

May 2006



# Residential Update

Office of Energy Efficiency

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[www.odod.state.oh.us/cdd/oe](http://www.odod.state.oh.us/cdd/oe)

## Ohio to Host the U.S. DOE Midwest Regional Conference

*submitted by Tim Lenahan, OEE*

The U.S. Department of Energy's Midwest Regional Weatherization Conference is fast approaching. The conference is being held in Columbus August 15-17, 2006. With the great start we received from the planning committee, we have been able to finalize the agenda, and registration is now available on-line at the ACI website (<http://www.affordablecomfort.org/events.php?EventID=20>). There are 72 in-house sessions with some sessions repeated. There are also 20 off-site sessions, with the possibility of adding more. This conference will be promoted almost entirely by electronic means with a few exceptions. The only printed promotional piece is the post card found in this issue. Beyond publications like this newsletter, everything will be done via e-mail and by accessing the website. It is up to all of you to make sure we spread the word about this excellent training opportunity.



Be sure to note that the off-site sessions will be held during the conference on Wednesday and Thursday. You must pre-register for the off-site sessions. This can be done as you register on-line. There is a limit of two off-sites per registrant to give more people a chance to take part.

The OEE will be offering scholarships to Ohio weatherization personnel and their contractors. These will be awarded on a first-come, first-serve basis. We will limit the number of scholarships by agency, so that every agency gets a chance at the scholarship fund. Please contact Stephanie McCormick at [smccormick@odod.state.oh.us](mailto:smccormick@odod.state.oh.us) to be placed on the list. We are assuming that everyone who applies will get one, but we just want to make sure everyone has access. The cut-off date will be July 13<sup>th</sup>. For those of you who are not applying for scholarships, there is an 'Early Bird' registration fee of \$235 that is available until July 1<sup>st</sup>. After July 1<sup>st</sup>, the regular rate of \$285 will apply.

All of us here at the OEE want to invite you to this regional conference. There should be plenty of opportunity for peer exchange with your Ohio friends and other weatherization professionals from around the Mid-West. See you in Columbus.

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# Are You Working Lead Safe?

submitted by Steve Creed, OEE

Lead based paint was used in a majority of houses built before 1978, when the Consumer Products Safety Commission banned it. Lead was used in paint, due to the fact it made the paint last longer and adhere to surfaces better. Although the manufacturing of lead based paint ended in 1978, many builders continued to use the paints as late as 1980 due to having stocks of the paint in inventory. Federal regulations require that all weatherization work be done in a lead safe manner. Each and every household built before 1978 must be provided with the pamphlet entitled “*Protect Your Family From Lead in Your Home*”. A written acknowledgement must be signed by an adult resident or, if unable to do so, acknowledge in writing that the pamphlet has been delivered and that no signature could be obtained from the client before weatherization work can begin.

Several years ago, all agencies that performed weatherization were given “lead safe work kits”. These kits contained a video, HEPA vacuums and supplies. The equipment was furnished, the need is real and the question is “How many of you are truly working lead safe?” For those of you who are, “good job!” For those of you who aren’t, “Why not?” Is it for all the usual excuses? “I forget sometimes” “We just don’t have time” “It’s too expensive”.

To those of you who aren’t, consider this: the United States Department of Housing and Urban Development estimates that nearly one million children under the age of six in the United States have blood lead levels high enough to impair their ability to think, concentrate and learn. Lead poisoning in children can reduce their IQ’s, cause learning disabilities and impair hearing. Children who have elevated levels of lead in their blood stream often experience reduced attention spans and are hyperactive which may lead to behavior problems. At higher exposure levels, lead can damage a child’s kidneys and central nervous system, cause anemia, convulsions, coma and even death. Pregnant women suffering from lead poisoning can transfer lead to a developing fetus, resulting in adverse developmental effects.

Many people don't understand the risks associated with lead exposure ~

## ***“I forget sometimes”***

By not working lead safe you not only take the chance of contaminating the people in the home you’re working on, you are also risking transporting the lead dust with you to your home and family. Lead dust can be carried home on your clothes and your body. Do you hug your children when you get home? Sit down and relax before supper? You’ve just contaminated your home and family.

