

OKLAHOMA HEALTHY HOMES INITIATIVE

INDOOR AIR QUALITY

PAGE 1

- According to the U.S. Environmental Protection Agency (EPA), poor indoor air quality is the 4th leading environmental threat nationwide.
- Pollutants can be found in concentrations 2-5 times higher indoors than outdoors and they are the primary cause of indoor air quality problems in homes.
- Inadequate ventilation can increase indoor pollutant levels by not bringing in enough outdoor air to dilute emissions from indoor sources and by not carrying indoor air pollutants out of the home.
- High temperature and humidity levels can also increase concentrations of some pollutants.
- Some of these pollutants include radon, carbon monoxide, environmental tobacco smoke (second hand smoke), mold and moisture etc.
- Since young children spend nearly 80%-90% of their time inside they are most vulnerable to the adverse health effects of poor indoor air quality. Furthermore, children breathe more air for their size than adults do and so they receive a higher dose of pollutants in comparison with adults.

RADON

- Radon is a naturally occurring radioactive gas that is present in soil.
- According to the EPA, Radon is the leading cause of lung cancer among non-smokers and the second leading cause of lung cancer in the U.S., responsible for 21,000 deaths every year.
- Although the U.S. Surgeon General and EPA recommend that all homes be

**SURGEON GENERAL'S
WARNING:**

**Radon Causes Lung Cancer.
You Should Test Your Home.**

1-800-SOS-RADON www.epa.gov/radon



OKLAHOMA HEALTHY HOMES INITIATIVE

INDOOR AIR QUALITY

PAGE 2

tested, only a few states have passed laws requiring testing. There are no Federal or Oklahoma laws that require radon tests

- The United States Environmental Protection Agency (EPA) has established an action level of 4 Pico Curies per liter (pCi/L) of air at which mitigation of radon is recommended.
- No state level mortality or morbidity data for radon is available in Oklahoma. However, according to the Oklahoma Department of Environmental Quality, there are 5 counties where all the homes tested to date have an average indoor radon level greater than the EPA established action level of 4 pCi/L of air.

How is Radon Associated with Healthy Homes Principles?

- **Keep it Ventilated:** A well ventilated home reduces the concentration of radon under safe limits.
- **Keep it Contaminant free:** A home can be kept radon free by following the EPA- recommended home testing guidelines.
- **Keep it maintained:** Keep a home well maintained by ensuring that there are no cracks in floors or walls or other openings that allow radon gas to migrate from the soil into the structure.

CARBON MONOXIDE

- Carbon Monoxide (CO) is an odorless, colorless, tasteless toxic gas produced by the incomplete combustion of gas oil or wood. Any malfunctioning fuel burning appliance is a source of CO. Car exhaust is another source of CO exposure.



OKLAHOMA HEALTHY HOMES INITIATIVE

INDOOR AIR QUALITY

PAGE 3

- No standards for CO have been agreed upon for indoor air. The U.S. National Ambient Air Quality Standards for outdoor air are 9 parts per million (ppm) for 8 hours, and 35 ppm for 1 hour.
- According to the EPA, average levels of CO in homes without gas stoves varies from 0.5 to 5 ppm. Levels near properly adjusted gas stoves are often 5 to 15 ppm and those near poorly adjusted stoves may be 30 ppm or higher.
- Every year, CO poisoning accounts for more than 500 deaths and approximately 15,000 hospital emergency departments visits.
- In Oklahoma, between 1994 and 2003, 291 (29 every year) carbon monoxide related deaths occurred. 47% of all CO poisoning deaths occurred from a source inside the home.

How is Carbon Monoxide Poisoning Associated with Healthy Homes Principles?

- Keep it Ventilated: If bathrooms, clothes dryers, kitchen ranges, boilers, furnaces, hot water heaters, fire places, wood burning stoves etc. are not well ventilated, this could result in CO buildup inside the home.
- Keep it Safe: Occupants can be alerted CO hazards in the home by installing battery operated CO detectors.
- Keep it Maintained: If fuel-burning appliances are not well maintained by performing regular inspections and repairs, then a CO buildup inside the home could result.

ENVIRONMENTAL TOBACCO SMOKE

- Environmental tobacco smoke (ETS) or Secondhand smoke is the combination of sidestream smoke (the smoke given off by the burning end of a tobacco product) and mainstream smoke (the smoke exhaled by the smoker).



OKLAHOMA HEALTHY HOMES INITIATIVE

INDOOR AIR QUALITY

PAGE 4

- According to the EPA and the American Lung Association, every year approximately 53,800 Americans die from secondhand smoke.
- In Oklahoma, 700 people die every year from secondhand smoke.
- The EPA, the U.S. National Toxicology Program (NTP), the U.S. Surgeon General, and the International Agency for Research on Cancer (IARC) have classified secondhand smoke as a known human carcinogen (cancer-causing agent). Of the more than 4,000 chemicals that have been identified in secondhand tobacco smoke, 50 are known to cause cancer.
- Children exposed to secondhand smoke are at an increased risk of sudden infant death syndrome (SIDS), ear infections, colds, pneumonia, bronchitis, and more severe asthma.
- According to the EPA, the developing lungs of young children are severely affected by ETS. It is responsible for:
 - increases in the number of asthma attacks and severity of symptoms in 200,000 to 1 million children with asthma;
 - between 150,000 and 300,000 lower respiratory tract infections (for children under 18 months of age); and,
 - respiratory tract infections resulting in 7,500 to 15,000 hospitalizations each year.

How is Environmental Tobacco Smoke Associated with Healthy Homes Principles?

- **Keep it Ventilated:** A well ventilated home may not completely eliminate ETS exposure. However, it would reduce the concentration of ETS.
- **Keep it Contaminant Free:** Keeping the home smoke-free by smoking outside and not smoking around children reduces the exposure to ETS.



MOLD AND MOISTURE

- Damp environments and excess moisture not only result in the structural damage but also affect the health of residents by providing an environment conducive to the development of mold which triggers asthma.
- Mold is found both indoors and outdoors. Mold can enter your home through open doorways, windows, vents, and heating and air conditioning systems. Indoor, molds will often grow in damp or wet areas. Uncontrolled humidity can also be a source of moisture leading to mold growth.
- Common sites for indoor mold growth include bathroom tile, basement walls, areas around windows where moisture condenses, and near leaky water fountains or sinks.
- In 2004, the Institute of Medicine published the report "Damp Indoor Spaces & Health." The report identified adverse health effects related to damp indoor environments and the presence of mold. Some of these health effects included upper respiratory tract symptoms, coughing, wheezing, asthma symptoms, hypersensitivity pneumonitis etc.
- There is no state or federal data available on mold.



How is Mold and Moisture Associated with Healthy Homes Principles?

- **Keep it Dry:** It is important to dry water damaged areas and items within 24-48 hours to prevent mold growth. The key to mold control is moisture control.
- **Keep it Ventilated:** Ventilating shower, laundry, and cooking areas will minimize mold growth.
- **Keep it Maintained:** Mold growth can be prevented by promptly fixing leaky roofs, windows, and pipes.

