

TITLE 180 CONTROL OF RADIATION

CHAPTER 11 REQUIREMENTS FOR RADON AND RADON PROGENY  
MEASUREMENT AND MITIGATION SERVICES

11-001 SCOPE AND AUTHORITY

11-001.01 180 NAC 11 provides for the licensure of radon measurement specialists, radon measurement businesses, radon mitigation specialists, and radon mitigation businesses. The regulations are authorized by and implement the Nebraska Radiation Control Act, the Uniform Credentialing Act (UCA), the Administrative Procedure Act, and 184 NAC 1.

11-001.02 In addition to the requirements of 180 NAC 11, all licensees are subject to 180 NAC 1, 4, 10, and 17.

11-002 DEFINITIONS

Attest/Attestation means that the individual declares that all statements on the application/petition are true and complete.

Back drafting means a condition where the normal movement of combustion products up a flue, resulting from the buoyant forces on the hot gases, is reversed, so that the combustion products can enter the house. Back drafting of combustion appliances can occur when depressurization in the house overwhelms the buoyant force on the hot gases and can also be caused by high air pressures or blockage at the chimney or flue termination.

Backer Rod means a semi-rigid foam material resembling a rope of various diameters used to fill around pipes, etc. to assist in making a sealed penetration.

Block Wall Depressurization means a radon mitigation technique that depressurizes the void network within a block wall foundation by drawing air from inside the wall and venting it to the outside.

Client means the person, persons, or company that contracts with a radon mitigation business or specialist to install a radon reduction system in a building.

Combination Foundations means buildings constructed with more than one foundation type such as basement/crawlspace or basement/slab-on-grade.

Combustion Appliance means any device which utilizes the ignition of a fuel to perform work for a specific purpose including but not limited to heating, drying, cooling, and refrigeration.

Communication Test means a diagnostic test designed to qualitatively measure the ability of a suction field and air flow to extend through the material beneath a concrete slab floor and thus evaluate the potential effectiveness of a sub-slab depressurization system.

Complete application means an application that contains all of the information requested on the application, with attestation to its truth and completeness, and that is submitted with the required fees and all required documentation.

Crawlspace Depressurization means a radon control technique designed to achieve lower air pressure in the crawlspace relative to indoor air pressure by use of a fan-powered vent drawing air from within the crawlspace.

Diagnostic Tests means tests performed or procedures used to determine appropriate radon mitigation systems for a building.

Drain Tile Loop means a continuous length of drain tile or perforated pipe extending around all or part of the internal or external perimeter of a basement or crawlspace footing.

Mechanically Ventilated Crawlspace System means a radon control technique designed to increase ventilation within a crawlspace, achieve higher air pressure in the crawlspace relative to air pressure in the soil beneath the crawlspace, or achieve lower air pressure in the crawlspace relative to air pressure in the living spaces, by use of a fan.

Military service means full-time duty in the active military service of the United States, a National Guard call to active service for more than 30 consecutive days, or active service as a commissioned officer of the Public Health Service or the National Oceanic and Atmospheric Administration. Military service may also include any period during which a servicemember is absent from duty on account of sickness, wounds, leave, or other lawful cause. (From the Servicemembers Civil Relief Act, 50 U.S.C. App. 501 et seq., as it existed on January 1, 2007.)

Mitigation means any action taken to reduce radon or radon progeny concentrations in the indoor atmosphere or to prevent entry of radon or radon progeny into the atmosphere, to include but not be limited to, application of materials, installation of systems, or any repair or alteration of a building or design.

Mitigation System means any system or materials installed for the purpose of reducing radon or radon progeny concentrations.

Natural Draft Appliance means any combustion appliance that does not have fanforced combustion venting and therefore is more likely to be susceptible to backdrafting.

Passive New Construction System means a system installed in new construction that relies solely on the convective air flow upward in the vent pipe for sub-slab depressurization and consists of a vertical vent pipe routed through conditioned space from the suction pit to 12 inches above the roof.

Perimeter Channel Drain means a means for collecting water in a basement by means of a large gap or channel between the concrete floor and the wall. Collected water may flow to aggregate beneath the slot ("French Drain") or to a sump where it can be drained or pumped away.

Picocurie per liter (pCi/l) means 2.22 transformations per minute of radioactive material per liter of air.

Pressure Field Extension means the distance that a pressure change is induced in the sub-slab area, measured from a single or multiple suction points.

Radon means the radioactive noble gas radon-222 (Rn-222) and as used in these regulations includes radon progeny.

Radon Measurement Business means a person, including a laboratory, who analyzes or tests for and measures radon or radon progeny concentrations and which employs one or more radon measurement specialist.

Radon Measurement Specialist means an individual who performs radon or radon progeny measurements for a radon measurement business; or provides professional advice on radon or radon progeny measurements, health risks, radon-related exposure, radon entry routes, or other radon-related activities.

Radon Mitigation Business means a person who designs or installs systems in existing buildings to mitigate radon or radon progeny and which employs one or more radon mitigation specialist.

Radon Mitigation Specialist means an individual who designs mitigation systems, or an individual who performs and evaluates diagnostic tests to determine appropriate radon or radon progeny mitigation systems for a radon mitigation business.

Radon Progeny means the short-lived radionuclides formed as a result of the decay of radon-222, including polonium-218, lead-214, bismuth-214, and polonium-214.

Radon resistant new construction (RRNC) means the established standards and techniques for control of radon by using a passive new construction system, as described in the "International Residential Code (IRC) for One and Two Family Dwellings," International Code Council, 2000, or any substantially equivalent techniques.

Re-entrainment means the unintended re-entry into a building of radon that is being exhausted from the vent of a radon mitigation system.

Served in the regular armed forces has the same meaning as "military service" in these regulations.

Soil Gas means the gas mixture present in soil which may contain radon.

Soil Gas Retarder means a continuous membrane or other comparable material used to retard the flow of soil gases into a building.

Stack Effect means the overall upward movement of air inside a building that results from heated air rising and escaping through openings in the building envelope, thus causing indoor air pressure in the lower portions of a building to be lower than the pressure in the soil beneath or surrounding the building foundation.

Sub-Membrane Depressurization (SMD) means a radon control technique designed to achieve lower air pressure in the space under a soil gas retarder membrane laid on the crawlspace floor, relative to air pressure in the crawlspace, by use of a fan-powered vent drawing air from beneath the membrane.

Sub-Slab Depressurization (SSD) (Active) means a radon control technique designed to achieve lower sub-slab air pressure relative to indoor air pressure by use of a fan-powered vent drawing air from beneath the concrete slab.

Sub-Slab Depressurization (SSD) (Passive) means a radon control technique designed to achieve lower sub-slab air pressure relative to indoor air pressure by use of a vent pipe (without a fan) routed through the conditioned space of a building and connecting the sub-slab area to the outdoor air. This system relies primarily on the convective flow of warmed air upward in the vent to draw air from beneath the concrete slab.

Working Level (WL) means the concentration of short-lived radon progeny that will result in 1.3E + 5 million electron volts of potential alpha particle energy per liter of air.

Working Level Month (WLM) means a unit of exposure used to express the accumulated human exposure to radon decay products. It is calculated by multiplying the average working level to which a person has been exposed by the number of hours exposed and dividing the product by 170.

### 11-003 GENERAL PROVISIONS

11-003.01 No person may provide services for the measurement or mitigation of the presence of radon in the State of Nebraska unless such person has been licensed as provided in 180 NAC 11. These regulations in no way exempt any person from other state or local occupational licensure requirements.

11-003.02 Exemptions: The licensure requirements of 180 NAC 11 do not apply to:

1. Individuals measuring or mitigating the premises in which they reside.
2. Federal, state, county and local health departments and their employees who provide professional advice on radon measurement or mitigation activities or perform radon screening services without charge to the recipient of the service in the course of their assigned duties.

3. An individual, business entity or government entity using radon resistant new construction techniques during new construction. Any radon measurement or mitigation activity, including the activation of a passive new construction system with a fan, conducted after construction is complete must comply with 180 NAC 11.

11-004 OPERATING REQUIREMENTS: The following conditions must be met to keep a radon license in the State of Nebraska.

