

## **ELECTRICAL BULLETIN**

### **2009-02**

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Subject: **Adoption of the Twenty First ( 2009 ) Edition of the Canadian Electrical Code, Part 1**

Effective May1, 2009 the Twenty First ( 2009 ) edition of the Canadian Electrical Code ( CEC ) Part 1 ( C22.1-09 ) will come into effect for all of Nova Scotia as authorized by the Electrical Installation and Inspection Act and the associated Electrical Code Regulations.

To ensure uniformity in electrical inspections the code is adopted unamended. Bulletins are issued from this office and the electrical inspection authorities, these bulletins provide clarity and direction on how various rules are interpreted and should be reviewed by all users of the code.

Electrical installations which have been issued a permit and have commenced prior to May1,2009 and where the plans, where applicable, were accepted prior to May1,2009 may be inspected to the 2006 CEC. Where work starts or plans are submitted on or after May1,2009 design, review and inspections shall be per the 2009 CEC regardless of when the permit was issued.

The inspection department reserves the right to determine whether electrical work was started on any installation prior to May1,2009.

As in previous editions where a change to a section or rule has been made from the previous code the change is identified . In the 2009 CEC changes are identified by a small triangle located in the left hand margin.

The following are **brief summaries** of the more significant changes to the 2009 CEC. However code users should review the complete and exact wording from the code for each rule stated below along with the appropriate Appendix B note, if applicable, and incorporate them into their design and installations.

## **Section 10 - Grounding and bond conductor sizing**

Table 16- the wording “ not exceeding “ was added to the end of the column heading to cover the ampacities between those listed ,to prevent rounding down, and to ensure the correct corresponding bond conductor size is chosen.

Rule 10-812 -Grounding conductor size for alternating current systems and for service equipment

-the rule was revised to include service equipment and the size of the grounding conductor is now determined by the type of grounding electrode or grounding electrode system that is used.

-where a ground electrode system creates a high ground resistance ( ie manufactured ground rod or plate, field assembled system or an in-situ grounding system ) the amount of fault current will be limited and the ground conductor need not be larger than a No. 6 AWG. , and where the ground electrode system creates a low ground resistance ( ie continuous metallic public water system or other interconnected electrode system ) the fault currents can be high and the ground conductor shall be based on Table 17.

Impact statement-in certain situations the size of the ground conductor may be reduced from what was previously required in the previous codes.

## **Section 12 - Spacing requirements in cable tray**

Rule 12-2210- Ampacities of conductors in cable trays

-sub-rules 1,2 & 3 were amended to read -where the air space between **adjacent** conductors, cables or both is maintained

-this now clarifies the rule to require the spacing between adjacent conductors may vary depending on the diameter of the adjacent conductors and the spacing between all conductors is not determined by the diameter of largest conductor in the tray when conductors of varying sizes are installed in a tray.

Impact statement- in many instances the width of cable trays may be reduced due to smaller spacing requirements between conductors or cables-**note:** designers should always anticipate that the cable tray may have additional cable added in the future and design accordingly.

## **Section 22 - NMS cable protection**

Rule 22-204 - Wiring methods in buildings housing livestock or poultry

- the rule was changed to increase the list of areas where mechanical protection for NMS ( non metallic sheathed ) cable is required for protection against rodents

Impact statement- increased safety and a possible increase in cost to cover the increased areas

## **Section 26 - Tamper- resistant receptacles**

Rule 26-712 -Receptacles for dwelling units

-the rule was amended to add sub-rules g & h- sub-rule (g) requires that all 5-15R and 5-20R receptacles in a dwelling unit shall be tamper-resistant type receptacles and shall be so marked and sub-rule ( h) indicates the exemptions where they are not required.

Impact statement- increased safety to children with an estimated cost increase of \$40 to \$ 80 per dwelling to install tamper resistant receptacles as required.

## **Section 28 - Motor feeder overcurrent protection**

Rule 28-204 (1) - the rule was amended to clarify that the rating or setting of the feeder overcurrent device shall be based on using the calculated value of the overcurrent device not the maximum rating or setting. Prior to this change there was some inconsistency as to how the calculations were being done and the possibility that fuses or breakers were undersized for the load that the feeder overcurrent device was intended to protect.

-the revised rule now reflects the calculations shown in the appendix and in the handbook.

Impact statement- calculations may result in larger fuse or breaker ratings than previously calculated

## **Section 32 -Wiring requirements for carbon monoxide alarms**

Rule 32-110- Installation of smoke alarms and carbon monoxide alarms in dwelling units

- the rule was revised to include the wiring requirements for permanently connected carbon monoxide alarms which are the same as those for smoke alarms

Impact statement - increased safety and consistency on the wiring requirements for a device that is mandated by the National Building Code ( NBC )

## **Section 46 - Emergency power and life safety systems**

Section 46 -this section was revised to clarify the scope and terminology to make it more consistent with the NBC and to clarify the wiring methods between the emergency power supply and particular equipment that is mandated by the NBC to be provided with such an emergency power supply.

-life safety systems is a new term that is defined to cover the particular equipment that is mandated by the NBC to be provided with an emergency power supply.

## Rule 46- 206 -Emergency power supply overcurrent protection

- this rule was revised to require that the overcurrent device for an emergency power supply shall be coordinated with the overcurrent devices of feeders and branch circuits supplying life safety systems and other electrical equipment connected to the emergency power supply in order to provide selective operation of the branch overcurrent device when a fault occurs in that branch circuit.

Impact statement- an increased level of safety of the wiring between the emergency power supply and the equipment that requires it and better harmonization with the NBC.

Cost may increase to ensure the selective operation of the overcurrent devices but should ensure a more reliable system when it is critical to ensure a reliable emergency power supply.

Coordination studies or letters of undertaking from the designer or contractor may ,where necessary or requested ,be required to be provided to the electrical inspector to ensure that proper coordination of the overcurrent devices has been carried out and implemented into the design.

## **Section 58 - Passenger ropeways and similar equipment**

Section 58 is an entirely new section to cover the requirements for passenger ropeways as defined in the CSA Z98 passenger ropeways standard and includes, tramways, chairlifts, gondolas and passenger conveyors.

The CSA Z98 has many electrical requirements that more appropriately should be in the Canadian Electrical Code.

Impact statement - there should be little if no impact, just clarity as to what is required for those type of installations- the electrical inspectors will inspect the installation up to main disconnect and the provincial elevator inspectors will be enforcing this section from that point on.

## **Section 68 - Pool bonding to ground**

Rule 68- 058 (8) - the 2006 code rule that allowed exemptions as to when the metal parts of a pool are required to be bonded to ground was deleted to address the increasing use of electrical items in close proximity to pools that could create a hazard where the pool was not bonded

Rule 68-058(8)- the 2009 added a new rule indicating that the pool be bonded to ground in at least one location.

Impact statement- a reduction in exposure to potential electrical safety hazards for pool users

Any questions regarding this bulletin should be forwarded to the Provincial Chief Electrical Inspector at 902-424-8018. Website: <http://www.gov.ns.ca/lwd/electricalsafety/>