Choosing the Right Windows

by Duo Dickinson

The way window glass is divided into panes is often used as a sort of stylistic shorthand that determines what kind of windows a house gets. "Colonial" windows have removable dividers that architects like to call muntins and window suppliers call grilles. "Contemporary" windows have large, undivided panes. "Cottage" windows often have diamond muntin patterns, while "Arts and Crafts" windows have a racing stripe pattern, with muntins that follow the inside edge of the sash.

These sorts of distinctions have their place, but they can mask the more utilitarian, nuts-and-bolts considerations that have an important bearing on the comfort and convenience of a home. Those considerations have to do with how windows operate, and despite the tremendous variety of windows we see in catalogs, it boils down to just two possibilities: either two pieces of framed glass slide by each other or a single piece of framed glass is hinged and pivots one way or another. (For the purposes of this discussion, we'll ignore fixed glass, which doesn't "operate" at all.)

Double Hungs and Sliders

The most familiar window in America is the good old-fashioned double hung. Double-hung windows offer enormous flexibility, because they're readily available in stock sizes ranging from small openings to more than 3 by 6 feet. When open, they don't tilt into an occupied space, and they use inconspicuous exterior screens. They are generally cost competitive compared to other window types.

A minor downside to the double hung is that it tends to be slightly less energy efficient than a hinged window. In order to have smooth operability, the friction-fitting weatherstripping has to be flexible, and once the wind blows against the glass, gaps can open up, letting air in (see Figure 1). A more obvious shortcoming is that the joint

