Chapter 296-46B WAC

Electrical safety standards, administration, and installation

Last Update: ~~8/23/2019~~2/24/2020

Note: Only sections containing proposed revisions are shown

Part A – NEC installation amendments, standards, inspections, and definitions

WAC 296-46B-010 General.

Adopted standards.

(1)The ~~2017~~2020 edition of the National Electrical Code (NFPA 70 - ~~2017~~2020) published August, 2019 including Annex A, B, ~~and~~ C, and subsequent Errata and Tentative Interim Amendments issued by the National Fire Protection Association; Commercial Building Telecommunications Cabling Standard (ANSI/TIA-568-C series, February 2009); Commercial Building Standard for Telecommunications Pathway and Spaces (TIA-569-B, October 2004); Commercial Building Grounding and Bonding Requirements for Telecommunications (ANSI/TIA-607-B, August 2011); Residential Telecommunications Cable Standard (ANSI/TIA/EIA 570-B-2004); and the National Electrical Safety Code (NESC C2-2017 excluding Appendixes A and B) are hereby adopted by reference as part of this chapter.

~~On July 1, 2020, the 2020 edition of the National Electrical Code (NFPA 70-2020 including Annex A, B, and C is hereby adopted by reference as part of this chapter and replaces the 2017 edition.~~

This chapter will be followed where there is any conflict between this chapter and the above adopted standards.

The National Electrical Code will be followed where there is any conflict between the National Electrical Code and ANSI/TIA/EIA 568-C, ANSI/TIA/EIA 569-B, ANSI/TIA/EIA 607-B, ANSI/TIA/EIA 570-B, or the NESC C2.

Adopted standards apply to installations when issue dates of electrical permits are on and after adoption dates except for:

(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-100 General definitions.

A "training school" is a Washington public community or technical college or not-for-profit nationally accredited technical or trade school licensed by the work force training and education coordinating board under chapter 28C.10 RCW.

Commented [MR(1]: Replaces 2017 NEC with 2020 edition and eliminates the note below regarding effective date. Also clarifies the publishing date of the standard, and that subsequent Errata and TIAs issued by NFPA are part of the standard as stated on NFPA document information pages.

This was not included in discussions with the TAC and Board and will be discussed at the April board meeting.

Commented [MR(2]: Establishes rules in place of policies regarding transition to newly adopted editions of the National Electrical Code historically published by the chief electrical inspector in the Electrical Currents Newsletter.

In previous transitions where the date the electrical permit was purchased determined what edition of the National Electrical Code applied, speculators in the residential market bought permits in bulk prior to the adoption date of a new edition of the National Electrical Code to circumvent having to comply with requirements in the new edition. As written, proposed Section (a) ensures that speculative practices are not rewarded.

No cost change. Delays implementation of new code requirements for the affected projects.

Supported by TAC – no opposition
Supported by board – no opposition

Commented [MR(3]: No change in policy. This aligns the definition with current WAC 296-46B-971(1).

Clarifies that out-of-state and international institutions are not eligible for designation as a training school to provide basic classroom instruction and work experience for Washington electrical trainees.

Supported by TAC – no opposition
Supported by board – no opposition

WAC 296-46B-110 General - Requirements for electrical installations.

003 Examination, identification, installation, and use of equipment.

(1) Listed electrical conduit can only be installed and used in accordance with its listing (i.e. as an electrical raceway for electrical conductors). If used as a sleeve for electrical conductors or other listed electrical conduits, the installation of a listed electrical conduit will be assumed to be for use as an electrical raceway and must be installed as allowed by chapter 19.28 RCW and this chapter (e.g., owner exemption, electrical contractor, etc.).

Exception: Electrical nonmetallic elbow fittings may be connected to piping other than electrical conduit for the purposes of enclosing mechanical piping systems provided the elbows are distinctively marked to indicate their use as non-electrical fittings prior to installation. For underground installations outside of buildings, elbows used for purposes other than electrical must be substantially painted to match the color of piping to which they are connected.

Commented [MR(4]: Stakeholder proposal 14. Allows use of long radius sweep elbows to connect water pipe enclosing circulation lines for underground geo-thermal systems. Electrical elbows are more readily available and less expensive than long-radius water pipe elbows which are not produced in large quantities.

TAC: 16 supported, 8 opposed

Board supported with no opposition but suggested specifying method of marking. Proposal was revised after board meeting to reflect their comments.

WAC 296-46B-210 Wiring and protection — Branch circuits.

008(B) Other than dwelling units – GFCI requirements.

(3) GFCI requirements. GFCI protection for personnel will not be required for:

(a) Three-phase receptacles unless specifically required elsewhere in the NEC; or

(b) Receptacles other than 125-volt, single phase, 15- or 20 ampere used for: recreational vehicle supply equipment or for attachment of a mobile home supply cord ~~other than 125-volt, single phase, 15- or 20-ampere receptacles~~.

Commented [MR(5]: Clarification suggested by a stakeholder after last year's rule revisions. Clarifies intent. Previous language could be interpreted to allow 125-volt receptacles used for RV supply equipment without GFCI protection.