11-004.01 Operating Requirements for a Licensed Individual:

1. The licensee must conduct his/her activities as described in the approved license and in accordance with provisions of the Act, all sections of these regulations, and all other related municipal, county, state, and federal laws and regulations.
2. Use equipment and procedures adequate to minimize danger to the public health and safety or property,
3. Complete continuing education requirements specified in 180 NAC 11-008.
4. The licensee must allow authorized representatives of the Department to have access to his/her facilities, offices and files for inspection and examination of radon-related records and test procedures. The licensee must also allow authorized representatives of the Department to accompany him/her while performing any radon measurement or mitigation activities for the purpose of inspecting these activities, with the approval of the property owner or resident on whose property such activity is being performed. Failure to cooperate with an audit or inspection is grounds for disciplinary action against the license.
5. Additional responsibilities specific to the radon measurement specialist must include:
  - a. Conducting all radon testing, including post-mitigation testing. This includes the initial placement and final retrieval of all measurement devices. All testing must be conducted according to standards described in Protocols for Radon and Radon Decay Product Measurements in Homes, Publication No. EPA 402-R-93-003, June 1993; and Indoor Radon and Radon Decay Product Measurement Device Protocols, Publication No. EPA 402-R-92-004, July 1992, incorporated herein by this reference and available for viewing at the Nebraska Radon Program, Department of Health and Human Services, 301 Centennial Mall South, 3rd Floor, Lincoln, Nebraska 68509-5026;
  - b. Ensuring that all radon measurement devices are approved by the National Radon Proficiency Program (NRPP), the National Radon Safety Board (NRSB), or a national proficiency program approved by the Department;
  - c. Ensuring that all radon measurement devices are calibrated annually. Calibration must be conducted by either the manufacturer, or a chamber approved by the National Radon Proficiency Program (NRPP), the National Radon Safety Board (NRSB), or a national proficiency program approved by the Department;

- d. Directing measurement activities for the licensed business to include reviewing, approving, signing, and submitting monthly reports to the Department containing the information specified in 180 NAC 11-010.01.
  - e. Informing clients of radon levels in accordance with the provisions of 180 NAC 11-010.03;
  - f. Assessing quality assurance and quality control measures, and adhering to an approved quality assurance plan, as required in 180 NAC 11-006.01B;
  - g. Evaluating operating procedures, and ensuring compliance with state and federal regulations; and
  - h. Being present during scheduled visits by the Department.
6. Additional responsibilities specific to the radon mitigation specialist include:
- a. Directing mitigation activities for the licensed business to include reviewing, approving, signing, and submitting monthly reports to the Department containing the information specified in 180 NAC 11-010.04;
  - b. Evaluating operating procedures and ensuring compliance with state and federal regulations;
  - c. Supervising radon mitigation installations, assuring systems are installed according to 180 NAC 11-009 Mitigation System Installations Requirements, and adhering to information submitted to the Department as required in 180 NAC 11-006.02B.
  - d. Evaluating diagnostic tests in a building and designing mitigation systems to be in compliance with 180 NAC 11-009 Mitigation System Installation Requirements; and
  - e. Being present during scheduled visits by the Department.

11-004.02 Operating Requirements for a Radon Measurement Business:

- 1. Radon Measurement Businesses must ensure that all employed Radon Measurement professionals conduct tests according to standards described in protocols referenced in 11-004.01(5)a, the approved quality assurance plan as required in 180 NAC 11-006.01A, provisions of the Act, all sections of these regulations, and all other related municipal, county, state, and federal laws and regulations.
- 2. The radon measurement business must maintain on staff or retain as a consultant a radon measurement specialist. If a radon measurement business loses its radon measurement specialist, the radon measurement business must notify the Department in writing within five business days. The radon measurement business must obtain another radon measurement specialist within 30 days of the loss of the radon measurement specialist. Under this provision, the radon measurement business must not operate more than 60 days in any one calendar year without a radon measurement specialist.
- 3. The radon measurement business must maintain the following records for five years:
  - a. Records of all radon tests performed;
  - b. Records of instrument calibrations and other quality control samples;

- c. Records of completing continuing education courses specified in 180 NAC 11-008;
  - d. Records of employee exposure to radon during employment;
  - e. Copies of licenses for radon measurement specialists employed or used as consultants.
4. Any changes in the information provided in the original or renewal application, including changes in licensed personnel or to the quality assurance documents, must be submitted as an amendment request to the Department for approval prior to implementation.

11-004.03 Operating Requirements for a Radon Mitigation Business:

1. The radon mitigation business must maintain on staff or retain as a consultant a radon mitigation specialist. If a radon mitigation business loses its radon mitigation specialist, the radon mitigation business must notify the Department in writing within five business days. The radon mitigation business must obtain another radon mitigation specialist within 30 days of the loss. Under this provision, the radon mitigation business must not operate more than 60 days in any one calendar year without a radon mitigation specialist.
2. The radon mitigation business must assure that radon mitigation system installations are performed under the supervision of a radon mitigation specialist and according to 180 NAC 11-009 Mitigation System Installation Requirements, as well as in accordance with provisions of the Act, all sections of these regulations, and all other related municipal, county, state, and federal laws and regulations.
3. The radon mitigation business must provide all warranty information on the reduction of the radon level, or the proper functioning of mitigation equipment in writing to clients. Nothing in 180 NAC 11 limits warranties applicable to any client pursuant to any state or federal law.
4. The radon mitigation business must maintain at a minimum the following records for five years:
  - a. Records of all mitigation work performed, including client name, address, diagnostic test results, a description of each mitigation system and materials installed, pre-mitigation and post-mitigation measurements including method of measurement and all pertinent dates.
  - b. Records of mitigation plans developed and signed by a radon mitigation specialist.
  - c. Records of all instrument calibrations, contracts, and warranties on equipment installed.
  - d. Records of completing continuing education courses specified in 180 NAC 11-008.
  - e. Records of employee exposure to radon during employment.
  - f. Copies of the licenses for radon mitigation specialists employed or used as consultants.

5. Any changes in the information provided in the original or renewal application, including changes in licensed personnel, must be submitted as an amendment request to the Department for approval prior to implementation.

11-004.04 Operating Requirements for a Radon Laboratory:

1. To maintain approval as a radon laboratory, a laboratory must meet the requirements of 180 NAC 11.
2. Each laboratory approval issued is nontransferable. Each approval will expire on March 31 of each odd-numbered year. The operator of a radon laboratory may apply for renewal of approval by submitting an application for renewal that complies with the requirements of 180 NAC 11-006.03 and includes the appropriate fees. To have its approval renewed, the laboratory must document that it has maintained the certification status required by 180 NAC 11-006.03.
3. The Department may refuse to issue an approval and may revoke or suspend an approval issued under this rule if the operator of the laboratory fails to meet any of the criteria listed in 180 NAC 11-006.03.

11-005 INITIAL LICENSE FOR AN INDIVIDUAL – QUALIFICATIONS

11-005.01 Qualifications for a Radon Measurement Specialist: To receive a license to practice Radon Measurement, an individual must submit a complete application, pay the appropriate fee, and meet the following qualifications:

1. Age and Good Character: Be at least 19 years old and of good character;
2. Citizenship/Lawful Presence: Be a citizen of the United States, an alien lawfully admitted into the United States who is eligible for a credential under the Uniform Credentialing Act, or a nonimmigrant lawfully present in the United States who is eligible for a credential under the Uniform Credentialing Act; and
3. Education: Within four years prior to application, the individual must have successfully completed a training course and passed an examination on radon measurements approved by the Department under the requirements specified in 180 NAC 11-007.

11-005.02 Qualifications for a Radon Mitigation Specialist: To receive a license to practice Radon Mitigation, an individual must submit a complete application, pay the appropriate fee, and meet the following qualifications:

1. Age and Good Character: Be at least 19 years old and of good character;
2. Citizenship/Lawful Presence: Be a citizen of the United States, an alien lawfully admitted into the United States who is eligible for a credential under the Uniform Credentialing Act, or a nonimmigrant lawfully present in the United States who is eligible for a credential under the Uniform Credentialing Act; and
3. Education: Within four years prior to application, the individual must have successfully completed a training course and passed an examination on radon mitigation approved by the Department under the requirements specified in 180 NAC 11-007.



4. Experience: The applicant must possess any combination of two years of relevant post-secondary education or relevant work experience.
  - a. Relevant post-secondary education means a curriculum in architecture, engineering, building construction, physical sciences, or related disciplines. One year of post-secondary education consists of a minimum of 24 semester hours, of which at least ten hours must be in the above subject areas, or 36 quarter hours, of which at least 15 hours must be in the above subject areas.
  - b. Relevant work experience means the design, construction and renovation of buildings, or associated heating, ventilation, and air conditioning systems.

