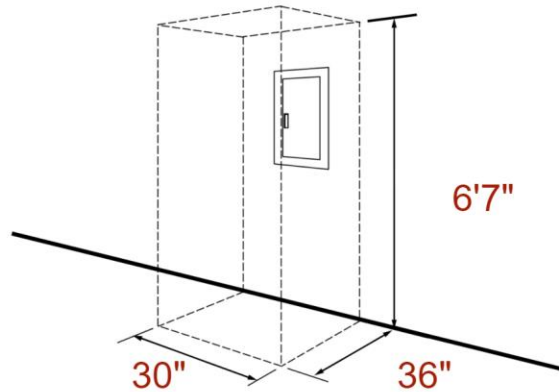




Subpanel Facts and Codes



NATIONAL ELECTRICAL CODES

NEC 110-3 and 110-14 Anti-Oxidant Compound shall be used on all aluminum conductor terminations.

NEC 110-26 The Depth of Working Space in the direction of access to live parts, when the voltage to ground does not exceed 150 volts, shall be a minimum of 3 feet. The minimum width of working 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 1/2 feet, and shall not be used for storage. All workspaces shall be provided with illumination.

NEC 230-8 and 230-54 Service Entrance Conduits shall be rain tight, arranged to drain, and sealed to prevent moisture condensation.

Conductor Sizes for 120/240 Volt Single-Phase Dwelling Services

NEC 310-15 Copper Aluminum Service Rating

.....4 AWG.....2 AWG ..100 amps

.....1 AWG.....2/0.... 150 amps

.....2/0..... 4/0..... 200 amps

Consult the conductor insulation type to determine the exact service rating.

NEC 230.54 Electrical Services - Service entrance raceways shall be rain-tight and arranged to drain.

NEC 230.70 Electrical Services - The service disconnecting means shall be installed at a readily accessible location either outside a building or structure or inside nearest the point of entrance of the service entrance conductors.

NEC 240-3 The rating of the fuse or circuit breaker generally determines the minimum size of the circuit conductor, per the following table:

Minimum Wire Size Fuse or Circuit

Breaker Size Copper / Aluminum

15 amp14... n/a

20 amp12... n/a

30 amp10.... 8

40 amp8.... 6

50 amp6.... 4

Note: Conductors that supply motors, air conditioning units, and other special equipment may have overcurrent protection that exceeds the general limitations in the above chart.

NEC 240-24 Electrical Panels shall be readily accessible and shall not be located in bathrooms or in the vicinity of easily ignitable materials such as in clothes closets.

Subpanel Facts and Codes

NEC 300.4 Electrical Services Conduit raceways "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 300-5 Underground Service laterals shall have their location identified by a warning ribbon that is placed in the trench at least 12 inches above the underground installation.

NEC 300.5 Underground Wiring conduits and raceways "Direct buried cable or conduit or other raceways shall meet the following minimum cover requirements:

Direct Burial Cable Rigid or Intermediate Metal Conduit Non Metallic Raceway (PVC)

24 inches 6 inches 18".

Residential branch circuits rated 20 amps or less at 120 volts or less and with GFCI protection at their source are allowed a minimum cover of 12".

NOTE: This table does not apply to underground wiring for outdoor pools, spas, or hot tubs - see NEC Article 680.

NEC 300.7 Electrical Services Wire Conductors 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 300.9 Electrical Services Conduit raceways The interior of raceways installed in wet locations above grade shall be considered wet locations.

NEC 310-15 Electrical Services wire conductor sizes "CONDUCTOR SIZES FOR 120/240 VOLT 3-WIRE, SINGLE-PHASE, DWELLING SERVICES AND FEEDERS

Copper -- Aluminum -- Service Rating

4 AWG.....2 AWG100 amps

1 AWG.....2/0150 amps

2/0.....4/0200 amps

400 kcmil..600 kcmil....400 amps

NEC 384-13 All Circuit Overcurrent Devices shall be legibly identified as to purpose or use on a directory located on the face or inside of the electrical panel doors.

NEC 370-17 Raceways Containing Ungrounded Conductors No. 4 or larger enter a cabinet, box, or enclosure, the conductors shall be protected by a conduit bushing providing a smoothly rounded insulating surface.

Residential Electrical Code Examples for Services

IRC Codes

Home Electrical Service

1.A minimum of 100 Amp 3-wire service for a single-family dwelling unit.

NEC 230.79

2.Only one service per dwelling, except for multiple occupancy buildings.

NEC 230.2

3.Service disconnecting means shall be located at the point of entrance of the service conductors. 2003 IRC E3501.6.2

Electrical Disconnects

1.Exterior air units must have a disconnect within sight.

NEC 440.14

2.Minimum disconnect rating for one circuit is 15 amps, for two circuits is 30 amps and for all others it is 60 amps. (detached garages with more than two circuits must have 60 amp wire)

NEC 230.79

3.Electric water heaters shall have a disconnecting means within sight of the appliance or have a circuit breaker capable of being locked in the open position.

NEC 430.III.