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Text of law should be given as amended. Do not include matter being eliminated and do not use italics or underlining to indicate new matter.

~~County~~  
~~City~~  
Town  
~~Village~~

of CALEDONIA

Local Law No. 2 of the year 2000

A local law TO ADOPT CHAPTER 95 OF THE CODE OF THE TOWN OF CALEDONIA, A  
*(Insert Title)*  
CHAPTER TO ADOPT RADON CONTROL METHODS FOR NEW CONSTRUCTION  
OF HOMES AND BUILDINGS.

Be it enacted by the TOWN BOARD of the  
*(Name of Legislative Body)*

~~County~~  
~~City~~  
Town  
~~Village~~

of CALEDONIA as follows:

Section 95 - 100: This Chapter shall be known as "Radon Control Methods."

Section 95 - 101: It is the purpose of this Chapter to promote the public health, safety, and general welfare and to provide construction standards to resist the entry of radon and prepare buildings for post-construction radon mitigation. These Radon Control Methods shall apply only to new construction of homes and buildings intended for occupancy

Section 95 - 102: Definitions: For the purpose of this Chapter, the terms used shall be defined as follows:

**SUB-SLAB DEPRESSURIZATION SYSTEM ( Passive).** A system designed to achieve lower sub-slab pressure relative to indoor air pressure by use of a vent pipe routed through the conditioned space of a building and connecting the sub-slab area with outdoor air, thereby relying on the convective flow of air upward in the vent to draw air from beneath the slab.

**SUB-SLAB DEPRESSURIZATION SYSTEM (Active).** A system 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 slab.

(If additional space is needed, attach pages the same size as this sheet, and number each.)

**DRAIN TILE LOOP.** A continuous length of drain tile or perforated pipe extending around all or part of the internal or external perimeter of a basement or crawl space footing.

**SOIL-GAS-RETARDER.** A continuous membrane of 6 mil (0.15 mm) polyethylene or other equivalent material used to retard the flow of soil gases into a building.

**SUB-MEMBRANE DEPRESSURIZATION SYSTEM.** A system designed to achieve lower-sub membrane air pressure air pressure relative to crawl space air pressure by use of a vent drawing air from beneath the soil-gas-retarder membrane.

**Section 95 - 103 REQUIREMENTS.** The following construction techniques are intended to resist radon entry and prepare the building for post-construction radon mitigation, if necessary.

**Section 95 - 103.1- SUBFLOOR PREPARATION.** A layer of gas permeable material shall be placed under all concrete slabs and other floor systems that directly contact the ground and are within the walls of the living spaces of the building to facilitate future installation of a sub-slab depressurization system, if needed. The gas-permeable layer shall consist of one of the following:

1. A uniform layer of clean aggregate, a minimum of 4 inches (102 mm) thick. The aggregate shall consist of material that will pass through a 2 inch (51 mm) sieve and be retained by a 1/4 inch (6.4 mm) sieve.
2. A uniform layer of sand (native or fill) a minimum of 4 inches (102 mm) thick, overlain by a layer or strips of geotextile drainage matting designed to allow the lateral flow of soil gases.
3. Other materials, systems or floor designs with demonstrated capability to permit depressurization across the entire sub-floor area.

**Section 95 - 103.2 GROUND COVER.** A minimum 6 mil (0.15 mm) [or 3 mil ( 0.075 mm) cross-laminated] polyethylene or equivalent flexible sheeting material shall be placed on top of the gas-permeable layer prior to casting the slab or placing the floor assembly to serve as a soil-gas-retarder by bridging any cracks that develop in the slab or floor assembly and to prevent concrete sheeting shall cover the entire floor area with separate sections of sheeting lapped at least 12 inches (305 mm). The sheeting shall fit closely around any pipe, wire, or other penetrations of the material. All punctures or tears in the material shall be sealed or covered with additional sheeting.

**Section 95 - 103.3 ENTRY ROUTES.** Potential radon entry routes shall be closed in accordance with Sections 103.3.1 through 103.3.10

**Section 95 - 103.3.1 FLOOR OPENINGS.** Openings around bathtubs, showers, water closets, pipes, wires or other objects that penetrate concrete slabs or other floor assemblies shall be filled with a polyurethane caulk or equivalent sealant applied in accordance with the manufacturer's recommendations.

**Section 95 - 103.3.2. CONCRETE JOINTS.** All control joints, isolation joints, construction joints and any other joints in concrete slabs or between slabs and foundation walls shall be sealed with a caulk or sealant. Gaps and joints shall be cleared of loose material and filled with polyurethane caulk or other elastomeric sealant applied in accordance with the manufacturer's recommendations.

**Section 95 - 103.3.3. CONDENSATE DRAINS.** Condensate drains shall be trapped or routed through nonperforated pipe to daylight.

