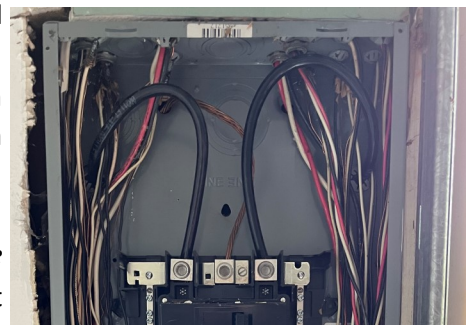
Upon completion, you will receive an email containing your results and you will have to attach that to your application submission. If you do not schedule and pass the assessment within two weeks of the position, closing you will not be considered for the position. Your passing results of the assessment will be good for one year and can be used for other positions at the agency.

*** Persons with a disability who need accommodation in the testing process may call 360-902-5700. TTY users should first call 711 to access the Washington Relay Service.*

There are positions available throughout the year in different locations. [Please watch for job postings](#) .

Answer to Question of the Month: The state building code, required by [RCW 19.27](#) shall be enforced by the counties and cities per 19.27.050. L&I would inspect the methods and means of the installations, similar to a fire alarm system. The interpretation and enforcement of energy codes are the jurisdiction of the cities and counties.

Picture of the Month: *If viewing this document online, click on the picture to open a larger image.* This panel had been changed out before the current owner purchased the home. There is no conduit system for the service entrance conductors and no main bonding jumper.



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ELECTRICAL CURRENTS

A Newsletter from the Office of L&I Chief Electrical Inspector Wayne Molesworth

October 2024

Question of the Month - How can you apply for the inspector pre-employment electrical assessment? See Page 2.

GFCI Protection Requirements Delayed

Appliance manufacturers and standards organizations need more time to ensure compatibility with new GFCI protection requirements. For this reason, we are delaying enforcement of the following until July 1, 2026:

1. 2023 NEC 210.8(A) and (B) for 250 volt receptacles for electric ranges, wall mounted ovens and counter mounted cooking equipment.
2. 2023 NEC 210.8(D)(8), (9), and (10) for 250 volt electric ranges, wall mounted ovens and counter mounted cooking equipment.

Exception to 2023 NEC 230.71(B)(4) Requirements for Metering Centers

Manufacturing capacity continues to improve, but has not reached a level where it can support the market with equipment that meets new requirements. Until July 1, 2026, requirements for separate compartments for service disconnects do not apply to metering centers with 2 – 6 service disconnects that comply with all of the following:

1. Voltage to ground is 150 volts or less.
2. Equipment must comply with 2023 NEC 230.62(C) to ensure there are no hazards from live parts on the line side of service disconnects. Barriers and insulation must be factory installed by the original equipment manufacturer, field-installed using the manufacturer's instructions and accessories, or field evaluated by an accredited electrical product testing laboratory.

We will only extend this allowance if manufacturing capacity does not improve. More information to come in future editions of this newsletter.

One Service Disconnect or Two or More?

For equipment having two or more service disconnects interlocked by a cover mounted interlock mechanism, interlocked disconnects are not one service disconnect the purposes of 2023 NEC 230.71. When two or more are present after removing the cover, NEC 230.71(B) applies accordingly.

Example:



Safety Tip of the Month

Be safe – be seen.

Daylight is getting very limited this time of year. High visibility clothing is your best bet for safe working or outdoor activities in low light conditions. Always wear reflective clothing or accessories so that others can see you. Wearing reflective clothing reduces the possibility of injury from a motor vehicle or other mobile equipment.

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Have You Heard About Proposed Changes to the 2026 NEC?

The first draft of the 2026 NEC and public comment has been released and is found here under the “Next Edition” tab at <https://www.nfpa.org/codes-and-standards/nfpa-70-standard-development/70>. With help from our friends at the [NFPA](#) and [Minnesota Dept. of L&I](#), we have highlighted a few of the proposed changes below.

The NEC's structure may be one of the biggest changes you notice, with articles being moved around. For example, Article 220 could become Article 120, and Article 750 could become Article 130. Medium voltage and limited energy articles may be added.

- 230.70 – Service disconnecting means now required to be on the exterior of or with in sight of the home for single and two-family dwelling units. No more confusing labels, the emergency disconnect and service disconnect will be one in the same, with similar requirements for feeders.
- 625.54 – EVSE GFCI protection for both receptacles and outlets.
- 550.32 – Surge protection device requirements for a replacement mobile or manufactured home.

More: Visit the NFPA blog : [Changes Proposed for the 2026 NEC \(nfpa.org\)](#)

Validating Class B Permits

When answering YES or NO to the question “Limited Energy/Telecom work only?”, while validating a Class “B” permit online: Select “YES” for installations that consist only of limited energy or telecom work. Select “NO” if other types of work are performed.

What is a Like-in-Kind Installation?

Not all like-in-kind work can be done without a permit or inspection. The only work that does not require a permit or inspection is Class A basic electrical described in WAC [296-46B-901\(7\)\(a\)](#). RCW [19.28.006](#) defines “like-in-kind” as having similar characteristics such as voltage requirements, current draw, and function, and being in the same location.

All electrical work, including like-in-kind electrical work, must be performed by certified electricians working for licensed electrical contractors, unless exempt under RCW [19.28.261](#) or WAC [296-46B-925](#).

Answer to Question of the Month: To register, contact electricalassessment@lni.wa.gov. Assessment is available each month on the first Tuesday in Tumwater, the second Tuesday in Tukwila, and third Tuesday in Moses Lake. Please indicate your preference. We will respond with further details. Look for available inspector openings at [careers.wa.gov](#).

Picture of the Month: *If viewing this document online, click on the picture to open a larger image. A lot going on in this picture for such a small box. Was box fill an issue? What conditions cause wire nuts to melt? Can wire nuts be used for KO seals? What could have happened if this box was concealed in wall and branch circuit protective device had not tripped?*



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ELECTRICAL CURRENTS

A Newsletter from the Office of L&I Chief Electrical Inspector Wayne Molesworth September 2024

Question of the Month - Electrical trainees are required to work under the direct supervision of a properly certified electrician working on the same jobsite. What is a jobsite and what is supervision? *See the correct answer on Page 2.*

Who can Repair and Replace Electric Vehicle Supply Equipment?

Electric Vehicle Supply Equipment (EVSE) is all equipment for plug-in charging between the premise wiring system and electric vehicle. In this article, we will focus on who can repair and replace it and when inspections are required.

Laws only allow licensed electrical contractors that employ certified electricians to repair and replace EVSE when it is located on property owned by others. (RCW [19.28.041](#), RCW [19.28.161](#), RCW [19.28.271](#)). Property owners that own EVSE located on their property may repair and replace it under allowances in RCW [19.28.261](#).

Manufacturers and their factory authorized service technicians may support their EVSE products as outlined in WAC [296-46B-925\(22\)](#). Warranties are something that automatically come with a product. They not something that costs extra and are sold separately from a product. Service contracts and extended warranties are not warranties for the purposes of WAC [296-46B-925\(22\)](#).

Permits and inspections are required to repair and replace EVSE, except for Class A basic electrical work described in WAC [296-46B-901\(7\)\(b\)](#).

Take a look at the damaged EVSE in the picture of the month in this edition. Using a Class B permit, someone allowed to do the work could replace the damaged output cable and electric vehicle connector. Class B permits are easy to use, they cost less than regular permits, and are inspected on a random basis. Learn more: www.lni.wa.gov/licensing-permits/electrical/electrical-permits-fees-and-inspections/purchase-permits-request-inspections#class-b-electrical-permits

This regulatory system helps assure that installations of EVSE remain in strict conformity with safety standards pursuant to RCW [19.28.010\(1\)](#). Find out more: www.lni.wa.gov/Electrical.

New Service Approval Comments on Inspection Results

The electrical program has standardized our comments for service approvals. Service approvals have the following comment "SERVICE APPROVED. CONTACT SERVING UTILITY TO ARRANGE FOR CONNECTION."

This change is to clearly communicate approved services to utilities and help permit holders with the next step to have their power connected.

Safety Tip of the Month

As an electrical professional, be alert for electrical hazards on the jobsite that may injure or kill unsuspecting coworkers. Never leave an energized electrical panel without a cover. Make sure receptacles used for temporary power are GFCI protected, and be on the lookout for improper temporary wiring splices and damaged cords or tools.

We have the skills and knowledge to help keep people safe from electrical hazards on our job sites.

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Expanded Surge Protection Requirements in the 2023 NEC

In 2002 the NEC introduced surge protection to address proper installation of hardwired Transient Voltage Surge Suppressors (TVSS) or Surge Protective Devices (SPDs). In the 2020 NEC, surge protection became a mandatory requirement.

Due to the need to protect electronics in systems that protect us, the 2023 NEC expanded these requirements to some common sections. Here are some sections where surge protection requirements were added:

- 409.70 for industrial control panels
- 620.51(E) emergency conveyance disconnect
- 645.18 critical operation data systems
- 670.6 Industrial machinery with safety interlock
- 694.7(D) between wind electric systems and premises
- 695.15 fire pump controller
- 700.8 emergency systems switchboards and panel boards
- 708.20 distribution for critical operations power systems (COPS)

It seems likely that surge protection requirements will continue to evolve in the future editions of the NEC.

Reminder - Journey Level Exam Approval Deadline Coming

Until July 1, 2026: Washington trainees who have 3,000 hours in the electrical construction trade before July 1, 2023 and acquired 8,000 total hours of experience (4,000 of which must be new commercial or industrial installations) and 96 hours of basic classroom instruction.

To qualify for an (01) journey level examination under this allowance, the department must receive candidate examination applications and supporting documentation before July 1, 2026.

L&I Inspector positions opening soon!

The first step to becoming an inspector is a technical knowledge assessment. The assessment will evaluate the applicant's knowledge of the electrical industry and application of National Electrical Code (NEC), WAC and RCW. The assessment is open book and you can bring any copyrighted reference materials. You will need passing score of 70%. Passing scores are good for 1 year. For more information, testing locations and times please contact us at electricalassessment@LNI.WA.GOV.

Picture of the Month: Electric Vehicle Supply Equipment (EVSE) is prone to damage and often needs repair or replacement. Find the article in this edition to learn more about it and who can repair and replace it

Answer to Question of the Month:

"Job site" means a specific worksite having a single address or specific physical location (e.g., a single family residence, a building, a structure, a marina, and individual apartment building with a specific address, etc.). "Supervision" for the purpose of supervising electrical trainees, means that the appropriately certified supervising electrician is on the same job site as the trainee being supervised. For complete definitions of these terms, see WAC [296-46B-100](#). Lack of proper supervision not only creates potentially hazardous conditions, it is illegal and could result in civil penalties being assessed to the contractor, administrator, and trainee.



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ELECTRICAL CURRENTS

A Newsletter from the Office of L&I Chief Electrical Inspector Wayne Molesworth

August 2024

Question of the Month - True or False?

The maximum setting for all ground fault protection systems in a marina (NEC 555) is 30 milliamperes.

See the correct answer on Page 2.

2026 National Electrical Code® - The First Draft Report has been posted and is open for Public Comment!

Go to www.nfpa.org/70next to submit a Public Comment using the online submission system. Once on the NEXT EDITION page, select the link "Submit Public Comment" to begin the process. You will be asked to sign-in or create a free online account with NFPA before using their system. If you have any questions during the process NFPA offers a chat feature, or you can contact them via email or phone at 1-800-344-3555. For more information on submitting public inputs visit www.nfpa.org/publiccomment.

This is your opportunity to get involved and send in your recommended changes to the National Electrical Code®!

The closing date for Public Comments is August 28, 2024.

Continuing Education Requirements

If you are an electrician, administrator, or master electrician you are required to take twenty-four hours of approved continuing education classes between your renewal dates. Eight hours must be on changes in the currently adopted, or any more recently published National Electrical Code. Four hours must be on the currently adopted RCW [19.28](#) and/or WAC [296-46B](#). The remaining twelve hours may be your choice of [currently approved classes](#). Approved first aid classes are limited to four hours of credit toward renewal of your certificate.

Do not wait until the last minute! To stay active you will need to complete the required class work before your certificate expires. If you have not completed your classes, you may renew your certificate into an inactive status by paying the renewal fee. When in inactive status, you may not perform any work requiring a valid certificate. Your certification stays inactive until your continuing education is completed. Renew online at <https://lni.wa.gov/licensing-permits/manage-licenses-certifications>

Something to “Spark” Your Interest

NEC 2023 added Section 220.57 to aid in load calculations for electric vehicle supply equipment (EVSE). Additionally, Section 625.40 was modified to provide flexibility in the number of EVSE on a branch circuit. Learn more about the changes in the 2023 NEC on the [NFPA](#) website.

Safety Tip of the Month

Do not allow yourself or others to swim near a dock or marina where electrical power is present. Stray leakage current in the water can paralyze or kill. If you must enter the water to work on a boat or dock, turn off and lock out all sources of electricity first.

NFPA.org has a useful website with pod casts, videos and other resources for installers, inspectors and the public. Check it out :

<https://www.nfpa.org/Education-and-Research/Electrical/Electric-Shock-Drowning>

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Year in Review

In the year ending on June 30, 2024, the electrical program delivered:

263,058 total inspections, 47,828 of them done through our [Virtual Electrical Inspection](#) program

78% of inspections completed within 24 hours of request

90% of inspections completed within 48 hours of request

66,365 corrections written - 68% for serious safety concerns

1.8 million miles driven

178,317 permits sold - 90% are contractor permits

98.6% of permits purchased online

76% of inspection requests made online

22,865 citations written - about a third are warnings

14,266 of the citations written targeted the underground economy.

2,779 hours of training and outreach done by [ECORE](#)

4,678 pages reviewed by plans examiners - 100% submitted online

19,823 licenses and certificates processed - 91% on line

6,862 new trainee certificates issued - 90% on line

4.4 million hours of experience reviewed by the technical review team - 87.5% approved, remaining hours were not approved because the applicant had all hours needed to qualify for exam or were denied for cause.

This is just a snap shot of all the hard work that the electrical program staff did last year.

Last Year's Top Eight Corrections

3,346 - GFCI protection in dwellings - NEC 210.8(A)

3,078 - No access for inspection - RCW 19.28.101

2,305 - Notifying the department work was ready for inspection when it was not ready - WAC 296-46B-906(7)(B)

2,195 - Not following the manufacture's instructions - NEC 110.3(B)

1,479 - Requesting an inspection when previous corrections are incomplete - WAC 296-46B-906(7)(D)

1,416 - Failing to install surge-protective devices when required - NEC 230.67

1,296 - Circuit directory or circuit description - NEC 408.4(A)

1,270 - AFCI requirements in dwelling units - NEC 210.12(A)

Picture of the Month: *If viewing this document online, click on the picture to open a larger image* A contractor was replacing this old electrical equipment and share the "before" picture with a VEI inspector. The pictures illustrate the need for making sure that all openings in electrical equipment greater than 1/4 inch need to be closed. The local insect population have made a nice home of the equipment. Also the lack of a conduit system for the open conductors is concerning.

Answer to Question of the Month: False - 2023 NEC 55.34 (A) and (B) allows for 100 milliamperes on feeders, 30 milliamperes for receptacles for shore power and 5 milliamperes for outlets other than shore power.



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ELECTRICAL CURRENTS

A Newsletter from the Office of L&I Chief Electrical Inspector Wayne Molesworth

July 2024

Question of the Month:

What word was misused in the June 2024 issue of the Electrical Currents Newsletter? You can find last months issue [here](#).

See the answer on the bottom of page 2.

Something to “Spark” Your Interest

Did you know that [TIA 23-9](#) amends NEC 680.26 requirements for equipotential planes for pools and fountains on April 10, 2024?

According to WAC [296-46B-010](#), the adopted version of the National Electrical Code (NEC) includes all subsequent Errata and Tentative Interim Amendments (TIAs) issued by the National Fire Protection Association.

Stay current on TIAs and errata, find them under the Current & Prior Editions tab on the [NFPA 70 \(NEC®\)](#) webpage.

Learn more: <https://www.nfpa.org/for-professionals/codes-and-standards/standards-development/tias-errata-and-fis>

Becoming an Electrical Contractor

To carry on the business of the [electrical construction trade](#), you must get an electrical contractor license from L&I.

- General electrical (01) contractors are licensed to perform all types of electrical and telecommunications installations.
- Specialty electrical contractors are licensed to perform work within a category described in [WAC 296-46B-920\(2\)](#).

License requirements

A valid UBI number issued by the [Department of Revenue](#) or [Secretary of State's](#) office.

- A certified, assigned electrical administrator or master electrician.
- An original, \$4,000 electrical/telecommunication contractor's surety bond, or assignment of savings account.
- A workers' compensation account if the business has employees.
- No outstanding, unpaid citations.

To apply, complete an [Application for Electrical or Telecommunications Contractor License](#) (F500-018-000). In a single envelope, mail it and all other forms required as instructed on the application form.

Avoid Delays - Outdated Forms - Fees are not Correct

We have been updating you about the fee changes that took effect July 1. If you must use a form, get the current version from our [website](#). To avoid using an outdated form, clear your browser cache and dispose of any old forms you may have lurking around.

Safety Tip of the Month

Listed electrical equipment must be installed and used in accordance with the manufacturer's installation instructions. Always read the instructions and follow them, also, leave a copy on the jobsite for the inspector and the owner.

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Renewing? Our Online Services Save You Time and Money!

For lower fees and faster results, visit [Manage Licenses and Certifications \(wa.gov\)](#). While you are renewing, verify that your address is correct. You can also order reprints of lost or misplaced cards if later needed.

To locate your license or certificate number, use our [Verify](#) tool.

Avoid undeliverable or returned mail by using the correct US Postal format for your address. Make sure your address is correct using [USPS's look up tool](#). If your address is at an apartment complex or business park, make sure you include your apartment or suite number.

Factory Assembled Structures (FAS) Rule Update

The FAS Advisory Board is expanding its members and is looking for electricians to join.

The [Washington State Department of Labor & Industries](#) (L&I) adopted changes to the factory assembled structures rules. The changes affect L&I's Factory Assembled Structures (FAS) Advisory Board, and distributing inspection insignia to manufacturers of recreational vehicles (RV's). The new rules will take effect July 22, 2024.

You can review the adopted rules [here](#). If you have any questions or want to know how to participate in the rule development, please contact us at FAS1@Lni.wa.gov or call 1-800-705-1411, Option 3.

Expired Administrators/Master Electricians - What happens next?

The [Verify](#) tool makes it easy to monitor the status of assigned administrators/master electricians. If they do not complete their education requirements and renew before they expire, they are automatically unassigned. This starts a serious chain of events:

Administrators/Master Electricians:

- To activate, complete your education requirements and pay the double fee to renew.
- If you do not renew within 90 days, you will have to retake and pass the exam.
- To reassign, complete this [form](#) and paying the fee.

Electrical Contractor:

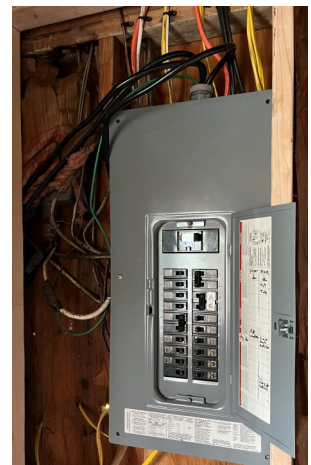
- 90 days after your administrator/master expires, your license is suspended if they do not complete renewal and reassign by completing this [form](#) and paying the fee.
- If suspended, you cannot purchase permits, request inspections or do business as an electrical contractor.
- [Reinstate online](#) after your administrator/master is assigned.

Answer to the Question of the Month:

If you said "site", you are correct. It should have been "sight", not "site".

Learn more about "in sight from", "within sight from", and "within sight of" in NEC 110.29.

Picture of the Month: When they exposed the framing, a home owner remodeling their newly purchased home found work that was never inspected. Notice the open conductors and splices. This is an example of the underground economy at work. Permits and inspections matter! *If viewing this document online, click on the picture to open a larger image.*



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ELECTRICAL CURRENTS

A Newsletter from the Office of L&I Chief Electrical Inspector Wayne Molesworth

June 2024

Question of the Month:

According to the Department of Health (DOH), can a 120-volt septic pump and alarm for an on-site residential septic system be supplied by the same branch circuit? ?

See the answer at the bottom of page 2.

Electrical Fee Increase – Effective July 1, 2024

For a few months, we have been updating you about changes in our fee schedule. Fees have remained unchanged for the last three 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) 6.4% [fiscal growth factor](#) projections. We are currently updating all of our forms and webpages. Please dispose of any stock of forms you may have and always use hyperlinks on our website to access forms every time you print.

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.

Something to “Spark” your interest

These sections were added or expanded in the 2023 NEC:

NEC 215.18, 225.42, and 230.67—All dwelling unit services and feeders, new or replaced shall be provided with a surge-protective device (SPD). The SPD shall be Type 1 or Type 2, and shall be an integral part of the service or distribution equipment, or be located immediately adjacent to. It can also be located at the nearest downstream distribution equipment on the load side of the feeder that contains branch circuit OCP.

NEC 230.85—For one and–two family dwellings, the code now requires the disconnecting means to be installed in a readily accessible outdoor location on or within sight of the dwelling unit. See NEC Article 100 for the definition of “within site”.

RV Supply Equipment

NEC 210.8 provides requirements for Ground Fault Circuit Interrupters (GFCI) protection requirements receptacles. For recreation vehicle supply equipment installed on the same property as a dwelling unit, WAC [296-46B-210\(8\)\(B\)](#) amends GFCI requirements. According to the rule,

GFCI protection is not required for receptacles intended for 125/250 volt RV power supply feeders, only for 125 volt, single phase, 15 or 20 ampere RV receptacles. Use must be abundantly evident: Adequate space to park an RV, doors large enough for an RV, etc. Installers must label the panel schedule for the receptacle’s intended use.

Safety Tip of the Month

Make sure your temporary power installations are safe. Temporary power installations on construction sites, if not installed properly, can be a source of extreme hazard. Make sure your work is not the cause of a tragedy. Ensure all temporary wiring meets NEC requirements. Make sure service conductors at temporary power poles are not exposed.

If you see a hazard, SPEAK UP! You are a critical part of the safety on your job site.

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RECAP – Apprenticeship Requirements for Trainees Aspiring to be (01) Journey Level Electricians and Their Employers

On July 1, 2023, changes were made for how electrical trainees qualify for the (01) journey level certification exam. Here's a recap of what everyone needs to know:

Trainees

- Trainees with fewer than 3,000 hours of electrical experience worked before July 1, 2023 had to become registered apprentices to perform work limited to (01) journey level electricians.
- Trainees with 3,000 or more hours of electrical experience worked as of July 1, 2023 or completers of approved two-year electrical construction and training programs may continue gaining (01) experience until July 1, 2026, without becoming registered apprentices.
- If you've been approved to take the certification exam before July 1, 2026, you are not required to complete the education and work experience requirements of an approved apprenticeship program, even when reapplying after that date.

Contractors

Electrical contractors wanting to hire someone that is training to become an (01) electrician have a few choices:

- Become a registered training agent for an apprenticeship program. This allows you to hire registered apprentices.
- Establish your own apprenticeship program approved through the Washington State Apprenticeship and Training Council.
- Hire trainees with specific experience. See the second bullet point under "Trainees" in this article.

Learn more: www.Lni.wa.gov/ElectricalApprenticeship

Trainee or Apprentice—What is the Difference?

There are two types of trainees. Only one is an apprentice.

An apprentice is a trainee who is registered in a Washington State approved apprenticeship program. Apprenticeship programs provide formal training and are regulated by the [Washington State Apprenticeship and Training Council](http://www.Lni.wa.gov/ElectricalApprenticeship).

Typically, employers, employer associations, and labor unions sponsor apprenticeship programs. If you are a trainee who is not registered with an apprenticeship program, you are not an apprentice.

All trainees must [renew](#) their training certificate every 2 years until they pass an exam to become an electrician. Trainees and registered apprentices can view their hours of experience and renewal lapses by using our [Verify](#) tool.

Answer to the Question of the Month:

A: No—[WAC 246-272A-0238](#), enforced by DOH (not L&I) requires audible and visual alarms for all septic pumps. Pumps and alarms must be on separate circuits.

Picture of the Month: *If viewing this document online, click on the picture to open a larger image.* The top rail of this fence is being used as a conduit system. Violations include, but are not limited to not having the correct box connectors for the environment, open holes, and raceway listing requirements.



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ELECTRICAL CURRENTS

A Newsletter from the Office of L&I Chief Electrical Inspector Wayne Molesworth

May 2024

Question of the Month: See the answer at the bottom of page 2.

A ground ring is an electrode encircling the building or structure, in direct contact with the earth, consisting of at least _____ of bare copper conductor not smaller than _____. The ground ring shall be buried at a depth below the earth's surface of not less than _____.

Safety Tip of the Month

When installing or using listed or labeled electrical equipment it is very important to follow the manufacturer's instructions. This holds true for something as simple as selecting a light bulb for a light fixture. A bulb that exceeds the rating of a light fixture will create excessive heat and may shorten the life of the fixture or worse, start a fire.

Virtual Electrical Inspections Supervisor Brian Stenerson Passes Away



The electrical program was saddened with the loss of VEI supervisor Brian Stenerson. Brian passed away April 19, 2024 at the age of 61.

Brian began working for the Department of Labor & Industries in 2011 as an electrical inspector. Before becoming the VEI Supervisor, Brian got to inspect all over the state. This experience provided Brian a state wide point of view, and a focus on customer service. Brian was dedicated to his team and spread his positive personality to everyone. Brian truly loved his job and his crew.

These factors combined and contributed to Brian being foundational force in the development and success of the VEI program.

Prior to becoming an electrical inspector, Brian was an electrical contractor, operating and owning Interstate Electric for 22 years.

Brian Stenerson was born in Seattle on Feb. 16, 1963. He married the love of his life, Dianna, on April 26, 1985. Together, they built their life in Napavine, Washington.

They have two amazing sons, Sam and Bill, a wonderful daughter-in-law, Alisa, and two granddaughters, Alison and Hannah, who make his heart happy. Brian shares a very special bond with his little sister, Pattrise. When

those two are together, their laughter would brighten every room.

Brian shared his deep passion for hydroplane racing with his family. He took them all over the world following the boat races. Anything fast and loud! Brian loved to golf with his boys. He formed many lifelong friendships golfing, especially with his buddy Rick. Brian and Rick started Xbox golfing with each other a few nights a week to stay connected.

Brian is loved and respected by many and will truly be missed.

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Washington State Department of
Labor & Industries

Fee Increase Effective July 1, 2024

We adopted a 6.40% fee increase to support operating expenses for electrical inspections and other electrical public safety activities. The increase is the Office of Financial Management's maximum allowable fiscal growth factor rate for fiscal year 2025. See WAC [296-46B-010\(1\)](#) to find out more how fees apply to new permits.

Sections affected by this rulemaking are WAC [296-46B-906](#), [296-46B-909](#), and [296-46B-911](#). Learn more on our [Rule Development](#) page.

Affidavit Deadline for Trainees who are not Registered Apprentices

TRAINEES: From the expiration date your training certificate, you have 180 days to turn in affidavits for the previous 2 years. Affidavits received by L&I after the deadline are not approvable. For receipt of delivery, use certified mail. Affidavits are date stamped upon receipt at L&I. Find the mailing address and other instructions on the form: [Affidavit of Experience for Washington Electrical Trainees](#) (F500-149-000).

EMPLOYERS: You must supply a completed affidavit to any trainee within 20 days of request. Any employer who refuses to supply an affidavit are subject to civil penalties. Learn about [reporting hours of experience](#) and check out WAC [296-46B-942\(8\)\(d\)](#) for more information.

New Electrical Training Hour Reconsideration Process Begins

A new reconsideration process started April 1 for electrical trainees requesting a review of denied training hours.

A request must be made within 20 calendar days of receiving a denial. The request must include specific reasons why the denial should be reconsidered and a copy or photo of the denial letter. There is no fee for making the request. **Only requests made from decisions issued on or after April 1 are eligible for the new process.**

From the time L&I receives a reconsideration request, the review process is expected to take about a month.

The process to report hours of experience will remain the same. Send questions to HoursReconsideration@Lni.wa.gov.

Find Printable WAC and RCW online

During the recent rule making, the provisions for purchasing printed copies of the WAC and RCW at L&I service locations was removed. Check out the free printable Exam Friendly versions of the laws and rules on our [webpage](#).

Answer to the Question of the Month:

6.0 m (20 ft.); 2 AWG; 750 mm (30 in.) NEC 250.52(A)(4), NEC 250.53(F)

Picture of the Month: *If viewing this document online, click on the picture to open a larger image.*

A virtual inspector found these copper pipes in a heat pump disconnect. If we put the listing and labeling issue to the side, how many different code violations can you come up with? We stopped at eight. When electrical equipment is not installed in according to the manufactures instructions, it introduces hazards and leads to unforeseen consequences.



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ELECTRICAL CURRENTS

A Newsletter from the Office of L&I Chief Electrical Inspector Wayne Molesworth

April 2024

Question of the Month: In a health care facility's the branch circuits supplied from the Critical Branch are usually found where?

- A. Patient rooms, treatment rooms & operating rooms.
- B. Nurses stations, hallways.
- C. Labs and IT rooms.
- D. All the above

See the answer at the bottom of page 2.

Safety Tip of the Month

Don't make the mistake of treating the grounded (the neutral, generally white or grey) conductor as if it's safe. Do not open it while energized. It is part a circuit under load and can cause shocks, injuries, and data loss, or damage equipment with sensitive electronic controls.

2023 NEC and WAC 296-46B Effective April 1, 2024

The WAC 296-46B revision process with adoption of the 2023 National Electrical Code (NEC) is complete. The director signed the CR-103 rulemaking order on February 21, 2024. The 2023 NEC and revised WAC 296-46B are now effective.

Generally, new codes and rules will apply if the electrical permit is issued on or after the adoption date with two exceptions:

- a. New one- and two-family dwellings or multifamily dwellings where the issue date of building permits for the premises is before the adoption date; or
- b. New installations where plan review is required by WAC 296-46B-900 when plans are received and accepted for review before the adoption date.

You can review or print a copy of the revised rules on the [Electrical Laws & Rules](#) page of our website.

Soon, a special edition of this newsletter will be published which will highlight significant changes. The exam will be updated to the 2023 NEC hopefully at the end of 2024. Stay tuned for further announcements in this newsletter.

2023 Rulemaking Update - Fee Increase Effective July 1, 2024

We adopted a 6.40% fee increase to support operating expenses for electrical inspections and other electrical public safety activities. The increase is the Office of Financial Management's maximum allowable fiscal growth factor rate for fiscal year 2025. See WAC [296-46B-010](#)(1) to find out more how fees apply to new permits.

Sections affected by this rulemaking are WAC [296-46B-906](#), [296-46B-909](#), and [296-46B-911](#). Learn more on our [Rule Development](#) page.

Electronic copies of the laws and rules are available for review or printing on our [Electrical Laws & Rules](#) webpage.

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How Do Emergency Disconnect Requirements Apply to Altered Services?

Article 230.85 of the 2023 NEC has requirements for emergency disconnects for one- and two-family dwellings.

WAC [296-46B-230\(11\)](#) replaces NEC 230.85(C) with: “When service equipment supplying one- and two-family dwellings is replaced, an emergency disconnecting means must be installed whenever the service ampacity is increased or decreased, or when any of the following are relocated: Service disconnects, meter bases, overhead service masts, or underground service risers.”

Factory Assembled Structures (FAS) Rule Update

The FAS Advisory Board is expanding its members and is looking for electricians to join.

The [Washington State Department of Labor & Industries](#) (L&I) is proposing changes to the factory assembled structures rules. The changes affect L&I’s Factory Assembled Structures (FAS) Advisory Board, and distributing inspection insignia to manufacturers of recreational vehicles (RV’s).

A public hearing on the proposed rules will take place **April 29, 2024, at 9 a.m.** Learn more about this rulemaking and how to participate [here](#).

If you have any questions or want to know how to participate in the rule development, please contact us at FAS1@Lni.wa.gov or call 1-800-705-1411, Option 3.

Electrical Training Hour Reconsideration Process Launches in April

If you receive a decision after April 1, 2024 from L&I that denies training hours, you can request reconsideration. Your denial letter will contain the information you need to file a request. There is no fee for filing a request, which must be made within 20 calendar days of the date of the initial denial letter you received. The request must include specific reasons why the denial should be reconsidered along with a copy or photo of the letter you received.

Send the request and questions to HoursReconsideration@Lni.wa.gov.

Answer to the Question of the Month:

The answer is D, All of the above.

Check out *NEC 517.34(A)*. Critical Branch circuits can be found in non patient care areas such as but limited to crash cart alcoves in hallways, nurses stations, labs and IT rooms. This is important to insure that the wiring methods required by *NEC 517.31(C)(3)(1)* are met.

Picture of the Month: *If viewing this document online, click on the picture to open a larger image.* There is so much wrong in this picture. The lack of a conduit system, failure to protect the NMB cable from physical damage by running it outside the framing, and the bonding of the metal parts of the structure are just a few things. What else can you find?



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ELECTRICAL CURRENTS

A Newsletter from the Office of L&I Chief Electrical Inspector Wayne Molesworth

March 2024

Question of the Month:

What is the most significant change in the 2023 NEC?

See the answer at the bottom of page 2.

2023 NEC and WAC 296-46B to be Effective April 1, 2024

The WAC 296-46B revision process with adoption of the 2023 National Electrical Code (NEC) is complete. The director signed the CR-103 rulemaking order on February 21, 2024. The 2023 NEC and revised WAC 296-46B will be effective April 1, 2024.

Generally, new codes and rules will apply if the electrical permit is issued on or after the adoption date with two exceptions: (a) New one- and two-family dwellings or multifamily dwellings where the issue date of building permits for the premises is before the adoption date; or (b) New installations where plan review is required by WAC 296-46B-900 when plans are received and accepted for review before the adoption date.

You can review a copy of the revised rules on the [Rule Development](#) page of our website.

Soon, a special edition of this newsletter will be published which will highlight significant changes. The exam will be updated to the 2023 NEC hopefully at the end of 2024. Stay tuned for further announcements in this newsletter.

2023 Rulemaking Update - Fee Increase

We are proposing a 6.40% fee increase to support operating expenses for electrical inspections and other electrical public safety activities. The increase is the Office of Financial Management's maximum allowable fiscal growth factor rate for fiscal year 2025.

We held a public hearing on the proposed rules on Jan. 26, 2024. Learn more on our [Rule Development](#) page.

Here is what happens next:

- March 19, 2024: CR-103 to be signed by director and new fee rules are adopted.
- July 1, 2024: New fees tentatively become effective.
- Fees will increase on the effective date.

Sections affected by this rule making are 296-46B-906, 296-46B-909, and 296-46B-911. The fee for a RCW or WAC printed document has been deleted. Electronic copies are available for printing on our [Electrical Laws & Rules](#) webpage.

Safety Tip of the Month

Safety Tip of the Month!

Protect yourself, your family, and your investment – Make certain you hire a legitimate licensed electrical contractor who:

- Uses certified electricians and;
- Gets the work inspected.

Check your contractor's and electrician's status at: <https://secure.lni.wa.gov/verify/>

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Marking requirements for service rated splices and taps delayed until July 1, 2025

Requirements in NEC 230.46 state pressure connectors and devices for splices and taps installed on service conductors shall be marked as “suitable for use on the line side of the service equipment” or equivalent. Due to a lack of listed products with markings that meet this requirement, the department is delaying enforcement of this article until July 1, 2025 unless the industry needs additional time beyond that date to produce compliant products.

Sealing Locknuts and Conduit Fittings

NEC 312.2(A) requires enclosures installed in wet locations be weatherproof. Raceways or cables entering these enclosures **above the level of uninsulated live parts** must use fittings listed for wet locations. Watertight connections are necessary (and required) in areas when gravity could lead water directly to live parts. Fittings supplied with a weatherproof enclosure by the manufacturer are approved for the intended use. Field-installed weatherproof hubs (i.e. Myers hubs) are expensive and many installers opt for sealing locknuts to maintain the weatherproof integrity of the enclosure.

Sealing locknuts are intended for use with **threaded rigid metal conduit and intermediate metal conduit only**. On a conduit entering perpendicular to the enclosure surface they are to be installed with one sealing locknut on the outside or the inside with an ordinary locknut or sealing locknut on the opposite side of the enclosure to maintain the weatherproof integrity.

Rigid nonmetallic conduit (PVC) terminal adapters are not suitable for use with sealing locknuts. PVC entries into weatherproof enclosures above the level of uninsulated live parts must be made with fittings listed for the purpose.

Training Hour Appeals Receive a Fresh Look Update

The effort to create a new review of training hour decisions continues! Since last month’s *Currents*, there has been more work on developing the process. Tentative plans call for a spring rollout.

The new process provides customers an opportunity to seek reconsideration of denied training hours. It **only** involves denied training hours. The process to report hours of experience will remain the same.

We’ll continue to publish new information in *Currents*. Send questions to HoursReconsideration@lni.wa.gov.

Answer to the Question of the Month: The most significant change to the NEC would depend on what part of the industry you partake in at any given time. If you have not done so, now is a great time to take advantage of a 2023 NEC update class. All 2020 NEC code update classes are set to expire on March 31 due to adoption of 2023 NEC on April 1, 2024. No one loses credit for a 2020 NEC update class completed before April 1. You can find approved continuing education and basic classroom training classes on the [Basic Classroom Instruction & Continuing Education \(wa.gov\)](#) page of our website.

Picture of the Month: *If viewing this document online, click on the picture to open a larger image.* An electrical inspector found this panel change during an inspection. The open splices above the panel, no conduit system for the single conductors, and blank panel schedule were just the beginning of the problems with this installation.



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ELECTRICAL CURRENTS

A Newsletter from the Office of L&I Chief Electrical Inspector Wayne Molesworth February 2024

Question of the Month:

Where are the terms "in sight from", "within sight from" or "within sight of" defined in the 2023 NEC? See the answer at the bottom of this page.

Inspector Training—No Electrical Inspections on February 7, 2024

We regret the inconvenience this causes, but a statewide approach to training, improves consistency and is the most efficient way to educate our staff. The 2023 NEC tentatively becomes effective April 1, 2024. It is never too early to become familiar with it. Find a 2023 code update class [here](#).

Indefinite Delay Ends - UL 231 Power Outlet Equipment

For temporary power and recreational vehicle services, installers often choose to use power outlet equipment. Revised standards for Power Outlets (UL 231) became effective in June of 2022.

Effective July 1, 2024:

Installations of new power outlet equipment used for service equipment must comply with NEC 230.62 and NEC 230.71 except as allowed by the following.

For temporary power services, installers may reuse power outlet equipment manufactured before June of 2022 that does not meet the requirements of NEC 230.71 and NEC 230.62. Equipment is approvable when used in accordance with the manufacturer's instructions. Altered equipment is not approvable unless proven to meet appropriate electrical safety standards through field evaluation by an [accredited electrical product-testing laboratory](#).

Equipment manufactured after June of 2022 had to comply with new standards, stocks of older equipment are exhausted. It is easy to recognize compliant equipment; it typically has a service disconnect complying with NEC 230.71 and barriers to prevent contact with energized parts required by NEC 230.62.

2023 Rulemaking Update - Code Adoption and Fee Increase

1. Code Adoption

Rulemaking to adopt the 2023 NEC and to make other rule changes is underway. The Technical Advisory Committee (TAC) provided advice regarding outside and department rule proposals during their July 11, 2023 meeting. The [Electrical Board](#) provided advice during their October 26, 2023 meeting and there was a public hearing on January 9th.

On December 5, a CR-102 was filed that includes proposed rules language, a preliminary cost benefit analysis, and notice of the public hearing and comment period. Details of the filing are available on our [Rule Development](#) webpage.

(Continued on next page)

Answer to the Question of the Month

According to NEC 110.29; when required to be "in sight from", "within sight from" or "within sight of", the specified equipment shall be visible and not more than 50 feet distant from the other.

Safety Tip of the Month

Major appliances (refrigerators, dryers, washers, stoves, air conditioners, etc.) and space heaters should be plugged directly into a wall receptacle outlet. Extension cords and plug strips should not be used. Here is a good [Video](#) on the subject.

