

## How to Lock Out Crime: Home Security — Windows

In Home Security 101, you were asked to do a visual assessment of your yard and home. Home Security — Alarms suggests ways you can improve security around your house. This fact sheet, Home Security — Windows, suggests ways to improve the security performance of your windows.



**Figure 1** Keep areas around windows clear of shrubbery that could conceal prowlers.

### Weak Link

Windows are often the weak link in the home security chain. Intruders can break glass or pry windows open to get into your home. Some sliding windows can be lifted out of their tracks, even when locked.

And it is not unheard of for burglars to gain entry by chipping away putty and removing an entire pane.

What can homeowners do to protect themselves? Plenty. The method — or combination of methods — you choose will depend on the vulnerabilities of your windows and your security needs. Here are some points to consider when assessing your windows:

- In terms of security, how effective is the window's design? What are its weak points? (The following section about types of windows will help you answer this question.)
- Is the window accessible from the ground, from a garage or porch roof, tree, TV antenna or trellis? If it is an apartment window, can it be reached from a fire escape, ledge or balcony?
- How shatter-resistant is the glazing?
- Is the sash and frame in good repair?
- How effective is the locking mechanism?
- Is the window visible from the street and neighboring houses or hidden from view by shrubbery, a garage or an enclosed porch? Does it overlook a major thoroughfare or a rarely used alleyway?
- Is the area well lit at night?



**Figure 2** All windows within 2 m (6 1/2 ft) of ground level should be burglar resistant. Secure windows that are easily accessed by exterior structures or accessories, such as balconies or canopies.

You should also consider more general questions related to home security, including the crime rate in your area, the value of the contents you wish to protect and how much you can afford to spend.

### **Types of Windows**

Window glazing — the glass — is mounted in a sash (made of wood, steel, aluminum or vinyl), which in turn fits into a wood or metal window frame. The most common designs are:

- **Vertical sliding (single or double-hung) windows** are widely used. Their biggest drawback is the crescent lock with which most such windows are fitted. The lock can be opened from outside with a knife slipped between the inner and outer sash. Its fasteners, like those of most window locks, are apt to pull free of the wood when force is applied at the sash. Equipped with a better lock, this type of window provides good security.

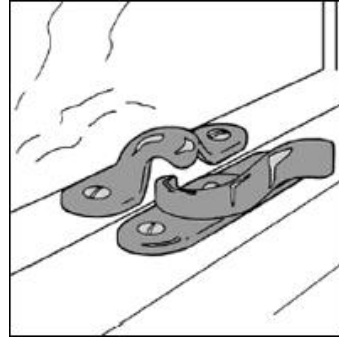
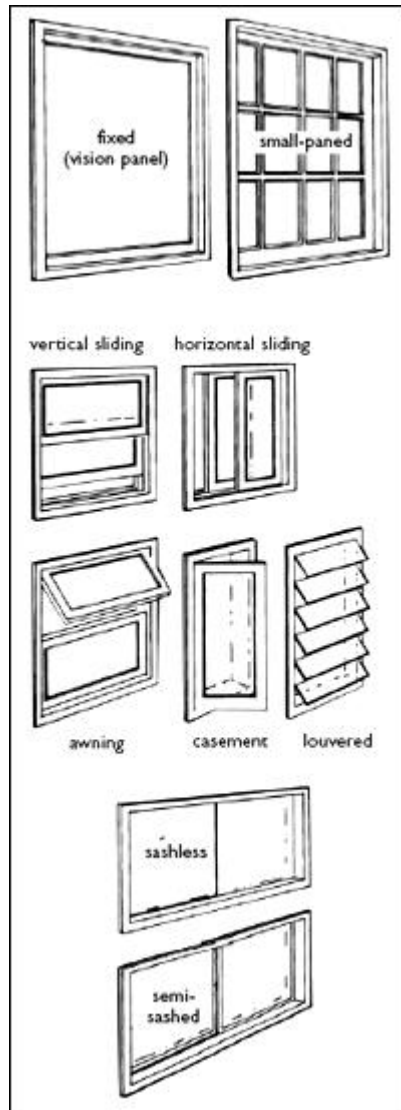


Figure 3 Crescent sash lock.

- **Casement windows** are hinged on one side and open out like a door, using a crank or lever. Those in good repair and equipped with a key-operated lock provide good security. Keep in mind, some windows should be considered emergency exits and key-locked devices may not be ideal if the key is misplaced or the window needs to be used by people with an agility disability or limited hand function.

