2012 Canadian Electrical Code, Part I (CEC)
Top Fifteen changes

1) Tamper resistant receptacles.

2009 CEC – Required in dwelling units
2012 CEC – Expanded to child care facilities

Description:
First introduced in the 2009 CEC, the 2012 CEC has now extended the requirement for tamper resistant receptacles to child care facilities. This requirement intends to reduce electrical injuries to children who may try to insert objects into wall receptacles. Statistics indicate that for children less than 20 years of age, roughly 2/3 of electrical injuries were sustained by children aged 5 years or less and 44 percent of the injuries were sustained from the insertion of a conductive item or finger into a receptacle.

Unless otherwise defined by a regulatory authority having jurisdiction for child care facilities, the Code intends that this requirement apply to child care facilities in areas designed to provide care to persons seven years of age or less.

Tamper resistant receptacles are identified by the mark “TR” or “Tamper Resistant”.

2) Electric vehicles.

2009 CEC – Electric vehicles covered by Section 86.
2012 CEC – Section 86 revised and rules added to Sections 8 and 26.

Description:
As electric vehicles become more commonplace, increased standardization has become critical to ensure that electric vehicle charging infrastructure is properly addressed in terms of safety, capacity, and consistency. The 2012 CEC fulfils this need through new and enhanced rules governing the safety, load calculation, and installation of electric vehicle charging equipment.

3) Garage door openers.

2009 CEC – No specific requirement existed.
2012 CEC – Rules added to require receptacle for garage door openers.

Description:
Unless otherwise specified at the time of construction, the garage in most homes is not provided with an electric power door opener. However, it is common for homeowners to install a garage door opener several years after the home was constructed. Since the door opener was not installed during initial construction, it is highly unlikely that the necessary receptacle was provided. In this case, the homeowner will either have a contractor install a receptacle or connect the door opener to a wall receptacle with an extension cord. The 2012 CEC requires that a receptacle be provided for each cord-connected overhead garage door opener in residential garages.

**4) Splash pads.**

*2009 CEC* – No specific requirements.
*2012 CEC* – “Splash pads” added to definition of “pool”.

**Description:**
“Splash pads” are an increasingly popular form of outdoor water recreation found at many community centres and public parks. Unlike a traditional pool, splash pads do not contain any appreciable depth of water. However, they are used by persons with bare feet on wet surfaces, similar to decks around swimming pools. Accordingly, the 2012 CEC now classifies splash pads as pools and mandates protection such as ground fault circuit interrupters where applicable.

**5) Photovoltaic and Renewable energy systems.**

*2009 CEC* – Contained requirements for photovoltaic systems.
*2012 CEC* – New section added for renewable energy systems.

**Description:**
The expanding market for renewable energy systems led to a need for Code rules to help ensure safety for consumers and a level playing field for installers. New CEC Section 64 addresses the unique installation requirements for a variety of renewable energy systems including wind, hydrokinetic, micro-hydro and fuel cells. Existing requirements for solar power have been updated considerably to reflect new technologies, techniques, and calculations.

**6) Electrical facilities for maintenance of roof top equipment.**

*2009 CEC* – No requirements
*2012 CEC* – Receptacles for maintenance purposes required.

**Description:**
Health and Safety, labour, and contractor associations identified a need for a roof-top receptacle in order for HVAC (heating ventilation and air-conditioning) technicians to safely maintain roof top equipment. The resulting Code rule will allow the technician to disconnect power to roof top equipment while having safe access to a nearby receptacle for purposes of illumination, test equipment, and power tools.
7) Protection of receptacles exposed to the weather.

2009 CEC – Weather proof receptacle covers required.
2012 CEC – Weatherproof receptacle covers required to be weatherproof “in use”.

Description:
Weatherproof receptacle covers provide protection from the weather when in the closed position. However, the cover must be open in order to plug in an appliance or other equipment. When the cover is open, the same level of protection from the weather is not achieved and the receptacle is exposed to potential corrosion or water damage. The new 2012 Code Rule requires that weatherproof covers provide protection from the weather, even when an appliance is plugged in (when the receptacle is “in use”). Such receptacle covers are identified by the words “wet locations”.

