

UNIVERSAL ALLIANCE SERVICES

“SERVICE BULLETIN”

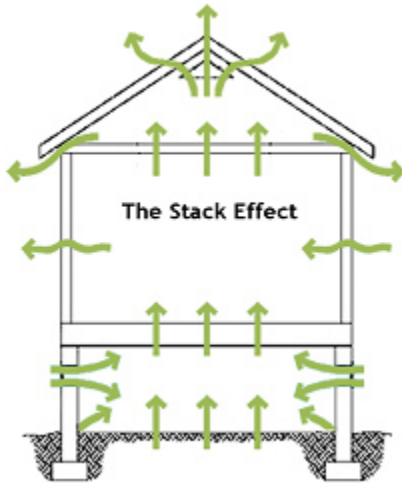
Understanding the Why, Where and the What for of Crawl Spaces.

You're Breathing the Air from Your Crawl Space.

Molds and mildew are microscopic organisms that thrive in damp, dark conditions like those found in your crawlspace. They're everywhere -- a natural part of our environment that breaks down and eats anything that contains organic matter. Mold spores can feed on a wide variety of materials including decaying leaves, dust, dirt, wood products, insulation, drywall and carpet.

In the right conditions, and in only a matter of hours, mold populations can explode -- growing and reproducing on a damp surface until they eventually destroy the entire food source. Mold spreads by producing millions of floating, airborne spores. When these spores mix with the natural bottom-to-top airflow in a house, they create a very unhealthy environment for people.

Typical symptoms resulting from mold exposure include everything from respiratory problems and nasal and sinus congestion, to skin, eye, nose and throat irritation. Some people, including infants, children, pregnant women, and the elderly are at higher risks for adverse health effects. Others, like those with chronic lung illnesses, may suffer even more serious infections when exposed to mold.



Like it or not, it's hard to avoid breathing your mold-infested crawlspace air!

The natural air flow in your home is from bottom to top. Based on the principle that warm air rises, as the air in your home heats up, it moves up through your house. Once this warm air makes it way to the attic and roof levels, it is normally vented out through the soffits or ridge vents. The question is: Where does this air come from? Much of the air comes from the crawlspace beneath your home. In older, more "leaky" homes, the air-exchange rate can be as high as two complete air changes per hour. Some building professionals say up to half of the air you breathe on the first floor of your home came from the crawlspace. Therefore, whatever is in your crawlspace air is in your house and

affecting you. If the humidity level in the crawlspace is high, there will be increased humidity in your living space. If there is mold or mildew in the crawlspace, it is likely there will be mold, mildew and musty odors in the house.

Is Your Home Rotting Out from Under You?

When any home is constructed over an exposed dirt crawlspace, it's a recipe for disaster. The ground below most homes contains large amounts of moisture -- which enters the crawlspace as water vapor and, in some cases, may even become puddled water. When you combine that moisture with the dark and dank conditions of a crawlspace, you have a noxious, destructive environment where mold thrives and spreads at an alarming rate across any organic material. Rot and decay set in and eventually lead to structural damage of floor joists and framing as well as other serious problems.

Watch for a warped or buckling condition in floors (known as "cupping"), excessive humidity levels in your living area, mildewed carpets, musty odors, peeling paint, rust, and damp sheetrock and concrete.

A whole host of pests including termites, cockroaches, spiders, and mice love these dark and musty places, too. And where there are rodents, snakes aren't far behind. Consider what you'll need to control these pests and the damage they can do to your home and family.

A Clean Crawlpace is an Efficient Investment.

It's a fact that homes built over exposed crawlspaces typically have higher heating and cooling costs than those with closed spaces. There are a number of reasons for this. For example, when the crawlspace is not properly insulated, there's no way to control the amount of unconditioned air entering or exiting the crawlspace.

In the summer, hot air enters the crawlspace from the outside, causing condensation on the cooler air-conditioning ductwork and plumbing pipes in the crawlspace, adding to the moisture issues in the crawlspace. Since warm air rises, this infiltration of hot air requires your home's air-conditioning system to work a lot harder as it struggles to cool and condition the areas affected by the hot air rising from below the home.