Does not change policy or enforcement. Clarification only.

Supported by TAC – no opposition
Supported by board – no opposition

052(A)(2) Dwelling unit receptacle outlets.

~~052(C) Countertops.~~

~~(8) A receptacle in a wall countertop space shall be permitted to serve as the receptacle for a peninsular countertop space where the spaces are contiguous and the receptacle is located within 8 feet of the outside edge of the peninsular countertop.~~

Commented [MR(6]: Stakeholder proposal 1. Implements requirements in 2020 NEC which changed to required number of receptacles to be based on square footage of peninsular countertops.

Supported by TAC – no opposition
Supported by board – no opposition

WAC 296-46B-225 Wiring and protection — Outside branch circuits and feeders.

~~030 Number of supplies.~~

~~(2) For the purposes of NEC 225.30(A) and this section, a building/structure that is supplied from a remote service, may be supplied by no more than six feeders originating from the service equipment and with each feeder terminating in a single disconnecting means at the building/structure. The service equipment must contain overcurrent protection appropriate to each feeder. The building disconnecting means required by NEC 225.32 must be grouped, within sight and all be within 10' of each other.~~

Commented [MR(7]: Stakeholder proposal 2. No longer needed as this allowance is now in the 2020 NEC 225.30(B)

No change in policy or enforcement.

Supported by TAC – no opposition
Supported by board – no opposition

WAC 296-46B-250 Wiring and protection — Grounding and bonding.

184 Solidly grounded neutral systems over 1000 volts.

(10) In addition to the requirements of NEC 250.184(A), the following applies for:
(a) Existing installations.
(i) The use of a concentric shield will be allowed for use as a neutral conductor for extension, replacement, or repair, if all of the following are complied with:
(A) The existing system uses the concentric shield as a neutral conductor;
(B) Each individual conductor contains a separate concentric shield sized to no less than thirty-three and one-half percent of the ampacity of the phase conductor for three-phase systems or one hundred percent of the ampacity of the phase conductor for single-phase systems;
(C) The new or replacement cable's concentric shield is enclosed inside an outer insulating jacket; and
(D) Existing cable (i.e., existing cable installed directly in the circuit between the work and the circuit's overcurrent device) successfully passes the following tests:

- A cable maintenance high potential dielectric test. The test must be performed in accordance with the cable manufacturer's instruction or the ~~2011~~ 2019 ANSI/NETA maintenance test specifications; and
- A resistance test of the cable shield. Resistance must be based on the type, size, and length of the conductor used as the cable shield using the conductor properties described in NEC Table 8 Conductor Properties.

An electrical engineer must provide a specific certification to the electrical plan review supervisor in writing that the test results of the maintenance high potential dielectric test and the resistance test have been reviewed by the electrical engineer and that the cable shield is appropriate for the installation. The electrical engineer must stamp the certification document with the engineer's stamp and signature. The document may be in the form of a letter or electrical plans.

Testing results are valid for a period of seven years from the date of testing. Cable will not be required to be tested at a shorter interval.

Commented [MR(8]: Clarifies the most recently published edition of the maintenance testing standard is to be used.

No change. Automatically adopts latest ANSI standard.

Supported by TAC – no opposition
Board – suggested specifying the edition instead of "most recently published". Changed proposal to reflect their comments.

WAC 296-46B-334 Wiring methods and materials — Nonmetallic-sheathed cable.

010 Nonmetallic-sheathed cable.

(1) The building classification, for subsections (2), (3), and (4) of this section, will be as determined by the building official. For the purposes of this section, Type III, IV-HT and V may be as defined in the International Building Code adopted in the state of Washington. The installer must provide the inspector documentation substantiating the type of building construction and finish material rating(s) prior to any electrical inspection.
(2) This section replaces NEC 334.10(2). In multifamily dwellings, Type NM, Type NMC, and Type NMS cable(s) may be used in structures of Types III, IV-HT, and V construction except as prohibited in NEC 334.12.
(3) This section replaces NEC 334.10(3). In all other structures, Type NM, Type NMC, and Type NMS cable(s) may be used in structures of Types III, IV-HT, and V construction except as prohibited in NEC 334.12. All cable(s) must be concealed within walls, floors, or ceilings that provide a thermal barrier of material that has at least a 15-minute finish rating as identified in listings of fire-rated assemblies.
(4) This section replaces NEC 334.10(4). Cable trays in structures of Types III, IV-HT, and V construction, where the cable(s) is identified for the use, except as prohibited in NEC 334.12.

Commented [MR(9]: Stakeholder proposal 3. This proposal keeps policy and enforcement regarding nonmetallic-sheathed cable the same as current requirements. Changes in building construction types by the State Building Code require this change to prohibit expansion of use of NM cable in taller buildings of Mass Timber type construction.