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(Continued from Page 1)

Here is what happens next:

- February 2024: The final rules (CR-103) are expected to be filed with the state Office of the Code Reviser.
- April 1, 2024: The new rules and adoption of the 2023 NEC are expected to take effect.
- Exams will continue to be based on the 2020 NEC until early 2025, exact date TBD.

See the [April 2023 Special Edition Electrical Currents Newsletter](#) for more details about the entire process.

The updated WAC and 2023 NEC will apply to installations when issue dates of electrical permits are on and after adoption dates. There are 2 exceptions:

(a) New one- and two-family dwellings, or multifamily dwellings where the issue date of building permits for the premises is before the adoption date; or

(b) New installations where plan review is required by WAC [296-46B-900](#) when plans are received and accepted for review before the adoption date.

2. Fee Increase

We are proposing a 6.40% fee increase to support operating expenses for electrical inspections and other electrical public safety activities. The increase is the Office of Financial Management's maximum allowable fiscal growth factor rate for fiscal year 2025. Our current fee levels are not adequate to cover current Program expenses. A fee increase is necessary to ensure the Programs' revenues match expenditures.

We held a public hearing on the proposed rules on Jan. 26, 2024. Learn more on our [Rule Development](#) page.

Here is what happens next:

- March 2024: The new fee rules are adopted.
- July 1, 2024: New fees tentatively become effective.
- Fees will increase on the effective date.

Training Hour Appeals Receive a Fresh Look

The electrical program is working to create a process to allow customers to request a review of denied hours of experience.

Appeals made through superior court can be confusing and expensive. We are committed making it easier to do business with L&I, and have a goal to help workers and businesses. The electrical program is confident in the work we accomplish, and we want to be as accurate as we possible. This standardized process will benefit everyone.

The [process to report hours](#) of experience will remain the same. Look for details in the coming months. While it's still early, please feel free to send comments to HoursReconsideration@Lni.wa.gov

Picture of the Month: Steel pipe electrodes shall have the outer surface galvanized or otherwise metal-coated for corrosion. A single pipe electrode shall be supplemented as required by NEC 250.53(A)(2) when an existing electrical service is altered.



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ELECTRICAL CURRENTS

A Newsletter from the Office of L&I Chief Electrical Inspector Wayne Molesworth

January 2024

Question of the Month:

Are line set covers used for mini-split HVAC systems a listed electrical raceway?

See the answer at the bottom of this page.

Inspector Training—No Electrical Inspections on January 9 and February 7, 2024

We regret the inconvenience this causes, but a statewide approach to training, improves consistency and is the most efficient way to educate our staff. The 2023 NEC tentatively becomes effective April 1, 2024. It is never too early to become familiar with it. Find a 2023 code update class [here](#).

Installing Type TC and MC for Mini-Split HVAC Systems

Manufacturers commonly specify Type TC or Type MC cable for wiring between outdoor and indoor mini-split HVAC equipment.

- Type MC: Install in accordance with NEC 330.
- Type TC: WAC [296-46B-336](#) allows the use of Type TC cable in any location allowed for nonmetallic sheathed cable in NEC 334 when installation requirements in NEC 336, 334, and WAC [296-46B-334](#) are met.
- Type TC-ER-JP (joist pull) must be used where pulled through building framing. For exposed runs, the cable must be marked Type TC-ER. You can find more information about cable markings in NEMA's [Technical Services Department Bulletin](#).

Exposed cables must be installed and protected from physical damage in accordance with NEC It is never appropriate to use mechanical piping such as mini-split line sets to support Type TC or Type MC cable.

How to get a reprint of your certificate

To locate your certificate number, use our [Verify](#) tool if you need to. Have your credit card ready or have a check in hand. Review the steps below before clicking on [CHANGE, RENEW OR REPLACE](#).

- 1- Enter info requested – you will know it all.
- 2- Proceed until you reach the **Manage Your License** screen.
- 3- Review your address, phone number and email. Select the **Update** link to make changes.
- 4- Select the **Track Progress and Renew** link if you need to renew, or
- 5- Select **Reprint** to order a replacement. (Allowed 30 days after last print)

Your receipt acts as your license or certificate until your new one arrives by mail within 4-5 weeks

Answer to the Question of the Month: No. Wiring routed within line set covers must be properly supported and protected from physical damage by a raceway, barrier, or separation achieved by independent supports for wiring and mechanical lines within the line set cover.

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Safety Tip of the Month

According the National Fire Protection Association's (NFPA) [Carbon Monoxide Safety](#) publication:

- A person can be poisoned by a small amount of carbon monoxide (CO) over a longer period of time or by a large amount of CO over a shorter amount of time.
- In 2010, U.S. fire departments responded to an estimated 80,100 nonfire CO incidents in which carbon monoxide was found, or an average of nine calls per hour.

2023 Rulemaking Update - Code Adoption and Fee Increase

1. Code Adoption

Rulemaking to adopt the 2023 NEC and to make other rule changes is underway. The Technical Advisory Committee (TAC) provided advice regarding outside and department rule proposals during their July 11, 2023 meeting. The [Electrical Board](#) provided advice during their October 26, 2023 meeting.

On December 5, a CR-102 was filed that includes proposed rules language, a preliminary cost benefit analysis, and notice of the public hearing and comment period. Details of the filing are available on our [Rule Development](#) webpage.

How you can participate

A public hearing on the proposed rules will take place **Jan. 9, 2024, at 9 a.m.** at: [L&I headquarters, 7273 Linderson Way S.W., Tumwater, WA](#). Learn more about how you can participate on our [Rule Development](#) page

Here is what happens next:

- February 2024: The final rules (CR-103) are expected to be filed with the state Office of the Code Reviser.
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Here is what happens next:

- March 2024: The new fee rules are adopted.
- July 1, 2024: New fees tentatively become effective.
- Fees for permit and permit fee line items will increase on the effective date.

Picture of the Month: The cover for this mini-split HVAC line set has expanded and contracted in the elements. You can see the conductors exposed at the bottom of the channel. Line set covers are not an approved raceway for conductors.



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ELECTRICAL CURRENTS

A Newsletter from the Office of L&I Chief Electrical Inspector Wayne Molesworth December 2023

Question of the Month

Where can you find requirements for electrical equipment and wiring that has been submerged or exposed to water? *See the answer on page 2*

A Message from Chief Wayne Molesworth

The mission of the Electrical Inspection Program is to ensure public safety by ensuring safe electrical installations. To do this we must employ the most qualified electrical inspectors with the highest level of electrical knowledge. We are constantly looking for ways to improve our ability to hire the best.

One of the ways to do this is to implement a technical knowledge assessment during the application process starting January 1, 2024. This assessment is designed to evaluate the applicants knowledge of the electrical industry and application of National Electrical Code (NEC), WAC and RCW.

It is open book and all copyrighted reference materials are accepted. A passing score of 70% is required in order to move forward in the process. Once you receive a passing score it is good for 1 year to use when applying for electrical inspector positions across the state.

For more information and testing locations and times please contact the Electrical Inspection Program at ElectricalHiringAssessment@lni.wa.gov.

If you are looking for a challenge and want to experience and be influential in all facets of the electrical industry come join our team!

2023 Rulemaking Update - Code Adoption

Rulemaking to adopt the 2023 NEC and to make other rule changes is underway. The Technical Advisory Committee (TAC) provided advice regarding outside and department rule proposals during their July 11, 2023 meeting. The [Electrical Board](#) provided advice during their October 26, 2023 meeting.

On December 5, a CR-102 was filed that includes proposed rules language, a preliminary cost benefit analysis, and notice of the public hearing and comment period. Details of the filing are available at: [Rulemaking Activity at L&I \(wa.gov\)](#). We will soon update our [Rule Development](#) webpage to reflect this progress. Here is what happens next:

- January 9, 2024: A public hearing on the proposed rules is tentatively scheduled.
- February 2024: The final rules (CR-103) are expected to be filed with the state Office of the Code Reviser.
- April 1, 2024: The new rules and adoption of the 2023 NEC are expected to take effect.

See the [April 2023 Special Edition Electrical Currents Newsletter](#) for more details about the entire process.

Safety Tip of the Month

Working in an attic space can be difficult and dangerous. It exposes you to fall hazards if you slip and step between the trusses. Employers must evaluate the hazards and take steps to reduce the risk of falls. Using appropriate fall protection measures reduces risks and saves lives. For more information, OSHA® has a helpful [Fact Sheet](#) about reducing falls while working in attics.

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Virtual Electrical Inspections Turns Four

Virtual Electrical Inspections (VEI) is a customer driven service, designed to be easy and convenient for electrical contractors to get inspections. Since its beginning 4 years ago, VEI has completed over 100,000 inspections for customers all over the state. The key to VEI's success is its ability to meet customers needs in real time.

It is easy to get an VEI inspection. All you need to have is an:

- Electrical contractor license
- L&I electrical permit
- Internet connected smart device (mobile network or WIFI works), and
- Certified electrician to show the work (no trainees, apprentices or others).

VEI inspections are fast, typically 15 minutes or less! Schedule an appointment when it is right for you. Our inspection staff are here to help. Learn more about using VEI on your next job [here](#).

Inspector Training—No Electrical Inspections on January 9, February 7, 2024

We regret the inconvenience this causes, but a statewide approach to training, improves consistency and is the most efficient way to educate our staff. The 2023 NEC tentatively becomes effective April 1, 2024. It is never too early to become familiar with it. Find a 2023 code update class [here](#).

What Happens if I Fail My Open-Book Electrical Examination?

Electrician, master electrician, and administrator examination candidates have one year to pass all sections of their examination. Each exam is unique and made up of questions selected randomly from a question pool covering basic electrical theory, NEC®, and Washington laws and rules. If they fail to pass the examination, the conditional allowance to retest is found in WAC [296-46B-960](#) (8)-(10).

If a candidate makes a failing score, they must wait two weeks before being eligible to retest. Within the one year examination period, candidates have to retake only the sections they failed to pass. If a candidate fails three times within a one-year period, they must wait three months to retake any failed sections of the examination. This three-month waiting period will apply to all subsequent attempts. If all sections are not successfully completed within the one-year period, the candidate must reapply for a new examination period and retake all sections. Learn more about exam content: [PSI Exam Bulletin](#).

All exams are currently based on the 2020 NEC. Sometime late next year, exams will be updated to the 2023 NEC. More about that to come in this publication.

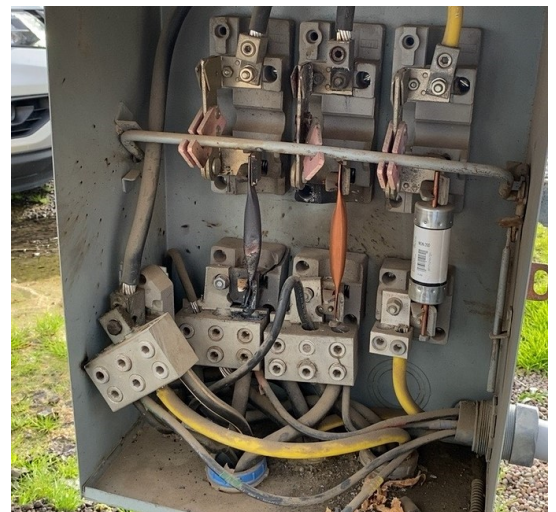
Picture of the Month:

Fortunately, an electrical contractor was in the process of replacing this equipment. Notice the arcing marks, cracks in the equipment, close clearances, and homemade components.

Answer to the Question of the Month:

WAC [296-46B-110](#)(2) has requirements for electrical equipment replacement and reconditioning.

Learn more about what to do after floods and other natural disasters on our [webpage](#).



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ELECTRICAL CURRENTS

A Newsletter from the Office of L&I Chief Electrical Inspector Wayne Molesworth November 2023

Question of the Month

What is the minimum size aluminum SE cable that may be used as a 100-ampere feeder in a single-family dwelling in Yakima, routed through the attic above the level of insulation, and down to a feeder panel in an uninsulated wall. The feeder does not carry the entire load associated with the dwelling. The expected high ambient temperature in the uninsulated attic is 120°F. The cable is marked with a temperature rating of 75°C.

– See correct answer on page 2.

Is Your Mailing Address Correct? Why it Matters

The postal service has new sorting equipment. Your mail is undeliverable if your mailing address does not match an address in their system.

Avoid problems caused by undeliverable mail:

Find your mailing address by using [ZIP Code™ by Address](#)

Using the result from above or your PO Box information, update your address to match at <https://lni.wa.gov/licensing-permits/manage-licenses-certifications>

Update all of your licenses and certificates. Find them by using our [Verify](#) tool if needed.

2023 Rulemaking Updates

Code Adoption: Rulemaking to adopt the 2023 NEC and to make other rule changes is underway. The Technical Advisory Committee (TAC) provided advice regarding outside and department rule proposals during their July 11, 2023 meeting. The [Electrical Board](#) provided advice during their October 26, 2023 meeting.

A Second Draft of the proposed rules and supplemental information that focuses on proposed changes to the (06A) HVAC/refrigeration scope of work is now available on our [Rule Development](#) webpage. Here is what happens next:

- November 21: The proposed rules (CR-102) are expected to be filed with the state Office of the Code Reviser.
- January 3, 2024: A public hearing on the proposed rules is tentatively scheduled.
- February 27, 2024: The final rules (CR-103) are expected to be filed with the state Office of the Code Reviser.
- April 1, 2024: The new rules and adoption of the 2023 NEC are expected to take effect.

See the [April 2023 Special Edition Electrical Currents Newsletter](#) for more details about the entire process.

Fee Increase: L&I is considering a 6.3% fee increase to support increased operating expenses for inspections and other Electrical Program services. The current fee levels are not enough to cover current Program expenses. The fee increase is needed to ensure that revenues match expenditures. Learn more on our [Rule Development](#) webpage.

Safety Tip of the Month

In the coming months, be prepared for deteriorating driving conditions. Rain, fog, ice, and snow are on the way. Slow down and increase your following distance to help compensate for decreased traction and visibility. Make sure your windshield wipers work well and wiper fluid is full. To help prepare for winter driving, see the [Winter Travel](#) page on the Washington Department of Transportation website.

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Exception to 2020 NEC 230.71(B)(4) Requirements for Metering Centers

Until April 1, 2024, requirements for separate compartments for service disconnects do not apply to 250 volt, single phase metering centers with 1 – 6 service disconnects. We will only extend this allowance if manufacturing capacity does not improve. More information to come in future editions of this newsletter.

Who Can Install Seasonal and Year Round Use Lighting?

Electrical licensing and certification requirements for seasonal and year round use lighting depend on the type of products used in the installation not the voltage of the installation.

If the seasonal and year round use lighting are field fabricated, firms installing the lighting systems are required to be licensed electrical contractor employing properly certified electricians. Permits and inspections are required for these installations. Typically, the above describes firms who fabricate custom cut-to-fit seasonal and year round use lighting products.

Firms or individuals installing unaltered, off-the-shelf factory-assembled seasonal and year round use lighting products, like those described in UL [588](#) , the Standard for Seasonal Holiday Decorative Products are not required to be licensed electrical contractors or certified electricians. If fasteners are used to affix the lights to a structure, contractor registration requirements in RCW [18.27](#) may apply.

Heat Pump Water Heaters - Not for the HVAC/Refrigeration System Electrician

Heat pump water heating appliances are a part of the electrification plan in Washington. This equipment may be similar to equipment installed in HVAC/refrigeration systems, but if the equipment is not integrated to generate, deliver, or control heated, cooled, filtered, refrigerated, or conditioned air, the equipment is not part of an “HVAC/refrigeration system” defined in WAC [296-46B-100](#) and is not included in the 06A or 06B HVAC/refrigeration specialty work scope.

Heat pump water heaters have both plumbing and electrical connections. Plumbing laws regulate plumbing contractor licensing and plumber certification. Under certain conditions outlined in RCW [19.28.091](#)(8) and RCW [18.106.150](#)(8), plumbers and electricians may practice each other’s trade. Conditions only apply to 02 residential specialty and 01 journey level electricians.

Picture of the Month: Pipe electrodes shall have the outer surface galvanized or otherwise metal-coated for corrosion. When an existing electrical service is altered a single pipe electrode shall be supplemented with another electrode as required by NEC 250.53(A)(2) Sometimes you need to start over if the pipe is rusted away.

Answer to the Question of the Month: 2/0 - Table 310.16 gives ampacities based on ambient temperature of 30°C (86°F). Ampacity must be adjusted for the high ambient temperature in the attic per 310.15(B)(1). An ambient temperature of 120°F requires a correction factor of .75 for the 75°C rated cable. 2/0 aluminum, 75°C conductors have an ampacity of 135 amperes. $135 \times .75 = 101.25$ amperes.



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ELECTRICAL CURRENTS

A Newsletter from the Office of L&I Chief Electrical Inspector Wayne Molesworth

October 2023

Question of the Month:

WAC [296-46B-940](#) and [942](#) requires all electricians, trainees and apprentices to possess, wear, and visibly display their certificates while working in the electrical construction trade. What else are they required to have with them to show an inspector if they ask to see it? *See correct answer at the bottom of page 2.*

2023 Rulemaking Update

Rulemaking to adopt the 2023 NEC and to make other rule changes is underway. The Technical Advisory Committee (TAC) provided advice regarding outside and department rule proposals during their July 11, 2023 meeting.

A Second Draft of the proposed rules and supplemental information that focuses on proposed changes to the (06A) HVAC/refrigeration scope of work is now available on our [Rule Development](#) webpage. Here is what happens next:

- October 26: During the [Electrical Board Meeting](#), we will receive advice from the Board on the proposed rules.
- November 21: The proposed rules (CR-102) are expected to be filed with the state Office of the Code Reviser.
- January 3, 2024: A public hearing on the proposed rules is tentatively scheduled.
- February 27, 2024: The final rules (CR-103) are expected to be filed with the state Office of the Code Reviser.
- April 1, 2024: The new rules and adoption of the 2023 NEC are expected to take effect.

See the [April 2023 Special Edition Electrical Currents Newsletter](#) for more details about the entire process.

New 01 Apprenticeships!

The Washington State Apprenticeship and Training Council approved three new apprenticeship programs for people training to become 01 electricians.

- [Greater Spokane Electrical Training Apprenticeship](#) - serving the Washington counties of Adams, Asotin, Columbia, Ferry, Franklin, Garfield, Lincoln, Pend Oreille, Spokane, Stevens and Whitman. Also the Idaho counties of Benewah, Bonner, Boundary, Clearwater, Idaho, Kootenai, Latah, Lewis, Nez, Perce and Shoshone.
- [Rob's Electric Inc. Apprenticeship & Training](#) (employees of Rob's Electric Inc. only) - serving King, Pierce, Skagit and Snohomish Counties.
- [Rockwell Electric, Inc. Apprenticeship & Training](#) (employees of Rockwell Electric Inc. only) - Serving Island, Skagit and Whatcom counties.

You can find a list of all the recognized 01 apprenticeship programs on our [website](#).

If you have questions about apprenticeship programs, contact them directly or contact apprenticeship@lni.wa.gov.

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Safety Tip of the Month

Before removing any fuse from a circuit, be sure the equipment is in an electrically safe work condition.

When removing fuses, use an approved fuse puller and break contact on the line side of the circuit first.

When replacing a fuse, install the fuse into the load side of the fuse clip first, then into the line side.



Washington State Department of
Labor & Industries

Help with FAS Rulemaking

L&I is considering changes to the factory assembled structures rules. The changes affect L&I's Factory Assembled Structures (FAS) Advisory Board, and distributing inspection insignia to manufacturers of recreational vehicles. These changes are necessary after passage of two bills in 2023 that took effect July 23: [House Bill 1514](#) (HB 1514), and [Senate Bill 5089](#) (SB 5089)

You can find information about this rulemaking [here](#)

The agency filed a [Pre-proposal Statement of Inquiry \(CR-101\)](#) on Sept. 19. This formally starts the rulemaking process. L&I will seek input in the rule development from the FAS Advisory Committee and will consider other input from other interested parties.

FAS program welcomes your participation in this rulemaking process. If you have any questions or want to know how to participate in the rule development, please contact us at FAS1@lni.wa.gov or call 1-800-705-1411, Option 3

What is a Like-in-Kind Installation?

All electrical work in Washington is must be performed by certified electricians working for licensed electrical contractors. There are a few exceptions to this in RCW [19.28.261](#) and WAC [296-46B-925](#).

There is a common misconception that replacing any electrical equipment with something like-in-kind does not require a permit or inspection.

RCW [19.28.006](#) defines "like-in-kind" as having similar characteristics such as voltage requirements, current draw, and function, and being in the same location. There are many installations that fall under like-in-kind, most require permitting and inspection.

The only work that does not require a permit or inspection is Class A basic electrical described in WAC [296-46B-901](#)(7)(a).

Picture of the Month:

A sharp eyed inspector found this black widow spider living in a piece of deenergized service equipment. Luckily he slowed down enough the take a look before getting too close to the equipment. Outdoor equipment makes a great home for insects, spiders, rodents and even snakes. Keep your eyes open for all potential hazards.

Answer to the Question of the Month:

Any person working as an electrician, trainee or apprentice must also possess government issued photo identification and immediately present that identification when requested by the inspector. Unless working in a specialty, (01) apprentices are required to carry proof of apprenticeship registration with them on the job. Check out RCW [19.28.161](#)(2)(c)(ii) for the complete requirement.



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ELECTRICAL CURRENTS

A Newsletter from the Office of L&I Chief Electrical Inspector Wayne Molesworth September 2023

Question of the Month:

The electrical program operates with funding from a dedicated account called the electrical license fund. RCW [19.28.351](#) states the electrical license fund can only be used to accomplish the intent of RCW [19.28](#), which is the law regulating Electricians and Electrical Installations. What is the intent of the law?

See correct answer at the bottom of this page.

Unlisted Low Voltage Devices And Equipment Must Be Fed From A Listed Class 2 Transformer.

For some types of low voltage systems (30 volts or less) it can be difficult or impossible to find listed low voltage devices and equipment. Field evaluation is always an option for unlisted equipment, but in many cases the cost of the evaluation far exceeds the cost of the equipment. For some low voltage equipment there is an alternative.

Unlisted low voltage utilization equipment or devices will be approved if they receive their power from a listed Class 2 transformer or power supply and comply with **all** of the following.

- The Class 2 transformer is listed and used in accordance with the manufacturer instructions.
- The wiring method used complies with NEC 725.
- The secondary voltage of the Class 2 transformer/power supply does not exceed 30 volts.
- The secondary side of the Class 2 transformer/power supply is protected by a 5-ampere maximum use, or a fuse derived by dividing 100 VA by the secondary voltage whichever is less.
- A permanent marking is affixed as near as practicable to the transformer/power supply and must indicate the size and type of replacement fuse, or the fuse must be integrated into the transformer/power supply assembly requiring replacement of the unit.
- The Class 2 circuit does not supply life safety equipment or emergency egress, such as: fire alarm, rescue systems, and classified (hazardous) locations.
- The equipment and devices must be located exclusively within the Class 2 circuit (i.e. isolated from all other electrical circuits).

Answer to the Question of the Month:

The answer is found in RCW [19.28.010](#)(1); [.031](#)(1); [.051](#); [.201](#)(1)(a); [.410](#)(1); [.440](#). To ensure that all electrical wires and equipment, and installations thereof are in strict conformity with approved methods of construction for **safety to life and property**, and to ensure that those engaged in the business of electrical installations are competent to engage in and supervise the work to **ensure proper safety and protection for the general public**.

Safety Tip of the Month

Back-to-school season is here again! Be on the lookout for children not only in school zones, but also in residential areas, playgrounds, and parks. Children are unpredictable and often take risks, ignore hazards, and fail to look both ways before crossing the street.

Give them a brake

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UL Warns of Potentially Hazardous Network Communications Cable and Unauthorized Marks

In July, UL released a public notice of a network cable on the market that does not meet safety standards. “High-Performance Network Cable Category 6 Plenum 550Mhz (1000 ft)” is marked as a plenum rated cable but could pose a fire hazard.

Learn more: [UL Solutions Warns of Potentially Hazardous Network Communications Cable | UL Solutions](#)

In October 2022, UL issued a public notice for a communications cable bearing an unauthorized UL mark. According to UL, “Templar” branded communications cable has not been evaluated for safety.

Learn more: [UL Solutions Warns of Unauthorized UL Marks on TEMPLAR branded Communications Cable \(CAT.6 UTP\) | UL Solutions](#)

Stay informed: [Public Notices | UL Solutions](#)

Accurate Directions Promote Faster Inspections

Locating your jobsite with hardly any information can cause delays. Inspectors rely on your directions to get the job done. With accurate directions, inspectors get more inspections done.

Inspectors bounce all over, they do not always know the areas they are inspecting. Please keep directions simple. Avoid using over complicated directions from mapping websites. Please provide directions from the nearest main street, highway, or intersection. A few more details help your inspector get more inspections done.

Which directions would you like to have?

A	B
<ul style="list-style-type: none">• North on Hwy 821 from Selah, past Pomona, right on Selah Creek Dr. In about a mile, look for a blue house at the end of a long driveway• I-82 East to Exit 75, right on McCreddie, right on Wine Country Rd. Third driveway on the right, big new metal building.	<ul style="list-style-type: none">• Just past the old Smith house on Brown Rd.• Hwy 20• Use Google Maps• You have been here before• Directions starting in Pasco WA to Winthrop WA

A is the winner by far.

Struggling to find your way is no fun. Having accurate directions saves everybody time. The sooner we find your jobsite, the sooner we can be on to the next inspection.

Learn how electricians can make [Virtual Inspection](#) appointments.

Picture of the Month:

The inspector found this installation on a random compliance stop. This installation was made by the general contractor. They were not an electrical contractor and no certified electricians could be found. This splice, without an electrical box in the ceiling, is a fire hazard.



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ELECTRICAL CURRENTS

A Newsletter from the Office of L&I Chief Electrical Inspector Wayne Molesworth

August 2023

Question of the Month - No parts of a cord-connected luminaires, chain-, cable-, or cord -suspended luminaires, pendant, lighting track, ceiling suspended paddle fan, or hanging type fixture can be located within a zone of how many feet horizontally and vertically from the top of a bathtub rim or shower stall threshold?

A) 1', 6' B) 1 ½', 7' C) 2', 7 ½' D) 3', 8'

See the correct answer on Page 2.

Who Can Place Building Integrated Photovoltaic Equipment?

WAC [296-46B-690](#)(5) states: The entity placing a building integrated cell, module, panel, or array is not subject to the requirements for electrical inspection, licensing, or certification so long as the work is limited to the placement and securing of the device and an electrical work permit has been previously obtained for the electrical work related to the equipment by an entity authorized to do that electrical work.

This rule became necessary because of the proliferation of materials that serve a dual function like building exterior finish materials such as roofing, siding, and windows that include intergraded photovoltaic equipment.

It does not allow non-electrical contractors and uncertified individuals to install PV system materials unless they meet the definition of building integrated and the requirements stated in WAC 296-46B-690. The definition of "building integrated" photovoltaic (PV) panels is from the National Electrical Code, and is defined in rule as follows: WAC 296-46B-690(1) Building integrated: means photovoltaic cells, modules, panels, or arrays that are integrated into the outer surface or structure of a building and serve as the outer protective surface of that building, such as the roof, skylights, windows, or facades.

In general, RCW [19.28.041](#), RCW [19.28.161](#), and RCW [19.28.006](#) definitions of "Equipment" and "Electrical construction trade" require that all parts and components of PV systems be installed and maintained by properly licensed electrical contractors and certified electricians. Construction contractors who are not electrical contractors are not licensed to install PV equipment except in very specific building intergraded applications. All other electrical wiring and equipment for the PV system must be completed by the entity that obtained the electrical work permit.

TAC Meeting Update

The Technical Advisory Committee meeting was held on July 11, 2023 at the L&I headquarters in Tumwater. We received a lot of great feedback and advice. Thank you to all the members who shared their time and knowledge.

Stay informed of the 2023 NEC code adoption process here:

<https://lni.wa.gov/licensing-permits/electrical/laws-rules-policies#rule-development>.



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Safety Tip of the Month

The underground electrical economy in Washington is real. Protect yourself, your family, and your investment – Make certain you hire a legitimate licensed electrical contractor who:

- Uses certified electricians and;
- Gets the work inspected.

Check any contractor's and electrician's status at www.lni.wa.gov/Verify



Washington State Department of
Labor & Industries

Year in Review

In the year ending on June 30, 2023, the electrical program delivered:

264,723 total inspections, 43,350 of them done through our [Virtual Electrical Inspection](#) program

77% of inspections completed within 24 hours of request

89% of inspections completed within 48 hours of request

60,109 corrections written - 62% for serious safety concerns

1.6 million miles driven

181,154 permits sold - 92% are contractor permits

99% of permits purchased online

77% of inspection requests made online

12,145 citations written - about a third are warnings

6,816 of the citations written targeted the underground economy.

3,676 hours of training and outreach done by [ECORE](#)

720 hours of training delivered to new inspectors

3,958 pages reviewed by plans examiners - 100% submitted online

18,247 licensees and certificates processed - 92% on line

7,121 new trainee certificates issued - 90% on line

3.7 million hours of experience reviewed by the technical review team - 2.8 million hours approved, remaining hours were not approved because the applicant had all hours needed to qualify for exam or were denied for cause.

231 reciprocal certificates issued to Oregon journeyman (J) license holders who completed Oregon apprenticeships

This is just a snap shot of all the hard work that the electrical program staff did last year.

Last Year's Top Eight Corrections

4,947 - No access for inspection - RCW 19.28.101

3,215 - GFCI protection in dwellings - NEC 210.8(A)

2,977 - Notifying the department work was ready for inspection when it was not ready - WAC 296-46B-906(7)(B)

1,912 - Not following the manufacture's instructions - NEC 110.3(B)

1,482 - Failing to install surge-protective devices when required - NEC 230.67

1,465 - Requesting an inspection when previous corrections are incomplete - WAC 296-46B-906(7)(D)

1,249 - Legibly marking the electrical panel - NEC 408.4(A)

1,235 - AFCI requirements in dwelling units - NEC 210.12(A)

Picture of the Month:

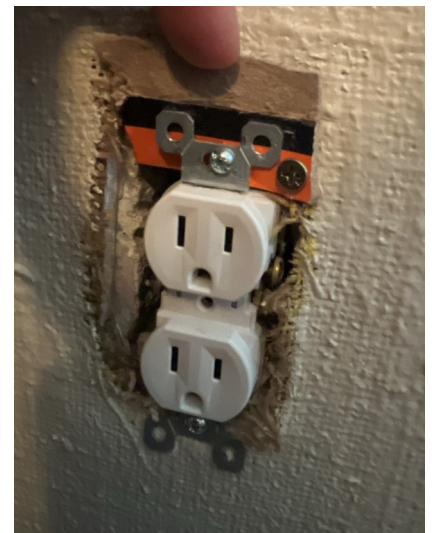
No boxes used when installing new receptacles? Fortunately the inspector spotted this dangerous installation. We issued serious violations to the contractor and the electrician who installed the receptacles.

Learn more about serious violations in WAC [296-46B-915](#)

If viewing this document online, click on the picture to open a larger image.

Answer to Question of the Month:

NEC 410.10(D) – D) 3', 8'



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ELECTRICAL CURRENTS

A Newsletter from the Office of L&I Chief Electrical Inspector Wayne Molesworth

July 2023

Question of the Month:

How many 12-2 with ground nonmetallic-sheathed cables can be installed in an 18 cubic-inch plastic nail-on device box, which will contain a flush-mounted duplex receptacle?

Find the answer on page 2.

New Laws for Trainees Aspiring to be Journey Level Electricians and Their Employers

As of July 1, changes are in effect for electrical trainees to qualify for the journey level (01) certification exam. Here's what you need to know:

Trainees

- Those trainees with fewer than 3,000 hours of electrical experience worked before July 1 must become registered apprentices to perform (01) work.
- Those trainees with 3,000 or more hours of electrical experience as of July 1, or completed a two-year electrical construction and training program, may continue gaining (01) experience until July 1, 2026, without becoming registered apprentices.
- If you've been approved to take the certification exam before July 1, you are not required to complete an apprenticeship, even when reapplying after that date.

Contractors

Electrical contractors wanting to hire someone learning to become an (01) electrician after July 1 have a few choices:

- Become a registered training agent for an apprenticeship program.
- Establish your own apprenticeship program approved through the Washington State Apprenticeship and Training Council.
- Hire trainees with specific experience. See the second bullet point under "Trainees" in this article.

For more information

You can go online and download a fact sheet with more details, "[Changes for those pursuing a journey level \(01\) electrical certification](#)," publication number F500-153-000.

Learn more online at www.Lni.wa.gov/ElectricalApprenticeship.

Questions? Email ElectricalApprenticeship@Lni.wa.gov

Safety Tip of the Month

With summer in full swing, it is a good time to remind everyone about electric shock drowning hazards. Danger exists anywhere the use of electricity and water coexist – marinas, launch ramps, private docks, boatlifts, swimming pools, hot tubs, spas, and irrigation pumps in contact with a body of water. Can you name others? These areas can contain stray electrical currents in the water, possibly leading to electric shock drowning or injury from shock, including death. Learn how to protect yourself and others:

<https://www.nfpa.org/Public-Education/Staying-safe/Electrical-safety-around-water>

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How do Trainees Prove 3000 Hours of Experience?

Section 2 of ESSB [5320](#) created an allowance for trainees with 3,000 hours of electrical experience worked before July 1, 2023 to continue accruing (01) hours without joining a registered apprenticeship. Hours can be specialty or (01) hours. When an inspector finds a trainee performing electrical installations limited to (01) electricians they will :

- Ask the trainee for proof of being in a registered apprenticeship program approved by the Washington State Apprenticeship and Training Council, or
- Verify their hours in L&I's data base.

To record hours, turn in an [Affidavit of Experience](#). Anyone can check hours of a trainee by using our [Verify](#) tool. You can search by trainee name or certificate number.

If there is no record of the hours, the inspector will require the trainee's employer to verify the needed hours. When the trainee turns in their next affidavit, the electrical licensing team at L&I will confirm the trainee had the needed hours to be performing (01) electrical installations. If the trainee did not have the needed experience they will lose those (01) hours and both the trainee and employer would subject to citations and monetary fines.

Everyone who is learning the electrical trade has to maintain an active trainee certification. It does not matter if you are enrolled in a registered apprenticeship or a specialty electrician gaining hours.

Rule Updates

Code Adoption - TAC Members

Thank you to everyone who submitted a WAC proposal and applied to the TAC. The TAC is set and the meeting is Tuesday July 11, 2023 at the L&I headquarters located at [7273 Linderson Way SW, Tumwater, WA 98501](#).

Expedited Rule Now in Effect

Changes to WAC 296-46B-945 just adopted to implement ESSB [5320](#) became effective July 3, 2023. To learn more, visit our "[Rule Development](#)" page.

Answer to the Question of the Month: Two 12-2 with ground cables. NEC 314.16: #12 volume allowance per conductor = 2.25 in^3 . One duplex receptacle = 4.5 in^3 (double volume allowance). Equipment grounds = 2.25 in^3 (single volume allowance). Two cables = four conductors X $2.25 = 9 \text{ in}^3$. Total volume of conductors, grounds, and receptacle = 15.75 in^3 . This leaves 2.25 in^3 which would allow one 12-2 and one 12-3 cable in this box which would bring the total to 18 in^3 .

Picture of the Month: The inspector who took this picture did a double take. It looks like these conductor have been without a raceway for a while. Can you find any other safety concerns?

Click on the picture for a larger image.



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ELECTRICAL CURRENTS

A Newsletter from the Office of L&I Chief Electrical Inspector Wayne Molesworth

June 2023

Question of the Month: Interrupting rating is the highest current at a rated voltage that a device is identified to interrupt under standard test conditions. Per the NEC, if a circuit breaker is not marked with an interrupting rating, what is the interrupting rating of that breaker?

Find the answer on page 2.

Exception to 2020 NEC 230.46 Listing Requirements Splices and Taps for Service Conductors

Until April 1, 2024, pressure connectors and devices for splices and taps are not required to be marked “suitable for use on the line side of service equipment”. This allowance is to assist manufactures to meet the demand. More information to come in future editions of this newsletter.

New (01) Electrical Apprenticeship Laws Take Effect July 1

New laws taking effect July 1 change how candidates qualify for the (01) journey level exam. L&I updated webpages, created a fact sheet, and recently sent out postcards to more than 3,000 (01) contractors and 24,000 trainees to help make the changes easier to understand.

All of the items feature what trainees and employers need to know about the new laws. For trainees, there’s information about what is required to perform (01) journey level work, apply to an apprenticeship program, and qualify for the (01) exam. For contractors, there is focus on who can perform (01) work and how to get involved with registered apprenticeship programs.

Learn more: [Changes in becoming a journey level \(01\) electrician](#) (F500-151-000).

www.Lni.wa.gov/ElectricalApprenticeship Questions? Email ElectricalApprenticeship@Lni.wa.gov.

How do I Prove My 3000 Hours of Experience?

ESSB 5320 created an allowance for trainees with 3,000 hours of electrical experience to continue accruing (01) hours without joining a registered apprenticeship. When an inspector finds a trainee performing electrical installations limited to (01) electricians they will :

- ask the trainee for proof of being in a registered apprenticeship program, or
- verify their hours in L&I’s data base.

If there is no record of the hours, the inspector will require the trainee’s employer to verify the needed hours. When the trainee turns in their next affidavit, the Electrical Licensing team at L&I will confirm the trainee had the needed hours to be performing (01) electrical installations. If the trainee did not have the needed experience they will lose those (01) hours and both the trainee and employer would subject to citations and monetary fines.

The simplest way to avoid this is to turn in [affidavits of experience](#) and have your hours on record. Anyone can check hours of a trainee by using our [Verify](#) tool. You can search by trainee name or certificate number.

Safety Tip of the Month

☒ School’s out for summer ☒

Pay attention! Put the phone down and be alert for children, pedestrians, skateboarders, and cyclists. Summer brings many new safety concerns for drivers and pedestrians.

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Rule Update – Expedited Rulemaking to Enact ESSB 5320

ESSB 5320 amends apprenticeship requirements brought on by 2018's SSB 6126. Parts of rules just adopted to implement SSB 6126 conflict with allowances made by ESSB 5320.

To avoid having rules that conflict with laws, we filed a CR-105 expedited rule on April 19, 2023 to amend rules so they align with allowances made by ESSB 5320. The new rules are tentatively scheduled to take effect July 3, 2023. To learn more, visit our "[Rule Development](#)" page.

Rule Update – Code Adoption - TAC Members

Thank you to everyone who submitted a WAC proposal and applied to the TAC. We still have a few positions to fill and are still accept applications to the TAC until June 10th. We have openings for:

- (01) electricians and contractors
- (06A) electricians and contractors
- Testing lab
- Utility representative

We will inform members of the TAC the week of June 12th. The TAC meeting is the second week of July in Tumwater.

New Affidavit Forms

We recently updated our affidavit of experience forms to make them simpler to use. Instead of a complicated one size fits all form, there are now two:

[Affidavit of Experience for Washington Registered Electrical Apprentices](#) (F500-152-000). Use this form to claim hours worked as a registered apprentice in an approved Washington apprenticeship program.

[Affidavit of Experience for Washington Electrical Trainees](#) (F500-149-000). Use this form to claim hours worked as a Washington trainee while not registered in Washington electrical apprenticeship program. From the expiration date your training certificate; you have 180 days to turn in affidavits for the previous 2 years. Affidavits received by L&I after the deadline are not approvable. For receipt of delivery, use certified mail. Affidavits are date stamped upon receipt at L&I.

For fastest processing: Mail affidavits as instructed on the form so they can be scanned directly to the worklist for processing by our imaging department. Please do not send any by email or fax.

Answer to the Question of the Month:

5,000 amperes - NEC 240.83 (C) Every circuit breaker having an interrupting rating other than 5,000 amperes shall have its interrupting rating shown on the circuit breaker. Note: If the marked interrupting rating of the breaker exceeds the marked short circuit rating of the end-use equipment, such as a panelboard in which the breaker is installed, the interrupting rating of the overall combination is still considered to be the lesser rating marked on the end-use equipment.

Picture of the Month: The hazard is real in this picture. NEC 240.24(E) prohibits overcurrent devices to be installed in bathrooms of dwellings. At least the shower head was installed so it sprayed away from the electrical panel.

Click on the picture for a larger image.



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ELECTRICAL CURRENTS

A Newsletter from the Office of L&I Chief Electrical Inspector Wayne Molesworth

May 2023

Question of the Month: At what amperage rating are overcurrent protection devices required to have arc fault energy reduction? See page 2 for the answer.