A similar situation occurs in winter, when colder outside air enters the crawlspace. The air chills the floors of your home, making them feel cold to the touch. Your heating system is taxed as it works to heat both the floor and the cold air seeping in from below.

Moisture Decay, Mold, Mildew and Fungus Control

30% of the air in your home comes from your crawl space!

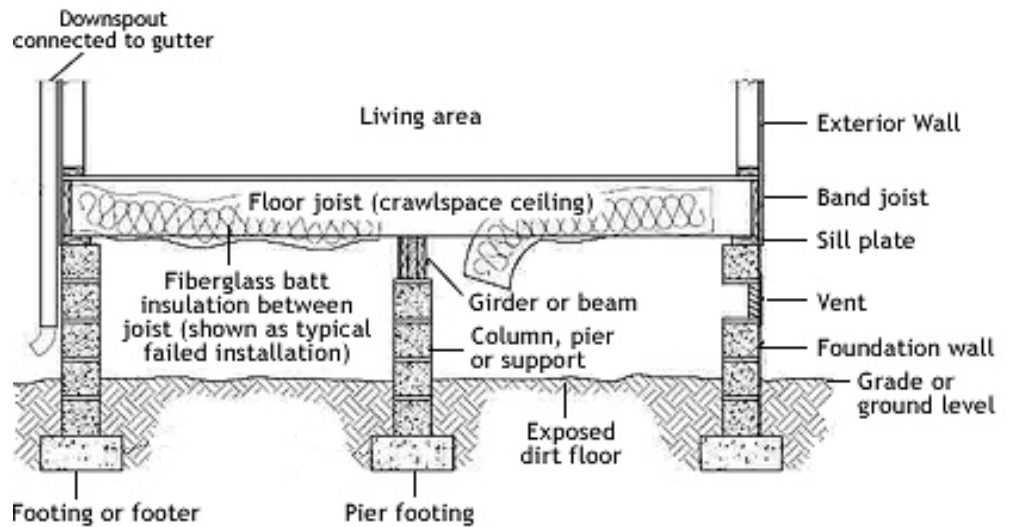
Though most people don't think of fungus, mold or mildew as a "pest", **these organisms certainly have a lot of characteristics in common with more traditional household pests like ants or roaches.** Fungus and mold are definitely living organisms, they generally live and thrive where moisture is present and when left untended, can cause a lot damage. In fact, **most mold and fungus infestations are directly related to insect and/or animal activity.** There are many insects which will "farm" mold, fungus or algae growth so where mold or fungus is growing, it is quite common to find many different species of insects trying to take advantage of the growth. **Most important, however, is the fact that mold, mildew and fungus pose three greater risks.**

- 1) **They can lead to massive wood damage.** Like termites, certain mold and fungus are able to turn cellulose material (stuff made of wood or wood by products) to food stuff and in the process will weaken and destroy the structural integrity of any item is infested.
- 2) Mold and fungus release spores which are their way of reproducing. **These spores float around in the air and pose inhalation risks** to those living in the local environment. In fact, these spores are considered to be a major allergen and rank with pollen as a main source of contaminants for allergy sufferers.
- 3) **Some types of molds and fungus release highly toxic "mycotoxins" which are byproducts that develop and then release during growth.** These mycotoxins can cause severe adverse health problems for many people. Though the mold **Stachybotrys chartarum (Stachybotrys atra)** is the more commonly thought of toxic mold, there are many others that pose health risks when allowed to grow and prosper in living areas. Such species includes **Claviceps pupurea, Aspergillus Penicillium and Cladosporium.**

Need Ventilation?



Is Your Crawl Space Making Your Home Sick?



Do you have... crawl space mold? *Standing water under your home?*

Condensation on pipes and ducts?

Insulation falling from the subfloor?

Structural damage from wood rot?

Buckled floors?

A dirty, damp, stinky crawl space?