Supported by TAC – no opposition
Supported by board – no opposition

~~**WAC 296-46B-553 Special occupancies — Floating buildings.**~~

~~**004 Floating buildings and similar facilities – Services and feeders.**~~

~~(1) Where electrical power is provided, floating buildings and similar facilities in addition to complying with the appropriate sections of Article 553 NEC must have a readily accessible service rated disconnect located on the shoreline within sight of the shoreline connection of the dock, wharf or similar structure to which the floating building or similar facility is moored.~~

~~(2) Where shore power is provided, each floating building or similar facility must have a disconnecting means located within sight of each floating building or similar facility. The disconnecting means must be installed adjacent to but not in or on the floating building or similar facility.~~

~~(3) The second sentence of NEC 553.4 is amended to read: The overcurrent protective devices that supply the floating building shall have ground-fault protection not exceeding 30 mA. Until July 1, 2018, the ground-fault protection level specified in this subsection is amended to allow a maximum of: 100 mA for overcurrent devices supplying feeder conductors; and 30 mA for overcurrent devices supplying branch circuit conductors and outlets.~~

~~The third sentence of NEC 553.4 is not adopted.~~

~~**007 Floating buildings and similar installations - Wiring methods.**~~

~~(4) Extra-hard usage portable power cables rated not less than 75°C, 600 volts, listed for wet locations and sunlight resistance and having an outer jacket rated for the environment may be used as a permanent wiring method when joining the structures indicated above and for any concealed or protected wiring on a sectionalized floating dock leading to a floating building or similar facility. The cable needs to be resistant only to environments it is normally exposed to on an ongoing basis.~~

~~(5) Conductors operating in excess of 600 volts, nominal may not be installed on floating portions of a floating building or similar facility.~~

WAC 296-46B-555 Special occupancies — Marinas, boatyards, floating buildings, and commercial and noncommercial docking facilities.

~~(1) Until September 1, 2019, the ground-fault protection level specified in 2017 NEC 555.3 is amended to allow a maximum of: 100 mA for overcurrent devices supplying feeder conductors not supplying primary windings of transformers; and 30 mA for overcurrent devices supplying branch circuit conductors, outlets, and feeder conductors supplying primary windings of transformers. On September 1, 2019, ground-fault protection for marinas, boatyards, and commercial and noncommercial docking facilities will be as published in the 2020 NEC.~~

(~~2~~1) For the purposes of NEC ~~555.5~~555.7, transformer terminations must be located a minimum of 12 inches above the deck of a dock (datum plane requirements do not apply for this section).

(~~3~~2) For the purposes of NEC ~~555.7~~555.4, adjacent means within sight.

(~~4~~3) For the purposes of NEC ~~555.9~~555.30, all electrical connections must be installed a minimum of 12 inches above the deck of a pier unless the connections are ~~approved for wet locations~~within junction boxes identified for wet locations, utilizing sealed wire connector systems listed and identified for submersion. (datum plane requirements do not apply for this section).

(~~5~~4) For the purposes of NEC ~~555.10~~555.31, all enclosures must be corrosion resistant. All gasketed enclosures must be arranged with a weep hole to discharge condensation.

(~~6~~5) For the purposes of NEC ~~555.11~~555.32, gasketed enclosures are only required for wet locations.

(~~7~~6) For the purposes of NEC ~~555.13~~555.34, the following wiring methods are allowed:

(a) All wiring installed in a damp or wet location must be suitable for wet locations.

(b) Extra-hard usage portable power cables rated not less than 75˚C, 600 volts, listed for wet locations and sunlight resistance and having an outer jacket rated for the environment are permitted. Portable power cables are permitted as a permanent wiring method under or within docks and piers or where provided with physical protection. The requirements of NEC ~~555.13 (B)(4)(b)~~555.34(B)(3)(b) do not apply.

(c) Overhead wiring must be installed at the perimeter of areas where boats are moored, stored, moved, or serviced to avoid possible contact with masts and other parts of boats. NEC article 398 open wiring on insulators is not an approved wiring method in or above any portion of a marina or docking facility.

(d) For the purposes of NEC ~~555.13 (B)(5)~~555.34(B)(4), the wiring methods of Chapter 3 NEC will be permitted.

Commented [MR(10]: Requirements for floating buildings were moved from article 553 to 555 in the 2020 NEC.

No change in policy or enforcement. Changes to match 2020 NEC.

Supported by TAC – no opposition (all changes in WAC 296-46B-553 and 555)
Supported by board – no opposition (all changes in WAC 296-46B-553 and 555)

Commented [MR(11]: Deleted. NEC 555.4 and WAC 296-46B-555(2) below provide the same requirements.

Commented [MR(12]: Retained same requirement but moved to WAC 296-46B-555(7) to coordinate with 2020 NEC floating building location.

Commented [MR(13]: Retained 30 mA requirement but moved to WAC 296-46B-555(8) to coordinate with 2020 NEC floating building location. Deleted outdated second sentence.

Commented [MR(14]: Deleted. NEC 555.52 contains same requirements and allows extra-hard usage portable power cables where flexibility is required.

Commented [MR(15]: Retained requirement but moved to WAC 296-46B-555(9) to coordinate with 2020 NEC floating building location.