Big Change on May 26 – Electrician Exam Candidates Need Exam Unique IDs

We are implementing Exam Unique IDs as a result of SHB [1455](#). The new law prohibits us from sharing Social Security numbers (SSNs) with our exam provider PSI, even with highly secure methods used today. Exam candidates setting up accounts with PSI after May 26 must use their Exam Unique ID, PSI and L&I are no longer using SSNs to identify candidates.

Here is what electrician exam candidates need to know:

- An Exam Unique ID is an 11 character series of numbers and letters that starts with WA.
- Candidates approved for exam on May 26 or after will receive an eligibility notice with their Exam Unique ID and instructions about how to set up an account with PSI.
- Candidates approved for exam in the 365 days prior to May 26 that have not created an account by that date will receive letters with instructions and Exam Unique IDs needed to set up an account with PSI.
- Candidates that have set up PSI accounts in the 365 days prior to May 26 are not affected, PSI is updating Exam Unique IDs information for those accounts.
- PSI will update their [Candidate Information Bulletin](#) to reflect this change on May 26.

Exception to 2020 NEC 230.71(B)(4) Requirements for Metering Centers

Until April 1, 2024, requirements for separate compartments for service disconnects do not apply to 250 volt, single phase metering centers with 1 – 6 service disconnects. We will only extend this allowance if manufacturing capacity does not improve. More information to come in future editions of this newsletter.

Apprenticeship information session May 25, 5 p.m.

Registered apprenticeship programs will host an informational night for employers and trainees to learn more about their training programs. The session will include presentations from union, non-union and individual-employer programs. There will be time for questions.

The session will take place at 5 p.m. over Zoom. To participate click on [this link](#), and use passcode: Meeting1!

By phone: (360)209-5623 ID: 859 7077 6017 Passcode: 694551859

Learn more: www.Lni.wa.gov/ElectricalApprenticeship. Questions? Email: electricalapprenticeship@lni.wa.gov

Safety Tip of the Month

When working on or about energized or potentially energized electrical equipment, be aware that an arc flash/blast event can seriously injure or kill you and anyone nearby.

[NFPA 70E-2021](#), Standard for Electrical Safety in the Workplace, provides assistance in determining the severity of potential exposure, planning safe work practices, and selecting personal protective equipment.

Here is a good [Arc Flash Awareness](#) video from the National Institute for Occupational Safety and Health (NIOSH) that shows what can happen when things go wrong

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Legislative Update

[ESSB 5320](#), a bill creating additional pathways for trainees, military, and out of state electricians to become certified electricians was signed into law by Gov. Jay Inslee on April 14. Here is what the bill does:

- Until July 1, 2026, Section 2 of the bill allows trainees to work without registering in an apprenticeship if the trainees have 3,000 hours of experience working in the electrical construction trade or completed a two-year training school program before July 1, 2023. Trainees with fewer than 3000 hours worked before July 1, 2023 must be registered apprentices if performing work limited to (01) electricians.

To qualify for an (01) journey level examination under this allowance, the department must receive candidate examination applications and supporting documentation before July 1, 2026.

- Section 1 of the bill makes permanent the temporary provisions in recently amended WAC 296-46B-945 that allow out of state and military electricians to qualify for an (01) journey level examination without completing an apprenticeship.

Learn more: www.lni.wa.gov/ElectricalApprenticeship. Check back if updates related to above have not posted.

Rule Update – Expedited Rulemaking to Enact ESSB 5320

ESSB 5320 amends apprenticeship requirements brought on by 2018's ESS 6126. Parts of rules just adopted to implement ESS 6126 conflict with allowances made by ESSB 5320.

To avoid having rules that conflict with laws, we filed a CR-105 expedited rule on April 19, 2023 to amend rules so they align with allowances made by ESSB 5320. The new rules are tentatively scheduled to take effect July 3, 2023. To learn more, visit our "[Rule Development](#)" page.

Rule Update – Code Adoption - TAC Members Needed

Last month we started the process to update the WAC to adopt the 2023 NEC. This is your chance to help shape the electrical industry in Washington. We are still accepting applications to the Technical Advisory Committee (TAC) and WAC change proposals using the [Rule Proposal form](#).

Learn all about it in the [April 2023 Special Edition](#) of this newsletter. You have until May 20th to get involved in this important work.

You can submit your TAC application and WAC proposals to ElectricalWAC@lni.wa.gov

Answer to the Question of the Month: 1200 Amps.

Check out NEC 240.87 for all the requirements.

Picture of the Month:

There is a lot going on in this picture. Some of the corrections the inspector found were: the orientation of the panel, breakers having "off" in the up position, no hubs, no rain tight fittings, no conduit supports, no electrodes installed and the manufactures instructions were not followed.

Click on the picture for a larger image.



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ELECTRICAL CURRENTS

A Newsletter from the Office of L&I Chief Electrical Inspector Wayne Molesworth

April 2023 SE

SPECIAL EDITION - WAC 296-46B Revisions

Requesting Stakeholder Input for Rule Change Consideration

This is an opportunity for stakeholders to submit proposals for changes to the Washington Administrative Code (WAC) [296-46B](#) and 2023 National Electrical Code (NEC). If adopted, the new rules and 2023 NEC are expected to take effect April 1, 2024. Examinations will remain unchanged at this time. When available, the draft rules will be posted online to provide advance notice of the changes.

L&I is responsible for development of all rules. We act as the correlating body during the rule development process and may at any time promote rule change as necessary to accommodate statutory change or department policies or procedures. L&I filed a formal [Preproposal Statement of Inquiry \(CR-101\)](#) on April 4.

Rules are developed to aid both stakeholders and L&I in clarification or enforcement of the intent of the electrical statute (chapter 19.28 RCW). Technical changes require evidence of a specific problem and substantiation that the proposal will provide a solution for that problem.

L&I is accepting rule proposals through **May 20, 2023**. All proposals must be submitted electronically to ElectricalWAC@lni.wa.gov as MS WORD documents using this [Rule Proposal Form](#).

Revisions for consideration should include the relevant existing text and should use legislative format. Use underscore wording to be inserted (e.g. inserted wording) and strike-through wording to be deleted (e.g. ~~deleted wording~~). Proposals not submitted according to these instructions and proposals received after May 20, 2023 will be rejected.

Stay informed of rulemaking progress by visiting our [Rule Development](#) page

Apply for the Technical Advisory Committee (TAC)

The TAC process has proven to be very valuable in past years. The department is again appointing a General TAC made up of experts and interest group representatives from the electrical industry to review and make recommendations on proposals.

We are accepting TAC applications through **May 20, 2023**. Persons interested in becoming TAC members must submit a letter of interest for specific positions to the Chief Electrical Inspector by email to ElectricalWAC@lni.wa.gov

The letter should state the position applied for (see TAC - Membership section below) and show constituency support for the prospective member. Letters must include an email address, daytime phone number and license/certificate number for the applicant. All applications will be evaluated to determine that the applicant meets the requirements for the position.

In order to keep the size of the TAC to an efficient and effective number, the committee will be limited to 35 voting members. The TAC makeup will be based on an equitable distribution relative to proportion of involvement within the

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electrical industry in Washington. TAC membership provides an opportunity for everyone interested in the Electrical Program’s rule development to participate in the process.

If necessary, each successful candidate may designate an alternate to attend the TAC meeting. There will be no formal alternate assigned by the department. Any TAC member that is absent must notify the Chief Electrical Inspector by email to ElectricalWAC@lni.wa.gov of the alternate’s name one week prior to the TAC meeting. Failure to make the required notification will result in the position being vacant during the meeting.

The TAC Process

The TAC will make recommendations on industry proposals and identify proposals that may have an economic impact on other specialties, small businesses, construction costs, or the cost of enforcement. Members who know they will be absent from a TAC meeting should make every effort to send an alternate. The TAC must review and evaluate proposals based on the need:

- To address a critical life/safety need;
- To address a specific state policy/statute;
- To maintain a fair competitive environment;
- To address a unique character of the State; or
- To correct errors and omissions.

The TAC will operate on a majority basis. A majority vote of members in attendance in support of a motion will be considered as significant support for the motion made on a specific proposal. The TAC can propose amendments to a proposal. All voting members share an equal vote. L&I will consider all TAC recommendations. Public comments will not be received during the TAC meeting. Opportunity for public comment will be provided at a later date (see timeline below).

2023 WAC Revision Process – Proposed Sequence of Events

- **April 4, 2023** – A Preproposal Statement of Inquiry (CR-101) was filed with the Office of the Code Reviser.
- **Through May 20, 2023** – Accept proposals from stakeholders to amend or add to the existing chapter 296-46B WAC.
- **Through May 20, 2023** – Accept applications for TAC.
- **July 2023** – TAC meeting (exact date and location to be announced).
- **July 2023** – Electrical Board review and recommendation on proposals.
- **November 21, 2023** – The proposed rules (CR 102) are expected to be filed with the Office of the Code Reviser (opens the official required public comment period).
- **January 3, 2024** – A public hearing is tentatively scheduled.
- **April 1, 2024** – The new rules are expected to take effect.

General TAC – Membership

Chair– Chief Electrical Inspector (non-voting)			
2	Electrical Board Members (non-voting)	1	WA Manufacturing Business
1	Training School Representative	1	Electrical Engineer
1	Continuing Education Provider	1	Electrical Testing Laboratory
2	Electrical Apprenticeship Representatives	1	Electric Utility Representative
1	Electrical Manufacturer Representative	1	General Public Member
2	L&I Inspection (Supervisor & Inspector)	10	Electricians
2	City Electrical Jurisdiction (Supervisor & Inspector)	10	Electrical Contractors
1	Plumber (Contractor or Plumber)		

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Notes:

- Contractor positions must be filled by a member of the firm or assigned administrator/master electrician of a licensed electrical/telecommunications contractor or representative of an electrical contractors' association in Washington representing that specialty.
- Electrician positions must be filled by a certified electrician who is not a member of the firm or assigned administrator/master electrician in an electrical contracting business.
- The AD HOC contractor and electrician positions must be filled by a specialty not otherwise represented on the TAC.

Plumbing positions must be filled by plumbing contractor or a representative of a Washington plumber contractor's association or certified journey level plumber.

Methodology for Determining the Number						
Active Licenses & Certificates	# of Contractors	% of All Licenses	# of TAC Members (Contractors)	# of Electricians	% of All Certificates	# of TAC Members (Electricians)
01	2992	57.78%	6	19,433	62.21%	6
02	410	7.92%		3,075	9.84%	
03	94	1.82%		267	0.85%	
03A	37	0.71%		93	0.30%	
04	86	1.66%		251	0.80%	
06	527	10.18%	1	3,327	10.65%	1
06A	554	10.70%	1	3,173	10.16%	1
06B	12	0.23%		159	0.51%	
07	74	1.43%		885	2.83%	
07A	13	0.25%		63	0.20%	
07B	80	1.54%		172	0.55%	
07C	1	0.02%		24	0.08%	
07D	38	0.73%		184	0.59%	
07E	6	0.12%		65	0.21%	
09	229	4.42%		0	0.00%	
10	25	0.48%		66	0.21%	
Ad Hoc Group	1,104	21.34%	2	5,304	16.98%	2
Total	5178		10	31,237		10
Notes:	<10% of Licenses/Certificates joins the Ad Hoc group					
	The Ad Hoc group will be filled on an equitable basis with an emphasis on representation closely following the % of licenses.					
	Unfilled positions will remain vacant.					

Learn more about this rulemaking

- <https://www.lni.wa.gov/rulemaking-activity/?query=electrical&ruleTopic=All&ruleStatus=Open>,
- <https://www.lni.wa.gov/licensing-permits/electrical/laws-rules-policies#rule-development>.

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ELECTRICAL CURRENTS

A Newsletter from the Office of L&I Chief Electrical Inspector Wayne Molesworth

April 2023

L&I considers changes to electrical rules

L&I is considering adoption of the 2023 National Electrical Code (NEC) and other rule changes. L&I filed a formal [Preproposal Statement of Inquiry \(CR-101\)](#) on April 4.

The changes under consideration would affect WAC [296-46B](#), Electrical Safety Standards, Administration, and Installation, excluding WAC [296-46B-945](#), Qualifying for master, journey level, specialty electrician examinations.

Why this is happening now

L&I reviews the state electrical rules every three years, to ensure consistency with national electrical safety standards and industry practice. The NEC is recognized and adopted in nearly all 50 states.

How you can participate

L&I's Electrical Program, like many jurisdictions, doesn't adopt the NEC in its entirety. We're seeking input from interested parties in making code amendments and other changes to the rules. Interested parties may submit rule proposals through **May 20**.

L&I is also seeking experts and interested group representatives to participate on a Technical Advisory Committee (TAC) during the same period.

See the [April 2023 Special Edition Electrical Currents Newsletter](#) for more details and a link to the rule proposal form.

Learn more about this rulemaking

- <https://www.lni.wa.gov/rulemaking-activity/?query=electrical&ruleTopic=All&ruleStatus=Open>,
- <https://www.lni.wa.gov/licensing-permits/electrical/laws-rules-policies#rule-development>.

Last Call—Apprenticeship Information Session on April 6 at 5 pm

In case you have not heard, registered apprenticeships are hosting an informational night for electrical contractors and trainees to learn more about their programs.

The session will include presentations from union, non-union and individual employer programs. There will be time for questions.

The session will take place at 5 p.m. over Zoom.

To participate [click on this link](#), and use passcode: Electric1!

By phone: 386-347-5053 ID: 890 4649 8070 Passcode: 8705338300

Learn more: www.lni.wa.gov/ElectricalApprenticeship. Questions? Email: SSBImplementation@lni.wa.gov.

Question of the Month: Is electrical metallic tubing (EMT) an approved wiring method for installation of conductors for a supply-side interconnection of a solar photovoltaic system within a building between the point of interconnection and the overcurrent device protecting the electric power production source conductors? *See page 2*

Safety Tip of the Month

When installing or using listed electrical equipment, always read and follow the manufacturer's installation instructions. Also, leave a copy of the instructions for the inspector and the owner.

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When are Fan Rated Boxes Required?

The 2020 NEC change to 314.27(C) required fan rated boxes be installed, “in a location acceptable for the installation of a ceiling-suspended (paddle) fan” in dwellings. This means a fan rated ceiling box everywhere a fan could be installed with a couple exceptions.

Fan boxes are not required in areas within four feet of walls, soffits, or door swing radiuses, and areas directly above permanently installed island or peninsular countertop surfaces.

The 2023 NEC adds additional detail about the type of box installed. The box needs to be:

- A listed for the sole support of a ceiling-suspended (paddle) fan or
- Be a capable of supporting a ceiling-suspended (paddle) fan and provide direct access through the box to the structural framing without removing the box.

It is not enough that there is just access to the framing, a fan rated box needs to be installed regardless. Permits and inspections are required to install new ceiling suspended (paddle) fans.

Get Your Inspection Sooner by Providing Better Work Descriptions

Trying to inspect with little or no information can make for slow going. Inspectors rely on descriptions of work to get the job done. It slows everything down when they do not have good information.

Descriptions – A few details are all it takes. The following are actual job descriptions from permits:

Good	Not Good
<ul style="list-style-type: none">• Circuit to new hot tub in the back yard• Add GFCI outlet to garage for EV charger• 100 amp underground feeder from panel in the garage to new barn	<ul style="list-style-type: none">• Extend Circuit• Lights• R&R• Homeowner request

The good ones are clear and make it easier for the inspector to find the work you need inspected. The not good descriptions are virtually useless. Do not be shy! Permit job description fields take up to 255 characters.

More information for your inspector will reduce the number of phone calls and delays in completing your inspection. Inspectors roam all over the state and you never know who will be coming to your job site. Give them a break with a good description!

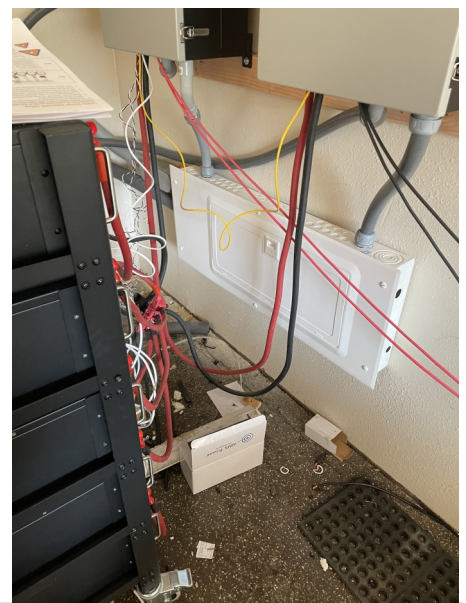
Answer to the Question of the Month:

No. WAC [296-46B-705\(2\)](#) states: *In addition to the requirements of NEC 705.31, electric power production source conductors connected to the supply side of the service disconnecting means must be installed using wiring methods specified for service conductors in WAC [296-46B-230\(7\)](#).* This section gives a list of approved wiring methods for installation of service conductors within a building or structure.

Picture of the Month:

This property owner is installing a photovoltaic system. It includes open wiring, a panel with out any working clearance and open splices. Do you see anything else to add to the list?

Click on the picture for a larger image.



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ELECTRICAL CURRENTS

A Newsletter from the Office of L&I Chief Electrical Inspector Wayne Molesworth

March 2023

Question of the Month:

What is the minimum size of a single supply side bonding jumper used for bonding a CT metering enclosure to the grounded conductor when the service consists of two separate service disconnects supplied each by a set of 3/0 copper service entrance conductors originating from the CT enclosure?

See correct answer on page 2.

Pre-manufactured Floor Heating Mats

The placement of pre-manufactured heat mats is Class A basic electrical work (i.e. work that does not require a permit). Electrical connections associated with the installation of the heat mat require a permit and inspection.

The setting of these “pre-manufactured” listed mats does not require an electrical permit or inspection, and the mat can be covered with grout by the tile setter. Laying these mats on the floor and covering them with grout is not an electrical installation.

However, the installation of any wiring, including sensor installation, routing the lead-in conductors to the thermostat or controller location, and any alteration of the heating mat is an electrical installation and must be performed by appropriately certified electricians employed by licensed electrical contractors.

To be eligible for placement by the tiles setter, the pre-manufactured mat must not be cut in any way and must be installed in its original factory condition.

Learn more: WAC [296-46B-901\(7\)\(b\)\(iv\)](#).

Now Hiring – Become an Electrical Inspector!

Tired of not knowing where your next job will be? Looking for a better work-life balance? Ready for a new challenge?

We have vacancies state wide, come join our team! Currently, we are hiring at the top of the pay range —

\$87,144 and a generous benefit package. Learn more: [Become an L&I Electrical Inspector](#).

Find an [opening near you](#)

Being an electrical inspector is a great job for people who like people. If this describes you, and you are a Washington 01 master electrician or Washington 01 journey level electrician who has held that certificate for at least 4 years, this could be a great fit for you.

For questions, please contact: Jobs@Lni.wa.gov.

Safety Tip of the Month

The work of an electrician is very challenging and rewarding. Knowledge of safe work practices and electrical laws, codes, and rules are essential to maintaining worker safety and ensuring installations meet the minimum requirements for safety to life and property.

Those learning the trade do not have the experience and knowledge required to make safe installation choices and must be supervised throughout their training period.

[RCW 19.28.161\(3\)](#) and [WAC 296-](#)

[46B-100](#) describe proper supervision. Proper supervision consists of the trainee being on the same job site and under the control of an appropriately certified supervising electrician.

Lack of proper supervision not only creates potentially hazardous conditions, it is illegal and could result in civil penalties being assessed to the contractor, administrator, and trainee.

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L&I adopts the good cause rule

The [Washington State Department of Labor & Industries](#) (L&I) has adopted changes that provide more opportunities to qualify for the journey level electrician examination. These changes take effect July 1.

L&I filed a CR-103 Rulemaking Order to adopt the changes on Feb. 14. You can review the amended rule [here](#) or by clicking on the program's "[Laws, Rules, and Policies](#)" page.

The changes affect [Washington Administrative Code 296-46B-945](#).

The adopted rule allows journey-level candidates to take the journey level examination based on a "good cause" exemption available under law. The exemption will be in effect through July 1, 2025. The adopted rule, in part, will:

- Recognize other existing paths toward 01 exam qualification in addition to apprenticeship completion. These include: military service recognition; state-licensed electricians from other jurisdictions; electricians with proof of 16,000 hours of experience; and recognition of individuals with 4,000 hours of industrial/commercial work accrued prior to July 1, 2023.
- Address the period between completion of an apprenticeship program and passage of the exam.

The adopted rule also includes updates, clarification, and housekeeping changes to the examination qualification requirements.

For more information about qualifying for the 01 exam and the changing requirements, please view this [publication](#).

See www.Lni.wa.gov/ElectricalApprenticeship to find more information.

Questions? Contact SSB6126Implementation@Lni.wa.gov.

Affidavit Deadline for Trainees who are not Registered Apprentices

TRAINEES: From the expiration date your training certificate; you have 180 days to turn in affidavits for the previous 2 years. Affidavits received by L&I after the deadline are not approvable. For receipt of delivery, use certified mail. Affidavits are date stamped upon receipt at L&I. Find the mailing address and other instructions on the form: [Affidavit of Experience for Washington Electrical Trainees](#) (F500-149-000).

EMPLOYERS: You must supply a completed affidavit to any trainee within 20 days of request. Any employer who refuses to supply an affidavit are subject to civil penalties. Learn about [reporting hours of experience](#) and check out [WAC 296-46B-942\(8\)\(d\)](#) for more information.

Answer to the Question of the Month:

The size of the bonding jumper is based on the sum areas of corresponding ungrounded conductors.

NEC Chapter 9, Table 8 lists the area of 3/0 copper as 167,800 circular mils. Two 3/0 conductors would be equal to 335,600 circular mils. Using NEC Table 250.102(C)(1), 335,600 circular mils of service entrance conductor requires a #2 AWG copper or 1/0 aluminum equipment bonding jumper.

Picture of the Month: Do you see the problem? A sharp eyed inspector found this installation where the breaker handle is marked "100" and "200 A" on the label. Wrong handle or wrong label?



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ELECTRICAL CURRENTS

A Newsletter from the Office of L&I Chief Electrical Inspector Wayne Molesworth February 2023

Question of the Month:

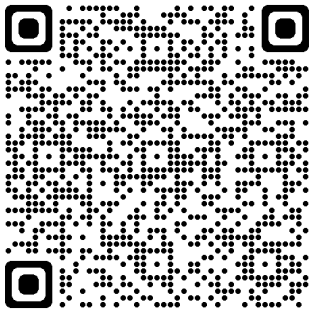
You are installing (or inspecting) a 480 volt three-phase service rated at 1600 amperes. The ungrounded supply conductors consist of seven parallel 300 kcmil aluminum XHHW conductors. What is the minimum size copper main bonding jumper required?

See correct answer on page 2.

Safety Tip of the Month

When installing or using listed electrical equipment, always read and follow the manufacturer's installation instructions. Also, leave a copy of the instructions for the inspector and the owner.

QR codes keep up with electrical apprenticeship



Keep up with what's happening regarding electrical apprenticeship through QR codes. Scan the code with this article and you can see the information at www.lni.wa.gov/ElectricalApprenticeship.

Regarding electrical apprenticeship (Substitute Senate Bill 6126), L&I plans to adopt the "Good Cause" rulemaking Feb. 14. The new rule will take effect July 1. You can read more about the rule in the [December 2022](#) edition of the Electrical Currents.

Once adopted, L&I will reach out to electricians and electrical contractors with a postcard – which will include a QR code to find out more information.

Electrical Apprenticeship Outreach

Since SSB 6126 passed in 2018 the electrical program has:

- Mailed over 28,000 letters to trainees, master electricians and electrical administrators assigned to electrical contractors in June 2018, explaining new apprenticeship requirements taking effect in 2023 after passage of SB 6126.
- Since August 2019, mailed over 43,000 automated letters to trainees informing them of upcoming apprenticeship requirements. Every time a worker becomes a trainee or renews their training certificate, an automated letter goes out to inform them of the change in 2023. The trainee certificate is valid for 2 years.
- Updated webpages for electrical trainees and electricians with information about new apprenticeship requirements. Established www.lni.wa.gov/ElectricalApprenticeship to inform contractors and trainees. Web traffic is high, with roughly 99% of all new trainees applying online. About 95% of all renewals were done online.
- Began distributing informational cards and posting on jobsites the attached card, beginning in June 2019. L&I electrical inspectors have so far distributed about 20,000 to date.
- Published multiple articles (as many as 16 since 2018) in the monthly Electrical Currents newsletter that reaches roughly 11k subscribers.

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Installation Methods – Power and Control Tray Cable: Type TC

Manufacturers of ductless split-system HVAC systems typically specify Type TC cable for the branch-circuit wiring between outdoor and indoor units. [WAC 296-46B-336](#) allows the use of Type TC cable in any location allowed for nonmetallic sheathed cable in NEC 334 when installation requirements in NEC 336, 334, and WAC 296-46B-334 are met.

Pay close attention to cable installation and cable marking requirements for particular applications in NEC 336.10. For exposed runs, the cable must be marked Type TC-ER. In one- and two-family dwelling units, Type TC-ER-JP (joist pull) must be used where pulled through building framing. You can find cable marking information in UL's [Wire and Cable Marking Guide](#).

It is never appropriate to support branch-circuit cables by attaching them to mechanical piping such as HVAC line sets. Exposed cables must be installed and protected from physical damage in accordance with NEC 334.15 and secured and supported by the building structure in accordance with NEC 334.30 and 110.12(C).

Review these articles before installing Type TC cable for branch-circuits.

The 2026 National Electrical Code is Open for Public Input

Not happy with something in the 2023 National Electrical Code (NEC)? The 2026 edition is now open for public input! Anyone can submit a proposal to make changes to the NEC to be published in August 2025. The public input closing date is September 7, 2023.

To submit a public input using the online submission system, go directly to the National Fire Protection Association – NFPA70 page using this [link](#). Once on the NFPA 70 page, select the link "Submit a Public Input" to begin the process.

You will be asked to sign-in or create a free online account with NFPA before using this system. If you have any questions when using the system, a chat feature is available, or contact NFPA by email or phone at 1-800-344-3555

Answer to the Question of the Month:

Answer: 4/0 Copper.

You will need to use: NEC® Table 250.102(C)(1) including Notes 1 and 2; Table 310.16; Chapter 9, Table 8.

7 X 300 kcmil aluminum = 2100 kcmil total aluminum supply conductor area.

Ampacity of 300 kcmil aluminum 75° supply conductors = ampacity of 4/0 copper 75° supply conductors (both are 230 amperes).

4/0 copper = 211.6 kcmil (Chapter 9, Table 8).

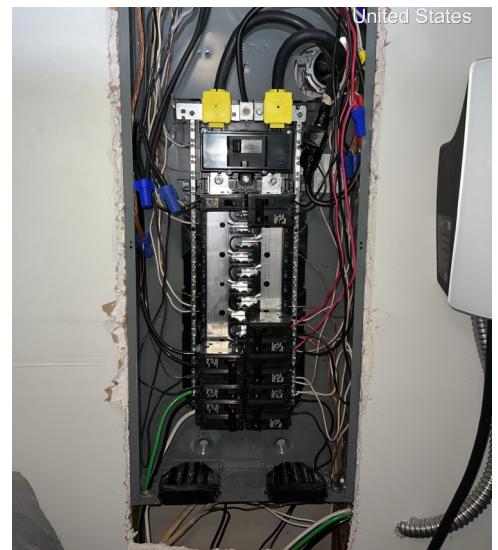
7 X 211.6 kcmil = 1481.2 kcmil total copper supply conductor area.

Per notes 1 and 2, 1481.2 kcmil X 12.5% = 185.15 kcmil.

Next higher conductor size = 4/0 copper main bonding jumper

Picture of the Month:

Here is part 2 from last months picture. Notice there is no main bonding jumper, conductors without a raceway under the panel, a white conductor installed on a breaker without being identified. Can you find anything else?



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ELECTRICAL CURRENTS

A Newsletter from the Office of L&I Chief Electrical Inspector Wayne Molesworth

January 2023

Question of the Month:

The nameplate on an electric furnace is required to be marked with the minimum supply circuit conductor ampacity and the maximum rating of the branch-circuit short-circuit and ground-fault protective device.

Question: What are the most correct code references requiring branch-circuit conductors, and overcurrent protective devices for this equipment to be as stated on the nameplate? Hint – It is not National Electrical Code® (NEC®) 110.3(B). *See correct answer on page 2.*

Safety Tip of the Month

Never leave energized conductors or equipment parts exposed. A missing cover on an energized electrical panel on a construction site can lead to tragedy. According to recent OSHA statistics, electrocution is the third leading cause of worker fatalities. Do not allow a serious unsafe condition such as exposed electrical wiring to ruin yours or someone else's life on your jobsite.

Preparing for When Registered Apprenticeship is a Requirement for Trainees to Become 01s

Trainees, report your hours of experience prior to registering in an apprenticeship program. You are encouraged to stay informed about the good cause rulemaking for WAC [296-46B-945](#) as you might have alternative options to qualify for the 01 exam until July 1, 2025.

Contractors, to assist your trainees in complying with the new law effective July 1, 2023, you are encouraged to become a registered training agent or sponsor your own registered apprenticeship program. By doing so, you will be able to employ apprentices learning the 01 occupation after July 1, 2023.

Learn more: www.lni.wa.gov/ElectricalTrainee and www.lni.wa.gov/ElectricalApprenticeship

Thank You for Using Online Services!

Last Quarter results:

Online permit sales:

99.8% of all contractor permits
83.5% of property owner permits
98.7% of all permits

Online inspection requests:

80.4% of all contractor requests
40.9% of all property owner requests
76.6% of all requests

Online certificates and licenses:

93.6% of all new training certificate applications
91.8% of all renewals are completed through:
www.lni.wa.gov/ManageLicensesCertifications

Moved? Update your address and contact information: www.lni.wa.gov/ManageLicensesCertifications

Track your status: www.lni.gov/Verify

Find everything about electrical: www.lni.gov/Electrical

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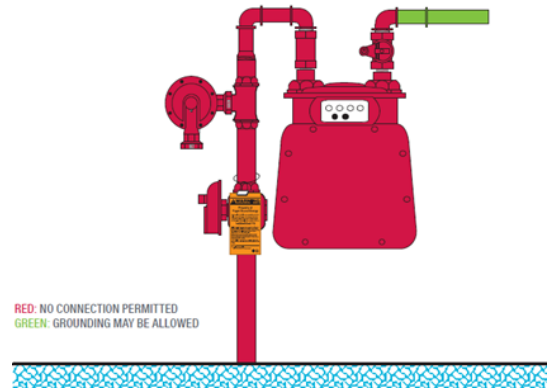


Natural Gas Meter? Double-Check Your Bonding!

If it is metal, bond it? Not always. NEC 250.53(B) prohibits the use of underground metal natural gas piping as a grounding electrode. To bond metal gas piping according to NEC 250.104 and WAC 296-46B-250, the connection must be on the customer side of the meter, never on the supply side of the meter.

Why? Hubs on natural gas meters are fitted with insulating bushings that isolate building piping from underground natural gas piping that is protected by the utility's corrosion control system (cathodic protection).

Bonding on the wrong side of the meter does not bond the interior piping and can lead to a gas leak, injury or a structure fire. Avoid return trips, always bond on the customer side of a natural gas meter!



Wear Your Certification Card With Pride

The requirement for wearing and visibly displaying your original, valid certificate while engaged in the electrical construction trade went into effect on March 2013. Visibly displaying certification allows the public, customers, and other workers to know that properly certified persons are performing electrical work. The requirement provides a deterrent for contractors who knowingly work trainees unsupervised and will help fight the underground economy and level the playing field for those who comply with the law.

Starting July 1, 2023, in addition to displaying their training certificates, apprentices learning the 01 journey level trade must have proof of registration in Washington approved apprenticeship program or equivalent out of state program on their person while performing electrical work.

Answer to the Question of the Month:

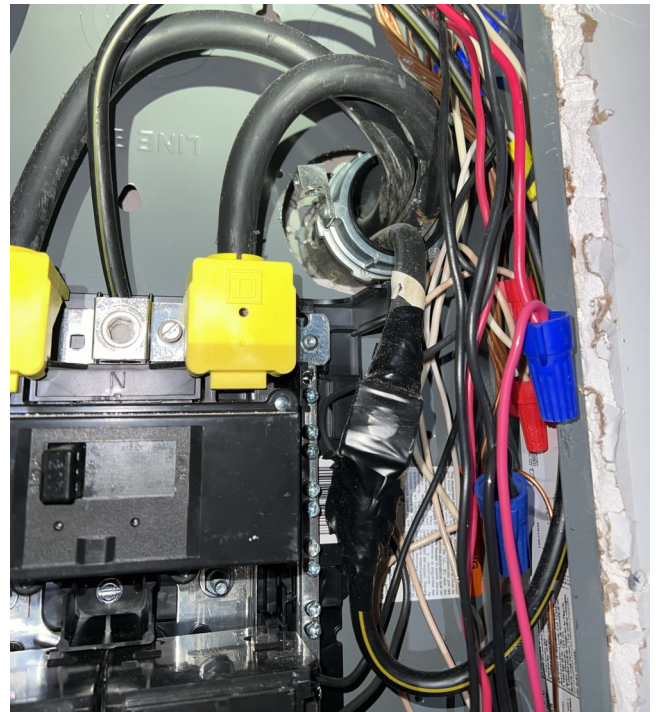
NEC® 422.10(A), and 422.11(A). The more specific requirements of Article 422 apply to an electric furnace, which meets the definition of an appliance in NEC® Article 100.

Picture of the Month:

There is a lot going on in this picture. This homeowner replaced his service panel to add some needed capacity.

There are a number of questions including complete raceways, bonding of metal conduits and sealing of raceways.

Can you find anything else. Stay tuned for part 2 of this installation.



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ELECTRICAL CURRENTS

A Newsletter from the Office of L&I Chief Electrical Inspector Wayne Molesworth December 2022

Question of the Month:

Decorative lighting and similar accessories used for holiday lighting and similar purposes shall be _____.

- A) GFCI protected B) Arc fault protected
C) Listed D) Marked

See correct answer on page 2.

Open Equipment Doors and Working Space

According to 2020 NEC 110.26 (C)(2) for large equipment, "Open equipment doors shall not impede the entry to or the egress from the working space." This means that when you have large equipment in a room or area, you have to take in account the obstacle that open equipment doors pose to access and egress.

Equipment doors that swing open must allow for a 2 foot wide, 6 1/2 foot high path so you can access the working space or escape from it if needed. When there is only a single entrance to a room, the code requires unobstructed egress. See the definition for "egress" in WAC [296-46B-100](#).

In the 2023 NEC, considerations for open equipment doors apply to all equipment requiring working space.

Public Hearing Announced for Electrical Rules (SSB 6126 Implementation)

The [Washington State Department of Labor & Industries](#) (L&I) has filed a proposed rule that would provide more opportunities to qualify for journey level electrician (EL01) examination.

L&I filed a [Proposed Rulemaking \(CR-102\)](#) on Nov. 22. A complete text of the proposed rule can be found on the [Electrical Laws, Rules & Policies](#) page under the "Rule Development" tab or the agency's "Rulemaking Activity" page.

A public hearing on the proposed rule is scheduled for **Jan. 4, 2023, at 9 a.m.** at:

[L&I headquarters, 7273 Linderson Way SW, Tumwater, WA.](#)

You can attend the hearing in person, or join by either:

- **Zoom:** [Click here to join the meeting](#) Passcode: Hearing!1
- **Phone:** 1-253-215-8782 Meeting ID: 879 5130 2240 Passcode: 434720791

You can provide testimony or written comments at the above hearing, or send written comments **by 5 p.m. on January 4, 2023**, to Alicia Curry:

- Email: Alicia.Curry@lni.wa.gov | Fax: 360-902-5292
- Mail: Department of Labor & Industries, Field Services & Public Safety Division
PO Box 44400, Olympia, WA 98504-4400

See www.lni.wa.gov/ElectricalApprenticeship to find more information on the new law.

Questions? Contact SSB6126Implementation@lni.wa.gov.

Safety Tip of the Month

A fall from a ladder could kill you or disable you permanently.

- Always use the right ladder for the job. A chair is not a ladder!
- Get help with heavy or long ladders.
- Make certain your footing is good. Check for concealed holes left by moles and gophers.
- Avoid ice, mud, and other slippery conditions.

Review the OSHA ladder bulletin at: <https://www.osha.gov/Publications/OSHA3625.pdf>

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GFCI Requirements Delayed Until the Adoption of the 2023 NEC

To provide testing laboratories and manufacturers additional time to deal with incompatibility between equipment manufactured in compliance with existing product safety standards and new NEC requirements, L&I is clarifying implementation of several 2020 NEC GFCI requirements:

We are delaying enforcement of the following until the adoption of the 2023 NEC.

- 1) GFCI requirements for outdoor outlets in 2020 NEC 210.8(F). There are still incompatibility issues with GFCI protection and certain outdoor HVAC units. The 2023 NEC provides further delay.
- 2) 2020 NEC 210.8(A)(7) GFCI protection requirements for receptacles rated 30 through 50 amperes within six feet of sinks that are supplied by single-phase branch circuits rated 150 volts to ground or less.

HVAC Equipment Nameplates—Fuse or Circuit Breaker?

There may be confusion about requirements for maximum overcurrent devices called out on HVAC equipment nameplates. UL provides explanation as follows on Page 14 in their Marking Guide - https://code-authorities.ul.com/wp-content/uploads/2014/04/EHCMG_AG.pdf:

“The markings for short-circuit and ground-fault protection always include some indication of the type of protection device as well as the maximum current rating. This is significant since the various types of devices recognized by the NEC to provide this protection do not necessarily provide the same level of protection for all units. Briefly, if the marking plate indicates:

- 1) Only “Fuse,” then only fuses are to be used;
- 2) “Circuit Breaker” and “Fuse,” then either fuses or circuit breakers
- 3) “Fuse or Circuit Breaker” or “Overcurrent Protection,” then fuses or circuit breakers (including “HACR Type”) may be used.”

Manufacturers use other variations. When a forward slash separates two words, the slash means the same thing as “or”. Often, CB is use as an abbreviation for circuit breaker.

“HACR” is an antiquated term. For many years, “HACR” has been part of the standard testing procedure for UL [489](#) breakers. This means new UL 489 breakers are HACR rated.

Click on the nameplate pictured on the right, can you determine what type of overcurrent protection is allowed?



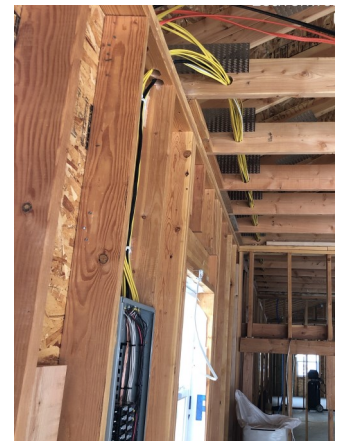
Answer to the Question of the Month

Answer: C) Listed. See NEC 410.160 for the requirement for listing. If not listed as an assembly, all products must be listed and must be assembled and installed in accordance with the manufacturer’s instructions and the NEC. See NEC 590.3(B) to learn more about temporary lighting requirements.

Picture of the Month

An inspector found that that a property owner had drilled holes in trusses for all their home runs. Eight corrections were written, including NEC 334.80 for de-rating cables routed through bored holes.

The local building official was also notified of potential structural damage caused by the holes drilled through the trusses.



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ELECTRICAL CURRENTS

A Newsletter from the Office of L&I Chief Electrical Inspector Wayne Molesworth November 2022

Question of the Month: You are installing a new feeder to supply eight non-motor generator arc welders. Each welder is rated 240 volts, single phase, 32amperes primary, and operated at 50% duty cycle. What is:

- the load in voltamperes,
- the minimum size feeder conductors using copper type THWN conductors and
- the maximum size overcurrent protective device for the feeder?

See correct answer on page 2.

SSB 6126 Implementation Up Date

Trainees, now is the time to get your hours of experience filed with the licensing section of L&I's Electrical Program.

Hours of experience on file with L&I's Electrical Program can be considered for advanced standing by registered apprenticeship programs. Use our [Verify tool](#) to view hours on file.

