Ontario

Ministry of Municipal Affairs

Technical Support for Electric Vehicle Charging Requirements in the Building Code that are in effect January 1, 2018

Non-residential Buildings

Questions and Answers

Provided on March 8, 2018

This document is intended to provide guidance to assist with interpreting amendments to the building code. The application of the requirements depends on the situation. For legal advice, you may want to consult a lawyer. For the official version of the regulation, please see Ontario e-Laws under the Source Law section.

Ministry of Municipal Affairs
Technical Support for
Electric Vehicle Charging Requirements
in Non-residential Buildings

Building Code electric vehicle charging requirements applicable to non-residential buildings are provided in Annex 1 at the end of this document.

Questions and Answers

Q1. When did electric vehicle charging requirements come into effect?

A. These requirements came into effect for building permits applied for on or after January 1, 2018.

Q2. Do all building permit applications submitted after January 1, 2018 need to demonstrate compliance with these requirements?

A. Some building permit applications may be subject to transition provisions. In specific cases, where the conditions of the transition provisions are met, the requirements related to electric vehicle charging infrastructure would not apply, if the building permit application is filed before January 1, 2020.

Q3. What are the transition provisions related to the requirements for non-residential buildings - such as workplaces - with parking in the building?

A. New non-residential buildings that have parking in the building do not have to meet the electric vehicle charging requirements if before January 1st, 2018:

- the building permit applicant has a utility plan that has been approved by an electrical distribution company which details the electrical utility infrastructure that needs to be installed

  or

- the building permit applicant has an agreement from the electricity distributor about connecting the building to the electrical system

and

- the applicant applies for a building permit before January 1, 2020.

If permit applicants have proved they received the necessary approvals from electricity distributers, that is understood to mean the project is far along in the approvals process. However the building permit must be applied for before January 1, 2020.

Please see Sentence (2.1) for transition provisions (provided in Annex 1).

Q4. What buildings do the requirements apply to?

A: Sentences (1), (2) and (2.1) apply to all buildings, other than apartment buildings, where there is parking integrated into the building design.

Q5. Do these requirements apply to existing buildings or renovations?

A: No.

Q6. Would these requirements apply if the parking spaces are on the roof of the non-residential building?

A: Yes.

Q7. Do these requirements apply to apartment or "condo" buildings (e.g. "multi-unit residential buildings")?

A: No. In Fall, 2017, the Ministry of Municipal Affairs consulted separately on proposed new requirements for electric vehicle charging infrastructure for apartment buildings where parking is provided inside the building. The feedback from those consultations is under review.

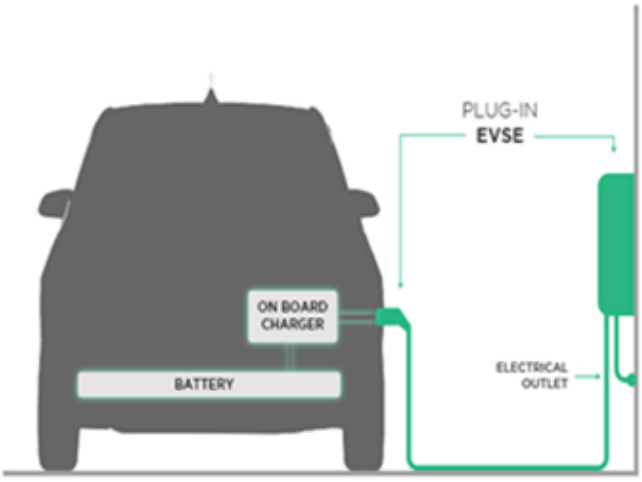
Q8. In a non-residential building, if the garage is not planned to accommodate employee parking, does it need to meet the electric vehicle charging requirements? For example, in a hospital, only visitors may park in that garage.

A: Yes, the parking spaces need to comply with the electric vehicle charging requirements.

Q9. What is "*electric vehicle supply equipment*"?

A: *Electric vehicle supply equipment* (EVSE) is defined in Section 86 of the Ontario Electrical Safety Code: "a complete assembly consisting of conductors, connectors, devices, apparatus, and fittings installed specifically for the purpose of power transfer and information exchange between the branch circuit and electric vehicle"

This is an example of a car being charged with electric vehicle supply equipment (EVSE).



Evatran Group©2017

Q10. Given the definition of *electric vehicle supply equipment*, what is an acceptable solution to implement the Building Code requirements for non-residential buildings such as workplaces?

A: In 20 per cent of the parking spaces, *electric vehicle supply equipment* needs to be provided. The Ontario Electrical Safety Code defines *electric vehicle supply equipment* and prescribes the electrical infrastructure that is needed to energize it.

There are different kinds of *electric vehicle supply equipment* on the market.

120V/20A
ClipperCreek@2017

240V/30A x 2
Elmec@2017

240V/20A
SunCountry Highway@2017

240V/30A
Chargepoint@2017

This is a photograph of what *electric vehicle supply equipment* might look like when installed in several parking spaces in a garage

Q11. Is the provision of a receptacle sufficient to meet the requirements or does an apparatus need to be installed

A: Providing only a receptacle is not sufficient. An apparatus, as described in the Ontario Electrical Safety Code, also needs to be installed or plugged in, in 20 per cent of the parking spaces.

