



ELECTRICAL CURRENTS

Newsletter from the Office of the Chief Electrical Inspector

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● Important WAC Changes Are Featured In This Issue

The electrical rules, chapter 296-46B WAC, will modify and adopt the 2008 National Electrical Code (NEC) effective December 31st, 2008. This month we will concentrate on specific changes within the rules.

When the new version is printed, it will have approximately 18 fewer pages than the previous printing. The reduction is attributable to items formerly in our rules being incorporated into the NEC and to restructuring of the rules into multiple sections A through F.

The new sections are intended to make it easier for other electrical inspection authorities having jurisdiction (AHJs) to adopt the mandatory technical portions of the rules into their municipal ordinances. The new sections are:

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

Part B – Electrical plan review

Part C – Permits and fees

Part D – Provisional permits

Part E – Class B permits

Part F – Administrative

Requirements in the rules take precedence over the definitions and technical requirements within the NEC. If a conflict exists between the NEC and chapter 296-46B WAC, the WAC will prevail.

The 2008 DRAFT WAC Proposals are available for viewing on the Rule Development Web page at: <http://www.lni.wa.gov/TradesLicensing/Electrical/LawRulePol/RuleDev/>.

When the rules are adopted the final printed version will be at:

<http://www.lni.wa.gov/TradesLicensing/Electrical/LawRulePol/LawsRules/default.asp>

● Limitations On Arc-Fault Circuit Interrupter Protection (AFCI)

The 2008 NEC requires combination arc-fault circuit interrupters (AFCI) for virtually every room within a dwelling unit. Washington stakeholders have elected to maintain the 2005 NEC level of AFCI protected circuits. The rules will not require additional AFCI circuits beyond those for the bedrooms. The rules supersede the NEC as follows:

WAC 296-46B-210 Wiring and protection - Branch circuits. Arc-fault circuit-interrupter protection.

“(4) NEC 210.12(B) is amended to require AFCI protection only for dwelling unit bedroom spaces.

(a) Dwelling Unit Bedroom spaces include spaces that:

(i) Are used as the bedroom;

(ii) Are accessed only through the bedroom;

(iii) Are ancillary to the bedroom's function (e.g. closets, sitting areas, etc.);

(iv) Contain branch circuits that supply 125-volt, 15- and 20-ampere, outlets; and

(v) Are not bathrooms.

(b) If a new circuit(s) is added in an existing dwelling unit bedroom, an existing outlet(s) that is not connected to the new circuit(s) does not require arc-fault circuit interrupter protection if the outlet(s) was installed before December 1, 2005.

(c) If an existing circuit, installed before December 1, 2005, is extended, arc-fault circuit interrupter protection is not required.

(d) Arc-fault circuit interrupter protection is not required to be used for smoke or fire alarm outlets.”

● One-Line Diagram Of Feeders Is Required For The Inspection Of Most Large Jobs

A new requirement applies to non-dwelling systems that are over 600V or over 400A (any voltage).

These non-dwelling electrical installations will now need to have a detailed one-line diagram available for

Safety Tip of the Month!

With the temperatures dropping below freezing at night remember to leave yourself plenty of time to defrost your car's windows and mirrors before leaving.

Don't leave your driveway until you are able to see clearly!

the electrical inspector at the initial inspection. The diagram must be signed and dated by the project owner (if they are doing the work) or the assigned administrator or master electrician of a contractor doing the work. The installation must not deviate from the plan. This requirement does not apply to plan reviewed jobs. Plan review approved plans are available for the inspector on those jobs.

WAC 296-46B-215 Wiring and protection — Feeders.

“(1) Other than plan review projects, the installer must provide a one-line diagram showing the service and feeder details for the project before the initial inspection can be approved for all non-dwelling services or feeders:

- (a) Larger than 400 amperes; or*
- (b) Over 600 volts.*

The diagram must be signed and dated by the project owner if the owner is doing the work or the assigned administrator or master electrician if an electrical contractor is doing the work. The diagram must show:

- (c) All services including: wire size(s), wire type(s), service size(s) (e.g. voltage, phase, ampacity), overcurrent protection, available symmetrical fault current at the service point, equipment short-circuit rating, total load before and after demand factors have been applied including any demand factors used, and a panel schedule where multiple disconnecting devices are present; and*
- (d) All feeders including: wire size(s), wire type(s), feeder size(s) (e.g. voltage, phase, ampacity), overcurrent protection, total calculated load before and after demand factors have been applied including any demand factors used, and a panel schedule(s) where multiple disconnecting devices are present.*

If the installer deviates, in any way, from the service/feeder design shown on the diagram, a supplemental diagram must be supplied to the inspector showing the most recent design before inspection can proceed. Load reductions and moving branch circuit locations within a panelboard do not require a supplemental diagram. Written documentation must also be provided to the inspector that the supplemental diagram was provided to the project owner.”

● **Alternate Energy One-Line Diagram Must Be Provided When Requesting Inspection**

Just like the new requirements for submission of a one-line diagram for service and feeder, wind turbines and solar photovoltaic installers must now provide a detailed one-line when requesting an inspection.

WAC 296-46B-445 Wind Driven Generator Equipment

“(1) A wind driven generator system design review must be submitted at the time of the inspection request. Permit holders must submit a copy of the wind driven generator equipment manufacturer’s installation information and a legible one-line diagram of the wind driven generator design and calculations used to determine voltage and current within the generation system to the electrical inspector. This diagram must show the wind driven generator equipment, devices, overcurrent protection, conductor sizing, grounding, ground fault protection if required, and any system interconnection points.”

● **Special Provisions For Receptacles Supplying Dwelling Unit Fire Alarm Systems**

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

“(1) In a garage or unfinished basement, a red receptacle, with a red cover plate, supplying a fire alarm system is not required to have ground-fault circuit-interrupter protection. The receptacle must be identified for use only with the fire alarm system by an identification plate or engraved cover with letters at least ¼” high.”

● **Electrical Question of the Month**

This Month’s Question: Electrical repairs or changes must be completed within how many days after corrections have been written and posted by the inspector? **A) 15, B) 30, C) 60, D)** before permit expires.

Last Month’s Question: For a flexible cord supported pendant receptacle box, what is the maximum lateral displacement from a suitable strain-relief or tension take-up device to the permanent junction box that supplies the flexible cord? **A) 2 feet, B) 4-1/2 feet, C) 6 feet, D)** no limit. The answer is: **C)** [WAC 296-46B-314].