

CANADIAN ELECTRICAL CODE

SUBJECT: Section 2 – General Rules

Administrative Rules

The *Safety Codes Act* and associated regulations supplemented by the policies of Alberta Municipal Affairs, the Safety Codes Council and accredited organizations, detail Alberta's administrative requirements for enforcing the CEC. Accordingly, because legislation is paramount, the administrative rules of the Code will generally not apply.

The rationale and intent for the Administrative Rules (rules 2-000 to 2-032) of the Canadian Electrical Code (CEC) is to provide a guide for authorities in developing their administrative requirements to enforce the Code [see page 4 of the CE Code Handbook (2009)]. Where a regulatory authority has established administrative requirements through legislation, they supersede and render inoperative the administrative requirements in a Code.

Following is an accounting of how Alberta legislation affects the administrative rules in the Canadian Electrical Code:

2-000 Authority for Rules

The *Electrical Code Regulation* is the vehicle through which we adopt the CEC.

2-002 Special Requirements

This is an information statement on the relationship between the supplementary and amendatory sections of the code and the general requirements of the code.

2-004 Permit

The *Permit Regulation* supersedes this rule. Part 1 of the regulation sets the requirements for who permits may be issued to and under what conditions as well as where permits are required throughout the province. Part 2 sets the requirements for administration of the *Permit Regulation*.

2-006 Application for Inspection

This rule refers the user to the "inspection department". In Alberta, the permit has traditionally been used for this purpose but an inspection authority having jurisdiction may set its own requirements for a separate 'application for inspection' form.

2-008 Fees

This rule refers the user to the "inspection department". Each inspection authority having jurisdiction is responsible for setting its own fee structure.

2-010 Posting of Permit

The *Permit Regulation* supersedes this rule. The absence of a requirement to post an electrical permit in the *Permit Regulation* allows inspection authorities having jurisdiction the ability to address the requirement through bylaw or policy.

2-012 Notification re Inspection

Inspection authorities having jurisdiction in Alberta set inspection requirements through bylaw or policy. That policy will define whether they require notification for inspection.

2-014 Plans and Specifications

This rule refers the user to the “inspection department”. The inspection authority having jurisdiction may set its own requirements around “Plans and Specifications” through policy.

2-016 Current-Permits

The *Electrical Utility Code* requires that a supply authority obtain a copy of the permit before service connection. Inspection authorities may require additional information before allowing an installation to be energized.

2-018 Reconnection**2-020 Re-inspection****2-022 Renovation of Existing Installations****2-026 Powers of Rejection****2-028 Availability of Work for Inspection**

Inspection authorities having jurisdiction may set their own requirements for any of these items.

2-024 Use of Approved Equipment

This rule mandates the use of approved equipment and is more of a technical requirement than an administrative one. The term approved, as suggested in the definitions of the CEC, is otherwise defined by the *Electrical Code Regulation*. It sets the conditions for use of any equipment related to electrical systems. (see STANDATA **LEG-ECR-2**)

Minor Equipment Alterations

Minor modifications to electrical equipment such as when adding certified devices or kits (i.e., indicating lights, control switches, or monitoring devices, etc.) would not generally require that the equipment be re-certified. The devices must be suitable for the application and approved for use with the particular piece of equipment.

Modifications falling outside these parameters should be re-evaluated for safety by an Inspection Body through Special Inspection/Field Evaluation/Special Acceptance/etc. or otherwise accepted by a variance.

Installations of Metering Equipment (Revenue or Energy Management Systems)

Concern has been expressed about the installation of devices into certified electrical distribution and control equipment for the purpose of metering. Often these are installed in larger capacity installations in either existing installations or at the initial construction

stage. The industry is reminded that any alterations of certified equipment will void the original certification.

