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## **Green Your Home for Your Health: Emissions and Indoor Air Quality**

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While sustainability and energy efficiency often dominate the green building conversation, the issue that can have the most immediate impact on your family's health is indoor air quality. Green building programs seek to limit your family's exposure to Volatile Organic Compounds, or VOCs, that exist in some building materials and furniture. Continued exposure to these VOCs has caused health problems ranging from headaches and nausea to cancer. Green building programs like the US Green Building Council's LEED for Homes and LEED for New Construction encourage builders to eliminate these emissions whenever possible.

If building green comes at a slightly higher cost it is because many of these harmful chemicals are so widespread that finding products without them can be a challenge. In fact, it is the presence of these chemicals in some products that makes them cheaper, as in wood products containing urea-formaldehyde.

Those looking to improve the indoor air quality of their current house can make several changes that will significantly reduce VOCs. The following are some sources of harmful emissions in the home:

### **Composite Wood Products**

Urea-formaldehyde is used to expedite the gluing process of composite wood like plywood and particle board, allowing more to be produced. Unfortunately, urea-formaldehyde is a health risk and a known carcinogen. When purchasing wood building material, cabinets, and wood furniture, seek those with no added urea-formaldehyde. Several particle board manufacturers use no urea-formaldehyde in their process. There are cabinet companies that offer cabinetry with no added urea-formaldehyde.

### **Carpets**

Carpets can be a double whammy when it comes to VOCs. Synthetic carpets, as well as the padding and adhesives, are loaded with VOCs and the American Lung Association reports that some people experience eye, nose, and throat irritation, headaches, skin irritation, and cough as a result. Carpets also act as a "sink" for such pollutants as pesticides, dust mites, and fungi. Alternatives include carpets certified as no VOC, hard wood (as long as its formaldehyde free,) and linoleum, which is hypoallergenic and is made from renewable resources.

### **Paints, Caulks, and Adhesives**

Building products that require drying, like paints, caulks, and adhesives, use a solvent that evaporates into the air (and possibly into our lungs.) If the solvent is synthetic, those chemicals used in the creation of the product become airborne. Many companies have moved away from synthetic solvents toward a water based product. Older homes should be checked for lead paint.

### **Proximity of Carbon Monoxide Sources**

The two primary causes of carbon monoxide are cars and cigarettes. If the garage is attached or located under the house, carbon monoxide can make its way up into the house if the car is left on. Cigarette smoke in the house or near windows can contribute the levels of carbon monoxide in a home. Sensitivities vary but the most common early symptoms include headache and dizziness. Prolonged exposure can lead to death.

### **Other Sources of VOCs:**

- Mattresses with synthetic or chemical based foam
- Nylon furnishings, which may contain the carcinogen benzene
- Rubber or leather products that contain xylene
- Household cleansers high in chemicals
- Stored gasoline and solvents

### **VOC Warning and Removal**

Several indoor air quality tests are available, including carbon monoxide detectors. Efficient ventilation systems can mitigate the amount of VOCs in the home. Check out the EPA's site on indoor air quality (<http://www.epa.gov/iaq/voc.html#Sources>) for more info.