



Protection of openable windows

Advisory Note

2020



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Application

NCC Volumes: One and Two

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Introduction

The National Construction Code (NCC) comprises the Building Code of Australia (BCA) as Volumes One and Two and the Plumbing Code of Australia (PCA) as Volume Three. BCA 2013 included the introduction of requirements to protect certain openable windows to reduce the risk of young children falling from those windows.

Background

Research has shown that young children are most at risk from window falls in early childhood centres and bedrooms of new residential buildings (i.e. houses, apartments, hotels and the like). For example, in a bedroom, where young children often play unsupervised, it is common to find beds and other furniture which children can climb onto placed under or near windows. Therefore, these measures are included in the NCC to minimise the risk.

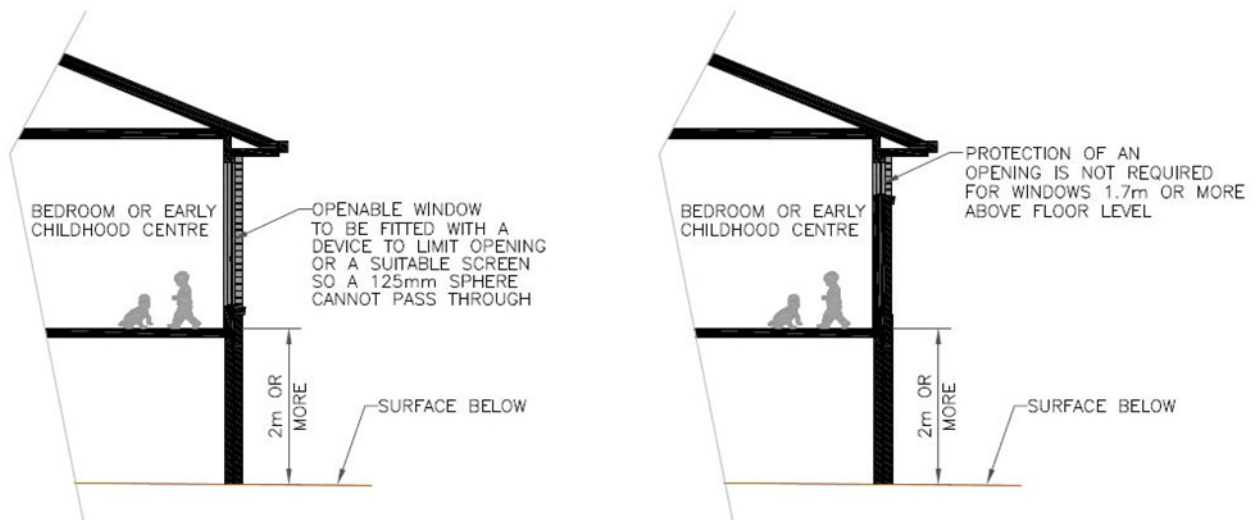
The NCC requires protection for openable windows in new early childhood centres and in bedrooms of new residential buildings (i.e. houses, apartments, hotels and the like), where the floor below the window is more than 2 m above the surface beneath.

The NCC provisions in more detail

Clause D2.24 of NCC Volume One, and clauses 3.9.2.6 and 3.9.2.7 of NCC Volume Two require the affected window to be fitted with either a device to restrict the window opening, or a suitable screen, so a 125 mm diameter sphere (representing the size of a young child's head) cannot pass through. Devices or screens installed in

accordance with NCC Volume One Clause D2.24 or NCC Volume Two Clause 3.9.2.6 must also be able to withstand an outward horizontal force of 250 N.

Figure 1 NCC provisions for protection of operable windows



The device or screen can have a child resistant release mechanism which can enable the device or screen to be removed, unlocked or overridden. Where a child resistant mechanism is utilised, the window must also be provided with a barrier below it that has a minimum height of 865 mm, does not permit a 125 mm sphere to pass through it, and does not have any horizontal or near horizontal elements between 150 mm and 760 mm that facilitate climbing. Fixed glazing under the openable part of the window which meets the height requirements (i.e. transom at least 865 mm above the floor etc.) would satisfy the barrier requirement.

Where a device or screen is securely fixed in position (e.g. a screen pop riveted to the window frame) so it cannot be unlocked, overridden, or is very difficult to remove without for example a drill, the 865 mm barrier would not be required as the securing method is considered a fixture and not a child resistant release mechanism.

Protection of the opening is not required for windows where the lowest part of the opening is 1.7 m or more above the floor.

What is meant by the term “child resistant”?

The NCC allows a screen or window opening restricting device which protects an openable window to be installed in a manner that allows it to be removed, unlocked or overridden. This would be useful, for example, in the event of a fire or other emergency or to allow for cleaning. In these situations, the unlocking device must be child resistant. A child resistant release mechanism could include a device which requires a key to unlock; a coordinated two handed operation to release; or the use of a tool such as a screwdriver, spanner, or Allen key to remove the screen or shift the window to the fully open position. The ABCB considers that a block which is screw fixed to the window track to restrict the opening of a window is a device with a child resistant mechanism and not a fixture.