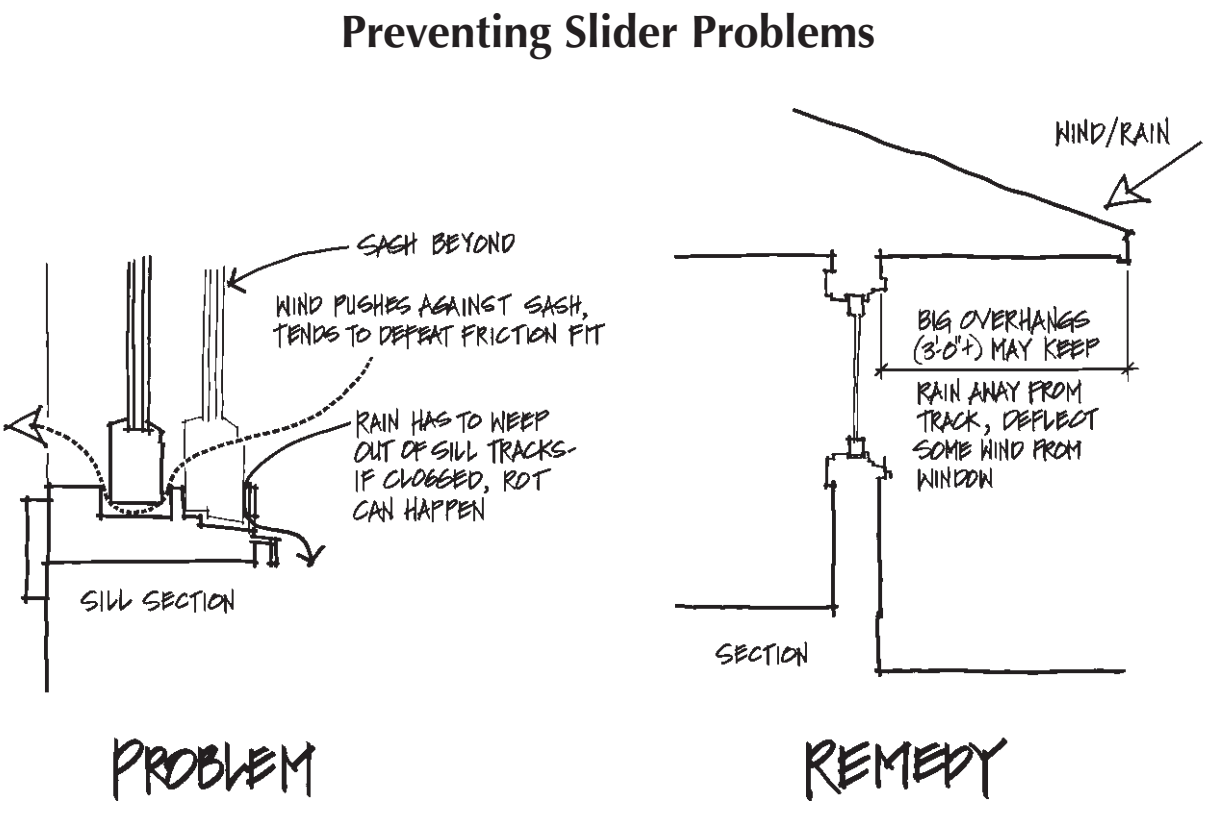

Figure 1. All modern windows must meet federal standards for air infiltration, but sliders and double hungs typically don't perform as well as hinged units under windy conditions. Where horizontal sliders are used, a generous overhang is recommended.

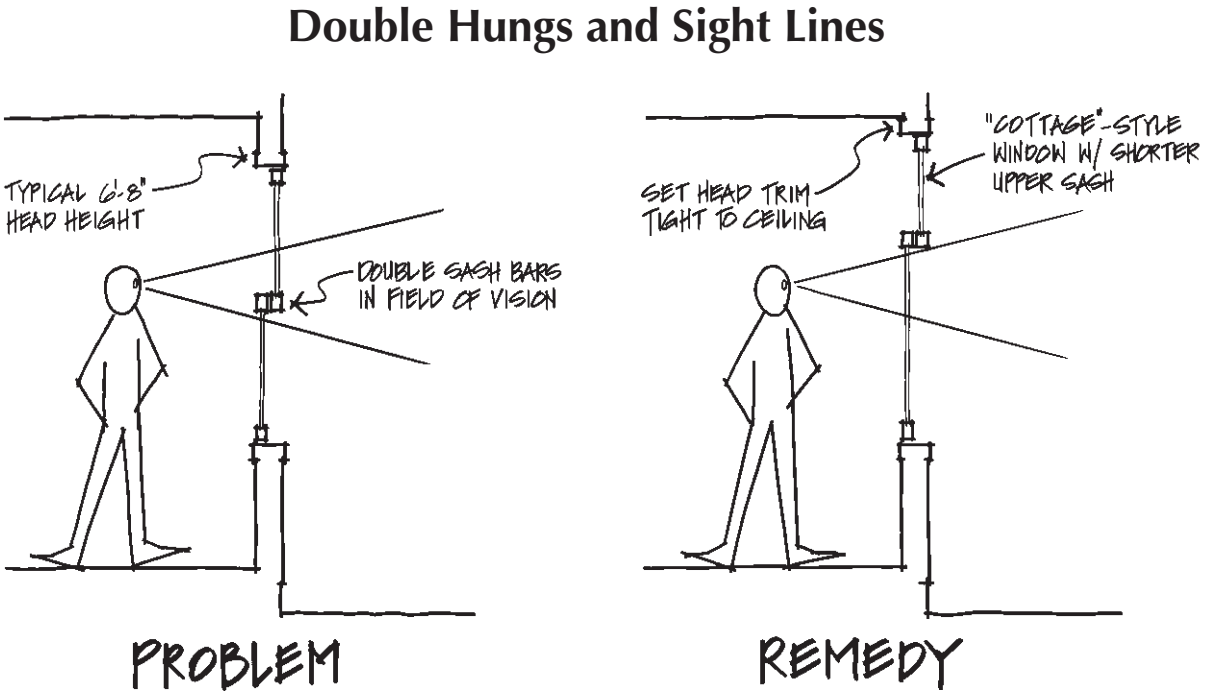

Figure 2. Where views are a consideration, avoid placing double-hung windows so that the horizontal divider falls at eye level.

where the two sashes overlap each other is often at or near eye level (Figure 2).