11-005.03 Reciprocity: A person who has a valid license or certification from a state which licenses or certifies persons who measure or mitigate radon in a certification or licensing program with requirements determined by the Department as comparable with the provisions of this may be licensed by the Department upon submission of an application as specified in 180 NAC 11-005 and 11-006, with a copy of the certification or license from the other state, along with the fee specified in 180 NAC 11-014.

#### 11-005.04 Denied or Withdrawn Applications

11-005.04A Denied Applications: An applicant for a radon measurement or mitigation license whose application is denied by the Department will be allowed the return of his/her fee, except for a \$25 administrative fee to be retained by the Department.

11-005.04B Withdrawn Applications: An applicant for a radon measurement or mitigation license may request to withdraw the application. A request to withdraw an application will be granted:

1. When the application is incomplete; or
2. When the request for withdrawal is received within five business days of the receipt of a complete application.

### 11-006 INITIAL LICENSE FOR A BUSINESS OR LABORATORY

#### 11-006.01 Measurement Business

11-006.01A Measurement Business Application: To apply for a business license to practice radon measurement, the applicant must submit a complete application to the Department. A complete application includes all required documentation, the required fee, and a written application. Applications must be submitted to the Nebraska Radon Program, Department of Health and Human Services, P.O. Box 95026, Lincoln NE 68509-5026. Checks or money orders must be made payable to the Department of Health and Human Services. The applicant may obtain an application from the Department or construct an application that must contain the following information:

1. Signature of one of the following:
  - (1) The owner or owners if the applicant is a sole proprietorship, a partnership, or a limited liability company that has only one member;
  - (2) Two of its members if the applicant is a limited liability company that has more than one member;
  - (3) Two of its officers if the applicant is a corporation;
  - (4) The head of the governmental unit having jurisdiction over the business if the applicant is a governmental unit; or
  - (5) If the applicant is not an entity described above, the owner or owners, or if there is no owner, the chief executive officer or comparable official;
2. Business name;
3. Business mailing address (including city, state, and zip code);
4. Business Phone number;
5. Disciplinary Action, if applicable: A list of any disciplinary actions taken against the applicant's license (in any profession in Nebraska or another state) and a copy of the disciplinary action(s), including charges and disposition; and
6. Name(s) and license number(s) of Specialists on staff.
7. The applicant must submit the required license fee as specified in 180 NAC 11-014 along with the application and all required documentation.
8. Attestation: The applicant must attest that:
  - (1) S/he has read the application or has had the application read to him/her;
  - (2) All statements on the application are true and complete; and
  - (3) If the applicant is a sole proprietorship, that s/he is a citizen of the United States or a qualified alien under the federal Immigration and Nationality Act, for the purpose of complying with Neb. Rev. Stat. §§ 4-108 to 4-114. The applicant must provide his/her immigration status and alien number, and agree to provide a copy of his/her United States Citizenship and Immigration Services (USCIS) documentation upon request if the applicant is a sole proprietorship, a partnership, or a limited liability company that has only one member.

11-006.01B Measurement Business Supplemental Documentation: The following information must be submitted along with the Business Application.

1. A quality assurance plan describing each measurement service and technique to be provided by the applicant to include at a minimum;
  - a. A policy statement committing to provide quality work;
  - b. A list detailing which individuals or organizations measurement reports are sent or made available to;
  - c. A description of the business's management and organizational structure;

- d. Identification of all personnel involved in the measurement work and a description of their individual roles and responsibilities;
  - e. An explanation of the method(s) to be used to determine indoor radon levels and a description of the passive, active and/ or electronic devices to be used. All radon measurement devices must be approved by the National Radon Proficiency Program, the National Radon Safety Board, or a national proficiency program approved by the Department.
  - f. Samples of reports and all other radon-related materials given or mailed to clients, including any guidance provided concerning the need for further measurement or mitigation.
  - g. A description of sampling methods to be used when conducting radon measurements. Sampling methods must follow, at a minimum, protocols referenced in 180 NAC 11-004.01(5) a.
  - h. A description of the protocols to be used to prepare, evaluate and respond to the findings of quality control samples such as duplicates, blanks, and spikes as described in protocols referenced in 180 NAC 11-004.01(5)a, if applicable;
  - i. Protocols for calibration(s) of devices prior to use, including identification of the chamber providing calibration services, if other than the manufacturer. Such chambers must be approved by the National Radon Proficiency Program (NRPP), the National Radon Safety Board (NRSB), or a national proficiency program approved by the Department. All devices must be calibrated once per year.
  - j. A description of who is responsible for making changes to the QA plan and ensuring that copies of the changes are distributed to necessary recipients. Must also include a list of who those recipients are;
  - k. A statement indicating how radon related records and documents will be retained and maintained for a period of five years as required by 180 NAC 11-004.02.
  - l. A statement indicating how indoor radon measurements will be manually corrected, if appropriate to the device being used.
  - m. A statement indicating who will be responsible for validating test results and the information that will be used to make this decision.
2. A health and safety program to keep each employee's exposure as low as reasonably achievable.

#### 11-006.02 Mitigation Business

11-006.02A Mitigation Business Application: To apply for a business license to practice radon mitigation, the applicant must submit a complete application to the Department. A complete application includes all required documentation, the required fee, and a written application. Applications must be submitted to the Nebraska Radon Program, Department of Health and Human Services, P.O. Box

95026, Lincoln NE 68509-5026. Checks or money orders must be made payable to the Department of Health and Human Services. The applicant may obtain an application from the Department or construct an application that must contain the following information:

1. Signature of one of the following:
  - a. The owner or owners if the applicant is a sole proprietorship;
  - b. Two of its members if the applicant is a limited liability company that has more than one member;
  - c. Two of its officers if the applicant is a corporation;
  - d. The head of the governmental unit having jurisdiction over the business if the applicant is a governmental unit; or
  - e. If the applicant is not an entity described above, the owner or owners, or if there is no owner, the chief executive officer or comparable official;
2. Business name;
3. Business mailing address (including city, state, and zip code);
4. Name(s) and license number(s) of Specialists on staff;
5. Business phone number;
6. Disciplinary Action, if applicable: A list of any disciplinary actions taken against the applicant's license (in any profession in Nebraska or another state) and a copy of the disciplinary action(s), including charges and disposition; and
7. The applicant must submit the required license fee as specified in 180 NAC 11-014 along with the application and all required documentation.
8. Attestation: The applicant must attest that:
  - a. S/he has read the application or has had the application read to him/her;
  - b. All statements on the application are true and complete; and
  - c. If the applicant is a sole proprietorship, that s/he is a citizen of the United States or a qualified alien under the federal Immigration and Nationality Act, for the purpose of complying with Neb. Rev. Stat. §§ 4-108 to 4-114. The applicant must provide his/her immigration status and alien number, and agree to provide a copy of his/her United States Citizenship and Immigration Services (USCIS) documentation upon request.

11-006.02B Mitigation Business Supplemental Documentation: The following information must be submitted along with the Business Application.

1. Description of all mitigation materials and systems offered, diagnostic tests performed, and other related services offered, including how the company will provide for a post-mitigation radon test.
2. Identification of procedures and instrumentation used to perform diagnostic tests.
3. A health and safety program to limit employees' exposure to radon during the course of their employment. Such a program must include measures to keep each employee's exposure as low as reasonably

achievable and must meet the requirements specified in 180 NAC 11-009.07.

4. A description of work practices which must include, at a minimum;
  - a. A policy statement committing to provide quality work;
  - b. A list detailing which individuals or organizations mitigation reports are sent or made available to;
  - c. A description of management and structure of the business;
  - d. Identification of personnel involved in the work, and their individual roles and responsibilities;
  - e. Samples of reports mailed to clients, including any warranty information, guidance provided concerning the need for further measurement, or necessary maintenance to the mitigation system.
  - f. A statement indicating how radon related records and documents will be retained and maintained for a period of five years as required by 180 NAC 11-004.03.
  - g. A statement that a licensed electrician will be used as necessary.

#### 11-006.03 Radon Laboratories

11-006.03A Radon Laboratory Application: To apply for a license to operate as a radon laboratory, the applicant must submit a complete application to the Department. A complete application includes all required documentation, the required fee, and a written application. Applications must be submitted to the Nebraska Radon Program, Department of Health and Human Services, P.O. Box 95026, Lincoln NE 68509-5026. Checks or money orders must be made payable to the Department of Health and Human Services. The applicant may obtain an application from the Department or construct an application that must contain the following information:

1. A completed measurement business application form as specified in 180 NAC 11-006.01.
2. At least one completed measurement specialist application form as specified in 180 NAC 11-005.
3. A completed Radon Laboratory application. The applicant may obtain an application from the Department or construct an application that must contain the following information:
  - a. The applicant's name, address, and telephone number;
  - b. Identification by manufacturer and model number of all instrumentation to be used in radon analysis; and
  - c. The frequency and method of calibration of instruments.
4. No additional fee will be assessed for laboratory approval other than the fees submitted for measurement business and specialist applications under 180 NAC 11-014.

