

# Emergency Egress

The Minimum Housing and Health Standards of the Housing Regulation pursuant to Section 66 of the Public Health Act states:

III. HOUSING PREMISES; (3. Safe and Secure)

(b) Emergency Egress

*For buildings of 3 storeys or less and except where a bedroom door provides access directly to the exterior or the suite is sprinklered, each bedroom shall have at least one outside window which may be opened from the inside without the use of tools or special knowledge.*

*(i) Windows referred to above shall provide unobstructed openings with areas not less than 0.35 m<sup>2</sup> (3.8ft<sup>2</sup>), with no dimension less than 380 mm (15 in.).*

*(ii) If the window referred above is provided with security bars, the security bars shall be installed so they may be opened from the inside without the use of any tools or special knowledge.*

## WHEN FIRES OCCUR

Although bedroom windows are not considered to be ordinary escape routes, using them in an emergency has saved many occupants.

In a very short time, and in as little as three minutes, a small fire in a room can build up and:

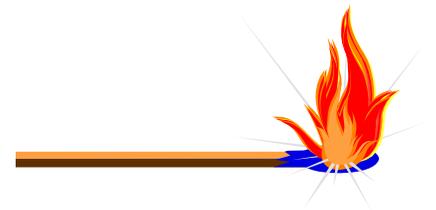
- create conditions so hot that everything will suddenly burst into flames (flashover)
- create clouds of thick, black smoke that hang from the ceiling
- cause temperatures to reach 300°C (572°F) – hot enough to melt clothes to skin and scorch lungs
- create toxic gases like carbon monoxide, hydrogen cyanide, ammonia, and other irritants that affect eyes, nose, throat and lungs, numbing the senses

Therefore, it is important to have a simple plan of exiting a building when there is little or **NO TIME**, conditions are **DARK**, the room is **HOT**, and the environment is **DEADLY**.

## COMMON PROBLEMS WITH WINDOWS

Windows without an acceptable openable area may have

- Difficulties in adjusting it to a fully open position:
  - Panes sticking in the frame
  - Broken components
- Obstructions preventing window from opening:
  - Exterior fasteners (butterfly clips, nails or screws holding pane in place, etc.)
  - Window wells with too little space provided outside the window
  - Window mechanisms that get in the way and reduce the size of the opening



The unobstructed opening must be measured between the window components (sashes, jambs, sills, opening mechanisms, etc.) with the window in the fully open position. It is not simply the dimensions of the rough opening or the glass area.

Breaking a window may create an opening, but nothing suggests that openings are to be provided this way, nor is it safe to crawl over or between bits of broken glass.

## *MAINTENANCE CONSIDERATIONS*

A high window or skylight may satisfy the dimension requirements but would defeat the intent of building code Article 9.7.1.3 because it is so high that it cannot be reached for exit purposes. It is recommended that the sill of windows intended for use as emergency exits be not higher than 1.5m above the floor. Windows in basement bedrooms should have improved access, for example, by installing built-in furniture below the window.

### *Special Knowledge*

Windows should be easy to operate and obviously openable. Any type of window that requires several steps to operate requires “special knowledge”. A window that must be adjusted by incorporating these steps to obtain the minimum opening is unacceptable. This would include units that “slide-and-tilt”, pop-up, unclip from two or more locations, detach-and-remove, etc. For example, a slider window that has the ability to flip open into the room (for ease of cleaning) requires several steps and is not considered to be a normally-opening window.

A window’s opening hardware is usually designed to be detached from windows, but detaching the hardware is not considered part of the normal opening operation. A release mechanism would require “special knowledge” to use, because it

- is hidden from plain view
- requires the user to be familiar with how it functions
- requires dexterity to operate

Quick-release hardware, intended to improve an occupant’s ability to release the hardware, does not appear to be commonly used. Even if quick-release hardware could eliminate the need for special knowledge, when the opening hardware is detached (or is light enough to be broken away) so that the opening is large enough to be a means of escape, the window is no longer held in an open position. The window therefore, becomes the obstruction.

Latching devices are required to be in plain sight to an occupant from the inside of the building and should not require special knowledge to operate. Latching devices are typically engaged, for security or to ensure the window is shut tightly, and released as part of the normal operating process.

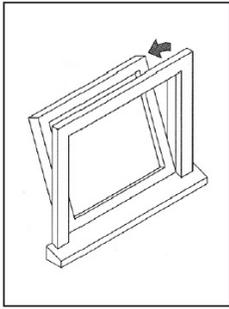
Insect screens, security bars, grilles, or similar devices should be easily removed or released from the inside. A security bar should be easily opened from the inside without the use of any tools or special knowledge.

