



April 1, 2017

Construction Industry, Designers, Contractors and Suppliers providing services in Yukon

Advisory #5 – Egress Windows or Exterior Doors for Bedrooms

The National Building Code of Canada 2015, (NBC) which is adopted in Yukon, under the Yukon Building Standards Act, contains several provisions that apply to the required installation of an egress window or exterior door in every bedroom, which are regulated under Part 9 of the 2015 NBC. We are alerting you to the need for building owners, as well as their designers, builders and material suppliers on their behalf, to comply with the requirements of the 2015 NBC regarding egress from every bedroom.

Although the Territory adopts the National Building Code (NBC), it is administered within Whitehorse by the City of Whitehorse, Building Officials and in all other parts of Yukon; the Yukon Government, Building Officials administer it. This enclosed Advisory #5 deals with the required installation of an egress window or exterior door in every bedroom, which are regulated under Part 9 of the 2015 NBC.

We hope that this advisory will help eliminate confusion about the required installation of an egress window or exterior door in every bedroom, which are regulated under Part 9 of the 2015 NBC and will encourage uniform application of the 2015 NBC requirements throughout Yukon. Please feel free to make copies of this advisory available to your customers as you see fit. Your assistance in achieving these goals is greatly appreciated.

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Egress Windows or Exterior Doors for Bedrooms

Compliance with the Building Standards Act and Regulations are addressed in this advisory. The National Building Code of Canada 2015 (NBC) is adopted by the Building Standards Act. Words in *italics* are defined in the 2015 NBC.

Emergency Escape – Unless a bedroom has a door that leads directly to the *building's* exterior, or the *suite is sprinklered*, each bedroom shall have at least one outside window openable from the inside without the use of keys, tools or special knowledge and without the removal of sashes or any hardware. These windows must provide an unobstructed opening with a minimum area of 0.35 m² (4 ft²), and no dimension less than 380 mm (15"). As shown in Figure A-9.9.10.1.(2), a window opening of 380 mm (15") x 380 mm (15") does not provide the required area. This requirement is specifically intended to provide occupants with a means of escape in an emergency situation when the use of the normal *building exits* are prevented. Although bedroom windows are not considered to be ordinary escape routes, using them in an emergency has saved the lives of many occupants. (See Articles 9.9.10.1.)

These bedroom windows must provide an unobstructed opening with a minimum area of 0.35 m² (4 ft.²) and no dimension less than 380 mm (15 in.), however we recommend a minimum dimension of 500 mm (20"). An unobstructed opening of 500 mm x 700 mm or 20" X 28" will meet the minimum area requirement of 0.35 m² (4 ft.²). This is the same size as the access opening that is required for the crawl space access (500 mm x 700 mm or 20" x 28") for a single family *dwelling* in 9.18.2.1.(1) in the 2015 NBC.

The unobstructed opening must be measured between the window components, (sash, jamb, sill, opening mechanism etc.) with the window in the fully open position (Figure 1). It is not simply the dimensions of the rough opening or the glass area. A test to determine if the minimum required opening has been met is the ability to pass a prism of the required cross-sectional area and minimum dimensions through the opening (Figure 2).

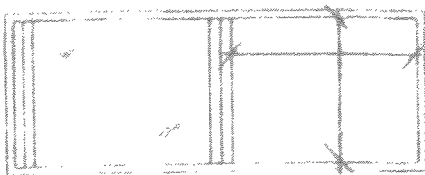


Figure 1

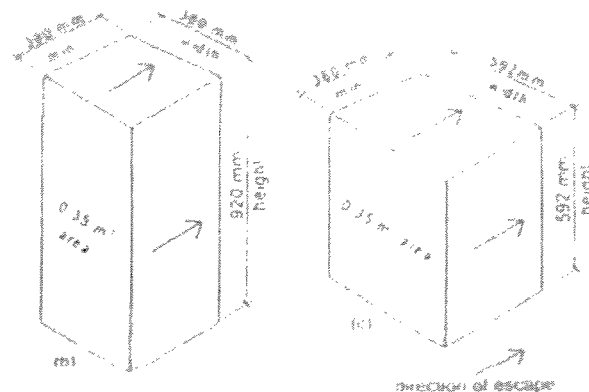


Figure 2

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The intent of these requirements is not for fire fighters' access. The 2015 NBC requirements specifically intended for fire fighters' access are given in Articles 9.10.20.1. and 3.2.5.1. which states that in almost all buildings a minimum unobstructed opening of at least 1 100 mm (44") in height by 550 mm (22") in width needs to be provided.