**Note:** for persons with disabilities, casement windows are ideal. Ensure there is only one lever lock on the lower part of the window for easy access or install hardware that is available to close the top and bottom levers from one location. Closing only the bottom lever on a window with a top and bottom lever can result in a drafty window or an insecure window that can be pried open.

- **Awning windows** are hinged at the top or bottom. They offer good security if equipped with a strong lock.
- **Horizontal sliding windows** slide inside a track, similar to patio doors. Security can be good to poor, depending on the design and manufacture. Many of the older, metal-sashed windows could be lifted out of their tracks from outside, but this problem has been overcome on more recent models.



- **Fixed windows** (picture windows, vision panels, skylights) do not open. They provide good security. Thieves may cut a hole large enough to gain entry or break the glass, but doing so creates a high risk of injury and detection. Most thieves will not break a large picture window unless they are assured of a substantial reward and quick escape.

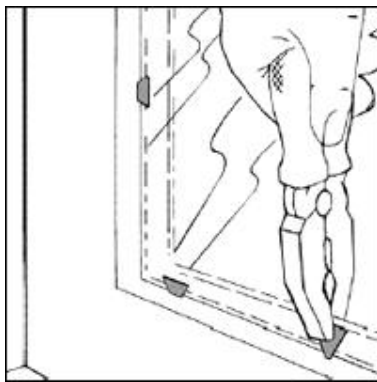
### **Emergency Escape Considerations**

It is extremely important to keep in mind that, in the event of a fire, windows would likely be used as an emergency escape route and an entry point for rescue workers. Security should not interfere with entry or exit purposes, particularly if the room is used for sleeping.

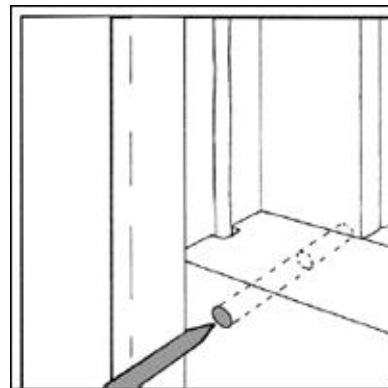
Bear in mind one important stipulation: If any of the following recommendations would compromise the fire and life safety use of the window in a room used for sleeping, then do not consider it. For example, a basement area renovated to make a bedroom unit must be up to code. Make sure that the occupants of any room intended for sleeping know how to open the window to get out in an emergency.

### **Low-Cost, Do-It-Yourself Security**

- Replace worn-out window putty on wood windows. Add extra glazing points (the sharp metal pieces that hold the glazing in place) for greater strength. Reinforce wood molding with extra-long finishing nails.
- Pin double-hung windows. With the window closed, drill small holes through the top corners of the lower sash part way into the outer sash on a slight downward slant. Be careful not to drill completely through the outer sash or to damage the thermal seal. Insert a nail or bolt in the holes to prevent the window from being raised. Additional holes can be drilled that will allow the window to be locked while slightly open for ventilation.



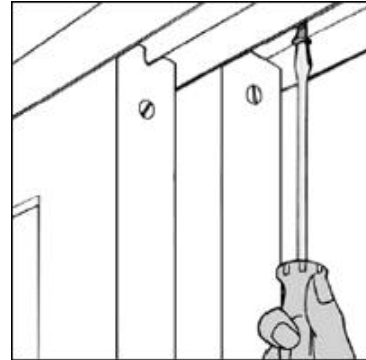
**Figure 5** Replace deteriorated putty and apply extra glazing points. Do not use for vinyl (PVC) windows.



**Figure 6** Nails can be used to “pin” a double-hung wood window. Do not use on vinyl or metal windows.

- Block horizontal sliding windows with a length of wood laid into the lower track or with pins at the top and bottom, in the same way that double-hung are pinned. A small wooden wedge inserted between the sash and channel of a vertically sliding window is also effective.

- To prevent a horizontal sliding window from being lifted out of its track, screw several large pan head screws into the upper track just far enough that the top of the sash grazes the screw heads without jamming. This eliminates the slack above the sash. To remove the window for cleaning, the screws can be taken out and put back.



- On hinged windows, use strong hinges and good quality fasteners. Replace short fasteners with longer ones that reach well into the wood of the frame and sash. Ensure that exposed hinge pins and fasteners cannot be removed (see Home Security — Doors “Hinges and Fasteners” for ways to prevent removal).

