



High Performance Housing — FAQ

2006 IRC

Basement Insulation

Q: *What are the code recommendations for basement insulation? Does the building code allow me to leave my insulation exposed in the basement?*

A: For climate zones 4 through 8, the 2006 IRC requires that insulation be installed on the basement walls if the basement is conditioned, or if the basement is not conditioned insulation must be installed on the basement walls or in the floor separating the basement from the conditioned space above (*Section N1102.2.6 Basement Walls*).

The basement walls need to be insulated to a minimum value of R-10 for continuous insulation (such as foam plastic insulation) or R-13 for framing cavity insulation based on the component requirements of *Table N1102.1 Insulation and fenestration requirements by component*.

It is often recommended to insulate the basement walls with foam plastic insulation as the foam plastic insulations are not susceptible to deterioration when in contact with moisture (as can often be present in concrete basement walls). When using foam plastic insulation, the majority

of products require a thermal barrier, usually “gypsum to be installed over the insulation (*Section R314.4 Thermal Barrier*) as a fire safety requirement. Certain foam plastic insulations such as DOW Thermax (*ICC-ES Legacy Report NER 681*) are rated to be left exposed on the interior of basement walls and do not need to be covered with a thermal barrier.

Applicable Code Sections:

2006 International Residential Code for One- and Two-Family Dwellings

- R314.3 Surface burning characteristics
- R314.4 Thermal barrier
- N1102 Building Thermal Envelope
- Table N1102.1 Insulation and fenestration requirements by component
- Table N1102.1.2 Equivalent U-factors
- N1102.2.6 Basement Walls

Additional References

- DOW Thermax ICC-ES Legacy Report NER 681