



## CRAWLSPACES... to Vent or Not to Vent?



**Vented Crawlspace**



**Closed (sealed) Crawlspace**

That's the question that is constantly being debated, especially with builders and many home inspectors.

To answer this question let's explore Science, Reality, and a real-world project that was conducted in eastern North Carolina to determine if crawlspaces should be vented or closed.

## Science...

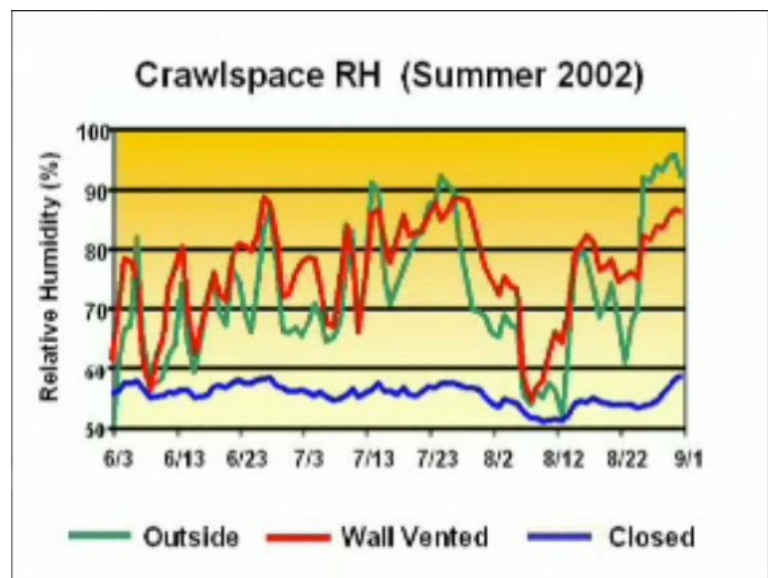
The temperatures of a wall vented crawlspace in the Raleigh area range between 55 degrees F. and 70 degrees F. Ask anyone who spends time in the crawlspace and they will tell you that compared to the outside air, the crawlspace feels like air conditioning in the summer months and heated space in the winter months.

The average daily summer-time temperature and relative humidity (RH) in the Raleigh area is 80 degrees F. and 74% RH. At these temperatures and humidity levels, the dew point (the temperature at which 100% RH is achieved and condensation occurs) is 71 degrees F., which is higher than the temperature in the crawlspace (70 degrees F.) As a result, when this hot, humid outside air migrates into the cooler crawlspace through the foundation vents, CONDENSATION occurs on just about every surface in the crawlspace, especially on the cooler metal HVAC vents!

DEW POINT CHART												
Air Temp °F	% Relative Humidity											
	100	95	90	85	80	75	70	65	60	55	50	45
110	110	108	106	104	102	100	98	95	93	90	87	84
105	105	103	101	99	97	95	93	91	88	85	83	80
100	100	99	97	95	93	91	89	86	84	81	78	75
95	95	93	92	90	88	86	84	81	79	76	73	70
90	90	88	87	85	83	81	79	76	74	71	68	65
85	85	83	81	80	78	76	74	72	69	67	64	61
80	80	78	77	75	73	71	69	67	65	62	59	56
75	75	73	72	70	68	66	64	62	60	58	55	52
70	70	68	67	65	63	61	59	57	55	53	50	47
65	65	63	62	60	59	57	55	53	50	48	45	42
60	60	58	57	55	53	52	50	48	45	43	41	38
55	55	53	52	50	49	47	45	43	40	38	36	33
50	50	48	46	45	44	42	40	38	36	34	32	29

## Real-World Project...

A real-world project that answers the question of whether or not crawlspaces should be vented or closed was conducted by the *Crawlspace Research Project* in 2002 at a 12-home development site field test in eastern North Carolina that compared four homes with vented crawlspaces (as shown by the red line) and eight homes with closed crawlspaces (as shown



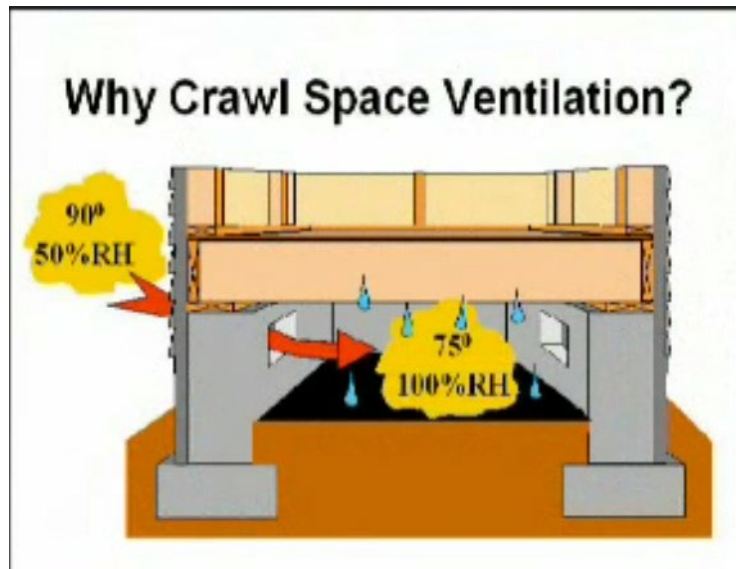
(by the blue line). The green line shows the relative humidity of the outside air temperature. Notice how closely the relative humidity of the VENTED crawlspace matches the outside air. With crawlspace humidity levels above 70% for eighty-percent of the time, this crawlspace maintained damp and wet mold-growing conditions most of the summer. In sharp contrast, the blue line, which represents the CLOSED crawlspace homes, did NOT follow the outdoor humidity and stayed dry with relative humidity less than 60%.

For more information on this project go to [www.crawlspaces.org](http://www.crawlspaces.org).

## Reality...

Wood members in the crawlspace will endeavor to equalize to the humidity of its surrounding area. This means that the wood members in the crawlspace will absorb the surrounding moisture eventually achieving saturation, resulting in fungal growth. A good home inspector will report the moisture levels of the wood members in the

crawlspace. So, what does the reported moisture levels of the wood members really mean? Well, when you hear that a moisture of the wood members is 18%, this represents an 85% RH; 21% represents a 90% RH; and 28% represents full saturation.



## In Summary...

Science, Reality, and a Real-World test site demonstrate unequivocally that vented crawlspaces actually add moisture to the crawlspace and creates an environment that will foster fungal growth. Whereas, a closed crawlspace maintains a dry environment that will not foster fungal growth.

## NOW YOU KNOW!

Promark is a multi-inspector company serving the Triangle area since 2014 offering:

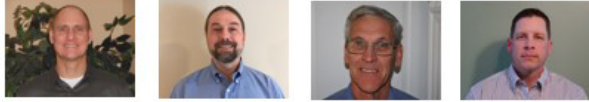
- ✓ Home Inspections
- ✓ Termite Inspections
- ✓ HVAC inspections
- ✓ Swimming pool inspections
- ✓ Septic tank inspections



and



*We would be honored to conduct a home inspection  
for you and your client.*



Owner and operator, Mark Villee, is a structural engineer, and along with Mark, Promark inspectors have backgrounds in building construction.

## Promark Home Inspections, Inc.

Phone Number:  
(919) 345 9573

[Contact Us Today!](#)