Crawl Space Venting & Insulation

A basement is a foundation space tall enough to stand up in. A crawl is a foundation space not tall enough to stand up in. Crawl spaces are short basements. For energy analysis and heat loss/heat gain calculations, the definition of foundation spaces depends more on conditioned vs. unconditioned than on wall height.

A basement or crawl is generally regarded as "Conditioned " if it contains supply registers, the space heating mechanicals, or supply ducts to heated space above. The basement or crawl space would also be "conditioned" or thermally coupled if the floor above was not insulated.

Basements and crawl spaces that are damp proofed and separated from ground moisture and soil gases do not need to be ventilated. Most basements have damp proofing and cement floors. They do not need ventilation. Many crawl spaces have damp proofing and either scratch coat floors or 6 mil poly vapor barriers. They do not need ventilating. It's a bad idea to ventilate crawl spaces (see clip below).

A vented area is by definition "unconditioned". It is at or near outside conditions. Ventilated attics, basements, and crawl spaces are unconditioned spaces.

Spaces do not require venting because they are unconditioned. Garages are unconditioned. Garages are not vented. Spaces with inadequate moisture management *may* require venting. Aunt Martha's root cellar with it's mud floor should be ventilated. Basements and crawl spaces that are not damp proofed, or are open to ground moisture and soil gases, should be ventilated; however, it would be better to construct them with proper moisture management.

If a crawl area is ventilated, insulation on the crawl walls has little value. Ventilated attics, basements, and crawl spaces *require insulation separating them form the adjacent conditioned space*. In MECcheck and in code language, crawl spaces that are ventilated are considered unconditioned space. They do not use wall insulation inputs. They require floor over cold space insulation inputs.

The proper placement of the thermal boundary between conditioned living space and unconditioned space or cold is imperative. The insulation requirement for an unconditioned basement or crawl space is determined by vented vs. unvented. If a foundation space is vented, it is outside and the insulation or thermal boundary should be placed at the floor above. All ducts in this space should be in sealed and insulated. If a foundation space is not vented, the thermal boundary can be more effectively placed at the exterior wall.

from Energy Efficient Building Association, *Builder's Guide / Cold Climates*, Chapter 4, Foundations, p. 33 [1]

Crawl Spaces

Constructing vented crawl spaces is a bad idea for reasons similar to those explained above [see pp29-32]. Venting a crawl space with exterior, humid air during summer months leads to the wetting of crawl space assemblies, rather than drying, since crawl space surfaces will be cooler than the outside air. Crawl spaces should be constructed like mini basements. They should be heated during the winter and cooled during the summer.