- Permanently seal any window that is not needed for ventilation, lighting or as an emergency exit. Nail the window shut or wall it up. Glass block systems can be used in place of brick if light is desired.

- Air conditioners mounted in a window frame should be bolted through the wall finish to studs to prevent their removal. Immobilize the upper window by blocking the channel with a piece of wood or pinning the sashes as described above. Fans or vents in the wall or roof that require an opening bigger than 650 cm<sup>2</sup> (100 sq. in.) should be secured the same way.

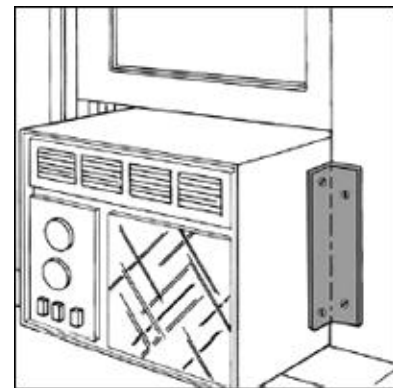


Figure 9 Bolt air conditioners in place to prevent their removal.

- Don't give burglars an advantage — close curtains after dark so burglars won't know what to expect if they break in.

- Make garage windows opaque by painting them over or screen them with curtains or blinds.

- Close and lock all possible entry point windows when you leave the house. Install skylights so that they cannot be opened or easily removed from the outside.

### **Tougher Glass**

Typical insulated glass units (IGU's) used in most residential applications comprise of 3 mm or 4 mm thick annealed glass panes; thicker panes of glass may be required for very large windows. Glazing at entrance doors, or where additional strength is required, should be heat-strength glass.

Other types of glass include the following:

### **Tempered Glass**

Specially heat-treated to resist shattering. On impact, it shatters completely — into thousands of small, blunt pieces — even if the initial damage is slight. Like laminated and wired glass, it is used in schools, public buildings and patio doors to prevent injury if accidentally broken. It is more expensive than normal glass and cannot be cut once tempered. Although generally more break-resistant than plate glass, tempered glass has disadvantages where security is a consideration. Because it shatters into many small, blunt fragments, it does not make the distinctive sound of breaking glass; therefore, it doesn't attract attention, and poses little physical danger to burglars.

### **Laminated Glass**

Consists of a layer of tough, clear plastic sandwiched between two sheets of glass. The plastic holds the glass together when the pane is shattered. An example of laminated glass is the front windshield of a car.

### **Wired Glass**

A mesh of thin wires is embedded in the glass to hold it together when broken. Suitable for use in skylights, sidelights, garage windows, basement windows and large windows in public areas.

### **Acrylic Plastic**

A transparent, shatter-resistant material that offers a high-security alternative to glass. It can be cut with ordinary hand tools, making installation easy. Its surface hardness, however, is less than that of glass, making it easily scratched. Polishing compounds are available that will restore some of the original clarity.

### **Polycarbonate Plastic**

The toughest glazing material you can buy. It will resist repeated blows from a sledgehammer. Two to three times as expensive as glass and, like acrylics, easily scratched. Although coated scratch-resistant varieties of acrylic and polycarbonate plastics are now available, both materials will become increasingly opaque after several years of use as a result of weathering and abrasion.

### **Polyester Safety Film**

Existing glass can also be covered with this product to reduce the likelihood of breaking; also prevents shattering if breakage does occur.

**Note:** Be sure the plastic you choose is designed for exterior use. Plastics expand and contract more than glass and require different clearances and special flexible putty. Unless the sheet of plastic is mounted firmly in a sturdy frame and sash, you will be wasting your money. Consult the manufacturer or distributor before installing these.

### **Window Locks**

*Key-operated window locks are the most reliable for security; however, they should not be used in rooms for sleeping.* If there is a fire, misplaced keys might prevent an emergency escape; critical minutes could be lost blindly searching for a key in a smoke-filled room. Key operated window locks are difficult to use for people with agility problems and limited hand function.

Keyed locks should not be used in other rooms unless every ambulatory family occupant is able to quickly unlock the window in an emergency. All window locks in the house should be functional with the same key. Spare keys should be kept handy but out of sight and out of reach from anyone outside the dwelling.

