



Slab Floor Edge Insulation

This pamphlet is one in a series that describes residential energy conservation requirements of the Oregon Residential Specialty Code and Structural Specialty Code. Other pamphlets in this series may be downloaded from Oregon Department of Energy web site at <http://egov.oregon.gov/ENERGY/CONS/Codes/cdpub.shtm> or local building departments or from Oregon Building Codes Division.

Prescriptive requirements for slab floor edge insulation

All residences require R-15 insulation for slab on grade floors in heated areas. Section drawings or written specifications that accompany the plans must show slab insulation details.

The energy code specifies required R-values, not specific products. Any insulation product or combination of insulation products that meets the installed R-value requirement and is approved for below grade use is acceptable. If a prescriptive path is used for code compliance, only the R- and F-factors in that prescriptive path may be used.

R-15 is most typically achieved by installing three inches of rigid extruded polystyrene foam board (blue board, pink board, or green board with an insulation value of R-5 per inch). If expanded polystyrene (white bead board with an insulation value of R-3.5 per inch) is used, approximately 4-1/2 inches of material is needed to achieve R-15.

For floating slabs, insulation must be placed from the top of the slab down for a total of 24 inches, or from the top down to the bottom of the slab and horizontally back under the slab for a total of 24 inches. For monolithic slabs, insulation must extend from the top of the slab

down 24 inches or to the bottom of the thickened edge, whichever is applicable.

Above-grade protection must be provided for insulation installed on the exterior side of the slab or foundation.

Figures 1 and 2 show insulation placement and protection details.

“Heated” slab insulation

When a slab is heated – such as with a hydronic heating system – in addition to slab edge insulation, the entire under slab must be insulated to R-10.

Which slab edges get insulated?

When people think about slab edge insulation, they typically focus on edges at the outside perimeter of a building. They forget about other slab edges that also may be at junctures between conditioned and unconditioned spaces.

Figures 3 and 4 show details for insulating between conditioned and unconditioned slabs, between conditioned and unheated crawl spaces, and at the building perimeter.

Slab moisture protection

The code does not require vapor retarders for slab floor insulation.

Code does require a ground moisture barrier beneath the slab. The moisture barrier prevents concrete from wicking ground moisture into the living space.

Figures 1 and 2 show ground moisture barrier placement. Sand over the moisture barrier is considered a *best practice* that allows concrete to cure more evenly.