## ***“We just don’t have time”***

How much time does it take to sit with a sick child who has been affected by lead poisoning? And don’t think that because you don’t have kids that it’s all right. Adults can be affected by lead poisoning. Elevated lead levels in adults can cause high blood pressure, nerve disorders, muscle and joint pain and memory and concentration problems. Thinking of having children? Adults can suffer pregnancy problems including illness, harm to the fetus and fertility problems. Do you have time to suffer an illness that will be with you and your family or your client’s family for life?

## “Are You Working Lead Safe?”

(continued)

### “It’s too expensive”

How expensive would it be for lost production time due to workers who are sick or have to care for a sick family member? Consider sick leave, higher insurance premiums and lost production. For those of you who may get sick or have a family member ill from lead poisoning, how expensive will it be for you? Think about lost wages, doctor and hospital bills and the fear that every parent feels when they have a sick child. At what price is protecting our clients, our families and ourselves too expensive?

The next time you plan production, also plan to be lead safe. Time and money are nothing when compared to everyone’s health and safety.

## Moisture, Mold and HWAP

submitted by G.H. Runevitch, COAD OWTC

Moisture has been an important issue in weatherization for many years. New techniques practiced by better trained technicians have resulted in tighter homes. While this has had a positive effect on energy use, the trend toward tighter homes has other consequences. Auditors, inspectors and technicians have had to become more aware of moisture that is found in homes, mainly the sources of moisture and effective ways to control the negative effects of too much moisture in a home.

There are many tools and high-tech equipment options available that can be helpful in identifying potential moisture problems. One available to Ohio HWAP providers is the Plate Pal, a switch cover that records and displays temperature and humidity. The best location for the Plate Pal should be determined by the inspector/auditor. The Plate Pal must be used in conjunction with another important tool, consumer education. As weatherization professionals, our best tools for recognizing and solving moisture problems often are eyes, nose and brain. Visual evidence such as stains, water-damaged wood or plaster, bad or missing gutters, deteriorated roofing and the like are indications that there are, or will soon be, moisture problems. There are also indoor sources of excessive moisture such as aquariums without tops, a high frequency of shower use without an operating exhaust fan, certain cooking habits and so on. The Data Collection Form contains a moisture assessment which is helpful in identifying moisture issues, when referenced with WPS section 1506-9. If a moisture issue is identified, it may be beneficial to conduct a more detailed moisture audit.



Plate Pal

## Moisture, Mold and HWAP

(continued)

Whatever the reason for, or source of the moisture, the situation must be controlled before weatherization occurs. High moisture levels can degrade insulation effectiveness, and, in addition, moisture levels that did not cause a problem in a pre-weatherized home can create major problems once a house is tightened and moisture can no longer freely escape through exfiltration.

Mold is a related concern because it needs a certain level of moisture to survive. Almost any organic substance can serve as a food source for mold, and it can grow in a wide range of temperatures, although warmer temperatures are more favorable for many mold species.

Once mold is established, it is difficult to eradicate or control. Mold may grow in hidden areas such as behind drywall, paneling or wallpaper, so it's important to thoroughly observe any areas of mold or moisture stains and notice such clues as musty smells during inspections.



*Mold caused by moisture in a home.*

The best way to avoid mold or moisture problems is to thoroughly and promptly eliminate any moisture sources. This includes repairing plumbing leaks and building component failure. When elimination of the source is not feasible, such as excessive indoor moisture production, or a dirt crawlspace, control measures are necessary. Installation of exhaust fans in combination with consumer education can be very effective. Dirt crawl spaces must always be effectively sealed with a ground vapor barrier, even if the soil appears to be dry. Soil is such an effective transmitter of moisture that the area can appear deceptively dry. One method to determine the moisture transmission in these areas is to lay a piece of 6 mil plastic (about 3' x3') onto the dirt and then proceed with your inspection. If you find condensation on the underside of the plastic when you return to that area later in the inspection, an effective vapor barrier should be installed. Be sure that the vapor barrier is totally sealed at all points of contact. Remember, silicone caulk does not work well on brick, block or other surfaces that may have moisture driven into them from the outside.

