

Residential Emergency Escape and Rescue Openings

Why are Emergency Escapes and Rescue Openings Required?

Thousands of fires occur in residences each year. Many of these fires occur at night when the occupants are asleep. Severe injuries or death can be the result of these fires if the occupants are asleep and unaware the fire is in progress. Death usually results from asphyxiation long before the fire reaches the occupants. To prevent the loss of life, the Minnesota State Building Code has smoke alarm and emergency escape and rescue opening requirements for sleeping rooms, habitable attics, and basements in dwelling units. Required sizes for windows and doors are based on extensive research to determine the proper relationships of height and width of window openings to adequately serve both rescue and escape. When a fire occurs, time is critical to survival. Sleeping rooms require windows and doors that can be readily opened without any special knowledge or effort.



Emergency escape and rescue openings must open directly into a public way, or to a yard or court that opens to a public way, so the occupants may escape or be rescued directly from the room to the outside without having to travel through the building itself. Rescuers need public access to a building and space to enter quickly, possibly wearing extra gear. Everyone should know what a smoke alarm sounds like and practice how to safely escape. An emergency escape plan should include a test of the smoke alarm and a safe place to meet such as a mailbox or sidewalk.

MN Residential Code Requirements for Emergency Escape and Rescue Openings

R310.1 Emergency escape and rescue required: Basements with habitable space and every sleeping room shall have at least one openable emergency escape and rescue window or exterior door opening for emergency escape and rescue. Where openings are provided as a means of escape and rescue, they shall have a sill height of not more than 44 inches above the floor. Where a door opening having a threshold below the adjacent ground elevation serves as an emergency escape and rescue opening and is provided with a bulkhead enclosure shall comply with Section R310.3. The net clear opening dimensions required by this section shall be obtained by the normal operation of the window or door opening from the inside. Escape and rescue window openings with a finished sill height below the adjacent ground elevation shall be provided with a window well in accordance with Section R310.2. A minimum ceiling height of 48 inches shall be maintained above the exterior grade from the exterior wall to a public way.

R310.2.1 Minimum opening area: All emergency escape and rescue openings shall have a minimum net clear opening of 5.7 square feet.

Exception: *Grade floor openings shall have a minimum net clear opening of 5 square feet.*

Definition: *Grade floor opening.* A window or other opening located such that the sill height of the opening is not more than 44 inches above or below the finished ground level adjacent to the opening.

R310.2.1 Minimum opening height: The minimum net clear opening height shall be 24 inches.

R310.2.1 Minimum opening width: The minimum net clear opening width shall be 20 inches.

R310.1.1 Operational constraints: Emergency escape and rescue openings shall be operational from the inside of the room without the use of keys or tools.

R310.2.3 Window wells: Window wells required for emergency escape and rescue shall have horizontal dimensions that allow the door or window of the emergency escape and rescue opening to be fully opened. The horizontal dimensions of the window well shall provide a minimum net clear area of 9 square feet with a minimum horizontal projection and width of 36 inches.