Figure 1:
Monolithic slab on grade insulation details

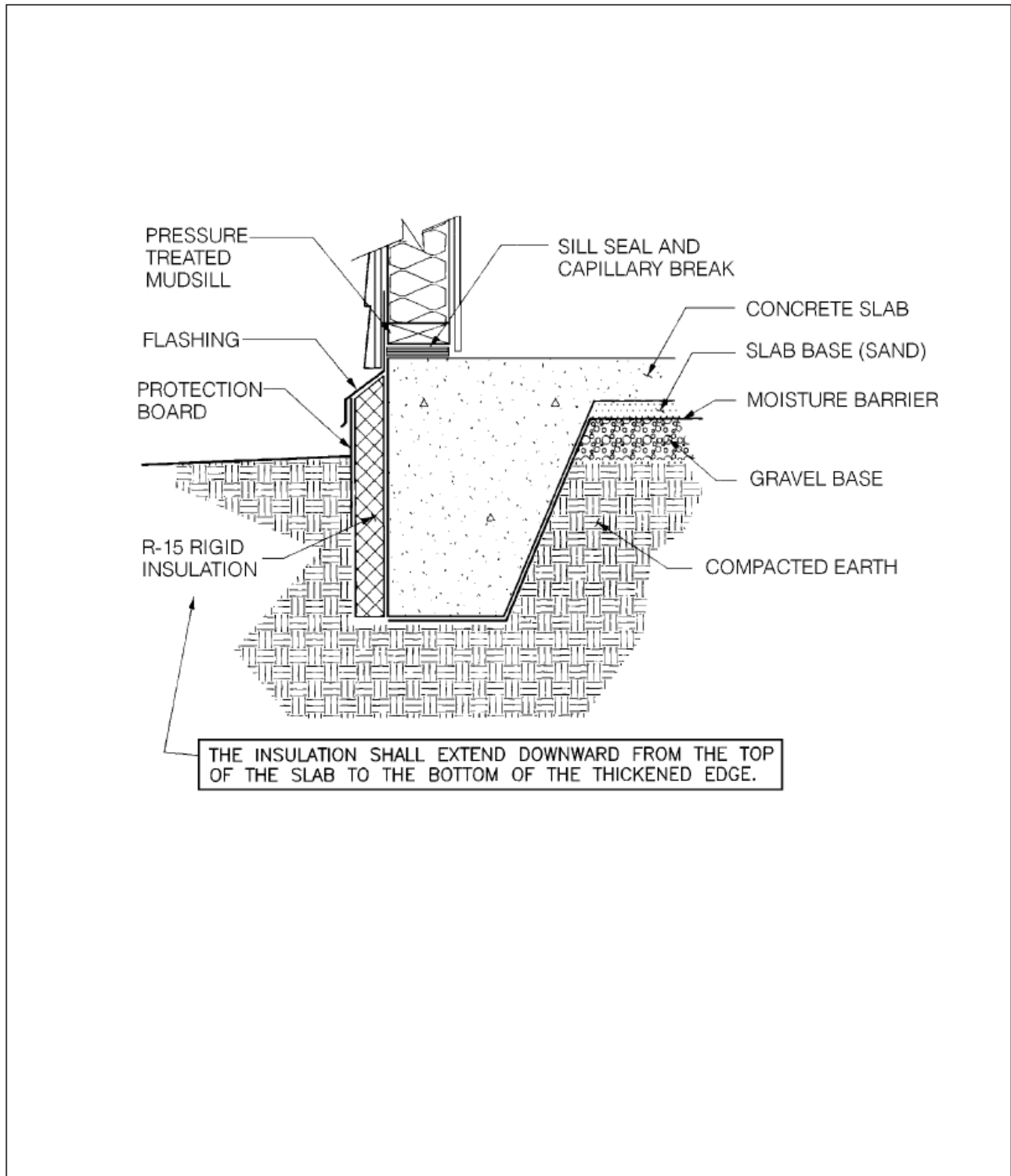


Figure 2:
Floating slab on grade insulation details

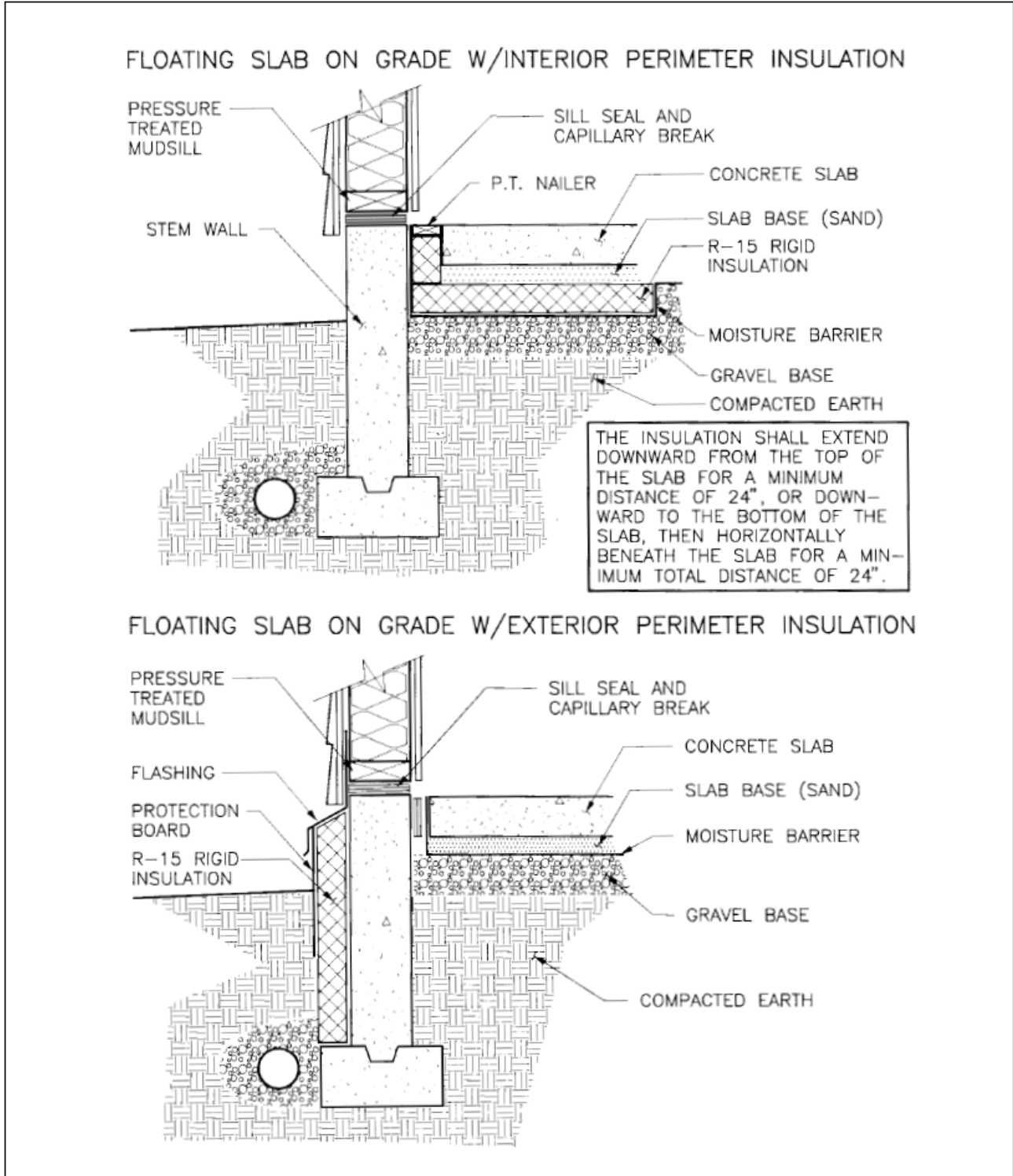


Figure 3:
Thermal break between slabs of heated and unheated floor spaces

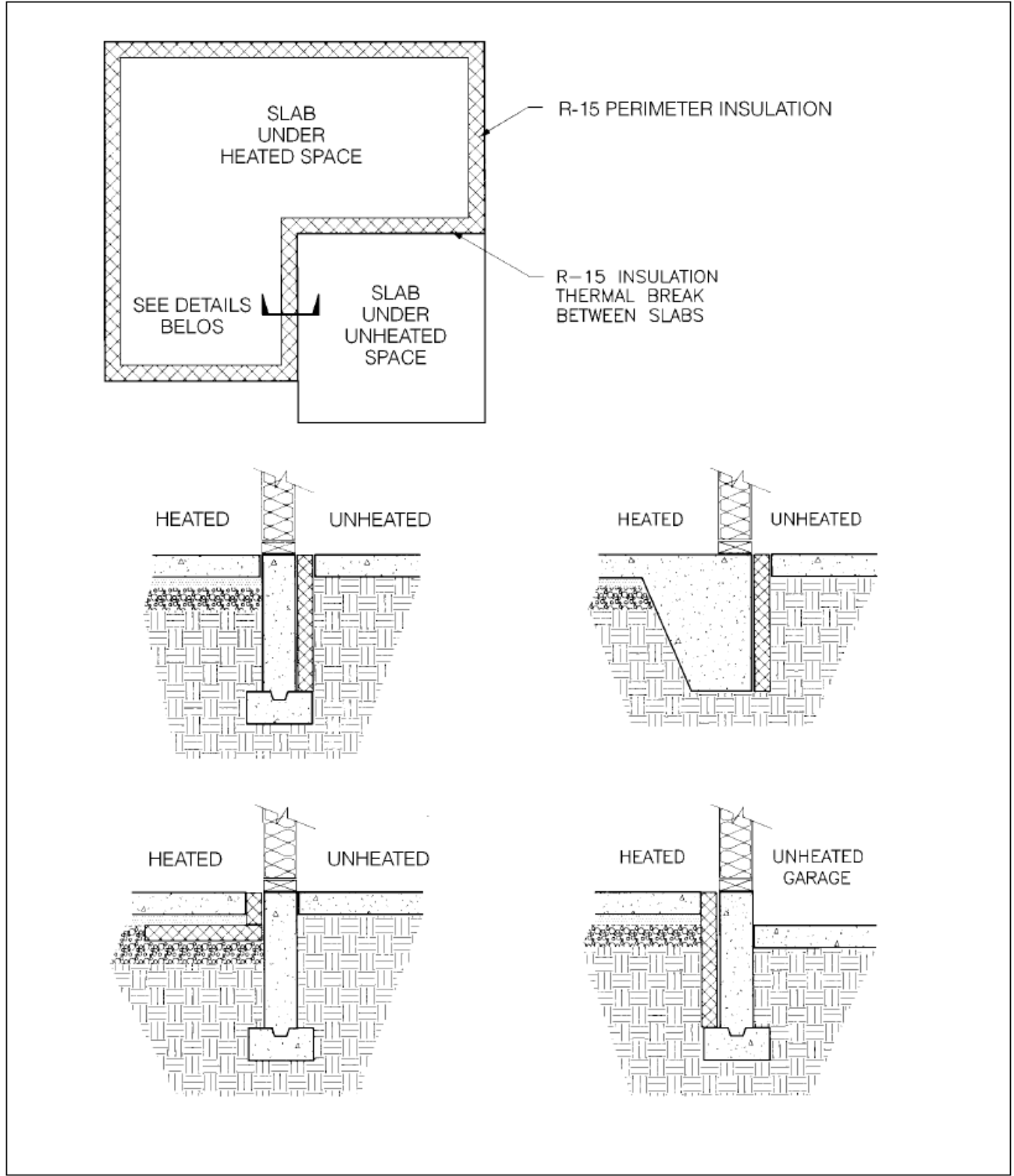
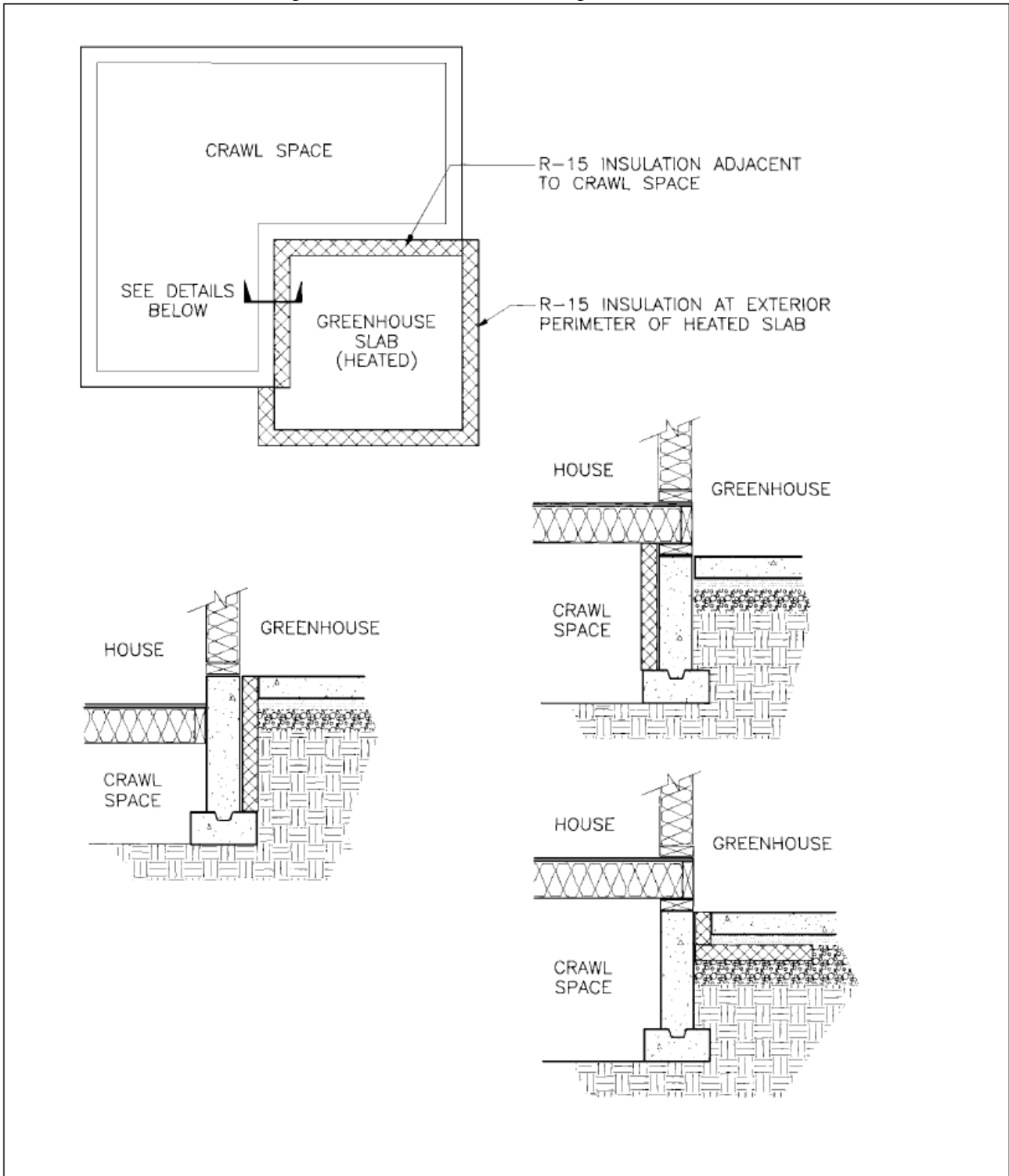


Figure 4:
Thermal break between heated space slabs and unheated crawl spaces



Information presented in this publication supports the Oregon Residential Specialty Code. This publication does not include all code requirements. Refer to the code and check with your code official for additional requirements. If information in this publication conflicts with code or your local officials, follow requirements of code and your local officials.

For more information about the residential energy code, call the Building Codes Division at (503) 378-4133 or the Oregon Dept of Energy (503) 378-4040 in Salem or toll-free, 1-800-221-8035.

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Building Codes Division



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