

ATTIC CONDENSATION:

Condensation in attics is a naturally occurring phenomenon in cold weather climates and with the Calgary climate freeze thaw cycles occur with regularity. As long as the thaw cycles are only days apart the build-up of frost does not normally occur. When we have extended cold periods such as we have experienced this winter the build-up becomes more noticeable and may result in moisture ingress into the home. This ingress would be most noticeable at bathroom fans, around light fixtures or other areas where the warm interior of the home comes in contact with the cold exterior such as at the top of the interior wall where they meet the ceiling.

Inadequate intake at the eaves of the roof or inadequate exhaust ventilation at the peak of the roof will cause and contribute to condensation issues. Attics require, dependent upon the pitch of the roof, a minimum of 144 inches of free air flow area per 300 sq. ft. of attic area. This means that for every 300 sq. ft. of attic floor the home requires 72" of free flow intake ventilation allowance and 72" of free flow exhaust air allowance. On a normal pitched roof this would require approximately 1 normal roof vent every four feet along the ridge. This is a rough guide only and varies according to the free flow area of the vents being installed. This also means that the intake ventilation at the eaves is required to meet the same basic free flow air allowances and an even balance is the preferred requirement.

Ideally, with the right intake and exhaust ventilation in place, the temperature in the attic can be maintained within 5* to 10* F. of the ambient exterior temperature which will aid in minimizing condensation and the resulting frost build up during cold snaps.

That being said, all homes experience heat loss from the home through the ceilings and into the attic. When this heated air contacts metal and / or the bottom of the plywood sheathing of the roof during cold weather condensation begins. The metal "H" clips between sheets of plywood, exhaust fan pipes and other metal components within the attic will condensate as well. When the exterior temperature is below freezing the condensation freezes and becomes frost. During a protracted cold spell, this frost can build layer upon layer but will eventually thaw and drip during Chinooks or other naturally occurring warm spells. The longer the cold spell the more accumulation of frost we will note in the attics and the more likelihood we will have of moisture ingress from the melting of this frost. Normally the insulation in the attic will hold this moisture until it evaporates but in the case of extended cold periods the saturation point of the insulation may be reached and it will release the water which may then be able to gain ingress into the home.

HUMIDITY:

Humidity is the amount of moisture or water vapor in the air. You, your family and your pets produce moisture when you are breathing or perspire. Plants add indoor moisture. Water vapor is added to indoor air through routine household activities such as cooking baking, showering, bathing, doing laundry and dishwashing. Moisture can also enter the home from the surrounding soil and through the basement or crawlspace. In cold weather winter areas, such as Alberta, closing all windows and doors during the cold weather reduces interior ventilation and increases humidity.

Humidity is a problem when it is either too low or too high. We require humidity for our comfort and health but too much or too little can create difficulties that range from minor nuisances to serious repercussions.

PROBLEMS CAUSED BY TOO MUCH HUMIDITY:

Condensation on windows
Wet stains on walls and ceilings
Moldy bathrooms
Musty smells
Damage to the house and contents
Ongoing allergy problems
Other health problems

PROBLEMS CAUSED BY TOO LITTLE HUMIDITY:

Chapped skin & lips
Scratchy nose and throat
Breathing problems
Static and sparks
Problems with electronic equipment
Continued discomfort
Damage to furniture and other items

SUGGESTIONS TO HELP MINIMIZE THESE HUMIDITY ISSUES:

Some simple undertakings which will help to achieve the proper humidity and reduce condensation within the home and so help limit the amount migrating into the attic are as follows:

1. Set your humidifier to the recommended settings. This will vary from day to day in the Calgary area and season to season in most other areas.
2. Run the bathroom fan during bathing or showering and for at least 30 to 40 minutes after.
3. Use the kitchen fan during stove top cooking and let it run for 15 to 20 minutes after you turn off the stove.
4. Ensure that the attic access hatch in your home is insulated and has a seal between the hatch itself and the seat it sets in. Keep the hatch closed at all times.
5. During extremely cold weather simply run the bathroom fans for 15 minutes morning and evening. This will help keep the condensation that forms on and in these pipes dried out and will help reduce frost build up on them.

HYGROMETER:

Buy an inexpensive hygrometer to keep in your home. Once it has been calibrated it will give you a continuous read on the humidity levels within your home and allow you to adjust your humidity accordingly. Full instructions are included with each one.