

Closed-Building and Other Required Test Conditions

Appropriate excerpts from the protocols are paraphrased in the instructions to clients.

Short-term measurements lasting between two and 90 days should be made under closed-building conditions. Closed-building conditions are necessary for short-term measurements in order to stabilize the radon and radon decay product concentrations and increase the reproducibility of the measurement. Windows on all levels and external doors should be kept closed during the measurement period. External doors may be opened briefly for normal entry and exit but to the extent possible, should not remain open for more than a few minutes. In addition, external-internal air exchange systems (other than a furnace) such as high volume, whole-house fans and window fans should not be operating. However, attic fans intended to control attic and not whole building temperature or humidity should continue to operate. Combustion or makeup air supplies must not be closed.

In addition to maintaining closed-building conditions during the measurement, closed-building conditions for 12 hours prior to the initiation of the measurement are a required condition for measurements lasting less than four days, and are recommended prior to measurements lasting up to a week in duration.

Assertions from the responsible individual that closed-building conditions were established 12 hours prior to the test are taken to be valid.

The Radon Mitigation System, if permanently installed, shall have been in operation for the previous 24 hours prior to the test measurement and shall remain in operation throughout the test period. Measurements should not be conducted if temporary radon reduction measures have been implemented.

Forced air heating or cooling systems shall not have the fan operating continuously unless it is a permanent setting. Operation of dryers, range hoods, and bathroom fans should be minimized. Normal operation of permanently installed energy recovery ventilators may continue during closed-building conditions.

Fireplaces or combustion appliances should not to be operated unless they are the primary sources of heat. If not the primary heat source, the fireplace damper should be shut.

Window air conditioning units may be operated in re-circulating mode only.

Short-term tests lasting just two or three days should not be conducted during unusually severe storms or periods of unusually high winds. Severe weather will affect the measurement results in several ways. First, a high wind will increase the variability of radon concentration because of wind-induced differences in air pressure between the building interior and exterior. Second, rapid changes in barometric pressure increase the chance of a large difference in the interior and exterior air pressures, consequently changing the rate of radon influx. Weather predictions available on local news stations can provide sufficient information to determine if these conditions are likely.

The test technician shall verify closed-building conditions prior to starting a short-term test. If at the start of a radon survey, the test technician discovers closed-building conditions have not been established, the radon survey may be delayed for twelve hours or longer after closing the structure. Alternatively, the CRM may be exposed for 72 hours \pm 2 hours, after closing the structure. The first day of data is discarded when calculating the test measurement. The final 48 hours of data are then averaged and regarded as a two day test.

Test Technicians will not initiate a measurement if the occupant is moving, remodeling, changing the heating, ventilating and air conditioning (HVAC) system, or other modifications that may influence the radon concentration during the measurement period. The testing device should not be deployed if the occupant's schedule precludes termination of the measurement at the appropriate time.