

Date: October 2010
To: City Council
From: Bruce Shilling, MD, Medical Officer

PERSONAL HEALTH AND SAFETY OF WOODLAND RESIDENTS

All residents and their homes are vulnerable to the dangers and harm of fire, carbon monoxide (CO), smoke (generally indicative of fire) and radon gas (a radioactive element). The State of Minnesota places mandates on new home construction and remodeling but in general, no regulations exist for older homes. The City of Woodland has no specific requirements or mandates, but realistic and reasonable recommendations or endorsements will be outlined.

FIRES IN THE HOME - FIRE EXTINGUISHERS AND SMOKE DETECTORS

If lightning sets the roof on fire, the furnace explodes or a similar catastrophe occurs, if a smoke alarm awakens you with the odor of smoke, get yourself and all others occupants IMMEDIATELY out of the house and THEN CALL 911. But many home fires are set (caused) by the resident, begin as a relatively small event and can be contained by the resident IF PROPERLY PREPARED WITH A FIRE EXTINGUISHER. These "smaller" home fires will be discussed in greater detail below.

I. Review

After discussion with Kevin Klapprich, Woodland's Fire Chief, it is apparent that fires are real, occur in Woodland and often can be limited with the presence of appropriate functioning detectors and extinguishers. In 2009, the fire department received 15 fire calls; 8 were either false alarms or contained and controlled by the resident using an extinguisher or by smothering a grease fire at a stove with a cover placed over the burning pot or skillet. In general the containment constitutes 10-15% of all individual house fires. The doubling time of a house fire (size and intensity) is ONE MINUTE. Thus adequately placed and sized extinguishers and smoke detectors/alarms, this containment could be increased to 20-30% with concomitant salvage of health and home. Kitchen fires constitute 40% of these fires, followed by fires in the garage, and furnace room. Electric fires (from frayed wires, or overloaded circuits, extensions cords) constitute 20% of home fires. Seven of the 15 calls required the presence and capabilities of a fire truck, its equipment and the expertise of the Wayzata volunteer fire fighters, (a very capable and proficient group).

II. Fire Extinguisher – Recommendations

Fire Chief Klapprich recommends a minimum of one adequate (the bigger, the better) fire extinguisher (ABC Type) centrally located on each floor of the house (including the basement) and one in the kitchen area within easy reach (but not behind the stove).

III. Smoke Detectors – Recommendation

Smoke detectors generally function as an indicator of fire to the resident when in a removed room (away from the fires) or while asleep. Minnesota State law mandates a smoke detector in all sleeping rooms, all hallways leading to exits and on each floor for all construction commencing 2007. The function of detectors should be periodically checked and if energized by batteries, the batteries changed on a regular schedule. Chief Klapprich recommends compliance with state law for homes built since 2007. For older homes reasonable protection is constituted by a detector in or immediately outside each bedroom.

If residents have further questions, Chief Klapprich can be reached by email at kklapprich@wayzata.or or by calling the fire station at 952-404-5337, to leave a message for him to return your call.

The Woodland Council endorses the Chief's recommendations but emphasizes the number, size and placement of extinguishers is at the discretion and risk tolerance of the resident. The Council encourages compliance with State mandates for newer construction.

CARBON MONOXIDE (CO) A SILENT KILLER

I. Review

Carbon monoxide (CO) is an odorless, colorless gas often formed in the process of incomplete combustion of organic substances, including fuels. More is produced when there is insufficient oxygen for efficient burning. Common sources of CO in homes include fuel-burning devices such as: furnaces and gas space heaters, boilers, gas cooking stoves, water heaters, clothes dryers and fireplaces. CO is a gas that can build up to dangerous concentrations indoors when fuel-burning devices are not properly vented, operated, or maintained. It is dangerous because it interferes with normal oxygen uptake for humans and other living organisms needing oxygen to live. The attachment of CO to the hemoglobin molecules is not easily reversed (running out of the house will not quickly reverse a seriously compromised individual's oxygen carrying capacity). Because it has no odor, color or taste, CO cannot be detected by our senses. It is estimated that unintentional CO exposure accounts for an estimated 500 deaths in the United States each year. Fortunately, CO can be detected by inexpensive properly functioning and maintained monitors.

II. Simple Measures to Prevent CO Problems

- 1) Make sure that all your fuel burning appliances and heating devices are properly vented and maintained.
- 2) Know the symptoms of CO poisoning.
- 3) Detect potentially deadly conditions, install and maintain CO alarms in your home in accordance with Minnesota's CO alarm law.
- 4) Have your fuel-burning appliances checked by a qualified heating contractor every year to look for possible problems.

