

## **5c. Wood floor insulation – Fighting gravity while keeping dry**

### **Survey results of wood floors**

Seventeen percent of the floors surveyed were wood – the majority were in central Arkansas. The insulation for these floors ranged from R-11 to R-19. Although more costly to construct, homes built on wood floors can more easily meet the minimum Energy Code requirements.

### **Insulating wood floors**

There are three basic types of wood floors: exposed, cantilevered and enclosed over a crawlspace. The Energy Code suggests that an exposed floor be insulated to the same level as the ceiling. This suggestion is not necessary because the exposed floor is experiencing much different temperatures than attic insulation. The insulation level for the exposed, cantilevered wood floor should be at least R-19. The underside of the exposed floor is then enclosed with an exterior material.

A wood floor over a crawlspace is "enclosed" by that crawlspace and since the weather is not directly blowing across the floor, the insulation level can be reduced (R-19 is typically used). Installing the insulation to its maximum benefit has been a problem because gravity pulls the insulation away from the floor – the insulation should be in contact with the surface it is insulating.

The insulation should be placed with the facing towards the living (warm) side. Short wires are commonly used to hold the insulation in place, but these compress the insulation and lower its R-Value.

## *Wood floor insulation*

---



*Sharpened metal wires are used to keep floor insulation from falling. The wires compress the insulation, and between the wires the insulation sags away from the floor. Both of these factors contribute to the loss of some insulation value.*



*Chicken wire works well to keep insulation in place without compressing it. It is important that the insulation be in contact with the floor above it.*

### **Crawlspace ground cover**

The survey found very few ground covers under insulated wood floors. A ground cover significantly helps to keep relative humidity at a low level and should always be used for moisture control. Without a ground cover, moisture can collect on the wood structure causing decay and can be a source of mold and excess humidity.

Six-mil polyethylene or other approved material should cover the entire ground area. It should be overlapped 12 inches at all joints, turned up 12 inches at the foundation wall and turned up and taped to pillars. This produces a continuous barrier with "no gaps at the edges." Also, if possible, the crawlspace should be level with or a little higher than the outside ground.

A common misperception is that termite companies require 20 percent of the crawlspace to be uncovered. This practice applies to existing homes with wood floors that have been experiencing long-term water problems in the crawlspace. A good job of installing the ground cover changes the moisture level in the wood floors, which can cause the wood to shrink and crack. This practice does not apply to new construction.

### **Crawlspace access**

If an HVAC system and ducts are in the crawlspace, make sure that there is enough height for ductwork installers to do their work. A cramped crawlspace not only makes this work hard, it sets up the ducts for future, unintentional damage. Also, if hot and cold water pipes are in the crawlspace, they should be insulated. The access door should be large enough to permit removal of the largest piece of the appliance. If equipment is present the minimum is 22"x 36." If there is no equipment, then 18"x 24."



*Crawlspace ground cover*



*Crawlspace access*