Proper inspection and preparation can keep moisture and mold from becoming problems. Locate existing or potential moisture problems before beginning work and take appropriate steps. Find and document situations favorable to mold growth and determine what weatherization measures are best for the situation. As an old saying goes "An ounce of prevention is worth a pound of cure." Put another way, doing things properly the first time is much better than returning due to a callback or complaint.

## Working with Foam Board

submitted by Tim Lenahan, OEE

With the energy tax credits in place, this year seemed like a good year to complete some energy retrofits on my home. These projects have been put off because low energy bills have made the upgrades not cost-effective. With future energy prices looking like they may be going up, it seemed like the right time. One of the measures to be installed was crawlspace perimeter insulation. I wanted extruded polystyrene because of its moisture handling abilities. The plan was to install 2" foam around the exterior perimeter and to also put foam board in the sill pockets to replace the poorly installed fiberglass.

It seemed straight forward except for cutting the foam board. The 2" foam is hard to cut with a knife and can be dangerous if the knife slips. We had a fair amount of board to cut. With safety in



*Pizza cutter used to cut foam board*

mind, I came up with the idea of using a pizza cutting wheel. It easily cut the foam. All you had to do was snap a line and make a couple of passes with the wheel. We bought the biggest pizza wheel we could find and it could cut down about 1 ½ inches. The board easily broke along the cut. It turned out that we needed a board 40" high. I'm into production, so cutting an eight foot

long piece with the pizza wheel took a couple of minutes. It was still easier than using a knife and much safer. However, the wheel was just not fast enough on the big sheets. I pulled out the table saw. I set the fence for an eight-inch wide cut and ran a full sheet through. In about five seconds I had an 8' by 40" sheet with an 8' by 8" scrap. The edges were nice and square. The sill pockets were about 7" high. I reset the fence and ran the scrap piece through. Again, in about five seconds I had a piece 8' by 7". Those pieces were delivered to the crawlspace.

The full sheet was screwed in place. Each sill pocket's width was measured and the appropriate size piece was cut off using the pizza wheel. These pieces were set in place using a rubber mallet for a nice tight fit. These pieces were then caulked or foamed in place. It went very quickly. I could cut foam faster than it could be installed.

One part of the crawlspace was too short to fit the 40" tall pieces through because of ductwork running through the area. In this case, the 8' by 40" boards were ripped lengthwise down the middle with the table saw. The saw blade was lowered so that it only cut halfway through the board. When snapped in half, the break created a key so that the two pieces fit tightly together when installed on the wall.

### **Crawlspace Insulation**

*When it comes to crawlspaces, one approach does not apply to all situations. Here are some things I had to keep in mind.*

- *I chose extruded polystyrene for its moisture handling abilities, but this product has restrictions when it comes to fire issues. If this material is going to be used in living spaces, it must be covered with a fire resistant material.*

- *What about the vapor retarder? I have had one in place since we moved in. But having watched this space for over 10 years, I know first hand that moisture vapor doesn't appear to be an issue. The only time I have seen water in the crawlspace was from bulk water intrusion. Because of this, I didn't want to seal the vapor retarder to the walls, but instead wanted a way for bulk moisture to find its way to the ground if it ever finds its way in again.*

- *What about vents? This crawlspace has never had them and never will. The only way moisture is going to get into this space is by air movement. That hasn't occurred in the past and won't with the air sealing that has now been done.*

*As stated in the article, I insisted on a termite inspection strip at the top of the foam panels. No need to risk serious problems to save a few Btus.*

- *Sealing the sill plate. At my house, the builder used a compressed board product between the sill plate and the top of the block wall. It appears to have worked well over the years. I'm against stopping air movement through the sill, especially with a man made particle-board product in place. I feel that this air movement dries out the assembly. If the sill gets wet, it can dry. Stopping air movement through the sill reduces its drying potential.*

## Working with Foam Board

*(continued)*

We also used polyisocyanurate board in other areas. I tried the pizza cutter on it and it worked just as well; nice, clean, and safe cuts.

