BEYOND THE BASICS:
Indoor Air Quality – Low-Emitting Materials

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Whether it's new construction or simple interior touch-ups, using materials that do not off-gas harmful substances is an important part of a healthy indoor environment and good environmental stewardship. Two key elements to look out for are VOC's and urea-formaldehyde.

VOC is an acronym for Volatile Organic Compounds. During the application and drying process of paint, coatings, adhesives and sealants, these compounds evaporate into the air and can contribute to low level smog generation and poor indoor air quality. Examples of these compounds include fungicides, fire retardants, mildew inhibitors, acetone, formaldehyde, paint thinner, mineral spirits, alcohol, ethylene glycol, toluene or xylol.

VOC's react with sunlight and nitrogen oxides in the atmosphere to form ground-level ozone which is harmful to agriculture, forests and other ecosystems, and to human health by damaging lung tissue. Beginning in the 1960's, California, then the Federal government established limits for VOC's, gradually increasing the regulations to address all types of coatings, inks, liquid cleaners, sealants and caulking compounds. Southern California limits are especially stringent and are used as the acceptable baseline for green building certifications, including Build It Green (SLO Green Build checklist) and LEED.

VOC's are measured in grams per liter. When selecting products, look for Low-VOC or No-VOC, or indication that the product complies with LEED, Green Seal or SCAQMD (South Coast Air Quality Management District) standards. For paint, VOC's should be under 250 g/L, and under 50 g/L for adhesives, but higher amounts are allowed for many specialty applications. Water based coatings tend to be much lower in VOC then solvent and/or oil based coatings. Be sure to speak with knowledgeable sales staff to select the product that has the best environmental qualities *and* the performance you need.

Another common substance to avoid is formaldehyde. Although naturally occurring and not harmful in low amounts, according to the EPA higher concentrations can cause irritation, may trigger asthma attacks and may be a carcinogen. To avoid the higher exposures, select composite wood and agri-fiber products (e.g., plywood, medium-density fiberboard (MDF) and oriented strand board (OSB))with *no* added urea-formaldehyde.

In the Green Point Rated Checklist (used by SLO Green Build), avoiding VOC's and Formaldehyde is listed in the "Finishes" section and is worth up to 12 points. For LEED, selecting low-emitting materials may contribute to 4 or more points.

Products that are low-emitting are now easily available and usually cost about the same or slightly higher as the more toxic alternatives. Avoiding VOC's and formaldehyde is an easy and important way to build green!