Commented [MR(16]: Deleted. Requirements of the 2020 NEC are now adopted.

Commented [MR(17]: Reference changes only to match 2020 NEC. Same comment for reference changes below.

Commented [MR(18]: Changed to match current NEC requirements for connections below the electrical datum plane.

Commented [MR(19]: Clarifies current NEC requirement. NEC 398.10 states open wiring on insulators shall be permitted only for industrial or agricultural establishments.

(~~8~~7) For the purposes of NEC ~~555.19~~555.33, receptacles must be mounted not less than 12 inches above the deck surface of the pier or dock (datum plane requirements do not apply for this section). Shore power receptacles that provide shore power for boats must be rated not less than 20 amperes and must be single outlet type and must be of the locking and grounding type or pin and sleeve type.

Floating Buildings

(8) Where shore power is provided, a disconnecting means must be located within sight of each floating building or similar facility. The disconnecting means must be installed adjacent to but not in or on the floating building or similar facility.
(9) NEC 555.53 is amended to read: The overcurrent protective device(s) that supply the floating building shall have ground-fault protection not exceeding 30 mA.
(10) Conductors operating in excess of 600 volts, nominal may not be installed on floating portions of a floating building or similar facility.

Commented [MR(20]: Requirements for floating buildings moved from WAC 296-46B-553 to coordinate with 2020 NEC floating building location.

WAC 296-46B-705 Interconnected electric power production sources.

(1) For utility interactive systems, any person making interconnections between a power production source and the utility distribution network must consult the serving utility and is required to meet all additional utility standards.

~~031~~ 011 ~~Location of overcurrent protection~~Supply side source connections.

(2) In addition to the requirements of NEC ~~705.31~~705.11, 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). The disconnecting means providing overcurrent protection for the electric power production source conductors must comply with NEC 230.82(6). This disconnect is not required to be grouped with the service disconnecting means for the building or structure. Grounding and bonding must be in accordance with ~~all applicable requirements for an additional service disconnect~~NEC 250.25.

Commented [MR(21]: 2020 NEC changed to match our previous requirements. Left rule here to clarify NEC articles that apply.

No change in policy or enforcement

Supported by TAC – no opposition
Supported by board – no opposition

WAC 296-46B-901 General — Electrical work permits and fees.

Permit - Requirements for.

(7) As required by chapter 19.28 RCW or this chapter, an electrical work permit is required for the installation, alteration, or maintenance of all electrical systems or equipment except for:
(a) Travel trailers;
(b) Class A basic electrical work which includes:
(i) The like-in-kind replacement of lamps; a single set of fuses; a single battery smaller than 150 amp hour; contactors, relays, timers, starters, circuit boards, or similar control components; one household appliance; circuit breakers; single-family residential luminaires and line voltage smoke or carbon monoxide alarms; a maximum of five snap switches, dimmers, receptacle outlets, thermostats, heating elements, luminaire ballasts or drivers/power supplies for single LED luminaires with an exact same ballast or driver/power supply; component(s) of electric signs, outline lighting, or skeleton neon tubing when replaced on-site by an appropriate electrical contractor and when the sign, outline lighting or skeleton neon tubing electrical system is not modified; one ten horsepower or smaller motor.
For the purposes of this section, "circuit breaker" means a circuit breaker that is used to provide overcurrent protection only for a branch circuit, as defined in NEC 100.
(ii) Induction detection loops described in WAC 296-46B-300(2) and used to control gate access devices;
(iii) Heat cable repair; and

Commented [MR(22]: Replacement of smoke/CO alarms is similar to other items on list. New smoke/CO alarms have permanently installed batteries requiring replacement of unit.

Supported by TAC – no opposition

Supported by board – no opposition

(c) The following types of systems and circuits are considered exempt from the requirements for licensing and permitting described in chapter 19.28 RCW. The electrical failure of these systems does not inherently or functionally compromise safety to life or property.

(i) Low-voltage thermocouple derived circuits

(ii) Low-voltage circuits for residential: garage doors and built-in vacuum systems;

(iii) Low-voltage circuits for underground: landscape sprinkler systems, landscape lighting, and antennas for wireless animal containment fences;

For these types of systems and circuits to be considered exempt, the following conditions must be met:

(A) The power supplying the installation must be derived from a listed Class 2 power supply;

(B) The installation and termination of line voltage equipment and conductors supplying these systems is performed by appropriately licensed and certified electrical contractors and electricians;

(C) The conductors of these systems do not pass through fire-rated walls, fire-rated ceilings or fire-rated floors in other than residential units; and

(D) Conductors or luminaires are not installed in installations covered by the scope of Article 680 NEC (swimming pools, fountains, and similar installations).

Commented [MR(23]: Clarification. Added a colon to clarify that the low voltage wiring exemption for built-in vacuum systems only applies to residential installations. Same change in WAC 296-46B-925. Change in last rulemaking created confusion. This keeps requirement same as in previous versions.

