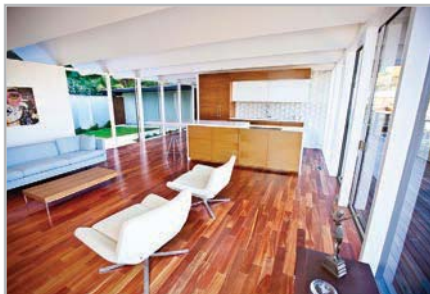


# Indoor air quality checklist

▣ BY MAGGIE LESLIE ▣

Ensuring healthy indoor air quality in a home starts with the very foundation. Many simple building techniques, from radon resistant construction to drainage planes, can prevent unwanted air quality problems in the future. Additionally, to have a healthy home, it is very important to build a tight home to prevent unwanted moisture and contaminants from entering, but it is also important to provide ventilation to the home to provide fresh air exchange. Once the home has been constructed as healthy and durably as possible, consider the interior finishes and the chemicals used in glues, paints and stains. Below is a checklist of items to help ensure healthier indoor air, for more detailed information review the EPA's Indoor Air Plus requirements at [www.epa.gov/indoorairplus](http://www.epa.gov/indoorairplus).



Formaldehyde Free PureBond Plywood (Product of Columbia Forest Products, manufactured in Old Fort) uses soy based glues to replace conventional urea-formaldehyde glues in its decorative hardwood plywood.

## Moisture Management

- Install a continuous drainage plane behind the exterior cladding.
- Install a capillary break between foundation and framing.
- Fully and properly flash windows, doors and roofing.
- Install a surface water management system. Final grade should be at least ½ inch per foot sloped away from the house. Gutters must be present and functional and must drain onto a finished grade at a minimum of five feet from the building foundation.
- Crawlspace flooring should have 100 percent coverage with sealed vapor barrier. Consider a sealed, non-vented crawlspace for added durability.

## Ventilation

- The home needs to be as tight as possible, through proper air sealing. Then, mechanical air ventilation needs to be provided mechanically to the home (not too much and not too little). The American Society of Heating, Refrigerating and Air Conditioning Engineers (ASHRAE)

requires 7.5 cubic feet of air per minute (cfm) per person (i.e., per bedroom) plus 7.5 cfm, plus an additional 1 percent of total floor area of fresh air ventilation. This isn't as complicated as it sounds. The two

of the most common methods are: 1) Run a supply duct from a clean source outside of the home into the return duct of the HVAC system. Then install a controller that will make sure your home gets plenty of fresh air even when the air handler is not running often. OR 2) Install a balanced system. Commonly known as Heat Recovery Ventilators (HRV) or Energy Recovery Ventilators (ERV), these high tech systems bring in fresh air while exhausting stale air to the outside. Heat (and moisture in the case of the ERV) is transferred in the process, making it the most energy efficient ventilation option.

- Install a properly sized and sealed HVAC unit (see "Heating and Cooling"). The home needs to maintain less than 60 percent relative humidity.
- All ventilation exhaust fans (bathrooms, range hoods and clothes dryers) need to be vented outdoors. Kitchen range hoods should not exhaust more than 350 cfm. Bath fans should exhaust at least 50 cfm, so installing a 75 or 90 cfm bath fan is recommended to make up for duct length. Consider installing low-sone fans on a timer or a humidistat.
- Install MERV 8 or higher HVAC filters, but make sure the equipment is designed to accommodate pressure drop from the filter.

- Protect ducts from dirt and debris until construction is completed.

## Combustion Safety

- Combustion equipment such as gas furnaces and water heaters must be either sealed combustion or installed outside the conditioned spaces. Do not install un-vented fireplaces.
- Install one hardwired carbon monoxide (CO) detector per 1,000 square feet of living space (minimum one per floor) in all houses where an attached garage or any combustion appliance is used in the structure.
- Common walls to the garage need to be properly air sealed, and doors to garages need to be weatherstripped.

## Radon and Pest resistance

- Install a radon mitigation system


that depressurizes the slab and properly air seal any penetrations from the foundation to the home.

- Perform a radon test before moving in. For more information visit [www.epa.gov/radon](http://www.epa.gov/radon)
- Consider non-toxic termite control system.
- Install termite flashings that provide a physical barrier between the foundation and the wood structure.


## Materials

- Use Formaldehyde-free insulation and building materials whenever possible.
- Use low-VOC (volatile organic compound) paints.
- Use low-VOC stains and finishes on all wood work.
- Use solvent free adhesives and glues.
- Don't install carpet. If you do, use a low-VOC, CRI rated carpet.


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