11-006.03B Radon Laboratory Supplemental Documentation: Along with the Radon Laboratory Application, the applicant must submit proof of certification from the National Radon Proficiency Program, the National Radon Safety Board, or a national proficiency testing program approved by the Department.

#### 11-007 APPROVED RADON TRAINING COURSES

11-007.01 Approval of Radon Measurement Training Courses: To be approved as a radon measurement training course, a course must meet and maintain approval by the National Radon Proficiency Program (NRPP) or National Radon Safety Board (NRSB) as an entry level or initial radon measurement course and must meet for a minimum of 16 hours or apply for approval as an alternative measurement course.

1. The course provider must submit:
  - a. An application containing the course provider's name, address, phone number, and biographies of all individuals instructing participants in the training course.
  - b. Documentation showing approval from NRPP or NRSB specified in 180 NAC 11-007.01.
  - c. A copy of the certificate issued upon completion of the course.
2. To apply for approval as an alternative measurement course, a course provider must meet the following requirements:
  - a. Submit an application containing the course provider's name, address, phone number, and biographies of all individuals instructing participants in the training course.
  - b. Submit documentation that the course will meet for a minimum of 16 hours with instruction on the following topics:
    - (1) course objectives;
    - (2) radioactivity, radon, and radon's health effects;
    - (3) radon entry and behavior;
    - (4) radon measurement devices, techniques, and protocols;
    - (5) quality assurance and quality control;
    - (6) worker health and safety;
    - (7) measuring radon in water; and
    - (8) an overview of radon mitigation techniques.
  - c. Provide an opportunity for course participants to evaluate the course instructor(s) and materials.
  - d. Submit a copy of the certificate issued upon completion of the course.

11-007.02 Approval of Radon Mitigation Training Courses: To be approved as a radon mitigation training course, a course must meet and maintain approval by the National Radon Proficiency Program (NRPP) or National Radon Safety Board (NRSB) as an

entry level or initial radon mitigation course and must meet for a minimum of 20 hours or apply for approval as an alternative mitigation course.

1. The course provider must submit:
  - a. An application containing the course provider's name, address, phone number, and biographies of all individuals instructing participants in the training course.
  - b. Documentation showing approval from NRPP or NRSB specified in 180 NAC 11-007.02.
  - c. A copy of the certificate issued upon completion of the course.
  
2. To apply for approval as an alternative mitigation course, a course provider must meet the following requirements:
  - a. Submit an application containing the course provider's name, address, phone number, and biographies of all individuals instructing participants in the training course.
  - b. Submit documentation that the course will meet for a minimum of 20 hours with instruction on the following topics:
    - (1) course objectives;
    - (2) radon mitigation system design, diagnostics, and installation;
    - (3) radon in water mitigation; and
    - (4) radon-resistant new construction.
  - c. Provide an opportunity for course participants to evaluate the course instructor(s) and materials.
  - d. Submit a copy of the certificate issued upon completion of the course.

#### 11-007.03 Approval of Radon Examinations

1. To successfully pass an examination on radon measurements, an individual must achieve or exceed the minimum passing scores on an examination provided by the National Radon Proficiency Program (NRPP) or the National Radon Safety Board (NRSB).
  
2. To successfully pass an examination on radon mitigation, an individual must achieve or exceed the minimum passing scores on an examination provided by the National Radon Proficiency Program (NRPP) or the National Radon Safety Board (NRSB).

11-008 CONTINUING COMPETENCY: Each person holding an active license within the state must, on or before the date of expiration of the license, comply with the continuing competency requirements for his/her profession, unless the requirements are waived in accordance with 180 NAC 11-011.04 and 11-011.05. Each credentialed individual is responsible for maintaining certificates or records of continuing competency activities.

11-008.01 Requirements for Continuing Competency: To maintain a license, an individual must meet the following requirements:

1. A licensed individual must complete at least six hours of radon courses, seminars, or meetings offered or approved by the Department by the expiration date of the license.
2. Instructors of radon-related courses or seminars may apply to the Department for continuing education credit, which will be determined by the Department. To receive continuing education credit for instruction, the person requesting credit must submit to the Department the following information:
  - a. Name, address, and telephone number of the instructor;
  - b. Biography or credentials of instructor;
  - c. Type of course, frequency of course offerings, total hours of supervised instruction, and an agenda outlining the hours of instruction, describing the subject matter to be included; and
  - d. A copy of the certificate issued upon completion of the course.
3. Continuing education credit will only be valid for the licensing period in which it was received. Credit will not be granted for attendance of a duplicate course during the licensing period.
4. Exemption: If an individual holds a measurement license and a mitigation license, a minimum of eleven hours of continuing education must be completed by the expiration date of the licenses.

11-008.02 Approval of Continuing Competency Courses

1. A course, workshop, or seminar about radon offered or sponsored by the Department will be accepted for the number of credits listed by the Department.
2. A course, workshop, or seminar about radon offered or approved by the National Radon Proficiency Program or the National Radon Safety Board will be accepted for the number of credits listed by the respective organization.
3. A course, workshop, or seminar about radon, not meeting the requirements of 180 NAC 11-008.02 item 1 or 2, that is attended or taught by the licensee will be accepted towards one hour of continuing education per hour of instruction and must apply for credit by submitting the following:
  - a. Name, address, and telephone number of applicant;
  - b. Biography or credentials of instructor;
  - c. Type of course, frequency of course offerings, total hours of supervised instruction, and an agenda outlining the hours of instruction, describing the subject matter to be included; and
  - d. A copy of the certificate issued upon completion of the course.

11-009 MITIGATION SYSTEM INSTALLATION REQUIREMENTS

11-009.01 These requirements for installation of radon mitigation systems provide a basis for evaluating the quality of such installations. It provides the basis against which in-progress or completed inspections will be evaluated.



11-009.02 Radon mitigation specialists are responsible for all radon mitigation systems installed by their firm or its subcontractors to ensure compliance with the requirements of 180 NAC 11-009.

11-009.03 Limitations

1. Where discrepancies exist between provisions of 180 NAC 11 and local codes or regulations, such as local plumbing, heating and cooling or electrical codes, the stricter code will apply unless there is an adverse impact on the radon reduction function for which the system was originally designed.
2. Compliance with these requirements does not guarantee reduction of indoor radon concentrations to any specific level.
3. The requirements specified in 180 NAC 11-009 will not apply to radon mitigation systems installed prior to April 6, 2003. However, if a radon mitigation system is found that does not comply with current standards, the licensee must recommend in writing to the client that the system be upgraded or altered to meet current standards. The licensee must obtain prior approval from the client before implementing any of the licensee's written recommendations.
4. Because of the wide variation in building design, size, operation and use, these requirements do not include detailed guidance on how to select the most appropriate mitigation strategy for a given building.

11-009.04 General Practices: The following general practices are required for all contacts between radon mitigation licensees and clients:

1. In the initial contact with a client, the specialist must review any available results from previous radon measurements to assist in developing an appropriate mitigation strategy. The specialist must inform the client when it is determined that previous radon measurements were not performed according to EPA protocols and must recommend retesting.
2. Based on guidance contained in US EPA's "A Citizen's Guide to Radon (Second Edition)," or subsequent revisions of that document, the licensee must refer the client to the discussions of interpreting indoor radon test results and the health risk associated with the radon level found in the building. The US EPA's "Consumer's Guide to Radon Reduction," is an appropriate reference for providing advice on actions to take to reduce indoor radon levels.
3. In dwellings with levels exceeding 100 pCi/l, the mitigation specialist must advise the client of temporary measures that can be used to reduce occupant exposure until a permanent mitigation system is installed. This may include temporary measures such as natural ventilation, mechanical ventilation with unconditioned outside air, limiting the occupants' exposure by minimizing the

time spent in areas of the home with elevated radon levels, or any measures which effectively minimize occupant exposure.

- a. The mitigation specialist must not install a temporary system in lieu of a permanent mitigation system.
- b. Temporary radon reduction systems must be labeled as such. The label must be readable from at least three feet and must include a statement that the system is temporary and that it will be replaced with a permanent system within 30 days after the installation date of the temporary system. The label must also include the licensee's name, license number, phone number, and the installation date.
- c. If the equipment is not easily labeled, the notice must be posted on the electric service panel, or other prominent location.

