



## Improving Indoor Air Quality

*Improving indoor air quality (IAQ) in your home may let you and your family breathe easier. Here are some steps you can take to maximize clean air in your home.*

1. Make a conscious decision to improve the IAQ in your home. Involve the whole family in the decision making process. You can use this document as a checklist.
2. Do not permit smoking inside the house. Do not burn excessive amounts of candles or incense or other smoke or soot producing devices inside the house.
3. Keep pets outside. Pet dander is an asthma trigger.
4. Reduce the clutter in your house and especially the bedrooms. Why? This makes vacuuming and routine house cleaning easier.
5. Invest in a good allergen-trapping (HEPA) vacuum cleaner (with furniture cleaning tools) and vacuum all carpeted areas and upholstered furniture at least once a week. The dust bags in your vacuum cleaner should be of high quality, which can trap particles as small as one micron. (One micron=one millionth of a meter). If you are building or buying a new house, consider installing a central vacuum cleaner that vents to the outside of the house.
6. Make sure that duct work in your house is NOT excessively leaky. Leaks in ductwork can draw heat, humidity, dust and pollen into your house from the attic, garage, crawl space or the outside. Your electric/gas utility may have a list of contractors experienced in finding and fixing leaky ducts.
7. Change the bed sheets and pillowcases weekly and wash them in the hot wash/cold rinse cycle. Vacuum the beds with the tools of an allergen-trapping vacuum cleaner.
8. If you or someone in your house has tested positive to dust mites in skin prick tests, consider removing carpets from those bedrooms and replacing with a hard surface flooring. Throw rugs may be used, but should be cleaned on a regular basis. Also, encase the mattress and pillows with allergen-resistant covers.
9. Make sure your house does not have any roaches, mice or other pests. Allergens from roaches are a major cause of asthma. Food and/or food crumbs attract these pests. Store food in airtight containers and dispose of food wastes.

10. Invest in a carbon monoxide sensor and keep the smoke detectors in good working order. The sensors in these devices are normally good for 10 years and should be replaced if they are older. Read the manuals of these devices and if the alarm sounds, take remedial measures as instructed in the manuals.
11. Make sure water is drained away from the house. Problems arise due to sprinkler systems spraying water on the walls or sloping yards/landscaped hills in the front yard which drain water towards the house,
12. If your home has vinyl or other vapor impermeable wallpaper on the interior of exterior walls, inspect it carefully for mold. Pink or dark splotches are a sign. If you see them, cut a section with a knife and examine the backside of the wallpaper for mold. If there is mold the wallpaper should be removed, the walls cleaned with bleach, dried and then painted with a vapor permeable paint. Seek professional advice if your house has extensive mold.
13. Invest in good air filters for your heating and cooling system. At a minimum use the \$10-\$15 disposable pleated filters which are about one inch thick. Check the filters monthly and replace at least every six months. (If your filters do not get dirty, it may mean there are excessive leaks in the duct system between the filter and the air handler unit.)
14. Make sure there is no air bypass around your filter whether it is located at the air handler unit or in the return grill. This is generally the case if the filter is in your air handler and held down by two long pieces of metal. Take steps to assure that the air filter is securely attached on all edges.
15. Always keep the interior doors in your house open to promote better air circulation. If fire prevention or privacy is of concern, then consider various return air pathways from the closed room to the return air grill. This may include additional ductwork, transfer grilles or a combination of both.
16. Do not close off the heating or cooling vents in unused rooms.
17. Excessive relative humidity (RH) in the house is a major cause of poor IAQ as it breeds dust mites and molds. To control the house RH follow these steps:
  - a. During the air conditioning season always keep the fan switch in your thermostat in the AUTO position rather than the ON position. The AUTO position dehumidifies about twice as well as the ON position. If you feel the need for air circulation for comfort, use ceiling or portable oscillating fans.
  - b. Once a year, have your air conditioner serviced by a reputable contractor. The coils should be inspected and cleaned if necessary. During a hot afternoon, the supply air temperature coming out of the registers should be about 20 degrees F cooler than the house temperature. If the supply air temperature is less than 15 degrees F cooler than the house, there is probably significant duct leakage on the return side of the air handler or the air conditioner needs to be recharged with refrigerant (proper charge is important - overcharging is as bad as undercharging). These need to be fixed.
  - c. Buy a good quality digital temperature and RH meter and place it in the family or living room. Observe the RH levels - during the summer months

when the air conditioner runs regularly, the RH Should be below 55%. 45% is ideal. If in the summertime your house humidity is consistently above 60%, you have cause for concern.

- d. Do not set the air conditioning thermostats lower than about 75 degrees F.
  - e. Do not operate exhaust fans located in the attic designed to cool the attic. These fans generally increase the infiltration rate of the house and increase RH.
  - f. If your closet is not air conditioned and clothes smell mildewy, try keeping the closet doors open and keeping the closet light on all the time.
  - g. Always operate the bathroom exhaust fans (if it exhausts to the outside) when taking a hot shower or bath. These fans should operate at least 15 minutes after the shower - this is best done with a timer.
  - h. Operate the kitchen exhaust fan during cooking and cook on the rear stove top elements so the fumes and steam are captured and exhausted to the outside by the fan.
  - i. If your clothes dryer is located inside the conditioned space, be sure that it is properly vented to the outside. Check the connection of the dryer to the exhaust pipe to ensure that it is attached and in good shape(after a few years, the vinyl connection pipes tend to develop leaks). Also check the discharge of the exhaust pipe, this may be blocked with lint, especially those that exhaust vertically through the roof. (NEVER exhaust the dryer into the attic.)
  - j. In the winter months, the RH in your house generally increases. If it frequently exceeds 70%, consider investing in one or two room dehumidifiers. If you are going to buy a new house, a whole house dehumidifier can be installed as an option. To distribute the dry air throughout the house, invest in a control system which turns on the whole house blower intermittently.
18. Reduce the volatile organic compounds (VOCs) in your house:
- a. Keep gas cans, paints and any other products that outgas dangerous fumes well away from the air handler.
  - b. When buying furniture or cabinets, avoid new pieces with particle board. Either buy wood furniture or cabinets or used (not upholstered) furniture which has had a chance to outgas.
  - c. If buying new carpets, buy 100% Nylon carpets and carpet pads that are NOT the rebond type.
  - d. Never run cars for an extended period of time in the attached garage, even if the garage door is open.
  - e. Do not use excessive amounts of perfumes, deodorants, cleaners or other fuming substances, especially near persons who have allergies or asthma.

Information from:

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