

Ontario's Building Code

ONTARIO ONLY		PROPOSED CHANGE TO THE 2006 BUILDING CODE	
CHANGE NUMBER	H-B-09-35-01	CODE REFERENCE	Div. B 9.35.2.2.(2) & 3.3.5.4.(8)
DESCRIPTION OF PROPOSED AMENDMENT	Add a "signpost" to the Ontario Electrical Safety Code requirements for an air tight barrier between a repair garage or a storage garage and an adjacent area.		

EXISTING 2006 BUILDING CODE PROVISION(S)

9.35.2.2. Garage Floor

- (1) Where an attached or built-in garage is provided, the garage floor shall be sloped to drain liquids to the outdoors.

Proposed change to Sentence 9.35.2.2.(1).to be included in the 2011 Building Code

(1) Where an attached or built-in garage is provided and where adjacent spaces in the *building* are less than 50 mm above the garage floor,

- (a) the garage floor shall be sloped to the outdoors, or
- (b) where it the garage can accommodate not more than 3 vehicles, an airtight curb or partition not less than 50 mm high shall be installed at the edges of the garage floor adjacent to interior space.(See Appendix A.)

A-9.35.2.2.(1) Garage Floors.

Sources of ignition, such as electrical wiring and appliances, can set off an explosion if exposed to gases or vapours such as those that can be released in garages. This provision applies where the frequency and concentration of such releases are low.

Where the garage can accommodate more than 3 vehicles, and where wiring is installed within 50 mm of the garage floor, the Electrical Safety Code should be consulted as it specifies more stringent criteria for wiring.

The capacity of the garage is based on standard-size passenger vehicles such as cars, mini-vans and sport utility vehicles, and half-ton trucks. In a typical configuration, the capacity of the garage would be defined by the width of the garage doors — generally single or double width — which correlates to the number of parking bays.

In many constructions, floor areas adjacent to the garage are either above the garage floor level or separated from it by a foundation wall. Where the foundation wall is cast-in-place concrete and rises at least 50 mm above the garage floor, it can serve as the airtight curb. Where the foundation wall is block or preserved wood, extra measures may be needed to provide airtightness. In many instances, the construction will be required to be airtight to conform with Sentence 9.25.3.1.(1), and in any case, must comply with Sentences 9.10.9.16.(4) and (5).Where the space adjacent to the garage is at the same level as the garage, a 50 mm curb or partition is not needed if the wall complies with Sentences 9.10.9.16.(4) and (5), and there is no connecting door. Where there is a connecting door, it must be raised at least 50 mm off the floor or be installed so it closes against the curb. In some instances, access to the basement is via a stair from the garage. In such cases, a curb must be installed at the edge of the garage floor area and must be sealed to the foundation wall, curb or partition between the garage and adjacent spaces.

3.3.5.4. Repair and Storage Garages

- (1) If access is provided from a *storage garage* to a stair tower or elevator serving *occupancies* above the level of the *storage garage*, the access shall be through a vestibule conforming to Sentence 3.3.5.7.(3).
- (2) Treads and landings in interior stairs that extend to the roof of a *storage garage* shall be designed to be free of accumulations of ice and snow.
- (3) A mechanical *storage garage* not more than 4 storeys in *building height*, in which no persons other than parking attendants are permitted above the *street* floor level, need not have a *fire separation* between the *exits* and the remainder of the *building*.
- (4) A garage shall be provided with natural or mechanical ventilation in conformance with the requirements of Subsection 6.2.2. to prevent excessive accumulation of carbon monoxide, exhaust fumes or flammable and toxic vapours.
- (5) Except as required by Sentence 3.8.2.2.(2), the clear height in a *storage garage* shall be not less than 2000 mm.
- (6) A continuous curb not less than 150 mm high and a guard not less than 1 070 mm high shall be provided at every garage floor opening and around the perimeter of every floor where the exterior walls are omitted.
- (7) Except for *open-air storeys*, every *storey* of a *storage garage* or *repair garage* located below *grade* shall be *sprinklered*.