11-009.05 The mitigation business must provide the following written information to the client prior to initiating any work:

1. The mitigation business license number,
2. The scope of the work to be completed including an estimate of the time needed to complete the work,
3. A statement indicating any known hazards associated with chemicals used in or as part of the installation and the potential need to ventilate work areas during and after the use of such materials,
4. An estimate of the installation cost and annual operating cost of the system, and
5. A statement indicating compliance with provisions of the Act, Title 180, and all other related municipal, county, state and federal laws and regulations.

11-009.06 Building Investigation

1. The licensee must conduct a thorough visual inspection of the building prior to initiating any radon mitigation work. The inspection is intended to identify any specific building characteristics and configurations (e.g., large cracks in slabs, exposed earth in crawlspaces, open stairways to basements) and operational conditions (e.g., continuously running Heating, Ventilation, and Air Conditioning (HVAC) systems or operational windows) that may affect the design, installation, and effectiveness of radon mitigation systems.
2. As part of the building investigation, a floor-plan sketch must be developed (if not already in existence and readily available) that includes illustrations of the building foundation (slab-on-grade, basement, or crawlspace area.) The sketch should include the location of load-bearing walls, drain fixtures, and HVAC systems. It should be annotated to include suspected or confirmed radon entry points, results of any diagnostic testing, the anticipated layout of any radon mitigation system piping, and the anticipated locations of any vent fan and system warning devices for the envisioned mitigation systems. The sketch must be finalized during installation and must be included in the documentation specified in 180 NAC 11-009.13.

11-009.07 Worker Health and Safety: The following requirements must be met for the safety and protection of radon mitigation workers:

1. The licensee must advise workers of the hazards of exposure to radon and the importance of protective measures when working in areas of elevated radon concentrations.
2. The licensee must have a worker protection plan on file that is available to all employees. Exception: A worker protection plan is not required for a licensee who is a sole proprietor unless required by local regulations.
3. Work areas must be ventilated to reduce worker exposure to radon decay products, dust, or other airborne pollutants. In work areas where ventilation is impractical or where ventilation cannot reduce radon levels to less than 0.3 WL or 30 pCi/l (based on a short-term diagnostic test), the licensee must ensure that appropriate respiratory protection is used.
4. Pending the development of an approved personal radon exposure device and a protocol for its use, licensees must record employee exposure to radon at each work site, based on the highest pre-mitigation indoor radon or working level measurement available and the time employees are exposed (without respirator protection) at that level unless on-site radon or radon decay product measurements are used to determine exact exposure.
5. Licensees must ensure that employees are exposed to no more than 4 working level months (WLM) over a 12 month period. (An equilibrium ratio of 50% must be used to convert radon exposure to WLM.)
6. In any work area where it is suspected that asbestos may exist, the licensee must ensure that suspect material is not disturbed, or have a licensed asbestos professional ensure compliance with state asbestos regulations.
7. Licensees must advise employees of the potential hazards, of the materials and supplies used, and to provide applicable Material Safety Data Sheets (MSDS) and explain the required safety procedures.

11-009.08 Systems Design

1. All radon mitigation systems must be designed by a licensed radon mitigation specialist, and installed as permanent, integral additions to the building, except where a temporary system has been installed in accordance with 180 NAC 11-009.04 or if an exemption is applied for and approved by the Department.
2. All radon mitigation systems must be designed to avoid the creation of other health, safety, or environmental hazards to building occupants, such as back drafting of natural draft combustion appliances.

3. All radon mitigation systems must be designed and constructed without creating structural or property damage to the building, such as mold growth or ice formation on building components.
4. All radon mitigation systems must be designed to maximize radon reduction while minimizing excess energy usage, avoiding compromise of moisture and temperature controls and other comfort features, and minimizing noise.

11-009.09 Systems Installation

1. Radon Vent Pipe Installation Requirements
  - a. All vent stack piping must be solid, rigid, plastic pipe not less than 3 in. (75 cm) inside diameter (ID).
  - b. All joints and connections in radon mitigation systems using plastic vent pipes must be permanently sealed with adhesives as specified by the manufacturer of the pipe material used. Exceptions include when installing vent pipes in sumps specified in 180 NAC 11-009.09, item 1(g) and when installing fans specified in 180 NAC 11-009.09, item 2(g). Joints or connections in other vent pipe materials must be made air tight.
  - c. Radon vent pipes must be fastened to the structure of the building with hangers, strapping, or other supports that will adequately secure the vent material. Existing plumbing pipes, ducts, or mechanical equipment must not be used to support or secure a radon vent pipe.
  - d. Supports for radon vent pipes must be installed at least every six feet on horizontal runs. Vertical runs must be secured either above or below the points of penetration through floors, ceilings, and roofs, or at least every eight feet on runs that do not penetrate floors, ceilings, or roofs. Supports for radon vent pipes must be installed at least every eight feet on combination horizontal and vertical runs that do not penetrate floors, ceilings, or roofs.
  - e. To prevent blockage of air flow into the bottom of radon vent pipes, these pipes must be supported or secured in a permanent manner that prevents their downward movement to the bottom of suction pits or sump pits, into the soil beneath an aggregate layer under a slab, or into the soil beneath a soil-gas-retarder membrane.
  - f. Radon vent pipes must be installed in a configuration that ensures that any rain water or condensation within the pipes drains downward into the ground beneath the slab or soil-gas retarder membrane.
  - g. Radon vent pipes must not block access to any areas requiring maintenance or inspection. Radon vents must not be installed in front of or interfere with any light, opening, door, window or equipment access

area required by code. If radon vent pipes are installed in sump pits, the system must be designed with removable or flexible couplings to facilitate removal of the sump pit cover for sump pump maintenance.

- h. To prevent re-entrainment of radon, the point of discharge from vents of fan-powered soil depressurization and block wall depressurization systems must meet all of the following requirements:

- (1) be vertical and upward at least 10 feet above the ground level, above the edge of the roof on the side of the house the pipe exits the building from, and shall also meet the separation requirements of (2) and (3). Whenever practicable, they shall be above the highest roof of the building and above the highest ridge.

- (2) be at least two feet above any window, door, or other opening into conditioned or otherwise occupiable spaces of the structure that is within ten feet .

- (3) be ten feet or more from any opening into the conditioned or otherwise occupiable spaces of an adjacent building. The total required distance (ten feet) from the point of discharge to openings in the structure may be measured either directly between the two points or be the sum of measurements made around intervening obstacles.

- (4) For vent stack pipes that penetrate the roof, the point of discharge shall be at least 12 in. above the surface of the roof. For vent stack pipes attached to or penetrating the sides of buildings, the point of discharge shall be vertical and a minimum of 12 in. above the edge of the roof.

- i. Radon vent pipes that penetrate a fire barrier must maintain the fire resistance of that fire barrier as required in the current code adopted by the NE State Fire Marshal's office.

## 2. Radon Vent Fan Installation Requirements

- a. Vent fans used in radon mitigation systems must be designed specifically for radon removal applications and must be designed or otherwise sealed to reduce the potential for leakage of soil gas from the fan housing.

- b. Radon vent fans must be sized to provide the pressure difference and air flow characteristics necessary to achieve the radon reduction goals established for the specific mitigation project.

- c. Radon vent fans used in active soil depressurization or block wall depressurization systems must not be installed:

- (1) Below grade;

- (2) In the conditioned (heated/cooled) space of a building; or

- (3) In any basement, crawlspace, or other interior location directly beneath the conditioned spaces of a building.

Acceptable locations for radon vent fans include:

- (1) Attics not suitable for occupancy (including attics over living spaces and garages);
- (2) Garages that are not beneath conditioned spaces; and
- (3) On the exterior of the building. Fans installed on the exterior of the building must be at least three feet (thirty-six inches) away from the regulator on a gas meter set.

- d. Radon vent fans must be installed vertically plumb and level with the outlet pointing up to avoid condensation buildup in the fan housing. Fans must be installed in vertical runs of the vent pipe.
- e. Radon vent fans mounted on the exterior of buildings must be rated for outdoor use or installed in a water tight protective housing.
- f. Radon vent fans must be mounted and secured in a manner that minimizes transfer of vibration to the structural framing of the building.
- g. To facilitate maintenance and future replacement, radon vent fans must be installed in the vent pipe using removable couplings or flexible connections that can be tightly secured to both the fan and the vent pipe.
- h. The intakes of fans used in in pressurizing the building itself or any part of the building, must be screened or filtered to prevent ingestion of debris or personal injury. Screens or filters must be removable to permit cleaning or replacement and building owners must be informed of the need to periodically replace or clean such screens and filters. This information must also be included in the documentation specified in 180 NAC 11-009.13.