Specialty electrician certificate holders, apprenticeship programs are required to grant 4,000 hours for previous experience if you hold one of following certifications: residential (02), limited energy system (06), pump and irrigation (03), HVAC/refrigeration system (06A) , signs (04), and nonresidential maintenance (07).

For non-certificate holders, apprenticeship programs will evaluate your 4,000 hour specialty and industrial/commercial hours approved through L&I electrical licensing section and may award credit towards advance standing in their apprenticeship.

Good Cause Rulemaking Update - The agency's "Good Cause" rulemaking to define alternative pathways to qualify for the journey level electrician exam continues to progress. View the latest draft of the proposed rule [here](#).

For more information on 6126, visit www.lni.wa.gov/ElectricalApprenticeship.

Questions? Email SSB6126Implementation@Lni.wa.gov.

Tentative Adoption Schedule—2023 NEC Code

The 2023 edition of the NEC was published in September. You have an opportunity to be involved in the process of revising WAC 296-46B and the adoption of the 2023 NEC. Here are the basic steps.

- March 2023—file the CR-101, ask for proposals to amend existing rules and the 2023 NEC, and take applications for the Technical Advisory Committee (TAC). Stay tuned for more information coming in a special edition of the this newsletter.
- June/July 2023—TAC meeting and Electrical Board advice.
- September 2023— Public hearings.
- January 1, 2024—Tentative WAC/2023 NEC adoption date.
- Exams will continue to be based on the 2020 NEC until sometime in 2025.

Please explore the 2023 NEC and participate in the process.

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Safety Tip of the Month

The end of daylight saving time is here. Be safe be seen. Daylight is very limited this time of the year. High visibility is your best bet for safe working or outdoor activities in low light conditions. Always wear reflective clothing or accessories so that others can see you. Wearing reflective clothing reduces the possibility of injury from a motor vehicle or other mobile equipment.



Washington State Department of
Labor & Industries

Requirements for Metering Centers for Permits Purchased After January 1, 2023

For permits purchased on or after January 1, 2023, metering center service disconnects must be in separate compartments to comply with NEC 230.71(B)(4) and have line side barriers required by 2020 NEC 230.62(C).

Until January 1, 2023, for metering centers having two to six service disconnects in the same enclosure, we are delaying enforcement of NEC 230.71(B)(4). Because of this, the exception to 2017 NEC 408.3(A)(2) supersedes 2020 NEC 230.62(C) until that date.

Exceptions – Length and Wiring Methods for Service Conductors

Wiring methods for service conductors are restricted by WAC [296-46B-230](#)(7) and (8). The length of raceway for service conductors is 15 feet or less according to WAC 296-46B-230(10)(b). Restrictions help diminish hazards that unfused/over-fused service conductors present inside of buildings.

Today, equipment connected on the supply side of service disconnects is more common than ever. Most often, supply side equipment is equipped with overcurrent protection for service conductors. Emergency disconnects installed in accordance with NEC 230.85 and service rated transfer switches are examples of such equipment. When customer owned supply side connected equipment provides proper overcurrent protection for service conductors in accordance with Article 310 of the NEC:

- Wiring method restrictions in WAC 296-46B-230(7) and (8) do not apply – installers may use any suitable NEC Chapter 3 wiring method for service conductors, and
- Fifteen foot raceway length restrictions in WAC 296-46B-230(10)(b) do not apply.

RV Supply Equipment

NEC 210.8 provides requirements for Ground Fault Circuit Interrupters (GFCI) protection requirements receptacles. For recreation vehicle supply equipment installed on the same property as a dwelling unit, WAC [296-46B-210](#)(8)(B) amends GFCI requirements. According to the rule, GFCI protection is not required for receptacles intended for 125/250 volt RV power supply feeders, only for 125 volt, single phase, 15 or 20 ampere RV receptacles. Use must be abundantly evident: Adequate space to park an RV, doors large enough for an RV, etc. Installers must label the panel schedule for the receptacle's intended use

Answer to the Question of the Month:

32,444 volt-amperes, 1/0 copper THWN, 300-ampere overcurrent device.
NEC® 630.11(B) and 630.12(B).

Picture of the Month:

New 2000A generator and ATS were added to an existing service. The weight of everything proved to be too much for 3/16 inch toggle bolts.

Click on the picture for a closer look.



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ELECTRICAL CURRENTS

A Newsletter from the Office of L&I Chief Electrical Inspector Wayne Molesworth

October 2022

Note from the Chief—Faith Jeffrey has Retired

I would like to personally thank Faith for her years of service and contributions to the Electrical Program.

Hired in 1990, she has been with L&I for over thirty years. In 1996, she came to the electrical program to help implement a new law that created an audit program. She was instrumental in establishing the program and was its supervisor until retirement.



Faith made many contributions; when legislative approval created the E-CORE team in 2005, leaders chose Faith to head it up. Her vast knowledge of program history and the electrical laws was a great

resource for our staff and legal team.

Faith and her husband are fulfilling a long-held desire to be snowbirds. They will keep their home in Lacey near grandkids and have a home in Texas to be with grandkids there who are involved in sports.

We all wish her well in this new chapter of her life.

Garage Receptacle Circuit – NEC 210.11(C)(4)

For dwelling units with attached and detached garages with electric power, the NEC 210.11(C)(4) requires a 120 volt 20 ampere circuit to supply garage receptacle outlets. It can also supply readily accessible outdoor receptacles. This circuit can supply no other outlets, just cord and plug connected equipment, no hardwired lighting, etc.

Locations of receptacles on this circuit must be as required by NEC 210.52(G)(1). Each vehicle bay must have at least one receptacle located not more than 5 ½ feet above the floor. As long as you meet this requirement, you are not restricted from installing receptacle outlets above that height inside the garage.

Requirements above do not apply when garage spaces are not attached to an individual dwelling unit of a multifamily dwelling.

Question of the Month:

What is the allowable ampacity of four 12-2 with ground nonmetallic-sheathed (Type NM) cables run through a single hole in wood framing that is to be sealed with foam insulation? All cables serve single-phase loads supplied by a 120/240-volt single-phase system.

See correct answer on page 2.

Safety Tip of the Month

As an electrical professional, be alert for electrical hazards on the jobsite that may injure or kill unsuspecting coworkers.

Never leave an energized electrical panel without a cover. Make sure receptacles used for temporary power are GFCI protected, and be on the lookout for improper temporary wiring splices and damaged cords or tools.

We have the skills and knowledge to help keep people safe from electrical hazards on our job sites.

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Apprenticeship Requirement Rulemaking Update

The Washington State Department of Labor and Industries (L&I) has posted a draft proposed rule related to journey level electrician examination qualifications after July 1, 2023. The current rule requires the completion of an apprenticeship program to qualify for the journey level (01) exam as of July 1, 2023, based on a change to the electrical laws under 2018's Substitute Senate Bill (SSB) 6126. Under the draft proposed rules, L&I is exercising the discretion provided in the law to allow temporary alternative pathways to qualify for the journey level exam through a "good cause" exemption.

The draft proposed rule identifies alternative pathways that are considered sufficient experience and training to qualify a candidate to take the journey level (01) exam under the "good cause" exemption. The latest version of the draft rule is now available online at the agency's [Electrical Rule Development webpage](#).

We welcome your input on this draft proposal. Please send input to Alicia Curry at Alicia.Curry@Lni.wa.gov. All preliminary input must be received by Wednesday, October 26, 2022. All stakeholders will also have the opportunity to provide comments during the public comment period. We will provide updates on the filing, when the public comment period begins, and when the public hearing will take place.

The agency is planning to file the CR-102 Proposed Rulemaking in late 2022.

We recently updated the [Electrical Apprenticeship webpage](#). There, you will find information for trainees and their employers and a list of registered apprenticeship programs.

For questions regarding SSB 6126, email SSB6126Implementation@Lni.wa.gov.

Circuits for Onsite Sewage Disposal Systems – WAC 296-46B-501(8)

For onsite systems, pumps and alarms must be on separate branch circuits. Sometimes systems have a disconnect for the pump motor and a separate high level alarm. Each of which must be on a separate circuit.

When systems have control panels that have overcurrent devices that establish separate branch circuits for the pump motor and alarm, there is no requirement to supply the panel with more than one circuit unless required by the manufacturer's instructions. For proper OCPD coordination, the supply circuit OCPD should be larger than any OCPD in the control panel.

If a system pumps sewage off of the property to a municipal sewage system, it is not an onsite system, WAC 296-46B-501(8) does not apply.

Answer to the Question of the Month: 20 Amperes. When more than two NM cables containing two or more current-carrying conductors are installed in the same hole in wood framing that is to be sealed with insulation, NEC® 334.80 requires the ampacity of each conductor to be adjusted in accordance with Article 310.

The ampacity of conductors of NM cable is based on the 90° C ampacity column of Table 310.16. For #12 conductors rated at 90° C, the ampacity is 30 amperes. Table 310.15(C)(1) requires the ampacity to be adjusted by 70 percent for this installation based on 8 current-carrying conductors, leaving a corrected ampacity of 21 amperes. This exceeds the 60° ampacity, so the final ampacity is 20 amperes.

Picture of the Month: An inspector found this incomplete raceway system when inspecting a new circuit added to the panel. When electrical inspectors find things like this, they issue a correction notice to the property owner.



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ELECTRICAL CURRENTS

A Newsletter from the Office of L&I Chief Electrical Inspector Wayne Molesworth September 2022

Question of the Month

True or False?

The Department of Labor and Industries may change the duties of the electrical administrator or master electrician described in [RCW 19.28.061](#) by following the formal WAC development process in the Administrative Procedure Act (Chapter 34.05 RCW). *See the correct answer on Page 2.*

July 1, 2023 Apprenticeship Requirement Rulemaking Update

In last month's newsletter, we announced the start of a rulemaking for apprenticeship requirements beginning July 1, 2023. Our intent is to use the discretion given to our agency for the next two years by the Legislature in SSB 6126, to continue to help the electrical industry while implementing the bill.

Some specific areas we are considering addressing through rulemaking include:

- How to provide for full consideration of trainee hours;
- How to recognize other existing paths toward EL01 exam qualification in addition to apprenticeship completion (i.e. military service recognition; state-licensed electricians from other jurisdictions; electricians with proof of 16,000 hours of experience; and recognition of individuals with 4,000 EL01 industrial/commercial hours lawfully accrued prior to July 1, 2023);
- How to address the period between completion of an apprenticeship program and passage of the exam.

This is possible through the "good cause" exemption found in [RCW 19.28.195](#). The department is still working with stakeholders to find the best path forward using and defining "good cause".

The rulemaking affects [WAC 296-46B-945](#). L&I anticipates filing the proposed rule in late 2022.

If you have questions please email them to SSB6126Implementation@LNI.WA.GOV

Learn more about the rulemaking in the links below.

[CR-101 Preproposal](#)

[Trades & Licensing Rules Under Development](#) (listed alphabetically) to find electrical safety standards, administration, and installation.

[Current electrical rulemaking.](#)

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Safety Tip of the Month

Back-to-school season is here again! Be on the lookout for children not only in school zones, but also in residential areas, playgrounds, and parks. Children are unpredictable and often take risks, ignore hazards, and fail to look both ways before crossing the street.

Give them a brake!



When is Existing Wiring Required to Comply with Current Codes?

Remodeled and repaired structures often involve changing only a portion of the wiring. [WAC 296-46B-010\(14\)](#) gives direction for these existing installations. All previously inspected wiring left untouched and in good condition will be considered acceptable when installed in accordance with the code in force at the time of its initial installation subject to the following considerations:

- The original use and occupancy class of the building or structure remains unchanged.
- Structures damaged by fire may require closer examination to determine suitability of the existing wiring.
 - ⇒ Over-heated insulation will be brittle and will flake off when slightly bent.
 - ⇒ Close examination may reveal physical damage by heat and structural collapse .
- Modifications to knob-and-tube wiring must be in accordance with [WAC 296-46B-394](#).
- Load centers will be inspected for overheating, grounding and bonding, and proper overcurrent protection.
- The grounding electrode system must be intact, and if the service is replaced, must meet current requirements.
- There are some specific NEC® requirements for upgrading existing wiring (e.g., 210.12(B) AFCI protection, 406.4 (D) receptacle replacements).

As always, inspectors and electricians must use their training and judgment when determining whether or not wiring must be updated.

Trainee or Apprentice—What is the Difference?

There are two types of trainees. Only one is an apprentice.

An apprentice is a trainee who is registered in a Washington State approved electrical apprenticeship program. Apprenticeship programs are formal training regulated by the [Washington State Apprenticeship and Training Council](#). Typically, employers, employer associations, and labor unions sponsor apprenticeship programs.

If you are trainee who is not registered with an apprenticeship program, you are not an apprentice.

[Find a 01 apprenticeship program by county and occupation](#). Occupations for (01) electricians are: Construction Electrician, Inside Electrician, or Inside Wireman.

Both trainees and registered apprentices must [renew](#) their trainee certificate every 2 years until they pass an exam to become an electrician.

Trainees and registered apprentices can view their hours of experience by using the [Verify](#) tool.

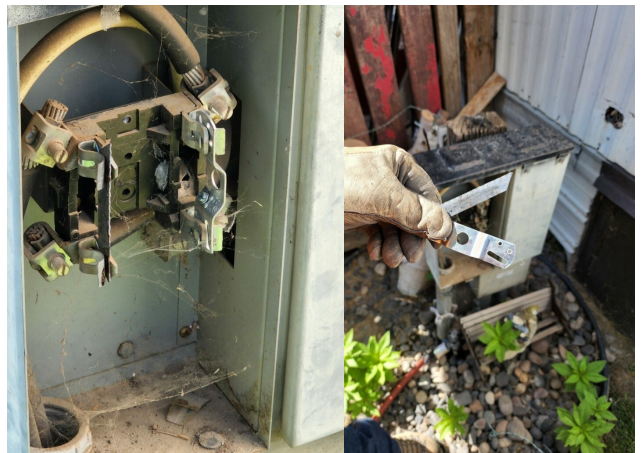
Answer to the Question of the Month:

False.

Only the legislature can change the RCW. The department has the responsibility to create rules (with stakeholder and Technical Advisory Committee input), but the rules cannot require anything that is not authorized in the statute.

Picture of the Month

An inspector went out to a home that had no power. During the inspection a couple “red flags” went up and the inspector decided to take a closer look at the meter. The seal and the meter had been tampered with and when the utility came, this is what they found.



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ELECTRICAL CURRENTS

A Newsletter from the Office of L&I Chief Electrical Inspector Wayne Molesworth

August 2022

Question of the Month

Surge Protection Devices (SPD). have code requirements when installing. The conductors used to connect the SPD to the line or bus and to ground shall not be longer than _____ and shall avoid any unnecessary bends. Is the answer:

- A) 12 inches B) 18 inches C) 24 inches D) necessary

See the correct answer on Page 2.

Proposed Rules for WAC 296-46B-945

The [Washington State Department of Labor & Industries](#) (L&I) is considering changes to the state's electrical rules. The result would provide more opportunities to qualify for journey level electrician (EL01) examination.

L&I filed a Preproposal Statement of Inquiry (CR-101) on Aug. 2.

“Good cause” exception

The changes would affect [Washington Administrative Code 296-46B-945](#).

The rule changes under consideration would allow journey level candidates to take the exam through a “good cause” exemption.

This would be done through an exception for “good cause” (allowed under RCW 19.28.195) available from July 1, 2023 (when the 2018 law takes effect) to July 1, 2025.

Why this is happening now

In 2018, [Substitute Senate Bill 6126 \(Chapter 249, Laws of 2018\)](#) implemented registered apprenticeship requirements only for journey level electrician (EL01) examination candidates. The requirements take effect July 1, 2023.

A trainee must be registered in an apprenticeship program when performing EL01 journey level electrical work. The trainee must complete the program to qualify for the exam. Employers need to become apprenticeship “training agents” to employ apprentices. The legislation also limited the ways to qualify for the EL01 exam.

This rulemaking also considers other changes to the rule for updates and housekeeping.

L&I anticipates filing the proposed rules in late 2022.

Rulemaking documents

[CR-101 Preproposal](#)

[Trades & Licensing Rules Under Development](#) (listed alphabetically) to find electrical safety standards, administration, and installation.

[Current electrical rulemaking](#).

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Safety Tip of the Month

DO NOT WORK ON ENERGIZED CIRCUITS!!!

Sorry for shouting, but as highly skilled electricians who know how to mitigate the hazards of working around dangerous electricity, we sometimes make foolish decisions.

The [National Census of Fatal Occupational Injuries in 2020](#) by the Bureau of Labor Statics reports 126 workers died nationwide from exposure to electricity.

Even seemingly minor work such as replacing light switches or changing luminaire ballasts, if done while the circuit is energized, could result in an accident and cause serious injury or even death! Take the time to deenergize every circuit you are working on.

Do not ruin your life and the lives of your loved ones by taking shortcuts and risks with electricity.



Washington State Department of
Labor & Industries

Year in Review

In the year ending on June 30, 2022, the electrical program accomplished:

261,919 inspections

77% of inspections completed within 24 hours of request

89% of inspections completed within 48 hours of request

1.8 million miles driven

27,342 [virtual inspections](#)

63,373 corrections written - 58% are serious corrections

81% of inspection requests made online

187,838 permits sold - 90% are contractor permits

99% of permits purchased online

8,428 total citations and warnings written

5,194 of the citations written targeted the underground economy.

2,310 hours of training and outreach done by [ECORE](#)

4,391 pages reviewed by plans examiners - 100% submitted online

20,138 licensees and certificates processed - 95% on line

6,793 new trainee certificates issued - 97% on line

278 reciprocal certificates issued to Oregon journeyman (J) license holders who completed Oregon apprenticeships

4.4 million hours of experience reviewed by the technical review team - 2.9 million hours approved, remaining hours were denied for cause or not considered because the applicant had all hours needed to qualify for exam.

720 hours of training delivered to new inspectors

This is just a snap shot of all the hard work that the Electrical program staff did last year.

Top Eight Corrections Written Last Year

3,598 - No access for inspection (RCW 19.28.101)

2,631 - GFCI protection in dwellings (NEC 210.8(A))

2,313 - Notifying the department work was ready for inspection when it was not ready (WAC 296-46B-906(7)(B))

1,272 - Not following the manufacture's instructions (NEC 110.3(B))

1,225 - Failing to install surge-protective devices when required (NEC 230.67)

1,041 - Covering an electrical installation before it was inspected (RCW 19.28.101)

1,030 - Corrections not completed at the next inspection ((WAC 296-46B-906(7))

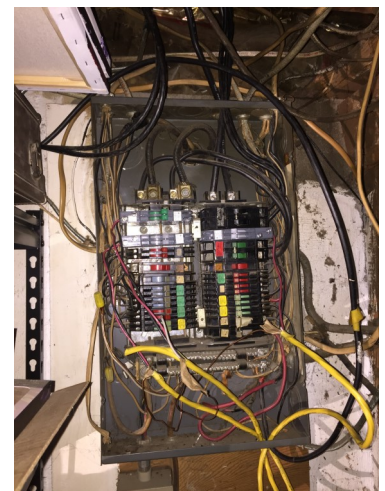
968 - Electrical wiring and equipment not accessible at time of inspection ((WAC 296-46B-010(4))

Answer to Question of the Month:

The correct answer is D). See 2020 NEC 242.24 for the full text.

Article 242 covers the requirements for all over voltage installations and is a new section for the 2020 NEC. Article 242 is a combination of the previous articles 280 and 285.

Picture of the Month: *If viewing this document online, click on the picture to open a larger image.* The electrical contractor was just going to “temp some things in” while working on a remodel. There was a family living in the home during the remodel project that took several months. Share this with a coworker and see if you can find any concerns.



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ELECTRICAL CURRENTS

A Newsletter from the Office of L&I Chief Electrical Inspector Wayne Molesworth

July 2022

Question of the Month

What is the penalty for the first-time offense of causing or failing to correct a serious violation? (A serious violation is, among other things, one that creates a hazard of fire or danger to life safety).

See the correct answer on Page 2.

What is the Big Deal About July 1, 2023?

On that date, a law passed in 2018 goes into effect. It requires:

- Trainees to be registered in apprenticeship programs when performing work limited to 01 journey level electricians.
- Employers to become apprenticeship training agents to employ apprentices.
- Trainees to complete an apprenticeship program to qualify for an 01 journey level exam.
- There are no changes for contractors performing only specialty work defined in WAC [296-46B-920\(2\)](#). Trainees doing only specialty work are not required to be registered apprentices.

A few things to consider now:

- **Apply for the 01 exam as soon as you have hours and education.** If you have not completed an apprenticeship program, make sure our electrical licensing section receives your application and supporting documentation before July 1, 2023. Before that date, applicants can qualify for examination without completing a formal apprenticeship program. Once a person applies and is approved for an exam, they are forever qualified to reapply and be approved, even if requirements to qualify change.
- **Do you have to start over in an apprenticeship program?** No. Apprenticeships programs can grant advanced standing based on experience hours approved by our electrical licensing section. Until July 1, 2023, apprenticeship programs can consider 01 industrial/commercial hours of experience and hours worked in the following specialty categories—02, 03, 04, 06, 06A, and 07 as well as approved training school and military experience. Anyone can view your hours by using our [Verify](#) tool.

Trainees considering becoming apprentices can claim credit for hours of experience by submitting one or more [Affidavit of Experience for Washington Electrical Trainees](#) (F500-149-000). See the form for information about fees and where to mail it.

- **Don't Wait.** Get all your documentation in as soon as you are able to ensure you get all your credit.
- **Good Cause.** From July 1, 2023 to June 30, 2025 there is a “good cause” provision in the law. It allows rules that may provide exceptions from apprenticeship completion requirements depending on circumstances. We are looking for ways to maximize this provision for everyone’s benefit. L&I will file a CR-101 to begin formal rulemaking to define the “good cause” provision. Stay tuned, more to come in later editions of this newsletter.

You can stay up to date with the changes by checking out the website.

<https://lni.wa.gov/licensing-permits/electrical/electrical-licensing-exams-education/electrical-apprenticeship>

Safety Tip of the Month

A fall from a ladder could kill you or disable you permanently.

- Always use the right ladder for the job. A chair is not a ladder!
- Get help with heavy or long ladders.
- Make certain your footing is solid.

Review the OSHA ladder bulletin at:

<https://www.osha.gov/Publications/OSHA3625.pdf>

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How to Avoid Employing People with Expired Certificates

Right now there are expired electricians and trainees working for unknowing electrical contractors. This can lead to trouble for everybody. It is not lawful to employ electricians and trainees while their certificates are expired or inactive. It is easy to check status by using our [Verify](#) tool. It displays certificate details, including:

- Expiration date and status
- Hours of education (both CEU and trainee basic classroom instruction)
- Lapses under Past and Related Licenses header
- Hours of experience
- Violations

As an employer, you may want to consider using a calendaring program to set a reminder 90 days prior to your employees' expiration date. If someone is looking for an approved class to fulfill their education requirements, you can refer them to the [Basic Classroom Instruction & Continuing Education](#) page on our website.

Why are My Affidavits Not Approved?

From the expiration date their training certificate, trainees who are not registered apprentices have 180 days to turn in affidavits for the previous 2 years. Affidavits received by L&I after the deadline are not approvable. There is no one with the authority to make an exception. Here are some other common reasons affidavits are denied:

- No update fee – see affidavit form for instructions
- Affidavit has errors, alterations or omissions
- The employer's permit history and payroll records do not support the amount or type of experience claimed.
- Claiming hours for periods when a training certificate has lapsed or expired.

For receipt of delivery, use certified mail. Find the mailing address and instructions on the form: [Affidavit of Experience for Washington Electrical Trainees](#) (F500-149-000). Learn more about [reporting hours of experience](#).

Want to be an Electrical Inspector?

Do you enjoy a challenge? Do you want to be home in the evenings? Have you ever thought about becoming an Electrical Inspector for L&I? It may be the right time for you because most regions of the state have openings. If you enjoy serving customers and interacting with many people everyday, this is the job for you. We offer a work/life balance that is difficult to find anywhere else. The electrical program ensures electrical safety in Washington and helps businesses by fighting underground electrical economy. Inspectors see a wide variety of interesting and complex electrical installations every day.

Find an application for an opening near you:

<https://www.governmentjobs.com/careers/washington?keywords=L%26I%20electrical> .

For questions, please contact: Jobs@Lni.wa.gov.

Answer to Question of the Month: \$1000 - [WAC 296-46B-915](#)(13) specifies the penalty amounts for this violation. Second offense is \$3000 and the third offense is \$5000. Check out [WAC 296-46B-990](#)(3) to see what is defined as a serious violation. An act of serious noncompliance may also result in suspension or revocation of an electrical contractor's license or an electrician's certificate.

Picture of the Month: *If viewing this document online, Click on the picture to open a larger image.* The owner of this service didn't understand why it could not be reenergized until the inspector explained the problem of insects and birds making homes in the equipment.



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ELECTRICAL CURRENTS

A Newsletter from the Office of L&I Chief Electrical Inspector Wayne Molesworth

June 2022

Question of the Month

How long after receiving a correction notice from L&I does a permit holder have to correct a noncompliant installation?

See the correct answer on page 2

01 Electrical Contractors – Now is the Time to Become a Training Agent.

The passage of [Substitute Senate Bill 6126](#) in 2018 has changed how new journey level electricians are certified. Requirements brought on by this legislation affect every contractor with trainees that are training to become 01 general journey level electricians. Nothing changes for specialty contractors or trainees who work for them.

To be ready for July 1, 2023:

- Contractors have to become registered apprenticeship training agents to employ trainees learning the work of 01 journey level electricians.
- Trainees doing the kind of work limited to journey level electricians must be registered apprentices in the same apprenticeship as their training agent (employer).

Trainees will not qualify for 01 examinations after July 1, 2023 without completing apprenticeship requirements.

Contractors: Find information about becoming a training agent at:

<https://lni.wa.gov/licensing-permits/apprenticeship/offer-a-registered-apprenticeship>.

Trainees: Learn about becoming an apprentice at:

<https://lni.wa.gov/licensing-permits/apprenticeship/become-an-apprentice>.

Find recognized 01 General Journey Level Apprenticeship Programs in your county:

[Area 1 Inside Electrical JATC](#) – Clark, Klickitat, Skamania, Cowlitz, and Pacific. (Program regulated by Oregon)

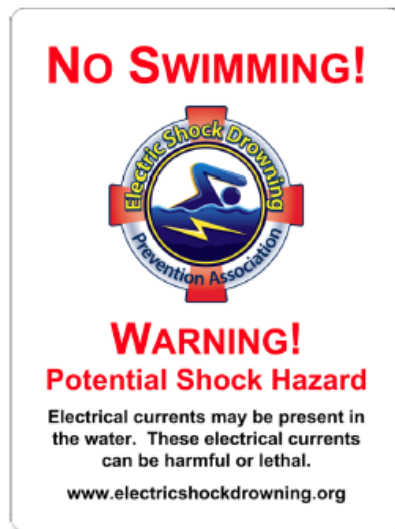
[Electrical Management Group of Washington](#) – Clark, Cowlitz, Wahkiakum, Pacific, Lewis Asotin, Benton, Columbia, Franklin, Garfield, Kittitas, and Walla Walla Counties.

[Construction Industry Training Council of Washington - Construction Electrician](#) – All counties in Washington.

[Frontier Apprenticeship & Training](#) (Frontier Electric of Washington employees only) – Clark, Cowlitz, Lewis, Skamania.

[IBEW 48 NECA-IBEW Electrical JATC](#) – Clark, Cowlitz, Klickitat, Skamania, Wahkiakum. (Program regulated by Oregon)

[Inland Empire Electrical Training Trust](#) – Adams, Ferry, Lincoln, Pend Oreille, Spokane, Stevens, Whitman.



Safety Tip of the Month

Do not allow yourself or others to swim near a dock or marina where electrical power is present. Stray leakage current in the water can paralyze or kill. If you must enter the water to work on a boat or dock, turn off and lock out all sources of electricity first.

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[LU 112 - NECA Electrical Apprenticeship Committee](#) – Asotin, Benton, Columbia, Franklin, Garfield, Walla Walla, Yakima, Kittitas.

[Northwest Washington Electrical Industry Joint Apprenticeship and Training Committee](#) – Chelan, Douglas, Grant, Island, Okanogan, San Juan, Skagit, Snohomish, Whatcom.

[Performance Electrical Apprenticeship Committee](#) ([Boone Electric Construction BOONEEC952BM employees only](#)) - Pierce, King, Thurston, Lewis, Snohomish, Spokane, Pend Oreille, Stevens, Lincoln, Whitman

[Puget Sound Electrical Joint Apprenticeship and Training Committee](#) – Jefferson, King, Kitsap, Clallam,

[Southwest Washington Electrical Joint Apprenticeship and Training Committee](#) – Pacific, Lewis, Grays Harbor, Mason, Pierce, Thurston.

[Titan Electrical Apprenticeship & Training](#) ([Titan Electrical LLC TITANEL877RD employees only](#)) - Chelan, Douglas, Grant, Kittitas, Klickitat, Yakima, Benton, Franklin, Walla Walla, Adams, Lincoln, Snohomish, King, Pierce

[Tradesmen Apprenticeship & Comprehensive Training](#) (Tradesmen Electric employees only) – Clark, Cowlitz, Lewis, Skamania.

Fees for Meter/Mast Repair and or Replacement

[WAC 296-46B-910](#)(1)(c)(ii) and (2)(b)(ii) set fees for the maintenance/repair of a meter/mast (no alteration to the service or feeder) at \$49.40 for residential and \$91.20 for commercial repairs. This subsection’s lower fees are intended to cover the inspection cost for wind, weather, vehicular, meter terminal failure, or other damage to existing meter/mast systems. Work includes the replacement or repair of the meter, mast, and/or conductors up to the first point of termination on the service or building disconnecting means. Any relocation of the mast or meter and overhead/underground conversions need to be permitted as altered services. A meter/mast repair is not the replacement of equipment housing a service or building disconnect.

Hold-Down Accessories for Plug-In Back-Fed Circuit Breakers

When back feeding a panel with a plug-in type circuit breaker or plug-in type main lug assembly, only accessories included in the panel manufacturer’s instructions are allowed to hold down a back-fed device. The panel manufacture’s hold down accessory is the only approvable method to comply with NEC 408.36(D).

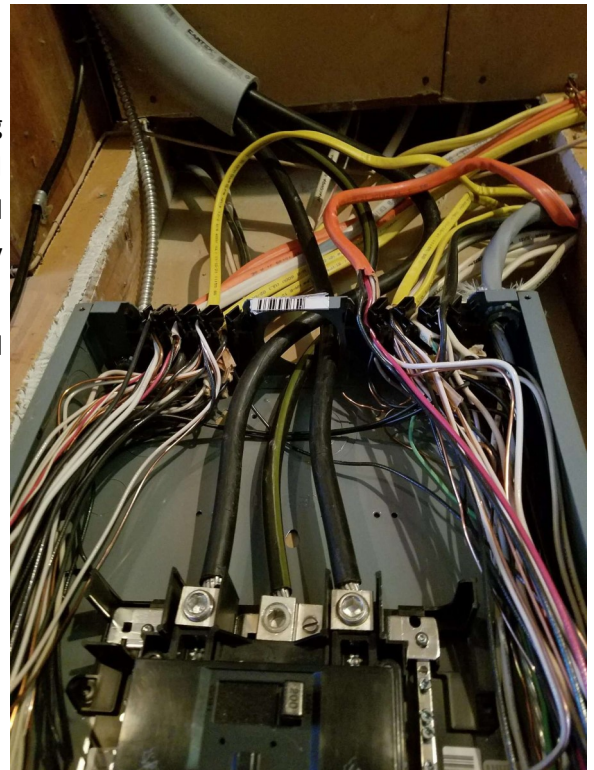
Exception: Listed *interactive* power production sources are excluded from this requirement by NEC 705.12(E)

Answer to Question of the Month:

Fifteen calendar days - [RCW 19.28.101](#), [WAC 296-46B-901 \(15\)](#). We do send you 2 letters to help remind you.

Picture of the Month: *If viewing this document online, Click on the picture to open a larger image.*

Too many corrections to list? Most egregious? Open conductors passing through a sharp metal hole? Conduit incomplete? What do you think?



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ELECTRICAL CURRENTS

A Newsletter from the Office of L&I Chief Electrical Inspector Wayne Molesworth

May 2022

Question of the Month

You are a certified journey level electrician working for a licensed electrical contractor. You are sent out on a service call to make a like-in-kind replacement of some electrical equipment. Which of these would require the contractor to purchase a permit?

- A 240 volt, 30 amp heat pump
- A single 140 amp hour battery
- A five horsepower motor
- One branch circuit breaker for dwelling garage receptacles

See the correct answer on page 2 and there is a hint in an another article this month.

Safety Tip of the Month

As warmer months are coming it is important to remember that the proper clothing and Personal Protective Equipment (PPE) are an important element in our daily work.

- It is important that you have the correct equipment for the task you are performing and use it properly.
- PPE may be sweltering hot or cumbersome however, do not let a little discomfort keep you from using your safety equipment.
- To combat the effects of the added layers of PPE, sip water though out your day and take breaks as needed to cool down.

More information about working in the heat can be found at [Be Heat Smart \(wa.gov\)](https://www.wa.gov/Be-Heat-Smart)

Apply to be an Electrical Inspector Today!

If you enjoy putting your knowledge to work and helping people by leveling the playing field, it may be the right time to join our team. Inspectors have a great benefit package and a work/life balance that is hard to find.

In the past few months, we have filled a few vacancies, but there are still many openings across the state and most areas are recruiting. If you are a Washington 01 master electrician or a Washington 01 journey level electrician who has held that certificate for at least 4 years.

Find an application for an opening near you:

<https://www.governmentjobs.com/careers/washington?keywords=L%26I%20electrical>.

For questions, please contact: Jobs@Lni.wa.gov.

Keep Your Hot Side Hot and Your Cool Side Cool

When warm air and cold surfaces mix, condensation builds up in electrical equipment. It can happen anytime there is a difference in temperature. When you know conduits are going to have big difference in temperature NEC® 300.7 requires you to seal them to reduce air movement. The picture on the right is of an ice dam that built up in a disconnect where the conduit was not sealed properly.



Find Trainee Affidavit Hours, or Renew Online

The Verify tool - <https://secure.lni.wa.gov/verify/> - allows anyone to see affidavit hours, find their certification number and see renewal lapses. Search by name and narrow the number of results by selecting Electrical > Electrical Trainees.

Verify also displays lapses under the Past and Related Licenses link in the results. If the Past and Related Licenses link is not present, there are no lapses or other licenses to display.

Renew your license or certificate online : <https://lni.wa.gov/licensing-permits/manage-licenses-certifications>

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Select Licensing & Permits, then Electrical

Licensing and Certification is Required for Class A Basic Electrical Work

[RCW 19.28.006](#) and [WAC 296-46B-901\(7\)](#) define the term “Class A basic electrical work”. This term is used to identify types of work that are exempt from permitting and inspection. Other considerations:

- Even though Class A work does not require permits and inspections, if you are not the property owner, only licensed electrical contractors and certified electricians can perform Class A basic electrical work.
- Nothing in [RCW 19.28.041](#) or [.161](#) provides an exemption from licensing and certification requirements for performing Class A basic electrical work.

If you have questions about electrical licensing and certification requirements, contact your local [field office](#).

Requirements for Electrical Equipment - Recognized vs Listed Components

According to Underwriters Laboratories (UL), Recognized Components (identified by the **RA** mark) are products that are incomplete in construction features or limited in performance capabilities. The Recognized Component Mark does not provide evidence of listing or labeling which the National Electrical Code or other installation codes or standards may require. The State of Washington does not approve Recognized Components as stand-alone products. Recognized components can only be used in a product that has been certified (listed) as an assembly (e.g., inside a listed industrial control panel).

[RCW 19.28.010\(1\)](#) requires all electrical equipment to be manufactured to an applicable electrical safety standard. [WAC 296-46B-010\(7\)](#) clarifies electrical equipment must be:

- Manufactured to applicable electrical safety standards recognized by the department (Note: A variance request must be submitted for this approval. Manufacturer documentation of standards for each component will be required before approval will be granted.); or
- Approved by listing or field evaluation by an L&I approved electrical testing laboratory. Contact information for all approved electrical testing laboratories is available on our website at: [Electrical Product Testing & Engineering Evaluation \(wa.gov\)](#)

The marks to the right are some of the more common “listing” marks used to indicate a product has been certified by a product testing laboratory. A listing mark will always be accompanied by the product name (e.g., portable lamp, industrial control panel, etc.) to help you in ensuring that the listing is appropriate to the use of the product.



Answer to Question of the Month: a. A 240 volt, 30 amp heat pump. Check out the list of Class A permit exempt work in [WAC 296-46B-901\(7\)](#). Remember the work is not exempt if it is not on the list.

Ugly Picture of the Month: *If viewing this document online, Click on the picture to open a larger image.* The underground service conductors failed and this was the “temporary” fix.

Fortunately the inspector was able to take action and get this installation on the right track before someone was hurt.



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ELECTRICAL CURRENTS

A Newsletter from the Office of L&I Chief Electrical Inspector Wayne Molesworth

April 2022

Question of the Month — What is the best method to communicate access instructions to your electrical inspector?

- A) Call the inspector the morning of the inspection.
- B) Email the inspector.
- C) Leave a voicemail message at the inspector's desk phone.
- D) Leave details in the comment field of an online inspection

Legislative Update

2018's [SSB 6126](#) established apprenticeship completion requirements for all 01 general electrician exam candidates applying after July 1, 2023. After that date, unless previously approved, no one qualifies for 01 general electrician exam unless they have completed a Washington 49.04 apprenticeship or equivalent apprenticeship in another state.

This requirement is not affected by failure of this session's housekeeping bill [SB 5599](#). The failed bill provided additional paths to exam eligibility for out of state applicants and people with military experience as well as assure that more OJT experience could count toward apprenticeship completion for current trainees.

Further Delay Announced - Requirements for Metering Centers and Power Outlets

Another delay is necessary due to unprecedented affects of the pandemic on manufacturing. The delay allows manufacturers the time they need to produce products that do not have more than one service disconnect in an enclosure.

- For metering centers having two to six service disconnects in the same enclosure, we are delaying enforcement of NEC 230.71(B)(4) until January 1, 2023. Because of this, the exception to 2017 NEC 408.3(A)(2) supersedes 2020 NEC 230.62(C) until that date.

For permits purchased after January 1, 2023, metering center service disconnects must be in separate compartments and comply with NEC 230.71(B)(4) and 2020 NEC 230.62(C).

- For power outlets certified to UL 231, an indefinite delay applies to enforcement of 2020 NEC 230.71(B)(4) requirements. Because of this, the exception to 2017 NEC 408.3(A)(2) supersedes 2020 NEC 230.62(C). Some of the common uses of power outlets are service equipment for recreational vehicles and temporary power on construction sites.

Ugly Picture of the Month: *If viewing this document online, Click on the picture to open a larger image.* An electrical inspector found this installation by a property owner.

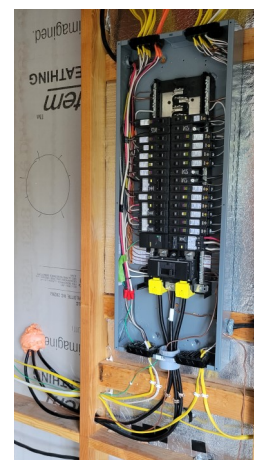
The owner told the inspector he "watched a lot of videos" to figure out what to do. There is no substitute for a well trained electrician. How many code violations do you see?

Safety Tip of the Month

The amount of electricity required to harm a person is very small. According to the OSHA publication [Controlling Electrical Hazards](#), 50 to 150 milliamperes of electricity will cause

- Extreme pain
- Respiratory arrest
- Severe muscular contractions
- Possible death

Use extreme caution, follow all safety procedures, and use required personal protective equipment while working on or near energized circuits.



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Select Licensing & Permits, then Electrical



Washington State Department of
Labor & Industries

No More Temporary Allowances for Trainee In-class Education or Late Renewal

We announced the end date for temporary allowances for trainees. In the November 2021 edition of this newsletter. On or after April 1, 2022:

- Education providers must cease virtual delivery of basic classroom instruction classes for trainees. All instruction must be in person.
- To continue to lawfully work as a trainee if expiring on or after April 1, 2022, trainees must complete 48 hours of basic classroom instruction and renew before their expiration date.
- Trainees expiring before April 1, 2022 may continue to work legally for 90 days from the date their certificate expires. Such trainees must complete 48 hours of basic classroom instruction and renew no later than 90 days after their expiration date.