Supported by TAC – no opposition
Supported by board – no opposition

WAC 296-46B-906 Inspection fees.

To calculate inspection fees, the amperage is based on the conductor ampacity or the overcurrent device rating. The total fee must not be less than the number of progress inspection (one-half hour) units times the progress inspection fee rate from subsection (8) of this section, PROGRESS INSPECTIONS.

The amount of the fee due is calculated based on the fee effective at the date of a department assessed fee (e.g., plan review or fee due) or when the electrical permit is purchased.

(h) Electrical - annual permit fee.

Note:

See WAC 296-46B-901(13).

For commercial/industrial location employing full-time electrical maintenance staff or having a yearly maintenance contract with a licensed electrical contractor. Note, all yearly maintenance contracts must detail the number of contractor electricians necessary to complete the work required under the contract. This number will be used as a basis for calculating the appropriate fee. Each inspection is based on a 2-hour maximum.

	Inspections	Fee
1 to 3 plant electricians	12	$2,284.20
4 to 6 plant electricians	24	$4,571.00
7 to 12 plant electricians	36	$6,856.20
13 to 25 plant electricians	~~52~~48	$9,143.00
More than 25 plant electricians	52	$11,429.80

Commented [MR(24]: Corrects an error – probably typographic. In accordance with second sentence of WAC 296-46B-906 above, number of inspections are calculated by dividing the fee by the rate for a two hour progress inspection. ($46.80 per half hour times 4 = $187.20). $9143.00 ÷ $187.20 = 48 inspections.

Supported by TAC - no opposition
Supported by board – no opposition

WAC 296-46B-908 – Class B permits.

(10) Class B work includes the following:

(d) The replacement of not more than ten standard receptacles with GFCI, ~~or~~ AFCI, or dual function AFCI/GFCI receptacles;

(k) The like-in-kind replacement of output cables consisting of a length of flexible EV cable and an electric vehicle connector when connected to fixed in place electric vehicle supply equipment.

Commented [MR(25]: Stakeholder proposal 12. Now that dual function receptacles are available, this adds them to the list of items eligible for Class B permits because they are identical to GFCI or AFCI receptacles in method of installation.

Supported by TAC – no opposition
Supported by board – no opposition

Commented [MR(26]: Extensive deployment of electric vehicle supply equipment will necessitate higher volumes of this type of installation which would otherwise require a regular permit and inspection for each one. Replacing an output cable is a simple installation that poses little risk to safety to life and property similar to other items of Class B basic electrical work. Electrical contractor and electrician certification laws apply to all Class A and Class B electrical work.

Original proposal was to include in Class A permit exempt work. TAC opposed this proposal. Electrical board was split with final recommendation to accept as Class A. Department decided to include as Class B work eligible for random inspection process per discussion by the board.

WAC 296-46B-920 Electrical/telecommunications license/certificate types and scope of work.

Specialties.

(2) All specialties listed in this subsection may perform the electrical work described within their specific specialty as allowed by the occupancy and location described within the specialty's scope of work. Except for residential (02), the scope of work for these specialties does not include plumbing work regulated under chapter 18.106 RCW. See RCW 18.106.150 for plumbing exceptions for the residential (02) specialty. For the purposes of RCW 18.106.150, the like-in-kind replacement includes the appliance or any component part of the appliance (e.g., such as, but not limited to, the thermostat in a water heater). Specialty (limited) electrical licenses and/or certificates are as follows:

(a) **Residential (02):** Limited to the telecommunications, low voltage, and line voltage wiring of one- and two-family dwellings, or multifamily dwellings of types III, IV, or V construction when there are not more than six stories of multifamily dwellings of types III, IV, or V construction above grade or above types I or II construction. All wiring is limited to nonmetallic sheathed cable, except for services and/or feeders, exposed installations where physical protection is required, and for wiring buried below grade.

(i) This specialty also includes the wiring for ancillary structures located on the same property and under the same ownership as the dwelling structure(s) such as, but not limited to: Appliances, equipment, swimming pools, septic pumping systems, domestic water systems, limited energy systems (e.g., doorbells, intercoms, fire alarm, burglar alarm, energy control, HVAC/refrigeration, etc.), multifamily complex offices/garages, site lighting when supplied from the residence or ancillary structure, and other structures directly associated with the functionality of the residential units.

(ii) This specialty does not include wiring of:

(A) Any portion of any occupancy of types I or II construction; or

(B) Occupancies defined in WAC 296-46B-900(1), or commercial occupancies such as: Motels, hotels, offices, assisted living facilities, or stores; or

(C) Services, generators, HVAC/refrigeration equipment, fire pumps or other equipment that serve other than one- and two-family dwellings, or multifamily dwellings of types III, IV, or V construction or ancillary structures; or

(D) Interconnected electric power production sources not connected to equipment that supplies one- and two-family dwellings, or multifamily dwellings of types III, IV, or V construction or ancillary structures; or

(E) Any portion of wiring for conveyances regulated under chapter 70.87 RCW serving more than one residential dwelling unit.