**Section 95 - 103.3.4. SUMPS** Sump pits open to soil or serving as the termination point for sub-slab or exterior drain tile loops shall be covered with a gasketed or otherwise sealed lid. Sumps used as the suction point in a sub-slab depressurization system shall have a lid designated to accommodate the vent pipe. Sumps used as a floor drain shall have a lid equipped with a trapped inlet.

**Section 95 - 103.3.5. FOUNDATION WALLS.** Hollow block masonry foundation walls shall be constructed with either a continuous course of solid masonry, one course of masonry grouted solid, or a solid concrete beam at or above finished ground surface to prevent passage of air from the interior of the wall into the living space. Where a brick veneer or other masonry ledge is installed, the course immediately below that ledge shall be sealed. Joints, cracks or other openings around all penetrations of both exterior and interior surfaces of masonry block or wood foundation walls below the ground surface shall be filled with polyurethane caulk or equivalent sealant. Penetrations of concrete walls shall be filled. Channel type drains are not recommended. However, if used, the joint between the foundation wall and floor slab should be sealed with backer rods and an elastomeric joint sealant, below the top of the floor slab to form a channel. The channel shall be sloped toward the sump, in a manner that retains the channel feature and does not interfere with the effectiveness of the drain as a water control measure.

**Section 95 - 103.3.6. DAMP-PROOFING.** The exterior surfaces of portions of concrete and masonry block walls below the ground surface shall be damp-proofed.

**Section 95 - 103.3.7. AIR-HANDLING UNITS.** Air-handling units in crawl spaces shall be sealed to prevent air from being drawn into the unit.

**EXCEPTION: Units with gasketed seams or units that are otherwise sealed by the manufacturer to prevent leakage.**

**Section 95 - 103.3.8. DUCTS.** Duct work passing through a crawl space or beneath a slab shall be of seamless material unless the air handling system is designed to maintain continuous positive pressure within such ducting. Joints in such ductwork shall be sealed to prevent air leakage.

**Section 95 - 103.3.9. CRAWL SPACE FLOORS.** Openings around all penetrations through floors above crawl spaces shall be caulked or otherwise filled to prevent air leakage.

**Section 95 - 103.3.10. CRAWL SPACE ACCESS.** Access doors and other openings or penetrations between basements and adjoining crawl spaces shall be closed, gasketed or otherwise filled to prevent air leakage.

**Section 95 - 103.4. PASSIVE SUB-MEMBRANE DEPRESSURIZATION SYSTEM.** In buildings with crawl space foundations, the following components of a passive sub-membrane depressurization system shall be installed during construction.

**EXCEPTION: Buildings in which an approved mechanical crawl space ventilation system or other equivalent system is installed.**

**Section 95 - 103.4.1. VENTILATION.** Crawl spaces shall be provided with vents to the exterior of the building.

**Section 95 - 103.4.2. GROUND COVER.** The soil in crawl spaces shall be covered with a continuous layer of minimum 6-mil (0.15 mm) polyethylene ground cover. The ground cover shall be lapped a minimum of 12 inches (305 mm) at joints and shall extend to all foundation walls enclosing the crawl space area.

**Section 95 - 103.4.3. VENT PIPE.** A plumbing tee or other approved connection shall be inserted horizontally beneath the sheeting and connected to a 3 or 4 inch diameter (76 mm or 102 mm) fitting with a vertical vent pipe installed through the sheeting. The vent pipe shall be extended up through the building floors, terminate at least 12 inches (305 mm) above the roof in a location at least 10 feet (3048 mm) away from any window or other opening into the conditioned spaces of the building that is less than 2 feet (610 mm) below the exhaust point, and 10 feet (3048 mm) from any window or other opening in adjoining or adjacent buildings.

**Section 95 - 103.5 PASSIVE SUB-SLAB DEPRESSURIZATION SYSTEM.** In basement or slab-on-grade buildings, the following components of a passive sub-slab depressurization system shall be installed during construction.

**Section 95 - 103.5.1. VENT PIPE.** A minimum 3 inch diameter (76 mm) ABS, PVC, or equivalent gas-tight pipe shall be embedded vertically into the sub-slab aggregate or other permeable material before the slab is cast. A "T" fitting or equivalent method shall be used to ensure that the pipe opening remains within the sub-slab permeable material. Alternatively, the 3 inch (76 mm) pipe shall be inserted directly into an interior perimeter drain tile loop or through a sealed sump cover where the sump is exposed to the sub-slab aggregate or connected to it through a drainage system.

The pipe shall be extended up through the building floors, terminate at least 12 inches (305 mm) above the surface of the roof, in a location at least 10 feet (3048 mm) away from any window or other opening into the conditioned spaces of the building that is less than 2 feet (610 mm) below the exhaust point, and 10 feet (3048 mm) from any window or other opening in adjoining or adjacent buildings.

