Wellcraft
Egress Window Wells

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Egress Code

International Residential Code (IRC) 2000
Egress code for one and two families:

Definition of egress as described in IRC 2000 (Section R310) as it pertains to windows below ground level:

Windows:
Sill height of window above floor: Not to exceed 44"
Minimum opening area: ≥ 5.7 sq. ft.
Minimum opening height ≥ 24"
Minimum opening width: ≥ 20"

Window Wells/Area Wells:
Required where window opening sill height is below ground elevation.
Horizontal dimensions: ≥ 9 sq.ft. (width x projection)
Horizontal projection: ≥ 36 "

Ladders:
Required on window wells deeper than 44" and must be permanently attached.
Ladder may encroach into well up to 6".
Step distance between rungs: ≤ 18"
Rungs:12" wide or greater and must project a minimum of 3" away from wall but maximum of 6".

Grates:
Shall be removable without special tools.

Code sponsored by: The International Code Council (ICC), the Building Officials Code Administration (BOCA), the Uniform

R308.6.2 Permitted materials. The following types of glazing may be used:

1. Laminated glass with a minimum 0.015-inch (0.38 mm) polyvinyl butyral interlayer for glass panes 16 square feet (1.5 m^2) or less in area located such that the highest point of the glass is not more than 12 feet (3658 mm) above a walking surface or other accessible area; for higher or larger sizes, the minimum interlayer thickness shall be 0.030 inch (0.76 mm).
2. Fully tempered glass.
3. Heat-strengthened glass.
4. Wired glass.
5. *Approved* rigid plastics.

R308.6.3 Screens, general. For fully tempered or heat-strengthened glass, a retaining screen meeting the requirements of Section R308.6.7 shall be installed below the glass, except for fully tempered glass that meets either condition listed in Section R308.6.5.

R308.6.4 Screens with multiple glazing. When the inboard pane is fully tempered, heat-strengthened or wired glass, a retaining screen meeting the requirements of Section R308.6.7 shall be installed below the glass, except for either condition listed in Section R308.6.5. All other panes in the multiple glazing may be of any type listed in Section R308.6.2.

R308.6.5 Screens not required. Screens shall not be required when fully tempered glass is used as single glazing or the inboard pane in multiple glazing and either of the following conditions are met:

1. Glass area 16 square feet (1.49 m^2) or less. Highest point of glass not more than 12 feet (3658 mm) above a walking surface or other accessible area, nominal glass thickness not more than $^3/_{16}$ inch (4.8 mm), and (for multiple glazing only) the other pane or panes fully tempered, laminated or wired glass.
2. Glass area greater than 16 square feet (1.49 m^2). Glass sloped 30 degrees (0.52 rad) or less from vertical, and highest point of glass not more than 10 feet (3048 mm) above a walking surface or other accessible area.

R308.6.6 Glass in greenhouses. Any glazing material is permitted to be installed without screening in the sloped areas of greenhouses, provided the greenhouse height at the ridge does not exceed 20 feet (6096 mm) above *grade*.

R308.6.7 Screen characteristics. The screen and its fastenings shall be capable of supporting twice the weight of the glazing, be firmly and substantially fastened to the framing members, and have a mesh opening of no more than 1 inch by 1 inch (25 mm by 25 mm).

R308.6.8 Curbs for skylights. All unit skylights installed in a roof with a pitch flatter than three units vertical in 12 units horizontal (25-percent slope) shall be mounted on a curb extending at least 4 inches (102 mm) above the plane of the roof unless otherwise specified in the manufacturer's installation instructions.

R308.6.9 Testing and labeling. Unit skylights shall be tested by an *approved* independent laboratory, and bear a *label* identifying manufacturer, performance *grade* rating and *approved* inspection agency to indicate compliance with the requirements of AAMA/WDMA/CSA 101/I.S.2/A440.

SECTION R309
GARAGES AND CARPORTS

R309.1 Floor surface. Garage floor surfaces shall be of *approved* noncombustible material.

The area of floor used for parking of automobiles or other vehicles shall be sloped to facilitate the movement of liquids to a drain or toward the main vehicle entry doorway.

R309.2 Carports. Carports shall be open on at least two sides. Carport floor surfaces shall be of *approved* noncombustible material. Carports not open on at least two sides shall be considered a garage and shall comply with the provisions of this section for garages.

Exception: Asphalt surfaces shall be permitted at ground level in carports.

The area of floor used for parking of automobiles or other vehicles shall be sloped to facilitate the movement of liquids to a drain or toward the main vehicle entry doorway.