WAC Rules Updated — Effective April 1

For a year we have been updating WAC 296-46B-995 *Electrical Board—Appeal Rights and Hearings*. L&I accepted a rulemaking petition requesting the rule changes. The rules governing appeals and the appeal process before the Electrical Board were confusing and out of date. We have adopted changes that clarify, simplify, and make the procedure for appeals to the board easier to understand and navigate. The adopted rules include changes to:

- Procedural requirements for the electrical board.
- Appeal and hearing requirements
- Cleaning up of the language such as punctuation, typographical and reference corrections, formatting and removal of obsolete language.

The electrical program accepted public comments and held a public hearing on January 6, 2022. We filed a CR-103 rulemaking order to adopt the rules on March 1, 2022. The new rules will take effect on April 1, 2022. You can view or download the rulemaking documents including a copy of the revised rule language by visiting the [Electrical Laws and Rules](#) web page.

When is a Building Weatherproof Enough To Install Dry Location Wiring and Equipment?

Neither the National Electrical Code® nor Part A of the electrical rules in WAC [296-46B](#) require a specific level of building completion before wiring and equipment installation may begin. The Code does recognize that a normally dry location may be subject to dampness or wetness while a building is under construction. However, this does not allow Type NM and other cables and equipment not rated for wet locations to be subjected to water damage during the construction process.

The minimum requirements for a building to be considered dry are when the wall and roof sheathing are installed and the roof is completely covered by a waterproof membrane such as roofing felt. Flat roofs must be watertight. If wind driven rain is likely, contractors would be wise to cover the rough openings or have windows in place before wiring or installing equipment. If dry location wiring or equipment gets wet by any method, the inspector may require wiring or equipment to be replaced prior to approval as described in [WAC 296-46B-110\(2\)](#) and the National Electrical Manufacturer's Association's (NEMA's) *Evaluating Water-Damaged Electrical* publication.

NEMA's *Evaluating Water-Damaged Electrical Equipment* is available for download at no charge at www.nema.org/stds/water-damaged.cfm. It provides advice on the safe handling of electrical equipment and wiring that has been exposed to water. These guidelines must be treated as manufacturer's installation instructions.

Answer to Question of the Month: D) Leave details in the comment field of your [online inspection request](#).

Inspectors start their day from the field and download inspection requests remotely. Your comments save everybody time when you provide instructions so your inspector can get in without making phone calls for access just let the inspector know how to get in—Key is under a rock by the..., garage code is..., furnace is in the crawlspace..., the dog is friendly, watch out for the cat!..., etc. Having to make phone calls reduces our time to complete inspections. Help us help you by making inspection arrangements in advance to reduce the number of inspector phone calls.

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Wayne Molesworth, Chief Electrical Inspector

Vol. 25 No. 3

March 2022

Question of the Month

When the new apprenticeship law comes into effect in July 1, 2023, what is the effect on trainees learning to be specialty electricians and specialty electrical contractors that employ them?

See the correct answer on page 2

Temporary Allowances for Trainees Ending on March 31, 2022

In the November 2021 edition of this newsletter, we announced an end date for temporary allowances for trainees. After March 31, 2022:

- Education providers must cease virtual delivery of [basic classroom instruction](#) classes for trainees. All instruction after March 31, 2022 must be in person.
- Trainees expiring before April 1, 2022 may continue to work legally for 90 days from the date their certificate expires. Such trainees must complete 48 hours of basic classroom instruction and renew no later than 90 days after their expiration date.
- Trainees expiring on or after April 1, 2022 must complete 48 hours of basic classroom instruction and renew before their expiration date.

Do you Know About July 1, 2023 Apprenticeship Requirements?

If you are a trainee learning to become a 01 journey level electrician, or somebody who employs them, you must take action to be ready for apprenticeship requirements that go into effect on July 1, 2023.

Apprenticeship requirements enacted by the legislature in 2018 do not apply to anyone training to be a specialty electrician or specialty contractors who employ them.

To ensure that everyone knows about coming requirements:

- In 2018, we sent 28,000 letters about coming requirements to every active contractor, trainee, and trainee in inactive status.
- In 2019, trainees we began sending informational letters to trainees every time they applied, renewed or requested a reprint. So far, we have sent more than 31,000 letters.
- L&I inspectors have distributed about 20,000 green 5" x 7" cards on jobsites since June of 2019. One side of the card has information for trainees, the other for contractors.
- Fourteen editions of this newsletter have provided apprenticeship information to about 11,000 subscribers. More to come in future editions.
- Every Contractor, electrician, trainee, and administrator will soon receive another round of information about apprenticeship requirements.

Apprenticeship programs have capacity to support new registered apprentices and training agents. A training agent is someone who employs registered apprentices.

Find more information in the [February 2022](#) edition of this newsletter.

Safety Tip of the Month

Planning some projects this spring that require digging?

[Washington 811](#) has resources to help you find buried utilities.

Dial 811 or check out www.callbeforeyoudig.org.

Legislative Update – SB 5599

SB [5599](#) has passed out of the Senate and is now working its way through the House. This bill does not affect anyone who is training to become a specialty electrician. It is a housekeeping bill that amends July 1, 2023 apprenticeship completion requirements enacted by SSB [6126](#) for those qualifying for 01 journey level exams and the contractors that employ them.

Amendments ensure that no trainees have to start over and complete 8000 hours while in a 01 apprenticeship. This allows apprenticeships to consider advanced placement based on hours already on record for trainees. Other amendments ensure that military and out of state applicants have a clear path to qualifying for 01 journey level exams.

If you would like to comment on this bill, the legislature provides this link:

<https://app.leg.wa.gov/pbc/bill/5599>.

You may also share your opinions by contacting your legislator through the legislative website at:

<http://www.leg.wa.gov/LIC/Pages/hotline.aspx>.

Working on Energized Service Drops

Who can disconnect and/or reconnect a secondary service drop on the utility's side of the meter? Only individuals who meet the training and experience requirements in [WAC 296-45](#), *Electric Power Generation, Transmission, and Distribution*. These workers are considered "qualified electrical employees" and able to work on or with exposed energized lines or equipment operating at 50 volts or more.

Information on electrical safety-related work practices can be found in the [General Safety and Health Standards, WAC 296-24-965](#) and [NFPA 70E](#). These resources will give guidance to employers on allowing qualified electricians to work on energized utilization systems under limited circumstances. Work practices found in [WAC 296-45-065](#) are applicable to work performed on the utility side of the metered demarcation line.

The training that qualified electrical employees includes,

- Training necessary to work on energized primary and secondary conductors.
- Qualifying employees to take clearances (i.e. how to receive authorization to work) on the transmission and distribution lines or equipment to control the energy sources.

The training that certified electricians receive may not focus on working on energized lines and equipment, except for testing and special situations.

Ugly Picture of the Month: *If viewing this document online, click on the picture to open a larger image.* The owner of this service did not understand why it could not be re-energized. The inspector was able to explain the issues. The birds nest in the bottom had eggs in it.

Answer to Question of the Month

No effect. It only affects those learning to be general journey level (01) electricians and those that employ them. Find more information about apprenticeship requirements in the [February 2022](#) edition of this newsletter.



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Question of the Month

When the NEC requires an equipment ground fault protection system for a service, when must it be tested?

See the correct answer on page 2

01 Electrical Contractors – Are You an Apprenticeship Training Agent Yet?

Since the passage of [Substitute Senate Bill 6126](#) in 2018, there have been a number of new apprenticeship programs established for (01) apprentices, bringing the number available to 13. Others are in the works.

Requirements brought on by this legislation affect every contractor with trainees that are training to become 01 general journey level electricians. Nothing changes for specialty contractors or trainees who work for them.

Before July 1, 2023:

1. Contractors must become registered apprenticeship training agents to employ trainees doing the work of 01 journey level electricians.
2. Trainees doing this kind of work must be registered apprentices in the same apprenticeship as their training agent (employer).

Trainees will not qualify for 01 examinations after July 1, 2023 without completing apprenticeship requirements.

Contractors: Find information about becoming a training agent at:

<https://lni.wa.gov/licensing-permits/apprenticeship/offer-a-registered-apprenticeship>.

Trainees: Learn about becoming an apprentice at:

<https://lni.wa.gov/licensing-permits/apprenticeship/become-an-apprentice>.

Recognized 01 General Journey Level Apprenticeship Programs and counties where they operate:

1. [Area 1 Inside Electrical JATC](#) – Clark, Klickitat, Skamania, Cowlitz, and Pacific. (Program regulated by Oregon)
2. [Electrical Management Group of Washington](#) – Clark, Cowlitz, Wahkiakum, Pacific, Lewis Asotin, Benton, Columbia, Franklin, Garfield, Kittitas, and Walla Walla Counties..
3. [Construction Industry Training Council of Washington - Construction Electrician](#) – All counties in Washington.
4. [Frontier Apprenticeship & Training](#) (Frontier Electric of Washington employees only) – Clark, Cowlitz, Lewis, Skamania.
5. [IBEW 48 NECA-IBEW Electrical JATC](#) – Clark, Cowlitz, Klickitat, Skamania, Wahkiakum. (Program regulated by Oregon)
6. [Inland Empire Electrical Training Trust](#) – Adams, Ferry, Lincoln, Pend Oreille, Spokane, Stevens, Whitman.
7. [LU 112 - NECA Electrical Apprenticeship Committee](#) – Asotin, Benton, Columbia, Franklin, Garfield, Walla Walla, Yakima, Kittitas.
8. [Northwest Washington Electrical Industry Joint Apprenticeship and Training Committee](#) – Chelan, Douglas, Grant, Island, Okanogan, San Juan, Skagit, Snohomish, Whatcom.
9. [Performance Electrical Apprenticeship Committee](#) (Boone Electric Construction BOONEEC952BM employees only) - Pierce, King, Thurston, Lewis, Snohomish, Spokane, Pend Oreille, Stevens, Lincoln, Whitman
10. [Puget Sound Electrical Joint Apprenticeship and Training Committee](#) – Jefferson, King, Kitsap, Clallam,

Safety Tip of the Month

Standing water, ice, or snow may conceal hidden hazards. Avoid slips, trips and falls by wearing proper footwear and proceeding with caution at all times.

Trust your instincts and training. If your path is unsafe, find a safe route to get there or do not go!

11. [Southwest Washington Electrical Joint Apprenticeship and Training Committee](#) – Pacific, Lewis, Grays Harbor, Mason, Pierce, Thurston.
12. [Titan Electrical Apprenticeship & Training](#) (Titan Electrical LLC TITANEL877RD employees only) - Chelan, Douglas, Grant, Kittitas, Klickitat, Yakima, Benton, Franklin, Walla Walla, Adams, Lincoln, Snohomish, King, Pierce
13. [Tradesmen Apprenticeship & Comprehensive Training](#) (Tradesmen Electric employees only) – Clark, Cowlitz, Lewis, Skamania.

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Legislative Update

The legislature is in session and lawmakers are considering several bills that affect electricians and contractors.

- HB [1831](#) – Requires an additional certification for electricians to work on electric vehicle chargers. This certification is in addition to certifications already required to do such work. If you would like to comment on this bill, the legislature provides this link: <https://app.leg.wa.gov/pbc/bill/1831>.
- SB [5599](#) – This bill does not affect anyone who is training to become a specialty electrician. It is a housekeeping bill that amends July 1, 2023 apprenticeship completion requirements enacted by SSB [6126](#) for those qualifying for 01 journey level exams and the contractors that employ them.

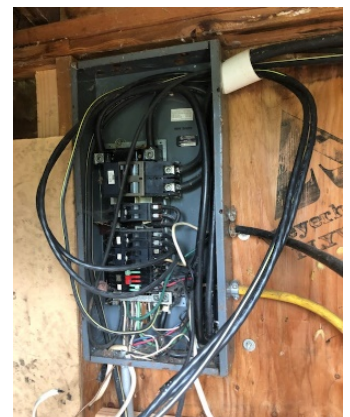
Amendments ensure that no trainees have to start over and complete 8000 hours while in a 01 apprenticeship. This allows apprenticeships to consider advanced placement based on hours already on record for trainees. Other amendments ensure that military and out of state applicants have a clear path to qualifying for 01 journey level exams. If you would like to comment on this bill, the legislature provides this link: <https://app.leg.wa.gov/pbc/bill/5599>.

You may also share your opinions by contacting your legislator through the legislative website at: <http://www.leg.wa.gov/LIC/Pages/hotline.aspx>.

Ugly Picture of the Month: *If viewing this document online, click on the picture to open a larger image. A lot is going on in this service panel and inspector found in a shed. How many safety violations do you see?*

Answer to Question of the Month

Before placing into service. The purpose is to verify proper installation and operation of the system as determined by the manufacturer's published instructions. This test or a subsequent test must include all service voltage feeders unless the installer can demonstrate, in a manner acceptable to the department, that there are no grounded conductor connections to the feeder(s). Check out WAC [296-46B-230\(11\)](#) to learn more.



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Question of the Month

See the correct answer on page 2

How long is the window for renewing an electrician certificate without requiring the electrician to retake the examination?

Rule Making Public Hearing

For almost a year, we have been updating WAC 296-46B-995 *Electrical Board – Appeal Rights and Hearings*. There will be a public hearing on January 6, 2022. This chance for public input is remote using virtual and telephonic means.

Learn how to attend or submit written comments by viewing the [Public Hearing Information Packet](#) on our [Electrical Laws, Rules and Policies web page](#).

The rules governing appeals and the appeal process before the Electrical Board are confusing and out of date. We are clarifying, simplifying, and making the procedures for appeals to the board easier to understand and navigate. If adopted, the new procedures for appeals are expected go into effect April 1, 2022.

Supply Side Emergency Disconnects

New requirements for outdoor emergency disconnects for one- and two-family dwellings in NEC 230.85 and the supply side allowances in NEC 230.82 (5) and (10) are making things interesting for everyone.

The purpose of this article is to clarify a few things in regards to supply side emergency disconnects labeled EMERGENCY DISCONNECT, NOT SERVICE EQUIPMENT.

- **Approvable:** Switches, circuit breakers, or manual or automatic transfer switches listed and labeled as “Suitable for use as service equipment” where bonding of non-current-carrying metal parts to the grounded conductor complies with Part V of NEC Article 250. Typically, 3 wires in, 3 wires out, neutral properly bonded to the disconnect enclosure.
- **Not approvable** whenever labeled EMERGENCY DISCONNECT, NOT SERVICE EQUIPMENT: Equipment labeled “Suitable for use only as service equipment” or equipment like a panel board that allows points of connection for equipment not allowed on the supply side by NEC 230.82(10).

When connecting interconnected electric power production equipment, like generators, to transfer switches used as supply side emergency disconnects labeled EMERGENCY DISCONNECT, NOT SERVICE EQUIPMENT, all non-current-carrying metal parts must be a bonded to the grounded conductor as required in Parts V of NEC Article 250. Equipment grounding must comply with Part VII of NEC Article 250. Typically, 3 wires in, 3 wires out, neutral and any equipment grounds properly bonded to the disconnect enclosure.

Safety Tip of the Month

Working outside in the cold months can be hazardous. Being aware of the signs of hypothermia can help save a life.

- Uncontrollable shivering –
- Pallid Cold skin – Slurred Speech –
- Loss of consciousness – Drowsiness –
- Nausea – Clumsiness – Confusion –

To help someone you think might have hypothermia get him or her:

- Medical attention – a warm place –
- Remove wet clothing –
- Warm them under dry blankets or clothes -

Learn more at:

<https://www.cdc.gov/disasters/winter/staysafe/hypothermia.html>

Apply to be an Electrical Inspector Today!

If you enjoy putting your knowledge to the test, helping people and battling the underground economy, then it may be the right time to join our team. Inspectors have a great benefit package and a work/life balance that is hard to find working in the field.

In the past few months, we have filled a few vacancies, but there are still many openings across the state and all areas are recruiting. If you are a Washington 01 master electrician or a Washington 01 journey level electrician who has held that certificate for at least 4 years.

Find an application for an opening near you:

<https://www.governmentjobs.com/careers/washington?keywords=L%26I%20electrical>.

For questions, please contact: Jobs@Lni.wa.gov.

Virtual Electrical Inspection Program Grows

Contractors and electricians are the ones to thank for the growth and success of the [Virtual Electrical Inspection](#) (VEI) program.

In 2019, VEI started as a pilot program with three inspectors. Today, there are 10 full time VEI inspectors, each one averaging over 15 inspections a day. They are not the only ones working hard, our field inspectors made about 270,000 inspection stops last year!

Contractors and electricians say that getting a VEI before they leave the jobsite is convenient for their customers. Corrections are usually resolved during the inspection. With no return trips, everyone saves time and money.

How VEI works:

- A journey level or specialty electrician must participate during the inspection.
- VEI is just for inspections that take 15 minutes or less, including services under 400 amps.
- We use the *SKYPE Application* for VEI. Here is a [step-by-step guide](#) to help you get set up.
- On the jobsite, make sure you have at least a 4G, LTE, or Wi-Fi connection.
- Use Google Chrome to [schedule](#) your inspection for the day and time you want.
- Questions? Contact us at 360-902-5299 or VirtualElectricalInspection@Lni.wa.gov.

Ugly Picture of the Month: *If viewing this document online, click on the picture to open a larger image.*

NM-B cable, conduit straps and duct tape! Oh my! Nothing is going right in this picture. Luckily, this was found before someone was injured. From the indoor boxes with the duct tape seals, indoor panel and SE cable across the ground it is an accident waiting to happen. How many violations can you find?

Answer to Question of the Month

180 days – An electrician's certificate can be renewed ninety days prior the day of expiration and ninety days after the expiration date. Renewing after the expiration date will cause the renewal fee to double. Waiting more than ninety days after the expiration date requires reexamination. Save the time and money, renew online [here](#).



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Question of the Month

Electrical equipment and wiring that has been submerged or exposed to water must comply with the following: All breakers, fuses, controllers, receptacles, lighting switches/dimmers, electric heaters, and any sealed device/equipment (e.g. relays, contactors, etc.) must be _____. A) cleaned, B) replaced, C) repaired, D) dried out –

See the correct answer on page 2

Flood Damaged Equipment and Wiring

Recently, areas of Washington have experienced damage from flooding. The combination of floodwater and electricity can be very dangerous.

Have a qualified person disconnect power before you allow anyone to get near a submerged or recently submerged electrical system.

Rules - [WAC 296-46B-110\(2\)](#) require that all breakers, fuses, controllers, receptacles, lighting switches/dimmers, electric heaters, and any sealed device/equipment (e.g., relays, contactors, etc.) submerged or exposed to water must be replaced.

All other electrical equipment (e.g., wiring, breaker panelboards, disconnect switches, switchgear, motor control centers, boiler controls, HVAC/R equipment, electric motors, transformers, appliances, water heaters, and similar appliances) must be replaced or may be reconditioned by the original manufacturer, or by their approved representative.

Learn more on our webpage [After Floods & Other Natural Disasters](#).

Tools for Maintaining Your Certification

Electricians, trainees, and administrators have many tools available to keep their certifications in active status. Renew before you expire – online services make it easy!

1. Find classes to complete your [education requirements](#).
2. Make sure we can contact you – [Change your Address – Get a Replacement – Renew online](#)
3. Use the [Verify](#) tool to view your education credit, hours of experience for trainees, and lapses in trainee certification. Find trainee lapses under past and related licenses. If there none shown, there are no lapses.

Affidavit Deadline for Trainees who are not Registered Apprentices

From the expiration date their training certificate; trainees have 180 days to turn in affidavits for the previous 2 years. Affidavits received by L&I after the deadline are not approvable. For receipt of delivery, use certified mail. Find the mailing address and other instructions on the form: [Affidavit of Experience for Washington Electrical Trainees](#) (F500-149-000).

Employers must supply a completed affidavit to any trainee within 20 days of trainee's request. Any employer who refuses to supply an affidavit could receive citations. Learn about [reporting hours of experience](#) and check out [WAC 296-46B-942\(8\)\(d\)](#) for more information.

Safety Tip of the Month

This time of year, it is common to decorate homes and businesses with hanging holiday lights on trees, gutters, windows, etc.

Before you plug in your lights or extension cords take the time to inspect them to make sure they are in good shape.

When you plug them in, make sure you have good solid connections. If installed outdoors be sure to use GFCI protected outlets.

Have a safe holiday season!

NEC 334.12(B) Physical Protection of Type NM Cable in Damp or Wet Conditions

The interior of conduits installed outdoors is not a damp or wet location when used for physical protection of Type NM cables under the following conditions:

1. Cables emerge unbroken from a building interior, attic, or crawlspace and remain unbroken until terminated; and
2. Flexible metal conduits are not used; and
3. No conduit systems are longer than 10 feet or below grade; and
4. Sealants prevent air movement and conduits naturally drain.

Learn more about damp and wet locations – review definitions for “location” in NEC Article 100.

Rule Making Update

For almost a year, we have been updating WAC 296-46B-995 *Electrical Board – Appeal Rights and Hearings*. The rules governing appeals and the appeal process before the Electrical Board are confusing and out of date. L&I accepted a petition for rulemaking from the state’s Electrical Board to amend the rules for the purposes of clarifying, simplifying, and making the procedures for appeals to the board easier to understand and navigate.

We filed the CR-102 Proposed rulemaking on November 16, 2021, announcing a public comment period. A virtual/telephonic public hearing will be January 6, 2022.

Learn how to attend or submit written comments by viewing the [Public Hearing Information Packet](#) on our [Electrical Laws, Rules and Policies web page](#).

If adopted, the new procedures for appeals are expected go into effect April 1, 2022

Now Hiring Statewide – Become an Electrical Inspector Today!

Tired of not knowing where your next job will be? Fed up with not having a balance between work and life? Ready for a challenge?

We have vacancies state wide, come join our team: [Become an L&I Electrical Inspector](#).

Being an electrical inspector is a great job for people who like people. If this describes you, and you are a Washington 01 master electrician or Washington 01 journey level electrician who has held that certificate for at least 4 years, please consider a job as an electrical inspector. Find an application for an opening near you:

<https://www.governmentjobs.com/careers/washington?keywords=L%26I%20electrical>

For questions, please contact: Jobs@Lni.wa.gov.

Ugly Picture of the Month: *If viewing this document online, click on the picture to open a larger image.*

There is a lot going on in this picture starting with no grounded conductor, line and load reversed at service equipment, no grounding electrode system, what else?

I am glad inspections are required to keep people safe from unsafe installations made by untrained installers.

Answer to Question of the Month

The answer is B – replaced. Check out WAC [296-46B-110\(2\)\(a\)](#), or find the answer in the article above.



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(TDD/TTY users, please call 360-902-5797.) Labor & Industries is an Equal Opportunity employer.

Question of the Month

Is Arc-Fault Circuit-Interrupter (AFCI) protection required for existing dwelling unit branch circuits when replacing circuit breakers or changing a panel? *See correct answer on Page 2*

Improved Online Services

Learn about services and information now available online:

- CHANGE, RENEW OR REPLACE – Update your address and contact info, renew, or order a reprint of your card online: (<https://lni.wa.gov/licensing-permits/manage-licenses-certifications>).
- Anyone can view education credit, affidavit hours, and lapses in trainee certification using our verify tool (<https://secure.lni.wa.gov/verify/>).

AFCI Safety

According to the National Electrical Manufacturers Association's (NEMA) website [AFCI Safety](#): "Arc Fault Circuit Interrupters (AFCIs) were created as a direct response to a U.S. Consumer Product Safety Commission report conducted by Underwriters Laboratories (UL) that identified an electrical problem in branch circuit wiring systems that was causing numerous residential fires.

In 1999, AFCIs became a requirement in the National Electrical Code (NEC®). An AFCI breaker provides a higher level of protection than a standard circuit breaker by detecting and stopping a hazardous arcing condition before it can become an electrical fire."

Learn about safe and effective ways to install and troubleshoot issues with AFCIs: www.afcisafety.org/ul-training-course/.

Get help from AFCI manufacturers for unwanted tripping issues: www.afcisafety.org/home-owners/unwanted-tripping/.

Temporary Allowances for Trainees Ending on March 31, 2022

After receiving advice from the Electrical Board during last week's meeting, we are announcing March 31, 2022 as the end date for temporary allowances for trainees. After March 31, 2022:

- Education providers must cease virtual delivery of [basic classroom instruction](#) classes for trainees. All instruction after March 31, 2022 must be in person.
- Trainees expiring before April 1, 2022 may continue to work legally for 90 days from the date their certificate expires. Such trainees must complete 48 hours of basic classroom instruction and renew no later than 90 days after their expiration date.
- Trainees expiring on or after April 1, 2022 must complete 48 hours of basic classroom instruction and renew before their expiration date.

Safety Tip of the Month

With the end of Daylights saving time, daylight is very limited this time of the year. High visibility is your best bet for safe working or outdoor activities in low light conditions. Always wear reflective clothing or accessories so that others can see you. Wearing reflective clothing reduces the possibility of injury from a motor vehicle or other mobile equipment.

Be safe be seen.

Response Times and Inspector Vacancies

Every inspection request is important. Until staffing levels improve, installations that pose life-safety risks, hold up other trades or industry, or delay property transactions are a priority.

Response times for other installations may be delayed. We appreciate your patience and cooperation while we work to resolve this issue. Learn more about how to communicate with our staff in the [October 2021](#) edition of this newsletter.

Now Hiring in Your Back Yard – Become an Electrical Inspector Today!

Tired of not knowing where your next job will be? Or fighting traffic getting there? Ready for a change?

We have about 35 vacancies, come join our team: [Become an L&I Electrical Inspector](#).

Being an electrical inspector is a great job for people who like people. If this describes you, and you are a Washington 01 master electrician or Washington 01 journey level electrician who has held that certificate for at least 4 years, please consider a job as an electrical inspector.

Find an opening near you and an application:

<https://www.governmentjobs.com/careers/washington?keywords=L%26I%20electrical>

For further information, please contact: Jobs@Lni.wa.gov.

Rulemaking update

For almost a year, we have been updating WAC 296-46B-995 Electrical Board – Appeal Rights and Hearings. The rules governing appeals and the appeal process before the Electrical Board are confusing and out of date. L&I accepted a petition for rulemaking from the state’s Electrical Board to amend the rules for the purposes of clarifying, simplifying, and making the procedures for appeals to the board easier to understand and navigate.

We are ready to file the rule change with the state Registrar’s office in early December with public input and comment opportunities coming after the holidays in early January. The goal is to have these rules in place in April 2022.

Stay up to date with these rules by checking the rulemaking page on our website. <https://lni.wa.gov/licensing-permits/electrical/laws-rules-policies>

Ugly Picture of the Month: *If viewing this document online, click on the picture to open a larger image.*

Is there a code violation in this picture? The NEC establishes minimum standards for electrical installations and electricians are welcome to overbuild their services.

Answer to Question of the Month Not always. An exception to 2020 NEC 210.12(D) states AFCI protection shall not be required where the extension of the existing conductors is not more than 6 ft. and does not include any additional outlets or devices. This would allow circuit breakers or a panel to be replaced without providing AFCI protection if the conditions in the exception are met. If a circuit is extended more than 6 ft., 2020 NEC 210.12(D) requires AFCI protection where branch-circuit wiring is modified, replaced, or extended in any of the areas specified in 210.12(A), (B), or (C).



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Question of the Month

What is the proper way for trainees to submit their affidavits of experience? *See correct answer on Page 2*

Rod Mutch is Retiring!



Rod on the summit of Mount Adams

Rod's contributions since joining L&I in 2001 are invaluable; he is a great leader and friend to many. He inspired new ideas and drove innovation while serving as an inspector, lead inspector, technical specialist and chief inspector.

We will miss Rod and know that everybody that worked with him over the years will greatly feel this loss. At the same time, we are happy to know that he will be enjoying a well-earned retirement with family and friends.

Please join us in congratulating Rod on a job well done and wishing him well in his new adventures!

Inspector Vacancies Are Up – Response Times May Follow

For a variety of reasons, vacancies are increasing in the L&I electrical inspector ranks – about 20 openings currently. Maybe more as opportunities improve for 01 journey level electricians, a group that includes all electrical inspectors in the state.

Every inspection request is important. Until staffing levels improve, installations that pose life-safety risks, hold up other trades or industry, or delay property transactions are a priority. Response times for other installations may suffer. We appreciate your patience and cooperation while we work to resolve this issue.

We are actively recruiting inspector candidates. Find out more:

<https://www.governmentjobs.com/careers/washington?keywords=electrical>.

Question about an inspection request? Email the L&I office nearest your project. Include your permit number and what you want us to know. Please do not email inspection requests.

Bellingham@lni.wa.gov

Bellevue@lni.wa.gov

Aberdeen@lni.wa.gov

Everett@lni.wa.gov

Kelso@lni.wa.gov

Kennewick@lni.wa.gov

MtVernon@lni.wa.gov

Pullman@lni.wa.gov

Sequim@lni.wa.gov

Silverdale@lni.wa.gov

Spokane@lni.wa.gov

Tacoma@lni.wa.gov

Tumwater@lni.wa.gov

Tukwila@lni.wa.gov

Vancouver@lni.wa.gov

UnionGap@lni.wa.gov

MosesLake@lni.wa.gov

EastWenatchee@lni.wa.gov

Safety Tip of the Month

The severity and effects of an electrical shock depend on a number of factors,

- The pathway through the body
- The amount of current
- The length of time of the exposure
- Whether the skin is wet or dry.

The effect of the shock may range from a slight tingle to severe burns to cardiac arrest.

GFCIs help by detecting when electricity is not following the normal path through the circuit, but they are not the first method to protect you.

Always use lockout/tagout and verify the circuit is off before you work on it.

Trainees – Get Credit for Hours Worked Under Temporary Allowances

Trainees working under temporary allowances allowing more time to complete required education may claim hours of experience for that time as follows:

- Trainees expiring on or after October 29, 2020 may continue to work after their certificate expires for 90 days and may claim experience hours for that time. This allowance is temporary – end date not known.
- Until January 26, 2021, after paying their renewal fee without completing educational requirements, trainees could continue to work and get credit for their hours if their expiration dates were between March 13, 2020 and October 28, 2020.

Tools for Trainees:

- Use our [Verify](#) tool and search by name to locate your certificate number if you do not have it handy. You can also check to see if you completed 48 hours of education needed to renew. Contact your education provider if credit is missing.
- After you meet education requirements, [renew online](#). Despite appearances, you do not have to register as a contractor. Just put in your info and proceed, make selections accordingly. If the address shown there is not correct, update it. Your card will arrive in about 30 days. Some are taking a few days longer.
- Trainees - Do not forget to [submit your affidavits on time](#).
- Learn more at: <https://lni.wa.gov/licensing-permits/electrical/electrical-licensing-exams-education/electrical-trainee>.

Find more information about temporary allowances for trainees in the [September 2021](#) edition of this newsletter:

You Submitted a Form, Why is it Taking so Long?

If you sent in an affidavit, a change of assignment, or another paper form, you are probably wondering what is going on. You are not alone; the current backlog of 7 weeks or more is not acceptable.

How did we get here? The shift to telework forced electrical staff to image paper documents so their coworkers could process them remotely. Fewer staff processing and vacancies due to a hiring freeze set us on a tough road.

Wait times will soon improve. We are developing processes to hand off documents to our imaging department to allow staff to focus on processing. We can now recruit for vacancies– having a full staff will help everyone get faster service.

Learn about easy things to do for quicker service:

- Avoid the wait that comes with paper, only [Renew, Change or Reprint](#) online!
- Only use forms dated 7-1-2021 or after. Even the sharpest eyes play tricks, have someone else look things over and make sure everything is complete. If a fee is required, include it. Questions? Contact your [local office](#) by phone for assistance.
- Do not email forms. Risks are too high – they could get lost – confidential information may be exposed.

Ugly Picture of the Month: *If viewing this document online, click on the picture to open a larger image.*

An electrical inspector found this panel when a property owner complained about a neighbor stealing power. How many code violations can you find?

Answer to Question of the Month Follow the instructions on the form and use this version: [Affidavit of Experience for Washington Electrical Trainees](#) (F500-149-000).

Learn more: <https://lni.wa.gov/licensing-permits/electrical/electrical-licensing-exams-education/electrical-trainee#reporting-your-hours-of-experience>



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Question of the Month

You are installing EMT with listed rain tight compression couplings and XHHW-2 conductors on the roof of an office building to supply power to an HVAC heat pump. Is an equipment grounding conductor required to be provided within the raceway?

See correct answer on Page 2

Temporary Allowance for Virtual Basic Trainee Classes Continue

In June 2020 we announced temporary allowances so approved classroom training providers could provide their classes through internet-based instruction platforms.

Here is a recap of the guidelines that are still in effect.

1. Trainees and instructors must continuously interact in real time by live audio and video during the entire period of instruction and by live video during competency examinations.
2. Providers must:
 - a) Allow department oversight by sending an invitation to ElectricalProgram@lni.wa.gov for every internet trainee class. Invitations must include: a hyperlink to join the class, any passwords, L&I issued course approval number, class agenda (name of class and instructor, date of class, starting time, ending time, breaks, etc.)
 - b) Limit class size to fifteen students or less
 - c) Verify student identity using government issued photo identification.

We do not know when this temporary allowance will end. It likely will end after normal classroom education can safely resume. We will obtain advice from the Electrical Board and industry stakeholders before we announce an end date. We will provide plenty of advanced notice of that date in this newsletter..

Temporary Allowance Continues for Trainees to Work While Completing Classroom Training

The COVID-19 pandemic continues to challenge the ability of trainees to complete the required classroom education to renew their certificates. Temporary measures remain in place to increase availability of education during this time.

The temporary allowance allows trainees to work while in expired status for 90 days after their expiration date while completing their required classroom training.

If required training is not completed within the additional time allowed, trainees cannot lawfully work in the electrical trade and their hours of experience cannot be counted. The trainee will need a properly renewed (active) training certificate. This temporary allowance does not remove the fees for a late renewal or add time to the deadline for turning in affidavits of experience.

Trainees - Do not wait until the last minute to complete educational requirements! You can find class providers on the list of [approved basic trainee classes](#) at the [Basic Classroom Instruction & Continuing Education](#) page of our website.

Safety Tip of the Month

Fire season is here!

Be aware of your surroundings

Avoid parking in tall grass; your exhaust may start a fire.

Be sure safety chains on trailer hitches are short and do not drag on the ground causing sparks.

Be prepared; carry a fire extinguisher, shovel, and a bucket in case you have to help put out a fire.

Fees for After-Hours Inspections

Occasionally, a customer requires an inspection outside the normal business hours of 7:30 a.m. to 4:00 p.m., Monday through Friday. Such inspections must be pre-arranged with the [electrical inspection supervisor near you](#) or [Virtual Electrical Inspection](#) supervisor if you are using that service. For inspections outside of normal business hours, fees apply in addition to regular permit fees. If an after-hours inspection is pre-arranged 24 or more hours (before noon of the previous working day) in advance, the fee for the inspection will be the portal-to-portal hourly rate specified in [WAC 296-46B-906\(11\)](#) in addition to the regular permit fee.

For Inspections where the department has not been given at least 24 hours' notice, the fee will be the portal-to-portal fee plus the after-hours surcharge of WAC 296-46B-906(5)(f) (currently \$125.40), plus the regular permit fee. These fees are not available online and must be paid at a service location or as a fee due issued by an inspector.

The exception to this rule is for temporary stage or concert inspections only, which will be the greater of the permit fee from WAC 296-46B-906(3), or the portal-to-portal hourly fee; in addition to the short-notice surcharge if applicable.

When Must a Trainee Submit Experience Hours to the Department?

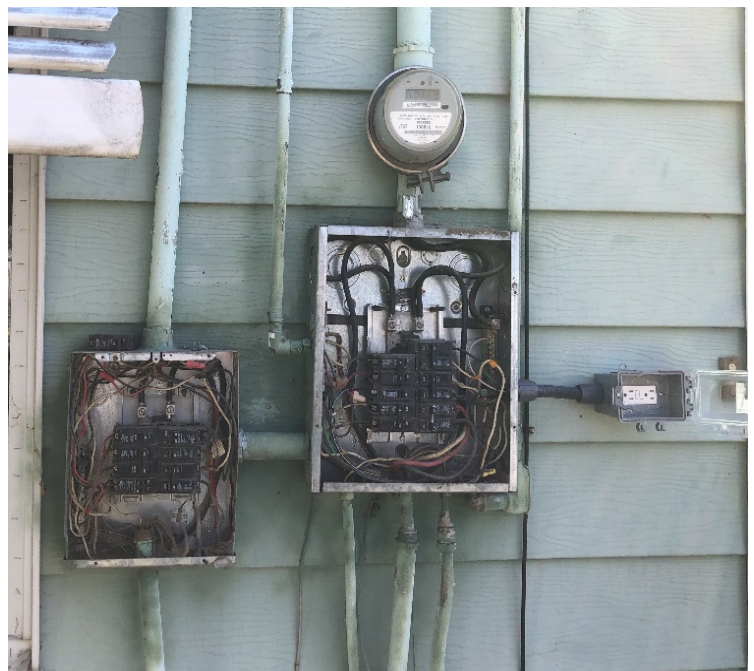
If not registered in a department-approved apprenticeship, affidavits of experience are eligible for consideration if received by the department no more than 180 days from the expiration date of the associated training certificate. The expiration date closest to the period claimed on the affidavit is the date used to determine eligibility.

Time is not your friend when it comes to justifying hours and types of experience – employers go out of business, supervising electricians, and administrators move on. Too often, trainees end up with no one to vouch for their experience or records to support it. The law addresses this problem. RCW [19.28.161\(2\)](#) requires training certificates to be renewed every two years. At the time of renewal, the holder of a training certificate is required by law to provide the department with an accurate list of the holder's employers for the previous two-year period and the number of hours worked for each employer.

Find out more about all this and our easy to use one page affidavit here:

<https://lni.wa.gov/licensing-permits/electrical/electrical-licensing-exams-education/electrical-trainee#reporting-your-hours-of-experience>

Ugly Picture of the Month: *If viewing this document online, click on the picture to open a larger image.* After a fire in the living room, started by the fireplace, a restoration company asked an electrical contractor to check out this service. With no main breaker and a NEMA 1 enclosure outdoors it is a wonder that there were not problems before. Luckily the electrical contractor did not have the service energized, but rather replaced it and repaired the damaged circuits.



Answer to Question of the Month:

WAC 296-46B-358(2) says, "Where electrical metallic tubing is installed in wet locations, an equipment grounding conductor must be provided within the raceway sized per NEC 250.122.

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Question of the Month

An electrician installs an emergency disconnect on the outside of a single family home. There is no grounding electrode conductor connected to the emergency disconnect. What signage is required?

See correct answer on Page 2

Last Year in Review

In the year ending on June 30, 2021, the electrical program accomplished:

- 272,731 inspections
- 78% of inspections completed within 24 hours of request
- 90% of inspections completed within 48 hours of request
- 1.9 million miles driven

- 11,462 virtual inspections
- 74,293 corrections written - 56% are serious corrections
- 83% of inspection requests made online
- 179,710 permits sold – 90% are contractor permits
- 87% of permit fees were collected online
- 10,266 total citations and warnings written
- 6,101 of the citations written targeted the underground economy.
- 2,342 hours of training and outreach done by E CORE
- 5,073 pages reviewed by plans examiners– 80% submitted online
- 19,019 licensees and certificates processed – 94% on line
- 6,612 new trainee certificates issued – 98% on line
- 445 01 general journey level reciprocal certificates issued to Oregon license holders.
- 6.9 million hours of experience reviewed by the audit team – 2.4 million hours denied - Some of the reasons are due to lack of verification, lapse certification or untimely affidavits
- 1540 hours of training delivered to new inspectors

This is just a snap shot of all the hard work that the Electrical program staff did last year.

The Top Five Corrections Written Last Year

1. 4,146 – No access for inspection (RCW 19.28.101)
2. 3,499 – Notifying the department work was ready for inspection with it was not ready (WAC 296-46B-906(7)(B))
3. 3,205 – GFCI protections in dwellings (NEC 210.8(A))
4. 2,000 – Not following the manufactures instructions (NEC 110.3(B))
5. 1,611 – Failing to properly fill out the panel schedule (NEC 408.4 (A))

Safety Tip of the Month

The work of an electrician is challenging and rewarding. Knowledge of safe work practices and electrical laws, codes, and rules are essential to maintaining worker safety and ensuring installations meet the minimum requirements for safety to life and property.

