Self-Inspection Checklist Items: Electrical Panels

Electrical panels are metal boxes housing circuit breakers to distribute and transmit electrical power. Circuit breakers are electrical safety devices inside electrical panels and protect circuits from damage. They are designed to automatically switch off and stop the flow of power when an electrical problem arises. Both the Occupational Safety and Health Administration (OSHA) and National Fire Protection Association (NFPA) National Electric Code (NEC) establish requirements for electrical panels. Your electrical panels must follow safety and health regulations to safeguard wiring, prevent electrical shocks, and reduce the likelihood of heat build-up and fires. This one pager reviews electrical panel-related items you can add to your self-inspection checklists to identify deficiencies at your organization. Be sure to train self-inspectors on these checklist items and refer to OSHA and the NFPA NEC for clarification on any items in question.

Clearance and Accessibility

Your organization is responsible for keeping a clear working space around and in front of electrical panels. This space ensures maintenance personnel and electricians can easily access the panel to inspect, adjust, service, or maintain it when needed. Add these items to your self-inspection checklists (based on NFPA NEC):

A. Check for items stored in front of electrical panels

B. Ensure 36″ of clearance in front of each panel, at a minimum (some situations require additional clearance)

C. Verify a working space 30″ wide is available in front of the panel (or the width of the panel box and equipment, whichever is greater)

D. Check if there is 6′-5″ of clear headspace from the floor to the top of the panel

E. Confirm the panel door can open at least 90 degrees (i.e., “L” shape)

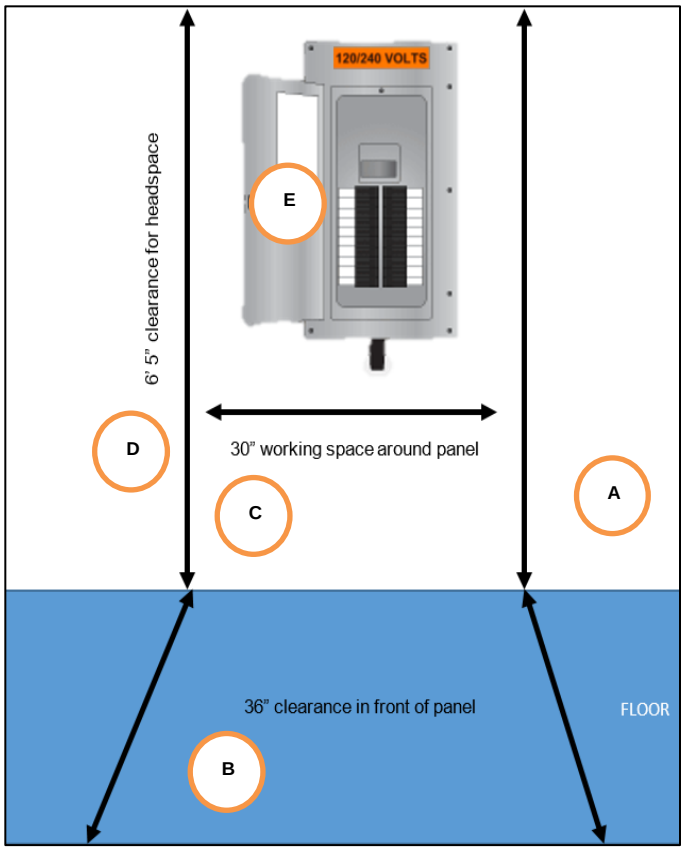


Image retrieved from Yahoo Images and based on NFPA NEC requirements (free to share and use) and modified by DoD SMCX

Indicators of Failure

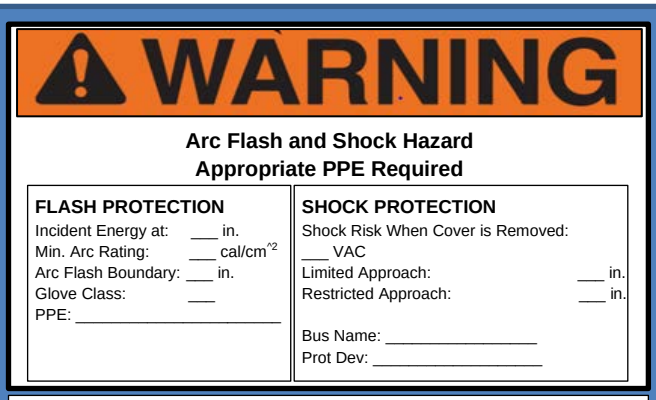
Employ your senses to identify signs of failure or areas of concern. Use caution proceeding with a self-inspection if you identify any of these conditions. Add these items to your self-inspection checklists:

- ✓ Look for dirt or dust accumulation on top and inside the panel box
- ✓ Watch for sparks or any signs of melting, blackening, burning, or heat-related damage
- ✓ Listen for cracking or popping sounds
- ✓ Look for rust or corrosion on or around the panel and circuit breakers

Panel Box

The condition of the panel box is important to promote safety. Add these items to your self-inspection checklists:

- ✓ Ensure the panel box is free from dents and cracks
- ✓ Look for openings ½ inch or greater (e.g., unused openings, open knock out holes, damaged enclosure)
- ✓ See if the panel door is locked – *if locked, ensure the panel is accessible to qualified persons*
- ✓ Verify there is no standing water or dampness inside the panel box – do not reach inside the box, instead visually inspect at a safe distance
- ✓ Look for pests, or signs of pests
- ✓ Make sure the protective faceplate is intact and no wires are exposed
- ✓ Confirm interior and exterior markings are legible
- ✓ Ensure any screws and screw covers on the panel box are in place and have blunt ends – *sharp items can pierce wires when work is performed*
- ✓ Ensure the panel box door fully closes and latches



Example arc flash label for NFPA 70E (2021)
Image created by the DoD SMCX

Markings

Look for these OSHA and NEC marking requirements during self-inspections:

- Manufacturer's name
- Circuit and voltage identification
- Arc flash labeling, if applicable – *must follow NFPA 70E requirements based on arc flash risk assessment and shock risk assessment results*
- Circuit breaker index on the face or side listing the purpose and/or use of each circuit breaker, including spare breakers
- Warning sign on the panel or entrance door forbidding unqualified persons entry

Circuit Breakers

Improper use or installation of circuit breakers can cause dangerous conditions to persons working in or around an electrical panel. Add these items to your self-inspection checklists:

- ✓ Look for tape placed over the breaker holding it in the "on" or "off" position – it could be an indicator of proper lockout during maintenance or servicing not occurring
- ✓ Identify missing breakers or openings in the breaker's face plate – components behind the face plate can be energized and cause injury if contacted
- ✓ Make sure breakers labeled as "spare" are in the "off" position – it is difficult to confirm if a breaker is a spare without an electrician's input

For additional information on the SMCX's services, please visit the SMCX-hosted website at: https://www.smscx.org/.