

Author/requestor: Joshua Kerber
 Email address: Josh.Kerber@state.mn.us
 Telephone number: 651-201-5613
 Firm/Association affiliation, if any: Minnesota Department of Health

1303 - #11

Proposed Code Change – Language

Soil-gas membrane. A soil-gas membrane shall be installed within the basement or crawl space of a building, placed on top of the gas-permeable material. The soil-gas membrane shall cover the entire floor area with separate sections of membrane that lap at least 12 inches (305 mm), ~~and are sealed with a sealant compatible with the membrane used.~~ The membrane shall fit closely around ~~and be sealed to~~ any pipe, wire or other penetration of the membrane. All punctures or tears in the membrane shall be ~~sealed~~ covered and lapped with additional membrane. In applications where the membrane will not be covered by a poured concrete floor, the membrane shall be sealed air tight at all seams, edges, pipes, wires or other penetrations.

~~When a Floor System is not installed within the basement or crawlspace of a building, the soil shall be covered with a soil gas membrane that is sealed continuously at all edges, seams, and to the foundation wall system.~~

Proposed Code Change – Need and Reason

This change is needed to prevent unnecessary sealing below the slab when it is not needed.

This change is reasonable because sealing is unnecessary below a concrete floor but is needed in any area where the soil gas membrane is not covered by concrete. Studies have shown the concrete floor acts as a better air barrier than the membrane underneath. The membrane plays two roles:

- 1.) A capillary break and vapor barrier since there is a perm rating of less than 1.
- 2.) It keeps the freshly poured concrete from filling the pores of the aggregate below the slab. This allows for a capillary break below the concrete slab as well as providing a unified layer of clean gravel fill below the membrane after the concrete is poured to facilitate the movement of soil gas through this layer.

As long as the radon entry routes above the membrane are sealed ie: cracks, joints, pipe penetrations, etc. in the slab, there is no need to seal the membrane below the slab.

Proposed Code Change – Cost/Benefit Analysis

This will reduce the cost of installation in applications of poured concrete floors by \$250 without reducing the benefits of the system.