

PLAN REVIEW	
<i>Reviewer</i>	<i>Date</i>
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# RADON GAS SAFETY

## *Introduction*

The United States Environmental Protection Agency (EPA) and other major national and international scientific organizations have concluded that radon is a human carcinogen and a serious environmental health problem. Early concern about indoor radon focused primarily on the hazard posed in the home. More recently, the EPA has conducted extensive research on the presence and measurement of radon in schools. Initial reports from some of those studies prompted the Administrator in 1989 to recommend that schools nationwide be tested for the presence of radon. Based on more recent findings, EPA continues to advise U. S. schools to test for radon and to reduce levels to below 4 pCi/L.

Accordingly, Adrian Public Schools has implemented this program to assist in the management of radon issues.

## *Health Effects*

Radon is a known human carcinogen. Prolonged exposure to elevated radon concentrations causes an increased risk of lung cancer. Like other environmental pollutants, there is some uncertainty about the magnitude of radon health risks. However, scientists are more certain about radon risks than risks from most other cancer-causing environmental pollutants. This is because estimates of radon risk are based on studies of cancer in humans (underground miners). Additional studies on more typical populations are underway.

Not everyone who breathes radon decay products will develop lung cancer. An individual's risk of getting lung cancer from radon depends mostly on three factors: the level of radon, the duration of exposure, and the individual's smoking habits. Risk increases as an individual is exposed to higher levels of radon over a longer period of time. Smoking combined with radon is an especially serious health risk. The risk of dying from lung cancer caused by radon is much greater for smoker than it is for non-



smokers.

Children have been reported to have greater risk than adults for certain types of cancer from radiation, but there are currently no conclusive data on whether children are at greater risk than adults from radon.

#### *Placing Detectors in a Room*

- Do not place detectors near drafts resulting from heating, ventilating vents, air conditioning vents, fans, doors, and windows.
- Place detectors where they are least likely to be disturbed or covered up.
- Do not place detectors in direct sunlight or in areas of high humidity.
- Place detectors at least approximately 50 centimeters (20 inches) from the floor and 10 centimeters (4 inches) from other objects and away from the exterior walls of the building.
- Place detectors about every 2,000 square feet for large spaces.
- Do not disturb the test device at any time during the test.

## **When to Conduct Radon Measurements**

### **Recommendations**

The purpose of initial testing is to identify rooms that have a potential for elevated radon levels (e.g., levels of 4 pCi/L or greater) during the school year. To achieve this purpose, EPA recommends that initial measurements be conducted:

- ◆ Under closed conditions (closed windows/doors except for normal exit/entry).
- ◆ After 12 hours of closed conditions when using a 2- to 5-day test (e.g., initiate testing after a weekend).
- ◆ During colder months (October through March, depending on geographical location).
- ◆ During weekdays with HVAC systems operating normally when conducting a 2- to 5-day test.



*Summary of EPA Recommendations*

- ◆ Initial short-term tests should be made in all frequently occupied, ground-contact rooms.
- ◆ Initial testing should be conducted during the coldest months when the heating system is operating and windows and doors are closed (except for normal exit/entry).
- ◆ If a school uses a short-term test of 2 to 5 days, the tests should be conducted on weekdays with the HVAC system operating normally.
- ◆ If the short-term test shows that the radon level in a room is 4 pCi/L or greater, schools should conduct either a second short-term test or a long-term test to confirm the presence of an elevated radon level.
- ◆ EPA does not recommend that schools use a single short-term test result as the basis for determining if action needs to be taken to reduce radon levels.
- ◆ Duplicates and blanks should accompany all testing programs (conducted by school personnel or a measurement firm) to provide assurance of the quality of measurement.

