



# Building Guide

## ILLOWA Chapter of ICC

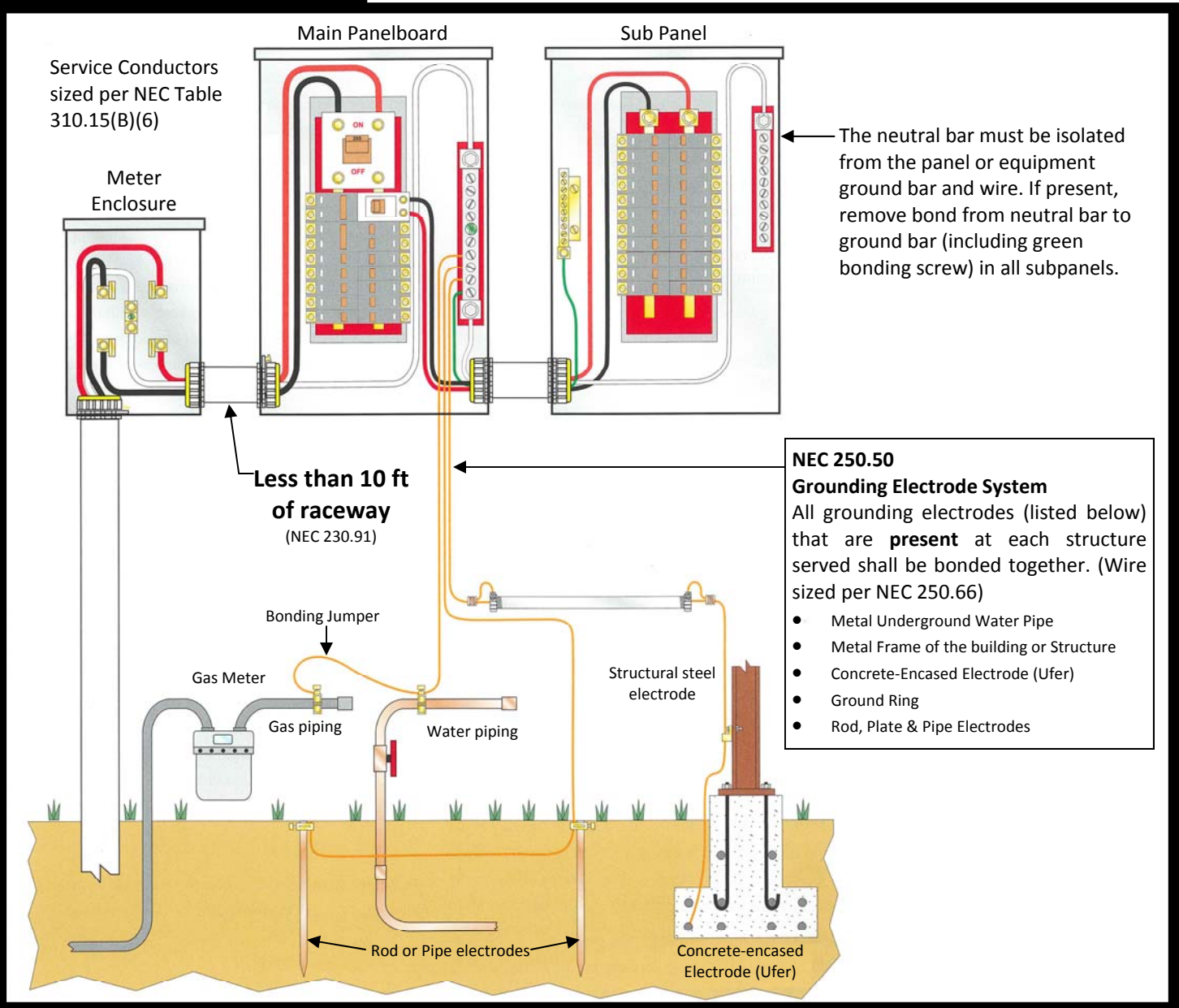


# Single Family Dwelling Electrical Services

The following are minimum requirements for new electrical services for structures:

1. NEC 230.91 has been amended locally and requires "The service overcurrent device shall be connected by no more than 10 feet of raceway from the meter device, in structures." The overcurrent device is defined as the main breaker/fuse in a panel board, meter base, pedestal or the service disconnect."
2. If the overcurrent device is located less than 10 feet, follow the diagram below.
3. Do not bond the neutral and ground in **ANY** sub panel!