Those learning the trade do not have the experience and knowledge required to make safe installation choices and require supervision throughout their training period.

[RCW 19.28.161\(3\)](#) and [WAC 296-46B-100](#) describes proper supervision. Proper supervision consists of the trainee being on the same job site and under the control of an appropriately certified supervising electrician.

Lack of proper supervision not only creates potentially hazardous conditions, it is illegal and could result in civil penalties being assessed to the contractor, administrator, and trainee.

Keep Your RCW/WAC up to date

Laws and rules that govern the electrical trade in Washington change often. We make it easy to keep track of the changes by providing insert and replacement pages on our website in the [Electrical Laws and Rules](#) section. Download the new page, print it and add it to your copy.

Get Your Inspection Faster With Good Work Descriptions and Driving Directions

Trying to find a jobsite and find what you need to inspect with little or no information to go on can make for slow going. Inspectors rely on driving directions and permit and inspection descriptions to get the job done. It slows everything down when they do not have good information.

Job descriptions – A few details are all it takes. The following are actual job descriptions from permits:

Good	Bad
<ul style="list-style-type: none"> • Circuit to new heat pump in back yard • Add an outlet at vanity in master bathroom • 100 amp underground feeder from panel in garage to wiring in new barn 	<ul style="list-style-type: none"> • Extend circuit • Lights • Run a circuit • Homeowner request

Can you tell the difference? The first three are clear and make it easier for the inspector to find the work you need inspected. The last four are virtually useless. Do not be shy! Permit job description fields take up to 255 characters.

Driving directions – It is equally important to provide good directions to your jobsite. Inspectors bounce all over, sometimes from the other side of the state. Please do not cut and paste directions from mapping websites. Always provide directions from the nearest main street, highway, or intersection. Better directions means inspectors can get more inspections done.

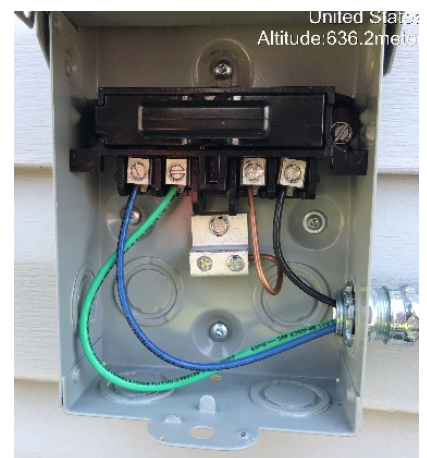
Here are examples of bad and good directions:

Good	Bad
<ul style="list-style-type: none"> • North on Hwy 821 from Selah, 1.2 miles past Pomona, right on Selah Creek Dr. • I-82 East to Exit 75, right on McCreddie, right on Wine Country Rd. 	<ul style="list-style-type: none"> • Just past the green shop on Brown Rd. • Hwy 20 • Use Google Maps

We have all struggled to find our way at one time or another. It is easy to tell the difference between good and bad driving directions. Together we can improve and everyone will benefit.

Ugly Picture of the Month: *If viewing this document online, click on the picture to open a larger image.* An electrical contractor installed this disconnect for a future heat pump. How many code violations do you see? Is the equipment connected to the Equipment Grounding Conductor? If we closed the breaker in the panel, what could happen?

Answer to Question of the Month: According to NEC 230.85 "... other disconnect switches or circuit breakers on the supply side of each service disconnect that are suitable for use as service equipment..." shall "...be marked as follows: EMERGENCY DISCONNECT, NOT SERVICE EQUIPMENT." This label will still need to follow the rules of markings found in NEC 110.21(B) and identification plates in WAC 296-46B-100.



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Question of the Month

In addition to the requirements for GFCI protection in 210.8(B), are there any other requirements for GFCI protection at your county fair?
See correct answer on Page 2

Further Delay for 2020 NEC 230.71(B)(4) Requirements - Metering Centers and Power Outlets

For metering centers having two to six service disconnects in the same enclosure, we are officially delaying enforcement of NEC 230.71(B)(4) until July 1, 2022. Because of this, the exception to 2017 NEC 408.3(A)(2) supersedes 2020 NEC 230.62(C) until that date.

This delay extends one announced in this newsletter in November 2020, allowing metering center manufacturers additional time to make products that do not have more than one service disconnect in an enclosure.

When permits are purchased after June 30, 2022, metering center service disconnects must be in separate compartments and comply with NEC 230.71(B)(4) and 2020 NEC 230.62(C).

For power outlets certified to UL 231, an indefinite delay applies to enforcement of 2020 NEC 230.71(B)(4) requirements. Because of this, the exception to 2017 NEC 408.3(A)(2) supersedes 2020 NEC 230.62(C). Some of the common uses of power outlets are service equipment for recreational vehicles and temporary power on construction sites.

Trainee Hours and Renewal Lapses are now Online

Our Verify tool - <https://secure.lni.wa.gov/verify/> - now allows anyone to see affidavit hours and renewal lapses. Search by training certificate number if you can. If you prefer to search by name, narrow the number of results by selecting Electrical > Electrical Trainees after results appear.

Looking for lapses? Verify displays them under the Past and Related Licenses link in the results. If the Past and Related Licenses link is not present, there are no lapses or other licenses to display. Changes to make things more apparent are on the way

July 1st Changes – Fees and Examinations

July is here and there are some reminders about updates to the electrical program.

- New fees are now in effect. Fees for online services update automatically. Here is a link to the new fee schedule: <https://lni.wa.gov/licensing-permits/docs/2021WAC296-46B-Fee-insert-pages.pdf>.
- All exams are now from the 2020 NEC. Current RCW 19.28 and WAC 296-46B are available to print from the [Electrical Laws and Rules](#) page of our website. Contact an [office location](#) near you to learn more about how to obtain paper copies of the laws and rules.

Electrical Safety Around Water

With summer in full swing, it is a good time to remind everyone about electric shock drowning hazards.

Danger exists anywhere the use of electricity and water coexist – marinas, launch ramps, private docks, boatlifts, swimming pools, hot tubs, spas, and irrigation pumps in contact with a body of water. Can you name others?

These areas can contain stray electrical currents in the water, possibly leading to electric shock drowning or injury from shock, including death.

Learn how to protect yourself and others:
<https://www.nfpa.org/Public-Education/Staying-safe/Electrical-safety-around-water>

Property Flipper Legislation will Protect Home Buyers

A law designed to protect home buyers from shoddy electrical wiring becomes effective July 25, 2021. [Substitute Senate Bill \(SSB\) 5267](#) requires those doing electrical work associated with flipping property to be certified electricians working for licensed electrical contractors. During consideration of this bill, electrical inspectors provided many examples of unsafe electrical wiring performed by property flippers that included stories of new owners having to hire electrical contractors to make repairs, sometimes at significant cost.

Generally, property owners are exempt from electrical licensing and certification laws in accordance with [RCW 19.28.261](#). SSB 5267 modifies that exemption for properties offered for sale within twelve months after obtaining it. This change aligns electrical laws with existing laws that require property flippers to be registered construction contractors or hire one to superintend any construction work.

NFPA is Seeking Comments on the 2023 NEC

The 2023 NEC is well on its way to publication.

The process for creating the next edition of the NEC starts just a few months after the publication of the previous edition. Each edition starts with a request for public input. Anyone can make a suggestion on how to change the NEC. This public brainstorming results in a list of ideas to improve the NEC and is collected into a First Draft.

The First Draft of the NEC 2023 is open for public comment until August 19, 2021. This is an opportunity for stakeholders, industry leaders and installers to give their thoughts on the possible changes. The comments go to a vote by code making panels to accept, amend or reject the comments.

If you are interested in seeing the proposed changes, or wish to make a comment and get involved in code making, go to [www.NFPA.org](http://www.nfpa.org), search for NEC and select next edition. If you are viewing this online, here is a link [NEC 2023 edition](#). Learn more about code making at:

<https://www.nfpa.org/Codes-and-Standards/Standards-Development/How-the-process-works>

Ugly Picture of the Month: *If viewing this document online, click on the picture to open a larger image.*

This property owner wanted to keep power to the shed while doing an addition. They made a double male-ended cord from a 14 AWG extension cord and plugged it into a 240v 30amp indoor receptacle outside on a post.

Shortcuts like this can cause injury or death. Our system of permits and inspections caught and corrected this hazard before it was too late.

Answer to Question of the Month:

NEC 525.23 (A)(1) and (2) state that all 125v single phase non-locking receptacles and 125v single phase 15 and 20 amp used for assembly and disassembly or readily accessible to the public must be GFCI protected. Further, all equipment that is readily accessible to the public supplied from 125v single-phase 15 and 20 amp branch circuits need GFCI protection.



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Wayne Molesworth, Chief Electrical
Inspector

Vol. 24 No. 6

June 2021

This Month's Question of the Month

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

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.

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.

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.

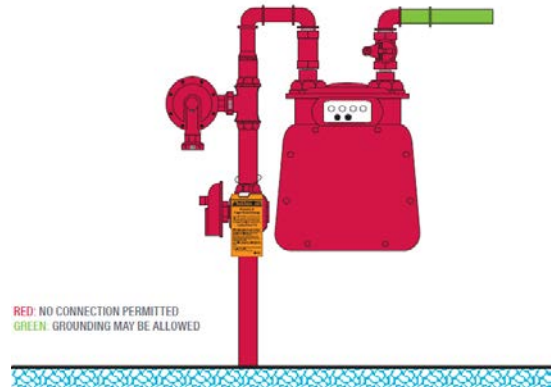
Answer to Question of the Month:

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.



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Congratulations Lanny Hughes!

Thank you to all who submitted an answer for last month's question of the month, and congratulations to Lanny Hughes for being the first to respond with the correct answer. Here is the correct answer: B) 22,540 VA. A permit was issued on October 31, 2020, so the project falls under the 2020 NEC. A bank is an office-type occupancy according to the note to Table 220.12. Table 220.12 changed significantly in the 2020 edition. General lighting load: $9,800 \text{ ft}^2 \times 1.3 \text{ VA/ft}^2 = 12,740 \text{ VA}$. Since the number of receptacles is not stated in the question, receptacle load is $9,800 \text{ ft}^2 \times 1 \text{ VA/ft}^2 = 9,800 \text{ VA}$ per 220.14(K). $12,740 \text{ VA} + 9,800 \text{ VA} = 22,540 \text{ VA}$.

Safety Tip of the Month

As warmer months are coming it is important to remember that the proper clothing and Personal Protective Equipment (PPE) are an important element in our daily work.

- It is important that you have the correct equipment for the task you are performing and use it properly.
- PPE may be sweltering hot or cumbersome however, do not let a little discomfort keep you from using your safety equipment.
- To combat the effects of the added layers of PPE, sip water though out your day and take breaks as needed to cool down.

More information about working in the heat can be found at <https://lni.wa.gov/safety-health/safety-training->

This Month's Question of the Month – What is the minimum conductor ampacity for a branch circuit supplying a single continuous duty 5 HP, single-phase 230 volt high-efficiency squirrel cage motor with a nameplate full load current of 24 amps? *See correct answer on Page 2*

Bring Your New Code Books to all Examinations Beginning July 1, 2021

On July 1, 2021, all electrical examinations will be 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 copy with the insert pages available on this web page. This change will affect all examinations taken on or after July 1, 2021, even those resulting from failing to pass a previous exam.

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

New Affidavit of Experience Form Has Been Streamlined

We have been reviewing our forms in an effort to make it easier for customers to do business with us. We have streamlined the [Affidavit of Experience for Washington Electrical Trainees](#) form. We have combined the previous two forms into one form that includes sections for reporting hours requiring 75% and 100% supervision on the same one-page form. Also gone is the requirement for the trainee to provide a notarized signature on the form. All requirements for submitting affidavits of experience remain the same. To receive credit for hours worked, trainees, unless registered in an approved electrical apprenticeship program must submit affidavits no later than 180 days after the date their training certificate expires for hours worked in the 24 months before that date. An update fee is required for each affidavit submitted more than 30 days after the training certificate expires. No fee is required to submit it earlier.

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Legislative Update – Property Flipper Bill Signed by the Governor

One bill that affects the electrical program, [Substitute Senate Bill 5267](#) has passed the Legislature and was signed by the Governor. The bill requires those doing electrical work associated with flipping property to be certified electricians working for licensed electrical contractors. It will be effective on July 24, 2021 (90 days after the end of the 2021 regular legislative session). During consideration of this bill, electrical inspectors provided many examples of unsafe electrical wiring performed by property flippers that included stories of new owners having to hire electrical contractors to make repairs, sometimes at significant cost.

Generally, property owners are exempt from electrical licensing and certification laws in accordance with [RCW 19.28.261](#). This bill modifies that exemption for properties offered for sale within twelve months after obtaining it. This change aligns electrical laws with existing laws that require property flippers to be registered construction contractors or hire one to superintend any construction work.

You can get information about the bill by visiting [Substitute Senate Bill 5267](#) on the Washington legislature bill information web page.

Rulemaking Updates

Increase Electrical Fees? – Fees have remained unchanged for the last four years. To keep up with higher costs associated with inspection and licensing services, we are proposing rulemaking to increase electrical fees based on OFM's 5.79% [fiscal growth factor](#) projections.

A fee increase enables 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.

We filed a [CR-102](#) Proposed Rule Making on April 6, 2021, announcing a public comment period. A virtual/telephonic public hearing will be held May 11, 2021. You can get information about how to attend or submit written comments by viewing the [Public Hearing Information Packet](#) on our [Electrical Laws, Rules, and Policies](#) web page.

If adopted, the new fees will be effective July 1, 2021. Watch for more information about this rulemaking in the coming months.

WAC 296-46B-995 Electrical Board – Appeal Rights and Hearings - On December 1, 2020, L&I filed a CR-101 to begin the rule making process for amending [WAC 296-46B-995](#) in response to a petition for rule making. The petition seeks to clarify, simplify, and make the procedures for appeals to the board easier to understand and navigate, as well as to help reduce confusion for those that appeal decisions to the board.

You can find a copy of the First Draft of these changes as well as more information about these and other rule making activities on the Rule Development tab of our [Electrical Laws, Rules, and Policies](#) web page.

Ugly Picture of the Month: Improper use of an extension cord ruined this family's day. This century-old home was heavily damaged because of an extension cord and adapter in a bedroom with multiple devices plugged into it. Thankfully, no one was injured, and the home may be salvageable.

Answer to Question of the Month: 35 amperes. NEC 430.22 – Conductors supplying a single, continuous duty motor must have an ampacity not less than 125% of the motor full-load current rating as determined by 430.6(A)(1), which refers to table values (in this case, Table 430.248). Do not use motor nameplate rating to determine conductor ampacity in this application.



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Question of the Month – The first person to correctly answer this question and show their math wins recognition in the next edition.

A design-build project on a new 9800 square foot bank building requires you to calculate the electrical load. L&I issued an electrical permit for this project on October 31, 2020. What is the general lighting and receptacle load when the actual number of general-purpose receptacle outlets is unknown? Allowances for buildings designed and constructed to comply with the Washington State Energy Code do not apply.

A) 12,740 VA B) 22,540 VA C) 34,300 VA D) 44,100 VA

See where to send your answer on Page 2

Safety Tip of the Month

Soon the weather will improve and water sports and boating will return. Do not allow yourself or anyone else to swim near a dock or marina where electrical power is present. Unlike a properly wired swimming pool, marinas lack essential safeguards to protect swimmers from electric shock. If you must enter the water to work on a boat or dock, turn off and lock out all sources of electricity first.

Ceiling Mounted Outlet Boxes in Dwellings – When are Fan Rated Boxes Required?

In the 2020 NEC, changes in 314.27(C) have created confusion. Knowing the meaning of, “in a location acceptable for the installation of a ceiling-suspended (paddle) fan” is essential to determining where boxes intended for fans are required.

We interpret the second paragraph of 314.27(C) to apply to all outlet boxes mounted in the ceilings of habitable rooms of dwelling occupancies except:

1. Areas within four feet of walls or soffits, or
2. Areas directly above permanently installed island or peninsular countertop surfaces.

When changing the application of a ceiling-mounted outlet box to support a paddle fan, strict adherence to 314.27(C) is required. Permits and inspections are required to install new ceiling suspended (paddle) fans.

Trainees – 90 Day Temporary Allowance to Work While Expired

Without a doubt, social distancing requirements brought on by the COVID-19 pandemic affected availability of basic classroom training for trainees. Unprecedented conditions required unprecedented measures.

As it became apparent that no end to the pandemic was in sight, we provided more time for trainees to complete educational requirements as follows:

- 1) Trainees with expiration dates between March 13, 2020 and October 28, 2020 could work after renewing without completing educational requirements until January 26, 2021.
- 2) In the June 2020 edition of this [newsletter](#), we put in place a temporary allowance for virtual basic classroom classes to increase availability of trainee education.
- 3) Trainees expiring on or after October 29, 2020 may continue work after their certificate expires for 90 days. This allowance is temporary.

Watch for announcements about when these temporary allowances end in future editions of this newsletter.

Legislative Update

One bill that affects the electrical program, [Substitute Senate Bill 5267](#) has passed the Legislature and is headed to the Governor's desk for signature. The bill requires those doing electrical work associated with flipping property to be certified electricians working for licensed electrical contractors. During consideration of this bill, electrical inspectors provided many examples of unsafe electrical wiring performed by property flippers that included stories of new owners having to hire electrical contractors to make repairs, sometimes at significant cost.

Generally, property owners are exempt from electrical licensing and certification laws in accordance with [RCW 19.28.261](#). This bill modifies that exemption for properties offered for sale within twelve months after obtaining it. This change aligns electrical laws with existing laws that require property flippers to be registered construction contractors or hire one to superintend any construction work.

You can get information about the bill by visiting [Substitute Senate Bill 5267](#) on the Washington legislature bill information web page.

Rule Making Updates

Increase Electrical Fees? – Fees have remained unchanged for the last four years. To keep up with higher costs associated with inspection and licensing services, we are considering rule making to propose a fee increase equal to OFM's 5.79% [fiscal growth factor](#) projections.

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

We provided official public notification of this proposed rulemaking by filing a [CR-101](#) on February 16, 2021. Watch for more information about this rule making in the coming months. You can find more information about these and other rule making activities on the Rule Development tab of our [Electrical Laws, Rules, and Policies](#) web page.

WAC 296-46B-995 Electrical Board – Appeal Rights and Hearings - On December 1, 2020, L&I filed a CR-101 to begin the rule making process for amending [WAC 296-46B-995](#) in response to a petition for rule making. The petition seeks to clarify, simplify, and make the procedures for appeals to the board easier to understand and navigate, as well as to help reduce confusion for those that appeal decisions to the board.

Ugly Picture of the Month: Don't think electricity is hazardous? Think again. This explosion and fire occurred when a worker simply operated a circuit breaker in a dead-front panel. It is likely that the equipment was not properly rated for the available fault current. The worker was burned severely, but recovered. Protect yourself, always stand clear and use proper personal protective equipment when operating a circuit breaker, even when no live parts are exposed.

Answer to Question of the Month:

Show your work when you send your answer to us at ElectricalProgram@Lni.wa.gov. Put "Currents question" in the subject line. Include your name and we will publish it in the next edition if you are first.



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Question of the Month – Which of the following is true about a simple series circuit with constant voltage: 1) Power decreases with decreases in resistance. 2) Power increases with increases in resistance. 3) Voltage increases with increases in power. 4) Current increases with decreases in resistance.

See correct answer on Page 2

Purchase Class B Labels (Permits) Online!

No more label books to keep track of, everything is electronic! Licensed electrical contractors having secure Electronic Permit and Inspection System (EPIS) accounts can now purchase 20 Class B permits online. Look for a new tab to “Purchase Class B Labels” under “Manage Class B Permits/Labels” in your EPIS account.

The process and requirements for validating and posting is unchanged (See [WAC 296-46B-908](#)). You will not receive a book of labels. Once purchased and validated, you can either print a label image to post on the jobsite or just post the label number there.

Updated Electrical Exam Questions – Tentative Target Date is July 1, 2021

Current exam questions come from the 2017 NEC and current laws and rules. By July 1, 2021, we hope to have the process of updating the exam questions to the 2020 codes, laws and rules completed. After that time, anyone taking any part of any exam should prepare to answer updated questions. Typically, exam questions are general in nature and do not change much. Watch for updates in future editions of this newsletter.

01 Electrical Contractors – Are You an Apprenticeship Training Agent Yet?

Since the passage of [Substitute Senate Bill 6126](#) in 2018, there have been 3 new apprenticeship programs established for (01) apprentices, bringing the number available to 11. Others are in the works.

Requirements brought on by this legislation affect every contractor with trainees that are training to become 01 general journey level electricians. Nothing changes for specialty contractors or trainees who work for them.

Beginning on July 1, 2023:

1. Contractors must have already joined a registered apprenticeship program as a training agent to employ trainees doing the work of 01 journey level electricians.
2. Trainees doing this kind of work must be registered apprentices in the same apprenticeship as their training agent (employer).
3. Trainees are not allowed to qualify for 01 examinations after that date without completing an apprenticeship.

Contractors: Find information about becoming a training agent at:

<https://lni.wa.gov/licensing-permits/apprenticeship/offer-a-registered-apprenticeship>.

Trainees: Learn about becoming an apprentice at:

<https://lni.wa.gov/licensing-permits/apprenticeship/become-an-apprentice>.

Learn about recognized 01 General Journey Level Apprenticeship Programs and counties where they operate:

1. [Area 1 Inside Electrical JATC](#) – Clark, Klickitat, Skamania, Cowlitz, and Pacific.
2. [Electrical Management Group of Washington](#) – Clark, Cowlitz, Wahkiakum, Pacific, Lewis.
3. [Construction Industry Training Council of Washington - Construction Electrician](#) – All counties in Washington.

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Safety Tip of the Month

Standing water, ice, or snow may conceal hidden hazards. Avoid slips, trips, and falls by wearing proper footwear and proceeding with caution at all times. Trust your instincts and training. If your path is unsafe, find a safe route to get there or do not go!

4. [Frontier Apprenticeship & Training](#) (Frontier Electric of Washington employees only) – Clark, Cowlitz, Lewis, Skamania.
5. [IBEW 48 NECA-IBEW Electrical JATC](#) – Clark, Cowlitz, Klickitat, Skamania, Wahkiakum.
6. [Inland Empire Electrical Training Trust](#) – Adams, Ferry, Lincoln, Pend Oreille, Spokane, Stevens, Whitman.
7. [LU 112 - NECA Electrical Apprenticeship Committee](#) – Asotin, Benton, Columbia, Franklin, Garfield, Walla Walla, Yakima, Kittitas.
8. [Northwest Washington Electrical Industry Joint Apprenticeship and Training Committee](#) – Chelan, Douglas, Grant, Island, Okanogan, San Juan, Skagit, Snohomish, Whatcom.
9. [Puget Sound Electrical Joint Apprenticeship and Training Committee](#) – Jefferson, King, Kitsap, Clallam,
10. [Southwest Washington Electrical Joint Apprenticeship and Training Committee](#) – Pacific, Lewis, Grays Harbor, Mason, Pierce, Thurston.
11. [Tradesmen Apprenticeship & Comprehensive Training](#) (Tradesmen Electric employees only) – Clark, Cowlitz, Lewis, Skamania.

Legislative Update

Lawmakers are considering one bill that affects the electrical program. [Substitute Senate Bill 5267](#) passed the Senate and is being considered in the House. The bill requires electrical work associated with flipping property to be done by licensed electrical contractors and certified electricians.

Generally, property owners are exempt from electrical licensing and certification laws in accordance with [RCW 19.28.261](#). This bill modifies that exemption for persons or companies that are in the business of obtaining, upgrading, and selling the property within twelve months of purchase. This change aligns electrical laws with existing laws that require property flippers to be registered construction contractors or hire one to superintend any construction work.

Review [Substitute Senate Bill 5267](#) and comment if you desire. A comment button is located below the bill number on the webpage linked above. You may also share your opinion by contacting your legislator through the legislative website at: <http://www.leg.wa.gov/LIC/Pages/hotline.aspx>.

Rule Making Updates

WAC 296-46B-995 Electrical Board – Appeal Rights and Hearings - On December 1, 2020, L&I filed a CR-101 to begin the rule making process for amending [WAC 296-46B-995](#) in response to a petition for rule making. The petition seeks to clarify, simplify, and make the procedures for appeals to the board easier to understand and navigate, as well as to help reduce confusion for those that appeal decisions to the board.

Increase Electrical Fees? – Fees have remained unchanged for the last four years. To keep up with higher costs associated with inspection and licensing services, we are considering rule making to propose a fee increase equal to OFM's 5.79% [fiscal growth factor](#) projections.

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

Watch for more information about this rule making in the coming months. You can find more information about these and other rule making activities on the Rule Development tab of our [Electrical Laws, Rules, and Policies](#) web page.

Ugly Picture of the Month: Sorry, we are taking a break from ugliness this month. Watch for more next month!

Answer to Question of the Month: 4). According to Ohm's law, current increases with decreases in resistance. Basic electrical theory questions are on every open-book electrical examination. Knowledge of basic electrical theory is an important fundamental required for all electricians, even specialty electricians. Before attempting your exam, look up the definition of electrical theory in [WAC 296-46B-970](#), study these principles, and bring an electrical theory reference book with you to your open-book examination.

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(TDD/TTY users, please call 360-902-5797.) Labor & Industries is an Equal Opportunity employer.

Question of the Month – How quickly is a ground-fault circuit-interrupter (GFCI) designed to trip? *See correct answer on Page 2*

Legislative Update

This year's regular session began January 11, and is scheduled to end April 25, 2021. Lawmakers are considering bills that may affect you. Of the bills introduced so far this session, two affect the electrical industry. The bills are not sponsored by L&I.

Review the bills and comment if you desire. A comment button is located below the bill number on the webpages linked below. You may also share your opinion by contacting your legislator through the legislative website at: <http://www.leg.wa.gov/LIC/Pages/hotline.aspx>.

[Senate Bill 5267](#) – Requires electrical work associated with flipping property to be done by licensed electrical contractors and certified electricians. Generally, property owners are exempt from electrical licensing and certification laws in accordance with [RCW 19.28.261](#). This bill modifies that exemption for persons or companies that are in the business of obtaining, upgrading, and selling the property within 2 years of purchase. This change aligns electrical laws with existing laws that require property flippers to be registered construction contractors or hire one to superintend any construction work.

[House Bill 1187](#) – Expands the work scope for HVAC/refrigeration specialty electrical contractors and electricians (06A and 06B). This would allow them to install, repair, replace, or maintain branch circuits between outdoor units and indoor units of split ductless HVAC systems in dwelling units.

Rule Making Updates

WAC 296-46B-995 Electrical Board – Appeal Rights and Hearings - On December 1, 2020, L&I filed a CR-101 to begin the rule making process for amending [WAC 296-46B-995](#) in response to a petition for rule making. The petition seeks to clarify, simplify, and make the procedures for appeals to the board easier to understand and navigate, as well as to help reduce confusion for those that appeal decisions to the board.

Increase Electrical Fees? – Fees have remained unchanged for the last four years. To keep up with higher costs associated with inspection and licensing services, we are considering rule making to propose a fee increase equal to OFM's [5.79% fiscal growth factor](#) projections.

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

Watch for more information about this rule making in the coming months. You can find more information about these and other rule making activities on the Rule Development tab of our [Electrical Laws, Rules, and Policies](#) web page.

Training Certificate Renewal Requirements – Important Things to Know

Trainees who are coming up for renewal need to be aware of some important items. Please share this information with all electrical trainees.

Safety Tip of the Month

According to [OSHA](#), an average of 15 workers are killed on the job every day. Excluding highway collisions, the four leading causes of construction worker fatalities are:

- Falls
- Struck by an object
- Electrocutions
- Caught in or between objects

Please watch for and eliminate these "Fatal Four" hazards in your workplace.

Basic Classroom Training Required – Before you can renew your training certificate, you must have completed 48 hours of basic classroom education since your certificate became active. If your education requirement is not complete by the expiration date of your certificate, you cannot renew it and you cannot work in the electrical construction trade. If you do not renew by your expiration date, you will have to pay a late renewal fee. To assist trainees during the Covid-19 pandemic, the department has made some temporary allowances:

- Basic classroom instruction providers may temporarily conduct classes with virtual methods using internet-based platforms under specified conditions. We published details in the [August 2020 newsletter](#). Check with course providers for more details. You can find a list of classes on the [basic classroom instruction](#) page of our website.
- To allow additional time for trainees to complete basic classroom education required to renew, trainees may work with an expired certificate for 90 days after their certificate expires. This temporary allowance was made last year due to decreased availability of classes and will continue until further notice. Watch this newsletter for updates.

Submit Affidavits of Experience On Time – Trainees who are not registered in an approved apprenticeship have 180 days after the expiration date of their training certificate to submit affidavits of experience to receive credit for hours worked since their last training certificate was effective – see [WAC 296-46B-942\(d\)](#). This applies even if you cannot renew due to lack of completion of basic trainee education. You can get a copy of the affidavit of experience form by visiting the [Electrical Trainee](#) page of our website.

Installation Methods – Power and Control Tray Cable: Type TC

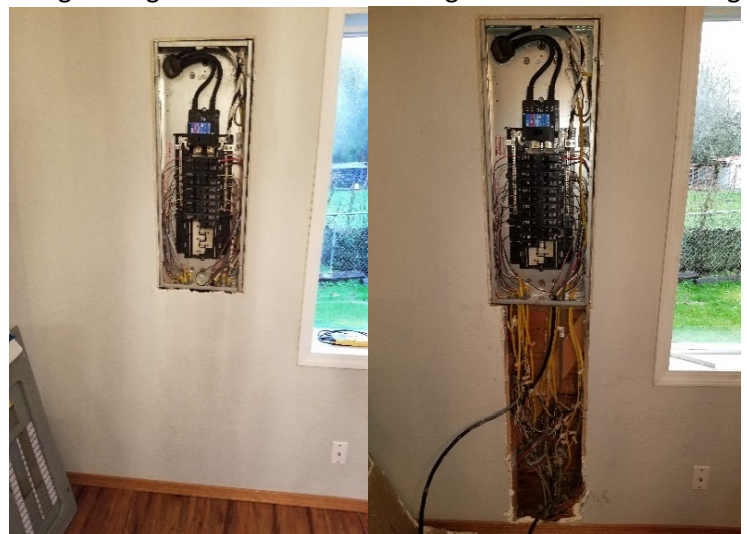
Manufacturers of ductless split-system HVAC systems typically specify Type TC cable for the branch-circuit wiring between outdoor and indoor units. [WAC 296-46B-336](#) allows the use of Type TC cable in any location allowed for nonmetallic-sheathed cable in NEC 334 when installation requirements in NEC 336, 334, and WAC 296-46B-334 are met.

Pay close attention to cable installation and cable marking requirements for particular applications in NEC 336.10. For exposed runs, the cable must be marked Type TC-ER. In one- and two-family dwelling units, Type TC-ER-JP (joist pull) must be used where pulled through building framing. You can find cable marking information in UL's [Wire and Cable Marking Guide](#).

It is never appropriate to support branch-circuit cables by attaching them to mechanical piping such as HVAC line sets. Exposed cables must be installed and protected from physical damage in accordance with NEC 334.15 and secured and supported by the building structure in accordance with NEC 334.30 and 110.12(C). Review these articles before installing Type TC cable for branch-circuits.

Ugly Picture of the Month: *If viewing this document online, click on the picture to open a larger image.* The electrical panel pictured is new and was installed by a property flipper. The wiring below was covered prior to being inspected as shown on the left. Open splices had been concealed within the wall under the panel creating a potential extreme fire hazard. Further inspection found hazardous wiring throughout the house including more concealed wiring splices and open single conductors supplying receptacles.

Answer to Question of the Month: 1/40th or 0.025 of a second. In a properly operating circuit, the electrical current going to and returning from an electrical device is equal. If it is not equal, current is flowing back to the source on a return path that it should not be, possibly through a person. A GFCI will sense this unbalance and disconnect power from the circuit. A difference of current as small as four milliamperes (mA) will cause a GFCI to trip in as little as 1/40th of a second.



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Question of the Month – Should you renew your electrical license or certificate online or by mail. Why? *See correct answer on Page 2*

Rule Making Updates

WAC 296-46B-995 Electrical Board – Appeal Rights and Hearings - On December 1, 2020, L&I filed a CR-101 to begin the rule making process for amending [WAC 296-46B-995](#) in response to a petition for rule making. The petition seeks to clarify, simplify, and make the procedures for appeals to the board easier to understand and navigate, as well as to help reduce confusion for those that appeal decisions to the board.

Safety Tip of the Month

We are all facing many challenges during the COVID-19 pandemic. Knowing what is required and following guidelines will help keep everyone safe. Visit L&I's [COVID-19 \(Coronavirus\) webpage](#) for more information.

Electrical Program is Considering a Proposed Increase to Electrical Fees – The department is considering increasing fees by 5.79% for the Electrical Program to support increased expenses associated with inspections and licensing. This is the Office of Financial Management's (OFM) maximum allowable fiscal growth rate for fiscal year (FY) 2022. Each November, OFM's Expenditure Limit Committee adjusts the limit for the previous and current fiscal year for fiscal growth factors, and projects a limit for the following two years. The fiscal growth factor of 5.79% is based upon OFM's projections and is subject to revision.

The last fiscal growth factor increase took effect on January 1, 2017. A fee increase enables the program to continue providing quality and timely services to assure safe electrical installations and inspection in homes, businesses, industry and institutions to protect people and property from electrical hazards.

Watch for more information about this rule making in the coming months. You can find more information about these and other rule making activities on the Rule Development tab of our [Electrical Laws, Rules, and Policies](#) web page.

Schedule a Virtual Electrical Inspection Today

The [Virtual Electrical Inspection](#) (VEI) program has been very successful and is growing in popularity among electrical contractors and their electricians. During the last six months, the VEI program has averaged over 800 inspections per month. During a virtual inspection, an electrician on the jobsite with a mobile device (phone, tablet, etc.) interacts with a virtual inspector in real time. Same day appointments for virtual electrical inspections are available until filled. Here are some important points to keep in mind:

- To use VEI, you will need to download the [Skype Application](#) and create a profile.
- Use VEI for any electrical inspections that will take no longer than 15 minutes, *and* that do not involve service or final approvals.
- On the jobsite, make sure you have at least a 4G, LTE, or Wi-Fi connection on your mobile device.

Benefits:

- Get quicker follow-up inspections on corrections to get your jobs approved faster.
- Inspections the same day as requested saves time and money.

Use Google Chrome to [schedule](#) your inspection for the day and time you want. You can learn more about VEI by visiting www.lni.wa.gov and search "Virtual."

Contact us: Call 360-902-5299 or **Email:** VirtualElectricalInspection@Lni.wa.gov

How to Find What You Are Looking For on our Website

About a year ago, L&I went through a major revision to our website – www.Lni.wa.gov. The goal was to make it easier for customers to get the information they are looking for when they visit the site. The electrical program has over 80 separate pages and tabs containing lots of valuable information. Sometimes it can be difficult to locate what you want. We are continually trying to improve our website and we welcome any suggestions you have at ElectricalProgram@Lni.wa.gov.

From the main L&I home page, you can find the electrical program pages by clicking “Licensing & Permits” then “Electrical”.

Probably the best way to narrow down what you are looking for though is to use your web search engine to search for keywords of the specific topic you are looking for. For example, if you want to renew your electrician’s certificate, enter “L&I renew electrician” into your search engine. Once on the electrician page, select the “Renew” tab. Or, if you want to request an electrical inspection, enter “L&I request electrical inspection” in your search engine. Another goal of the website project was to make pages easier to use with a smart phone. Try it out, and let us know if you have ideas to help improve the site.

Updates and Electronic Copies of WAC 296-46B and RCW 19.28 are Available on our Website

Make sure your copies of WAC 296-46B and RCW 19.28 are up-to-date. You can find our web page containing the latest copies of these electrical laws and rules by searching “L&I electrical laws and rules” using your web search engine. You will also find revised pages to insert into your printed copies. From time to time, changes are made to the laws and rules through the rule making process or by the legislature. We announce these changes in this newsletter in articles containing legislative or rule making updates. We also prepare insert pages containing the revisions and post them on our Electrical Laws and Rules web page.

Contractors – Be Sure Customers Know Inspections are Coming

We are finding customers not knowing what they need to know about inspections. Too often, we hear customers who claim, “My electrical contractor never told me I needed an inspection”. Some are reluctant to allow access to an inspector.

If everyone knows that an inspection is required and what to expect, inspectors can focus on getting inspections done, which improves response time and reduces delays. We performed over two-hundred forty thousand electrical inspections last year. Probably more inspections will happen this year. Everybody’s time is important. Inspections are about safety and everybody needs to work together to get them done. Ultimately, it is the contractor’s responsibility to make sure inspectors get access. It is our responsibility to get there in a timely fashion. Together, we can help each other by ensuring customers know access is required and inspection requests include clear access instructions that get inspectors access to inspect. Please also include any safety or health concerns the inspector should watch out for on the jobsite.

Ugly Picture of the Month: *If viewing this document online, click on the picture to open a larger image.* It may take a while, but you sharp electricians will get a chuckle out of this one.

Answer to Question of the Month: Online, of course! Here’s why: It’s easier, cheaper and faster. You can renew your license or certificate by clicking [this link](#). Renewal fees are about 15% higher if you do not renew online, and with L&I offices currently closed, the only other option is snail mail, and that’s slow. Try it! You’ll like it!



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Question of the Month – All examinations for a Washington electrician certificate of competency contain questions about basic electrical theory. What is the definition of electrical theory? *See correct answer on Page 2*

Rule Making Updates

WAC 296-46B-940 Reciprocal Agreements - L&I has adopted changes to rules for reciprocal agreements between Washington and other states in [WAC 296-46B-940](#). Visit the [Journey Level Electrician](#) tab of our Electrical Licensing webpage for more information about reciprocal agreements.

WAC 296-46B-995 Electrical Board – Appeal Rights and Hearings - On December 1, 2020, L&I filed a CR-101 to begin the rule making process for amending [WAC 296-46B-995](#) in response to a petition for rule making. The petition seeks to clarify, simplify, and make the procedures for appeals to the board easier to understand and navigate, as well as to help reduce confusion for those that appeal decisions to the board.

Watch for more information about this rule making in the coming months. More information about these and other rule making activities is available on the Rule Development tab of our [Electrical Laws, Rules, and Policies](#) web page.

Trainees – Do Not Lose Your Work Experience Hours – Submit Affidavits on Time

Please share this important message with all electrical trainees. To receive credit for experience worked in the electrical construction trade, trainees who are not registered apprentices must submit an affidavit of experience in a timely manner. Be aware of your certificate expiration date. Submit affidavits of experience within 30 days of the expiration date of your certificate to avoid a \$53.40 update fee. You must submit affidavits of experience from your employer(s) for the previous two years within 180 days of the expiration date of your certificate, unless you are registered in a department-approved apprenticeship program. This applies even if you cannot renew due to lack of basic classroom education (see article below). Upon request, employers are required to provide the previous period's affidavit of experience to the trainee within 20 days of request in accordance with [WAC 296-46B-942\(12\)](#). Affidavit of Experience forms are available by visiting the [Electrical Trainee](#) page of our website. There is also a handy [training log](#) on this web page to keep track of your experience.

When you renew, you must also have completed 48 hours of [basic classroom instruction](#) during the previous certificate period, or you cannot renew. You must still submit your affidavit of experience as described above though.

Temporary Allowance Extended for Trainees to Work While Completing Classroom Training

The COVID-19 pandemic has reduced availability of required classroom education for electrical trainees. Temporary measures are in place to increase availability of education during recovery. Trainees may lawfully work in the electrical trade without a properly renewed (active) training certificate under certain conditions.

Trainees having certificates with expiration dates on or after March 13, 2020, who have paid a renewal fee to renew them into inactive (“T”) status, may continue working in the trade while completing their classroom education until January 26, 2021.

Safety Tip of the Month

When working or playing outside in cold, wet, and/or windy conditions, remember:

- Dress in warm loose-fitting layers and stay dry. Wet clothing chills the body quickly.
- Excess sweating will cause your body to lose more heat, so remove extra layers of clothing whenever you feel too warm.
- Stay well hydrated. Drinking warm, non-caffeinated beverages helps warm you up and improves circulation to extremities.
- Do not ignore shivering. It is an important sign that your body is losing heat. Constant shivering is a sign that it is time to go inside and warm up.