With a simple hand-held device, moisture in wooden members of the substructure in the crawl space can be determined. Readings over 20% are conditions conducive to pest infestation as well as wood-decaying fungi,

mold, and mildew growth. Relative humidity in a crawl space should be kept below 55% as well. (*Which is hard to do with open foundation vents and humidity levels at 80% or higher in the Southeast much of the year. See below*)

Whenever moisture readings in excess are discovered a moisture control plan is often proposed to remedy the problem. Sometimes the plan is as simple as repairing a plumbing leak. Sometimes guttering, land drainage, or other exterior problems must be address.

Designing a plan to reduce moisture problems that fits the needs of your home or facility must be approached carefully, considering not only construction but also financial circumstances.

Some plans may include one of the items listed below or a combination:

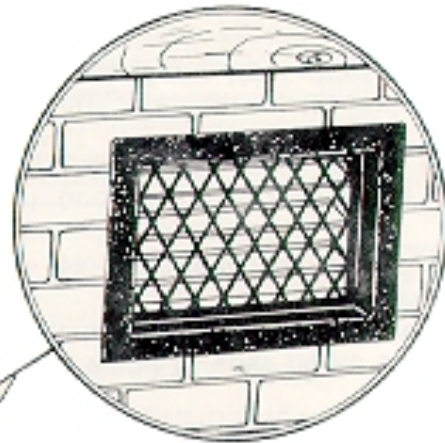
Poly-Vapor Barrier

This is the most basic of moisture control in a crawl space. A stand-alone poly-vapor barrier impedes ground moisture from rising to the wooden members of the home. These moisture barriers are often dislodged and damaged by people or animals in the crawl space. If this happens they do nothing to export moisture from under a structure. Universal will install these upon request, but we advise a better, more continuous type of moisture control as described under conditioned crawl space.

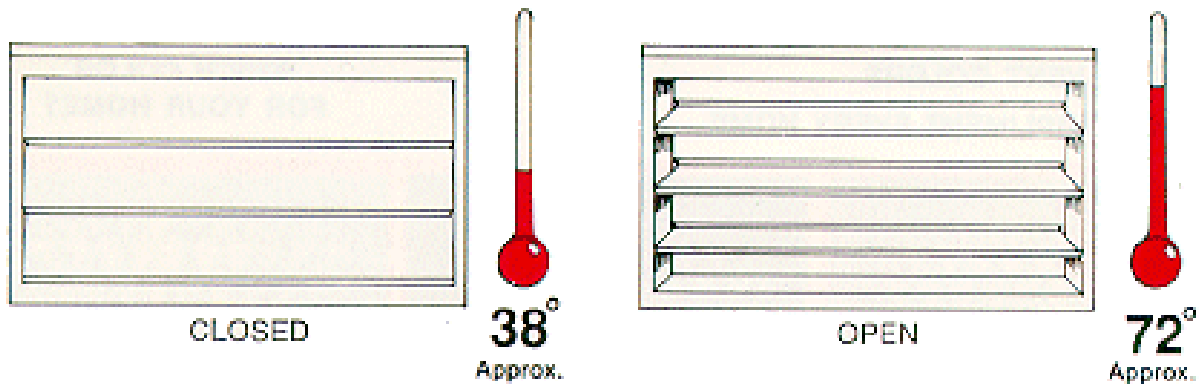
Foundation Ventilator

TEMP-VENT®
AUTOMATIC FOUNDATION VENTILATOR
PROTECTS HOMES

HOME OWNERS SPEND ANNUALLY
\$1 BILLION REPAIRING FOUNDATION DECAY



TEMP-VENT®
© 1988
IT'S AUTOMATIC
NO ELECTRICITY



FORGETTING TO CLOSE MANUAL VENTS CAN COST MONEY
 FORGETTING TO OPEN MANUAL VENTS CAN CAUSE FOUNDATION DECAY
 TEMP-VENT SOLVES BOTH PROBLEMS.

