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A Cold Roof... Good Health For Your Home

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Do you remember those monstrous ice-dams you had to contend with this past winter? How the ice just kept forming layer after layer in open defiance of your home, furnishings and blood pressure? While these memories are fresh in your mind, now is the time to create a "cold roof" situation for your home.

A cold roof is created by proper ventilation of the attic area. This is done in a number of ways, with a number of products. The most effective and efficient method is to use continuous venting in both the soffit areas and roof ridges of your home.

Since warm air rises, it carries the air pollutants and water vapors with it. Continuous ventilation in the soffit area will allow an even flow of air to move through each rafter cavity and flow upward. This flow of air will carry the vapor and pollutants with it and expel them through the continuous ridge vent.

The proper insulation will keep the living area at a comfortable level suited for your family. The idea behind the cold roof construction is simple. The cold roof created by proper venting drops the attic temperature as close to the outside air as possible. This makes for a cooler home in the summer, and a fresher, less humid home in the winter. The cold roof also has other helpful benefits, one of these is the prevention of ice-damming.

For many years, home owners have battled this problem without understanding how ice dams were formed. Some of the weapons used were large eaves, flashings, and gutter heat cables.

It was thought that the large, shiny metal flashings would allow snow and ice to run into the gutters and away due to the smooth metal surface. These are mostly found in rural areas. The heat gables were installed in hopes of keeping a free area of flow to help release the water and prevent freezing. Both methods work to some minor extent, however, it is far better to understand how the ice-dam is formed, then place your dollars where they will do the most good to combat the problem.

Ice-dams are created mainly from melting snow on a warm roof. When the snow and water get past the outside wall of the building and onto the overhang, it is no longer warmed by heat loss through the roof. The water then re-freezes and the ice-dam is formed. This creates a holding pan for more water that is still over the heated roof. This water then works its way into the shingles and into the home where it compresses insulation, causes interior staining, drywall damage, and promotes mildew and rot.

With the cold roof concept, as long as the roof is the same, or close to the same temperature over and under, the heat loss is no longer an issue. The snow therefore cannot melt, and thus ice-dams cannot be

formed.

Compressed insulation, or wet insulation due to ice-dam infiltration, loses its efficiency at a tremendous rate. Small amounts of moisture within the insulation can have an effect on the R-value (the insulation's ability that for 3 5/8" fiberglass insulation, nominally considered to be R-13,) that:

- A. R-13 only occurs at 0% moisture content (M.C.)
- B. At 1 1/2% M.C. it is reduced to R-8.3
- C. At 8% M.C. it is reduced to R-7.5
- D. At 50% M.C. it is reduced to R-5.7

Moisture may also debilitate insulation by compaction. If moisture is present in large quantities, or if it drops from above, insulation may be compacted over a period of time. According to a study conducted by Dynatech Company, a 10% compaction leads to a 10% loss for R-value: 20% compaction; 20% loss, etc. Compaction can occur in large pitched roofs with large attic spaces where the dew point is reached within the attic space, condensing on the structure sheathing, and dripping onto the insulation below. As you can see, the cold roof has many benefits, including protecting your insulation.

A better understanding of the condensation and moisture problems throughout the year can help you to better understand what needs to be done to resolve these issues. It is going to be easy, as it is every spring, to put the ice-dams, sweating windows, and damp attics aside while visions of gardening, etc., start dancing in your head. Resolve not to allow this to happen again this year.

We hope this information has been helpful to you! If you have any further questions, please visit our website at www.aroundyourhouse.net, or contact Jim at Around Your House.

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