The Electrical Technical Council has agreed that where metering devices (revenue or energy management) are to be incorporated in a new installation, the equipment must form part of an approved switchgear assembly constructed by the manufacturer of the switchgear, or be installed in separate enclosures connected to the switchgear by recognized wiring methods. Where it is proposed to add metering devices (revenue or energy management) to an existing installation, approved devices are to be used and the Electrical Inspection Authority having jurisdiction should be contacted prior to the installation to determine the acceptability of the proposed modifications.

2-030 Deviation or Postponement

Section 38, of the *Safety Codes Act* outlines provisions for allowing a variance. A deviation or postponement is considered a variance. Section 38 of the *Safety Codes Act* reads as follows:

- 38(1)** An Administrator or a safety codes officer may issue a written variance with respect to any thing, process or activity to which this Act applies if the Administrator or officer is of the opinion that the variance provides approximately equivalent or greater safety performance with respect to persons and property as that provided for by this Act.
- (2)** An Administrator or a safety codes officer may include terms and conditions in the variance.
- (3)** A safety codes officer on issuing a variance shall notify an Administrator.
- (4)** The *Regulations Act* does not apply to variances issued under this section.

Where any rule in the CEC is varied, or where a particular rule in the CEC requires ‘special permission’ by referencing Rule 2-030, section 38 of the Act applies. Where safety performance is not a factor, the Administrator or safety codes officer may choose to not issue a variance. Regardless of whether a variance is issued, owners, designers, manufacturers, contractors and vendors (as specified in Part 1 of the *Safety Codes Act*) are responsible for ensuring that a thing, process or activity under their care and control is safe.

NOTE: See STANDATA **LEG-SCA-38** for Guidelines on Variances Issued by a Safety Codes Officer.

2-032 Damage and Interference

This requirement is addressed under civil and criminal legislation where it is an offence to wilfully damage property. Section 67 of the *Safety Codes Act* also identifies offences that interfere with the administration of, or otherwise contravene, the Act.

For detailed information on administrative requirements, contact the inspection authority having jurisdiction in your area. If you are not sure of who is the authority in your area, you can call Safety Services at 1-866-421-6929 or go to http://www.municipalaffairs.alberta.ca/cp_index.cfm and click on [Permit Information](#).

Technical Rules

Rule 2-100 Marking of Equipment

Factory-Built Structures (Skid Units) - Definition

The term “skid”, “relocatable structure” and “module” are used interchangeably to refer to a factory-built structure intended for relocation to a site either as a temporary or as a permanent facility. As a large percentage of these units are installed in a permanent manner the term “relocatable” becomes redundant. The term “factory-built structure” should be used and is defined as follows:

Factory-built structure — a collection of elements such as buildings, process equipment and electrical equipment interconnected together into a pre-manufactured product intended to be transported to a site separate from the fabrication facility and installed either temporarily (relocatable) or permanently (non-relocatable) at that site.

Factory-built structures require adequate information for end-users and for the Authority Having Jurisdiction to facilitate verification of compliance to codes, standards and specifications. This information is divided into 2 groups, “nameplate data” and “documentation”.

Nameplate Data

1. **Nameplate requirements for non-relocatable factory built structures** (intended/designed for permanent foundations, includes modules)
 - a. Minimum requirements on the Nameplate: Manufacturer’s Name (or Identification Means), Date of Manufacture, ID of the “Structure” (i.e. a basic Description).
 - b. All the “Documentation” items 1 through 4 below needs to be available within the user’s document control system or provided with the unit.

(Note: this documentation may be included on the Nameplate, or may be provided via separate documentation such as Drawings, Reports, and Manuals readily available for the Installer, Inspector, Operator, Maintainer, and Designer, or a combination)

2. **Nameplate requirement for relocatable factory built structures**

- a. Minimum nameplate requirements as per CEC Rule 70-128, and;
- b. Indication of wiring methods used as per the CEC (e.g. Class, Zone [Division], Group, Temperature Code, etc.)
- c. All the “Documentation” items 1 through 4 below needs to be provided with the unit.

