Technical Bulletin: Ekotrope Data Entry

Residential New Construction Program

BUILDING A SMARTER ENERGY FUTURE℠

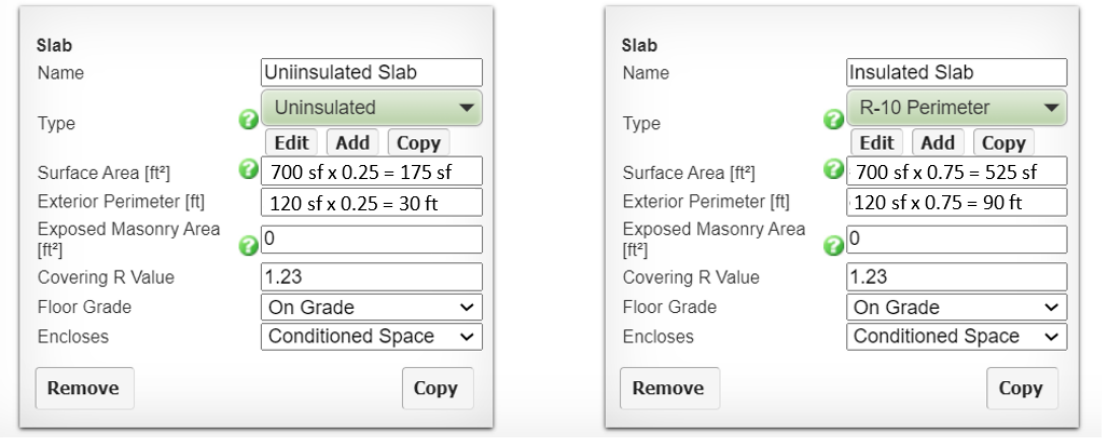
As part of the RNC Program, raters should model homes as accurately as possible. Small things are often overlooked and can compound to large losses in savings over time. This technical bulletin will cover how to accurately model slabs, floors, and walls.

Partial Slab Insulation and Insulation Depth

Often sections of the slab perimeter around garages, porches, and stone façades are not insulated. Raters should remember to model the slabs accurately based on the percentage of insulated and non-insulated perimeter. In addition to areas missing insulation, raters should model insulation depth based on a percentage of the footing depth. The reference home for the RNC Program assumes a footing depth of 2' which will skew savings if the proposed home's footing depth is larger or smaller. Raters should calculate the areas, perimeters, and insulation depths for insulated and uninsulated slabs using the following formulas.

- **Surface Area** = Total slab area x percent of slab type (example: uninsulated surface area = total slab area X percent of uninsulated slab)
- **Exterior Perimeter** = Total slab perimeter x percent of slab type
- **Insulation Depth** = (Slab insulation depth/Slab footing depth) x 2'

Below is an example of a 75% insulated slab for a home that has a total slab area of 700 sf with a perimeter of 120 sf.



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Floor Coverings

Framed floors and slabs have the option to include covering R values or floor finishes. Raters can edit the covering value by adding a layer in the library or updating the "Covering R Value" highlighted in the image to the right. Ekotrope specifies the R-values for the below coverings.

- Thick carpet with carpet pad: R-2
- Regular carpet: R-1.23
- Hardwood: R-0.68
- Tile or Vinyl: R-0.05
- None : R-0

Rim Joists

Ekotrope rim joist libraries only include a single R-value entry. Raters should derate the nominal R-value in rim joists with calculated values or values specified by Ekotrope. Below is a table with some of the common rim joist scenarios raters see in the RNC Program. Ekotrope offers other scenarios raters can use here.

Nominal R-value	Grade I		Grade II		Grade III	
	16" O.C.	24" O.C.	16" O.C.	24" O.C.	16" O.C.	24" O.C.
R-15	R-13.3	R-14.1	R-12.2	R-12.8	R-10.8	R-11.2
R-19	R-17.3	R-18.1	R-15.4	R-15.9	R-13.2	R-13.5

Wall Libraries

Walls should be modeled to reflect the walls found onsite. Walls separating ambient air and interior air are often modeled with only a stud cavity layer between a siding layer and a drywall layer. However, these walls typically have a sheathing and housewrap layer as well which can account for an R-value of 1 to the wall assembly. Below is an example of an ambient wall with the correct layers.

For other walls such as garage or kneewalls, the model should exclude the housewrap and sheathing layers and replace the siding layer with another drywall layer or the air barrier material.

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