One thing that became quickly apparent while completing this retrofit was the difference that it made. You would think at this time of year, it would hardly be noticeable. The inside and outside temperatures were the same, but after only two walls were done, we noticed how much the space was heating up from our body heat. Sit back against the foam on the wall and your back would get hot quickly.



*Durability versus energy savings.  
No termites here.*

One thing that I insisted on was that a break be left between the top of the crawlspace wall and the sill so that a termite inspection band was left around the perimeter. Time will tell the true impacts of the retrofits. I'm really hoping the crawlspace work will increase summertime comfort and reduce the need for air conditioning. It sure seems quieter.



*Vapor retarder left floating  
(see sidebar on previous page)*

## Basement Door: Open Or Closed During Blower Door Test?

*submitted by Scott Kashuba, OEE*

The position of the door is determined by whether the basement is inside or outside the building envelope. Deciding if the basement is inside or outside the envelope can stymie the most seasoned auditor. The initial auditor will need to make that determination based on the existing conditions at each home.

OWPS 1506-1.1h states: Close basement doors during test unless one of the following conditions is present:

1. The basement is used as a living area.
2. The client leaves the basement door open during the winter or there is no basement door.
3. The air returns do not connect directly to the furnace.
4. The basement is considered to be inside the building envelope.

## Basement Door: Open Or Closed During Blower Door Test?

*(continued)*

Common sense rule: Leave the basement door open unless the living space is completely separated by a thermal and pressure barrier or you intend to separate the basement from the living space.

Basement inside the envelope: If the basement temperature is closer to the living space than the outside temperature, or has a furnace, water heater, clothes washer & dryer, etc., it should be considered inside the envelope. Most homes in Ohio will fall into this category.

Basement outside the envelope: If the basement is not used or rarely used and can be totally separated from the living space, it can be outside the envelope. The basement must be separated by a pressure barrier (air sealed) and a thermal barrier (insulated) to be considered outside the building envelope. A zone pressure test must be conducted to ensure that the total path between the basement and living space is at or below 200 CFM50.

Initial auditors must use their best judgment based on the house information to determine if the basement should be inside or outside the envelope. He/she must consider how the home is being used now, how it may be used in the future, special conditions and the cost effectiveness of the measures to make the basement inside or outside the building envelope.

## *Upcoming Events*

**August 15-17, 2006**

**U.S. DOE Midwest Regional Conference**

Hyatt Regency

Columbus, Ohio

[www.affordablecomfort.org](http://www.affordablecomfort.org)

**September 8, 2006**

**OEE Inspector Orientation**

Regional Location: WSOS CAC, Inc.

Green Springs, Ohio

**April 23-27, 2007**

**ACI Home Performance Conference**

Renaissance Cleveland Hotel

Cleveland, Ohio

[www.affordablecomfort.com](http://www.affordablecomfort.com)

# OWTC SUMMER TRAINING SCHEDULE

## June through August

*submitted by Niki Morris, COAD OWTC*



As you already know, the COAD OWTC has a new online training registration website for training courses, which can be found at <http://www.coadinc.org/owtc>. Below is the summer training schedule as a quick reference.

Please contact Niki Morris, the OWTC Administrative Assistant, at (740) 594-8499 if you have any questions.

