



## AAMA/WDMA TB-24-01

Understanding Window Opening Control Devices (WOCDs)

A Joint FGIA and WDMA Technical Bulletin

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**SUBJECT:** The purpose of this document is to clarify the definition of a Window Opening Control Device (WOCD) to promote greater understanding of the role of WOCDs and provide an understanding of a WOCD's function.

#### What are Window Opening Control Devices (WOCDs)?

A **WOCD** or **Window Opening Control Device** is hardware that has been tested to the specifications in ASTM F2090: Standard Specification for Window Fall Prevention Devices with Emergency Escape (Egress) Release Mechanisms. Among the operational requirements for a WOCD to meet ASTM F2090:

Limits the sash opening to less than four inches (the dimension universally accepted in building codes for balcony railings or guardrail assembly openings.)

Is releasable by either:

- 1. Two independent single-action devices, or
- 2. One dual-action device.
- 3. After the release of the WOCD, allows the sash to be fully opened as may be needed for emergency escape or rescue.
- 4. Automatically resets when the sash is closed such that the sash opening will be less than four inches when the sash is opened again.

Regardless of the type or style of a window, operation of the sash must be independent of disengagement of the WOCD. Operation of the sash (including mechanical operators) cannot be considered as part of disengaging the WOCD.

WOCDs were introduced as a new window fall prevention device starting with the 2008 version of the ASTM International (formerly known as American Society for Testing and Materials (ASTM)) F2090, Standard Specification for Window Fall Prevention Devices with Emergency Escape (Egress) Release Mechanisms. ASTM F2090 is a standard for window fall prevention devices that are releasable such that a window can be fully opened for emergency escape or rescue.

ASTM F2090 contains requirements for WOCDs for testing (e.g., 75-pound static load, cycle testing, etc.), operation, installation instructions, labeling, and safety information.

Vent stops and night latches are devices that may be installed on windows (typically single or double-hung windows or sliding or gliding windows) as a means of providing natural ventilation while attempting to discourage unwanted entry of an intruder. It can be confusing, as these devices can look similar to or even partially function similar to WOCDs, but do not meet the requirements of the ASTM F2090 standard and should not be mistaken as a window fall prevention device. Caution should be taken before using vent stops or night latches on any window designated or intended for emergency escape and rescue. Vent stops and night latches which cannot be released, and which restrict the sash from being fully opened should not be used on windows designated or intended for emergency.

WOCDs are intended to help support occupant safety. When properly designed, tested, specified, and installed, WOCDs can help prevent or reduce accidental falls from windows, while allowing the ability to open the window fully as may be needed to exit in the event of an emergency.

For more information on preventing window falls, see Window Safety Task Force resources available through the National Safety Council (NSC) at: <u>https://www.nsc.org/community-safety/safety-topics/child-safety/window-safety</u> Also see window safety resources available from FGIA, as a member of the Window Safety Task Force, at: <u>https://fgiaonline.org/pages/window-safety-and-fall-prevention</u>.

#### Understanding the role of windows and WOCDs in building codes and standards

The building codes published by the International Code Council® (ICC) have included provisions for window fall prevention since 2006. This includes the International Residential Code® (IRC), International Building Code® (IBC), and International Existing Building Code® (IEBC).

The window fall protection provisions in these codes become a requirement when the lowest portion of an operable window opening is more than 72 inches above the finished grade or other surface below on the exterior of building, and the dimension from the finished floor to the lowest portion of the window opening is less than 24 inches or 36 inches. The 24- or 36-inch dimension varies depending on the building occupancy type and/or state/local code requirements that may have been amended with their adoption of the IRC, IBC, or IEBC.

If the minimum dimension from the finished floor to the lowest portion of the operable window opening is less than 24 inches or 36 inches (whichever is applicable), then the code lists other options to provide window fall protection:

- 1. Installation of a window fall prevention device that meets the requirements of ASTM F2090 which include one of the following:
  - a. A Window Opening Control Device (WOCD), or
  - b. A window fall prevention guard, or
  - c. A specialized window screen (which is different than a common window insect screen.)
- 2. Limiting the opening dimension of an operable window such that it would prevent the passage of a four-inch diameter sphere. (Note: This option would not be allowed if the window opening is required for emergency escape and rescue opening code requirements.)
- 3. A non-operable window is not required by code to have fall protection device installed.