There is no set maximum sill height for a bedroom window. Therefore, it is possible to install a window that satisfies the requirement; however, this defeats the intent when the sill is so high that it cannot be reached for escape purposes. It is recommended that the sills of windows intended for use as emergency escape be not higher than 1.5 m (5') above the floor. When it is unavoidable to have a sill height that is higher than 1.5 m (5'), access to the window should be improved by some means, such as built-in furniture installed below the window.

Window Openings into a Window Well – When a window required by Article 9.9.10.1. opens into a window well, the clearance between the window and the window well must be at least 760 mm (30"). When the window sash swings open towards the window well, the operation of the sash shall not reduce the clearance in a manner that would restrict escape in an emergency situation. Although the required clearance is measured from the window to the window well, the clearance with the window in the open position is the more critical dimension to ensure the occupants' safety.

WINDOW TYPES

Awning – The use of awning windows in bedrooms does **not** comply with Article 9.9.10.1. Awning windows (Figure 3) swing open on their horizontal axis at the top of the frame or at an intermediate mullion. The opening hardware for an awning window typically extends between the middle of the sill and the middle of the window sash. It obstructs an occupants' escape Route. For this reason awning windows do not provide unobstructed opening which is required.

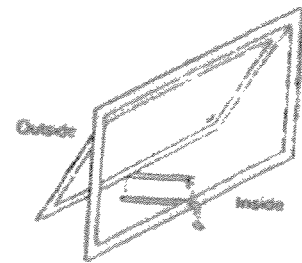


Figure 3

Although the opening hardware is usually designed to be detached from the awning window, however, detaching the hardware is not considered as part of the normal opening operation. A person needs special knowledge to release the hardware and requires dexterity. Quick-release hardware may improve an occupants' ability to release the hardware, however, removal of the hardware does not meet the requirements of the NBC. When the opening hardware is detached the window is no longer held in the open position and the window becomes an obstruction.

Casement – Casement windows (Figure 4) open on their vertical axis and usually have opening hardware installed at the bottom of the window. Since this hardware may obstruct an occupants' escape, the opening needs to be measured to the hardware. In addition to the opening hardware, casement windows usually have latches opposite to the hinges; these latches should be easily operated and within reach of the elderly and children that are expected to escape on their own.

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Casement windows come with different types of hinge hardware. One type of hardware allows the window to pivot around a vertical axis that is not at the jamb. Alternatively, egress hinge hardware pivots the window at an axis along the jamb to allow for a maximum unobstructed opening. Casement windows will satisfy the requirements of Article 9.9.10.1. if the opening is large enough to pass the prism test with the opening hardware in its most restrictive position and the window is in the fully open position.

Slider – Horizontal and vertical slider windows (Figure 5) are commonly used in residential construction. They are capable of meeting the requirements of the NBC, if the opening is large enough to pass the prism test. Some slider windows have the ability to flip open into the room to allow for easy cleaning, however, this operation requires several steps and is not considered as part of the normal opening of the window. The unobstructed opening should be measured when the window is in the normal, fully open position.