Related provisions contained in the Ontario Electrical Safety Code.

Commercial garages — Repairs and storage 20-100 Scope

Rules 20-102 to 20-114 apply to locations used for service and repair operations in connection with self-propelled vehicles in which volatile flammable liquids or flammable gases are used for fuel or power, and locations in which more than three such vehicles are, or may be, stored at one time.

20-102 Hazardous areas

(1) For each floor at or above grade, the entire area up to a level 50 mm above the floor shall be considered a Class I, Zone 2 location.

(2) For each floor below grade, the entire area up to a level 50 mm above the bottom of outside doors or other openings that are at, or above, grade level shall be considered a Class I, Zone 2 location except that, where adequate ventilation is provided, the hazardous location shall extend up to a level of only 50 mm above each such floor.

(3) Notwithstanding Subrule (2), in storage garages only the area up to a level of 50 mm above each floor that is below grade shall be considered a Class I, Zone 2 location.

(4) Any pit or depression below floor level shall be considered a Class I, Zone 2 location that extends up to the floor level.

(5) Adjacent areas in which hazardous vapours are not likely to be released, such as stockrooms, switchboard rooms, and other similar locations having floors elevated at least 50 mm above the adjacent garage floor, or separated from the garage floor by tight-fitting barriers such as curbs, ramps, or partitions at least 50 mm high, shall not be classed as hazardous.

Residential storage garages

20-200 Scope

Rules 20-202 to 20-206 apply to a building or part of a building in which not more than three vehicles of the type described in Rule 20-100 are, or may be, stored, but that will not normally be used for service or repair operations on stored vehicles.

20-204 Hazardous location

Where the lowest floor is below adjacent grade or driveway level, the following shall apply:

- (a) the entire area of the garage or of any enclosed space that includes the garage shall be classified as a Class I, Zone 2 location up to a level 50 mm above the garage floor; and
- (b) adjacent areas in which hazardous vapours or gases are not likely to be released, and where floors are elevated at least 50 mm above the garage floor or separated from the garage floor by tight curbs or partitions at least 50 mm high, shall not be classed as hazardous.

PROPOSED CODE CHANGE

Add new Sentence 9.35.2.2.(2) as follows:

9.35.2.2. Garage Floor

...

(2) Unless the area adjacent to the storage garage is raised by 50 mm, it shall be separated from the garage floor by tight-fitting barriers such as curbs, ramps, or partitions at least 50 mm high where required by the Ontario Electrical Safety Code.

Add new Sentence 3.3.5.4.(8) as follows:

3.3.5.4. Repair and Storage Garages

...

(8) Unless the area adjacent to the storage garage is raised by 50 mm, it shall be separated from the garage floor by tight-fitting barriers such as curbs, ramps, or partitions at least 50 mm high where required by the Ontario Electrical Safety Code.

Add new note to Appendix A, 3.3.5.4 & 9.35.2.2:

The elevation change required by the OESC should be designed to ensure that barrier-free requirements are met where the barrier is located in a barrier-free path of travel.

RATIONALE FOR CHANGE

Problem / General Background

The requirement for an air-tight curb or partition between a storage garage or repair garage and the adjacent occupancy is a provision contained in the OESC . It is applicable to garages in both Part 9 and Part 3 buildings. The Electrical Safety Code describes onditions under which the curbs will be required and for this reason the requirement should be retained in the OESC. Since curbs are fixed building elements the Building Code should have a signpost directing the designer to the OESC.

Also refer to attached 2010 Building Code Proposed Change B-09-35-01 for 9.35.2.2.(1) and A.9.35.2.2.(1). The concepts of the Proposed Change have been incorporated into the recommended change noted above.

Sentence 9.35.2.2.(1) of the Building Code should remain as the intent of this requirement is to drain liquids out of the garage. Sloping the garage floor is not a permitted means of separating electrically classified areas in a garage from adjacent areas in the OESC. The 2010 Building Code Proposed Change has removed this requirement.

