Canadian Electrical Code, Part I
Full Impact Assessment

Subject 3860
Extra-duty covers for receptacles exposed to the weather

Subject 3876
Receptacles exposed to the weather and in partially protected locations
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1 INTRODUCTION TO THE FULL IMPACT ASSESSMENT

The Full Impact Assessment follows the rationale of the Canadian Electrical Code Ranking Tool (CRT) and provides supporting information to validate the rankings of the CRT. It includes all the questions of the CRT either verbatim or modified. However, the scope of the Full Impact Assessment extends beyond that of the CRT and, therefore, the assessment includes additional questions that may help to substantiate the rankings.

The CRT is referenced throughout the Full Impact Assessment. The questions from the CRT are identified in the Full Impact Assessment by numbers in parentheses. Whenever applicable, chapter titles also include references to the relevant sections of the CRT.

The Full Impact Assessment follows the sequence of the CRT as closely as possible but, to enhance the analytical function of the document, risk-related and benefits-related questions have not been separated in the Full Impact Assessment.

2 PURPOSE OF THE FULL IMPACT ASSESSMENT

The purpose of the Full Impact Assessment is to provide the provinces and territories with an enhanced rationale and detailed assessment of a particular change to the Canadian Electrical Code, Part I (CE Code, Part I). This assessment is submitted for review to provincial and territorial regulatory authorities to aid with their adoption process for the Code. Jurisdictions may decide to conduct further analyses or to hold additional consultations.

3 BACKGROUND OF THE CHANGE

Receptacles provided on the outside of buildings where they are exposed to the weather are generally used for outdoor appliances (e.g., electric lawn care appliances) that are typically used when the weather is good. The weatherproof covers required on these receptacles keep moisture from entering the enclosure (device box) and/or the receptacle only when the appliance plug is not inserted into the receptacle (i.e., when the weatherproof cover is closed). The reality is that, in many instances, these receptacles are used for appliances or equipment that remain unattended for long periods, such as automobile heaters, electric vehicle charging stations, seasonal decorative lighting, etc. In such cases, the appliance plug remains inserted into the receptacle, leaving the weatherproof cover open and exposing the receptacle to all types of weather conditions. When a receptacle is used in this fashion, there is a risk that long-term exposure to moisture will cause it to corrode; if the receptacle is equipped with ground fault circuit interrupter (GFCI) protection, that protection might malfunction, creating a fire and shock hazard.
Currently, Rule 26-702(2) requires that the covers for receptacle configurations 5-15R, 5-20R, 5-20RA, 6-15R, 6-20R, and 6-20RA that are exposed to the weather be approved for wet locations. They are to be marked “Wet Locations”, with the marking remaining visible after installation. The intent is that moisture be prevented from entering the enclosure (device box) and/or the receptacle, whether or not a plug is inserted into the receptacle.

Rule 26-702(3) exempts from this requirement receptacles that are installed facing downwards at an angle of at least 45° because rain and snow are unlikely to affect them. Because such receptacles are not considered to be exposed to the weather, the Rule currently permits standard cover plates to be used.

**4 THE NATURE OF THE CHANGE**

4.1 The change

(A) Revise Rule 26-702(2) as follows:

(2) Receptacles of CSA configurations 5-15R, 5-20R, 5-20RA, 6-15R, 6-20R, and 6-20RA shall be provided with cover plates suitable for wet locations, whether or not a plug is inserted into the receptacle, and marked “Extra-Duty.

(B) Revise Rule 26-702(3) as follows:

(3) Notwithstanding Subrules (1) and (2), cover plates marked "Wet Location Only When Cover Closed", or the equivalent, shall be permitted for when receptacles are installed facing downward, at an angle of 45°or less from the horizontal standard cover plates may be used receptacles

(a) installed facing downward at an angle of 45°or less from the horizontal; or

(b) located at least 1 m above finished grade and not in a wet location.

(C) Add a new Appendix B Note to Rule 26-702(2) and (3) as follows:

**Rule 26-702(2) and (3)**

It is intended by Rule 26-702(3)(b) to recognize the protection provided by soffits, overhanging balconies, canopies, marquees, roofed open porches, and similar architectural elements from precipitation that may drip, splash, or flow on or against receptacles located outdoors, thus reducing the environmental protection requirement to damp locations. For example: to determine if a receptacle location is damp, not wet, a zone defined in its borders by a 45° line from the roof edge and a horizontal line at least 1 m off finished grade (or a balcony or porch floor that is
considered finished grade) is conceptualized as shown in Figure B26-1. Subrules 26-702(2) and (3) are intended to apply to outlets in the areas identified in Figure B26-1 as follows:

(a) Area 1 — An “in-use” cover that is marked “Extra-duty” and is suitable for wet locations is required. A cover marked “Wet Location Only When Cover Closed”, not of the “in-use” type, is permitted for receptacles facing downward 45° or less.