Trainees expiring on or after October 29, 2020 may continue to work for 90 days after their expiration date in expired status while completing their required classroom training. If not renewed by the expiration date, a late renewal fee is required. This policy will remain until a date to be determined after the Governor declares the state is moving into Phase 4 of the recovery.

If you are a trainee, now is the time to schedule your classroom education. Trainees should not wait until the last minute to complete educational requirements! You can download a list of [approved basic trainee classes](#) at the [Basic Classroom Instruction & Continuing Education](#) page of our website.

Trainees and 01 Contractors – Apprenticeship Requirements are Coming Soon

[Substitute Senate Bill 6126](#) passed by the legislature in 2018 affects those training to become 01 general journey level electricians and those who employ them.

- Effective July 1, 2023, to be eligible for the (01) general journey level electrician examination, applicants must have completed a recognized (01) electrical apprenticeship program approved by the Washington State Apprenticeship Training Council (WSATC) or out-of-state equivalent.
- After June 30, 2023, unless working in a specialty, trainees must be registered apprentices. Apprenticeship programs may credit certain properly documented electrical experience on record with the department such as, 4000 hours required to obtain an electrical specialty certificate, military experience, or completion of a two-year training school program. Students enrolled in a two-year training school program in the electrical construction trade are not required to be registered apprentices while gaining on-the-job training experience during an externship.

Want to Sponsor An Apprenticeship Program? - All sponsors for (01) general journey level electrician apprenticeship programs must adhere to Minimum Guideline Standards approved by the WSATC. You can request a copy by contacting apprentice@lni.wa.gov. Registered apprenticeship programs start with the formation of an apprenticeship committee made up of industry members—both employers and employees.

The best way to get started is by contacting the apprenticeship customer service line at 360-902-5320. They will connect you with an apprenticeship consultant in your area. They are your best resource to help you identify which type of apprenticeship model best suits your company and then provide one-on-one consulting and on-site assistance to get your program up and running.

Ugly Picture of the Month: *If viewing this document online, click on the picture to open a larger image.* An electrical inspector discovered this badly deteriorated service while inspecting another installation on the property. He checked and the exposed terminals were still energized. Look closely at the meter jaws and you can see a jumper wire installed to get some free power. The inspector had the power disconnected and may have saved someone's life.

Answer to Question of the Month: [WAC 296-46B-970](#) – “Electrical theory” means basic principles of electricity such as: magnetism, ohm's law, and circuit properties such as voltage, current, power, resistance, inductance, capacitance, reactance, impedance, etc., in series, parallel, and combination AC and DC circuits.

When preparing for an examination, make sure you are familiar with these principles and bring an electrical theory reference book with you for your open-book examination.



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Question of the Month – If originating in service equipment and routed through nonmetallic conduit, how many and what size *aluminum* supply side bonding jumpers are suitable for bonding a metallic CT metering enclosure for a 600 ampere 480-volt service supplied by two parallel runs of 400 kcmil aluminum conductors? See correct answer on Page 2

Safety Tip of the Month

In the coming months, be prepared for deteriorating driving conditions. Rain, fog, ice, and snow are on the way. To help prepare for winter driving, see the [Winter Travel](#) page on the Washington Department of Transportation website.

Announcing Additional 2020 National Electrical Code (NEC) Amendments

To give testing laboratories and manufacturers additional time to deal with incompatibility between equipment manufactured in compliance with existing product safety standards and new NEC requirements, L&I is clarifying implementation of several 2020 NEC requirements:

- Until January 1, 2023, we are delaying enforcement of:
 - GFCI requirements for outdoor outlets in 2020 NEC 210.8(F). There are incompatibility issues with GFCI protection and certain outdoor HVAC units causing the need to allow more time for manufacturers and testing laboratories to revise safety standards and equipment.
 - 2020 NEC 210.8(A)(7) GFCI protection requirements for receptacles rated 30 through 50 amperes within six feet of sinks that are supplied by single-phase branch circuits rated 150 volts to ground or less. This exception is also to allow more time for manufacturers and testing laboratories to revise standards and equipment to ensure all affected equipment is compatible with Class A GFCI protection.
- 2020 NEC 230.71 Maximum Number of Disconnects:
 - Until further notice, requirements in 2020 NEC 230.71 are not applicable to equipment certified according to UL 231 Standard for Power Outlets. Such equipment is commonly used as service equipment for temporary construction power, recreational vehicles, and other applications. If implemented as written in 2020 NEC 230.71, a significant number of temporary services would have to be disposed of due to new requirements.
 - Manufacturers need additional time to produce and distribute metering centers containing two to six service disconnects in the same enclosure in compliance with NEC 230.71. The department will delay the requirements of 2020 NEC 230.71 for metering centers until July 1, 2021.

How Do 2020 NEC 230.85 Emergency Disconnect Requirements Apply to Altered Services?

2020 NEC 230.85 requirements for emergency disconnects for one- and two-family dwellings will apply to all new dwellings having building permits issued on or after October 29, 2020. For service alterations made under electrical permits issued on or after October 29, 2020, a readily accessible outdoor emergency disconnecting means must be installed where services are increased or decreased in size, or where service disconnects, meter bases, overhead service masts, or underground service risers are relocated.

01 General Journey-Level Electricians – Reciprocal Agreement with Oregon

The reciprocal agreement in effect between Oregon and Washington allows eligibility for certification without examination under certain conditions.

Among them, reciprocity applicants must have passed examination in either state after completing formal apprenticeships or hold master or supervising electrician certificates obtained by examination in either state. On-the-job training is not a formal apprenticeship. Before applying, review all conditions to be sure you qualify.

Visit the [Journey Level Electrician](#) tab of our Electrical Licensing webpage for more information.

Rule Making Update: WAC 296-46B-940 Reciprocal Agreements

An emergency rule is in place because of a petition to revise rules for reciprocal agreements between Washington and other states. L&I is in the process of adopting these rules through the permanent rule making process. There will be a telephonic public hearing on this issue November 10, 2020 at 9:00 a.m. You can call 1-866-715-6499 to participate. When prompted enter passcode 9862128073# (pound sign required). More information about this and other rule making activity is available on the Rule Development tab of our [Electrical Laws, Rules, and Policies](#) web page.

Temporary Allowance Extended for Trainees to Work While Completing Classroom Training

The COVID-19 pandemic has reduced availability of required classroom education for electrical trainees. Temporary measures are in place to increase availability of education during recovery. Trainees having certificates that expired on or after March 13, 2020, who have paid a renewal fee to renew them into inactive ("T") status, may continue working in the trade while completing their classroom education until January 26, 2021.

On October 29, 2020 the new [2020 WAC 296-46B](#) takes effect, and with it, trainees cannot renew their certificates if they have not completed their required classroom education. If not renewed by the expiration date, a late renewal fee is required. Trainees expiring on or after October 29, 2020 may continue to work for 90 days after their expiration date while completing their required classroom training. If required training is not completed within the additional time allowed, trainees cannot lawfully work in the electrical trade without a properly renewed (active) training certificate. This policy will remain until a date to be determined after the Governor declares the state is moving into Phase 4 of the recovery.

If you have a training certificate, now is the time to schedule your classroom education. Trainees should not wait until the last minute to complete educational requirements! You can download a list of [approved basic trainee classes](#) at the [Basic Classroom Instruction & Continuing Education](#) page of our website.

Ugly Picture of the Month: *If viewing this document online, click on the picture to open a larger image.* If the phase tape markings are correct, there is a dead short between phases. The installer can be thankful an electrical inspection called it to their attention. Inspection oversight helps prevent damage to equipment or worse yet, injury to the utility workers energizing it.

Answer to Question of the Month: One 1/0 aluminum bonding jumper in each of the parallel service entrance conduits. See NEC 250.102(C)(2). When bonding CT enclosures, check with the serving utility about their service requirements. Among them, some prohibit bonding connections to grounded conductors landed inside the CT enclosure. In that case, you must install a supply-side bonding jumper(s) from the service equipment to bond the CT enclosure.



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Question of the Month – To get credit for experience worked, how long after a trainee’s certificate expiration date must an affidavit of experience be submitted to the department. *See correct answer on Page 2*

Electrical Permit Fees

Permit fees are calculated using fee line items described in Sections (1) through (6) of [WAC 296-46B-906](#).

- Permit fees must support all inspections necessary to complete the inspection process, including all inspections made to verify that code violations are corrected.
- When permit fees do not support completion of the inspection process, progress inspection fees outlined in WAC 296-46B-906(8) (\$46.80 for each half hour) must be assessed in addition to those fees.
- When trip fees are charged in accordance with WAC 296-46B-906(7), those fees apply in addition to permit and progress inspection fees.

Code violations should be rarely found, especially on simple installations. Return trips are expensive for everyone. Before you request an inspection, verify that your installation meets code and ensure inspectors have access so they can approve your work!

You can download a copy of the permit fee schedule with explanatory notes by visiting the [Permit Fees](#) page of our website.

Class B Random Inspection Process Saves Time and Money

If you are a licensed electrical contractor and you are not using the Class B random inspection process for your minor electrical work, you should consider it. The Class B random inspection process is described in [WAC 296-46B-908](#). It is allowed for work that requires minimal electrical circuit modifications and has limited exposure hazards. To use the Class B process the scope of work must be as described in WAC 296-46B-908(10).

Class B labels are sold in books of twenty and currently cost about \$13 each compared to \$62 for a regular permit for added or altered residential circuits. Before beginning the work, the label(s) must be validated online by entering the jobsite information and who will be doing the work. Then, post the label or label number on the job site in accordance with the instructions.

You can purchase a book of Class B labels and have them delivered to you by contacting your [local L&I office](#).

Reciprocity Agreement Signed with Oregon for Journey-Level Electrician Certification

The Oregon Building Codes Division and the Washington State Department of Labor & Industries (L&I) have signed a reciprocal agreement allowing general journey level electricians certified in one state to apply for a certificate in the other state without having to take an examination under certain conditions.

You can get details about the agreement and the application process by visiting the [Journey Level Electrician](#) tab of our Electrical Licensing web page.

Safety Tip of the Month

Never leave energized conductors or equipment parts exposed. A missing cover on an energized electrical panel on a construction site can lead to tragedy. According to recent OSHA statistics, electrocution is the third leading cause of worker fatalities. Do not allow a serious unsafe condition such as exposed electrical wiring to ruin yours or someone else’s life on your jobsite.

2020 NEC 230.71 Maximum Number of Disconnects – Exemption for Listed Power Outlets and Metering Centers

Power outlets such as temporary construction services, recreational vehicle and mobile home services and pedestals, and marina power outlets are certified according to UL 231 Standard for Power Outlets. Electrical contractors have significant numbers of temporary services that will remain serviceable for many years that otherwise would have to be disposed of due to new requirements in 2020 NEC 230.71 for maximum number of disconnects. The department is hereby issuing a policy that will exempt power outlets listed under UL 231, where used as service equipment, from the requirements of 2020 NEC 230.71. This policy will be in place until further notice and give time for requirements in UL 231 to be updated and will give manufacturers time to revise their design and begin production and supply of the revised equipment.

Manufacturers need additional time to produce and distribute metering centers containing two to six service disconnects in the same enclosure in compliance with NEC 230.71. The department will delay the requirements of 2020 NEC 230.71 for metering centers until July 1, 2021.

Temporary Allowance Extended for Trainees to Work While Completing Classroom Training

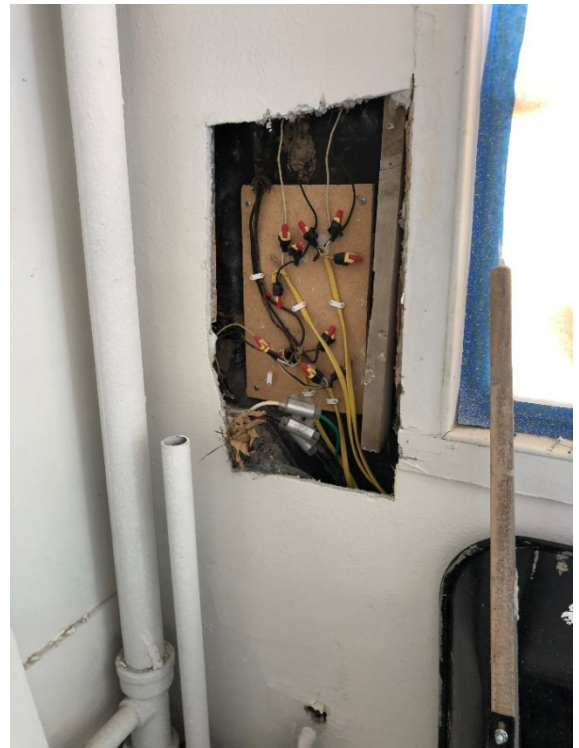
The COVID-19 pandemic has reduced availability of required classroom education for electrical trainees. Temporary measures are in place to increase availability of education during recovery. Trainees having certificates that expired on or after March 13, 2020, who have paid a renewal fee to renew them into inactive (“T”) status, may continue working in the trade while completing their classroom education until January 26, 2021.

On October 29, 2020 the new [2020 WAC 296-46B](#) takes effect, and with it, trainees cannot renew their certificates if they have not completed their required classroom education. If not renewed by the expiration date, a late renewal fee is required. Trainees expiring on or after October 29, 2020 may continue to work for 90 days after their expiration date while completing their required classroom training. If required training is not completed within the additional time allowed, trainees cannot lawfully work in the electrical trade without a properly renewed (active) training certificate. This policy will remain until a date to be determined after the Governor declares the state is moving into Phase 4 of the recovery.

If you have a training certificate, now is the time to schedule your classroom education. Trainees should not wait until the last minute to complete educational requirements! You can download a list of [approved basic trainee classes](#) at the [Basic Classroom Instruction & Continuing Education](#) page of our website.

Ugly Picture of the Month: *If viewing this document online, click on the picture to open a larger image.* The splices in the picture were concealed behind newly installed sheetrock. An unlicensed electrical contractor performed a panel change working under the homeowner’s permit. The panel was moved to a different location. The observant electrical inspector asked them to remove the sheetrock and discovered this hazardous installation.

Answer to Question of the Month: 180 days. [WAC 296-46B-942](#)(8)(d): Within one-hundred eighty days after the expiration date of an electrical training certificate, the individual, if not enrolled in a department approved apprenticeship program, must submit a completed, signed, and notarized [affidavit](#)(s) of experience for all hours of experience gained since the individual’s last training certificate was effective. Affidavits received more than 30 days after expiration of the certificate will require an additional fee to process. Those received more than 180 days after expiration will be denied. Avoid losing your experience hours. Turn in your affidavits of experience on time.



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Question of the Month – You are installing a 1 horsepower, single-phase, 230-volt irrigation pump using 150 feet of #12 copper branch circuit conductors from the 230-volt service panel to the pump. What is the voltage drop at the pump?
See correct answer on Page 2

Thank You Tracy Prezeau for your Service to the Electrical Board

After many years of excellent service to the [electrical board](#), Tracy Prezeau's term on the board is ending. Governor Gregoire appointed Tracy to the board in 2005. In 2011, her fellow board members elected her to serve as chairperson. Electrical board members serve on a volunteer basis and we greatly appreciate Tracy's valuable contribution to the electrical industry of Washington. We thank her for her years of excellent service and wish her well. We know she will remain active in her support of Washington's electrical program through her position as an international representative of the IBEW Education Department. Congratulations to board member Jason Jenkins, who was elected to serve as the new chairperson at the July meeting.

Safety Tip of the Month

Make sure your temporary power installations are safe. Temporary power installations on construction sites, if not installed properly, can be a source of extreme hazard. Make sure your work is not the cause of a tragedy. Ensure all temporary wiring meets NEC requirements. Make sure service conductors at temporary power poles are not exposed.

Reciprocity Agreement Signed with Oregon for Journey-Level Electrician Certification

The Oregon Building Codes Division and the Washington State Department of Labor & Industries (L&I) have signed a reciprocal agreement allowing general journey level electricians certified in one state to apply for a certificate in the other state without having to take an examination under certain conditions.

Oregon reciprocal licenses are generally available to those who obtained Washington (01) general journey level electrician certificates after completing an 8000-hour apprenticeship and making a passing score on their Washington exams. Anyone having a Washington master (01) general journey level electrician certificate is also eligible. [Get more information about reciprocity and apply.](#)

If you need licensing verification from the state of Washington for an Oregon application, mail (do not email) your Oregon verification document along with a completed [Request for a Letter of Good Standing](#) and fee of \$26.40 to us at the address shown in the top left corner of the good standing form. We will fill out the verification form and mail it back to you along with your letter of good standing.

Washington reciprocal certificates are generally available to those electricians who obtained their Oregon general journeyman electrician (J) licenses after completing an 8000-hour apprenticeship and passing their Oregon exams. Anyone having an Oregon General Supervising Electrician (S) license obtained by Oregon examination is also eligible. Oregon license holders can apply anytime after they receive their Oregon license. To apply, submit an [Application for a Reciprocal 01 General Journey Level Electrician Certificate](#).

You can get details about the agreement and the application process by visiting the [Journey Level Electrician](#) tab of our Electrical Licensing website.

2020 NEC 230.71 Maximum Number of Disconnects – Exemption for Listed Power Outlets

Power outlets such as temporary construction services, recreational vehicle and mobile home services and pedestals, and marina power outlets are certified under UL 231 Standard for Power Outlets. Many electrical contractors have significant numbers of temporary services that will remain serviceable for many years that otherwise would have to be disposed of

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due new requirements in 2020 NEC 230.71 for maximum number of disconnects. The department is hereby issuing a policy that will exempt power outlets listed under UL 231, where used as service equipment, from the requirements of 2020 NEC 230.71. This policy will be in place until further notice and give time for requirements in UL 231 to be updated and will give manufacturers time to revise their design and begin production and supply of the revised equipment.

Temporary Allowance Extended for Trainees to Work While Completing Classroom Training

The COVID-19 pandemic has reduced availability of required classroom education for electrical trainees. Temporary measures are in place to increase availability of education during recovery. Trainees having certificates that expired on or after March 13, 2020, who have paid a renewal fee to renew them into inactive (“T”) status, may continue working in the trade while completing their classroom education until January 26, 2021.

On October 29, 2020 the new 2020 WAC 296-46B takes effect, and with it, trainees cannot renew their certificates if they have not completed their required classroom education. Beginning October 29, if not renewed by the expiration date, a late renewal fee is required. Trainees expiring on or after October 29, 2020 may continue to work for 90 days after their expiration date while completing their required classroom training. If required training is not completed within the additional time allowed, trainees cannot lawfully work in the electrical trade without a properly renewed (active) training certificate. This policy will remain until a date to be determined after the Governor declares the state is moving into Phase 4 of the recovery.

If you have a training certificate, now is the time to schedule your classroom education. Trainees should not wait until the last minute to complete educational requirements! You can download a list of [approved basic trainee classes](#) at the [Basic Classroom Instruction & Continuing Education](#) page of our website.

What Questions Are Allowed To Be Answered By Electrical Inspectors

Electrical inspectors often face many different types of electrical installation questions from consumers, contractors, and electricians. [WAC 296-46B-010](#)(2) states: *Electrical inspectors will give information as to the interpretation or application of the standards in this chapter, but will not lay out work or act as consultants for contractors, owners, or users.* There are a couple of reasons for this rule. L&I cannot take on the responsibility of an incorrect installation because an installer misunderstood the information that was provided. In addition, this ensures a level playing field for all competing in the electrical industry by placing limits on the types of questions an inspector may answer. It would not be ethical for one contractor to win a bid over another because of consultation given by a L&I inspector.

Many people call to ask if they “can just run something by” the inspector. Inspectors are not allowed to enter into discussions about project bidding or design or other “what if” scenarios. It is not the inspector’s role to make recommendations between design or installation options for the installer. The installer is responsible for the entire decision making process from bidding, to permit fees, to installation.

An inspector or supervisor can answer a specific question about a code interpretation or corrections you have been issued.

Ugly Picture of the Month: *If viewing this document online, click on the picture to open a larger image.* Notice a problem with this installation? Someone put the stickers on upside down... or did they?

Answer to Question of the Month: 4.7 volts or 2 percent. Voltage Drop = $(2 \times 12.9 \times 8 \times 150) \div 6530$. The formula: **VD = $(2 \times K \times I \times L) \div$ wire circular mils**, where K is the conductor resistivity constant of 12.9 for copper and 21.2 for aluminum; I is load amperes (per Table 430.248); and L is one-way circuit length in feet. You can find wire circular mils in NEC Chapter 9, Table 8.



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Question of the Month – Once you pass an exam and receive your administrator, master, or electrician certificate, will you ever have to retest in order to renew? *See correct answer on Page 2*

Adoption of 2020 NEC and Revised WAC 296-46B Delayed Until October 29, 2020

Due to the impact of COVID-19 on businesses and consumers in Washington, the 2020 National Electrical Code (NEC) and the recently adopted changes to WAC 296-46B do not become effective until October 29, 2020. Watch future editions of this newsletter and the Rule Development tab of our [Electrical Laws and Rules](#) web page for more information.

Safety Tip of the Month

Beat the heat – How to avoid heat related illness:

- Stay hydrated with water and avoid sugary beverages.
- Stay cool by seeking shade or an air-conditioned area.
- Wear lightweight, light colored, loose fitting clothes.

Continuing Education Providers – Say Goodbye to the 2017 NEC

Upon publication of the 2020 NEC in August of last year, we began approving 2020 NEC update continuing education and basic classroom education classes. On October 29, 2020, the 2020 NEC will become effective in Washington. At that time, all classes based on the 2017 NEC will be revoked and may not be offered for instruction. This has no effect on credit earned for those completing a 2017 code update course before October 29, 2020.

Rules in [WAC 296-46B-970\(4\)\(b\)](#) specify the edition of the NEC to be used for code update classes and requires that code update classes must be based on the currently adopted NEC. A new application must be submitted for each 2020 NEC code update class. Applications must be submitted at least thirty calendar days prior to offering or instructing a class. You can find application forms for classes and instructors by visiting the [Basic Classroom Instruction & Continuing Education](#) page of our website.

Rule Petition Seeks to Pave the Way for Reciprocity with Oregon

The L&I electrical program has been in discussion with officials from Oregon regarding Journey Level electrician certificate reciprocity. There are some differences in the rules between the two states, which make things complicated for electricians to qualify for reciprocity. We have received a petition from stakeholders to amend [WAC 296-46B-940](#) to correct these differences. Oregon is undergoing rulemaking to amend their rules as well. Watch for rulemaking information by visiting the Rule Development tab of our [Electrical Laws and Rules](#) webpage. Updates regarding reciprocity with Oregon will be announced in future editions of this newsletter. You can join the electrical email list to receive the Electrical Currents newsletter by visiting the [Email Updates](#) page of our website.

Temporary Allowance for Virtual Basic Trainee Classes

Due to impacts of the COVID-19 pandemic on availability of basic classroom training for electrical trainees, approved classroom training providers may temporarily provide their classes through internet-based instruction platforms under these conditions:

1. Trainees and instructors must continuously interact in real time by live audio and video during the entire period of instruction and by live video during competency examinations; and
2. Providers must:
 - a. Allow department oversight by sending an invitation to ElectricalProgram@lni.wa.gov for every internet trainee class. Invitations must include: a hyperlink and any password needed to join the class, L&I issued course approval number, class agenda (name of class and instructor, date of class, starting time, ending time, breaks, etc.); and

- b. Limit class size to fifteen students or less; and
- c. Verify student identity using government issued photo identification.

This temporary allowance will be in effect until normal classroom education can safely resume in consultation with the Electrical Board and industry stakeholders.

Temporary Allowance Extended for Trainees to Work While Completing Classroom Training

The COVID-19 pandemic has reduced availability of required classroom education for electrical trainees. Temporary measures are in place to increase availability of education during recovery.

Until October 28, 2020, trainees having certificates that expired on or after March 13, 2020, who have paid a renewal fee to renew them into inactive (“T”) status, may continue working in the trade while completing their classroom education.

After October 28, 2020:

1. All trainees in inactive (“T”) status will move to expired status because of rule revisions that become effective on October 29, 2020.
2. Trainees that expired on or after March 13, 2020, who renewed into inactive (“T”) status, may work while in expired status for 90 days after October 28, 2020 while completing their required classroom training.
3. Until a date to be determined after the Governor declares the state is moving into Phase 4, trainees expiring after October 28, 2020 may work while in expired status for 90 days after their expiration date while completing their required classroom training.

If required training is not completed within the additional time allowed, trainees cannot lawfully work in the electrical trade without a properly renewed (active) training certificate.

Trainees should not wait until the last minute to complete educational requirements! You can download a list of [approved basic trainee classes](#) at the [Basic Classroom Instruction & Continuing Education](#) page of our website.

Affidavits: Trainees should submit affidavits of experience within 30 days of expiration of their training certificate to avoid a late fee. At the latest, trainees have 180 days after their certificate expires to submit affidavits for hours worked in the previous two years before expiration. Affidavits submitted beyond 180 days of expiration are untimely and not eligible for consideration. Avoid losing your hours by submitting them on time!

L&I Office Closures – Most L&I regional offices remain closed to public visits until further notice. Some offices are taking appointments for visits depending on the county. Most of our services are available online. A great way to find what you want is to search with your browser (e.g., “L&I renew electrical certificate” or “L&I purchase electrical permit”). Local L&I offices can help you by phone from 8 a.m. to 5 p.m. weekdays (except state holidays). Please call your closest [regional office](#), or you can call the Office of Information and Assistance at 360-902-5800.

Ugly Picture of the Month: *If viewing this document online, click on the picture to open a larger image.* The disconnect pictured was supplying refrigeration equipment. Condensation caused the brown ice dam to build up resulting in a mess, and interruption of power. Make sure when you are installing wiring between spaces that differ in temperature, you apply NEC 300.7 and seal the raceway to prevent circulation of warm air to a colder section causing condensation. An explosion proof seal is not required for this purpose.

Answer to Question of the Month: Perhaps. Before every birthday, make sure to check expiration dates on all of your certificates. If you do not renew before an expiration date, you must pay double fees to renew. To renew after 90 days of your expiration date, laws require you to re-take and pass an examination.



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Welcome New Chief Electrical Inspector Wayne Molesworth

Wayne assumes his duties July 1, 2020 replacing Stephen Thornton, who retired on June 30. Wayne's diverse work history, education and experiences have prepared him to perform the responsibilities of this position. He has been a Journey Level Electrician for the past 38 years. During this time, Wayne worked in many facets of the industry from residential to heavy industrial applications. Wayne has been with L&I since 1992, first as an Electrical Inspector for 16 years, then as an Electrical Inspection Supervisor for 2 years for Spokane and Pullman offices. After 5 years as a DOSH Compliance Manager, Wayne served in a variety of roles, including Special Projects Manager, Elevator Program Operations Manager, and interim Elevator Program Chief.

We would also like to take this opportunity to thank Stephen Thornton for his dedication to L&I and the Electrical program. He is looking forward to retirement and is excited to settle into his new home in Wyoming and start enjoying the next chapter in his life with family and friends.

Safety Tip of the Month

Personal Protective Equipment and Knowledge Saves Lives

Whenever you enter a jobsite, you should always ask yourself:

- What am I required to do to protect others and myself from COVID-19 exposure?
- Am I wearing my hardhat, safety glasses, hearing protection, appropriate clothing, and safety shoes or boots?
- Do I know what the potential hazards are and how to recognize them?
- Should I re-assess the potential hazards as I enter different areas or situations on this jobsite?
- Where are the nearest exits, first aid kit, and fire extinguisher?

Adoption of 2020 NEC and Revised WAC 296-46B Delayed Until October 29, 2020

Due to the impact of COVID19 on businesses and consumers in Washington, we are delaying the effective date of the 2020 National Electrical Code (NEC) and the [recently adopted changes to WAC 296-46B](#) until October 29, 2020. During their April meeting, the Electrical Board recommended that any delay follow a common sense approach similar to that used when the Governor delayed adoption of state building codes until November 1, 2020. Watch the Rule Development tab of our [Electrical Laws and Rules](#) web page and future editions of this newsletter for more information.

When Will Exam Questions be Updated to the 2020 NEC?

Candidates will have plenty of notice. We plan to update all open-book exam questions in the coming year and keep everybody informed of what is happening through the [Electrical Currents](#) newsletter and the [PSI website](#).

Until then, candidates should continue to use the 2017 NEC. Typically, basic code requirements and electrical theory fundamentals found in exam questions are general in nature and do not change much when a new version of the NEC is adopted. The same principles apply to the WAC/RCW section of exams. The [recently adopted changes to WAC 296-46B](#) that are delayed until October 29, 2020 do not affect questions on current exams. You can find information about the exams by visiting the [Electrical Examination](#) page of our website.

Temporary Allowance for Virtual Basic Trainee Classes

Due impacts of the COVID-19 pandemic on availability of basic classroom training for electrical trainees, approved classroom training providers may temporarily provide their classes through internet-based instruction platforms under these conditions:

1. Trainees and instructors must continuously interact in real time by live audio and video during the entire period of instruction and by live video during competency examinations; and

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2. Providers must:

- a. Allow department oversight by sending an invitation to ElectricalProgram@lni.wa.gov for every internet trainee class. Invitations must include: a hyperlink and any password needed to join the class, L&I issued course approval number, class agenda (name of class and instructor, date of class, starting time, ending time, breaks, etc.); and
- b. Limit class size to fifteen students or less; and
- c. Verify student identity using government issued photo identification.

This temporary allowance will be in effect until normal classroom education can safely resume in consultation with the Electrical Board and industry stakeholders.

Trainees Working While in Inactive Status - Deadline Extended Until September 1, 2020

The COVID-19 pandemic has reduced availability of required classroom education for electrical trainees. Temporary measures are in place to increase availability of education during recovery. Until September 1, 2020, trainees having certificates that expired on or after March 13, 2020, who have paid a renewal fee to renew them into inactive (“T”) status, may continue working in the trade while completing their classroom education.

Providing an allowance to work while in inactive status until September 1, 2020 is not a holiday for inactive trainees to put off required training. If not completed by the deadline, inactive trainees cannot lawfully work in the electrical trade without a properly renewed (active) training certificate.

Trainees should not wait until the last minute to complete educational requirements! You can download a list of [approved basic trainee classes](#) at the [Basic Classroom Instruction & Continuing Education](#) page of our website.

Affidavits: Trainees should submit affidavits of experience within 30 days of expiration of their training certificate to avoid a late fee. At the latest, trainees have 180 days after their certificate expires to submit affidavits for hours worked in the previous two years before expiration. Affidavits submitted beyond 180 days of expiration are untimely and not eligible for consideration. Avoid losing your hours by submitting them on time!

Trainees – To Renew After October 28, 2020 Trainees Must Complete Classroom Education

One of the changes adopted in the previous WAC 296-46B revisions was a provision eliminating the “inactive” status for electrical trainees who pay their renewal fee but have not completed their required classroom education. Currently, if a trainee does not have all of the required basic classroom education completed, they can pay the renewal fee and renew their certificate into inactive “T” status. Many trainees wait until the last minute to complete their classroom education and sometimes, to avoid paying the double fee, renew their certificates without having completed this step. The provision to eliminate the inactive status for trainees was to be effective July 1, 2020, but due to the delay in the effective date of the revised rules and the 2020 NEC, we are delaying this provision as well.

L&I Office Closures – L&I regional offices remain closed to public visits until further notice. Most of our services are available online. A great way to find what you want is to search with your browser (e.g., “L&I renew electrical certificate” or “L&I purchase electrical permit”). Local L&I offices can help you by phone from 8 a.m. to 5 p.m. weekdays (except state holidays). Please call your closest [regional office](#), or you can call the Office of Information and Assistance at 360-902-5800.

Ugly Picture of the Month: *If viewing this document online, click on the picture to open a larger image.* We thought you might enjoy this snowy pic on one of those blazing hot days we will probably have this month. A tree fell across this service drop and destroyed the meter base due to the less than adequate mast support. Check out [WAC 296-46B-230\(4\)](#) for illustrated mast support requirements.



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SPECIAL EDITION

Significant Changes – 2020 WAC 296-46B – Effective October 29, 2020

In this issue, we review of some of the significant changes in the 2020 [WAC 296-46B](#) electrical rules. The WAC changes and the [2020 National Electrical Code](#) (NEC) will be effective October 29, 2020. This document does not cover all changes. We wrote it to help you become aware of some of the more important changes. We will soon have a complete version of the 2020 WAC 296-46B available at: <https://lni.wa.gov/licensing-permits/electrical/laws-rules-policies>. See the revision to WAC 296-46B-010(1) below to determine when the 2020 NEC and revised WAC rules will apply to your project.

WAC 296-46B-010(1) – Adopted standards – 2020 National Electrical Code (NEC)

The 2020 NEC will be effective October 29, 2020. We delayed the effective date to allow customers to focus on recovery from the effects of COVID-19 and give them more time to prepare for the new code requirements. We made a change regarding when new standards will apply to specific projects. Generally, new codes will apply if the electrical permit is issued on or after the adoption date of new codes with two exceptions: (a) New one- and two-family dwellings or multifamily dwellings where the issue date of building permits for the premises is before the adoption date; or (b) New installations where plan review is required by WAC 296-46B-900 when plans are received and accepted for review before the adoption date.

WAC 296-46B-110(1) Exception – Use of Nonmetallic Electrical Elbows for Other Than Electrical Installations

Generally, listed electrical conduit can only be installed and used in accordance with its listing (i.e., as an electrical raceway for electrical conductors). We added a new exception to accommodate installations such as underground geo-thermal piping systems to allow for ease of installation and maintenance of these piping systems. Listed electrical nonmetallic elbow fittings may be connected to piping other than electrical conduit for the purposes of enclosing mechanical piping systems. The elbows must be distinctively marked to indicate their use as non-electrical fittings prior to installation by painting them to match the color of the piping to which they are connected. This does not allow listed electrical conduit for other than electrical use.

WAC 296-46B-210(8) – Peninsular Countertop Receptacles

We eliminated a rule regarding receptacle placement for peninsular countertop spaces. Receptacles for peninsular and island countertops and work surfaces must comply with 2020 NEC 210.52(C)(2). At least one receptacle outlet must be provided for the first 9 ft² or fraction of countertop work surface, and an additional receptacle outlet must be provided for every additional 18 ft² or fraction thereof. For peninsular countertops, at least one receptacle must be located within 2 ft. of the outer end of the peninsula. Peninsular countertops are measured from the connected perpendicular wall.

WAC 296-46B-334 – Nonmetallic-Sheathed Cable

We amended the rules to keep policy and enforcement regarding use of nonmetallic-sheathed cable in taller buildings the same as current requirements. Revised building code rules allow Type IV mass timber buildings up

to 18 floors. We changed the construction type in our WAC rules from Type IV to Type IV-HT to keep installation allowances for nonmetallic-sheathed cables the same as it has been with previous Type III, IV, or V construction.

WAC 296-46B-553 and 555 – Floating Buildings and Marinas

In the 2020 NEC, requirements for floating buildings, previously in Article 553, were moved to Article 555 Marinas, Boatyards, and Commercial and Noncommercial Docking Facilities. We moved the requirements of WAC 296-46B-553 to WAC 296-46B-555 to correlate with the NEC. We eliminated some of these requirements, as well as some in the previous WAC 296-46B-555 as they are now covered in the NEC. In addition, we clarified that Article 398 open wiring on insulators is not an approved wiring method in or above any portion of a marina or docking facility.

WAC 296-46B-705(2) – Interconnected Electric Power Production Sources – Supply-Side Source Connections

We clarified rules regarding supply-side interconnections of interconnected power production sources. The disconnecting means, even though it is not a service disconnecting means must be installed using wiring methods specified for services in WAC 296-46B-230(7). In addition, the disconnecting means comply with NEC rules for services as specified in NEC 230.82(6) and 250.25 except that it is not required to be grouped with the service disconnecting means for the building or structure.

WAC 296-46B-908(10) – Class B permits

We added two items to the list of installations eligible for the Class B random inspection process. We expanded the replacement of not more than ten receptacles with GFCI or AFCI receptacles to include replacement with dual function AFCI/GFCI receptacles. In addition, we added the like-in-kind replacement of output cables for electric vehicle supply equipment to be eligible for Class B permits.

WAC 296-46B-920(2)(a) – Residential Specialty Scope of Work

We clarified the work scope of the 02 Residential specialty to state that the allowance for wiring of ancillary structures means structures located on the same property and under the same ownership as the dwelling structure(s).

WAC 296-46B-920(2)(f) – HVAC/refrigeration Scope of Work

We modified the scope of work for the HVAC/refrigeration specialties to allow repair, replacement, and maintenance of line voltage flexible supply whips not over six feet in length to include a whip used for a unit being replaced where the new unit has a lower maximum overcurrent protection size. This is due to the prevalence of more efficient HVAC units with lower current ratings. It should be noted that replacement of an HVAC unit with one having a lower maximum overcurrent protection rating must be inspected using a regular permit as it is not like-in-kind or eligible for the Class B random inspection process.

In addition, a change was made to allow the HVAC/refrigeration specialties to install low voltage Class 2 control circuit wiring in other than residential occupancies regardless of the number of stories above grade if the installation is made in a previously occupied and wired space and is restricted to the HVAC/refrigeration system.

WAC 296-46B-920(2)(g) – Nonresidential Maintenance Scope of Work

We modified 07 nonresidential maintenance scope of work to include replacement of overcurrent/overload devices for the purposes of replacement of electrical equipment where the new equipment has a lower ampere rating than the equipment being replaced. Typically, newer equipment is more efficient than older equipment of the same size and may require lower rated overcurrent/overload protection such as a circuit breaker, set of fuses,

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or overload heater. It should be noted that replacement with a lower rated device is not like-in-kind and must be inspected using a regular electrical permit.

WAC 296-46B-925(28) and 940(17) – Submersible Well Pump Installers – Testing With A Temporary Portable Generator

Firms and workers that are not licensed electrical contractors or certified electricians that install submersible well pumps and associated wiring in well casings have always been able to set the pump in the well along with the submersible pump wiring to the pump, but not perform any connection of the pump wiring or raceway to the permanent supply. We amended these sections to include exemptions from electrical contractor licensing and electrician certification requirements to allow testing of the pump by cord and plug connection to a portable generator provided all temporary wiring and equipment must be removed immediately upon completion of testing. This allowance was existing department policy as published in a previous Electrical Currents newsletter.

WAC 296-46B-970 – Continuing Education and Classroom Education – Definition of Electrical Theory

This section describes requirements for continuing education and basic classroom education for electricians and trainees. The minimum amount of electrical classroom education required for trainees to learn the electrical trade and become certified electricians must consist of only basic electrical theory, currently adopted National Electrical Code, and use of the electrical laws or rules. Some course providers not familiar with basic electrical theory have tried to provide classroom instruction for industry related tasks such as troubleshooting, conduit bending, equipment installation methods, or even workplace safety practices as a substitute for basic electrical theory education for trainees. Learning industry related tasks is very valuable, but cannot be substituted for the minimal amount of foundational classroom education required by the electrical laws. All trainees learning to become electricians must have a foundation of the workings of electricity established by knowledge of basic electrical theory. We added a definition to clarify electrical theory means basic principles of electricity such as: magnetism, ohm's law, and circuit properties such as voltage, current, power, resistance, inductance, capacitance, reactance, impedance, etc., in series, parallel, and combination AC and DC circuits.

WAC 296-46B-971(5) – Training Schools – Clarification of Completion Roster

Electrical training schools are different from basic classroom education in that completion of a training school program not only fulfills a portion of the basic classroom education requirements, but it credits the person completing the program with work experience hours. We changed this section to clarify the information a training school provider must send us in a completion roster. We eliminated the requirement to send us an enrollment roster because this information was not useful.

WAC 296-46B-990 – Serious Noncompliance with Electrical Laws or Rules

Our inspectors are tasked with enforcement of all electrical laws and rules for safety to life and property. Occasionally, they encounter folks violating the law who have no regard for electrical safety or those who enforce the laws. They know the law but choose to ignore it. An example would be a person who creates a fake electrician certificate and presents it to an inspector, or someone who is cited for a violation then continues to violate the laws or rules intentionally. We amended this section to clarify that willful or intentional violation is serious noncompliance with the electrical laws and rules and can result in higher penalty amounts and potential suspension or revocation of an electrical contractor's license or electrician's or administrator's certificate.