### Typical Service



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## General Rules

- **NEC 110.14** Listed anti-oxidant compound shall be used on all aluminum conductor terminations, unless product information specifically states that it is not required.
- **NEC 300.7** Portions of raceways or sleeves subject to different temperatures (i.e. passing from the interior to the exterior of a building) shall be sealed with an approved material to prevent condensation from entering equipment.
- **NEC 230.54** Service entrance raceways shall be rain-tight and arranged to drain.
- **NEC 300.9** The interior of raceways installed in wet locations above grade shall be considered wet locations.
- **NEC 300.4** Where raceways containing ungrounded conductors No. 4 or larger enter a cabinet, box, or enclosure, the conductors shall be protected by a bushing providing a smoothly rounded insulating surface.
- **NEC 230.70(A)(2)** Electrical panels shall be readily accessible and shall not be located in bathrooms.
- **NEC 240.24** Overcurrent devices shall not be located in the vicinity of easily ignitable materials such as clothes closets.
- **NEC 408.36** Plug-in type overcurrent devices that are back-fed shall be secured by an additional approved device.
- **NEC 110.26** Sufficient working space shall be provided around electrical equipment. The depth of that space in the direction of access to live parts shall be a minimum of 3 feet. The minimum width of that space in front of electrical equipment shall be the width of the equipment or 30 inches whichever is greater. This workspace shall be clear and extend from the floor to a height of 6.5'. This space shall not be used for storage. ( See diagram below)
- **NEC 110.26** Illumination shall be provided for all working spaces about service equipment and panelboards.

**Table 310.15(B)(6) Conductor sizes for 120/240 Volt 3-Wire, Single Phase, Dwelling Services and Feeders**

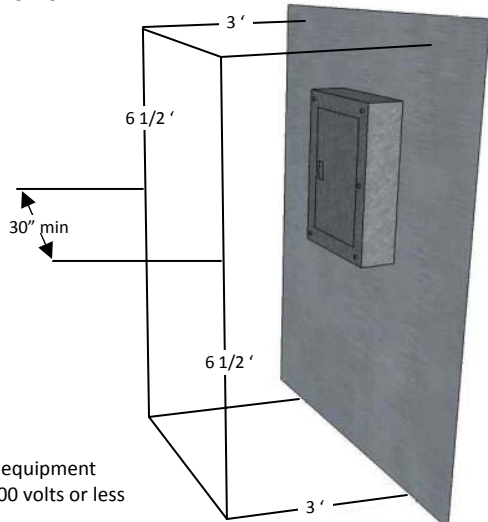
Service or Feeder Rating (Amperes)	Minimum Wire Size (AWG or kcmil)	
	Copper	Aluminum
100	4	2
150	1	2/0
200	2/0	4/0
400	400	600

**Table 250.66\* Grounding Electrode Conductor for AC Systems**

Size of Largest Ungrounded service-Entrance Conductor or Equivalent Area for Parallel Conductors (AWG/kcmil)		Size of Grounding Electrode Conductor (AWG/kcmil)	
Copper	Aluminum or Copper-Clad Aluminum	Copper	Aluminum or Copper-Clad Aluminum
2 or smaller	1/0 or smaller	8	6
1 or 1/0	2/0 or 3/0	6	4
2/0 or 3/0	Over 4/0 or 250	4	2
Over 3/0 through 350	Over 250 through 500	2	1/0
Over 350 through 600	Over 500 through 900	1/0	3/0

## Required Working Space

NEC 110.26



### \*250.66 Size of AC Grounding Electrode Conductor

- A grounding electrode, that portion of the conductor that is the sole connection to a ground rod shall not be required to be larger than 6 AWG copper or 4 AWG aluminum.
- A grounding electrode, that portion of the conductor that is the sole connection to a concrete encased electrode shall not be required to be larger than 4 AWG copper.

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