(b) Area 2 — A cover marked “Wet Location Only When Cover Closed”, not of the “in-use” type, is permitted.

Figure B26-1

4.2 How is it different from the status quo?

Currently, Rule 26-702(2) and (3) reads as follows:

(2) Receptacles of configurations 5-15R, 5-20R, 5-20RA, 6-15R, 6-20R, and 6-20RA shall be provided with cover plates suitable for wet locations whether or not a plug is inserted into the receptacle.

(3) Notwithstanding Subrules (1) and (2), when receptacles are installed facing downward, at an angle of 45° or less from the horizontal, standard cover plates may be used.
5 PURPOSE/REASON FOR THE CHANGE

5.1 What is the issue that the change is intended to address?

New, more stringent testing requirements have been introduced for receptacle covers suitable for wet locations, whether or not a plug is inserted into the receptacle. Receptacle covers meeting these new requirements are marked “Extra-Duty”. The change to Rule 26-702(2) is intended to recognize these new testing requirements as well as to address concerns that existing in-use covers are able to withstand only minimal external forces.

In the United States, Article 406.9(A) of the National Electrical Code (NEC) provides clear direction for damp and wet locations. However, in Canada, the terminology used to refer to receptacles installed outdoors in damp locations is inconsistent, resulting in confusion in the application of the Rule among industry stakeholders. Regulators have reported difficulties enforcing the Rule, and various interpretations exist as to what “exposed to the weather” means.

5.2 How does the change accomplish the desired results?

The change to Rule 26-702(2) is intended to clarify the terminology used in the Code and to improve consistency in its application by clearly specifying the type of cover to use for receptacles exposed to the weather.

The change to Rule 26-702(3) provides clarification on the use of receptacle covers marked “Wet Location Only When Cover Closed”. It also recognizes the extra protection offered by an overhead structure such as a balcony and specifies the type of receptacle cover permitted in such cases. A grade restriction of 1 m for installation of a “Wet Location Only When Cover Closed” receptacle cover is also introduced as a condition of the easement because rain or snow, when accompanied by winds, will splash receptacles close to grade.

5.3 What are the implications/consequences if action is not taken?

If the status quo persists, stakeholders will continue to experience confusion and inconvenience related to the application of this Rule.

6 WHY IS ACTION REQUIRED AT THIS TIME?

This initiative is not driven by a particular deadline.
The change will apply to residential, commercial, and industrial buildings wherever receptacles are exposed to the weather.

8  IMPACT ON KEY STAKEHOLDERS

8.1  (16) Largest type of stakeholder who would benefit

Electrical engineers/designers, contractors, and inspectors are the largest groups who will benefit from the clarifications introduced by this change.

- **Engineers/Designers**: This group is interested in providing cost-effective and safe designs and installation requirements to minimize the risk of injury to personnel, damage to facilities, and insurance and legal costs. As such, engineers/designers will need to receive a communication about the change (e.g., a formal letter from the authority having jurisdiction).

- **Electrical contractors**: This group of stakeholders is responsible for the application of the Code. As such, they need to be informed about changes to it to help ensure full compliance with its requirements. The updates can be delivered through formal training or through industry literature, depending on current practices in a particular jurisdiction. It is the responsibility of individual contractors to keep themselves informed about changes to the Code.

- **Inspectors**: This group of stakeholders is accountable for enforcing compliance with the Code and needs, therefore, to stay informed about changes to it. It is the responsibility of a particular province or territory to make the information on Code changes available to electrical inspectors. Depending on the practice in a particular jurisdiction, changes can be communicated through training (provided by the jurisdiction or a third party) or through jurisdiction-specific or national industry literature.

8.2  (24) Largest type of stakeholder who would be negatively affected

No stakeholder group that would be negatively affected has been identified.

8.3  (15) Other stakeholders affected on a frequent basis

The change will affect a broad range of stakeholder groups, as follows:

- **Trainers**: This is a broad group that may include those providing training to other stakeholder groups, such as electrical contractors and installers of equipment as well
as repair and maintenance personnel where applicable. Training programs and
literature, including electronic content, will need to be updated to include the change.

- **Other standards development organizations (SDOs):** All references to the
  provisions of the Code that are being changed will need to be updated in documents
  published by other SDOs.

