



**Breen & Associates, LLC**  
*Professional Home Inspection Services*

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**Serving The Entire Black Hills Region**

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## **The Life Breath of Your Home**

*By: Patrick Breen*

For reasons of both comfort and economy we have acquired an acute focus on our homes R-values and air infiltration. Insulation is blown and stacked into attic's, ceilings and floors for greater R-value while tight seals are established around windows, doors and cracks to lessen outdoor air penetrations. We install storm windows and shrink seal everything we can while stuffing rags under doors and applying foam tape around the door edges.

Whether you are building a new home or own an existing structure, these have become baseline principles for energy efficiency and comfort, and since 20% to 40% of our heating and cooling energy is lost to air infiltration, our homes are tighter than ever before.

In extreme climates the compromise of a tightly sealed environment is our health. Over the decades, despite an increase in outdoor air quality, asthma and other respiratory ailments stay at historically high levels. The EPA now estimates indoor air is on average 2-5 times more polluted than outdoor air. Since we spend 90% of our time indoors this becomes a concern.

In a well sealed home natural ventilation is reduced and indoor pollutants build up. Common pollutants are formaldehyde found in some building materials, volatile organic compounds (VOC) found in many paints and floor coverings, carbon monoxide as a bi-product of combustion and excess moisture generated by human activity.

Becoming aware of our air quality is the first step to a healthy indoor environment. The second is source control. Store your chemicals such as paints and solvents outside of your home. Make sure you have an air tight seal between your attached garage and living space. Have your atmospheric vented gas water heater and furnace checked regularly for proper combustion and ventilation; and when remodeling or building try to pick products with low volatile organic compounds.

With these maintenance steps in place the next phase for managing your air quality is substituting your infiltration with ventilation. The simplest and lowest cost approach is a proper exhaust and supply ventilation system. With a little investment that can become a fully balanced system established through the use of heat exchangers.

Depending on the type of recovery needed there are two types of exchangers to choose from: total or sensible. Think of this airflow in and out of your home as similar to the heat exchangers in a high efficiency furnace allowing more energy extraction from the system, some capturing as much as 60% to 80% of the energy that would have otherwise been lost.

The benefits to fully managing your home infiltration is the improved air quality, improved comfort, improved health, lower utility bills, as well as the benefit of improved resale value. But, if fully managing your ventilation and infiltration is something out of your control I recommend simply picking the nicest day of each week, turn down the heating or cooling system, and open some doors and windows. Allow for a whole house air exchange and breathe knowing you have a healthier home environment.