



Breathe Easier With A Non-Vented Crawl Space.





Protection From The Bottom Up

News reports of costly, moisture-related damage in homes are on the rise. Quite often, moisture enters the house via crawl space vents in the foundation, where it may remain undetected for years. The presence of moisture may lead to the formation of mold and mildew, which may damage the home's structure and may adversely affect indoor air quality. To make matters worse, the structural damage may not be covered by insurance, so the enormous repair/replacement costs are borne by builders or homeowners.

An alternative to the vented crawl space is rapidly gaining popularity as an excellent solution to moisture problems. It's called the non-vented, closed or conditioned crawl space in which the vent-free foundation wall interior is insulated. The properly constructed non-vented crawl space is much drier and more energy-efficient than the traditional vented crawl space. A key component of the non-vented system – STYROFOAM* extruded polystyrene and polyisocyanurate insulation products from Dow – helps keep the crawl space temperature/humidity level close to that of the house above, reducing energy loss and the potential for moisture problems. And that can make builders and homeowners breathe easier.

The Silent Home Invader

Moisture easily slips into a home with crawl space vents in the foundation. Once inside, it is there to stay – outside air will not dry it out. Moisture clings to floor

joists, batt insulation, heating/cooling equipment and plumbing fixtures. In this moist environment, it only takes the right temperature, an available nutrient and as little as 48 hours for mold and mildew to form. This mold and mildew can degrade the integrity of the crawl space's contents, as well as compromise indoor air quality. And moisture isn't the only thing to worry about. Wood-eating insects, dust mites and other small creatures can crawl in through the vents to take up permanent residence.

Sealed For Good

As its name indicates, a non-vented crawl space configuration has no vents, creating an effective seal around the perimeter. Instead of using batt insulation between floor joists, the interior foundation walls are insulated with one of the following high-quality rigid foam insulations from Dow:

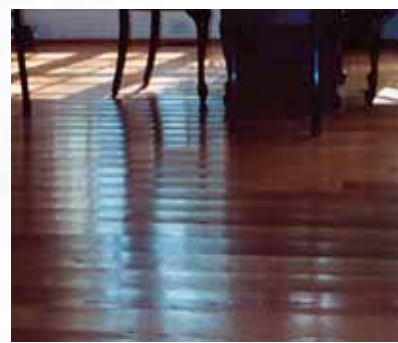
- STYROFOAM Square Edge
- STYROFOAM Scoreboard
- STYROFOAM Tongue and Groove
- THERMAX* Sheathing

Also, a continuous poly vapor barrier covers the crawl space floor and sides. The bottom and sides of the crawl space are now protected from water, air and vapor penetration.

Conditioned air circulates between the main part of the house and the crawl space with the help of a floor register, flexible ductwork and a continuous-duty, low-sone ventilation fan.** The fan is installed on the floor joists several feet from the register to minimize any noise from the fan's motor. This continuous exchange of air results in an average 50 percent to 55 percent relative humidity for the crawl space – similar to the home's interior. With controlled relative



humidity, a non-vented crawl space is more likely to remain mold- and mildew-free. The home maintains its structural integrity, and homeowners experience a healthier indoor environment that is more efficient to heat and cool.



Moisture may enter through a home's vented crawl space and cause considerable damage below and above grade. Increased levels of humidity can cause wood flooring and furniture to swell and warp. A non-vented crawl space eliminates this "side entrance" for moisture.

Photos courtesy of Jeff Tooley, owner of The Healthy Building Company

Rigid Foam Insulation From Dow – At The Foundation Of A Dry Crawl Space

Moisture-resistant rigid foam insulation from Dow is designed with a closed-cell structure that contains about a million pockets of trapped air in every cubic inch of material, enabling the insulation to resist water vapor drive and maintain exceptional thermal performance. In addition to this high-performance design, Dow insulation products are manufactured with a variety of performance characteristics so that each part of the house has the right insulation for the job.

With decades of proven performance, STYROFOAM extruded polystyrene insulation for crawl spaces provides exceptional moisture resistance with long-term, stable R-values[†] (an R-value of 5.0 per inch of insulation thickness). THERMAX Sheathing delivers the

same benefits with an R-value of 6.5 at 1 inch of insulation thickness. It is a glass-fiber-reinforced polyisocyanurate foam core with special laminated facers that enhance moisture and damage resistance. This reinforcement is chemically modified to provide improved fire performance. THERMAX Sheathing is the only insulation that may be left exposed in crawl spaces per National Evaluation Services NER-681. STYROFOAM extruded polystyrene insulation may be left exposed in crawl spaces per NER-699. Consult the local building codes in your area before starting construction.