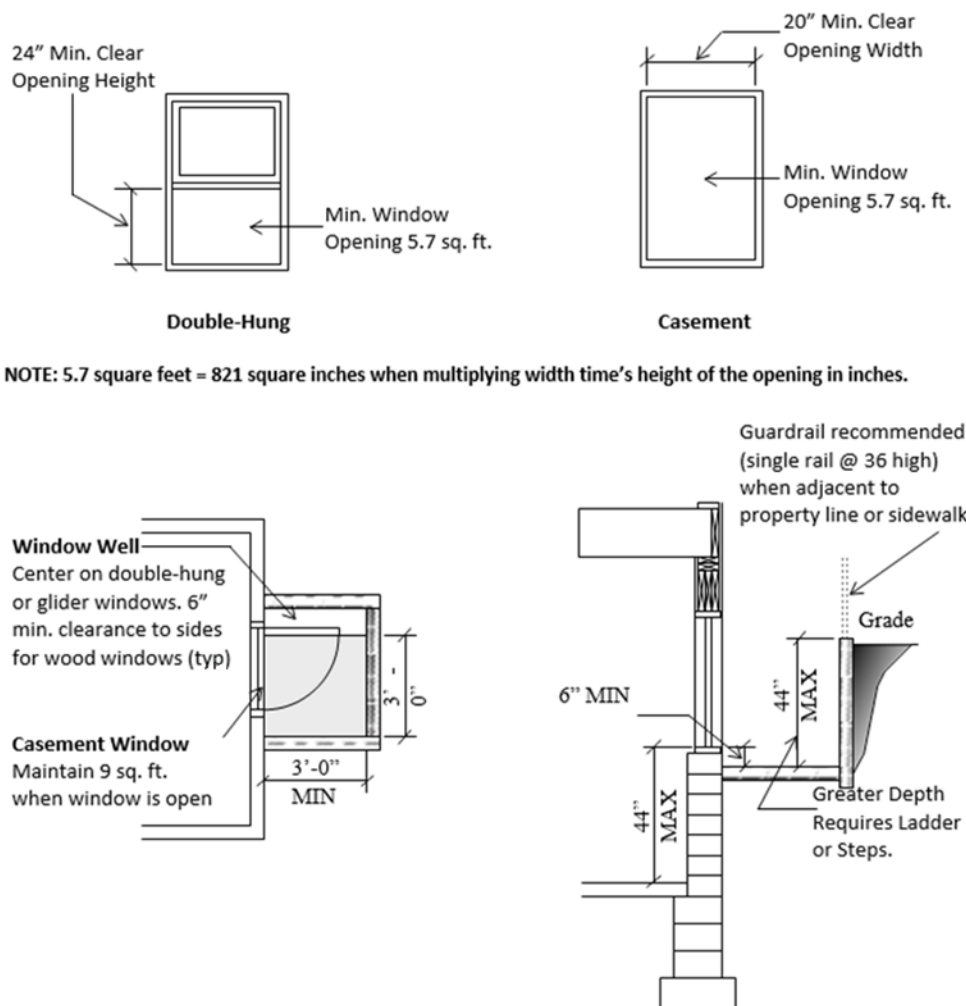
***Exception:** The ladder or steps required by Section R310.2.3.1 shall be permitted to encroach a maximum of 6 inches into the required dimensions of the window well.*

R310.2.3.1 Ladder and steps: Window wells with a vertical depth greater than 44 inches below the adjacent ground level shall be equipped with a permanently affixed ladder or steps usable with the window in the fully open position. Ladders or steps required by this section shall not be required to comply with R311.7. Ladders or rungs shall have an inside width of at least 12 inches, shall project at least 3 inches from the wall and shall be spaced not more than 18 inches on center vertically for the full height of the window well.

R310.2.4 Emergency escape and rescue openings under decks and porches: Emergency escape and rescue openings installed under decks and porches shall be fully openable and provide a path not less than 36 inches (914 mm) in height to a yard or court.

R310.4 Bars, grills, covers and screens: Bars, grills, covers, screens or similar devices are permitted to be placed over emergency escape and rescue openings, bulkhead enclosures, or window wells that serve such openings, provided the minimum net clear opening size complies with R310.2.1 through R310.2.3, and such devices shall be releasable or removable from the inside without the use of a key, tool or force greater than that which is required for normal operation of the escape and rescue opening.

Figure 1: Example Drawings of Compliant Windows and Window Wells:



Replacement Windows

R310.2.5 Replacement windows installed in buildings regulated by the *MN Residential Code* are exempt from the maximum sill height requirements of Section R310.2.2 and the requirements of Section R310.2.1, ***if the replacement window is the manufacturer's largest standard size window that will fit within the existing frame or existing rough opening***. The replacement window shall be the same operating style as the existing window or a style that provides for an equal or greater window opening area than the existing window.

Licensed Facilities

Replacement windows in rooms used for foster care or day care licensed or registered by the state of Minnesota shall comply with the provisions of Section R310.2.5.1, or all the following conditions, whichever is more restrictive:

1. Minimum of 20 inches in clear opening width
2. Minimum of 20 inches in clear opening height
3. Minimum of 648 square inches (4.5 square feet) clear opening
4. Maximum of 48 inches from the floor to the sill height