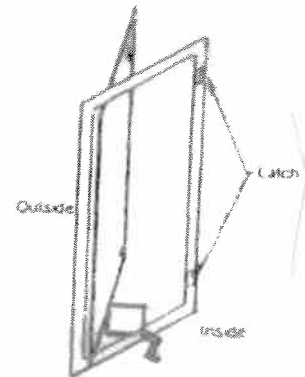


Figure 4

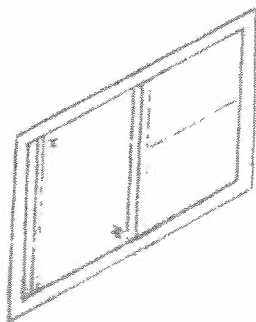


Figure 5

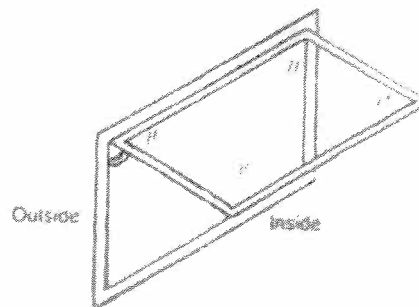


Figure 6

Full Vent In-swing Awning – Full vent in-swing awning windows (Figure 6) swing on their vertical axis at the top of the frame or at an intermediate mullion. This type of window latch does not use an opening operator at the bottom of the window and is able to swing open without restriction and is able to be held open with intermediate catches. It swings towards the user and does not restrict the clearance required when opening into a window well. This type of window has been marketed as a “basement” window because it swings inward and the size of the opening is not restricted by the opening mechanism. If there is a built in catch that holds the window in the fully open position, this type of window is capable of meeting the requirements of the NBC.

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Hopper – Hopper windows (Figure 7) swing open on their horizontal axis at the bottom of the frame or at an intermediate mullion. They have a latch to hold them closed and do not typically have an opening operator at the top of the window. This allows them to swing open freely or be held partially open with intermediate catches. With typical hopper windows, an occupant would have to crawl over the glass area in order to escape, however, this is **not** acceptable. Hopper windows that swing to the fully vertical open position are capable of meeting the requirements of the NBC, however, hopper windows are no longer commonly made or used.

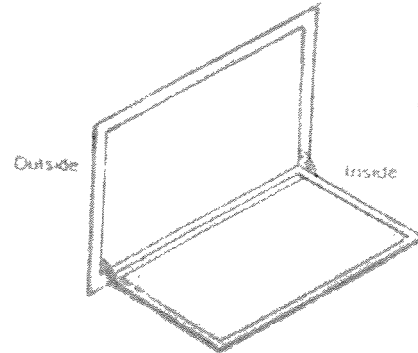


Figure 7

REQUIREMENTS OF THE 2015 NBC

Article 9.9.10.1. Egress Windows or Doors for Bedrooms

1) Except where the *suite* is *sprinklered*, each bedroom or combination bedroom shall have at least one outside window or exterior door openable from the inside without the use of keys, tools or special knowledge and without the removal of sashes or hardware.

(See Article 9.5.1.2. and Note A-9.9.10.1.(1).)

A-9.9.10.1.(1) Escape Windows from Bedrooms. Sentence 9.9.10.1.(1) generally requires every bedroom in an unsprinklered suite to have at least one window or door opening to the outside that is large enough and easy enough to open so that it can be used as an exit in the event that a fire prevents use of the building's normal exits. The minimum unobstructed opening specified for escape windows must be achievable using only the normal window operating procedure. The escape path must not go through nor open onto another room, floor or space.

Where a bedroom is located in an unsprinklered suite in a basement, an escape window or door must be located in the bedroom. It is not sufficient to rely on egress through other basement space to another escape window or door.

Window Height: The Article does not set a maximum sill height for escape windows; it is therefore possible to install a window or skylight that satisfies the requirements of the Article but defeats the Article's intent by virtue of being so high that it cannot be reached for exit purposes. It is recommended that the sills of windows intended for use as emergency exits be not higher than 1.5 m (5') above the floor. However, it is sometimes difficult to avoid having a higher sill: on skylights and windows in basement bedrooms for example. In these cases, it is recommended that access to the window be improved by some means such as built-in furniture installed below the window.