(iii) For the purposes of this section, classification of types of construction are as determined by the local building official.

(iv) See RCW 18.106.150 for plumbing exceptions for the residential (02) specialty.

Commented [MR(27]: Clarifies the term "ancillary", that structures on other property owned by others, such as a public water system are not included in this specialty.

No change in policy or enforcement.

Supported by TAC – no opposition
Supported by board – no opposition

(f) **HVAC/refrigeration systems:**

(i) See WAC 296-46B-100 for specific HVAC/refrigeration definitions.

(ii) For the purposes of this section when a component is replaced, the replacement must be like-in-kind or made using the equipment manufacturer's authorized replacement component.

(iii) The HVAC/refrigeration specialties described in (f)(v) and (vi) of this subsection may:

(E) Repair, replace, or maintain line voltage flexible supply whips not over six feet in length, provided there are no modifications to the characteristics of the branch circuit/feeder load being supplied by the whip other than a reduction in the HVAC unit's rated maximum overcurrent protection size. There is no limitation on the whip raceway method (e.g., metallic replaced by nonmetallic).

(v) **HVAC/refrigeration (06A):**

(A) This specialty is not limited by voltage, phase, or amperage.

(B) No unsupervised electrical trainee can install, repair, replace, or maintain any part of a HVAC/refrigeration system that contains any circuit rated over 600 volts whether the circuit is energized or deenergized.

(C) This specialty may:

• Install HVAC/refrigeration: Telecommunications, Class 2 low-voltage control circuit wiring/components in other than residential occupancies:

□ That have no more than three stories on/above grade; or

□ Regardless of the number of stories above grade if the installation:

• ~~Does not pass between stories;~~

• Is made in a previously occupied and wired space; and

• Is restricted to the HVAC/refrigeration system;

(g) **Nonresidential maintenance (07):** Limited to maintenance, repair and replacement of like-in-kind existing electrical equipment and conductors. This specialty does not include maintenance activities in residential dwellings defined in (a) of this subsection for the purposes of accumulating training experience toward qualification for the residential (02) specialty electrician examination.

(i) This specialty includes the installation and connections of temporary conductors and equipment for the purpose of load testing, not to exceed 600 Volts.

(ii) For the purposes of replacement of electrical equipment, where the new equipment has a lower ampere rating than the equipment being replaced and there are no modifications to the ampacity rating of the existing conductors, this specialty may replace a device(s) that provides overcurrent or overload protection for the new equipment with a device(s) having a lower ampere rating in accordance with the nameplate rating of the new equipment.

(~~i~~iii) This specialty may perform the work defined in (h), (i), (j), (k), and (l) of this subsection.

(h) **Nonresidential lighting maintenance and lighting retrofit (07A)**: Limited to working within the housing of existing nonresidential luminaires for work related to repair, service, maintenance of luminaires and installation of energy efficiency lighting retrofit upgrades. This specialty includes replacement of ~~lamps,~~ ballasts, sockets and the installation of listed lighting retrofit reflectors and kits. All work is limited to the luminaire body, except remote located ballasts may be replaced or retrofitted with approved products. This specialty does not include installing new luminaires or branch circuits; moving or relocating existing luminaires; or altering existing branch circuits.

Commented [MR(28]: Based on stakeholder proposal 13. Most replacement HVAC units are more efficient and have a reduced minimum circuit ampacity and maximum overcurrent protection size. This would allow the HVAC specialties to replace an HVAC unit and flexible supply whip using the same size conductors. An 01 or 02 electrical contractor and electrician, as appropriate, would be required to replace the branch circuit overcurrent protection device with one having a lower rating. See also proposal regarding 07 specialty to replace branch circuit breakers or fuses with lower rated devices provided there are no modifications to the ampacity of existing branch circuit conductors.

TAC: Original proposal was not supported. It included installing a circuit breaker enclosure.

Board did not support this proposal.

Commented [MR(29]: Stakeholder proposal 8. Allows HVAC specialty to install new low-voltage HVAC cable regardless of number of stories if in previously occupied and wired space.

TAC did not support

Supported by board – comparison was made with allowance for uncertified telecommunications workers to install cable in buildings of unlimited height.

Commented [MR(30]: Based on stakeholder proposal 15. Most replacement motors and HVAC units are more efficient and have a reduced full load current, minimum circuit ampacity, and maximum overcurrent protection rating. This proposal would allow the 07 specialty to replace a circuit breaker, set of fuses, or overload heater(s) having lower ampere ratings to protect the replacement unit.

TAC: Original proposal was not supported. It included installing a circuit breaker enclosure. Board did not support this proposal.

Commented [MR(31]: Replacement of lamps in luminaires is exempt from regulation in accordance with WAC 296-46B-925(9).

No change in policy or enforcement

Supported by TAC – no opposition

WAC 296-46B-925 Electrical/telecommunications contractor's license.

Electrical/telecommunications contractor exemptions.

(8) The following types of systems and circuits are considered exempt from the requirements for licensing and permitting described in chapter 19.28 RCW. The electrical failure of these systems does not inherently or functionally compromise safety to life or property.