Q12. What is an alternative solution?

A. Alternative solutions are alternatives to the technical requirements of Division B of the Building Code that meet the underlying intent of those requirements.

For an alternative solution to be approved by a municipal chief building official, the solution must achieve the level of performance required by the “acceptable solutions” set out in Division B of the Building Code with respect to the relevant “objectives” and “functional statements”.

That is why MMA produces “SA-1”, a Supplementary Standard to the Building Code that links each acceptable solution to an objective and a functional statement. In this way, a proposed “alternative solution” can be evaluated to see if it meets the same level of performance as Division B’s “acceptable solutions” in relation to the linked objective and functional statement.

The updated pages of the SA-1 will be published as part of an amendment package to the current Building Code compendium, and will be available as a free download from ServiceOntario Publications.

Q13. Why was the Supplementary Standard SA-1 amended?

A. The SA-1 was amended in order to enable “alternative solutions” to the new technical requirements for EV charging by linking applicable objectives and functional statements of the Building Code to the new EV requirements.

This amendment specifies that the purpose of the new electrical vehicle charging requirements is to design and construct buildings so that the degradation of the natural environment from greenhouse gas emissions is limited.

In this case, this is being achieved by facilitating the future installation of EV charging equipment that will support vehicles that do not produce greenhouse gas emissions.

The objective and functional statement that are now attributed to the electric vehicle charging requirements are:

- Objective: “To limit the probability that, as a result of the design or construction of a building, the natural environment will be exposed to an unacceptable risk of degradation due to emissions of greenhouse gases into the air [OE1.1.]”
- Functional Statement: “To limit excessive emissions of greenhouse gases into the air [F150]”

Q14. What are the Appendix Notes for?

A. Appendix Notes to the Building Code are provided in Appendix A of Volume 2 of Ontario’s Building Code Compendium. They are included for explanatory purposes only and do not form part of the requirements. Appendix Notes for the EV charging requirements in Parts 3 and 9 of the Building Code have now been developed and include information on the requirements and considerations for alternative solutions.

They will be published as part of an amendment package to the current Building Code compendium, and will be available as a free download from ServiceOntario Publications.

Q15. Is there a specified location on the wall or on a post where the *electric vehicle supply equipment* is supposed to be located?

A: The Building Code and the Ontario Electrical Safety Code do not identify a specific location.

The Ontario Electrical Safety Code generally says that indoor sites need to be in locations where the electric vehicle connector can couple to the electric vehicle. Making sure that the appropriate specifications are followed is part of the electrical review and inspection.

The building inspector's role is to ensure that 20 per cent of the parking spaces are served by *electric vehicle supply equipment*. The electrical safety inspector ensures that the *electric vehicle supply equipment* is installed according to the Ontario Electrical Safety Code.

Q16. For the other 80 per cent of the parking spaces, what needs to be provided so that they are "designed" to accommodate future charging?

A: This requirement is intended to minimize the cost and complexity of renovations that would otherwise be encountered if additional *electric vehicle supply equipment* is installed in the future. Meeting this Building Code requirement is intended to focus on construction requirements within the scope of the Building Code, rather than electrical infrastructure.

How these spaces may be provided with *electric vehicle supply equipment* in the future depends on the design of the building.

For example, the following could be considered:

- Providing sufficient space for installing additional electrical infrastructure such as a transformer, in the future, to accommodate electric vehicle charging to the additional parking spaces;
- If parking is provided on more than one floor, a way to conveniently draw/install wires between the electrical panel or branch panel and all areas with parking spaces without the need for structural alternation (e.g. providing a chase or conduit between floors to avoid needing to cut or drill through concrete floor or walls in the future).
- If a sufficiently sized conduit or sleeve is provided, it would need to be capped and labelled.

Q17. For the 80 per cent of the parking spaces, does electrical capacity need to be provided?

A: No.

Q18. If the building is a mixed use building such as a building that has both commercial uses and apartments, how many the parking spaces need to include electric vehicle charging infrastructure?

A: If parking for commercial use is available inside the building, then 20 per cent of those commercial spaces would need to include *electric vehicle supply equipment* and the remaining 80 per cent of those commercial parking spaces would need to be designed to permit future installations, as outlined in the response to Q13.

Currently there are no electric vehicle charging requirements for apartment buildings.

Q19. Who is responsible for enforcement?

A: The building official is responsible for checking that *electric vehicle supply equipment* is installed in 20 per cent of the parking spaces. The building official also needs to make sure that provisions are in place for the future installation of *electric vehicle supply equipment* in 80 per cent of the parking spaces, as outlined in Q13.

The electrical inspector is responsible for ensuring that the electric vehicle infrastructure is installed in compliance with the Ontario Electrical Safety Code. If *electric vehicle supply equipment* is installed, the installation must meet the requirements of the Ontario Electrical Safety Code.