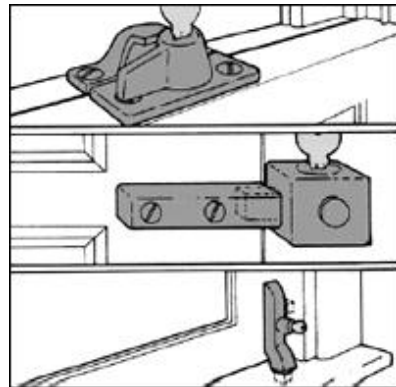


Figure 10 Key-operated window locks.

Locks should be solid and designed to lock the window in a partly open position if the window is required for ventilation. Locks should be attached with fasteners of sufficient length to provide reasonable resistance to exterior entry forces.

Operable skylights should be fitted with a keyed lock or sturdy shackle and padlock with a five-pin tumbler. Install the steel hasp so that no mounting screws or bolts are exposed when the hasp is closed. Fixed skylights should be installed with fasteners on the inside.

### **Window Guards**

Steel bars or grills are sometimes used to secure windows. While these may be effective in increasing burglar-resistance, they can also hinder the escape of occupants in a fire or impede rescue by firefighters. *If installed on bedroom windows, they may contravene building code requirements unless they are designed to be readily functional from the inside.*

In basements that do not contain rooms intended for sleeping, such protection is particularly effective as basement windows normally offer poor security and are a favorite target for burglars.

Solid iron bars should be 25 mm (1 in.) in diameter. Iron pipe 20 mm (3/4 in.) in diameter can also be used, but the pipe should be filled with sand-cement mortar or have a tempered steel bar inside to prevent it from being cut with a hacksaw.

Window frames to support these guards must be very strong or the guard itself will be of little value. On windows that could be used as emergency exits, install guards that can be easily removed in an emergency by every member of the family.

All hardware for window guards should be installed with tamper-resistant fasteners with enough strength to resist the tremendous pulling and spreading forces that can be exerted during a determined entry. Fasteners should be long enough to penetrate through the window frame into the concrete or structural lumber. If anchoring to solid brick, concrete or stone, sink the rods or bolts into at least 50 mm (2 in.) of the foundation material.

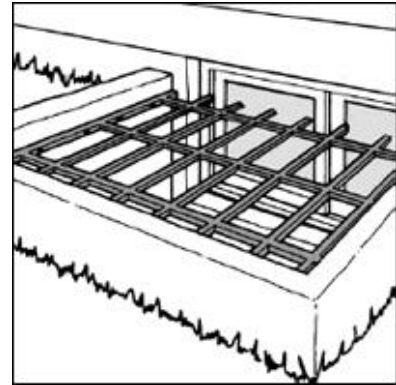


Figure 13 A type of basement window grill.

Heavy metal mesh can be permanently installed over a vulnerable window that is not used as a secondary or emergency exit. The wire should be at least 3 mm (1/8 in.) in diameter with openings no more than 50 mm (2 in.) across. Attach the wire to the window frame with round-headed or machine bolts.

If bars or grills are too unsightly, consider using hinged wooden shutters or aluminum roll-shutters to protect windows. Both are especially useful on cabins and cottages where shattering glass is not likely to be heard. Choose heavy, working wooden shutters of solid construction instead of the flimsy, decorative kind. Mount hinges and locks on the inside of wooden shutters, where they will be protected from attack.

You have many options to improve your window security and the rest of your home.

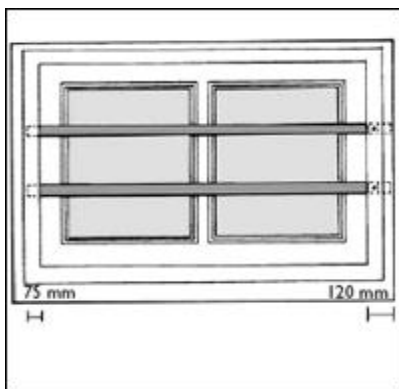


Figure 14 A simple method of securing basement windows.

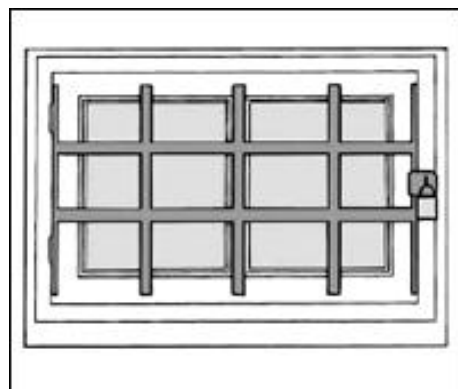


Figure 15 Install bars designed for easy exit in case of fire.