(Note: It may be included on the Nameplate, or may be located with the structure as it moves (i.e., self contained) via separate documentation such as Drawings, Reports, and Manuals readily available for the Installer, Inspector, Operator, Maintainer, and Designer, or a combination)

Manufacturer:	Skids Manufacturing Ltd. Contact: (780) 555-5555
Phase & Voltage:	3 Phase 20-208 V
Rated Load Amperes:	N/A
Frequency:	60 Hz
Hazardous Area Classification:	Class I Inside of structure – Zone 1 3 m (10 ft) rel. outside of Structure – Zone 2 Group – IIA Temperature Code – T6
Classification Drawings:	Dwg. # 12345-04 Available at “Skids Electrical Engineering” Calgary, AB

Documentation

The following documentation on a factory-built structure must be readily available by having it permanently attached to the structure and/or located within the user's document control system.

1. Site installations instructions (e.g. drawings and/or notes)
 - a. Electrical ratings as applicable to enable a safe installation at the site, such as voltages, kilowatt, current, etc.
 - b. In more complex situations, detailed information on Schematic/Wiring/Single Line/etc. drawings will be required, and may be integrated in the site's overall document control system.
 - c. If the factory-built structure is "permanent (or non-relocatable)", the documentation should be integrated in the overall site electrical documentation
 - d. If factory-built structure is "temporary (or relocatable)", the documentation needs to be retained, readily available, and located with the structure as it moves (i.e. self contained).
2. Sufficient information to verify compliance to electrical codes and standards
 - a. Wiring Method – must identify if a hazardous location wiring method is used and the corresponding area classification including group(s) and temperature codes. (*Note – if a Structure is pre-built with a specific Hazardous Location wiring method, then the User must integrate this into the Site Installation design (i.e. area classification drawings)*)
 - b. Environmental data as applicable (e.g. temperature min/max, indoor/outdoor, underground/wet, etc.).
3. Approval
 - a. If a factory or fabrication shop approval (certification agency, special inspection body or inspection authority) has been performed, then evidence needs to be provided (e.g. certification reports complete with approval labels, or inspection reports complete with appropriate identification such as an inspection label or permanent tag).
4. Manufacturers Name (or Identification Means), Date of Manufacture, ID of the "Structure" (i.e. a basic Description).

Additional Responsibilities

1. Responsibility for maintenance, alterations or modifications of the factory-built structure are under the care and control of the owner as per the definition of 'owner' within the Safety Codes Act
"owner" includes a lessee, a person in charge, a person who has care and control and a person who holds out that the person has the powers and authority of ownership or who for the time being exercises the powers and authority of ownership;
2. The original documentation as outlined above needs to be maintained.
3. Any changes to the structure, needs to have the documentation updated, which then becomes the new "Documentation" for the structure
 - a. if an Accredited Corporation, follow their QMP process
 - b. if other than an Accredited Corporation, work needs to be by 'Permit' and therefore re-inspected, or re-approved (if previously certified or Special Inspection)
4. Maintenance – follow standard practices – CEC rules, maintenance instructions, etc.

Rule 2-102 Rebuilt Equipment

Repair of Motors and Generators for Use in Hazardous Locations

Electrical equipment in Alberta must be approved. Approval is usually through certification by a body accredited by the Standards Council of Canada. Repairs to certified equipment, if not done properly, may void certification. Rule 2-102 requires repair work of electrical equipment to be done to the applicable Canadian standards.

To preserve equipment certification, repairs that can potentially alter the ratings, characteristics or integrity of the equipment must be done by the manufacturer or by a Qualified Facility. A “Qualified Facility” is one that meets the requirements of a Certification Body for carrying out such repairs.

In situations of routine maintenance where the ratings, characteristics and integrity of the equipment are not affected, owners are responsible for ensuring that trained persons using proper tools, materials and applicable standards do the work.

To maintain the integrity of the equipment and of the certification mark for all types of repairs, the manufacturer and the certification body should be consulted for advice.

Retrofitting Luminaires for Energy Conservation or Similar Programs

As indicated above, repairs or alterations to certified equipment, if not done properly, may void certification. The following guideline is recommended to facilitate the process of modifying luminaires for energy conservation purposes and intended for luminaires located in non-hazardous locations.

