

**2009 NATIONAL WEATHERIZATION TRAINING CONFERENCE**  
 JULY 20-23, 2009 | INDIANAPOLIS, INDIANA

**Basic Mold and Moisture**

Russell W. Glasgow  
 State of Michigan, Technical Weatherization

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**WEATHERIZATION PROGRAM NOTICE 05-1**

**EFFECTIVE DATE:** November 12, 2004

- ...State and local agencies should ensure that regular weatherization work is performed in a manner that doesn't contribute to mold problems and when the work is performed properly, can alleviate many mold conditions.
- This guidance serves to clarify the DOE policy on mold as well as to provide resources to assist educating the weatherization network and clients about mold.

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**WEATHERIZATION PROGRAM NOTICE 05-1 (continued)**  
**Remediation**

- The Weatherization Assistance Program is not a mold remediation program.
- The use of DOE funds for the removal of mold and other related biological substances is not an allowable weatherization expense. Generally, DOE funds should not be used to test, abate, remediate, purchase insurance, or alleviate existing mold conditions identified during the audit, the work performance period or the quality control inspection.

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**WEATHERIZATION PROGRAM NOTICE 05-1 (continued)**  
*Remediation*

- Also, in homes where multiple sources of funds are used, **any mold insurance or mold abatement costs must be charged to another funding source - not DOE.** If necessary, weatherization services may need to be delayed until the existing mold problem can be referred to another agency for funding of remedial action. DOE funds may be used to correct energy-related conditions to allow for effective weatherization work and/or to assure the immediate or future health of workers and clients.

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**WEATHERIZATION PROGRAM NOTICE 05-1 (continued)**  
*Mold-Related Weatherization Procedures*

- In Program Year 2005, all States will be required to amend their health and safety plans to include a protocol for dealing with mold which will include a specific policy when encountering homes with mold growth. This amendment to the Health and Safety Plan should be included under II.10, Adjustments to On-File Information, of the Annual File.

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**WEATHERIZATION PROGRAM NOTICE 05-1 (continued)**  
*Mold-Related Weatherization Procedures*

- While States need not modify their existing energy audits, the inclusion of a mold protocol or checklist for local agencies does need to be a part of their routine audit inspection. If a mold condition is discovered during the initial inspection of the home by the energy auditor that cannot be adequately addressed by the weatherization crew, then the unit should be referred to the appropriate public or non-profit agency for remedial action

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**WEATHERIZATION PROGRAM NOTICE 05-1 (continued)**  
***Mold-Related Weatherization Procedures***

- ...Also, in Program Year 2005, States will be required to have a description of a training plan (along with a schedule for completion of training) on awareness of moisture and mold hazards, and client notification procedures for its local agencies. It is important that weatherization crews receive specialized training in the recognition of conditions that promote mold growth they may encounter in their weatherization work and how best to prevent creating new mold conditions. At the same time, crews need training in how to treat less extensive mold conditions they may encounter in certain homes.


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**Disclose what you know *and* don't know**

- Your business is weatherization not molds
- don't make claims you are not qualified to make
- provide EPA mold publication
- *Share Checklist results of "Observed" situation*
- *Share photos of findings*
- *Stress "no testing was done to verify findings"*
- *Obtain signature of disclosure on Checklist*


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- While dormant mold spores are always present inside a home, active mold growth indoors is not normal.
- Molds can present health risks for crews and clients.
- Uncontrolled mold growth can cause severe and permanent structural problems.
- Failure to recognize conditions of mold growth may worsen existing mold cases or cause molds to actively grow.


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**Nine *conditions of mold growth* :**

1. Mold spores present – they are everywhere
2. Food (organic materials)
3. Moisture
4. Building Tightness
5. Temperature
6. Oxygen Range
7. Time
8. Improper WX assessment, diagnostics & measures
9. Lack of home occupant knowledge & maintenance
10. This session explores some origins of moisture.

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Single story with (damp) basement



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Semi finished room in basement



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Additional signs of moisture



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Client realized need for waterproofing but never finished



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2 story, floored attic, basement



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Fungus in the form of "Mushrooms" growing on wall



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Client had a new roof installed and told the contractor  
"I have a PVC vented furnace and water heater, I don't want anything going through the roof to leak."



