



2008 Home Wiring Information Handout

Listed Equipment

- Use listed equipment only (i.e. UL, ETL, AGA).
- Follow instructions provided with equipment.
- Only use the listed brand of circuit breakers for the load center. Don't mix brands.
- Use "tandem" circuit breakers sparingly (many limitations apply).

Receptacles

- Spaced equally within six feet of doorways, and not over 12 feet apart. All walls two feet or more require a receptacle.
- Room dividers, patio doors, etc., are considered wall space.
- All Receptacles and GFCI's to be tamper proof type.

Switches

- Most areas, including halls need switch controlled lighting.
- Switched or half-switched receptacles are acceptable.

Devices

- Make sure the device box is sized correctly for the device used (i.e. ground fault receptacles).

Miscellaneous

- Do not conceal junction boxes, they *must* be accessible.
- Clothes closets, electric dryers, ranges, hydro-tubs, and subpanel installations all have many special code provisions (refer to applicable code articles).
- Smoke detector location is determined by the *International Residential Code*.
- Arc fault breakers for use in all bedrooms, living rooms, hallways, dining rooms and similar rooms.

Splicing for rough-in inspection

Splicing

- Keep cable routing simple.
- Keep junction boxes with multiple splices located at waist level (switch boxes).
- Use pig-tail splices at all splice locations (easier to trace splicing).
- Ground wire splices (bare conductors) need a wire nut to be a complete splice and to have approval.
- Do not install devices for the rough-in inspection.
- All splicing must be completed.

Cable support

- Cables to be stapled within eight inches of all boxes.
- Cable sheath must extend into box ¼ inch.
- Cables to be away from sharp edges (i.e. flues, ducts, pipes, etc).
- Cables to be 1-1/4 inch from any framing edges. Enter box with cable at farthest knock-out from the stud.
- Up to three cables stacked under a single staple.
- Over three cables require a stack staple.

Final inspection

- All lighting fixtures are in place.
- All cover plates are installed, including switches, receptacles, junctions and main panel.
- All appliances are in place and permanently connected.

See Circuits and Wiring Information Handout for further code requirements.

This handout is written as a guide to common questions and problems. It is not intended nor shall it be considered a complete set of requirements.

Circuits and Wiring Information Sheet

Circuits required for additions and remodeled areas

- Bathroom receptacles: one separate 20 amp circuit.
- Kitchen receptacles: two separate 20 amp circuits.
- Laundry receptacle: one separate 20 amp circuit.
- General lighting: one 15 amp circuit for every 600 square feet.

Most appliances, such as dishwasher, disposal, furnace, air conditioner, electric range, electric dryer, and microwave, require separate circuits.

Switch controlled lighting

Most areas, including halls, need switch controlled lighting. Switched or half-switched receptacles are acceptable.

Receptacle outlet spacing

- Kitchen: 24 inches from the beginning of a counter space and then every 48 inches.
- Habitable rooms: six feet from the beginning of a wall space then every 12 feet.
- Room dividers, patio doors, etc., are considered wall space.

Ground fault circuit interrupters (GFCIs)

GFCI protection is required for all receptacles in:

- Bathrooms.
- Garages.
- Unfinished basements.
- All kitchen counter receptacles.
- Outdoors.

Wire length, splicing and groundings

- All boxes must have a minimum wire length of six inches.
- The outer cable jacket must extend at least 1/4 inch into the box.

- If a receptacle box has more than one ground wire, the ground wires must be spliced with a "wire tail" attached to the receptacle's grounding screw; only one conductor is permitted under a terminal screw.
- All metal boxes and metal plaster rings must be grounded.
- Keep cable routing simple.
- Use pig-tail splices at all splice locations (easier to trace splicing).

Junction boxes

- Do not conceal junction boxes in walls.
- Make sure the device box is sized correctly for the device used (i.e. ground fault receptacles).

Box volume

	Box volume In cubic inches	
	#14 Wire	#12 Wire
Each conductor	2	2-1/4
Ground wires in box	2	2-1/4
Each switch in box	4	4-1/2
Internal cable clamps in box	2	2-1/4

For example, a 2-gang switchbox with four "14-2 with ground" cable in the box requires:

