

## The Hidden Ice Dam

By Alan Powell

**W**e have all cursed when we've had to wipe water off the coffee table that was caused by the condensation from a cold drink. That water ring may or may not go away, but water caused by condensation inside the walls of a home can definitely leave a mark. As a REALTOR®, your concern is that your client's home may have to be completely rebuilt if condensation is rampant.

Just about everyone in the northern climates will notice condensation on windows in the winter. A window that is just cold and has condensation on the window glass is a sign the living conditions in the home are too humid. Lower the humidity and open the shades, so the condensation will dissipate into the air. Now, if the window curtains are blowing in the breeze when the window is closed, take note of

what the curtain is telling you. The window is leaking air, called an *air bypass*. Even small air leaks are concerning. Not only is the homeowner paying more for energy, but air leaks and interior humidity can create ice dams. If you can see an accumulation of ice, it could be like an iceberg – more ice and a larger problem hidden from your view.

When the curtain is moving in the breeze, cold air is coming in, but the opposite happens when the furnace kicks on. Positive air pressure from the furnace pushes the warm, humid air outside through the same gaps where the cold air comes in. When the air reaches that magical dew point, ice will form. This is usually along the outside edge of the gap between the sash and frame. This is when serious condensation problems begin.

During the day, air temperatures will change and the on/off cycle of the furnace will cause a freeze and melt cycle. When the iceberg melts, the resulting water is looking for a place to go. Unfortunately, the melt starts on the inside portion of the iceberg and may not melt all the way to the outside. This iceberg has now created an ice dam (and you thought they only occurred on roofs). Now, when the iceberg melts, the ice dam will force it to either be absorbed by the wood sash of the window eventually rotting the sash, drain into the wall cavity below the window through the corner sill/ jamb joints (where metal or vinyl cladding transitions to wood) or occur at the operating hardware and alarm penetrations causing rot in the walls of the home.

Window ice dams are found on all types of windows. Any window that has a separate sash can be a problem if there is a bad seal between the sash and window frame. It is the open, non-sealed gap that causes the air bypass problem. Even if the homeowner is very conscious about maintaining low humidity

levels in the winter, when the temperature drops to -20 degrees, an ice dam can be created if an air bypass is occurring through the window.

An ice dam on a window or door is usually not seen or noticed. Most people don't sleep with a window open during the winter, so windows rarely get opened. Windows with ice dams can probably not be opened during the winter because they are frozen shut. However, if the window can be opened, a visual inspection of the bottom of the sash will usually show the problem.

REALTORS® representing buyers need to pay attention to this problem because most home inspectors are not even aware of window ice dams. If they are opening windows, they generally are determining if the window is operative and can be secured. They usually do not inspect the bottom of the window sashes for stains or rot unless it is obvious. They may call out a rotted sash, but you need to make sure they are calling out possible water damage in the wall cavity below the window. When staining or rot is found in the home they should be looking at the condition of the compression seals installed to prevent air bypass on all the windows. Make sure the inspector *inspects*.

The only way to effectively determine if air bypass is a real problem is with a blower door test. De-pressurizing a home will show where air bypass is a problem. If sash rot is found, blower door testing along with an intrusive moisture test should be recommended.

If you are working to list a home, don't just walk to the door of a room, look in and say, "Nice room." Walk around, open a few windows and look at the window sills. If you see staining, a closer, more thorough inspection (preferably pre-sale) is recommended. You may not want to be listing a Titanic if the windows are making icebergs.

Alan Powell is the owner and senior inspector of Certified Moisture Testing, LLC. Alan has over 14 years of experience in moisture inspection in both residential and commercial construction. He is licensed and certified for home and building moisture analysis by three different national organizations. Having been involved in over 7,000 moisture discovery inspections, he is considered a legal expert on moisture testing and intrusion causes in moisture investigations. His mission is to educate the general public about understanding, preventing and detecting moisture intrusion in homes and other buildings. For more information, please visit [www.certifiedmoisturetesting.com](http://www.certifiedmoisturetesting.com) or call (651) 272-5552.