R309.3 Flood hazard areas. For buildings located in flood hazard areas as established by Table R301.2(1), garage floors shall be:

1. Elevated to or above the design flood elevation as determined in Section R322; or
2. Located below the design flood elevation provided they are at or above *grade* on at least one side, are used solely for parking, building access or storage, meet the requirements of Section R322 and are otherwise constructed in accordance with this code.

R309.4 Automatic garage door openers. Automatic garage door openers, if provided, shall be listed in accordance with UL 325.

SECTION R310
EMERGENCY ESCAPE AND RESCUE OPENINGS

R310.1 Emergency escape and rescue required. *Basements,* habitable attics and every sleeping room shall have at least one operable emergency escape and rescue opening. Where *basements* contain one or more sleeping rooms, emergency egress and rescue openings shall be required in each sleeping room. Where emergency escape and rescue openings are provided they shall have a sill height of not more than 44 inches (1118 mm) 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, the 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 emergency escape and rescue opening from the inside. Emergency escape and rescue openings with a finished sill height below the adjacent ground elevation shall be provided with a window

well in accordance with Section R310.2. Emergency escape and rescue openings shall open directly into a public way, or to a *yard* or court that opens to a public way.

Exception: *Basements* used only to house mechanical *equipment* and not exceeding total floor area of 200 square feet (18.58 m^2).

R310.1.1 Minimum opening area. All emergency escape and rescue openings shall have a minimum net clear opening of 5.7 square feet (0.530 m^2).

Exception: *Grade* floor openings shall have a minimum net clear opening of 5 square feet (0.465 m^2).

R310.1.2 Minimum opening height. The minimum net clear opening height shall be 24 inches (610 mm).

R310.1.3 Minimum opening width. The minimum net clear opening width shall be 20 inches (508 mm).

R310.1.4 Operational constraints. Emergency escape and rescue openings shall be operational from the inside of the room without the use of keys, tools or special knowledge.

R310.2 Window wells. The minimum horizontal area of the window well shall be 9 square feet (0.9 m^2), with a minimum horizontal projection and width of 36 inches (914 mm). The area of the window well shall allow the emergency escape and rescue opening to be fully opened.

Exception: The ladder or steps required by Section R310.2.1 shall be permitted to encroach a maximum of 6 inches (152 mm) into the required dimensions of the window well.

R310.2.1 Ladder and steps. Window wells with a vertical depth greater than 44 inches (1118 mm) 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 Sections R311.7 and R311.8. Ladders or rungs shall have an inside width of at least 12 inches (305 mm), shall project at least 3 inches (76 mm) from the wall and shall be spaced not more than 18 inches (457 mm) on center vertically for the full height of the window well.

R310.3 Bulkhead enclosures. Bulkhead enclosures shall provide direct access to the *basement*. The bulkhead enclosure with the door panels in the fully open position shall provide the minimum net clear opening required by Section R310.1.1. Bulkhead enclosures shall also comply with Section R311.7.8.2.

R310.4 Bars, grilles, covers and screens. Bars, grilles, 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 Sections R310.1.1 to R310.1.3, and such devices shall be releasable or removable from the inside without the use of a key, tool, special knowledge or force greater than that which is required for normal operation of the escape and rescue opening.

R310.5 Emergency escape windows under decks and porches. Emergency escape windows are allowed to be installed under decks and porches provided the location of the deck allows the emergency escape window to be fully opened and provides a path not less than 36 inches (914 mm) in height to a *yard* or court.

SECTION R311
MEANS OF EGRESS

R311.1 Means of egress. All *dwellings* shall be provided with a means of egress as provided in this section. The means of egress shall provide a continuous and unobstructed path of vertical and horizontal egress travel from all portions of the *dwelling* to the exterior of the *dwelling* at the required egress door without requiring travel through a garage.

R311.2 Egress door. At least one egress door shall be provided for each *dwelling* unit. The egress door shall be side-hinged, and shall provide a minimum clear width of 32 inches (813 mm) when measured between the face of the door and the stop, with the door open 90 degrees (1.57 rad). The minimum clear height of the door opening shall not be less than 78 inches (1981 mm) in height measured from the top of the threshold to the bottom of the stop. Other doors shall not be required to comply with these minimum dimensions. Egress doors shall be readily openable from inside the *dwelling* without the use of a key or special knowledge or effort.

R311.3 Floors and landings at exterior doors. There shall be a landing or floor on each side of each exterior door. The width of each landing shall not be less than the door served. Every landing shall have a minimum dimension of 36 inches (914 mm) measured in the direction of travel. Exterior landings shall be permitted to have a slope not to exceed $^1/_4$ unit vertical in 12 units horizontal (2-percent).

Exception: Exterior balconies less than 60 square feet (5.6 m^2) and only accessible from a door are permitted to have a landing less than 36 inches (914 mm) measured in the direction of travel.