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Question of the Month – When selecting overcurrent protection for conductors, at what overcurrent protective device ampacity rating is it not permitted to round up to the next higher standard rating? *See correct answer on Page 2.*

Adoption of 2020 NEC and WAC 296-46B Changes Delayed Until October 29, 2020

Due to the impact of COVID19 on businesses and consumers in Washington, we are issuing an emergency rule later this month to delay the effective date of the 2020 National Electrical Code (NEC) and the [recently adopted changes to WAC 296-46B](#). During their April meeting, the Electrical Board recommended that any delay follow a common sense approach similar to that used when the Governor delayed adoption of state building codes until November 1, 2020.

Electrical examinations will continue to be based on the 2017 NEC until further notice sometime next year.

Watch the Rule Development tab of our [Electrical Laws and Rules](#) web page and future editions of this newsletter for more information.

Temporary Allowance for Virtual Basic Trainee Classes

Due to the impact of the COVID-19 pandemic on availability of basic classroom training for electrical trainees, approved classroom training providers may temporarily provide their classes through an internet-based instruction platform under the following conditions:

1. Trainees and instructors must continuously interact in real time by live audio and video during the entire period of instruction and by live video during competency examinations; and
2. Providers must:
 - a. Allow department oversight by sending an invitation to ElectricalProgram@lni.wa.gov for every internet trainee class. Invitations must include: a hyperlink and any password needed to join the class, L&I issued course approval number, class agenda (name of class and instructor, date of class, starting time, ending time, breaks, etc.); and
 - b. Limit class size to fifteen students or less; and
 - c. Verify student identity using government issued photo identification.

This temporary allowance will be in effect until normal classroom education can safely resume in consultation with the Electrical Board and industry stakeholders.

Trainees Working While in Inactive Status - Deadline Extended Until September 1, 2020

The COVID-19 pandemic has reduced availability of required classroom training for electrical trainees. Temporary measures are in place to increase availability of training during recovery. Until September 1, 2020, trainees having certificates that expired on or after March 13, 2020, who have paid a renewal fee to renew them into inactive (“T”) status, may continue working in the trade while completing their classroom training.

Providing an allowance to work while in inactive status until September 1, 2020 is not a holiday for inactive trainees to put off required training. If not completed by the deadline, inactive trainees cannot lawfully work in the electrical trade without a properly renewed (active) training certificate.

Safety Tip of the Month

- Practice excellent hygiene (wash your hands regularly)
- Use proper personal protective equipment
- Maintain personal space (6 ft.)
- Cover minor cuts
- Cover your cough and sneezes
- If you are feeling ill, stay home
- Maintain a positive attitude 😊

Trainees should not wait until the last minute to complete training! A list of [approved basic trainee classes](#) is available on our website at www.lni.wa.gov.

Affidavits: Trainees should submit affidavits of experience within 30 days of expiration of their training certificate to avoid a late fee. At the latest, trainees have 180 days after their certificate expires to submit affidavits for hours worked in the previous two years before expiration. Affidavits submitted beyond 180 days of expiration are untimely and not eligible for consideration. Avoid losing your hours by submitting them on time!

L&I Office Closures – L&I regional offices remain closed to public visits until further notice. Most of our services are available online. A great way to find what you want is to search with your browser (e.g., “L&I renew electrical certificate” or “L&I purchase electrical permit”). Local L&I offices can help you by phone from 8 a.m. to 5 p.m. weekdays (except state holidays). Please call your closest [regional office](#), or you can call the Office of Information and Assistance at 360-902-5800.

Electrical Inspections – L&I is following the Governor’s Directives Regarding Construction

We are performing electrical inspections in accordance with the Governor’s directives based on the restart phase of the county where the project is. Here are direct links to the various documents with guidance on permitted construction and job site safety requirements:

- [Phase 1 Construction Restart COVID-19 Job Site Requirements](#).
- [Implementation of Phase 1 Construction Restart - Addendum](#)
- [Phase 2 Construction COVID- 19 Job Site Requirements](#)

For the latest updates from the Governor’s office visit <https://coronavirus.wa.gov/>. Due to previous restrictions on construction activity, there is a large backlog of inspection requests. Inspectors will be prioritizing their inspections and trying their best to catch up. If you have an urgent request, please indicate that in the comments section of the inspection request. Another option is to request a [Virtual Electrical Inspection](#) (VEI). To use VEI, you will need to download the [Skype Application](#) and create a profile. Use VEI for any electrical inspections that will take no longer than 15 minutes, *and* that do not involve service or final approvals. On the jobsite, make sure you have at least a 4G, LTE, or Wi-Fi connection on your mobile device. Use Google Chrome to [schedule](#) your inspection at least 30 minutes before you need it. You can learn more about VEI by visiting www.lni.wa.gov and search “Virtual.”

HVAC Replacements May Not Be Like-In-Kind or Class B Eligible

[WAC 296-46B-908](#) allows the Class B random inspection process for the like-in-kind replacement of an electric/gas/oil furnace not exceeding 240 volts and 100 amps, or an air conditioning unit, heat pump, or refrigeration unit not exceeding 240 volts, 40 minimum circuit amps. Like-in-kind is defined in [WAC 296-46B-100](#) as “...having the same overcurrent protection requirements...” as the unit being replaced. Often, a new replacement unit is more efficient and the maximum overcurrent protection specified on the nameplate of the new unit is lower than that of the existing circuit. In this case, the replacement is not like-in-kind and is not eligible for the Class B random inspection process.

The overcurrent protection device must be changed, and a regular permit and inspection is required. Replacement of a branch-circuit overcurrent device is not within the scope of the HVAC 06A or 06B specialty. This must be done by an 01 general, 02 residential (if on a residential site) or, when the [recent revisions to WAC 296-46B](#) becomes effective, an 07 nonresidential maintenance electrician.

Ugly Picture of the Month: *If viewing this document online, click on the picture to open a larger image.* An inspector found this junction box hidden in a ceiling. The effectiveness of the equipment grounding connections is questionable.

Answer to Question of the Month: 800 amperes. NEC 240.4(C) Where the rating of the overcurrent device is over 800 amperes, the ampacity of the conductors it protects shall be equal to or greater than the rating of the overcurrent device defined in 240.6.



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Question of the Month – What is the best method to communicate important details about an inspection request to your electrical inspector? A) Leave details in the comment field of an online inspection request. B) Email the inspector. C) Leave a voicemail message at the inspector’s desk phone. D) Call the inspector the morning of the inspection. *See correct answer on Page 2.*

COVID-19 Electrical Program Updates

L&I Office Closures – L&I regional offices remain closed to public visits until further notice. Most of our services are available online. A great way to find what you want is to search your browser (e.g., “L&I renew electrical certificate” or “L&I purchase electrical permit”). Local L&I offices can help you by phone from 8 a.m. to 5 p.m. weekdays (except state holidays). Please call your closest [regional office](#), or you can call the Office of Information and Assistance at 360-902-5800.

Electrical Inspections – L&I is following the Governor’s Directives Regarding Construction – We are performing electrical inspections in accordance with the Governor’s April 24 [Phase 1 Construction Restart COVID-19 Job Site Requirements](#). On April 29, the Governor issued additional guidance clarifying what [Authorized Construction](#) includes. For the latest updates from the Governor’s office visit <https://coronavirus.wa.gov/>.

Due to the previous restrictions on construction activity, there is a large backlog of inspection requests. Inspectors will be prioritizing their inspections and trying their best to catch up. If you have an urgent request, please indicate that in the comments section of the inspection request. Another option is to request a [Virtual Electrical Inspection](#) (VEI) on the same day at least 30 minutes in advance of when you need it. To use VEI, you will need to download the [Skype Application](#) and create a profile. Use VEI for any electrical inspections that will take no longer than 15 minutes, *and* that do not involve service or final approvals. On the jobsite, make sure you have at least a 4G, LTE, or Wi-Fi connection on your mobile device. Use Google Chrome to [schedule](#) your inspection for the day and time you want. You can learn more about VEI by visiting www.lni.wa.gov and search “Virtual.”

Renewing a Training Certificate – On March 13, Governor Inslee issued a proclamation prohibiting all public and private universities, colleges, technical schools, apprenticeship programs, and similar schools and programs from conducting in-person classes in all counties of Washington State. Because of this, holders of training certificates with expiration dates on or after March 13 may not be able to complete the basic classroom instruction required to renew their certificates.

The department will allow those trainees who renew their certificates without completing the required classroom instruction to continue working with their certificate in inactive status until 60 days following the allowance by the Governor’s office to resume in-class instruction. This will allow them to complete their required classroom instruction when classes resume. This allowance will apply only to holders of training certificates with expiration dates on or after March 13, 2020 who have renewed and are in inactive (“T”) status due to lack of basic classroom instruction. It does not apply to holders of training certificates in expired, archived, or suspended status. It does not apply to holders

Safety Tip of the Month

Keep an eye out for the safety of your trainees and apprentices. Do not assume a person who is learning the electrical construction trade is familiar with basic electrical safety rules. Trainees and apprentices are eager to please their employers, and it is the electrical contractor’s responsibility to ensure they do not put themselves or others in danger.

of electrician, administrator, or master electrician certificates, as online classes are available for continuing education.

Training certificate holders must renew their certificates by paying the usual renewal fee. You can do this online. Follow instructions on the renewal notice or visit the [Electrical Trainee](#) page of our website. All other requirements remain in effect such as submitting affidavits of experience, supervision, and visible display of certificates. Electrical contractors and administrators will not be penalized for employing trainees who are inactive in accordance with the above.

Citation Appeals – 20 Day Appeal Window Requirement Revised – On March 23, Governor Inslee issued a [Stay Home - Stay Healthy](#) Proclamation 20-25 prohibiting all commercial activities in all counties of Washington State, except for specific limited activities identified on the essential services list. Companies and individuals issued electrical “Important Notice: A citation has been issued...” letter(s) or a license/certificate renewal denial letter requiring a response to the Department within a 20 day window may not have the ability to timely respond. Because of this, Department mail containing electrical “Important Notice: A citation has been issued...” letter(s) or license/certificate renewal denial letter sent after March 1, 2020 will have the 20-day response window extended to a maximum of 20 days beyond the date the stay home order is rescinded. All responses must meet all other requirements of law and rule.

Remaining Stakeholder Meetings to be Re-Scheduled – In order to comply with the Governor’s emergency proclamation restricting the size of gatherings due to the coronavirus (COVID-19), we are cancelling all remaining stakeholder meetings. We will re-schedule these for a later date. Watch for announcements in this newsletter and on the [Electrical Calendar](#) page of our website.

Possible Delay of Effective Date of 2020 NEC and 2020 WAC 296-46B – The rule revisions mentioned below are on schedule and are set to be adopted as described, but due to the effects of COVID19 on Washington businesses and consumers, the department is considering a delay in the effective date of the revised rules and 2020 NEC. Watch for more details on the [Electrical Laws and Rules](#) webpage and in the June edition of this newsletter.

WAC 296-46B Rulemaking Update

You can find details and rulemaking documents by visiting the Rule Development section of our [Electrical Laws and Rules](#) webpage. The proposed adoption date for the new rules is May 19, 2020 and the proposed effective date is July 1, 2020 unless extended by the department as mentioned above.

For complete details about the process, see the [October 2019 Electrical Currents](#) Newsletter Special Edition. If you need additional information or have any questions about the rulemaking process, you may contact Alicia Curry at 360-902-6244 or Alicia.Curry@lni.wa.gov.

Legislative Update

One bill affecting the electrical program this session has passed the legislature and was signed by the Governor. [Senate Bill 6409](#) – Exempts manufacturers’ authorized engineers or factory-trained service technicians from electrical contractor licensing and worker certification requirements while working within the confines of industrial equipment. This bill becomes effective June 11, 2020.

Answer to Question of the Month: A) Leave details in the (255-character) comment field of an [online inspection request](#). The inspector that takes the inspection job will read the comment and have the information to get the inspection done. Many times, inspectors start their day from the field and download inspection requests remotely. Phone calls require valuable time that reduces their ability to complete more inspections. Help us help you by making inspection arrangements in a way that avoids asking inspectors to make unnecessary phone calls.

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Question of the Month – If a person is not happy with something in the 2020 National Electrical Code (NEC), how would they make a suggestion to change it? See correct answer on Page 2.

COVID-19 Electrical Program Updates

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Electrical Inspections – L&I is following the Governor’s Directive Regarding Construction – We are performing electrical inspections in accordance with the Governor’s March 25 [guidance memo on construction](#). For the latest updates from the Governor’s office visit <https://coronavirus.wa.gov/>. If you have an inspection on an essential facility, or your project meets the guidelines in the latest guidance from the Governor’s office, please indicate this in the comment section of your inspection request. This guidance also applies to virtual electrical inspections (VEI). We will only inspect projects in compliance with the Governor’s guidance in support of efforts to control spread of the virus on construction sites.

Renewing a Training Certificate – On March 13, Governor Inslee issued a proclamation prohibiting all public and private universities, colleges, technical schools, apprenticeship programs, and similar schools and programs from conducting in-person classes in all counties of Washington State. This prohibition will last until April 24, 2020, unless extended to a later date. Because of this, holders of training certificates with expiration dates on or after March 13 may not be able to complete the basic classroom instruction required to renew their certificates.

The department will allow those trainees who renew their certificates without completing the required classroom instruction to continue working with their certificate in inactive status until 60 days following April 24, or later if extended beyond that date. This will allow them to complete their required classroom instruction when classes resume. This allowance will apply only to holders of training certificates with expiration dates on or after March 13, 2020 who have renewed and are in inactive (“T”) status due to lack of basic classroom instruction. It does not apply to holders of training certificates in expired, archived, or suspended status. It does not apply to holders of electrician, administrator, or master electrician certificates, as online classes are available for continuing education.

Training certificate holders must renew their certificates by paying the usual renewal fee. You can do this online. Follow instructions on the renewal notice or visit the [Electrical Trainee](#) page of our website. All other requirements remain in effect such as submitting affidavits of experience, supervision, and visible display of certificates. Electrical contractors and administrators will not be penalized for employing trainees who are inactive in accordance with the above.

Citation Appeals – 20 Day Appeal Window Requirement Revised – On March 23, Governor Inslee issued a [Stay Home - Stay Healthy](#) Proclamation 20-25 prohibiting all commercial and residential activities in all counties of Washington State, except for specific limited activities identified on the essential services list. This prohibition will last until April 8, 2020, unless extended to a later date. Companies and individuals issued electrical “Important Notice: A citation has been issued...” letter(s) or a license/certificate renewal denial letter requiring a response to the Department within a 20 day window may not have the ability to timely respond. Because of this, Department mail containing electrical “Important Notice: A citation has been issued...” letter(s) or license/certificate renewal denial letter sent after March 1, 2020 will have the 20-day response window extended to a maximum of 20 days beyond April 8, 2020, unless extended to a later date. All responses must meet all other requirements of law and rule.

Safety Tip of the Month

During times of isolation, try to stay connected with family and friends. Call them, try FaceTime, Skype, or Zoom. Stay safe, healthy, and positive 😊

April Stakeholder Meetings to be Re-Scheduled – In order to comply with the Governor’s emergency proclamation restricting the size of gatherings due to the coronavirus (COVID-19), we are cancelling all stakeholder meetings scheduled in April. We will re-schedule these for later in the year. Please join me at any of the following meetings in May from 6 – 8 p.m., unless announced otherwise. Watch for future announcements in this newsletter and on the [Electrical Calendar](#) page of our website regarding stakeholder meetings scheduled for May and those that will be re-scheduled.

May 11 – Kennewick – [Benton PUD](#) Auditorium – 2721 West 10th Avenue

May 12 – Spokane – [Spokane Falls Community College](#), 3410 W. Fort George Wright Drive, Bldg. 17, Sub Lounges

May 13 – Colville – [Spokane Community College](#), 985 S Elm St., Classroom 132

May 14 – Pullman – Parks & Recreation, 190 SE Crestview, Room 218

May 20 – Yakima – Perry Technical Institute, 2011 W Washington Avenue

WAC 296-46B Rulemaking Update – Public Hearing to be by Conference Call

The department has filed a continuance of the rule proposal CR-102 to make changes to the public hearing scheduled for April 9, 2020 at 10:00 a.m. The hearing will be conducted by conference call to allow for oral public comments and testimony on the proposal rather than holding an in-person meeting. We are strongly encouraging written comments. In addition, we are extending the written comment period until 5 p.m. on Thursday, April 16, 2020.

You can find details and rulemaking documents by visiting the Rule Development section of our [Electrical Laws and Rules](#) webpage. Review the proposals and submit comments if you desire. Here’s how to submit comments:

- Mail written comments to: Alicia Curry, Department of Labor & Industries, Field Services and Public Safety Division, PO Box 44400, Olympia, WA 98504-4400.
- Email: Alicia.Curry@lni.wa.gov, or Fax: 360-902-5292
- Attend the public hearing by conference call: Call 1-866-715-6499. If you receive a busy signal and cannot connect, an alternate number to call is (719) 325-2776. When prompted for the passcode, enter 9862128073 followed by the pound sign (#). The telephonic hearing starts at 10:00 a.m. and will continue until all oral comments are received.

The proposed adoption date for the new rules is May 19, 2020 and the proposed effective date is July 1, 2020. For complete details about the process, see the [October 2019 Electrical Currents](#) Newsletter Special Edition. If you need additional information or have any questions about the rulemaking process, you may contact Alicia Curry at 360-902-6244 or Alicia.Curry@lni.wa.gov.

Answer to Question of the Month: The 2023 edition of the NEC is now open for public input! Anyone can submit a proposal to make changes to the NEC. The public input closing date is September 10, 2020. To submit a public input using the online submission system, visit the National Fire Protection Association – NFPA 70 page using this [link](#). Once on the NFPA 70 page, select the link "Submit a Public Input" to begin the process. You will be asked to sign-in or create a free online account with NFPA before using this system.

Ugly Picture of the Month: Headlines reported the first U.S. death from coronavirus occurred in Washington on February 29, 2020. Since then, things in our world have changed dramatically. We in the electrical program wish everyone well during this time and are praying for a speedy end to this situation. Until then, please abide by directives, [stay home and stay healthy](#).

Washington state man becomes first U.S. death from coronavirus

The CDC says it's responding to "the first possible outbreak" of the virus at a U.S. long-term care facility in Washington.

Health officials in Washington state said on Saturday a coronavirus patient has died, marking the first death in the U.S. from COVID-19, the illness associated with the virus.

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SPECIAL EDITION

COVID-19 Electrical Program Impacts

This special edition newsletter is dedicated to providing important updates regarding how the COVID-19 response may affect services the electrical program provides to our customers. Of course, developments are changing rapidly, so watch for updates in future editions.

Restricted Access to L&I Front Counters

The need for increased social distancing to slow the spread of coronavirus (COVID-19) has resulted in L&I halting walk-in visits to its regional offices.

Beginning March 18, customers must have a confirmed appointment between 10 a.m. and 2:30 p.m. to be allowed in the offices. Public doors to L&I's regional locations will be locked as part of this temporary policy.

Customers are encouraged to use the option of doing business with L&I over the phone and online during all normal business hours. Business that must be conducted in-person will now require a call to the local office for customers to make an appointment.

People can find phone numbers for all [regional offices](#) on the L&I website. People can also call the L&I Office of Information and Assistance at 360-902-5800.

These changes in front-counter in-person customer service are in effect until further notice.

Electrical Inspection Impacts

Please be patient with us as we all navigate this situation together. Please let us know when requesting an inspection if there are any concerns with COVID-19 at the inspection site such as high-risk, elderly customers, or quarantine situations. Please communicate these concerns in the comments section of the inspection request. As always, our inspectors will prioritize inspections in an effort to support continued progress on construction projects, but there may be delays with some inspections. Be sure to communicate with your [local inspection office](#) if you have an urgent inspection. Some inspectors, program specialists and supervisors will be working from outside the office, but are available by phone.

In addition, you may consider using a virtual electrical inspection. You can schedule a [Virtual Electrical Inspection](#) (VEI) on the same day at least 30 minutes in advance of when you need it. To use VEI, you will need to download the [Skype Application](#) and create a profile. Use Google Chrome to [schedule](#) your inspection for the day and time you want. You can learn more about VEI by visiting www.lni.wa.gov and search "Virtual."

Contact us: Call 360-902-5299 or **Email:** VirtualElectricalInspection@Lni.wa.gov

Safety Tip

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- Maintain personal space (6 ft.)
- Cover minor cuts
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Trainees Who Cannot Get Required Classroom Training for Renewal of Certificates

On March 13, Governor Inslee issued a proclamation prohibiting all public and private universities, colleges, technical schools, apprenticeship programs, and similar schools and programs from conducting in-person classes in all counties of Washington State. This prohibition will last until April 24, 2020, unless extended to a later date. Because of this, holders of training certificates with expiration dates on or after March 13 may not be able to complete the basic classroom instruction required to renew their certificates.

The department will issue a policy allowing those trainees who renew their certificates without completing the required classroom instruction to continue working with their certificate in inactive status until 60 days following April 24, or later if extended beyond that date. This will allow them to complete their required classroom instruction when classes resume. This allowance will apply only to holders of training certificates with expiration dates on or after March 13, 2020 who have renewed and are in inactive ("T") status due to lack of basic classroom instruction. It does not apply to holders of training certificates in expired, archived, or suspended status. It does not apply to holders of electrician, administrator, or master electrician certificates, as online classes are available for continuing education.

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- Mail written comments to: Alicia Curry, Department of Labor & Industries, Field Services and Public Safety Division, PO Box 44400, Olympia, WA 98504-4400.
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The proposed adoption date for the new rules is May 19, 2020 and the proposed effective date is July 1, 2020. For complete details about the process, see the [October 2019 Electrical Currents](#) Newsletter Special Edition. If you need additional information or have any questions about the rulemaking process, you may contact Alicia Curry at 360-902-6244 or Alicia.Curry@Lni.wa.gov.

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Phyllis Cooper Rides Off Into Retirement

After 37 years of dedicated service to the electrical program, Phyllis Cooper retired last month. Phyllis was the person everyone went to with questions about anything in the L&I electrical program. She led us from a world of paper forms and applications to one where most of our services are available online any time of the day or night. Phyllis was instrumental in shaping our online services for [purchasing permits](#), [requesting inspections](#), and renewing a [license](#) or [certificate](#). Recently, she led the development of our [virtual electrical inspection](#) and electronic [plan review](#) programs. If you had a problem with your [electronic permit account](#) and called us for help, Phyllis was probably the one who helped you. Not to worry though, you are now in the very capable hands of her successor, Teddi Carruth.

As Phyllis was saying goodbye, she had some great words for us all: “be patient”, “be kind”, “the customer should always be our focus”, and “do the right thing for the right reason”.

Best wishes Phyllis! Thank you for a job well done. We will miss you greatly!

Safety Tip of the Month

As you hurry to your next appointment, be alert for motorcyclists, bicyclists, and pedestrians. Give them a brake. One of them could be Phyllis!

Question of the Month – When will the requirements of the 2020 National Electrical Code (NEC) be enforced in Washington? *See correct answer on Page 2.*

WAC 296-46B Rulemaking Update

The process of revising the electrical rules is underway. Watch for updates in future editions of this newsletter and at the Rule Development section of our [Electrical Laws and Rules](#) webpage. For complete details about the process, see the [October 2019 Electrical Currents](#) Newsletter Special Edition.

You can also discuss proposals with the chief electrical inspector by attending a stakeholder meeting near you (see the article below). If you need additional information or have any questions about the rulemaking process, you may contact Alicia Curry at 360-902-6244 or Alicia.Curry@lni.wa.gov.

Legislative Update

If you are part of the electrical industry regulated by L&I, lawmakers have been considering bills that may affect you. Of those bills introduced this session that affect the electrical program, one is still under consideration. This bill is not sponsored by L&I. You can get information about this bill by clicking on the hyperlinked bill number below. Review the bill and comment if you desire. A comment button is located below the bill number on the legislative webpage. You may also contact your legislator to share your opinion about any legislation by visiting the legislative website at: <http://www.leg.wa.gov/LIC/Pages/hotline.aspx>.

[Senate Bill 6409](#) – Exempts manufacturers’ authorized engineers or factory-trained service technicians from electrical contractor licensing and worker certification requirements while working within the confines of industrial equipment.

Electrical Contractors – Schedule a Virtual Electrical Inspection Today

In a new service from L&I, you can now request a [Virtual Electrical Inspection](#) (VEI) on the same day at least 30 minutes in advance of when you need it.

VEI is a dependable inspection process, allowing contractors on the jobsite to interact with inspectors online on a mobile device using Skype. Here are some important points to keep in mind:

- To use VEI, you will need to download the [Skype Application](#) and create a profile.
- Use VEI for any electrical inspections that will take no longer than 15 minutes, *and* that do not involve service or final approvals
- On the jobsite, make sure you have at least a 4G, LTE, or Wi-Fi connection on your mobile device.

Benefits:

- Get quicker follow-up inspections on corrections
- Same day as requested inspections equals time and money saver

Use Google Chrome to [schedule](#) your inspection for the day and time you want. You can learn more about VEI by visiting www.lni.wa.gov and search “Virtual.”

Contact us: Call 360-902-5299 or **Email:** VirtualElectricalInspection@Lni.wa.gov

Invitation to a Stakeholder Meeting Near You

I am holding electrical stakeholder meetings across the state between January and May 2020. These meetings are an opportunity to talk in an informal setting. I want to hear how we can better serve you and help you stay informed of any regulations that might affect you and/or your business. Check the schedule and attend a meeting near you. Meetings are held from 6 to 8 p.m. at the locations listed below.

2020 Stakeholder Meetings 6 – 8 p.m.		
March 3 – Tukwila – L&I Building 12806 Gateway Dr. South, Rm C30	April 8 – Everett – Snohomish County PUD – 2320 California St, Commission Rm	April 9 – Mount Vernon – NW WA Research and Ext Center , 16650 SR 536
April 21 – Pateros – Howard’s on the River Event Center 233 Lakeshore Drive	April 22 – East Wenatchee – Douglas County PUD , 1151 Valley Mall Parkway	April 23 – Moses Lake – L&I Building 3001 West Broadway Avenue
May 11 – Kennewick – Benton PUD Auditorium – 2721 West 10th Avenue	May 12 – Spokane – Spokane Falls Community College , 3410 W. Fort George Wright Drive, Bldg. 17, Sub Lounges	May 13 – Colville – Spokane Community College , 985 S Elm St., Classroom 132
May 14 – Pullman – Parks & Recreation , 190 SE Crestview, Room 218	Late-May – Yakima – exact date and location yet to be determined	

Answer to Question of the Month: We have changed our policy regarding enforcement when new standards are adopted. The 2020 NEC becomes effective in Washington on July 1, 2020. Previously, all jobs where permits were purchased on or after the effective date were inspected in accordance with the requirements of the new code. In general, this is still true, but we have added two exceptions. For new one-, two-, or multi-family dwellings, the inspections will be based on the edition of the code in effect when the building permit is issued. For new installations where plan review is required by [WAC 296-46B-900](#), the date the plans are received and accepted for review will determine the edition of the code enforced. This policy is proposed as a change to WAC 296-46B-010 in the current rulemaking.

Ugly Picture of the Month: *If viewing this document online, click on the picture to open a larger image.*

Look closely at the picture. Which violation(s) pose the greatest hazard?

- 1) Exposed, un-protected, un-supported nonmetallic-sheathed cable
- 2) The rusty tool supporting the luminaire
- 3) Open, exposed wire nut splices
- 4) No evidence of equipment grounding of the metal pole and luminaire
- 5) Hazardous distraction for electricians doing a “double-take” while driving by



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Question of the Month – According to the 2020 National Electrical Code (NEC), ground-fault circuit-interrupter (GFCI) protection is required for: A) 250-volt, 30-ampere dryer receptacles; B) 250-volt, 50-ampere range receptacles within six feet of a sink; C) all 125-volt through 250-volt receptacles in a finished dwelling basement; D) all of the above. See correct answer on Page 2.

WAC 296-46B Rulemaking Update

The process of revising the electrical rules is underway. The electrical board reviewed the [First Draft](#) of WAC 296-46B and provided advice to the department at their meeting on January 30, 2020 in Tumwater. All of the proposals the department will move forward in the process will be compiled shortly in a Second Draft and will be posted on the Rule Development section of our [Electrical Laws and Rules](#) webpage.

The next step will be filing the CR-102 rulemaking proposal, which will open the formal public comment period and announce details for a public hearing. Watch for updates in future editions of this newsletter and at the Rule Development section of our [Electrical Laws and Rules](#) webpage. For complete details about the process, see the [October 2019 Electrical Currents](#) Newsletter Special Edition.

You can also discuss proposals with the chief electrical inspector by attending a stakeholder meeting near you (see article below). If you need additional information or have any questions, you may contact Alicia Curry at 360-902-6244 or Alicia.Curry@lni.wa.gov.

Legislative Update

If you are part of the electrical industry regulated by L&I, lawmakers are considering bills that may affect you. These bills are not sponsored by L&I. You can get information about these bills by clicking on the hyperlinked bill number below. Review the bills and comment if you desire. A comment button is located below the bill number on each webpage. You may also contact your legislator to share your opinion about any legislation by visiting the legislative website at: <http://www.leg.wa.gov/LIC/Pages/hotline.aspx>.

[House Bill 2330](#) – Requires various state agencies including L&I to issue a “recommended guidance statement” in lieu of formal enforcement actions or civil penalties for violations of laws and rules enforced by the agencies.

[Senate Bill 6409](#) – Exempts manufacturers’ authorized engineers or factory-trained service technicians from electrical contractor licensing and worker certification requirements while working within the confines of industrial equipment.

[Senate Bill 6327](#) – Requires the department to issue temporary permits in lieu of certificates of competency if an applicant holds a journey level or specialty electrician certificate from another state.

Electrical Contractors – Virtual Electrical Inspections Are Here

In a new service from L&I, you can now request a [Virtual Electrical Inspection](#) (VEI) on the same day at least 30 minutes in advance of when you need it.

Safety Tip of the Month

Portable generators are useful during power outages and on construction sites. Be aware of the dangers of improper use of portable generators. One of the most common dangers associated with portable generators is carbon monoxide poisoning. Make sure your generator is in a well-ventilated outdoor area. Never use a generator in an attached garage, even with the door open.

Place generators so that exhaust fumes will not enter the building through windows, doors, or other openings.

You can download a helpful generator safety publication from the National Fire Protection Association [here](#).

VEI is a dependable inspection process, allowing contractors on the jobsite to interact with inspectors online on a mobile device using Skype. Here are some important points to keep in mind:

- To use VEI, you will need to download the [Skype Application](#) and create a profile.
- Use VEI for any electrical inspections that will take no longer than 15 minutes, *and* that do not involve service or final approvals
- On the jobsite, make sure you have at least a 4G, LTE, or Wi-Fi connection on your mobile device.

“VEI benefits customers, who will have some predictability that an inspection will take place at a specific time,” said Steve Thornton, L&I Chief Electrical Inspector. “Besides saving time and money for contractors, virtual inspections will also lead to quicker follow-up inspections on corrections.”

Use Google Chrome to [schedule](#) your inspection for the day and time you want. You can learn more about VEI by visiting www.lni.wa.gov and search “Virtual.”

Invitation to a Stakeholder Meeting Near You

I am holding electrical stakeholder meetings across the state between January and May 2020. These meetings are an opportunity to talk in an informal setting. I want to hear how we can better serve you and help you stay informed of any regulations that might affect you and/or your business. Check the schedule and attend a meeting near you. Meetings are held from 6 to 8 p.m. at the locations listed below.

2020 Stakeholder Meetings 6 – 8 p.m.		
February 4 – Vancouver – L&I Building – 312 E Stonemill Dr. Suite 120, Room C49	February 5 – White Salmon – White Salmon Valley Library – 77 NE Wauna Ave	February 6 – Kelso – L&I Building , 711 Vine St. Room R11
February 25 – Tacoma – L&I Building 950 Broadway, Orcas Room, 5 th floor	February 26 – Silverdale – L&I Building 10049 Kitsap Mall Blvd NW Suite 100	February 27 – Sequim – Clallam County PUD , 104 Hooker Rd, Lake Crescent Rm.
March 3 – Tukwila – L&I Building 12806 Gateway Dr. South, Rm C30	April 8 – Everett – Snohomish County PUD – 2320 California St, Commission Rm	April 9 – Mount Vernon – NW WA Research and Ext Center , 16650 SR 536
April 21 – Pateros – Howard’s on the River Event Center 233 Lakeshore Drive	April 22 – East Wenatchee – Douglas County PUD , 1151 Valley Mall Parkway	April 23 – Moses Lake – L&I Building 3001 West Broadway Avenue
May 11 – Kennewick – Benton PUD Auditorium – 2721 West 10th Avenue	May 12 – Spokane – Spokane Falls Community College , 3410 W. Fort George Wright Drive, Bldg. 17, Sub Lounges	May 13 – Colville – Spokane Community College , 985 S Elm St., Classroom 132
May 14 – Pullman – Parks & Recreation, 190 SE Crestview, Room 218	Late-May – Yakima – exact date and location yet to be determined	

Answer to Question of the Month: D) All of the above. 2020 NEC 210.8(A) was revised to include GFCI protection for all of the above receptacles. GFCI protection rules were expanded to include all receptacles up to 250-volt in the specified areas.

Ugly Picture of the Month: *If viewing this document online, click on the picture to open a larger image.*

Don’t be like this guy. This dangerous act was performed along one of the busiest streets in town about six blocks from the L&I office. Fortunately for him, an L&I electrical inspector showed up before the guy fell off, and gave him some wise counsel on safe ladder use.



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Question of the Month – According to the 2020 National Electrical Code (NEC) is a main-lug service panelboard consisting of up to six service disconnecting means in the same enclosure permitted? *See correct answer on Page 2.*

WAC 296-46B Rulemaking Update

The process of revising the electrical rules is underway. A Technical Advisory Committee (TAC), made up of a broad cross section of representatives from the electrical industry reviewed the proposals and provided advice to the department at their meeting on December 11, 2019 in Tacoma. We have compiled all of the proposals the department will present to the Electrical Board in a [First Draft](#) of WAC 296-46B. A copy of the First Draft is available by visiting the Rule Development section of our [Electrical Laws and Rules](#) webpage. The department will receive the advice of the Electrical Board regarding the First Draft at their January 30th [meeting](#) in Tumwater.

Before adoption of any rules, there will be formal opportunities to provide written comments or present testimony at a public hearing. Watch for updates in future editions of this newsletter and at the Rule Development section of our [Electrical Laws and Rules](#) webpage. For complete details about the process, see the [October 2019 Electrical Currents](#) Newsletter Special Edition. If you need additional information or have any questions, you may contact Alicia Curry at 360-902-6244 or Alicia.Curry@lni.wa.gov.

No L&I Electrical Inspections on January 8 – Statewide Electrical Inspector Training

Training for all electrical inspectors is happening on January 7 – 9, 2020. To relieve some of the impact, January 8 will be the only day attended by all L&I inspectors, no inspections will be performed that day. On January 7 and 9, inspectors will be available but at reduced capacity. We regret the inconvenience this causes, but we have found that a statewide approach improves consistency and is the most efficient use of our training budget. Please let your customers know and plan for inspections accordingly.

Electrical Contractors – Virtual Electrical Inspections Are Here

You can now request a [Virtual Electrical Inspection](#) (VEI) on the same day at least 30 minutes in advance of when you need it. VEI is a dependable inspection process allowing customers on the jobsite to interact with inspectors online using Skype on a mobile device. You can begin using VEI now for any electrical inspections that will take no longer than 15 minutes, and that do not involve service or final approvals. To use VEI, download the [Skype Application](#) and create a profile. On the jobsite, make sure you have at least a 4G, LTE, or Wi-Fi connection on your mobile device. Use Google Chrome to [schedule](#) your inspection on the day and time you want it. To learn more, search “virtual” at www.lni.wa.gov.

Big Changes Coming for Trainees and 01 Contractors – Apprenticeship Requirement

[Substitute Senate Bill 6126](#) passed by the legislature in 2018 affects those training to become 01 general journey level electricians and those who employ them.

- Effective July 1, 2023, to be eligible for the (01) general journey level electrician examination, applicants must have completed a recognized (01) electrical apprenticeship program approved by the Washington State Apprenticeship Training Council (WSATC) or out-of-state equivalent.
- After June 30, 2023, unless working in a specialty, trainees must be registered apprentices. Apprenticeship programs may credit certain properly documented electrical experience on record with the department such as, 4000 hours

Safety Tip of the Month

Standing water, ice, or snow may conceal hidden hazards. Avoid slips, trips, and falls by wearing proper footwear and proceeding with caution at all times. Trust your instincts and training. If your path is unsafe, find a safe route to get there or do not go!

required to obtain an electrical specialty certificate, military experience or completion of a two-year training school program. Students enrolled in a two-year program in the electrical construction trade are not required to be registered apprentices while gaining on-the-job training experience during an externship.

Want to Sponsor An Apprenticeship Program?

All sponsors for (01) general journey level electrician apprenticeship programs must adhere to Minimum Guideline Standards approved by the WSATC. You can request a copy by contacting apprentice@lni.wa.gov.

Registered apprenticeship programs start with the formation of an apprenticeship committee made up of industry members—both employers and employees.

The best way to get started is by contacting the apprenticeship customer service line at 360-902-5320. They will connect you with an apprenticeship consultant in your area. They are your best resource to help you identify which type of apprenticeship model best suits your company and then provide one-on-one consulting and on-site assistance to get your program up and running.

Invitation to a Stakeholder Meeting Near You

I am holding electrical stakeholder meetings across the state between January and May 2020. These meetings are an opportunity to talk in an informal setting. I want to hear how we can better serve you and help you stay informed of any regulations that might affect you and/or your business. Check the schedule and attend a meeting near you. Meetings are held from 6 to 8 p.m. at the locations listed below. Please note the **date changes** for the Tacoma and Silverdale meetings.

2020 Stakeholder Meetings 6 – 8 p.m.		
January 28 – Tumwater – L&I Building Auditorium - 7273 Linderson Way SW	January 29 – Aberdeen – L&I Building 415 W Wishkah St, Suite B, Rm 112	February 4 – Vancouver – L&I Building – 312 E Stonemill Dr. Suite 120, Room C49
February 5 – White Salmon – White Salmon Valley Library – 77 NE Wauna Ave	February 6 – Kelso – L&I Building, 711 Vine St. Room R11	February 25 – Tacoma – L&I Building 950 Broadway, Orcas Room, 5th floor
February 26 – Silverdale – L&I Building 10049 Kitsap Mall Blvd NW Suite 100	February 27 – Sequim – Clallam County PUD, 104 Hooker Rd, Lake Crescent Rm.	March 3 – Tukwila – L&I Building 12806 Gateway Dr. South, Rm C30
April 8 – Everett – Snohomish County PUD – 2320 California St, Commission Rm	April 9 – Mount Vernon – NW WA Research and Ext Center , 16650 SR 536	April 21 – Pateros – Howard’s on the River Event Center 233 Lakeshore Drive
April 22 – East Wenatchee – Douglas County PUD conference room, 1151 Valley Mall Parkway	April 23 – Moses Lake – L&I Building 3001 West Broadway Avenue	May 12 – Spokane – Spokane Falls Community College, 3410 W. Fort George Wright Drive, Bldg. 17, Sub Lounges
May 13 – Colville – Spokane Community College, 985 S Elm St., Classroom 132	Mid-May – Pullman – exact date and location yet to be determined	Late-May – Yakima – exact date and location yet to be determined
Late-May – Kennewick – exact date and location yet to be determined		

Answer to Question of the Month: No. No more “main lug” services. 2020 NEC 230.71(B) has been revised to require the two to six service disconnecting means to be in separate enclosures or panelboards with a main service disconnecting means in each enclosure, separate vertical sections of switchboards, or in equipment where each service disconnecting means is located in a separate compartment such as a motor control center.

Ugly Picture of the Month: We receive many questions from folks at our electrical program mailbox, ElectricalProgram@lni.wa.gov about how to become certified electricians. This one raises a few questions. You can find information about becoming an electrician by searching “electrician” at www.lni.wa.gov.

Hi so I've worked in the electrical industry for about the last 10 years although I don't have any actual licensing. I want to get licensed so that my resume looks more attractive and I can get more work. What would I need to do in order to get that license?

Is it possible simply take a test being that I have so much experience?

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