Due to their sturdy construction, THERMAX Sheathing and STYROFOAM extruded polystyrene insulations can be installed as soon as the foundation wall and drainage system are installed, without risking degradation from the elements or construction equipment while the flooring is installed.



The non-vented crawl space system uses rigid foam insulation on the foundation wall interior to reduce the potential for condensation and related moisture problems.

Take Comfort From Below

Insulating with rigid foam insulation products from Dow is an efficient, effective way to help ensure that the non-vented crawl space will remain dry, helping maintain the house's structural integrity, indoor air quality and energy efficiency for many years to come. Take comfort from a non-vented crawl space. Take comfort from building science.

For more information about how rigid foam insulation from Dow is “at home” on interior crawl space walls, contact a Dow representative at 1-866-583-BLUE (2583) or visit www.insulateyourhome.com.

It's Not The Heat, It's The Humidity.

Mold and mildew love a moist environment. The goal of a non-vented crawl space is to keep the relative humidity lower than 70 percent to reduce the potential for mold and mildew growth. Moisture-resistant insulation, such as rigid foam products from Dow, on the interior foundation walls of a non-vented crawl space also significantly improves the home's energy efficiency.



Mold clings to floor joists, degrading the home's structural integrity.



Build Green With Dow

Dow supports initiatives that help preserve our environment, and we strive for environmental sensitivity in our manufacturing processes and in our products. Dow produces insulating foams that:

- contain no CFCs
- are formaldehyde-free
- are not a known food source for mold or insects
- contain post-industrial recycled content
- are recyclable (extruded polystyrene)

Ask your Dow representative for more information.

NOTICE: Changes to the International Residential Code (IRC) require the installation of a weather-resistive barrier within most exterior wall assemblies in residential construction. The following Dow insulated sheathing products qualify as a weather-resistive barrier (WRB) when installed according to the installation instructions developed for "installation of foam sheathing as a weather-resistive barrier": STYROFOAM* DURAMATE* Plus, STYROFOAM Residential Sheathing, STYROFOAM Tongue & Groove, STYROFOAM Square Edge, STYROFOAM Residing Board, THERMAX*, TUFF-R*, and Super TUFF-R and therefore do not require the use of a building paper or a housewrap as a WRB. When a WRB is not needed, these Dow foam sheathings may be installed according to standard installation instructions for foam sheathing from Dow. Be sure products and installation procedures meet code requirements for your particular location.

NOTE: STYROFOAM WEATHERMATE* and STYROFOAM WEATHERMATE Plus housewraps have already qualified as weather resistive alternatives to the prescribed felt (see Evaluation Reports NER 593 and NER 640 for approved alternate).

NOTICE: No freedom from any patent owned by Dow or others is to be inferred. Because use conditions and applicable laws may differ from one location to another and may change with time, Customer is responsible for determining whether products and the information in this document are appropriate for Customer's use and for ensuring that Customer's workplace and disposal practices are in compliance with applicable laws and other government enactments. Dow assumes no obligation or liability for the information in this document. NO WARRANTIES ARE GIVEN; ALL IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE ARE EXPRESSLY EXCLUDED.

STYROFOAM Extruded Polystyrene Insulation

COMBUSTIBLE: Protect from high heat sources. Local building codes may require a protective or thermal barrier. For more information, consult MSDS, call Dow at 1-866-583-BLUE (2583) or contact your local building inspector. In an emergency, call 1-989-636-4400.

THERMAX Products

COMBUSTIBLE: THERMAX products should be used only in strict accordance with product application instructions. THERMAX products, when used in a building containing combustible materials, may contribute to the spread of fire. For more information, consult MSDS and/or call Dow at 1-866-583-BLUE (2583). In an emergency, call 1-989-636-4400.

WARNING: THERMAX insulation does not constitute a working walkable surface or qualify as a fall protection product.

Building and/or construction practices unrelated to insulation or housewrap could greatly affect moisture and the potential for mold formation. No material supplier including Dow can give assurance that mold will not develop in any specific system.

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