R311.3.1 Floor elevations at the required egress doors. Landings or floors at the required egress door shall not be more than $1^1/_2$ inches (38 mm) lower than the top of the threshold.

Exception: The exterior landing or floor shall not be more than $7^3/_4$ inches (196 mm) below the top of the threshold provided the door does not swing over the landing or floor.

When exterior landings or floors serving the required egress door are not at *grade*, they shall be provided with access to *grade* by means of a ramp in accordance with Section R311.8 or a stairway in accordance with Section R311.7.

R311.3.2 Floor elevations for other exterior doors. Doors other than the required egress door shall be provided with landings or floors not more than $7^3/_4$ inches (196 mm) below the top of the threshold.

Exception: A landing is not required where a stairway of two or fewer risers is located on the exterior side of the door, provided the door does not swing over the stairway.

R311.3.3 Storm and screen doors. Storm and screen doors shall be permitted to swing over all exterior stairs and landings.

R311.4 Vertical egress. Egress from habitable levels including habitable attics and *basements* not provided with an egress door in accordance with Section R311.2 shall be by a ramp in

Step 1

Check dwelling for a minimum of one exit. Exit door cannot be accessed by traveling through the garage.

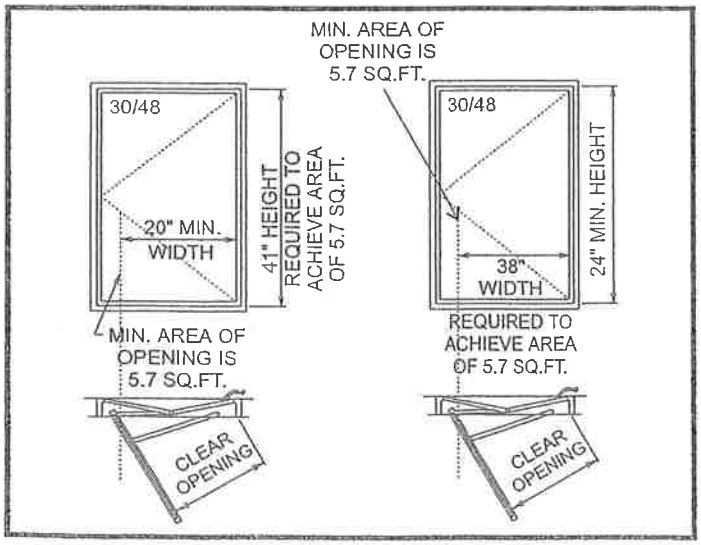
Step 2

Verify that sleeping rooms have a means of emergency escape and rescue (door or window) which conforms to Section R310.1 through R310.1.4 for size, area and location.

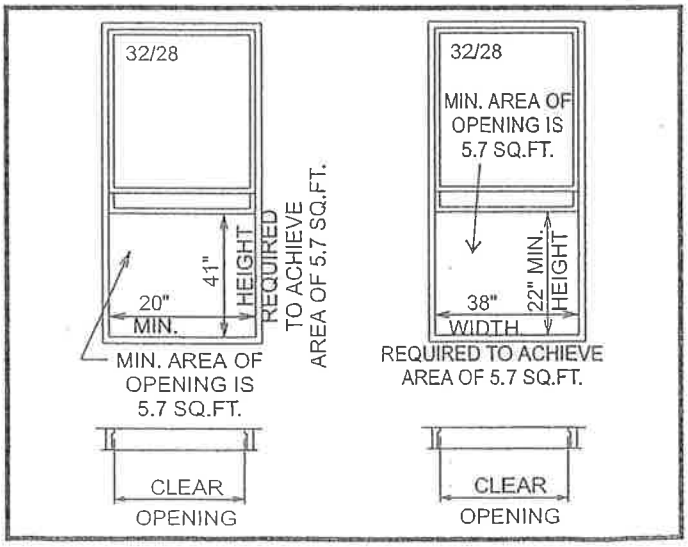
Sections R310.1 through R310.1.4 Emergency Escape and Rescue Openings

Item	Requirement
Nongrade floor windows	◆ Maximum 44 inches from the floor to top of sill ◆ Minimum net clear height equals 22 inches and minimum net clear width equals 20 inches ◆ Minimum net clear opening equals 5.7 square feet ◆ Operable from inside to the required full clear opening without use of a key or tool
Grade floor windows	◆ Maximum 44 inches above or below the finished grade adjacent to sill of window ◆ Minimum net clear height equals 22 inches and minimum net clear width equals 20 inches ◆ Minimum net clear opening equals 5.0 square feet ◆ Operable from inside to the required full clear opening without use of a key or tool
Doors may be used as the emergency egress if:	◆ Occupants can exit to the exterior ◆ Operable from inside to the required full clear opening without use of a key or tool