### *Window Styles and Types*

Windows that can satisfy the requirements of the Minimum Housing and Health Standards and the Alberta Building Code are usually the “full vent inswing awning”, “casement”, and “slider”.

Hoppers and awning types are the least desirable types of windows for bedrooms.

## Hopper

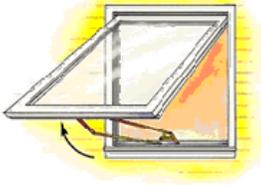


A hopper window swings open on a horizontal axis at or near the bottom of the frame. It has a latch to hold it closed and does not typically come with an opening operator, so that it can swing open freely or be held partially open with a catch.

With a typical hopper window, an occupant would have to crawl over the pane of glass to escape.

Hopper windows are not commonly used for bedrooms.

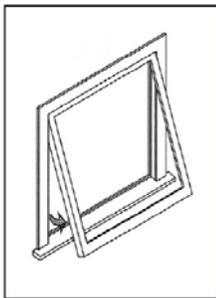
## Awning



An awning window swings open on a horizontal axis at or near the top of the frame (at an intermediate dividing bar / mullion). The opening hardware for an awning window typically extends between the middle of the sill and the middle of the window sash, and obstructs an occupant's escape.

In general, awning windows do not meet the intent for a means of escape.

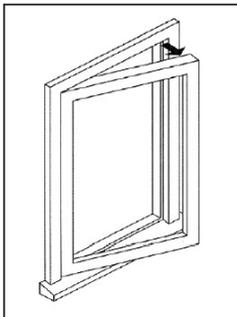
## Full Vent Inswing Awning



Full vent inswing awning windows swing open on their horizontal axis at or near the top of the frame. This type of window swings in towards the user and does not restrict the clearance when going into a window well.

A catch must be available to hold the window in the open position.

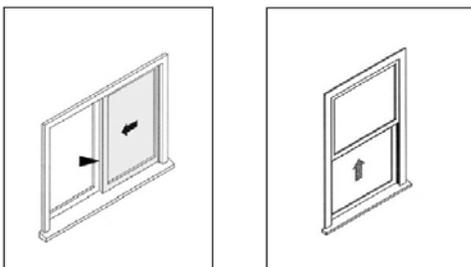
## Casement



A casement window opens on its vertical axis and usually has opening hardware installed at the bottom of the window. Since this hardware obstructs an occupant's escape, the opening is to be measured to the hardware. In addition to the opening hardware, casement windows usually have latches opposite the hinge. Children should be able to reach these latches if they are expected to escape on their own.

Hinge hardware may allow the window to pivot around an axis at or near the jamb. The opening must be satisfactory with the opening hardware in its most restrictive position and the window fully open.

## Slider



Horizontal and vertical slider windows are commonly used in residential construction. The unobstructed opening should be measured when the window is in the fully open position.

Windows that can be ACCEPTABLE	Windows that are generally UNACCEPTABLE
	Hopper
	Awning (out-swing)
Full Vent In-swing Awning	
Casement	
Horizontal or Vertical Slider	

### OTHER CONSIDERATIONS

Ice build-up that prevents or restricts the opening of a window is a concern with any type of window. Improved window construction and improved heating and ventilation in houses will lessen the concern over ice build-up. For additional information on window construction, please refer to Housing and Health HANDOUT **Windows and Exterior Doors: Windproof, waterproof, weatherproof condition.**

Children who are expected to escape through a bedroom window on their own should be taught how to open the window and remove or release any screens or bars that may be installed. Home fire drills should include practice in using the window as a means of escape. For those people who are too young or physically disabled to escape on their own through a window, consider additional smoke alarms in the bedroom to assist with early detection or relocate their bedroom to the first storey to assist with their rescue.

If foundation concrete must be cut to fit a larger window, an engineer's design and a building permit may be required. Contact your municipal Planning and Development department.

#### Sources:

- Canada Mortgage and Housing Corporation
- Alberta Building Code 1997
- Fire Won't Wait, Plan Your Escape! – Alberta Municipal Affairs, Fire Commissioner's Office
- Building Standards Advisory – Saskatchewan Municipal Affairs and Housing
- Installing a Basement Egress Window – City of Hopkins

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**For more information, please contact your nearest Environmental Public Health office.**

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