

Q&A

Q. Closing a House for the Winter

I have customers who want me to build a log home that will be used seasonally, for about two months of the summer and another two months in the winter. During the rest of the year they want to leave the house closed up and unheated. We're at the edge of the Rocky Mountain Front Range in eastern British Columbia, and winter temperatures often fall to -20°F. I've discouraged the clients from installing a hydronic heating system because of the difficulty of draining it twice a year (draining the domestic water will be headache enough), but what other potential problems should I be thinking about? I'm concerned that the radical swings in temperature could damage interior finishes.

A. *Don Fugler, a senior researcher with the Canada Mortgage and Housing Corp. in Ottawa, Ontario, responds:* If you leave a house deserted in winter, the biggest risks are to finishes and furniture due to cold temperatures and extreme humidity (high or low). The safest, most convenient way to minimize problems is to provide a modicum of heating. Keep it to about 50°F (10°C). If you build an energy-efficient house with good solar gains, the heating costs for the unoccupied winter periods will be low, and

you will avoid the inconvenience of draining plumbing and removing all water-based stored foods and supplies. A small amount of continuous ventilation is also useful for keeping the air fresh. (I agree that a hydronic heating system might be risky in this situation.)

If your customers are intent on leaving the house unheated, there are some precautions I would recommend. Ventilation is particularly important. Running an efficient set of fans (a ducted HRV, for example) continuously at low speed will mix air and keep the house fresh. Also, you do not want solar gain in an unheated house, because temperature swings can cause condensation problems. If possible, minimize solar gain by using exterior shutters on at least the south and west windows. Before the owners reoccupy the house in winter, they should have someone bring it up to temperature slowly over a couple of days. I would not use the no-heat strategy during the first winter after construction, because there may still be significant moisture in the concrete, drywall, and lumber. A cold or freezing house with high internal moisture is a recipe for trouble.

Q. Effectiveness of Thermal Curtains

Do so-called "double-cell" insulating window shades perform as advertised? One salesperson claims R-3 if they are installed with an airtight edge seal. But what if they are installed without the perimeter track?

A. *Paul Fiset, director of Building Materials and Wood Technology at the University of Massachusetts Amherst and a JLC contributing editor, responds:* I can't tell you whether your curtains are truly R-3, though that does not seem like an unreasonable R-value if they are installed with tracks. I have seen some shades advertised that claim values as high as R-8, which I'm skeptical about. You'll definitely get the best performance and are more likely to get the full reported R-value from the shades if you use an

airtight seal around the edge of the window. Without the seal and with the shades drawn, you will most likely find condensation around the edges of the glazing — an indication that warm air from the room is leaking in through the gaps between the shade and the window trim and reaching the cold condensing surface of the glass.

This is evidence that the shades are in fact insulating your windows to some degree and providing some energy benefit, because the window glass is colder than room temperature. Say, for example, that the room temperature is 70°F and the relative humidity is 50 percent; in that case, the dew-point temperature is around 49°F. If it's a freezing night and you pull the shade, thereby preventing warm room air from contacting the glass, it may not take long for the glass to reach dew-point temperature. You'll get condensation around the edges, where heat is lost to the window frame; with double-hungs, you'll probably also have condensation just above the meeting rails, where air leaks are common. But if you leave the shade raised, the glass will stay in contact with the room

GOT A QUESTION?

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air and remain warmer. You won't get condensation, but you'll be expending additional heating energy. So condensation is actually a sign that the shades are working to some degree — though the wetting is not good for the long-term durability of the windows. Therefore I would go the extra mile and install the edge seals.

One last note: In my climate (around 6,800 heating-degree days), you save approximately 2 percent on your heating bill for every degree you reduce your thermostat on a 24-hour basis. Because warmer surfaces radiate heat to colder surfaces, using thermal curtains can make a room feel more comfortable at a lower temperature.

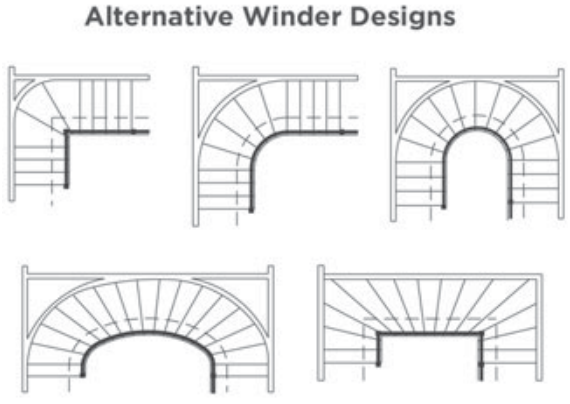
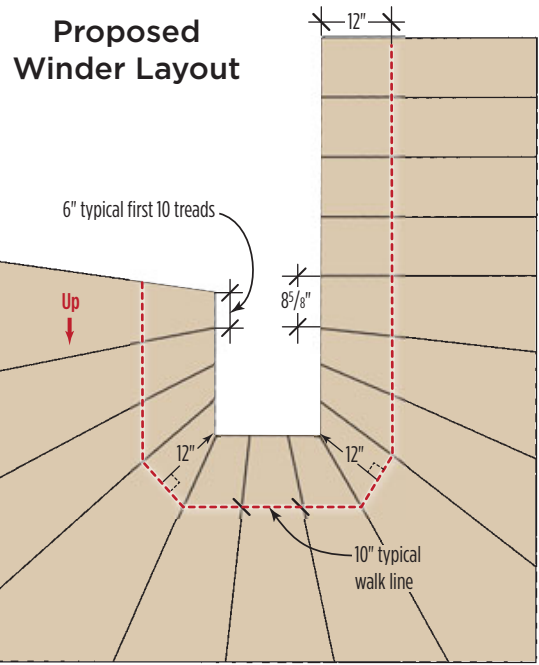
Q. Winder Layout to Code?

Although code inspections are not routinely done in the rural area where I work, I want to make sure a winder stair I am building to access the upstairs of a storage building meets residential code — just in case the space is ever used as a living area. According to the IRC, you need a minimum 10-inch walk line 12 inches from the inside edge of the tread, and the minimum allowable tread width is 6 inches. Would this proposed layout (illustration, top right) meet code? All the winders are 6 inches wide at the narrow end, except for the last one, which is wider as the stair transitions to the final straight-run treads. The corners are the part I'm not sure about; the walk line is 10 inches along a line pulled diagonally from the corners.

A. Bruce Abernathy, a stair builder in Niceville, Fla., responds: First, keep in mind that the stair code doesn't apply if the attic is used only for storage. There's nothing in the code about drop-down attic stairs, for example. But you're wise to cover the bases now, rather than have to rebuild later. (A local builder informed the inspector that the space above a garage he was building would be used for storage. The inspector didn't buy it: When he saw that the "storage space" had finished oak flooring and crown molding, he red-tagged the stairs.)

In my opinion, straight stairs are the most easily navigated, and the fewer winders the better. But if you don't have the space, you don't have the space. Your layout should meet code; I've included a page from the Stairway Manufacturers Association's interpretation of the IRC, which shows a variety of winder configurations, including one similar to yours (illustration, bottom right).

You can build your stair directly from your plan. First make a full-scale drawing and transfer the layout to the surrounding wall framing. Then use what I call a riser beam, where the risers are 2x8s ripped to match the rise, supported by studs or other framing at each end. I cut the treads so that they are flush with the face of the lower riser beams and glue and screw them to the bottoms of the upper riser beams. I then add extra support under the upper riser as needed.



Excerpted from the Stairway Manufacturers Association's Visual Interpretation of the 2006 International Residential Stairway Codes