Determining electrical capacity and installation of the electrical infrastructure is typically part of the electrical plans developed by the appropriate professional overseeing the electrical design in accordance with the Ontario Electrical Safety Code. These plans are typically reviewed by the Electrical Safety Authority's Plans Review department.

Q20. What if some of the electrical vehicle parking spaces are outside the building?

A: 20 per cent of the parking spaces inside the building need to have energized *electric vehicle supply equipment* provided. The electric vehicle charging requirements do not apply to surface parking lots that are not a building.

Q21. How is it decided who pays for the electricity?

A: The Building Code does not specify who pays. There are several options for a building owner to recover the cost for parking in an *electric vehicle supply equipment*-enabled parking space. For example, some electric vehicle charging apparatus include features that are enabled to accept payment or to monitor charging so that it can be charged to the person who has parked there.

Q22. Do the requirements apply to accessible parking spaces or buildings where large electric vehicles such as electric busses will be parked?

A: These Building Code requirements apply to the parking spaces themselves; not to the kinds of vehicles that will be parked in the spaces.

Depending on the interests of the building owner and other relevant factors, he/she may choose to include *electric vehicle supply equipment* for accessible and/or for larger electric vehicle parking spaces.

Q23. How do electric vehicle parking spaces need to be distributed within the building?

A: There are no requirements governing where in the parking garage electric vehicle parking spaces need to be located. It would depend on the design of the building and the preferences of the building owner.

Q24. How can I find out more?

You can subscribe to CodeNews if you have not already subscribed or check in with the MMA Building Code website for updates on the posting of other information.

For more information about the Electrical Safety Authority, please visit the Electrical Safety Authority website.

Annex 1

Building Code Requirements for EV charging in Non-Residential Buildings

On December 19, 2017, Electric Vehicle Charging Requirements in Ontario's Building Code were amended to provide an exemption for certain projects.

The EV charging requirements for Part 3 buildings are provided below. The new amendment is provided as underlined text.

3.1.21. Electric Vehicle Charging

3.1.21.1. Electric Vehicle Charging Systems

(1) Except as provided in Sentences (2.1) and (3), where vehicle parking spaces are located in a *building*, other than an apartment *building*, not less than 20% of the parking spaces shall be provided with *electric vehicle supply equipment* installed in accordance with Section 86 of the Electrical Safety Code adopted under Ontario Regulation 164/99 (Electrical Safety Code) made under the *Electricity Act, 1998*.

(2) The remaining parking spaces located in a *building* described in Sentence (1) shall be designed to permit the future installation of *electric vehicle supply equipment* that conforms to Section 86 of the Electrical Safety Code.

(2.1) Parking spaces located in a *building* need not comply with Sentence (1) where,

(a) before January 1, 2018,

(i) an agreement was entered into between the owner of the land on which the *building* is to be constructed and a distributor, as defined in subsection 2 (1) of the *Electricity Act, 1998,* that sets out the conditions for the connection of the building to a distribution system, as defined in subsection 2 (1) of that Act, or

(ii) a plan for the land on which the *building* is to be constructed respecting the siting and sizing of lines, transformers or other equipment used for conveying electricity was approved by a distributor, as defined in subsection 2 (1) of the *Electricity Act, 1998*, and

(b) an application for a permit to *construct* the *building* was made before January 1, 2020.

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(3) Except as provided in Sentences (6) and (7), where a *house* is served by a garage, carport or driveway, the following shall be installed to permit the future installation of *electric vehicle supply equipment* that conforms to Section 86 of the Electrical Safety Code:

(a) a minimum 200 amp panelboard,

(b) a conduit that is not less than 27 mm trade *size* and is equipped with a means to allow cables to be pulled into the conduit, and

(c) a square 4-11/16 in. trade *size* electrical outlet box.

(4) The electrical outlet box described in Clause (3)(c) shall be installed in the garage or carport or adjacent to the driveway.

(5) The conduit and electrical outlet box described in Clauses (3)(b) and (c) shall provide an effective barrier against the passage of gas and exhaust fumes.

(6) A *house* need not comply with Sentence (3) where it,

(a) is not connected to a distribution system, as defined in subsection 2 (1)

of the *Electricity Act, 1998*, or

(b) is used or intended to be used as a seasonal recreational *building* described in Section 9.36.

(7) A *house* need not comply with Sentence (3) where,

(a) before January 1, 2018,

(i) an agreement was entered into between the owner of the land on which the *house* is to be constructed and a distributor, as defined in subsection 2 (1) of the *Electricity Act, 1998*, that sets out the conditions for the connection of the *house* to a distribution system, as defined in subsection 2 (1) of that Act, or

(ii) a plan for the land on which the *house* is to be constructed respecting the siting and sizing of lines, transformers or other equipment used for conveying electricity was approved by a distributor, as defined in subsection 2 (1) of the *Electricity Act, 1998*, and

(b) an application for a permit to construct the house was made before January 1, 2020.

These requirements came into force on **January 1, 2018.** Please note these same provisions are included in Part 9 of the Building Code.