



# Minnesota Electrical Association

## Electrical Toolbox Talks

### Arc Blasts

The general terminology for an arcing event is referred to “arc flash” the actual striking of the unintentional arc and the subsequent release of energy including thermal and light energy) and the “arc blast” (referring to the expansion of air that “blasts” away from the arc).

Here are some practical tips for preventing arc flash and arc blasts. These requirements are stated in OSHA and also NFPA70E.

- During new construction, fully complete your work on the electrical panel and have it inspected prior to energizing. Arcing can’t occur if there’s no power. Make sure the equipment is disconnected from the source of supply. Lock the circuit off, so that it cannot be inadvertently turned on while you are working on it. Check with a known functioning voltmeter to be sure the circuit is dead, even after you think it is locked out. The circuit identification may not be correct and the wrong circuit was disconnected.
- During service work, live electrical circuits should be de-energized before the employee works on or near them, unless the employer/employee can demonstrate that de-energizing introduces additional or increased hazards or is not feasible due to equipment design or operational limitations. Often a work “hot work permit” is required before working on a known live circuit.
- Use insulated fish tapes if working in hot panels. Replace metallic tapes so that you don’t have to worry about arc flashes at the panel or electrocution of the person holding onto the other end.
- Use voltage rated insulated tools to prevent contact with live circuits. Uninsulated tools can cause a significant arc at the equipment.
- Make sure you are using approved Arc Rated (AR) clothing of the proper category to protect yourself from arc flash (burning).



Voltage rated insulated tools

 <b>WARNING</b>	
<b>Arc Flash and Shock Hazard Appropriate PPE Required</b>	
24 inch	Flash Hazard Boundary
3	cal/cm <sup>2</sup> Flash Hazard at 18 inches
1	PPE Level, 1 Layer 6 oz. Nomex, Leather Gloves Faceshield
480 VAC	Shock Hazard when Cover is removed
42 inch	Limited Approach
12 inch	Restricted Approach - 500 V Class 00 Gloves
Equipment Name: <b>MIDWEST</b>	

Sample of equipment labels for PPE requirements

Sponsored by

It's Our Business to Protect Yours



- Ensure your workspace has adequate illumination. Otherwise, you might contact live parts that you couldn't see. Also, don't reach blindly into areas that may contain energized parts.
- You must wear a hard hat to protect yourself from arc flashes and blasts, unless you have a full arc rated clothing hood. Reaching down for a dropped screwdriver can put your head inside the panel. Hard hats are insulated to protect you from electrocution. A hard hat with a rated balaclava is needed if your head is within the arc flash boundary. Class E hard hats are rated up to 20,000 V.
- Wear safety glasses and a face shield as required as part of the safety requirement.
- Make sure that you're not wearing nylon or other synthetic clothing when working on or near live parts. An arc blast is bad enough. Burning and melting nylon can melt into your skin, and the petroleum based clothing supports burning.



More information on preventing arc flash/blasts can be found in the ANSI standards, NFPA 70E standards, or at: [https://www.osha.gov/dte/grant\\_materials/fy07/sh-16615-07/arc\\_flash\\_handout.pdf](https://www.osha.gov/dte/grant_materials/fy07/sh-16615-07/arc_flash_handout.pdf).