### 3. Suction Pit Requirement for Sub-Slab Depressurization (SSD) Systems

To provide optimum pressure field extension of the sub slab communication zone, adequate material must be excavated from the area immediately below the slab penetration point of SSD system vent pipes.

### 4. Sealing Requirements

- a. Sump pits that permit entry of soil-gas or that would allow conditioned air to be drawn into a sub-slab depressurization system must be covered and sealed with materials specified in 180 NAC 11-009.10, item 7. The covers on sumps that previously provided protection or relief from surface water collection must be fitted with a water or mechanically trapped drain.
- b. Openings around radon vent pipe penetrations of any part of the existing

building structure or the crawlspace soil-gas retarder membrane must be cleaned, prepared, and sealed in a permanent, air-tight manner using compatible caulks or other sealant materials as specified in 180 NAC 11-009.10, item 5. Openings around other utility penetrations of the slab, walls, or soil-gas retarder must also be sealed.

- c. Where a Block Wall Depressurization (BWD) system is used to mitigate radon, openings in the tops of such walls and all accessible openings or cracks in the interior surfaces of the walls must be closed and sealed with polyurethane or equivalent caulks, expandable foams, or other fillers and sealants as specified in 180 NAC 11-009.10, items 5 and 6. Openings or cracks that are determined to be inaccessible or beyond the ability of the licensee to seal must be disclosed to the client and included in the documentation specified in 180 NAC 11-009.13.
- d. Openings, perimeter channel drains, or cracks that exist where the slab meets the foundation wall (floor-wall joint), must be sealed with urethane caulk or equivalent material. When the opening or channel is greater than 1/2 inch in width, a foam backer rod or other comparable filler material must be inserted in the channel before application of the sealant. This sealing technique must be done in a manner that retains the channel feature as a water control system. Openings or cracks that are determined to be inaccessible or beyond the ability of the licensee to seal must be disclosed to the client and included in the documentation.
- e. When installing baseboard-type suction systems, all seams and joints in the baseboard material must be joined and sealed using materials recommended by the manufacturer of the baseboard system. Baseboards must be secured to walls and floors with adhesives designed and recommended for such installations. If a baseboard system is installed on a block wall foundation, the tops of the block wall must be closed and sealed as prescribed in 180 NAC 11-012.09, item 4(c).
- f. Any seams in soil-gas retarder membranes used in crawlspaces for sub-membrane depressurization systems must be overlapped at least 12 inches and must be sealed. To enhance the effectiveness of sub-membrane depressurization (SMD) systems, the membrane must also be sealed around interior piers and to the inside of exterior walls to the extent possible.
- g. In combination basement/crawlspace foundations, where the crawlspace has been confirmed as a source of radon entry, access doors and other openings between the basement and the adjacent crawlspace must be closed and sealed. Access doors required by code must be fitted with air tight gaskets and a means of positive closure, but must not be permanently sealed. In cases where both the basement and the adjacent crawlspace areas are being mitigated with active SSD and SMD systems, sealing of the openings between those areas is not required.

- h. When crawlspace depressurization is used for radon mitigation, openings and cracks in floors above the crawl-space which would permit conditioned air to pass out of the living spaces of the building, must be identified, closed, and sealed. Sealing of openings around hydronic heat or steam pipe penetrations must be done using non-combustible materials. The presence of openings or cracks that are inaccessible or beyond the ability of the licensee to seal must be disclosed to the client. This information must also be included in the documentation specified in 180 NAC 11-009.13.
5. Electrical Requirements: all electrical work must comply with current Electrical Code as adopted by the State Electrical Division.
- a. Wiring may not be located in or chased through the mitigation installation ducting or any other heating or cooling ductwork.
  - b. Any plugged cord used to supply power to a radon vent fan must be no longer than six feet in length.
  - c. No plugged cord may penetrate a wall or be concealed within a wall.
  - d. Radon mitigation fans installed on the exterior of buildings must be hard-wired into an electrical circuit. Plugged fans must not be used outdoors.
  - e. If the rated electricity requirements of a radon mitigation system fan exceed 50% of the circuit capacity into which it will be connected, or if the total connected load on the circuit (including the radon vent fan) exceeds 80% of the circuit's rated capacity, a separate, dedicated circuit must be installed to power the fan.
  - f. An electrical disconnect switch must be installed in sight of the radon mitigation system fan to permit deactivation of the fan for maintenance or repair and be at least three feet (thirty-six inches) away from the regulator on a gas meter set. Disconnect switches are not required with interior plugged fans.
6. Drain Installation Requirements
- a. If condensate drains from air conditioning units terminate beneath the floor slab, the licensee must install a trap in the drain that provides a minimum six-inch standing water seal depth, reroute the drain directly into a trapped floor drain, or reconnect the drain to a condensate pump.
  - b. When a sump pit is the only system in a basement for protection or relief from excess surface water and a cover is installed on the sump for radon control, the cover must be recessed and fitted with a trapped drain meeting the requirements specified in 180 NAC 11-009.09, item 6(a).
7. HVAC Installation Requirements
- a. Modifications to an existing HVAC system, which are proposed to mitigate elevated levels of radon, should be reviewed and approved by



the original designer of the system (when possible) or by a licensed mechanical contractor.

- b. Foundation vents, installed specifically to reduce indoor radon levels by increasing the natural ventilation of a crawlspace, must be non-closeable. In areas subject to freezing conditions, water supply and other kinds of pipes or equipment, which could be damaged by freezing must be insulated or otherwise protected from freezing.
- c. Heat Recovery Ventilation (HRV) systems must not be installed in areas of the building that contain friable asbestos.
- d. In HRV installations, supply and exhaust ports in the interior must be located a minimum of 12 feet apart. The exterior supply and exhaust ports must be positioned a minimum of 12 inches (30 cm) above the ground to avoid blockage by snow or leaves and be a minimum of 10 feet apart. Exterior supply/intake ports must be located away from areas where stored material or equipment could block airflow. Exterior supply/intake ports must be kept away from where car and truck exhaust or other air pollutants may be present.
- e. Licensees installing HRV systems must verify that the incoming and outgoing airflow is balanced to ensure that the system does not create a negative pressure within the building. Licensees must inform building owners that periodic filter replacement and inlet grill cleaning are necessary to maintain a balanced airflow. This information must also be included in the documentation specified in 180 NAC 11-009.13.
- f. Both internal and external intake and exhaust vents in HRV systems must be covered with wire mesh or screening to prevent entry of animals or debris or injury to occupants.

#### 11-009.10 Materials

1. All mitigation system electrical components must be U.L. listed or of equivalent specifications.
2. All plastic vent pipes in mitigation systems must be made of Schedule 40 polyvinyl chloride (PVC), acrylonitrile butadiene styrene (ABS) or equivalent piping material.
3. Vent pipe fittings in a mitigation system must be of the same material as the vent pipes unless flexible, airtight rubber couplings are used when installing vent fans or when installing radon vent pipes in sump pit covers.
4. Cleaning solvents and adhesives used to join plastic pipes and fittings must be as recommended by manufacturers for use with the type of pipe material used in the mitigation system.

5. When sealing cracks in slabs and other small openings around penetrations of the slab and foundation walls, caulks and sealants designed for such application must be used.
6. When sealing holes for plumbing rough-in or other large openings in slabs and foundation walls that are below the ground surface, non-shrink mortar, grouts, expanding foam, or similar materials designed for such application must be used.
7. Sump pit covers must be made of durable plastic or other rigid material and designed to permit air-tight sealing. To permit easy removal for sump pump servicing, the cover must be sealed using silicone or other non-permanent type caulking materials or an air-tight gasket.
8. Penetrations of sump covers to accommodate electrical wiring, water ejection pipes, or radon vent pipes must be designed to permit air-tight sealing around penetrations, using caulk or grommets.
9. Plastic sheeting installed in crawlspaces as soil-gas retarders must be a minimum of 6 mil (3 mil cross-laminated) polyethylene or equivalent flexible material.
10. Any wood in contact with soil or concrete and is used in attaching soil-gas retarder membranes to crawlspace walls or piers must be pressure treated or naturally resistant to decay and termites.