Example of Clear Opening Dimensions



Casement



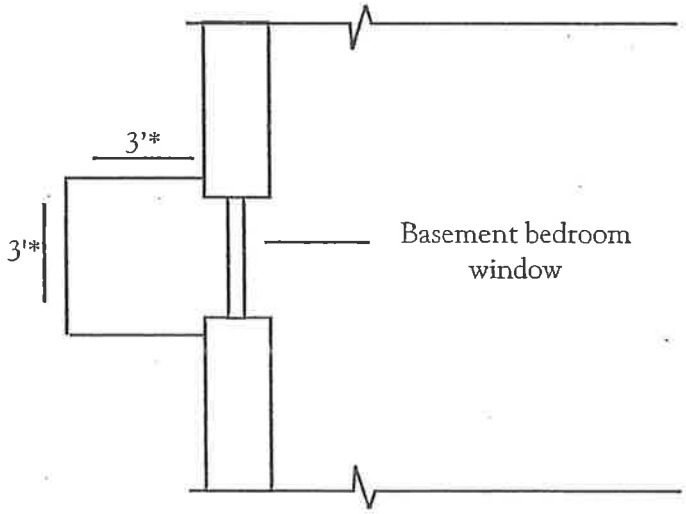
Double Hung

Step 2, continued

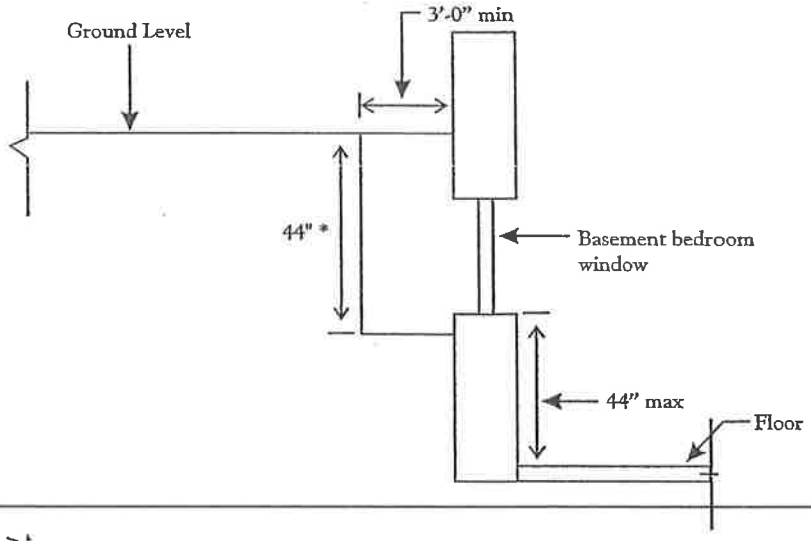
Note: Section R310.4 prohibits bars, grills, covers and screens or similar devices from obstructing a required escape and rescue window or window well unless the security device is removable or releasable from the inside of the bedroom without the use of a key or tool or force greater than required for normal operation of the window.

Example of Window Well

*Horizontal dimensions of window well must allow the window to open fully and have a minimum net clear area of 9 sq. ft. with minimum dimensions of 3'-0"



Plan



Example of Window Well

* No ladder or steps required if depth is 44" or less. If depth is greater than 44" the ladders or steps are required.

Cross Section

habitable or sleeping requires 5.7 egress window.

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Egress Window Requirements: Understanding Size and Locations

Have you ever applied for a building permit to change out your old outdated windows with new energy efficient windows for your home only to find out that some of the windows don't meet the window egress requirements?

This is a very common problem. Building codes change over time and what was once acceptable in older homes might not be under current code when an alteration occurs.

Please note that these requirements can be specific from city, county, or state therefore it is best to contact your local authority having jurisdiction to see what these requirements are.

As for a general understanding of these requirements, let us look at the 2015 International Residential Code (IRC) for what the minimum standards are.

What is an Egress Window?

An egress window is a window of a certain size that provides a safe exit from a building in case of an emergency. These windows are typically installed in bedrooms, basements, and sleeping rooms to ensure that occupants can escape in the event of a fire, earthquake, or other emergency situation. Egress windows must meet specific size requirements to allow for an easy exit and access.

A lot of people will refer to the term **"Egress Windows"** when in reality the code references **"Emergency Escape and Rescue Opening"**. These requirements can be found in Section R310 of the IRC. Again the intent is to provide a means of escape and access for rescue in the event of an emergency, for example a fire.

These means of escape and access can be achieved by an operable exterior window, door, or similar device that meet the minimum size and dimensions of Section R310.