**Section 95 - 103.5.2. MULTIPLE VENT PIPES.** In buildings where interior footings or other barriers separate the sub-slab aggregate or other gas-permeable material, each area shall be fitted with an individual vent pipe. Vent pipes shall connect to a single vent that terminates above the roof or each individual vent pipe shall terminate separately above the roof.

**Section 95 - 103.6. VENT PIPE DRAINAGE.** All components of the radon vent pipe system shall be installed to provide positive drainage to the ground beneath the slab or soil-gas-retarder.

**Section 95 - 103.7. VENT PIPE ACCESSIBILITY.** Radon vent pipes shall be accessible for future fan installation through an attic or other area outside the habitable space.

**EXCEPTION: The radon vent pipe need not be accessible in an attic space where an approved roof-top electrical supply is provided for future use.**

**Section 95 - 103.8 VENT PIPE IDENTIFICATION.** All exposed and visible interior radon vent pipes shall be identified with at least one label on each floor and in accessible attics. The label shall read: "Radon Reduction System."

**Section 95 - 103.9. COMBINATION FOUNDATIONS.** Combination basement/crawl space or slab-on-grade/crawl space foundations shall have separate radon vent pipes installed in each type of foundation area. Each radon vent pipe shall terminate above the roof or shall be connected to a single vent that terminates above the roof.

**Section 95 - 103.10. BUILDING DEPRESSURIZATION.** The construction shall include joints in air ducts and plenums in unconditioned spaces, thermal envelope air infiltration requirements and fire stopping.

**Section 95 - 103.11. POWER SOURCE.** To provide for future installation of an active sub-membrane or sub-slab depressurization system, an electrical circuit terminated in an approved box shall be installed during construction in the attic or other anticipated location of vent pipe fans. An electrical supply shall also be accessible in anticipated locations of system failure alarms.

This Local Law shall take effect immediately upon filing as required by law.

(Complete the certification in the paragraph that applies to the filing of this local law and strike out that which is not applicable.)

1. (Final adoption by local legislative body only.)

I hereby certify that the local law annexed hereto, designated as local law No. 2 of ~~19~~ 2000 of the ~~(County)(City)(Town)(Village)~~ of CALEDONIA was duly passed by the TOWN BOARD on JUNE 8, 2000, in accordance with the applicable provisions of law.  
(Name of Legislative Body)

2. (Passage by local legislative body with approval, no disapproval or repassage after disapproval by the Elective Chief Executive Officer\*.)

I hereby certify that the local law annexed hereto, designated as local law No. \_\_\_\_\_ of 19\_\_\_\_ of the (County)(City)(Town)(Village) of \_\_\_\_\_ was duly passed by the \_\_\_\_\_ on \_\_\_\_\_ 19\_\_\_\_, and was (approved)(not approved)(repassed after disapproval) by the \_\_\_\_\_ and was deemed duly adopted on \_\_\_\_\_ 19\_\_\_\_, in accordance with the applicable provisions of law.  
(Name of Legislative Body)  
(Elective Chief Executive Officer\*)

3. (Final adoption by referendum.)

I hereby certify that the local law annexed hereto, designated as local law No. \_\_\_\_\_ of 19\_\_\_\_ of the (County)(City)(Town)(Village) of \_\_\_\_\_ was duly passed by the \_\_\_\_\_ on \_\_\_\_\_ 19\_\_\_\_, and was (approved)(not approved)(repassed after disapproval) by the \_\_\_\_\_ on \_\_\_\_\_ 19\_\_\_\_. Such local law was submitted to the people by reason of a (mandatory)(permissive) referendum, and received the affirmative vote of a majority of the qualified electors voting thereon at the (general)(special)(annual) election held on \_\_\_\_\_ 19\_\_\_\_, in accordance with the applicable provisions of law.  
(Name of Legislative Body)  
(Elective Chief Executive Officer\*)

4. (Subject to permissive referendum and final adoption because no valid petition was filed requesting referendum.)

I hereby certify that the local law annexed hereto, designated as local law No. \_\_\_\_\_ of 19\_\_\_\_ of the (County)(City)(Town)(Village) of \_\_\_\_\_ was duly passed by the \_\_\_\_\_ on \_\_\_\_\_ 19\_\_\_\_, and was (approved)(not approved)(repassed after disapproval) by the \_\_\_\_\_ on \_\_\_\_\_ 19\_\_\_\_. Such local law was subject to permissive referendum and no valid petition requesting such referendum was filed as of \_\_\_\_\_ 19\_\_\_\_, in accordance with the applicable provisions of law.  
(Name of Legislative Body)  
(Elective Chief Executive Officer\*)

\* Elective Chief Executive Officer means or includes the chief executive officer of a county elected on a county-wide basis or, if there be none, the chairperson of the county legislative body, the mayor of a city or village, or the supervisor of a town where such officer is vested with the power to approve or veto local laws or ordinances.