III. Symptoms of CO Poisoning

The health effects of breathing in CO depend on the concentration of CO in the air, the duration of exposure, and the health status of the exposed person. For most people, the first signs of exposure to low concentrations of CO include mild headache and breathlessness with moderate exercise. People with heart disease are more likely to be affected by CO, even at low concentrations. Continued exposure can lead to flu-like symptoms including more severe headaches, dizziness, tiredness, and nausea that may progress to confusion, irritability, and impaired judgment, memory and coordination. CO is called the "silent killer" because if the early signs are ignored, a person may lose consciousness and be unable to escape to safety. Under certain conditions, lethal concentrations of CO have occurred within 10 minutes in the confines of a closed garage with a car engine running inside or when a portable generator is used in or near a house.

IV. Minnesota State Mandates and Woodland Recommendations

As of August 1, 2008, Minnesota State Law requires that single family homes have at least one operational CO alarm within 10 feet of every room legally used for sleeping (see Minnesota Statute, 299F.50). Multi-family or apartment homes must have alarms starting August 1, 2009. All CO alarms should be certified by a nationally recognized testing laboratory to conform to the latest Underwriters Laboratory (UL) Standards. Follow the manufacturer's instructions for placement of your CO alarm and also note the suggested replacement date. For additional information on CO alarms, call 651-201-7200 or visit www.fire.state.mn.us

The Woodland Council recommends at least one CO monitor/alarm within 10 feet of all rooms used for sleeping and one CO/gas monitor alarm located in the furnace room.

For questions about CO in private homes, or indoor air quality, please contact the Indoor Air Unit at health.indoorair@state.mn.us, 651-201-4601 or 800-798-9050.

RADON GAS: A Pernicious Element in the Basement

I. Review

Radon is a radioactive gas, concentrated in the lungs. Radon is the second leading cause of lung cancer in the United States. More than 21,000 deaths are attributed to radon each year in the U.S. Radon is an odorless, tasteless gas that forms from the decay of naturally occurring uranium found in rock and soil throughout Minnesota. The primary radon exposure for most people is their home. Radon seeps into homes through structural cracks and gaps in the foundation. The Minnesota Department of Health (MDH) estimates that one in three homes in Minnesota have levels of radon gas that pose a large health risk over years of exposure.

Recent changes in Minnesota law are welcomed by the American Cancer Society in Minnesota. "We're hoping more people will start to take radon gas seriously, considering it kills more than 300 Minnesotans each year," said Matt Flory, Health Care Director for the American Cancer Society (ACS). (In order to establish importance by comparison, the annual fatality rate on Minnesota roads caused by motor vehicles is 450 persons)

Owners of older existing homes should not think they are stuck with radon. Homes with levels over 4 pCi/L should consider verification testing and possibly installing ventilation systems in their homes, which is often referred to as mitigation. A standard mitigation system in an existing home costs an average of \$1,500.

II. Recommendation

The first step toward reducing radon risk for anyone, whether they live in a newly constructed home or an existing home, is to test for radon as recommended by the Minnesota Department of Health and endorsed by the Woodland city Council. Homes should be tested about once every five years or after undergoing major structural changes. Test kits can be purchased from a variety of laboratories and range in duration from two days to one year. Air Check, Inc., a manufacturer of radon test kits, has offered Minnesota residents a discount on radon test kits; order online at www.mn.radon.com to receive a short-term (3-5 day) radon test kit at a discounted rate. Some hardware stores sell test kits.

For more information on testing, mitigation and new radon-resistant construction, visit www.health.state.mn.us/radon or call the Minnesota Department of Health Indoor Air Unit at 651-201-4601 or 800-798-9050.

SUMMARY OF RECOMMENDATIONS

A home security system monitors heat/cold and smoke which does provide aspects of protection to the resident.

It does not :

- 1) Detect radon presence and concentrations
- 2) Provide an immediate available fire extinguisher(s)

After review by Bruce B. Shilling, MD, Woodland's Medical Officer, the Woodland City Council endorses and recommends the following:

- 1) Test for radon concentration levels once every 5 years
- 2) One (1) co/gas monitor/alarm in furnace (mechanical) rooms.
- 3) Co monitor/alarms within 10 feet of all rooms used for sleeping and or compliance with State mandates for new construction (since 2007)
- 4) Smoke detectors in or immediately (in hallways) outside all rooms used for sleep and or compliance with State mandates for new construction.
- 5) Fire extinguishers (ABC Type) centrally located on all floors (basement included) and immediately available near cooking stoves.

The State mandates are "law". The endorsements and recommendations of the Woodland Council are for consideration of residents at his/her tolerance. The Council places no mandates on homeowners.

Home improvements stores and most hardware stores sell dependable Co, Co/gas monitors with battery backups; fire extinguishers of all sizes and types; smoke detectors (hard wired with battery backup or battery only), and radon detector kits.