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Client had to place a cottage cheese container on basement  
sill plate to catch water dripping down the wall



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Roofing contractor not only removed unused masonry chimney to below the roof deck but the plumbing vent stack TOO

Plumbing vent stack  
In this stud cavity



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Client claims "I never had mold until Weatherization put in new storm windows"



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Mold on window sill from condensation on glass and mold at living room floor.



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Mold above built in cabinet and coat closet on exterior wall



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Back of manufactured home showing green grass and ice under leaking water heater



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Picture under home showing "steam" from broken hot water line. Client forgot to mention she set the thermostat as low as it would go for about a week while she was gone. She did notice the leak in the water heater area.



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2 story framed with full basement

Look closely and you  
Can see mold(?) above  
Sliding door



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Foundation seepage bad enough to have laundry on pallets



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Another program paid for a contractor to spray an interior seal coat to keep water from seeping through the basement walls



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Moisture severe enough to rust through a heat duct and rot a floor joist bad enough to fail

Rusted through Heat duct



Rotted, split Floor joist

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Single story brick with attached garage and slab foundation



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Client had "Handyman" boyfriend install a combo light/fan fixture in the bath ceiling. He just hung the end next to an existing can vent



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This shows the garage wall intersect about 3 feet from the vent and the bedroom ceiling next to the bath.



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These are photos of the bedroom on the far side of the home.  
NOTE: home had hydronic baseboard heat (minimal air flow)



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Single story brick with crawlspace foundation



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There were nice, flowering mold colonies in every room where furniture or closets limited air flow.



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Crawlspace access was from interior closet. The client spread some lime on the ground because of the "Musty" smell



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The client had removed fiberglass perimeter insulation and the ground cover because they were trapping moisture. Note that the Kraft paper is the nutrient for growth.



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Water heater closets pose a problem even when vented especially if there are water leaks



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Basements are prime areas for mold because of high humidity, cold surfaces for condensation, and poor air circulation.



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Note the flat roof above back room and then look at the ceiling of the storage area beneath it.



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Is the problem the improperly vented dryer or the leaking clothes washer?



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This manufactured home has had so much condensation on the bottom side of the metal roof that the wall/ceiling intersect is rotted the entire perimeter.



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This is the belly of a manufactured home with a plumbing leak and the front door jamb showing condensation problems.



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Are these signs of mold? Yes, I know the first is a creosote trail from a disconnected wood stove...but I like the picture.



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The client advised us to "take a giant step when entering" so as not to exacerbate the hole in the floor. The windows also showed condensation moisture. She would not allow me to photo the garden she had inside.



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This client wanted "fresh" air into his bedroom without wasting all the heating dollars from opening a window. Too bad he did not realize he was promoting roof deck condensation.



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This client originally had an inline diverter to keep all that heat from going outside while drying cloths.



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The porch in the lower corner was the ceiling for the laundry room in the basement.



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On the same house, the bath and kitchen fans terminated near an existing can vent. There was not more damage because the client never use the fans and was not sure if they worked.



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This client could not understand why he had to sign a mold waiver for his attic. He ran the duct to the cornice vent himself.



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The OCJ is exterior space, right?



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The insulation contractor failed to locate the major bypass because the attic was partially floored for storage.



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I hope I never have to relight the pilot on this water heater and the drywall was falling down around this tub so the client took it down.



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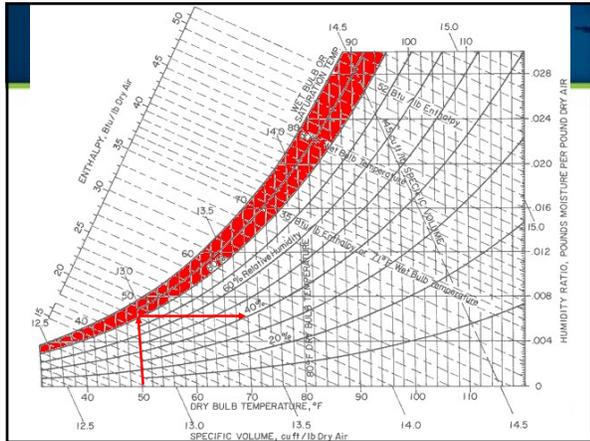
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This concludes the session (applaud if you feel compelled)

- Thank you for attending and I hope you picked up some information on moisture as it relates to Weatherization
- I realize mold training is far more involved than this simple presentation.
- You may contact me by e-Mail for a copy of this presentation at:
- [GlasgowR@michigan.gov](mailto:GlasgowR@michigan.gov)

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