Low-voltage thermocouple derived circuits and low-voltage circuits for:

(a) ~~Built-in residential~~Residential: garage doors and built-in vacuum systems ~~and garage doors~~; and

(b) Underground: landscape sprinkler systems, landscape lighting, and antennas for wireless animal containment fences;

For these types of systems and circuits to be considered exempt, the following conditions must be met:

(c) The power supplying the installation must be derived from a listed Class 2 power supply;

(d) The installation and termination of line voltage equipment and conductors supplying these systems is performed by appropriately licensed and certified electrical contractors and electricians;

(e) The conductors of these systems do not pass through fire-rated walls, fire-rated ceilings or fire-rated floors in other than residential units; and

(f) Conductors or luminaires are not installed in installations covered by the scope of Article 680 NEC (swimming pools, fountains, and similar installations).

Commented [MR(32]: Clarifies that the low voltage wiring exemption for garage doors only applies to residential installations. Same change in WAC 296-46B-901. Change in last rulemaking created confusion. This keeps requirement same as in previous versions.

No change in policy or enforcement

Supported by TAC – no opposition
Supported by board.

(16) Farms or place of business. See RCW 19.28.261 for licensing/certification exemptions allowed for the owner(s) of a farm or other place of business and for the employees of the owner.

Commented [MR(33]: A provision to require house flippers to be licensed electrical contractors was removed from the proposed changes at the advice of the AG's office regarding lack of sufficient statutory authority.

Submersible well pump installers

(28) Firms that install submersible pumps and associated wiring in well casings, (excluding connection of pump wiring at the top of the wellhead) are not included in the requirements for licensing in chapter 19.28 RCW.

Exception: For testing purposes of a new submersible pump, well drillers and submersible pump installers registered under chapter 18.27 RCW may temporarily connect a submersible well pump to a portable generator with cord and plug output. All temporary wiring and equipment must be removed immediately upon completion of testing.

Commented [MR(34]: This places existing department policy in rule. Policy was stated in the Electrical Currents newsletter December 2003. Similar change in WAC 296-46B-940(17).

Results in cost savings to customers by allowing the pump installer to test the well without having to hire an electrical contractor.

Supported by TAC – no opposition. Added provision for removal of temporary wiring suggested by TAC.
Supported by board – no opposition

WAC 296-46B-935 Administrator certificate.

Renewal - Administrator certificate.

(12) An individual may renew a suspended administrator's certificate by submitting a complete renewal application including obtaining and submitting the continuing education required for renewal. However, the certificate will remain in a suspended status for the duration of the suspension period. Before the suspended administrator's certificate can be activated, the holder must pass the appropriate administrator examination in accordance with RCW ~~19.28.211(2)~~19.28.061(2)(a).

Commented [MR(35]: Corrects the RCW reference. Previous reference applies to certificates of competency, not administrator's certificates.

TAC supports – no opposition
Supported by board – no opposition

WAC 296-46B-940 Electrician/certificate of competency required.

Exemptions – Submersible well pump installers

(17) When performing the work described and allowed in WAC 296-46B-925(28), regular employees of well drillers or pump installers registered under chapter 18.27 RCW are exempt from the electrician certification requirements of chapter 19.28 RCW.

Commented [MR(36]: This places existing department policy in rule. Policy was stated in the Electrical Currents newsletter December 2003. Similar change in WAC 296-46B-925(28).

Results in cost savings to customers by allowing the pump installer to test the well without having to hire an electrical contractor.

TAC supports – no opposition
Supported by board – no opposition

WAC 296-46B-970 Continuing education and classroom education requirements.

(1) Definitions - for purposes of this section.

"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.

Commented [MR(37]: Clarifies content of electrical theory classes for basic trainee classes and industry related continuing education classes.

Supported by TAC – no opposition. Added "such as" based on TAC comments
Supported by board – no opposition

(4) Class approval process.

(c) Minimum requirements:

(i) Class length:

(A) The minimum allowed length of a class is two hours; however, the minimum length for a basic trainee class is four hours that may be delivered in multiple classroom components of not less than two hours each.

(B) Class length must be based on two-hour increments (e.g., 2, 4, 6, 8, etc.).

(C) Class length must be based on the following:

• Classroom instruction will be based on the total hours the individual is in the classroom. A continuing education class may be divided into multiple components so long as each component is not less than two hours in length and all components are completed within a one-month period. A basic trainee class may be divided into multiple components so long as each component is not less than two hours in length and all components are completed within a ~~two~~six-month period.

• Distance learning continuing education classes (i.e., correspondence and internet continuing education classes) will be based on clock hours necessary to complete the class if it was presented in a classroom setting.

Commented [MR(38]: Restricting completion to two months disqualifies in-state and out-of-state curriculum when it is delivered over more than two months (quarters/semesters) to qualify for credit.

