

BC ELECTRICAL CODE – SECTION 2: REQUIREMENT TO DE-ENERGIZE ELECTRICAL EQUIPMENT
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The following bulletin provides guidance on the application of rules pertaining to the 2021 BC Electrical Code Regulation. The requirements of local municipal authorities having jurisdiction may vary. Installers should consult with local authorities having jurisdiction, prior to undertaking work, to determine their requirements.

Note: This Information Bulletin was issued in conjunction with Directive D-EL 2016-02.

Topic: Requirement to de-energize electrical equipment before carrying out work on electrical equipment

In British Columbia, the design, construction, and installation of electrical equipment must be in accordance with the BC Electrical Code. The completed installation must have live parts guarded or protected against accidental contact – through safety provisions such as cabinets, enclosures, covers, insulation, or other guards or barriers (see Rules 2-200 and 2-202). BC Electrical Code rule 2-300 requires equipment be maintained and 2-304 requires that equipment be de-energized before work commences. Safety provisions of the installed equipment shall not be bypassed or removed unless the equipment has been de-energized. Work on electrical equipment often requires removal of covers, or other guards or barriers, which defeats the purpose of these safety features by exposing live parts.

The BC Electrical Code requires that electrical equipment be de-energized before working on electrical equipment. The only exception is where complete disconnection is not feasible.

Inconvenience or additional costs are not considered acceptable grounds for removing or bypassing the protective safety provisions of electrical equipment.

Directive No. D-EL 2016-02 interprets Rule 2-304 as meaning that electrical work may only be carried out in a de-energized state unless it can be demonstrated that the task to be performed is not possible while de-energized.

Examples of circumstances where a person may be able to demonstrate that complete disconnection is not feasible may include:

- Installations where equipment design prohibits complete disconnection.

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- Performance of work such as troubleshooting, or testing and diagnostics, where complete disconnection is not possible due to operational limitations; or
- Conditions in which de-energizing the equipment introduces additional or increased hazards.
- Inconvenience or additional costs are not considered acceptable grounds for removing or bypassing the protective safety provisions of electrical equipment.

- **Energized equipment exposes workers to two basic hazards – shock and arc flash.** Only individuals who are identified in Section 4 of the *Electrical Safety Regulation* are permitted to work on electrical equipment. Workers who face a risk of electrical hazard because of energized equipment must be trained to understand the specific hazards associated with electrical energy.
- If electrical work is to be carried out on energized electrical equipment, the persons performing the work must be able to demonstrate that it is not feasible to perform the work while the equipment is de-energized. Documentation demonstrating this must be available upon request by Technical Safety BC and WorkSafeBC. Where work is carried out on energized electrical equipment, the work must be done in full compliance with WorkSafeBC Regulations.
- Following is a summary of *the Occupational Health and Safety Regulation*:
 - The preferred method is de-energization, isolation, and lockout, as per OHSR s19.10(1).
 - If de-energization is not feasible (indicates the preferred method of meeting the requirement in case item (1) cannot be met)
 - Work must be done by qualified and authorized workers.
 - In accordance with written safe work procedures
 - Using appropriate tools and equipment
 - Using appropriate PPE.

Appropriate Personal Protective Equipment (PPE) and Arc Flash. Excerpts from the Guideline on OHSR sub-section 19.10(2)(a) is given below; the guideline "*G19.10(2)(a) Appropriate electrical protective equipment for working on low voltage electrical equipment*" provides information on PPE requirements for protection from Arc Flash:

Personal protective equipment

"Personal protective equipment" for the purposes of this section of the regulation is personal protective equipment that is appropriate for the hazard present while working on energized electrical equipment. This includes flame-resistant clothing, head protection, safety glasses, dielectric footwear, gloves, and face shields. It is the responsibility of the employer to ensure proper written safe work procedures are in place to deal with all aspects of low voltage live equipment work, including protection from electric shock and arc flash.

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In meeting the requirements under section 19.10(2)(a) of the regulation, employers may find *CSA Standard Z462* to be valuable in assisting them in the development of appropriate written safe work procedures and determining the hazards and necessary protection.

Provincial Safety Manager

References:

Safety Standards Act

Electrical Safety Regulation

Safety Standards General Regulation

BC Electrical Code Section 2 Directive No. D-EL 2016-02

Occupational Health and Safety Regulation Guidelines Workers Compensation Act

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