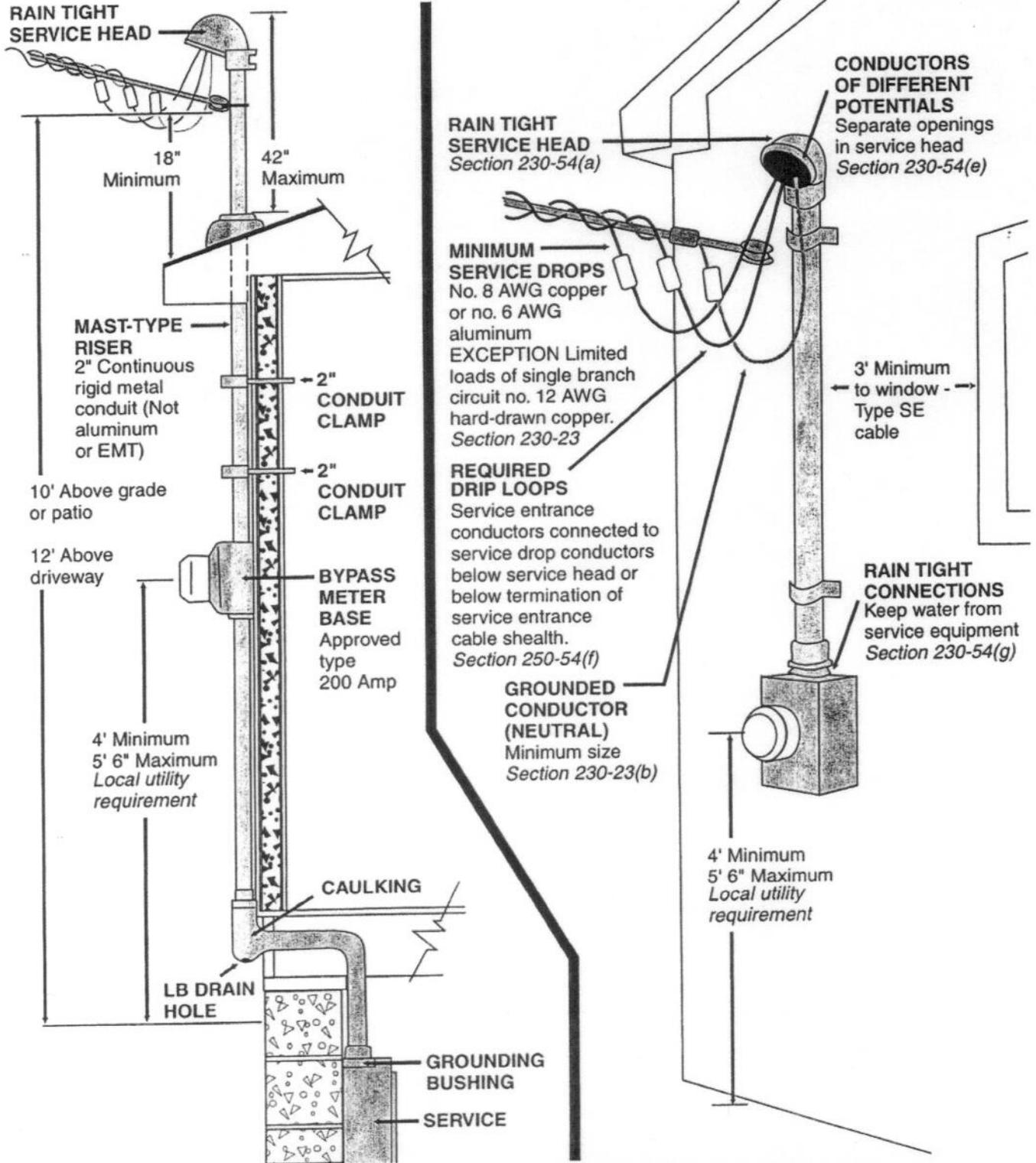
Eight conductors	.....	16 cu. in.
Ground wires	.....	2 cu. in.
Two switches	.....	8 cu. in.
Internal cable clamps	.....	2 cu. in.
<i>Minimum box size</i>	.....	<i>28 cu. in.</i>

Strapping cables

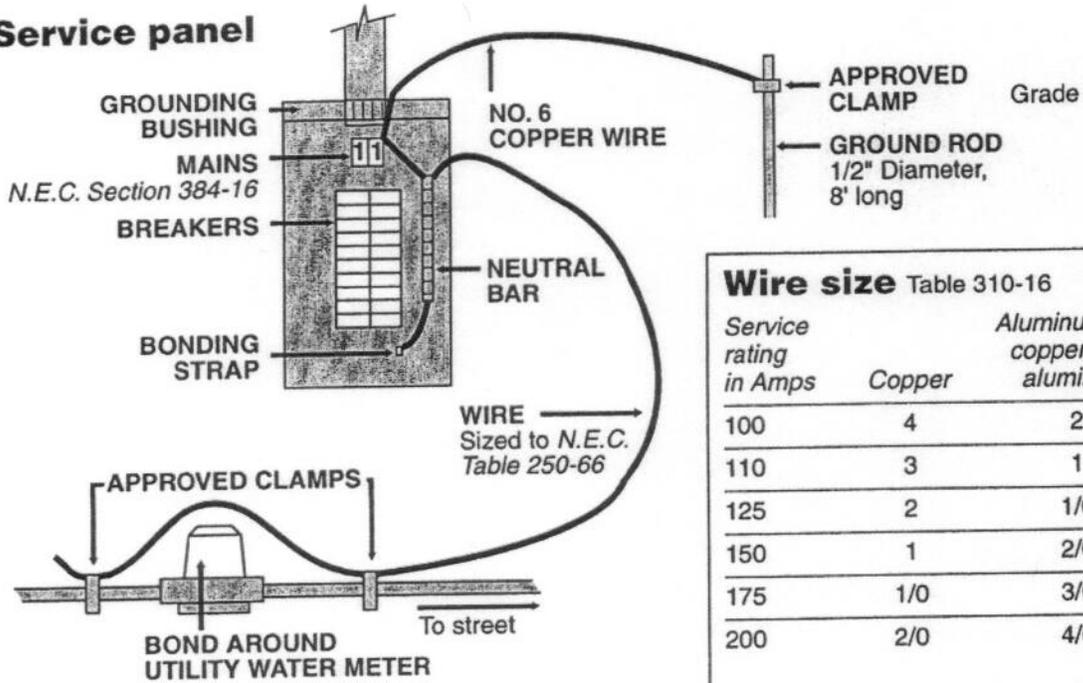
- Plastic cables must be strapped within eight inches of boxes and at intervals of no more than 4-1/2 feet.
- Plastic cables must not be installed closer than 1-1/4 inches from face studs and joists.
- Cables closer than 1-1/4 inches must be protected with metal plates.
- Cables to be away from sharp edges (i.e. flues, ducts, pipes, etc.)
- Up to three cables stacked under a single staple. Over three cables require a stack staple.

