

1. Slab insulation – Heat lost at the edge

Survey results of slab insulation

Only two out of 81 homes had effective slab insulation. Many homes in the northwest part of the state had foam installed under the slab; however, this placement did little to reduce the heat loss from the edge.

Slab insulation is cost-effective compared to other options. An uninsulated slab can account for one-fifth to almost one-half of a home's heat loss – the smaller the home the larger the fraction. Slab insulation can cut this loss from 25 percent to 40 percent.



Infrared picture of slab heat loss with insulation under slab.

The problems with slab insulation

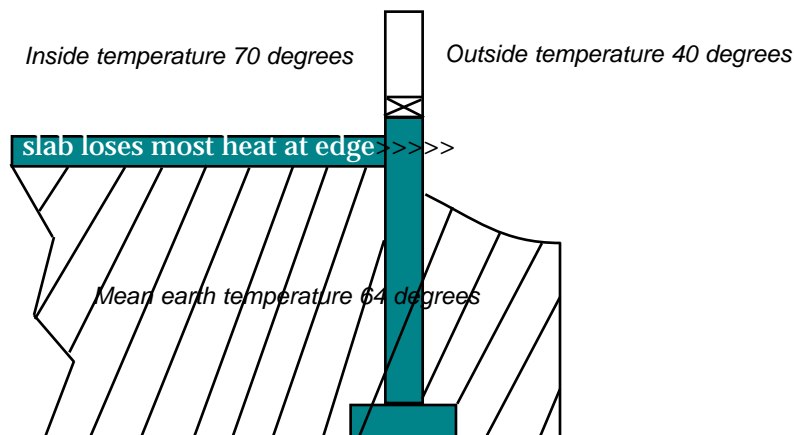
There are several challenges to effective slab insulation:

- Arkansas is in a "medium" termite infestation zone which means that slab insulation is not required. To compensate for no slab insulation, improvements need to be made by adding more insulation or specifying better windows.
- When placed under the slab, the insulation does little good.
- When placed on the exterior, the foam needs to be covered and protected from the sun and abrasion. For termite protection, the foam should not contact the bottom plate.
- When placed on the inside of a solid "L" block, the foam could interfere with the rug-nailing operation.

Slab insulation solutions

It is possible, and not too difficult, to install slab insulation correctly so that all concerns and issues are addressed:

- **The concrete company:** When the foam runs vertically from the top and down the inside of the foundation, it is completely out of the way of the foundation crew.
- **The pest control company:** By installing the foam within the slab, there is no access to the outside and therefore a reduced possibility of infestation. For added protection, foam insulation products are available and approved by the SBCCI that are impregnated with a termite-resistant chemical.
- **The framers:** If there are some foundation bolts to secure the wall, the framers will not even know that the slab is insulated.
- **The carpet installers:** The foam insulation is covered with wallboard and molding that allows the rug installer to securely nail the tack strip directly to the concrete.



This graphic indicates where the majority of the heat flows through an uninsulated slab.

Slab insulation details

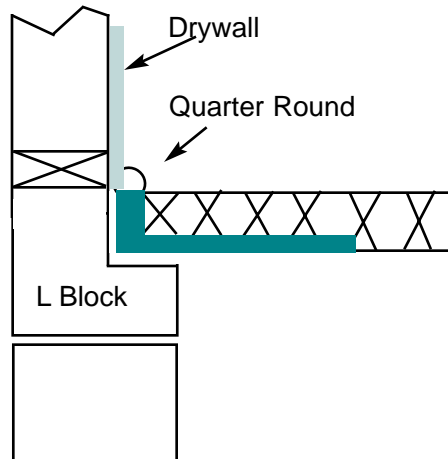
Not all slab construction techniques allow for easy inclusion of insulation. Hollow "L" blocks and monolithic slabs pose their own problems. Following is how one builder used solid "L" blocks to insulate the slab successfully and securely.



The critical top 4 inch piece of foam is placed against or nailed with 2 inch concrete nails to the solid "L" blocks.



The remaining 20 inch piece is pressed against it on the ground that is covered with plastic sheeting. Over this is placed the welded wire mesh. Note also that the placement of the foam around the edge acts to absorb slab expansion and contraction.



The exposed foam is covered with the edge of the drywall and baseboard molding. See Appendix E for other slab insulation options.



Suggestion: Keep the foam slightly below the surface of the slab at the thresholds to prevent the problem of having to dig out a little of the foam and patch the surface in preparation for the threshold.