There are a number of hardware solutions available, such as short chain winders and barrier screens, which will allow windows to comply with the requirements. Sliding window locks which key lock the sash so a 125 mm sphere cannot pass through, but allow the sash to open fully when unlocked, meet the requirements. The screen or opening restricting device must be able to resist a force of 250 N.

Care should be taken to ensure that the weather performance of the sill is not compromised by the opening restricting device.

How do you identify the “surface beneath”?

The openable window protection provisions apply where the floor below the particular window is more than 2 m above the surface beneath. Questions have been raised as to whether a roof or ledge below the window complies with the term ‘surface beneath’.

Compliance with this provision would need to be assessed by the relevant building surveyor on a case by case basis, but in general, the ABCB's view is that a roof or ledge that is not protected at the edge by a NCC compliant balustrade or barrier would not be suitable.

The purpose of the window protection provisions is to limit the potential fall height of a young child through the openable window. If a young child can readily fall from the surface beneath the window and onto another surface further below, the ABCB considers that the NCC intent has not been achieved.

How do these provisions impact on other NCC provisions?

Questions have been raised as to whether the window barrier changes will impact on other NCC provisions such as natural ventilation or energy efficiency.

Natural ventilation

The Deemed-to-Satisfy (DTS) Provisions of NCC Volume One Clause F4.6 and NCC Volume Two Clause 3.8.5.2 require that natural ventilation must be provided to a habitable room and must consist of permanent openings, windows, doors or other devices which can be opened. The ventilating area must be not less than 5% of the floor area of the room required to be ventilated.

If window barriers are installed which restrict the opening of the window to less than 125 mm, it raises the question whether compliance with the natural ventilation provisions is affected.

The short answer is no. The NCC provisions include the words "windows, doors or other devices which **can be opened**" and the ventilating area "must not be less than 5%". Therefore, the window is not required to be always fully open; it just needs to be openable or capable of being opened. The explanatory information in NCC Volume Two states that "the ventilating area of a window is measured as the size of the openable sash of the window, i.e. - whether it is an awning, casement or sliding window and irrespective of the restrictions on the openable sash". In other words, even with a window restricting device, whether the device has a child resistant release mechanism or not, the window sash is still capable of being fully opened and thus the ventilating area is measured as the size of the sash. For an awning window, the ventilation calculation area is the area of the sash i.e. the area coloured in orange in Figure 2a. It is not the area coloured in orange in Figure 2b.

Figure 2a Correct area

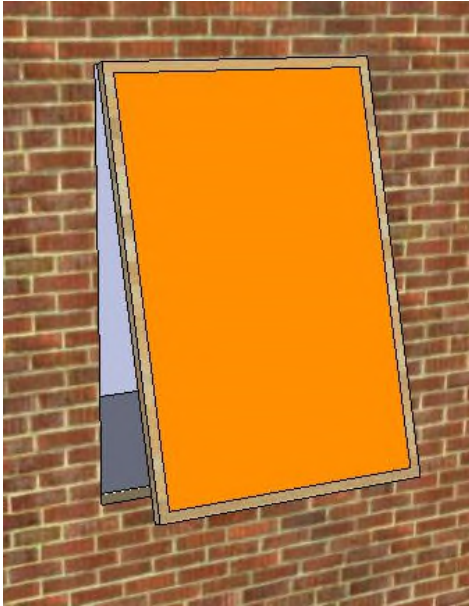
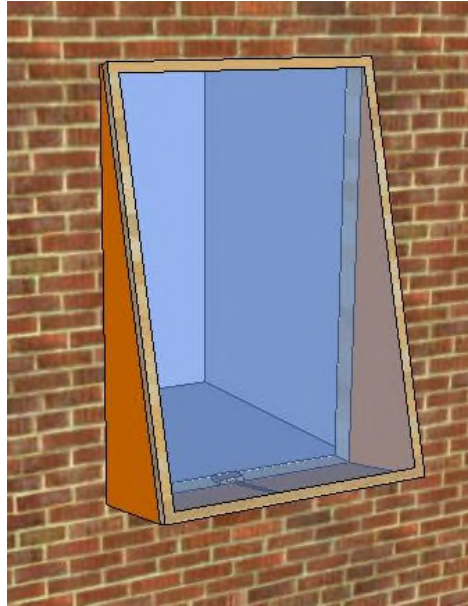


Figure 2b Incorrect area



Energy efficiency

The DTS Provisions of NCC Volume Two Tables 3.12.2.1a to 3.12.2.1h recognise the potential for high air movement provided by the ventilation opening area. Similar to the wording used in relation to ventilation above, the definition of 'ventilation opening' in Clause 3.12.2.1 refers to an openable part of a window, a door or other device which can be held open.

Therefore, the use of window barriers does not affect the energy efficiency provisions as the ventilation area is measured as the area of the window sash.