

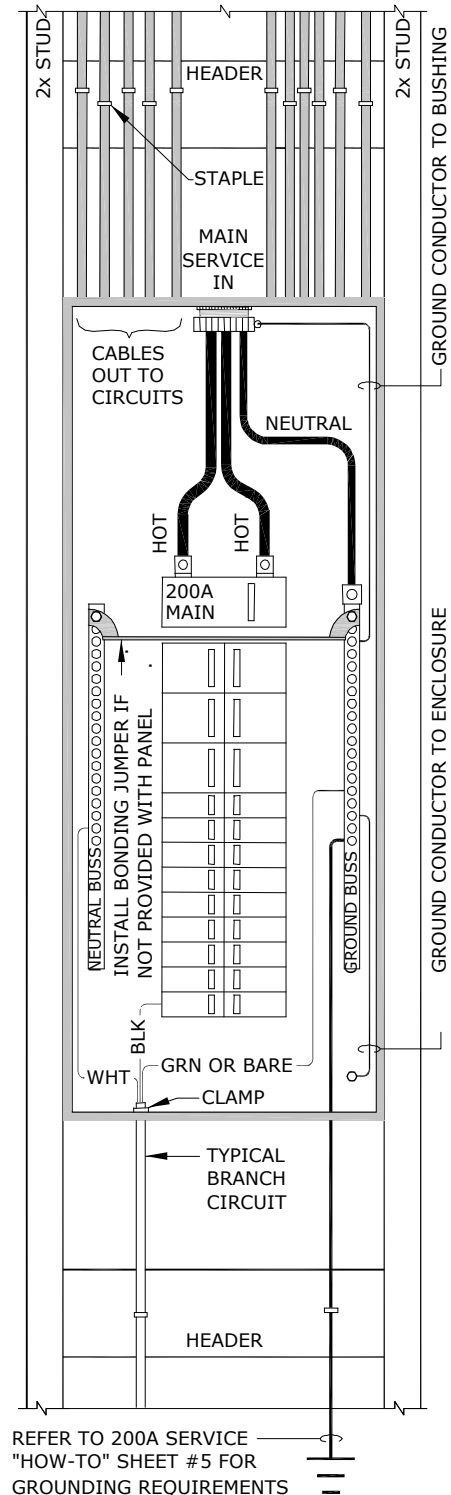


HOW TO MAKE UP A SERVICE PANEL

The service panel is the most important single part of your wiring job. It is particularly important that neatness be employed around the inside of the service panel. Since the electrical permit is to be left at the service panel, the electrical Inspector will normally begin his study at this point. This is your chance to "shine" and promote the good work you've done.

If you perform the mechanics of your job perfectly but leave the wires in a tangle, your entire job is likely to be checked more closely than if a good initial impression was rendered. Your work will be viewed in light of Article 110-12 of the NFPA National Electrical Code which says, "Electrical equipment shall be installed in a neat and workmanlike manner." Here are a few suggestions that will help you achieve this.

- Staple or strap all wire within 12 inches of entry to the panel. By installing a 2-inch thick header above and below the panel, you can neatly space and staple your wire runs. Be careful not to injure the wires when stapling. Remove the outer jacket from the cables leaving only enough to reach about 1/2 inch through the loom clamps. Tighten these cable clamps only enough to hold the cables secure but not so tight as to cause injury to the wire by cutting into it.
- Wires inside the cabinet should be bent so they lay neatly around the outer edge of the panel leaving a clear work area in front of the circuit breaker terminals. Wires should be long enough to reach all the necessary points in the panel without having to splice them. Do not, however, leave excess wire to be folded needlessly into the panel.





Wires should never be bent so sharp that it causes the insulation to be damaged. A good rule is to never make a bend that has an inside radius of less than 5 times the diameter of the wire. Beware of using tools such as pliers to make bends in wires as they can ruin the insulation. These bending hints are more intended for the larger sized wires such as the main feeder wires, but should, however, be considered good practice with smaller sizes. All wires should be bent so as to fit freely into the intended terminal, causing no strain or bind on that terminal.

- All aluminum wire should be liberally coated with corrosion inhibitor soon after the insulation is removed. Lugs and threads should also be coated to prevent metal seizure during the tightening process. Petroleum jelly (Vaseline) will lubricate lugs that will be connected to copper conductors.
- When removing insulation from wires be very careful not to nick the wire itself, as it will result in structural damages that interfere with flow of the current.
- You may find it necessary to group some of the ground wires together in order to have enough terminals to hook up everything that needs to be connected to the neutral buss. This is permissible if all the wires in the group are the same size wire. Never mix ground and neutral wires under the same screw.
- All wire connections should be checked and rechecked to assure tightness, as most electrical failures are due to poorly made splices or terminal connections. Only the correctly sized and proper tools should be used to make up service panel connections.
- Locknuts and fittings should be tight and secure. Any knockouts that were removed but the openings not used should be plugged with knock-out seals.
- Nylon cable ties can be used to help organize and tidy the wiring inside the panel. Be careful to tie the "hot" conductors in one or more groups and neutral and grounds in their own bundle or bundles. Never create a bundle with hots and neutrals/grounds mixed. Remember, neatness inside the panel will not only make for a safer electrical system, it will demonstrate the quality of your work and set the tone for the rest of the electrical inspection.