METER AND PANEL WIRING Information Sheet

Overhead services



Service panel

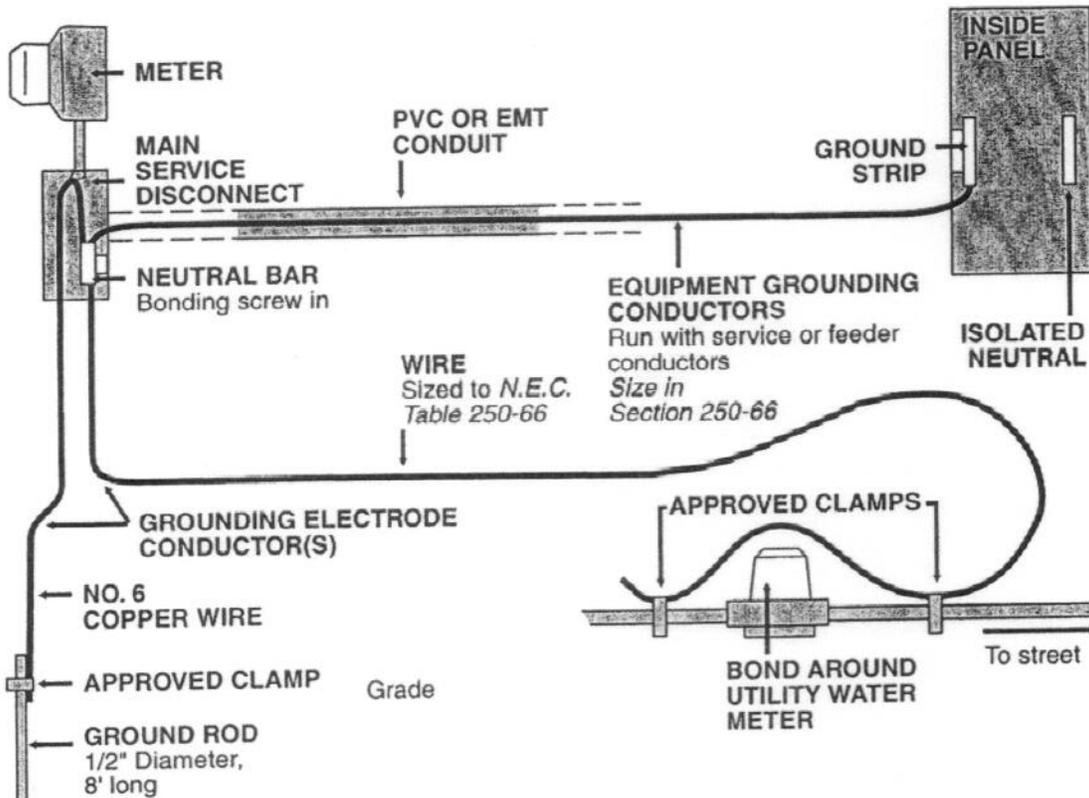


Wire size Table 310-16

Service rating in Amps	Copper	Aluminum and copper-clad aluminum
100	4	2
110	3	1
125	2	1/0
150	1	2/0
175	1/0	3/0
200	2/0	4/0

Service panel with required disconnect

Section 230-70 Disconnecting Means



Underground wiring

- Direct burial cables (type UF) must be in a trench 24 inches deep.
- Electrical PVC conduit must be in a trench 18 inches deep.

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Miscellaneous

- Clothes closets, electric dryers and ranges, hydro-tubs and subpanel installations have many special code provisions (refer to applicable code articles).
- Smoke detector location is mandated by the *International Residential Code*.

Inspections

Rough-in: This inspection must be done before any wiring is covered with insulation, sheet rock, paneling, etc. Underground wiring must be inspected before the trench is covered. Do not install switches or receptacles before this inspection.

Final: Schedule an inspection when all devices and fixtures have been installed and the wiring is entirely completed. It is the permit holder's responsibility to call for a final inspection. **Remember, have your electrical permit number ready when you call.**

This handout is written as a guide to common questions and problems. It is not intended nor shall it be considered a complete set of requirements.