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Windows Used for Emergency Escape and Rescue

Purpose

The purpose of this bulletin is to provide guidance relative to assessing the window size requirements in dwelling units as required in N.F.P.A. 101 chapter 24.2.2.3(C), IRC R310, and IBC 1026. (Note: RSA 155 A:2 II gives preference to NFPA 101 LSC re: exits)

Guidance

Guidance from NFPA Fire Protection handbook 20th edition and the IBC Commentary section 1026.2 which offer the following explanation regarding window requirements:

NFPA Fire Protection Handbook

"The philosophy of life safety and fire protection for one and two family dwellings is based on evacuation of the building in the event of a fire. "Two means of escape are required from each room. One must be a door or stairway, and the second way can be an operable window."

IBC Commentary section 1026.2

"The dimensional criteria of the opening are intended to permit fire service personnel (in full protective clothing with breathing apparatus) to enter from a ladder, as well as permit occupants to escape. The net clear opening area and minimum dimensions are **intended to provide a clear opening through which an occupant can pass to escape the building or a firefighter can pass to enter the building for rescue.**"

What does the code require?

All of the above referenced codes require that any sleeping room, up to four stories in height, must have a secondary means of escape. A window is an acceptable means of escape if within 20 feet of grade.

Exceptions:

Rooms with a door that leads directly to the outside or
Buildings that are protected by automatic fire sprinklers.

What size window is required?

Emergency escape and rescue openings shall have a net clear opening of 5.7 square feet.

The height of the opening can be no less than 24 inches and the width can be no less than 20 inches. Combined height and width shall meet 5.7 square feet of clear opening.

Where must the window be located?

The window must be on an exterior wall and the sill can be no higher than forty-four (44) inches above the floor and within 20 feet of grade

Are these requirements applicable to all buildings with dwelling units?

Yes. All new construction will be held to the above requirements. No variances/equivalencies will be granted for new construction.

Exceptions:

Rooms with a door that leads directly to the outside or
Buildings that are protected by automatic fire sprinklers.

What about existing buildings?

N.F.P.A. 1, chapter 10.3.2 says, "Existing buildings that are occupied at the time of adoption of this code shall remain in use provided that the following conditions are met: (a) the occupancy classification remains the same and (b) **no condition deemed hazardous to life or property exists that would constitute an imminent danger.**"

N.F.P.A. 101, chapter 4.6.2 says, "Where another provision of this code exempts a previously approved feature from a requirement, the exemption shall be permitted even where the following conditions exist: (1) The area is being modernized, renovated, or otherwise altered. (2) A change of occupancy has occurred, provided that the feature's continued use is approved by the authority having jurisdiction."

Previously approved is defined as "that which was acceptable to the authority having jurisdiction prior to the date this edition of the code went into effect. (101 3.3.169)

For the purpose of this bulletin, any sleeping room that does not have a window that meets the minimum dimensional requirements of 24 inches high and 20 inches wide would create a condition of imminent danger and therefore would require corrective action.

What size window should be acceptable for rescue and escape?

In new construction nothing less than 5.7 square feet shall be acceptable unless it meets the exceptions of a rooms with a door that leads directly to the outside or a buildings that is protected by automatic fire sprinklers.

For existing buildings, keeping the guidance provided within the beginning of

this document, the following guidelines should be used To determine if the existing window would constitute an imminent danger within the meaning of NFPA 101:10.3.2.

- For a double hung style window the minimum net opening (when open) should not be less than 4.5 square feet. This will accommodate the goal of occupant escape and firefighter ingress/egress recognizing that firefighters will “clean” the entire window opening as a general protocol creating a larger open space .
- For a casement style window the minimum net opening should be not less than 5.0 square feet.

What if an existing window exceeds the forty-four inch maximum height from floor requirement?

A platform or step can be constructed underneath the window to compensate for the extra height.

Conclusion:

Windows for escape and rescue have a twofold purpose. Occupant and firefighter safety is the ultimate goal of the code and the reason these windows are required. The intent of the code is that an opening of sufficient size, so as to allow a person to escape in an emergency, be provided in sleeping areas.

Properly equipped firefighters will be armed with tools that will allow them to clear a window and utilize the entire window opening to enter and exit a structure. An occupant will only have the design opening. Knowing that a it is standard protocol for fire service operations to clean the window entirely to “create a bigger hole”, the inspector is allowed to accept a smaller net opening in existing situations. Care must be taken to insure that a normally dressed civilian could escape through the opening provided.