2) The window referred to in Sentence (1) shall

- a) provide an unobstructed opening of not less than 0.35 m² (4 ft²) in area with no dimension less than 380 mm (15"), and
- b) maintain the required opening during an emergency without the need for additional support.

(See Note A-9.9.10.1.(2).)

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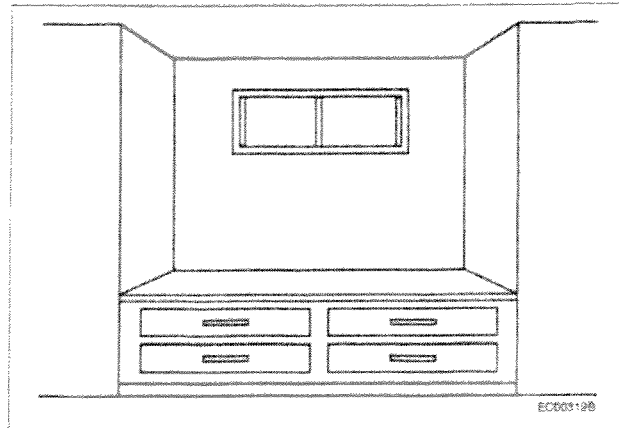


Figure A-9.9.10.1.(1)
Built-in furniture to improve access to a window

A-9.9.10.1.(2) Bedroom Window Opening Areas and Dimensions. Although the minimum opening dimensions required for height and width are 380 mm (15"), a window opening that is 380mm (15") x 380mm (15") would not comply with the minimum area requirements.
(See Figure A-9.9.10.1.(2))

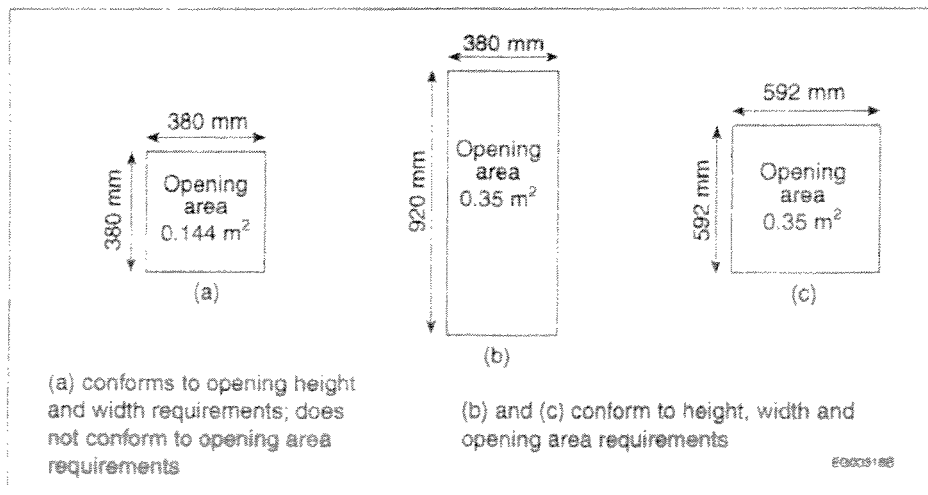


Figure A-9.9.10.1.(2)
Window opening areas and dimensions

3) Where a window required in Sentence (1) opens into a window well, a clearance of not less than 760 mm (30") shall be provided in front of the window.
(See Note A-9.9.10.1.(3).)