Track troubles. Sliding windows — which pass one another like patio doors, with one sash typically being fixed — represent one attempt to solve the sightline problem. While this variant offers an uninterrupted view, it introduces another difficulty: The sill-level horizontal track that allows the window to slide must rely on some form of weep hole to permit water to drain. Even a small amount of windborne grit or dust can clog these weep holes and lead to ponding. Eventually, the water is likely to insinuate itself into the wall cavity and lead to rot.

Casements and Hoppers

The most traditional of the hinged windows is the casement. Old-fashioned casements combined a latch with a separate secondary stay that held windows open to any desired angle, but modern casements rely on a cranking mechanism that performs both functions. Other hinged windows

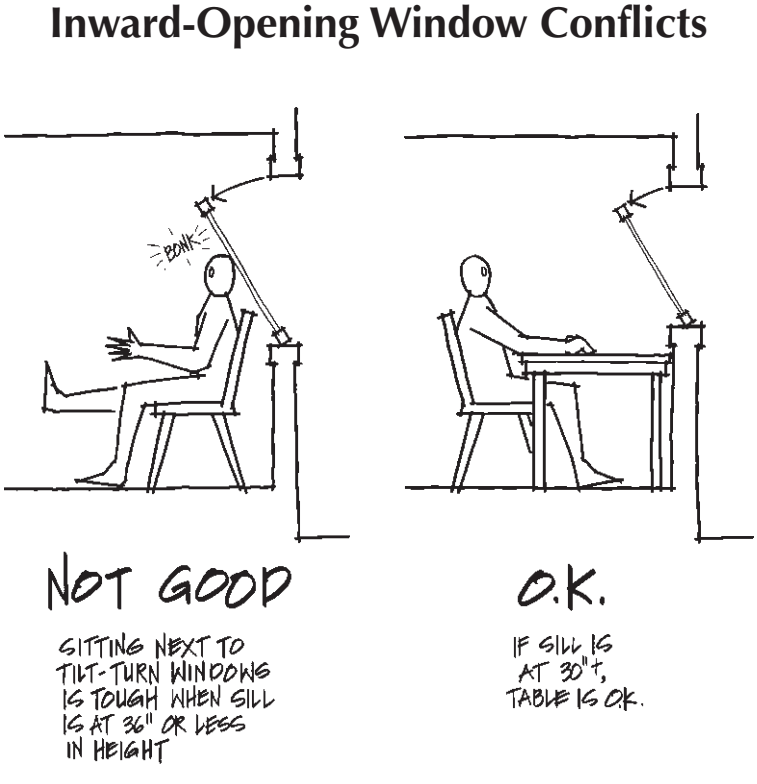

Figure 3. Using hopper or tilt-turn windows without taking furniture and seating patterns into account is asking for trouble.