#### 11-009.11 Monitors and Labeling

1. All active soil depressurization and block wall depressurization radon mitigation systems must include a mechanism to monitor system performance and warn of system failure. The mechanism must be simple to read or interpret and be located where it is easily seen or heard by building occupants and protected from damage or destruction.
2. Electrical radon mitigation system monitors (whether visual or audible) must be installed on non-switched circuits and be designed to reset automatically when power is restored after service or power supply failure. Battery operated monitoring devices may not be used unless they are equipped with a low power warning feature.
3. Mechanical radon mitigation system monitors, such as manometer type pressure gauges, must be clearly marked to indicate the range or zone of pressure readings that existed when the system was initially activated.
4. One central system description label must be placed on the mitigation system, above the suction point or sump pit between two and six feet from the floor. This label must be legible from a distance of at least three feet and include the

following information: "Radon Reduction System," the Mitigation Business and Mitigation Specialist names and license numbers, phone number, the date of installation, and an advisory that the building should be tested for radon at least every two years or as required or recommended by state or local agencies.

5. All visible radon mitigation system vent pipe sections must be identified with at least one label on each floor level. The label will read, "Radon Reduction System."
6. The circuit breakers controlling the circuits on which the radon vent fan and system failure warning devices operate must be labeled "Radon Reduction System."

#### 11-009.12 Post-Mitigation Testing

1. After installation of an active radon control system (e.g., SSD), the licensee must re-examine and verify the integrity of the fan mounting seals and all joints in the interior vent piping.
2. After installation of any active radon mitigation system, the licensee must measure suction or flows in system piping or ducting to assure that the system is operating as designed.
3. Immediately after installation and activation of any active (fan-powered) sub-slab depressurization or block wall depressurization system in buildings containing natural draft combustion appliances, the building must be tested for backdrafting of those appliances. Any backdrafting condition that results from installation of the radon mitigation system must be corrected before the system is placed in operation.
4. Upon completion of radon mitigation work, the licensee must take steps to ensure that the effectiveness of the radon reduction system is demonstrated using one of two approaches: 1) the licensee leaves an approved radon test kit with the homeowner and instructs that person, in writing, that a radon test should be performed using the supplied radon test kit or any other approved test kit or 2) the required radon test is performed by a licensed radon measurement specialist. If the mitigation specialist is licensed as a measurement specialist and conducts the test, and the homeowner accepts the test results as satisfactory evidence of system effectiveness, further post-mitigation testing is not required. However, to avoid the appearance of conflict of interest, the licensee must recommend to the homeowner that a post-mitigation measurement be conducted by an independent licensed radon measurement specialist or by the homeowner.
5. Post-mitigation tests must be of sufficient type, duration, and consistency to allow for comparison of pre- and post-mitigation levels. The post-mitigation test must be started no sooner than 24 hours, nor longer than 30 days after

mitigation. All measurements must be conducted in accordance with the requirements of 180 NAC 11-004.02 item 1.

11-009.13 Homeowner Information Package: Upon completion of the mitigation project, the licensee must provide the homeowner with an information package. Such package must be affixed to the mitigation system vent pipe above the suction point or sump pit between two and six feet from the floor. Such package must include:

1. Any building permits required by local codes.
2. Copies of the Building Investigation Summary and floor plan sketch.
3. Any available pre-and post-mitigation radon test data.
4. Copies of contracts and warranties.
5. A description of the mitigation system installed and its basic operating principles.
6. A description of the proper operating procedures of any mechanical or electrical systems installed, including manufacturer's operation and maintenance instructions and warranties.
7. A list of appropriate actions for clients to take if the system failure warning device indicates system degradation or failure.
8. The name, telephone number, and license numbers of the radon mitigation specialist installing the system, and the phone number of the state radon office.
9. A recommendation to retest the building at least every two years or if the building undergoes significant alteration.

#### 11-010 REPORTING REQUIREMENTS

11-010.01 A radon measurement business or approved analytical laboratory must submit to the Department, by the 15th day of each month, the results of all radon measurements performed in the State of Nebraska during the previous month. The absence of radon measurements must be reported monthly to the Department.

1. Residential radon measurement reports must contain the following:
  - a. Name of property owner, and street address (including city, state, and Zip Code).
  - b. Name of person performing measurement, testing dates, total time of measurement in hours, location of test device (including story and room), type of test device, device identification number, whether a radon mitigation system is present, and radon test results.
  - c. Name and license number of radon measurement business and radon measurement specialist.
2. Nonresidential radon measurement reports must contain the following:
  - a. Name of facility, type of facility, street address (including city, state, and Zip Code) and phone number, name of contact person, name of property owner.

- b. Name of person performing measurement, testing dates, total time of measurement in hours, location of test device (including story and room), type of test device, device identification number, whether a radon mitigation system is present, and radon test results.
- c. Name and license number of radon measurement business and radon measurement specialist.

11-010.02 Radon measurement businesses and radon mitigation businesses must report test results for radon in writing to the client. Such reports must also include the same information that is listed above in section 11-010.01. Radon results must be reported in picocuries per liter. Radon progeny results must be reported in working levels.

11-010.03 In addition, the radon measurement business must notify the client by telephone and mail within two business days of any measurement with results equal to or greater than 100 pCi/l or 0.5 WL and advise the client to contact the Department at 1-800-334-9491 or at other telephone numbers provided by the Department. The results of this measurement must also be provided to the Department by phone and mailed within the same two-business day period.

11-010.04 The radon mitigation business must submit to the Department, by the 15th day of each month, a report on all mitigation work completed during the previous month, including the floor plans and equipment arrangement of the mitigation system, or modifications of existing systems, and the mitigation fee(s) (per installation) as specified in 180 NAC 11-014.03. The absence of mitigation work must be reported monthly to the Department.

- 1. Residential radon mitigation reports must contain the following:
  - a. Name of property owner, and street address (including city, state, and Zip Code).
  - b. Pre-mitigation testing dates, location of test device (including story and room), type of test device, device identification number, radon test results, and measurement business responsible for tests (or occupant).
  - c. Post-mitigation testing dates, location of test device (including story and room), type of test device, device identification number, radon test results, and measurement business responsible for tests (or occupant).
  - d. Date mitigation completed and type of mitigation system(s) installed.
  - e. Name and license number of radon mitigation business and radon mitigation specialist.
  - f. Name and license number of electrician who did the electrical work or indication that the homeowner did the electrical work themselves.
- 2. Nonresidential radon mitigation reports must contain the following:
  - a. Name of facility, building street address (including city, state, and Zip Code), name and phone number of contact person, number of stories

- and number of occupied stories in building; name and address of property owner.
- b. Pre-mitigation testing dates, location of test device (including story and room), type of test device, device identification number, radon test results, and measurement business responsible for tests (or occupant).
  - c. Post-mitigation testing dates, location of test device (including story and room), type of test device, device identification number, radon test results, and measurement business responsible for tests (or occupant).
  - d. Date mitigation completed and type of mitigation system(s) installed.
  - e. Name and license number of radon mitigation business and radon mitigation specialist.
  - f. Name and license number of electrician who did the electrical work.
3. Fees specified in 180 NAC 11-014.03 must be submitted for each mitigation system installation. For fee calculation purposes, one mitigation installation is equivalent to any of the following:
- a. Each individual house that has had a mitigation system installed or mitigation performed.
  - b. Each separate mitigation system or depressurization system in a nonresidential building or an apartment complex.

Example: Individual vent pipes from two suction points connected together to vent through one pipe, fan, and exhaust point is considered one system.

Example: Individual vent pipes from two suction points routed to vent through two separate pipes, fans, and exhaust points is considered two systems.

**11-011 RENEWAL:** An individual or business wishing to renew a radon measurement or mitigation license must prior to the expiration date, file an application for renewal and pay the fee. Individuals must demonstrate compliance with continuing competency requirements as stated in 11-008. All radon measurement or mitigation licenses issued by the Department will expire on March 31 of each odd-numbered year (unless renewed as provided below.) No radon measurement or mitigation activity will be conducted after the expiration of the term of the license.

#### **11-011.01 Waivers for Military Service**

1. Licensees actively engaged in military service are not required to pay the renewal fee.
2. The Department may waive continuing competency requirements if a licensee has served in the regular armed forces of the U.S. during part of the credentialing period immediately preceding the renewal date.

