

## **RESIDENTIAL ELECTRICAL PANEL CHANGE-OUT INSPECTION**

1. **The most important consideration when inspecting a main distribution panel change-out is safety.** Often the meter will be pulled by the utility provider but not always. Before performing your inspection **know** what the situation is regarding power to the panel. **Exercise caution and know which components are potentially energized.**
2. The distribution panel door will have instructions specific to that panel (compatible circuit breakers, short circuit rating, number of conductors allowed per lug on busses etc.)
3. If the dead-front is not already removed, remove it carefully and pay attention to the screws so you do not misplace them. I make it a point to treat the panel as if it is live.
4. The work should be done in a “neat and workmanlike” manner. A good electrician is very careful and neat when it comes to making up a panel.
5. Check for the grounding conductor connection. This will be a green or bare conductor that connects the electrical system (grounding bus) to the electrical grounding system (UFER, grounding rod(s) or water pipe). Ensure continuity and tightness of connections.
6. Check for continuity of bonding system. Metal water piping and exposed structural metal shall be bonded to provide a safe path for any fault current imposed.
7. In the main distribution panel the neutral (grounded) bus will be connected to the grounding bus. The grounding bus and neutral bus are separated in sub-panels.
8. The inside of the panel should be free from construction debris or wood shavings.
9. Look for conductors that have not been landed on a breaker or bus, these should be capped with a wire nut whether they are being used or not.
10. Look for multiple conductors that have been landed on the same breaker or bus. Circuit breakers should only provide protection for one circuit (conductor). Some manufacturers allow two conductors on the grounding bus. Check the instructions on the panel door.
11. Check for appropriate circuit breaker capacity based on conductor size.
12. Verify that 2-pole breakers supplying a 240 volt circuit are tied together with an approved device.
13. If you feel comfortable, you can test tightness by moving the conductors to see if they are tight in the breaker or bus. **Exercise caution when placing your hand in the panel.**
14. Often sub panels or appliances that require a 2-pole, 240 volt circuit are wired with aluminum cable. Aluminum conductors are required to be coated with corrosion inhibitor where they are landed on the circuit breaker or bus.
15. **If you are inspecting the electrical system for a utility meter release on a new service, do not assume that the meter has not been placed by the utility company.** Start your inspection at the main distribution panel or meter location to verify whether the electrical system is connected to the utility grid. There are times when the utility company sets the meter prior to building department release.

*Note: **Always exercise caution when inspecting systems that can potentially be energized.** This is not a complete list of all main electrical panel change-out requirements. Refer to the jurisdiction having authority and appropriate codes for all requirements and for additional detail.*