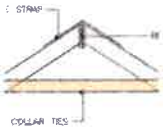
In this article, we will go over the minimum required windows sizes as well as where they are required to be located.

Where Are Egress Windows Required? (R310.1)

Egress Window Locations

The code requires every **basement, habitable attic, and every sleeping room** to have at least one operable emergency escape and rescue opening. If a room is used as such, it must provide a means of escape.

Also note that if basements have multiple sleeping rooms, each sleeping room is individually required to provide a means of escape and rescue. These openings must open directly to the outside such as a public way or yard and need to be operational from the inside of the room without much effort.



Requirements You Must Know

Practice Exam | R3

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What is the Minimum Size Requirement of Egress Windows? (R310.2)

Egress Window Size and Dimensions

First lets look at the minimum opening area required. The minimum required dimensions of the window must include compliance with all of the following: the net clear opening area, net clear height opening, and net clear width opening.

1. Minimum 5.7 square feet of net clear opening area.
    - Exception: 5.0 square feet allowed if located at grade floor or below grade.
2. Minimum 24 inches of net clear height opening.
3. Minimum 20 inches of net clear width opening.

Here is a visual look at these clear opening dimensions and how they apply to different window types:

Casement Egress Window

Here is a graphic of what casement windows look like:

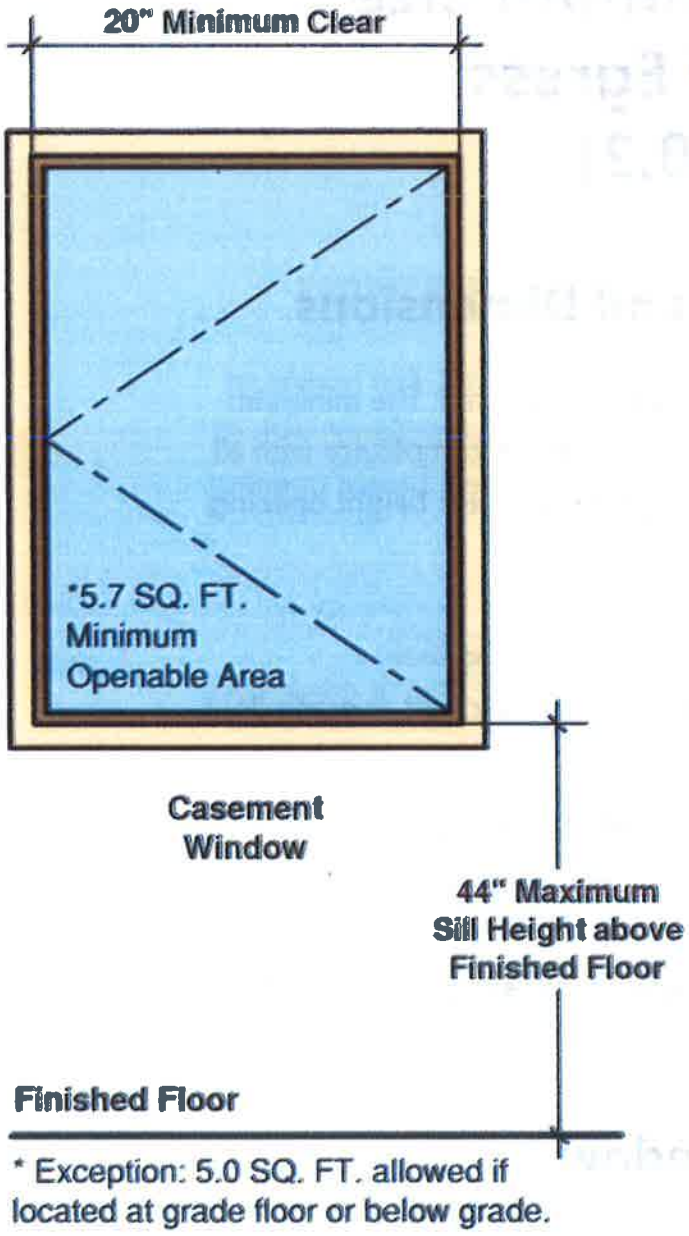


Illustration: © Building Code Trainer, 2019

Single/Double Hung Egress Window

Here is a graphic of what single-hung and double-hung windows look like:

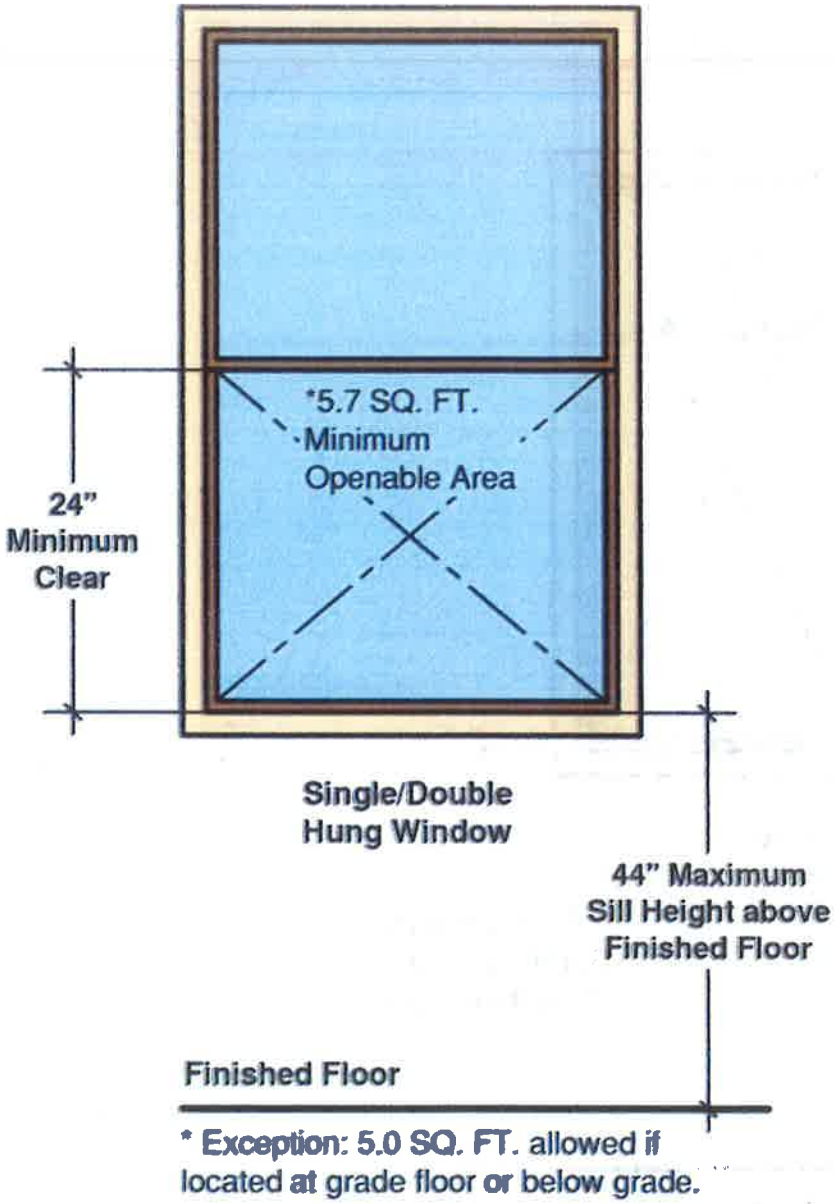


Illustration: © Building Code Trainer, 2019

Horizontal Slider Egress Window

Here is a graphic of what horizontal slider windows look like:

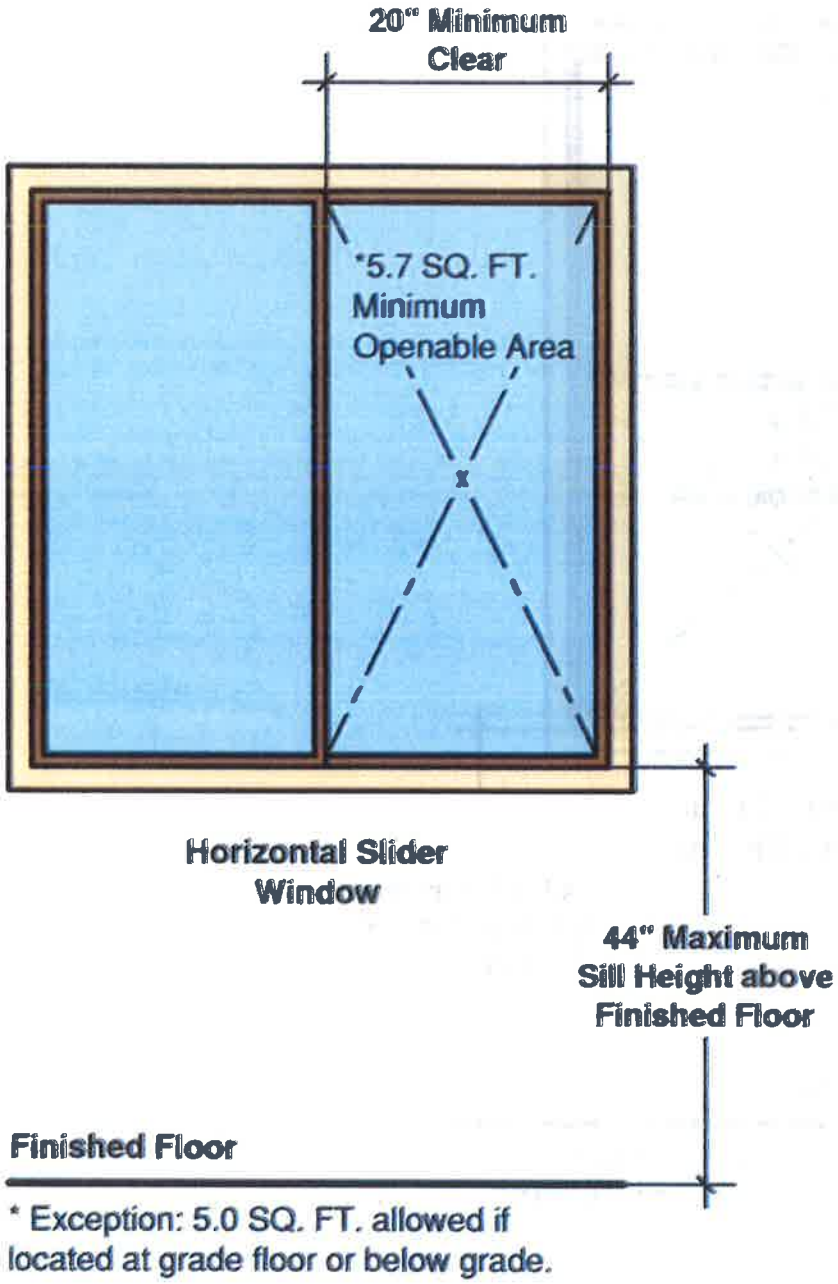


Illustration: © Building Code Trainer, 2019

Also note that if a window is being used to meet the egress requirements, in addition to the above, the sill height of the window shall not be more than 44 inches above the finished floor.

Fun Tip: Some windows, like windows located on the **second floor**, have minimum sill height requirements therefore to learn about **Window Fall Protection** requirements per the International Residential Code (IRC), be sure to check out this ***POST***.

When a door is being used to meet the egress requirements, it must be either a side-hinged door or a slider. It must meet the minimum opening area requirements stated above in a fully open position.

If the door is located below the adjacent ground elevation, it must provide a bulkhead enclosure with a minimum headroom height equal to the door when it is in the fully opened position.

Does a Basement Need an Egress Window?

Basement Egress Windows

Yes, as we noted above the code requires every basement, habitable attic, and every sleeping room to have at least one operable emergency escape and rescue opening.

If a basement contains a habitable room or is used as such, it must provide a means of egress, such as an egress window.

When the sill height of the egress basement window is located below grade (common for egress windows provided for a basement) a **window well** must be provided.

Window Well Code Requirements (R310.2.3)

Egress Window Well Size

The area of a window well shall not be less than 9 square feet with a horizontal length/width of no less than 36 inches. This is to ensure that there will be a sufficient amount of space to allow occupants to escape or for fire fighters to enter.