**11-011.02 Written Application for Business Licenses:** The applicant may obtain an application from the Department or construct an application that must contain the following information:

1. Applicant name;
2. Signature of one of the following:
  - a. The owner or owners if the applicant is a sole proprietorship, a partnership, or a limited liability company that has only one member;
  - b. Two of its members if the applicant is a limited liability company that has more than one member;
  - c. Two of its officers if the applicant is a corporation;
  - d. The head of the governmental unit having jurisdiction over the business if the applicant is a governmental unit; or
  - e. If the applicant is not an entity described above, the owner or owners, or if there is no owner, the chief executive officer or comparable official;
3. Business name;
4. Business mailing address (including city, state, and zip code);
5. Business phone and fax numbers; and
6. Attestation: The applicant must attest that:
  - a. S/he has read the application or has had the application read to him/her;
  - b. All statements on the application are true and complete; and
  - c. If the applicant is a sole proprietorship, that s/he is a citizen of the United States or a qualified alien under the federal Immigration and Nationality Act, for the purpose of complying with Neb. Rev. Stat. §§ 4-108 to 4-114. The applicant must provide his/her immigration status and alien number, and agree to provide a copy of his/her United States Citizenship and Immigration Services (USCIS) documentation upon request.
7. Documentation: Documentation of any changes in the following areas:
  - a. Techniques and services offered and type of equipment or materials used;
  - b. Specialist staff employed by the business;
  - c. Quality assurance or quality control plans;
  - d. Reporting forms to clients;
  - e. Worker Health and Safety programs; and
  - f. A list of any disciplinary actions taken against the applicant's license (in any profession in Nebraska or another state) and a copy of the disciplinary action(s), including charges and disposition.
8. The renewal fee(s) according to 180 NAC 11-014.

11-011.03 Address Information: Each license holder must notify the Department of any change to the address of record.

11-011.04 Expiration of a License: A license automatically expires without further notice or opportunity for hearing if a license holder fails by the expiration date of the license to:

1. Notify the Department that s/he wants to place his/her license on inactive status upon its expiration;
2. Meet the requirements for renewal on or before the date of expiration of his/her license;
3. Pay the required renewal fee; or
4. Otherwise fails to renew his/her license.

11-011.05 Right to Practice: When a license expires, the right for a business to represent itself as a license holder and to practice radon measurement or mitigation terminates.

11-011.06 Practice After Expiration: A business that practices after expiration of its license is subject to such action as provided in the statutes and regulations governing the license.

11-011.07 Reinstatement of an Expired License: If a license holder wants to resume the practice of radon measurement or mitigation after failing to renew its license by the expiration date, it must apply to the Department for reinstatement as specified in 180 NAC 11-013.

11-011.08 Inactive Status: When a business wants to have its license placed on inactive status, it must notify the Department in writing. There is no fee to have a license placed on inactive status.

11-011.08A Request for Inactive Status: When the Department has received notification that a business wants to have its license placed on inactive status, the Department will notify the license holder in writing of the acceptance or denial of the request.

11-011.08B Placement on Inactive Status: When a business license is placed on inactive status, the license holder must not engage in the practice of radon measurement or mitigation, but may represent itself as having an inactive license.

11-011.08C Return to Active Status: A license may remain on inactive status for an indefinite period of time. A business that wants to have its license returned to active status must apply to the Department for reinstatement and meet the requirements specified in 180 NAC 11-013.

## 11-012 DISCIPLINARY ACTIONS

11-012.01 Grounds for Action Against a License: A license to practice radon measurement or mitigation may be denied, refused renewal, or have other disciplinary measures taken against it for grounds specified in Neb. Rev. Stat. § 38-178 or for unprofessional conduct.

11-012.02 Unprofessional Conduct: Unprofessional conduct means any departure from or failure to conform to the standards of acceptable and prevailing practice of radon measurement or mitigation or the ethics of the profession, regardless of whether a person, consumer, or entity is injured, but does not include a single act of ordinary negligence. Unprofessional conduct also means conduct that is likely to deceive or defraud the public or is detrimental to the public interest. Unprofessional conduct includes but is not limited to the acts set out in Neb. Rev. Stat. § 38-179 and the following:

1. Failure to exercise technical competence based on the profession for which the individual is licensed;



2. Refusal to cooperate or failure to furnish requested information during a licensing or discipline investigation by the Department;
3. Refusing to provide professional service to a person because of such person's race, creed, color, or national origin; and
4. Refusal to undergo an examination defining competency as required by the Department.

11-013 REINSTATEMENT: This section applies to businesses previously licensed in Nebraska who seek the authority to return to practice in Nebraska with a valid Nebraska license. Businesses may apply for reinstatement as follows:

1. A business license which has expired, been placed on inactive status, voluntarily surrendered for an indefinite period of time, or suspended or limited for disciplinary reasons, may apply for reinstatement at any time.
2. A business license which has been voluntarily surrendered for a definite period of time may apply for reinstatement after that period of time has elapsed.

The voluntary surrender of a license may be unrelated to disciplinary matters, or may be done to resolve a pending disciplinary matter, in lieu of disciplinary action, or in response to a notice of disciplinary action.

11-014 FEES (Nonrefundable except as provided by law)

11-014.01 Initial and Renewal Fees for Individual Licenses

- |    |                              |                    |
|----|------------------------------|--------------------|
| 1. | Radon Measurement Specialist | \$46.00 (annually) |
| 2. | Radon Mitigation Specialist  | \$46.00 (annually) |

11-014.02 Initial and Renewal Fees for Business Licenses

- |    |                            |                     |
|----|----------------------------|---------------------|
| 1. | Radon Measurement Business | \$100.00 (annually) |
| 2. | Radon Mitigation Business  | \$250.00 (annually) |

11-014.03 Mitigation System Installation Fees

Mitigation Fee per installation     \$50.00

11-014.04 Prorated Fee:

1. When a Specialist license will expire within 180 days after its initial issuance date and the initial licensing fee is \$25 or more, the Department will collect \$25 or one-fourth of the initial licensing fee, whichever is greater, for the initial license, and the license will be valid until the next subsequent renewal date. Fees below are for a license issued for a two year period.

Proration Schedule  
Year One (odd-numbered year)

Jan	Feb	March	April	May	June	July	August	Sept	Oct	Nov	Dec
\$25	\$25	\$25	\$92	\$92	\$92	\$92	\$92	\$92	\$92	\$92	\$92

Year Two (even-numbered year)

Jan	Feb	March	April	May	June	July	August	Sept	Oct	Nov	Dec
\$92	\$92	\$92	\$92	\$92	\$92	\$92	\$92	\$92	\$25	\$25	\$25

- When a Radon Measurement Business license will expire within 180 days after its initial issuance date, the Department will collect a fee of \$50. Fees below are for a license issued for a two year period.

Proration Schedule  
Year One (odd-numbered year)

Jan	Feb	March	April	May	June	July	August	Sept	Oct	Nov	Dec
\$50	\$50	\$50	\$200	\$200	\$200	\$200	\$200	\$200	\$200	\$200	\$200

Y  
Year Two (even-numbered year)

Jan	Feb	March	April	May	June	July	August	Sept	Oct	Nov	Dec
\$200	\$200	\$200	\$200	\$200	\$200	\$200	\$200	\$200	\$50	\$50	\$50

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When a Radon Mitigation Business license will expire within 180 days after its initial issuance date, the Department will collect a fee of \$125.00. Fees below are for a license issued for a two year period.

Proration Schedule  
Year One (odd-numbered year)

Jan	Feb	March	April	May	June	July	August	Sept	Oct	Nov	Dec
\$125	\$125	\$125	\$500	\$500	\$500	\$500	\$500	\$500	\$500	\$500	\$500

Year Two (even-numbered year)

Jan	Feb	March	April	May	June	July	August	Sept	Oct	Nov	Dec
\$500	\$500	\$500	\$500	\$500	\$500	\$500	\$500	\$500	\$125	\$125	\$125

11-014.05 Other Fees:

1. Certification of License Fee: For issuance of a certification of a license, the fee of \$25. The certification includes information regarding the basis on which a license was issued, the date of issuance, whether disciplinary action has been taken against the license, and the current status of the license.
2. Verification of License Fee: For issuance of a verification of a license the fee of \$5. The verification includes written confirmation as to whether a license was valid at the time the request was made.
3. Duplicate License Fee: For a duplicate of original license document or reissued license, the fee of \$10.
4. Administrative Fee: For a denied license or a withdrawn application, the administrative fee of \$25 will be retained by the Department.
5. Reinstatement Fee: For a reinstated license as provided for in 180 NAC 11-013, a fee of \$35 in addition to the renewal fee specified in 180 NAC 11-014.

These amended rules and regulations replace Title 180 NAC 11 Requirements for Radon and Radon Progeny Measurement and Mitigation Services, effective May 15, 2010.