REPI-26-21 (MODIFICATION)

(Delete and replace entire proposal to reconcile REPI-26, 34, and 36)

REASON STATEMENT (REVISED CONSENSUS PROPOSAL):

This revised consensus proposal combines the original REPI-26-21, REPI-34-21 and REPI-36-21 proposals based on the residential envelope subcommittee's direction to have proponents of REPI 26, 34, and 36 work on a proposal to reconcile differences in the three proposals. This proposal incorporates and coordinates the various changes in the three proposals for insulation of slab foundations. While most changes are formatting and editorial in nature, technical changes were made to unify the proposals with regard to the required F-factors (Table R402.1.2), the associated slab R-values (Table R402.1.3), and insulation installation requirements (Section R402.2.9.1). This was necessary because the location and placement of insulation on foundations affect the F-factors (thermal performance), not just the R-value and length or width of installation.

Finally, an exception was added to the Component Performance Alternative (Section R402.1.5) which restricts the use of slab insulation to make trade-offs for two reasons (note that currently the ability to use slab insulation to make trade-offs is not enabled in the code for any climate zone). First, slab insulation is not required for slab edges or perimeters in Climate Zones 0-2 and adding insulation to make a trade-off may overstate the actual trade-off value of the added slab insulation relative to the case with no insulation (e.g., ground and concrete thermal mass effects which are significant in warmer climates were not factored into the original development of F-factors) and their application in the performance (modeling) path is similarly affected. This may change with future research to better characterize heat transfer through slab on grade foundations. Second, Climate Zones 0-2 intersect with the "very heavy termite infestation" region and local rules often require an inspect strip (which alters the true F-factor) or, in some cases, prohibit the use of exterior insulation on the exposed edges of slabs.

Cost Impact: The code change proposal will decrease the cost of construction
The proposal better aligns R-values and insulation depths in Table R402.1.3 with typical footing depths for frost protect in the climate zones where perimeter edge insulation is required. For example, the insulation depth in CZ 4 and 5 are reduced from 4-feet to 3-feet. In addition, this proposal adds the ability to make trade-offs with slab insulation (F-factors) in the Component Performance Alternative (Section R402.1.5) – formerly the Total UA alternative – and in the performance (modeling) path of Section R405 (see changes to Table R405.4.2(1)).