### June

June 20  
June 20-23  
July 21-22  
June 26  
June 26-29

STSR (Sidewall Tubing and Removal)  
INSR (Inspector Refresher)  
EBM (Electric Baseload Measurement)  
BPI (Building Performance Institute) certification test  
HUI (Heating Unit Inspection) WEEK 2

### July

July 11-12  
July 11-14  
July 11-14  
July 13-14  
July 17-21  
July 19-20  
July 25-27  
July 25-28

BDU (Blower Door Use)  
EPP WEEK 1  
IINS (Initial Inspection)  
DTS (Duct Testing & Sealing)  
EPP WEEK 2  
MHWX (Mobile Home Weatherization) WEEK 2  
GFMR (Gas Furnace Maintenance & Repair)  
FINS (Final Inspection)

### August

August 1-3  
August 1-4  
August 21-25  
August 22-23  
August 23-24  
August 25  
August 29-30  
August 29-September 1  
August 31-September 1

HTR (Heat Technical Refresher)  
WXST (Weatherization Skills and Theory)  
HUI (Heating Unit Inspection) WEEK 1  
BDU (Blower Door Use)  
NEAT (National Energy Audit Tool)  
MHEA (Manufactured Home Energy Audit)  
CEE (Consumer Energy Education)  
INSR (Inspector Refresher)  
EBM (Electric Baseload Measurement)

**Weatherization Professionals:** Update your skills, celebrate progress, and network with industry leaders

**Builders & Contractors:** Learn the latest building performance technology for green, energy efficient homes

Attend this event, created specially for the Midwest region

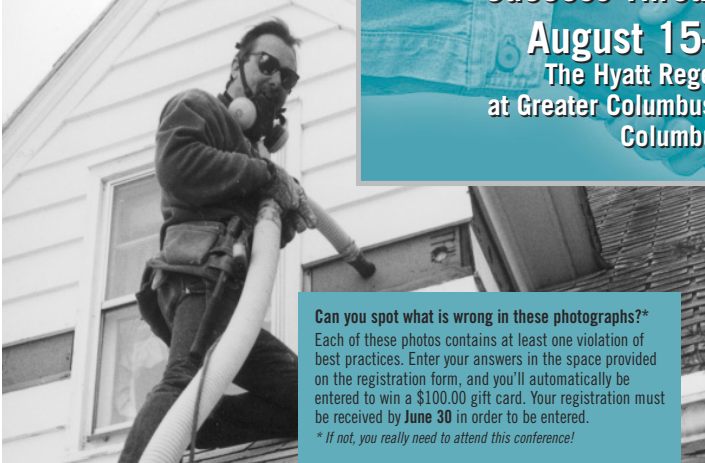
**Mark Your Calendar**

## U.S. DOE Midwest Regional Weatherization Conference

Success Through Partnership

**August 15–17, 2006**

The Hyatt Regency Columbus  
at Greater Columbus Convention Center  
Columbus, Ohio



**Can you spot what is wrong in these photographs?\***  
Each of these photos contains at least one violation of best practices. Enter your answers in the space provided on the registration form, and you'll automatically be entered to win a \$100.00 gift card. Your registration must be received by **June 30** in order to be entered.  
*\* If not, you really need to attend this conference!*

**August 15–17**  
Choose from 72 classroom and 20 in-field sessions during this 2 1/2 day training event!  
Exhibit hall open two days.

### Host Sponsors:



## Save The Dates August 15–17, 2006

Register Early – Space is Limited  
**Save \$10.00 when you register on-line.**

[www.affordablecomfort.org](http://www.affordablecomfort.org) • 1-800-344-4866

For hotel accommodations, contact The Hyatt Regency Columbus at Greater Columbus Convention Center at (614) 463-1234. Mention the "U.S. DOE Midwest Regional Weatherization Conference" to get the special room rate of \$125.00 (plus tax, currently 15%) by July 13, 2006.

**Learn from regional & national weatherization professionals**

**Participate in "hands on" in-field sessions**

**Discuss solutions with your peers  
on day-to-day issues you encounter**

Plan to have fun! Attend the Tuesday night Welcome Reception, and also check out local restaurants, night clubs, and the local art scene in the Short North area of Columbus. Visit [www.theshorthnorth.com](http://www.theshorthnorth.com) & [www.shorthnorth.org](http://www.shorthnorth.org).

For complete information, or to register on-line, visit [www.affordablecomfort.org](http://www.affordablecomfort.org)

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