



# Building Department Newsletter

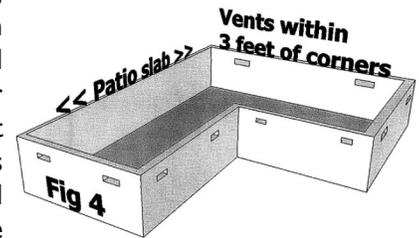
January 2011

## Special points of interest:

- Under Floor Space Ventilation
- Concrete Slump and Consolidation
- Building Permit and Valuation Totals

## UNDER FLOOR (Crawl Space) SPACE VENTILATION

The International Residential Code (IRC), Section 408, states that ventilation of the under floor space between the soil and the supporting floor framing members shall have ventilation openings through the exterior foundation walls. Openings shall be placed within 3-feet of the building's corners. One side of the building is permitted to have no ventilation openings (i.e. patio and garage location). All ventilation openings shall be covered with a material that the least dimension does not exceed 1/4".



The following materials are **approved** for covering ventilation openings:

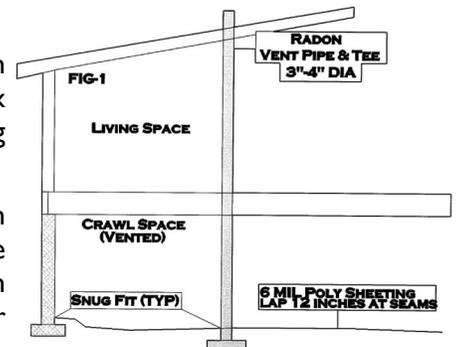
- Perforated sheet metal plates not less than .070 inch thick
- Expanded sheet metal plates not less than .047 inch thick
- Cast-iron grill or grating
- Extruded load-bearing brick vents
- Hardware cloth of .035 wire or heavier
- Corrosion-resistant wire mesh, with the least dimension being 1/8 inch

### Under Floor Minimum Ventilation Requirements:

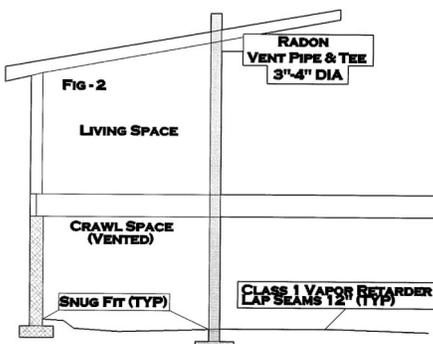
The minimum ratio of under floor ventilation openings shall not be less than 1/300 (one square foot for each 300 square feet of the crawl space). A moisture control vapor retarding ground cover of 6 mil polyethylene with 12-inch overlapped seams is also required by the Washington State Energy Code.

Exception to the minimum:

1. If the ventilation is less than 1/300 a radon vent shall be installed as per IRC Appendix F along with the above vapor retarding ground cover (figure 1).
2. If ventilation openings are installed with operable louvers, a radon vent shall be installed as per IRC Appendix F along with the above vapor retarding ground cover (see figure 1).
3. The total ventilation is permitted to be reduced to 1/1500 when an approved **Class I vapor retarder (0.1 perm or less)** material is installed, a radon vent is installed as per IRC Appendix F and required openings provide cross ventilation (figure 2).

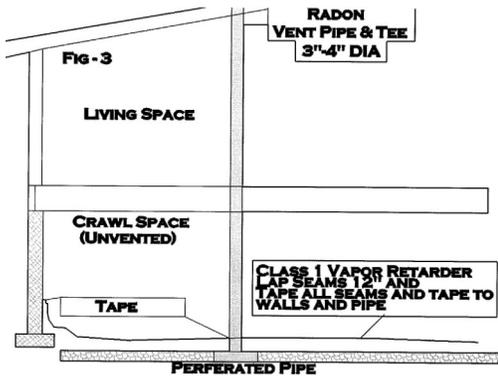


CITY OFFICES  
WILL BE  
CLOSED:  
MONDAY,  
JANUARY 17,  
FOR MARTIN  
LUTHUR KING  
JR. DAY



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The crawl space may be **unvented** when:

- A Class I vapor retarder is installed over exposed earth, the joints are overlapped a minimum of 6-inches, and the joints are sealed or taped. The edges of the vapor retarder need to extend at least 6-inches up the stem walls and be attached and sealed to the stem walls. A radon system shall also be installed as per IRC Appendix F (figure 3); **and**
- Continuously operated mechanical exhaust ventilation is provided at a rate equal to 1 cubic foot per minute for each 50 square feet of crawl space area. The exhaust ventilation is required to terminate to the exterior.

## CONCRETE SLUMP AND CONSOLIDATION

The International Residential Code (IRC), Sections R404.1.2.3.4 and R404.1.2.3.5, has now established a maximum slump for concrete at 6-inches along with consolidation by suitable means (**internal vibrator**) during placement.

From experience, the 6- inch slump for concrete was based on the ability to fill cavities, provide workability and maintain minimal aggregate segregation (rock pockets). When ordering concrete, the mix design's water/cement ratio and material proportions should represent the intended concrete slump when placed. It is important to remember that the minimum concrete compressive strength is 2500 psi for our seismic category. Higher slumps can be achieved with mid- range or high-range water reducing admixtures without an adverse effect to mix design criteria. Higher slumps should not be achieved with water alone due to the reduced concrete strength and increased segregation potential.

Consolidation of concrete by suitable means will aid in the placement and workability around embeds and reinforcing along with reduced segregation. Concrete with slumps in excess of 6-inches are generally associated with stay in place forms (Insulating Concrete Forms – ICF) and will require specific mix designs. If you use ICF, consolidation by internal vibration with a ¾-inch head and lower frequency is recommended by ICF manufactures. Studies have shown that self consolidating concrete (SCC) with slumps in excess of 8-inches can be achieved without internal vibration when used with ICF. There are some major draw backs to using SCC such as the additional cost of concrete mix, forms that need to be almost water tight and extra bracing. You should consult your ICF supplier for installation recommendations.

## December Permits

Building permit and valuation totals for December 2010, December 2009, Year-to-Date 2010 and comparable 2009:

December 2010: 47 permits valued at \$1,140,163      December 2009: 33 permits valued at \$13,455,306

YTD 2010:            640 permits valued at \$17,482,408      YTD 2009:            591 permits valued at \$28,927,744