WOCDs are allowed by code to be installed on operable windows designated as emergency escape and rescue openings that comply with ASTM F2090, so long as they do not encroach on the opening area dimensions required in the code.

For those openings greater than 75 feet above grade, refer to ASTM F2006, Standard Safety Specification for Window Fall Prevention Devices for Non-Emergency Escape (Egress) and Rescue (Ingress) Windows. Devices complying with ASTM F2006 may be used as an additional option for windows installed greater than 75 feet above grade.

Devices complying with ASTM F2006 should not be installed on openings required for emergency escape and rescue. They are not intended for egress applications because they are not designed to be released. Instead, these devices act more as barriers that are more permanent in nature.

Prior to the introduction of WOCDs into the 2008 version of the ASTM F2090 standard, only window guards or window screens were referenced in the standard. ASTM F2090 has retained requirements for WOCDs in subsequent updates in 2010 and 2017, each of which are referenced in different year editions of the IRC, IBC, and IEBC to support occupant safety.

#### WOCDs include two types of devices: single-action and dual-action

There are two types of WOCDs: single-action and dual-action. The intent of ASTM F2090 is to set criteria for devices considered to be window fall prevention devices. WOCDs are designed to provide the ability for anyone who understands and has the ability to escape through the window by disengaging the WOCD. Therefore, ASTM F2090 defines that the release of WOCDs can be either through the use of TWO independent single-action devices installed on a single window or ONE dual-action device installed on a single window.

An example of a single-action device would be a lever that can be flipped in, with two such devices installed on the same window.

A dual-action device requires two separate, distinct, and consecutive actions to release the WOCD. For example, pushing in one button and while holding that button in, sliding over a lever.

#### WOCDs may be factory installed, applied as a field kit, or applied as an after-market device.

These devices can be applicable to any operable window style. A separate type of WOCD may be required for each window type. Any one device is not required to universally apply to all window types.

Proper installation of a WOCD on a window is an important consideration. Window manufacturers may offer factory installed WOCDs on their windows. WOCDs may also be available as a field kit or applied as an aftermarket device. Installation of the WOCD such that the sash will stop at a less than four-inch opening and meet the other provisions of ASTM F2090 is also critically important.

#### Vent limiters, night latches and other limiting devices

Other types of devices that limit the window sash opening include vent limiters, night latches or vent stops – none of which fall under the scope of ASTM F2090. These devices can be installed on all operable window types (hung, sliding or gliding, or casement/awning styles) to limit the sash opening to let air in or out for ventilation.

Vent limiters are devices that restrict the sash opening and typically require a tool or removal of a fastener to open the sash fully. As such, these devices should not be installed on windows required for emergency escape and rescue. If a vent limiter restricts a sash to a less than a four-inch opening, it is possible that a building code official will accept it as an option to the minimum sill height code requirement provided that the vent limiter is not installed on a required emergency escape and rescue (egress) opening. Vent limiters may also be used in applications where windows are installed greater than 75 feet above grade.

Vent stops or night latches are devices that may limit the sash opening but do not meet the criteria for a WOCD per ASTM F2090. Therefore, they would not be allowed as an option to the minimum sill height code requirement but may be of interest to occupants as a way of restricting the sash opening. Night latches allow the sash to open a limited distance for ventilation, while limiting the amount a window sash is open, which can help support home security. Caution should be taken before using vent stops or night latches on any window designated or intended for emergency escape and rescue. Vent stops and night latches which cannot be released, and which restrict the sash from being fully opened should not be used on windows designated or intended for emergency.

Examples of Window Opening Control Devices (WOCDs)

Hung Window Style (Single- or Double-Hung)

# Single-Action WOCD (Single- or Double-Hung) Example in Figure 1 Shown Below <u>TWO</u> independent single-action devices are required per window and would be located above the top of the bottom sash as indicated by the red boxes in the diagram below such that the sash will stop at a less than four-inch opening. Egress release mechanisms must be readily visible when the sash is in the fully closed position, or when the window sash has reached the controlled open position, or both, as specified in ASTM F2090. In the example shown in Figure 1, the red button on the far left calls attention to where to push on the device to release the device and allow the sash to be fully opened. The devices must automatically reset when the window sash is closed such that the sash will again stop at a less than four-inch opening.





