COOPERATIVE EXTENSION SERVICE • UNIVERSITY OF KENTUCKY COLLEGE OF AGRICULTURE, LEXINGTON, KY, 40546

ENERGYWISE Energy Saving Solutions from the UK Department of Biosystems and Agricultural Engineering

UK University of Kentucky College of Agriculture

ENCAPSULATED/SEALED CRAWL SPACES

Source: Gerald Hash

Latest research now recommends the crawl space encapsulation concept. Based on the driving premise of mold prevention, moisture is virtually eliminated from the crawl space.

First, lay 6- to 8-mil polyethylene on the ground. Seams shall have a 12 inch overlap, with two bead lines of adhesive caulk for sealing. Extend the plastic 18 inches up onto the stem-wall and again adhere with adhesive caulk. Run the plastic up and seal to the top of all support piers. Next, run two bead lines of adhesive caulk on the plastic on the stem-wall and several bead-lines on the concrete above the plastic. Adhere 2-inch thick foam board, extending from ground to within three inches of top edge of concrete. This allows a visible track for termite inspections. A clear plastic rigid linear ell can be attached. This covers and seals from the foam board over the cap block to the rim-joist. All seams should be caulked and the rim-joist cavity lined with 2-inch blown foam.

Manufactured reinforced polyester/polyethylene liners may also be used, instead of the 8-mil polyethylene. The liners run across the ground, up the stem-wall, over top of the foam board and seal under the clear plastic ell.

Take notice that all vent ports are covered with the foam board or simply eliminated in new construction. Remember, with encapsulation floor insulation is eliminated. The final step is to enter at least one set of supply and return registers into the crawl space and keep open year-round. This HVAC circulation dehumidifies and semi-conditions the crawl space, at little energy cost.

In new construction, the foundation sealing effort culminates with a layering of materials before laying the exterior wall sill plate. This involves a sheet metal termite guard, and foam seal pad.

Encapsulated crawl space leaves no purpose for insulating return ductwork. On the other hand, traditional floor insulation in crawl spaces and unconditioned basements do maintain the need to insulate HVAC supply and return ducts. This includes insulating floor joists used for ducting. Duct board, wrap, and flex-duct can be special ordered with R-6 ratings. All duct material seams should be sealed with mastic. Duct leakage is the second leading cause of energy waste, trailing only structural air infiltration.