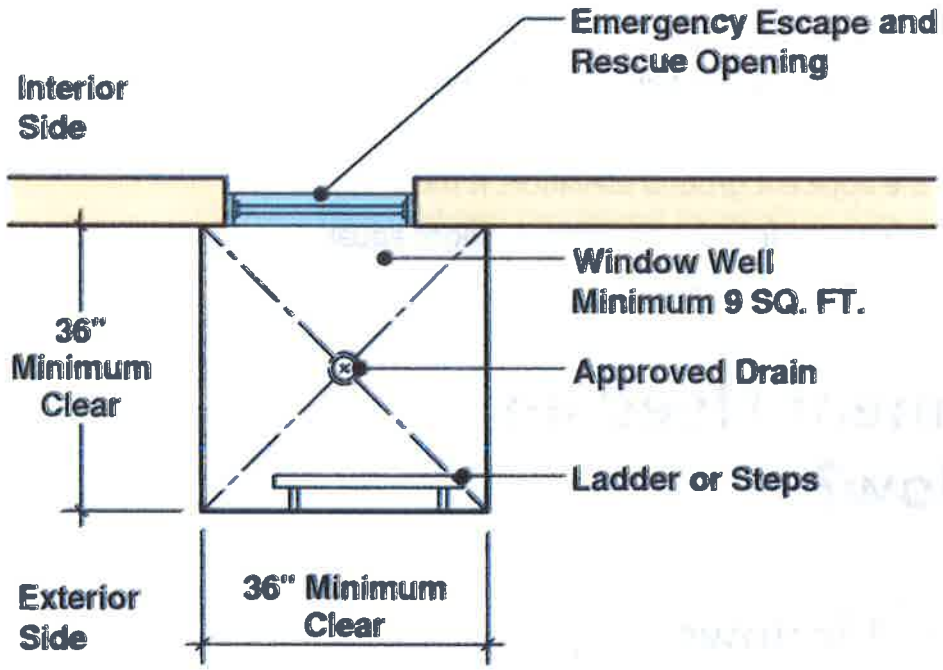


Illustration: © Building Code Trainer, 2019

If the depth of the window well is greater than 44 inches, a ladder or steps are to be provided and permanently fixed to provide access and by no means are allowed to encroach within the required window well dimensions by more than 6 inches.

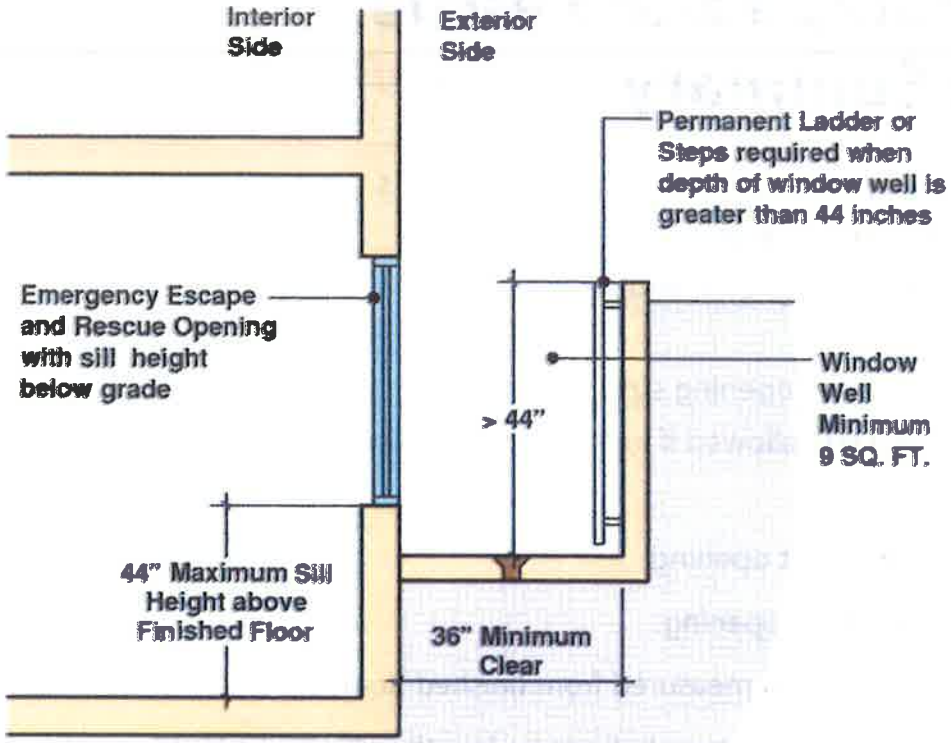


Illustration: © Building Code Trainer, 2019

The inside width dimension of ladders or rungs (a horizontal support on a ladder for a person's foot) shall not be less than 12 inches and must project no less than 3 inches from the wall.

The vertical spacing shall not be more than 18 inches on center throughout the entire height of the window well. Although the design of the steps are not mentioned within the code provisions, the design of the ladder is.

Also since the bottom of the window well is located below grade, providing proper drainage is recommended.

Looking to buy a Window Well Egress Assembly? Check out these options available on Amazon.

Buy On Amazon

Emergency Escape and Rescue Openings in Summary

So this basically sums up the code for egress window requirements and their dimensions. Therefore let us recap on the residential emergency escape and rescue opening requirements:

1. Minimum 5.7 square feet of net opening size.
    - Exception: 5.0 square feet allowed if located at grade floor or below grade.
2. Minimum 24 inches of net height opening.
3. Minimum 20 inches of net width opening.
4. Maximum 44 inches to window sill measured from finished floor.
5. Window wells serving an egress window shall not be less than 9 square feet in area with a horizontal length/width of no less than 36 inches.
6. Window wells greater than 44 inches in depth requires a permanently affixed ladder or steps to provide access.
7. Permanent ladder or steps cannot encroach the required window well dimensions by more than 6 inches.
8. The inside width of a ladder serving a window well shall not be less than 12 inches and must project no less than 3 inches from the wall.
9. Vertical spacing of the rungs shall not be more than 18 inches on center.

For more information, see Section R310 of the 2015 International Residential Code for a more in-depth look at emergency escape and rescue openings.

Reference Source – 2015 International Residential Code – [Buy on Amazon]