Figure 1: Example of Single-Action Window Opening Control Device (WOCD)

(Single- or Double-Hung Window)

#### Dual-Action WOCD (Single- or Double-Hung) Examples in Figure 2 Shown Below

- <u>ONE</u> dual-action device (<u>NOT</u> two) required per window and would be located above the top of the bottom sash as indicated below by the red boxes in the diagram such that the sash will stop at a less than four-inch opening.
- Egress release mechanisms must be readily visible when the sash is in the fully closed position, or when the window sash has reached the controlled open position, or both. As specified in ASTM F2090, the device shall require two separate, distinct, and consecutive actions to release.
- In the example to the left in Figure 2, the red button would be pushed in and the tab pushed upward to release the WOCD.
- In the example to the right in Figure 2, the red latch would be pushed in and the latch pushed downward to release the WOCD.
- The WOCD must automatically reset when the window sash is closed such that the sash will again stop at a less than four-inch opening.





Figure 2: Example of Dual-Action WOCD (Single- or Double-Hung Window)



- ONE dual-action device (NOT TWO) required per window and would be located at the sill as indicated by the red box in Figure 3 below, such that the sash will stop at a less than four-inch opening.
- Egress release mechanisms must be readily visible when the sash is in the fully closed position, or when the window sash has reached the controlled open position, or both. As specified in ASTM F2090, the device shall require two separate, distinct, and consecutive actions to release.
- In the example in Figure 3, the red button would be pushed in, and the tab pushed over to release the WOCD.



<u>ONE dual-action</u> device applied at window sill. Pushing in the tab and then pushing the forward slide is a dual action.

Figure 3: Example of Dual-Action WOCD for Sliding (Also Referred to as Gliding) Window Products

#### **Casement, Awning and Hopper Window Products**

The casement window WOCD example shown in Figure 4 features ONE dual-action device per window.

## Examples of Dual-Action WOCD Casement Windows in Figures 4, 5.1-5.4 and Figure 6 All Shown Below ONE dual-action device (NOT two) required per window and would be located as indicated by the red box in Figure 6 shown below. Egress release mechanisms must be readily visible when the sash is in the fully closed position, or when the window sash has reached the controlled open position, or both. As specified in ASTM F2090, the device shall require two separate, distinct, and consecutive actions to release. In the examples in Figure 4 or 5.1-5.4, the red button would be pushed toward the window jamb, and then slid upward to release the WOCD. The WOCD must automatically reset when the window sash is closed such that the sash will again stop at a less than four-inch opening.

During normal operation, the sash is attached to the frame by the metal arm as shown in Figure 4 below. The arm will limit the travel of the sash opening to less than four inches. Push the red button inward toward the window jamb, then slide upward vertically to release the arm to open the window fully. When the window is closed, the WOCD automatically resets.



Figure 4: Example of Dual-Action WOCD for Casement Window



Figure 5.1 -Unlock and open the window until the limited opening is reached by the WOCD.



Figure 5.2 -Press the red button and slide it up to release the arm from the slide and allow the sash to be fully opened.



Figure 5.3 – The sash arm of the WOCD automatically reattaches to the frame track, resetting the WOCD when the sash is fully closed and locked.



Figure 5.4 – Unlock and open the window until limited opening is reached by the WOCD to verify that the sash arm has automatically reattached. Then close the window and securely lock it.

Figures 5.1-5.4: Example Phases of a WOCD Dual-Action Casement Window





**Dual-Action WOCD** 

ONE dual-action device applied at window sill. Opening of flip cover over the button and then pushing the red button, while holding the flip cover open, is a dual action which releases the WOCD.

Figure 6: Example of a Dual-Action WOCD for Casement Window

#### Vent Stop/Night Latch (not a WOCD)

Devices may look similar or nearly identical but may be designed for different purposes. For example, a typical night latch does not automatically reset and does not necessarily limit the sash opening to four inches, nor meet all the performance criteria under ASTM F2090, and therefore, they are not considered a window fall prevention device or a WOCD.

The night latch/vent stop color often blends into the window frame color. In the examples below, the white latch blends into the white frame.



Figure 7: Vent Stop/Night Latch Examples

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