

ENVIRONMENTAL HOME

Build crawlspaces right to keep them clean

By Dan Howard

For TRIB TOTAL MEDIA

Imagine the damp pungent odor of slopping wet muck at a stagnant pond. Take that image and add the smell of damp, rotting wood flavored with some fuzzy, stinky mold.

If that is what you smell when you open the access to your crawlspace, or any room above a building with a crawlspace, you might have a mold problem. In addition to rotting wood, you have a whole host of healthy-home problems.

Symptoms of water problems in a foundation crawlspace that require professional help:

- Odors in the crawlspace
- Odors in the living area
- Standing water in the crawlspace
- Wet walls in the crawlspace
- Damp, discolored or falling insulation

- Visible mold
- Allergies
- Cracked walls
- Uneven or bouncy floors
- Rusted metal
- Rodent intrusion

Having a good builder or an expensive home can't protect you from the laws of physics and nature. The problem is that we are still learning about the science of energy-saving construction practices and how they affect the rest of a building.

Heck, even some of the currently used building codes have the science of proper ventilation and insulation in crawl spaces dead wrong.

The old building codes focused on insulating against heat loss but didn't account for trapped moisture and its effects. We are fighting the mold and rotting materials from condensation and other moisture damage, even in code-compliant homes. Insulation and heating equipment are often installed in a way that creates cold floors over the crawl spaces and can move mold, insects, allergens and contaminants from the crawlspace into the living space.



GETTY IMAGES

Crawlspaces can be a pool for standing water, which can lead to mold, pests and a host of other problems.

Our energy-saving efforts are a major reason behind the increase in crawlspace problems. We have changed how we construct our homes by using new products and methods. These methods and products also increase the effects of moisture on the occupants and materials of construction. In many instances the methods and products intended to save energy increase the energy cost of heating and cooling a home and result in uncomfortable areas.

The real problem is that there are uninformed but well-meaning professionals and companies installing ineffective and sometimes harmful crawlspace solutions.

There are two possible approaches to solving the underlying water and water vapor conditions to eliminate mold and rot problems. It can be done right the first time, or it could need to be redone.

Homes have at least four ways that water can enter the crawlspace:

- Ground water coming up under the soil

- Exterior drainage from the driveway leaking through the block wall
- Water leaking from the area of the patio door above
- Condensation from exterior moist air adding to the humidity

This is why a skilled professional is needed to correct crawlspace problems. The water leaks need to be corrected as a part of the solution. Treating the mold alone does not solve the problems of this and many other crawlspaces.

A crawlspace liner is a critical part of solving the issues we have in many homes. An audit or assessment of the conditions in the crawlspace is essential for successful and lasting results.

The first step is identifying the underlying causes of odor and moisture created in crawlspaces. This includes water sources, insulation types and systems, HVAC installations and humidity controls. This is probably well past the expertise of almost all homeowners and many of the contractors who attempt to

perform this work without proper training.

We need to design the insulation and liner system based on all of the building's components. A dehumidification system is often required for the best results and should be considered as an element of the system. Changes to the HVAC system and ductwork might also need to be addressed.

In some cases, there may be a need for an exhaust system under the crawlspace liner. This would be the same type of system as used for radon reduction. They are required when there are gases including water vapor and radon in the soil under the liner. If water is coming up from the water table, a basin, pump and drainage system might be needed or the liner could trap water under it.

As in every aspect of construction, there are poor-quality materials that can be substituted for the quality products that do a great job. Don't be fooled into low-quality materials. The liner system materials

really need to be closely considered. There are various materials and grades of thickness. Wall areas can be a thinner gauge than horizontal surfaces. Horizontal surfaces have different grades to accommodate the conditions. A buffer sheet or heavy grade might be required on rough crawlspace surfaces or in areas where there will be people crawling across the area.

Workmanship really counts. The materials need to be properly secured and sealed. The liner will become loose from the walls if the attachment surfaces are not clean and dry and the sealant system not correctly applied.

The insulation system needs to be properly installed. There are several very good systems such as rigid foam and other batt insulation made from stone that are designed for high moisture. A common mistake to avoid is that the standard residential batt fiberglass is not the proper product to use in most crawlspaces.

Foundation crawlspaces are not the favorite place for most indoor environmental professionals to investigate from the point of personal exposure. On the other hand, it is one of the most important places for us to consider from the point of keeping our clients' homes environmentally safe. Make sure that the company you work with is trained and certified to understand the proper way to correct your problem.

A cheap solution using inferior materials or improper work could cost your health or the price of redoing the project.

For links and additional information about disease control and disinfection, go to: PittsburghMold-Testing.com/CrawlspaceLiners.

Dan Howard is the owner of Enviro-spect. For environmental consultation, call 724-443-6653. Email questions to DanielJHowardJr@gmail.com, and follow him on Facebook or via Twitter @DanHoward251.