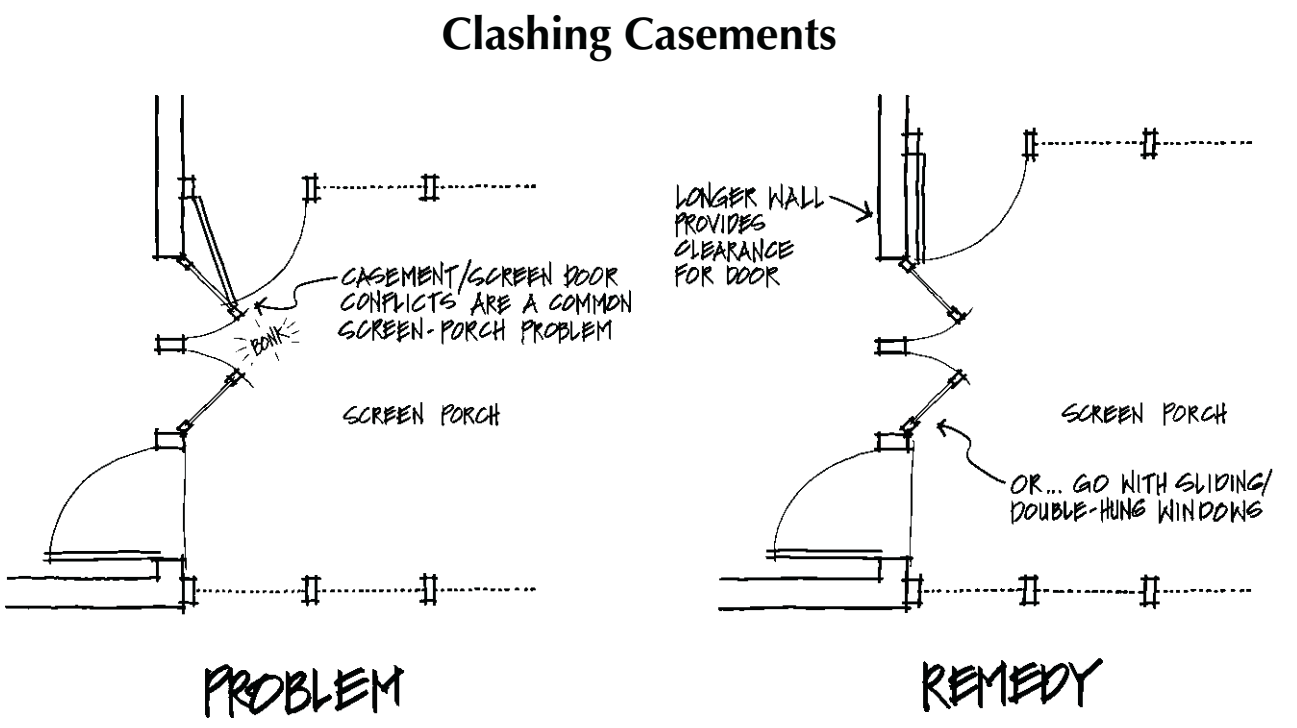

Figure 4. When using casement or awning windows near an outside entrance, don't forget to leave space for the swing of the screen door.

typically have fixed stays that operate as part of the opening mechanism, which in most cases simply pushes the window out or pulls it in. Awning windows have their sashes hinged up top and open out into the world, while hopper windows are usually hinged at the bottom and open in. Modern "tilt-turn" windows can be opened as either hoppers or internally swinging casements.

Outward-opening casements have good resistance to air infiltration, because wind pressure pushes the sash more tightly against its seals. Unlike double hungs and sliders, which can never be opened to more than 50% of their total area, casements can be opened completely, providing maximum ventilation for a window of a given size. Hinged windows with cranking mechanisms for opening have the distinct advantage of being easy to open when reaching over furniture, countertops, or built-ins. They can also be opened using cranking wands from ground level when they are set at transom or clerestory height — something that is much more difficult to engineer with their sliding counterparts.

One problem with casements that open out is that the screen is on the inside, which often traps cobwebs, leaves, and other debris between the screen and the sash. A secondary problem is that most outside-opening casements are hard to clean from the inside, whereas double-hung windows often have hardware that allows you to slip the sashes into the house for cleaning.

Cranks and conflicts. Another drawback to cranking windows has to do with the cranks themselves. In my experience, most of these mechanisms operate pretty well for the first year or so, but I have yet to find one that doesn't have a fairly high rate of frustration or failure over the longer term. After a few years' use, many windows become reluctant to close the final quarter inch necessary to allow their locking mechanisms to engage. In some cases, so much gunk and foreign matter get into the cranking mechanism that it simply stops working.

If you want to keep windows close to countertops — perhaps allowing the countertop itself to act as the windowsill — the conventional rotary crank may not have enough clearance to turn. In that case, you'll need to use some sort of knob instead, offered universally by almost all window manufacturers.

That's an easy fix, but other hinged-window conflicts must be caught at the planning stage. Sill height is a crucial consideration for hopper windows (Figure 3, previous page). Hinged windows that open outward may conflict with the swing of a screen door and can be a safety hazard if they adjoin a porch or deck (Figure 4).

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