- **Provincial/territorial electrical regulatory authorities:** This group of stakeholders
  is responsible for enforcement of the Code and will, therefore, need to be informed of
  changes to it.

- **Insurance:** Insurance policies contingent on following the Code will need to be
  updated.

- **Builders:** This group will need to be informed of the change because the new
  requirements will have to be implemented in new construction.

### 8.4 Is the proposed change limited to a specific group/geographic area?
The change will have nationwide application.

### 8.5 What is the affected stakeholders’ readiness to act on the change(s)?
Research has not revealed any evidence of the market not being ready to implement this
change.

### 8.6 Recommended stakeholder management strategy
Not applicable.

### 8.7 Communication and implementation plan
Not applicable.

### 9 ANALYSIS OF ANTICIPATED ECONOMIC IMPACT

#### 9.1 (20) The jurisdiction or stakeholder’s ability to compete, based on
incompatibility with other standards
The change should not affect a jurisdiction’s competitive position.

#### 9.2 (21) Complexity of implementation (is training required to implement the
Rule?)
The change can be included as an update in existing training programs. No specific training
is recommended to introduce the change.
9.3  (22) Total costs to implement (for example, cost to install, educate, manufacture, inspect, purchase additional product, and of the increased use of electricity)

The change will not significantly affect installation costs.

With regard to training, while it is important that the change be communicated to all the relevant stakeholder groups, this can be done in the course of routine training on changes to the Code. No dedicated training is necessary.

10  IMPACT ON BUSINESS: LARGE AND SMALL (IF APPLICABLE)

- **Compliance costs**: No additional costs are expected to result from compliance with the change.
- **Change of investment**: Not applicable.
- **Job creation/job loss**: Not applicable.
- **Labour mobility**: Not applicable.
- **Impact on import/export of goods**: Not applicable.
- **Certification and licensing**: Not applicable.
- **Insurance**: Not applicable.

11  WHAT IS THE PRACTICE/EXPERIENCE IN OTHER JURISDICTIONS?

11.1  Are standards consistent with (or lesser/greater than) other jurisdictions?

Currently, there are no deviations from this requirement of the national Code in provincial electrical codes. In Ontario, this interpretation of the Code has been in use for some time without any issues.

11.2  (23) Conflict with other Ministries or Codes

No conflict has been observed.

11.3  Consequences for other Departments/Ministries, e.g., apprentice training

Not applicable.

11.4  Consequences for other Codes from other jurisdictions (US, European standards)

Not applicable.
12 CONSULTATION PROCESS

Representatives from the following groups of stakeholders were involved in the consensus approval of this change as part of CSA Group’s standards development process:

Note: For details about the standards development process as it applies to the CE Code, Part I, please refer to Appendix C of the Code.

- Regulatory authorities from various provincial, territorial, and municipal electrical inspection authorities
- Owners/Operators/Producers from groups with national stature, representing the viewpoints of electrical equipment manufacturers, electrical installation designers and installers, and electrical installation users
- General interest groups with national stature, representing the viewpoints of
  (a) fire chiefs;
  (b) electric utilities;
  (c) committees responsible for related electrical codes and standards;
  (d) fire insurers;
  (e) labour;
  (f) issuers of building codes; and
  (g) educators.

A regulatory/legislative body may want to hold additional consultations with all or some of these groups within its jurisdiction to clarify issues specific to the jurisdiction.

13 PROPOSED EFFECTIVE DATE OF CHANGES

The change will be included in the 2015 edition of the CE Code, Part I, to be published in January 2015.
**APPENDIX 1 — CODE RANKING TOOL VALUES**

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<th>Reason for Change</th>
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<td>Safety consideration (Frequency)</td>
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<tr>
<td></td>
<td>For clarity</td>
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</tr>
<tr>
<td></td>
<td>Crucial to harmonize</td>
<td>7</td>
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<tr>
<td></td>
<td>Purely administrative</td>
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<tr>
<td></td>
<td>Community’s desire to change - Environment, Health, Safety</td>
<td>7</td>
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<tr>
<td></td>
<td>Technological change/New Rule</td>
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<td>Prevalence of rule use if accepted</td>
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<td></td>
<td>Number of stakeholders affected on frequent basis</td>
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<td></td>
<td>Largest type of stakeholder who would benefit</td>
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<td>Benefit to society</td>
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<th>Risk for Changing Rule/Staying Status</th>
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<td>The jurisdiction or stakeholder’s ability to compete based on incompatibility with other standards</td>
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<td>Conflict with other Ministries or Code</td>
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<td><strong>Total Score for Risk of Changing Rule/ Staying Status Quo</strong></td>
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