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CONDENSATION AND THE LIVING SPACE

At this time of year I find my self doing many indoor air quality inspections and evaluations as a result of condensation issues.

Many older clients point out that when they were young mold and other similar indoor conditions did not seem to be as much of an issue.

This is because as time has passed, building techniques have changed.

In the earlier part of the 20th century homes were drafty, hard to heat, and would have been quite uncomfortable by today's standards.

As energy conservation became an issue to home owners in the 1970's, insulation and the use of vapor seals were added or increased to keep the heat in the home.

Unfortunately this kept moisture in the home for a longer period, and reduced the ability of the home to take in fresh air due to reduced natural air leakage.

The removal of standard wood burning fireplaces and installation of air tight wood stoves and other energy saving improvements regarding wood burning appliances and chimneys further reduced the ability of the home to exhaust damp air.

When insulation and vapor seals levels were increased wall cavities and attic spaces became colder. This created the perfect recipe for condensation. This is because early on vapor seals were not very successful and proved to be leaky, which allowed warm humid air into cavities where additional insulation had been added. If you have ever poured a glass of cold liquid on a hot day, or live in an older home with single pane or aluminum windows you will have seen condensation in action.

As the cold layer of air surrounding the glass of cold liquid meets the warm air, a dew point is formed causing moisture to collect on the warm side or exterior of the glass.

Not only did we tighten up homes, we did not pay attention to proper ventilation of indoor humidity sources such as bathroom fans, kitchen fans and dryers

Because the humidity was allowed to dwell longer in tighter homes dwell longer in wall cavities and attics this lead to unexpected problems.

If you add other conditions such as crawl spaces with soil floors and no vapor/ground seal, it can mean the addition of several gallons of water per day to the living environment from the crawl space alone!

Roof/attic space ventilation also plays an integral part in the equation, as well as the presence or lack of mechanical ventilation to the living space.

As is common, making changes can result in a domino effect. Sometimes when we change one system or component it is also necessary to change other systems or components to suit the new environment or situation. Failure to do so can also result in additional unforeseen problems.

For example if you replace a wood shake/shingle roof on strapping with plywood and asphalt shingles then you are changing the drying potential of the attic. The wood roof and strapping has the ability to flush moisture and the drying potential is much better.

When you cover the strapping with sheet goods and install asphalt or composition shingles the environment becomes more air tight and other changes should be considered to avoid unwanted mold or rot conditions. As the 80's and 90's arrived we had made homes so air tight that indoor air quality became a problem and some building techniques were changed to include the installation of air recovery ventilation equipment (HRV's) to attempt to correct the problem.

Today, homes built in areas where code related building inspections are enforced have been made quite leakage proof with more attention to humidity control, and they are less prone to condensation issues, however there is more potential for rapid rot and mold should moisture find its way in, because it's more difficult for the moisture to escape.

Each home has different characteristics and the occupants of those homes all lead different lifestyles which all can have an effect on the amount of moisture present and the homes ability to breathe or flush humidity properly.

For that reason alone it is prudent when condensation is an issue to consult a qualified professional for an evaluation of the homes condition.

Making some adjustments to the living space, attics and crawlspace regarding ventilation can improve the quality of life for the occupants or home owners, and will help avoid secondary damage such as mold, rot and other ongoing water damage as a result of condensation or other moisture sources.

For further information or questions regarding condensation and moisture/mold issues, indoor air quality, or general home inspection questions please contact me at All In One Home Inspections Inc (250-248-3654) or visit my website (www.allinonehomeinspections.ca) for other general information.

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I hope that this information is helpful

Yours truly,

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