

# Do you feel OK? You don't look too good

## Know the importance of green living, indoor air quality

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#### *Living Green*

It is October, and Chamber of Commerce weather prevails. Festivals, fiestas, fairs and ball games draw us to enjoy the great outdoors. At home we throw our windows and doors open wide and enjoy the freshness of our fall air.

We are blessed with this long and enjoyable shoulder season in Las Cruces but soon the nights will grow long and we will close up our homes for the winter.

As we retreat indoors with the change of season, we begin to limit the safest sources of fresh air to our homes. Our efforts to keep warm and cozy indoors serve to concentrate contaminants in the air and compound the impact they can have on our health. Types and sources of indoor pollutants are wide ranging. Today's best green building and remodeling practices outline and detail the latest building-science ideas to optimize and protect indoor air quality.

#### **Fresh air all year long**

A commonly used mantra in green building and remodeling is "build it tight and ventilate right." The best efficient and green designed homes are sealed tightly at all possible air infiltration points. Most new and existing homes are not tightly sealed or, if tightly sealed, are not correctly ventilated.

Pressures exerted on a building from wind and weather changes and the operation of air conditioning system air handler fans, can force outside air into the home through the many envelope penetrations found in the house walls, foundation and attic as well as at the return and supply ductwork of the air conditioning system.

The air moving through these building cavities carries tiny building product fibers and particles, such as fiberglass insulation, drywall and saw dust, lead paint particles and asbestos; critters and fauna, including dust mites, insect and rodent excrement, pet dander, pollen and mold spores; and other compounds that we were never intended to breathe.

After a home is tightly sealed to limit pollutants, green indoor air quality practices provide for a dedicated fresh air supply. The basic concept is straight forward and includes routing a filtered fresh air supply duct to the living space along with a fan that will provide a known rate of healthy fresh air exchanges for the number of people living in the home.

Proven fresh air ventilation system configurations include quiet, low wattage exhaust fans installed with a filtered fresh air vent or timed controllers installed at air handler fans with fresh air ducted to the return air compartment.

Heat Recovery or Energy Recovery Ventilation systems provide a 1-to-1 volume of fresh to stale air exchange and are designed to limit pressure changes to the home while tempering the humidity and temperature of the fresh air supplied.

#### **Carbon monoxide – a silent threat**

Carbon monoxide (CO) poisoning at home is responsible for 400 deaths and 20,000 trips to the hospital in the United States every year. CO is a colorless, odorless gas that is produced as a byproduct of combustion. All natural gas and propane water heaters and furnaces installed in our homes produce CO, which is vented to the exterior through a variety of venting strategies. The risk of CO exposure is greatly reduced when incorporating green and efficient practices for water and space heating.

High efficiency gas water heaters and furnaces utilize direct ventilation. This means that the combustion sections of these appliances are sealed and do not require a supply of fresh air in the space adjacent to the appliance. The risk of "back drafting" or pulling CO and other combustion gases into the living space of the home with this type of system is nearly eliminated.

These high efficiency units also use 25 to 40 percent less fuel than water heaters and furnaces that are not direct vented and are considered as the standard for green homes.

Renewable or efficient all electric non-combustion heating systems completely eliminate CO risks. Solar hot water systems can provide most or all of the hot water and heating needs in a home when properly designed and used in combination with radiant flooring or hydronic furnace applications.

Electric heat pump systems can provide economical space heating as well as water heating that is up to 300 percent efficient, again with no CO produced in the home.

## **Radon – EPA Level 2**

Las Cruces and the surrounding area are designated by the Environmental Protection Agency as a moderate radon gas risk zone. This simply means radon gas is known to exist in the soil under some homes.

Radon is another colorless, odorless gas and is considered important because it is radioactive and a known carcinogen. Planning for the possibility of the presence of radon at the time of construction or remodeling makes future mitigation implementation more affordable and is a consideration included in good green building practices.

Radon gas is a byproduct from the decay of rock and mineral structures found beneath the soil. Radon may be not be detectable at a given site now, but can become an issue in the future. Green and sustainable building practices encourage the installation of inexpensive measures at the slab during construction that provide for radon gas removal.

## **Volatile Organic Compounds**

EPA research indicates Volatile Organic Compounds levels in many new and existing homes are up to five times higher than those found outside. This is true for homes in rural or metropolitan areas. VOCs can have both short-term and long-term impact on health and are found in many products we use every day and in materials incorporated in standard home building processes.

Green and sustainable buildings limit the use of lumber, carpets, cabinets, paints, sealants, adhesives and other products that contain: acetone, benzene, ethylene glycol, formaldehyde, methylene chloride, perchloroethylene, toluene, xylene and 1,3-butadiene found in synthetic rubber. Limiting the use of these common VOCs is especially helpful to people with respiratory issues, allergies or chemical sensitivities.

## **Easy to keep clean**

Solid surface flooring can't trap and hold contaminants like carpeting. Tile, hardwood and stained concrete surfaces typically can be purchased from local suppliers and are more durable than carpets. Additionally, a designated shoe swapping spot located at the entrance keeps most of the interesting things your kids stepped in today from getting into the home.

Keeping clean, high performance air filters installed with a good seal at the return air compartment of the heating and air conditioning unit reduces the need for weekly dusting and can make a big improvement in Indoor air quality. Disposable air filters are available that trap particles as small as 0.3 microns, effective for mold spores, pollen, dust mite and other insect dander and excrement.

Get out and enjoy the great fall air, then explore all the ways to keep your indoor air quality just as fresh and healthful with green building and remodeling ideas.

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