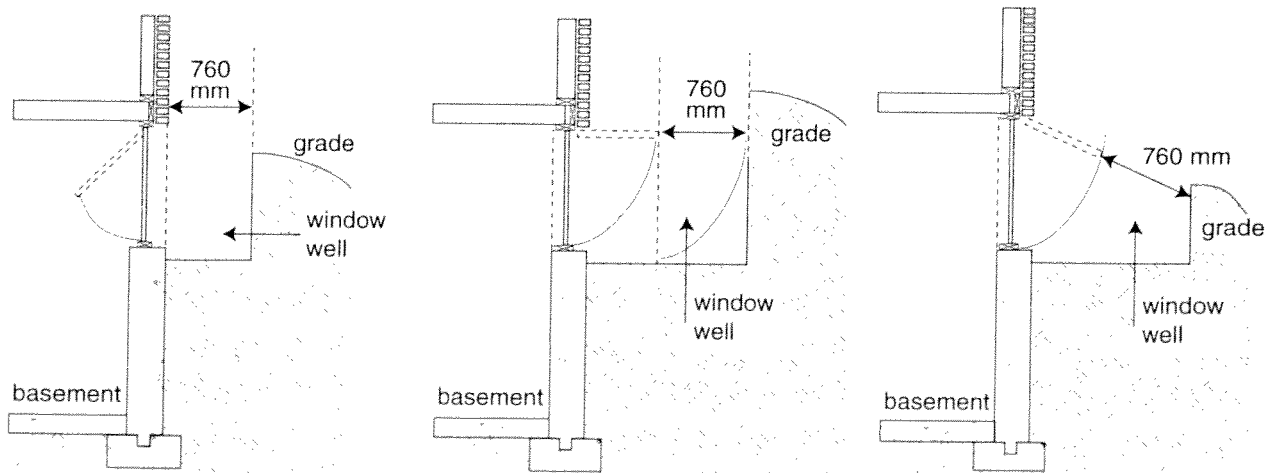
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A-9.9.10.1.(3) Window Opening into a Window Well. Sentence 9.9.10.1.(3) specifies that there must be a minimum clearance of 760 mm (30") in front of designated escape windows to allow persons to escape a basement bedroom in an emergency. This specified minimum clearance is consistent with the minimum required width for means of egress from a floor area (see Article 9.9.5.5.) and the minimum required width for path of travel on exit stairs (see Article 9.9.6.1.). It is considered the smallest acceptable clearance between the escape window and the facing wall of the window well that can accommodate persons trying to escape a bedroom in an emergency given that they are not moving straight through the window but must move outward and up, and must have sufficient space to change body orientation.

Once this clearance is provided, no additional clearance is needed for windows with sliders, casements, or inward-opening awnings. However, for windows with outward-opening awnings, additional clearance is needed to provide the required 760 mm (30") beyond the outer edge of the sash. (See Figure A-9.9.10.1.(3).)

Depending on the likelihood of snow accumulation in the window well, it could be difficult—if not impossible—to escape in an emergency. The window well should be designed to provide sufficient clear space for a person to get out the window and then out the well, taking into account potential snow accumulation.

Hopper windows (bottom-hinged operators) should not be used as escape windows in cases where the occupants would be required to climb over the glass.



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Figure A-9.9.10.1.(3)
Windows providing a means of escape that open into a window well

4) Where the sash of a window referred to in Sentence (3) swings towards the window well, the operation of the sash shall not reduce the clearance in a manner that would restrict escape in an emergency.



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5) Where a protective enclosure is installed over the window well referred to in Sentence (3), the enclosure shall be openable from the inside without the use of keys, tools or special knowledge of the opening mechanism.

Other Considerations

Ice build-up that prevents or restricts opening a window is a concern with any type of window. With improved heating and ventilating systems in houses and improved window construction, ice build-up appears to be less of a concern than it may have been in the past.

Latches incorporated on the inside of the window frame are not considered to require special knowledge to release them. These latches are typically engaged for security or to ensure the window is closed tightly, and released as part of the normal opening process.

Insect screens, security bars, grilles or similar devices should be easily released from the inside without the use of a key, tool or special knowledge and without the removal of any hardware.

Children who are expected to escape through a bedroom window on their own should be taught how to open the window and release any screens or bars that may be in place. Home fire drills should include practice in using the window as a means of escape. For those people who are too young or have physical limitations, may not be able to escape through the window on their own. For these people special precautions such as additional smoke alarms being installed in their bedroom to assist with early detection or relocating their bedroom to the first storey this will make it easier for them to escape should that be required.