Supported by TAC – no opposition
Supported by board – no opposition

(ii) Class content:

(A) Industry-related classes must be based on:

• Codes or rules included in the currently adopted National Electrical Code (see definition of currently adopted), the electrical law/rule;

• Electrical theory based on ~~currently published documents~~original copyrighted material that ~~are~~is readily available for retail purchase; and/or

• Materials and methods that pertain to electrical construction, building management systems, electrical maintenance, or workplace electrical safety such as NFPA 70E – ~~Handbook~~Standard for Electrical Safety in the Workplace. First aid type classes must be approved and will be limited to four hours of credit towards the individual's total continuing education requirement.

Commented [MR(39]: The term "currently published documents" is ambiguous. Replacing this term with the less ambiguous term "original copyrighted material" aligns basic trainee and industry related class offerings with the allowance for "original copyrighted material" allowed during open book electrician examinations by WAC 296-46B-960(2)(a).

By having exposure to electrical theory based on original copyrighted material, trainees will be more prepared to pass an open book electrical examination.

Supported by TAC – no opposition
Supported by board – no opposition

(B) Code update classes must be based on the currently adopted (see definition) National Electrical Code and must specify the code articles to be addressed in the class presentation.

(C) RCW/WAC update classes must be based on the latest adopted versions of chapter 19.28 RCW and/or chapter 296-46B WAC.

(D) All basic trainee classes must be classroom instruction only and based upon basic electrical theory based on original copyrighted material that is readily available for retail purchase, currently adopted (see definition for currently adopted) National Electrical Code, and/or use of the electrical laws or rules.

Correspondence and internet classes are not allowed.

Commented [MR(40]: Corrected title only. Suggested by board.

Commented [MR(41]: Same substantiation comment as above.

Supported by TAC – no opposition
Supported by board – no opposition

WAC 296-46B-971 Training schools.

(5) ~~Within thirty days after beginning a program, the program sponsor must supply the department with a roster of individuals enrolled in the program. The roster must show each student's name, date of enrollment, Washington training or electrician certificate number, and the training program number. Within thirty days after each graduation cycle, approved training school programs must provide the department with a roster of individuals that have successfully completed the program. The roster must show each student's name, date of completion, Washington training or electrician certificate number, and the training program title.~~ Within thirty days after one or more students successfully completes an accredited training school program, the program must provide the department with a completion roster in an electronic table format.

Each roster must include all of the following:

(a) The name of the accredited training school

(b) The name of the accredited training school program as referred to in the department's letter of accreditation.

(c) Submitter information

(i) Name

(ii) Title

(iii) Email address

(iv) Telephone number

(d) Student information:

(i) Full name

(ii) Date of first instruction

(iii) Date of completion

(iv) Washington electrical training certificate number

Commented [MR(42]: The proposed rule eliminates the current requirement for training school program enrollment rosters and places emphasis on information a completion roster must provide. Current requirement of notification of enrollment serves no purpose. This proposal improves compliance by establishing a date of first instruction (not date of enrollment) which is of paramount importance to accurately determine if students have possessed an active electrical training certificate throughout matriculation.

Supported by TAC – no opposition
Supported by board – no opposition

WAC 296-46B-990 Failure to comply with the electrical contractor licensing, administrator certification, or electrician certification laws

General.

(1) If the compliance officer or electrical inspector/auditor determines that an individual, employer, or employee has violated chapter 19.28 RCW or this chapter, the department will issue a citation that describes the violation.

Suspension or revocation - Of an electrical contractor's license, administrator's certificate, master electrician's certificate of competency, electrician's certificate of competency, or training certificate.

(3) For the purposes of this section, serious noncompliance includes, but is not limited to, any of the following:

(a) Causing or failing to correct a serious violation. A serious violation is a violation of chapter 19.28 RCW or chapter 296-46B WAC that creates a hazard of fire or a danger to life safety. A serious violation is also a violation that presents imminent danger to the public. Imminent danger to the public is present when installations of wire and equipment that convey or utilize electric current have been installed in such a condition that a fire-hazard or a life-safety hazard is present. Imminent danger to the public is also present when unqualified, uncertified, or fraudulently certified electricians or administrators; or unlicensed or fraudulently licensed contractors are continuously or repeatedly performing or supervising the performance of electrical work covered under chapter 19.28 RCW. For the purposes of this section, a certified electrician is considered qualified, provided the electrician is working within his or her certification;

(b) The license or certificate was obtained, used, or allowed to be used through error or fraud;

(c) Submitting a fraudulent document to the department;

(d) Willful, intentional, or ~~C~~continuous noncompliance with the provisions of chapter 19.28 RCW or this chapter. For the purposes of this section, continuous noncompliance will be defined as three or more citations demonstrating a disregard of the electrical law, rules, or regulations within a period of three years, or where it can be otherwise demonstrated that the contractor, master electrician, electrician, or administrator has continuously failed to comply with the applicable electrical standards;

Commented [MR(43]: Adding willful and intentional allows the department to classify as serious noncompliance a violation where it can be proven the violator with knowledge of the law chooses to willfully or intentionally violate it.

Supported by TAC – no opposition
Supported by board – no opposition