

Encapsulation & Dehumidification Case Study

Details

Location: Maryville, Tennessee
Age of Home: 25 Years
Size of Crawlspace: 1,000 Sq. Ft.
Homeowner: Danny Burns
Installer: Thompson Waterproofing & Allied Pest Control



Overview

While having some ductwork repairs done on his home, Danny Burns noticed there was lots of black mildew and standing water in his crawlspace. “This had me very nervous,” says Burns. “I have always been leery of termites but the mold had me very concerned. I plan on living in my home the rest of my life, so I want to make sure it is not going to rot down on me.”

Mr. Burns contacted Greg Gentry of Thompson Waterproofing & Allied Pest Control located in Knoxville, TN to inspect his crawlspace. “We noticed right away that there was lots of fungus, mold and standing water,” said Gentry. Gentry recommended installing a French drain with a sump pump, encapsulating the crawlspace and installing a Santa Fe dehumidifier. HOB0 data loggers were installed in the crawlspace to record humidity levels in the crawlspace before and after the encapsulation.

Action

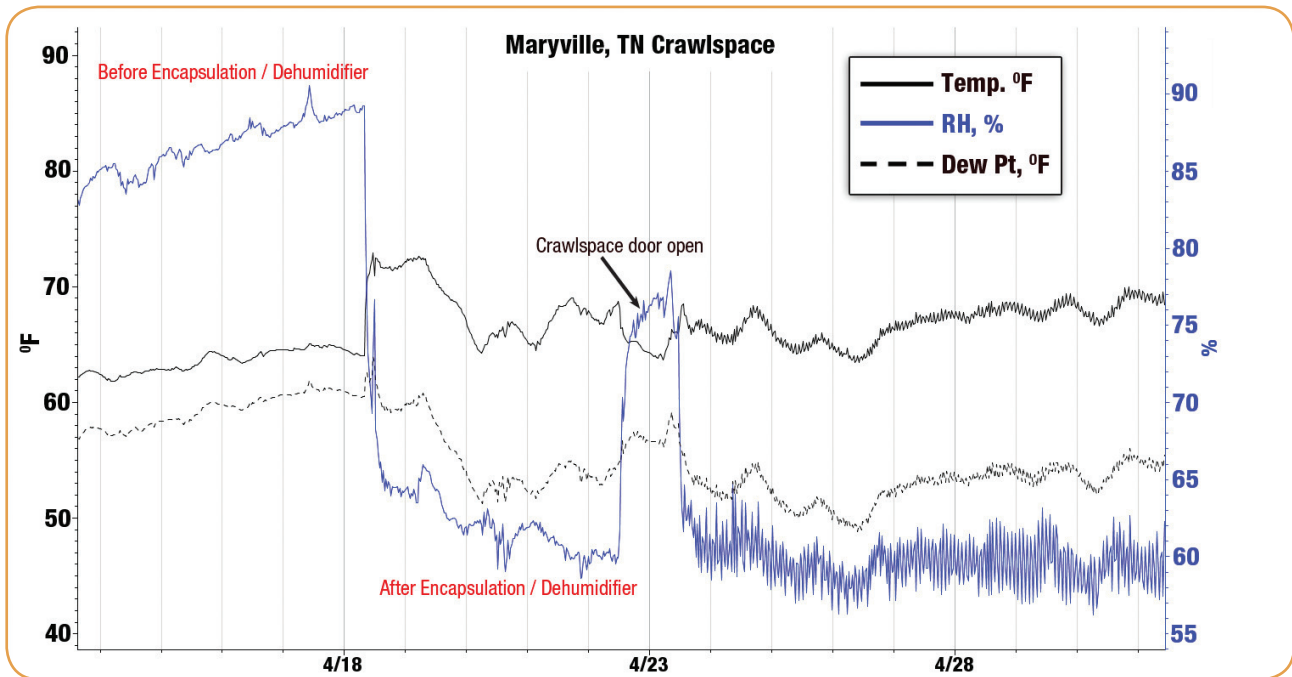
Prior to encapsulating the crawlspace the floor joists and walls were cleaned in order to remediate the existing fungus and mold. The wet fiberglass insulation and existing clear floor plastic was removed from the space. In order to help stop the infiltration of outside humid air into the space, all openings in the sidewalls, including vents and doors leading to the exterior were sealed.

Due to excess water intrusion around the foundation from the outside a French drain with a sump pump was installed to help mitigate standing water in the crawlspace.

The foundation and floor were lined with a crawlspace felt underlay to protect the vapor barrier from sharp objects like broken concrete or sharp stones. A reinforced polyethylene vapor barrier was used to prevent moisture from seeping into the crawlspace. Grade 12 Mil (or higher) is recommended for crawlspaces, as it is specifically designed to effectively block moisture and withstand the ground's natural alkaline qualities, which quickly break down in cheaper recycled materials, leaving the home unprotected. Proper installation of the vapor barrier is essential to controlling moisture, and as a result, minimizing the pest and fungi that thrive in a damp crawlspace.

Lastly, a Santa-Fe Advance2 dehumidifier was installed with a condensate pump to remove any excess humidity. This will ensure the structure of the house remains durable, the indoor air quality in the rest of the home is healthy, and the crawlspace remains inhospitable for fungi, mold, dust mites, wood destroying insects, and other pests.

Results



Conclusion

Excess moisture, introduced by way of unsealed, vented crawlspaces, contributes to wood rot, fungi growth and increased pest activity, including infestation and colonization. Moisture in crawlspaces migrates to the upper levels of the home through a “stack effect.” In essence, whatever air is below the house moves inside the house, which carries odors and contributes to poor indoor air quality and uncomfortably high humidity levels.

As warm air rises and escapes through the upper levels of the home, new air finds its way into the home to replace what’s been lost. Intake air comes in at the lower levels – through unsealed crawlspaces.

Homes that are properly encapsulated, continuously monitored and treated with a Santa Fe dehumidifier are protected from both the humid outside air and the ground’s natural moisture. An added bonus is that this strategy minimizes fungi and mildew growth, guarantying a more structurally sound and healthier home.