REMOVED FOR MODIFICATION

When all luminaires are removed from the ceiling and modified either on site or at a remote location, these locations can be termed a 'defined factory location'. The luminaires are eligible for re-inspection and labelling through equipment approval procedures, by an acceptable Certification Body. (See STANDATA **LEG-ECR-2**)

IN-SITU MODIFICATION

It may be more practicable to modify the luminaires without removing them from the ceiling. In this case, the following procedure is recommended:

A detailed description of the intended modification for each model of luminaire is to be submitted for an evaluation by the Certification Body whose mark appears on the product. The Certification Body should be able to confirm that the intended procedure for modifying each model of luminaire is acceptable.

A suitable label showing the following information is to be placed on each luminaire:

- (a) Identification of the party responsible for the modifications
- (b) New Electrical Ratings
- (c) New Bulb Type and Size (if applicable)
- (d) Date Code
- (e) Reference to the Certification Body's File Number

Please contact the local electrical inspection authority to obtain the required permits.

Rule 2-200 GeneralProtection of Automobile Heater Receptacles

Electrical installations must have adequate protection from mechanical damage. You can reduce the risk of damage to receptacles for automobile heaters by installing the receptacles in such a way that they are protected by location or by providing mechanical protection.

- Protection by location can be achieved by installing the receptacles on structures of adequate strength (i.e., fences, walls, etc.). You should also ensure that the electrical wiring and devices are located in such a way that they are not subject to accidental damage from vehicles. (e.g., 750mm above grade, on the side of a guard-rail not subject to damage by vehicles, etc.)
- Mechanical protection for freestanding receptacles can be provided in a number of ways, the most common being wheel stops and reinforced concrete posts.
 - Wheel stops should be 150mm wide by 150mm high and located not less than 900mm from the receptacles and associated wiring. They should be properly secured using 5/8" rods driven 300mm into the parking surface or 5/8" bolts set into a concrete slab.
 - Reinforced concrete posts should be no less than 300mm in diameter with the wiring and outlet:
 - (a) mounted on the face of the post opposite the vehicle, or
 - (b) cast into concrete posts with the face of receptacles no less than 750mm above grade where receptacles face the vehicles, or
 - (c) mounted on rigid conduit extending beyond the top of the concrete post allowing for the installation of an outlet box.
- To ensure an acceptable installation, consult with the inspection department before proceeding.

Rule 2-302 Maintenance in Hazardous LocationsMulti-wire Circuits

Rule 2-302 prohibits repairs or alterations on any live equipment in hazardous locations. We must therefore take extra precautions in situations where we intend to work on equipment supplied from a breaker on one phase of a multi-wire circuit as permitted by Rule 14-010. Although we can open the device for the phase supplying the equipment, the neutral conductor can potentially carry current from other phases of the same multi-wire circuit and is considered live unless all phases of that multi-wire circuit are de-energized.

Persons conducting repairs or maintenance on these types of circuits in hazardous locations are cautioned to de-energize all phases of a multi-wire circuit supplying equipment despite the equipment being only connected to one phase.

Rule 2-304 Disconnection

As in Rule 2-302 above, the same precautions should be observed for working on equipment in non-hazardous locations.

Testing of Protective Equipment

Protective equipment should be certified to industry recognized standards. For continued personal protection, protective equipment (i.e., rubber gloves, hot sticks, climbing equipment, etc.) should be maintained and tested according to the manufacturing standards and the manufacturer's instructions. For further information regarding protective equipment, contact the Workplace Health and Safety Division of Alberta Human Resources and Employment at 1-866-415-8690.

Rule 2-306 Shock and Flash Protection

Below is an example of a label that meets the minimum requirements of field marking electrical equipment as per rule 2-306. Additional marking for Shock and Flash Protection is beyond the requirements of the Canadian Electrical Code.



Example – Simple Label that is Compliant with Rule 2-306