Let Mother Nature Control Your Vents

Powered Ventilators

Powered Temp-Vent systems are designed for foundations that require a higher rate of airflow and for areas that are difficult to vent. Depending on the model they can move large amounts of air per hour. Designed to run continuously on a low speed, they draw minimal electricity. However, Temp-Vent recommends power vents be fitted with a thermostat and a humidistat to control the operation of the vent.



These crawl space fans ventilate excess moisture -- a cause of mold, mildew and wood rot. Increases air circulation to fight condensation. Constant operation helps vent radon, treated wood off-gassing and odors that might otherwise migrate into living areas. (The only crawl space ventilators with a special "suitable for damp locations" ETL Safety Listing.)

Conditioned Crawl Space

There are various levels of moisture control in a crawl space. The most effective and economical is installing what is known as a conditioned crawl space. By installing a poly-vapor retardant to 100% of the ground, closing and sealing the foundation vents, and finally installing a commercial grade dehumidifier, we can keep moisture levels of the wood and ambient air at acceptable levels. Keeping these levels in check controls and prevent wood damaging fungi, mildew, mold, and even insects while providing a much cleaner environment under the structure resulting in cleaner air rising into the living space

Encapsulated Crawl Spaces

Encapsulated crawl spaces are also available. The only difference with the conditioned crawl space is that encapsulation involves installation of a poly-vapor retardant to the foundation walls and piers, sealing, and anchoring it. (labor intensive) There are also various options to this installation as well, pending the customers desired level of controlled crawl space under their home or place of business. Full encapsulations go further to reduce moisture infiltration by blocking capillary moisture entry into the crawl space via the foundation wall.

This also has a beneficial by-product of increasing energy efficiency of the home by retaining warm air in the crawl space in the winter, lessening the load on your heating system. We can take this a step further by installing foundation wall insulation.

Crawl Space Service Options

We can add the following service options to the moisture control methods above:

- Mass Moisture Export (drains, sumps)

- due to some land grading and construction techniques, rain water often enters a crawl space. When possible, we divert the rain before it enters the crawl space through downspout extensions and re-routing. In some cases, a sump basin is needed. Crawl space water is directed toward a commercial grade basin and sump system that will then export the water outside of the foundation wall into daylight away from the home. We also install gravity flow foundation drains at the foundation wall-ground juncture in the crawl space and route the water to a sump or through the foundation wall to daylight away from the structure.

-Wood Debris Removal

-all wood debris on the crawl space floor should be removed before a poly-vapor barrier is installed (wood remaining on the ground under a crawl space is a condition conducive to wood destroying insects (termites))

- Subfloor Treatment to reduce mold/mildew

- a crawl space dehumidifier will reduce proliferation of mold and mildew over time as the moisture levels are reduced under a structure. Customers who want existing mold/fungi immediately remedied under a structure may elect to have the subfloor treated. This treatment is applied to all of the exposed wooden members of the subfloor. The material kills surface mold/fungi and penetrates the wood protecting it from the growth of wood decay fungi, mold, and mildew.



Monitor the Status of Your Crawl Space Humidity

Some clients want to be able to see the measured results of their conditioned crawl space. With this device and a remote sensor located in the crawl space, you will always know that the humidity levels are in an acceptable range and that the installed dehumidifier is functioning properly. (*hasn't accidentally become unplugged or circuit breaker tripped*)

In the picture to the left, the middle section represents the readings of the remote sensor in the crawl space. This customer's crawl space humidity is now at 39%. Excellent!

These are available at the time of installation or can be added to any existing conditioned crawl space system. Even homes without a conditioned crawl space can benefit from knowing the humidity levels under the home. We can install these for you or offer them to the "do-it-yourselfer." Contact us for more information at **610 449 0740**.

Word of Warning for the Curious Homeowner If any of this information has sparked your interest to go into your crawl space and have a look around, please use a NIOSH respirator to protect yourself from mold/mildew/fungi spores and other airborne matter that may irritate your lungs and/or make you ill. **So, call Universal at 610 449 0740.**