Sentence 9.35.2.2.(1) of the mNBC, as well as Appendix A of the mNBC which provides additional information. OESC Bulletin 20-1-2. Describes acceptable curb solutions and is included.

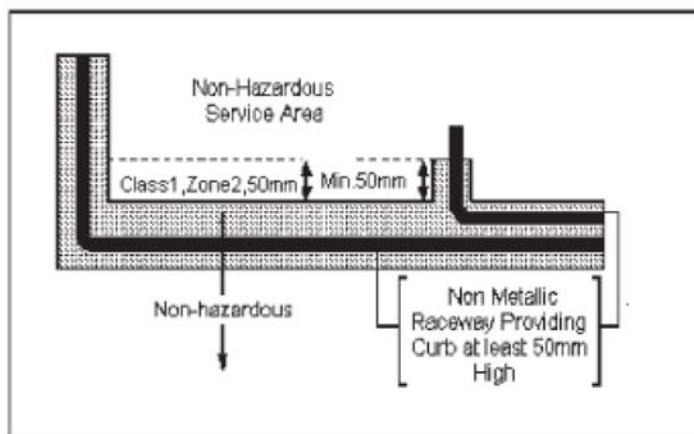
Background

Rule 20-108(2) states the raceways embedded in a masonry floor or buried beneath a floor are to be considered to be within the hazardous area above the floor if any connections or extensions lead into or through such an area. This has led to a question about the use of nonmetallic raceway in floor slabs of such places as parking garages below grade where the space 50mm (2 inches) above the slab is Class 1 Zone 2.

Direction

The figure B1 below shows an acceptable way to comply with the requirements of the rule. Please note the conduit is not in the hazardous location where it emerges from the concrete curb and the space below the floor can be considered a non hazardous location.

Diagram B1



Subrule 20-108(2)

(2) Adjacent areas to hazardous location, in which hazardous vapours are not likely to be released, to be released, Rule 20-102(5)

Background

Rule 20-102(5) states that areas in commercial garages etc. (adjacent to areas which are classified as hazardous) in which hazardous vapours are not likely to be released such as stockrooms, switchboard rooms, and other similar locations having floors elevated at least 50 mm above adjacent garage floor, or separated there from by tight-fitting barriers such as curbs, ramps, or partitions at least 50 mm high, need not be classified as hazardous.

Direction

Figures B2, B3 and B4 below, show examples of acceptable ways to achieve the required separation.

Diagram B2

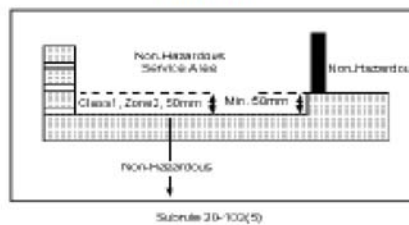


Diagram B3

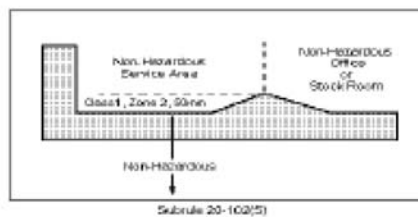
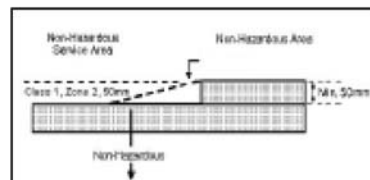


Diagram B4



Note: The above diagrams are an illustration of how the 2nd barrier can be achieved. Other alternative methods may be acceptable, subject to ESA's approval.

Justification / Explanation

The Building Code should contain a signpost to a requirement of the OESC which specifies the conditions under which an air-tight curb, a fixed building element will be required.

Cost / Benefit Implications

None. The curb is currently required by a code applicable to building construction.

Enforcement Implications

Will facilitate enforcement.

Who is Affected

Designers, building Officials.

Objective-Based Analysis

Provision	N/A - signpost
Objective	
Functional Statement	