8) Self-contained wiring devices.

2009 CEC – Not specifically recognized.
2012 CEC – Requirements for installation added.

Description:
Traditionally, switches and receptacles are installed in boxes that are installed during the “rough-in” stage of an electrical installation. “Self contained” receptacles and switches are manufactured with an integral box, meaning that a box is not required to be installed during rough-in. Such devices are commonly used in the manufactured home industry.

9) Electric heat controls in bathrooms.

2009 CEC – Location of heat controls not specifically covered.
2012 CEC – Specific requirements added to Section 62 of the Code.

Description:
Given the inherently wet environment in bathrooms, the Code contains specific requirements for the location of switches and receptacles, and includes provisions for protection by a GFCI (ground fault circuit interrupter). The 2012 Code now extends these requirements to electric heat controls that are located within bathrooms.

10) Outlet boxes for ceiling fans.

2009 CEC – No specific requirements.
2012 CEC – Requirements for ceiling fan outlet boxes added.

Description:
CSA standard C22.2 No. 113, “Fans and Ventilators” requires that ceiling fans be provided with #10 screws for mounting to a ceiling outlet box. Ceiling outlet boxes specifically designed for this purpose are available in the market and new Code Rules will help ensure that where used, such boxes are installed correctly.
<table>
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<tr>
<th>11) Grounding conductor size</th>
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**2009 CEC** – Grounding conductors sized in accordance with Table 17.  
**2012 CEC** – Table 17 deleted.

**Description:**  
Previous code editions required that the grounding conductor be based on the ampacity of the service conductors. Based on further evaluation of the grounding conductor and its intended purpose, it was determined that the system grounded conductor would carry the majority of fault current and that a #6 AWG grounding conductor would sufficiently fulfil the intended purpose during fault conditions.

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<tr>
<th>12) New terminology for ground fault detection and protection</th>
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**2009 CEC** – contained definitions for GFCI and ground fault protection.  
**2012 CEC** – contains new and expanded definitions.

**Description:**  
The new code definitions clearly delineate differences between ground fault circuit interrupters intended to protect from shock (Class A type) and those that may be rated or set at a ground fault current higher than that specified for Class A types. New definitions also cover equipment that is only intended to indicate or warn that a ground fault has been detected, as well as equipment that is designed to protect equipment from damaging ground fault currents.

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<th>13) Classification of hazardous areas around natural gas facilities</th>
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**2009 CEC** – Classified areas specified within the rules.  
**2012 CEC** – Classified areas set in table form and aligned with gas standard.

**Description:**  
Similar to gasoline dispensing stations, hazardous locations exist in the vicinity of compressed natural gas refuelling stations, compressors, and storage facilities. A new table has been added to the code to more clearly set out the area classification around various components of such facilities. Values within the new table have also been revised to align with CSA standard B108, *Natural Gas Fuelling Stations Installation Code*.

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<th>14) High voltage disconnecting means</th>
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**2009 CEC** – Required contact visibility in open and closed positions.  
**2012 CEC** – Requires visibility in open position only.

**Description:**
Due to the increased electrical hazards associated with high voltage installations, disconnecting means are required to have contacts that are visible when in the open position. In addition to other safety protocols, this feature provides operators with a visual confirmation that there is an air gap between the line and load contacts. By mandating visibility only in the open position, the Code now permits greater application of switching technologies employing new and innovative technologies for viewing the contacts. Such equipment is often more compact, resulting in a smaller footprint and an increase in revenue producing square footage within buildings.

15) Conductor ampacities

2009 CEC – Conductor ampacities determined by installation environment.
2012 CEC – Conductor ampacities determined by environment, equipment, and are correlated with NEC ampacities.

Description:
The Rules and Tables for determining conductor ampacities have undergone a major overhaul and have been correlated with the US National Electrical Code. Depending on the individual installation, higher ampacities are permitted. However, the 2012 Code also recognizes that conductors act as a “heat sink” for overcurrent devices such as circuit breakers. Accordingly, new Rules may affect the ampacity of conductors connected to equipment marked with a maximum conductor termination temperature.