

7 Key Steps Towards Electrical Safety at Work

1. Workers, supervisors and facility/business owners must follow safety requirements defined by the Ontario Electrical Safety Code & the Occupational Health and Safety Act.
2. Written safety procedures are required where anyone is working on electrical equipment.
3. Supervisors and owners must communicate potential shock and arc flash hazards to workers as defined by an electrical equipment hazard analysis.
4. Safety procedures and requirements must be followed by anyone working on electrical equipment.
5. Workers should Lock-out & Tag-out electrical systems and equipment when doing electrical maintenance work.
6. Electrical equipment should be tested to ensure it is de-energized - the use of a multi-meters with fused leads is recommended.
7. Written procedures should include requirements for Personal Protective Equipment.

**Between 1998 and 2006
39% of critical injuries
involved burns from an arc.**



RESPECT THE POWER



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You Can Do It -You Should Do It

**53% of electrical
incidents causing injury
are from working on live
electrical equipment.**



why take the risk?





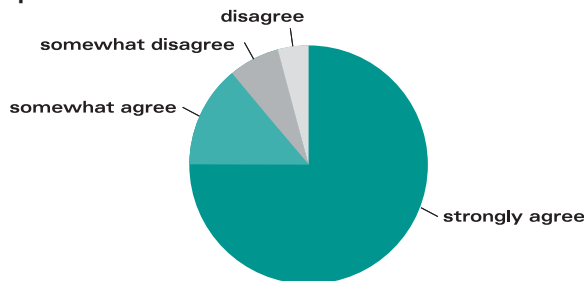
Every year the Electrical Safety Authority is involved in incident investigations where trades workers are injured or killed working on live electrical systems.

53% of events causing incidents are directly linked to working on energized equipment, including:

- Installing and/or replacing breakers in a panel;
- Installing and/or working on wiring in a panel or Motor Control Centre;
- Working on 347Volt lighting systems.

The total number of occupational fatalities and injuries, including non-critical, is at one of the highest levels over the years. Although critical injuries have declined and fatalities have remained constant between 2003 and 2007 there has been a steady increase in non-critical occurrences. Any occurrence presents a risk of critical injury or a fatality.

Research across the industry has told us that electrical workers agree that circuits and systems should be disconnected and de-energized prior to starting work – 93% of research respondents agree with this practice.



You Can Do It -



Electrical incidents associated with working on live electrical systems impact electricians, apprentices, electrical maintenance staff, and labourers.

Ontario's Electrical Safety Code (OESC) includes standards to protect workers from electrical incident. The OESC, Rule 2-306 requires warning labels to caution workers of potential shock and arc hazards on the following electrical equipment:

- Switchboards, panelboards, industrial control panels, meter socket enclosures, and motor control centres in facilities other than dwelling units where they will likely require examination, adjustment, servicing or maintenance.



For Arc Hazard - *analysis should define boundaries of approach, who can work in these areas, and personal protective equipment (PPE) requirements. Boundaries of approach include:*

- LIMITED APPROACH – requiring a qualified person to do the work or accompany a worker within the boundary.
- RESTRICTED APPROACH – requiring a qualified person using shock protection to do the work.
- PROHIBITED APPROACH – requiring a qualified person using protection from direct contact with live parts to do the work.

For Shock Hazard - *analysis should define voltage, boundary shock requirements, and PPE requirements to minimize the possibility of electrical shock.*

You Should Do It

66% of electrical incidents occur as a result of incorrect procedure and human error.

The OESC, Rule 2-304 (1) stipulates that no repairs or alterations shall be carried out on live electrical equipment, and that adequate precautions such as locks on circuit breakers and switches, warning signs, etc, shall be taken.



If it is not practical to disconnect an electrical system workers should follow the rules outlined to protect them, which include the use of: personal protective equipment, approved rubber gloves, mats and shields, and insulated tools. **It is not practical to disconnect** when testing, trouble shooting, or in those circumstances where the disconnection of electrical power will create a higher level of safety risk to workers or the public.

The Construction and Industrial Regulations under the Occupation Health and Safety Act also require disconnection, locking out and tagging the power supply to electrical installations, equipment or conductors.

Operating in non-compliance will result in charges.

The majority of electrical incidents result from incorrect safety procedures. Worker incidents (including contract workers) where safety procedures have not been followed can result in charges to supervisors, managers, owners/operators and co-workers by the Ministry of Labour, and/or criminal charges under Bill C45.

Don't Work Live!