March 2007

Residential Update

Office of Energy Efficiency

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ACI Home Performance Conference
Cleveland, Ohio -- April 23-27, 2007

The agenda has been set and registration is now open for the ACI (formally Affordable Comfort, Inc.) Home Performance Conference. The conference will take place at the Renaissance Hotel in Cleveland, Ohio beginning on Monday, April 23rd with full and half-day short courses. The core conference will start on Tuesday and lasts until noon on Thursday. Additional short courses will take place on Thursday afternoon. All of the details concerning the conference can be found at www.affordablecomfort.org. You will find session descriptions, presenter information and more on the Web site. You can also receive a $10 registration discount by registering on-line.

The Keynote Address will be given by Dr. Bernd Steinmüller, a principal in the "Passive House" movement in Europe and "Factor 10" retrofit applications. Can you imagine homes using only 15 kWh per meter^2 per year for heating energy or 1 watt per ft^2 maximum heat load? That is the "Passive House" criteria. How about reducing usage in existing homes by a factor of 10 percent or 90 percent? These goals are being met today in Europe, so you have to hear how it is being done.

This year's conference has attempted to combine the principles of green building with the disciplines of building science. That mixture results in an impressive agenda for the Home Performance industry. As always, a strong technical agenda will be there for the weatherization community.

Please come and enjoy the quality information, but also take time to network with other participants and enjoy what Cleveland has to offer.

ACI Scholarships

ACI has working scholarships available to those interested in attending the conference. Working scholarships will require 10 hours of your time to assist ACI staff with a variety of conference needs. The 10 hours can be spread out over the length of your stay while at the conference. Please contact Janice Patton at ACI for more information on the working scholarships. She can be reached at (800) 344-4866 ext 10 or via e-mail at jpatton@affordablecomfort.org.

Inside this issue...

Profiting from Home Performance

The creation of the federal tax credits for energy retrofits on existing homes has created a problem here in Ohio. Where do consumers go to find qualified contractors to provide the services? Where are the Home Performance Contractors? What *is* a Home Performance Contractor?

On Friday, April 27th, a special all-day session will cover the full spectrum of what it takes to become a Home Performance Contractor. You will hear Dick Kornbluth and Joe Kuonen tell about their approach to building successful Home Performance businesses. The session will not only look at the diagnostic equipment needed to provide quality services, but also the best approaches to selling the job and providing the best recommendations for your customers.

The cost of the session is only $125 (which includes a $10 on-line discount) for the entire day. You must register on-line at http://www.affordablecomfort.org to receive the discount. Follow the links to ACI HPC 07. Click on *additional sessions* when you are registering on-line to find it.

Weatherization Core Competencies

The Weatherization *Plus* Committee was formed to chart a course for the Weatherization Assistance Program going into the next millennium. Three main areas were identified as the focus of the efforts. They were increased flexibility, advanced technologies and expanded resources. As part of the advanced technologies group, the issue of consistent delivery of quality services was raised. To address these issues, the Trainers' Consortium was formed. Made up of state, local and federal staff involved with weatherization training, the group has been meeting monthly via conference call.

One product of this group has been the development of a document called the *Core Competencies*. This document attempts to clearly define the skills and knowledge needed by persons working at all levels of the Weatherization Program. From an entry-level crew person to the state program manager, each position is defined based on the knowledge needed to effectively carry out the duties required.

So how should the *Core Competencies* be used? A local agency can use it to define the hiring requirements of new staff, including examples of tests that can be used to determine if the applicant has the necessary skills. It can also be used to guide professional development of existing staff to improve their current quality of work or to chart a course for advancement. It can be used to support increased wages for weatherization workers based on their actual abilities. At the state level, the competencies can serve as a guide for training development. Along with a good needs assessment of existing skills, training can be focused on the areas that will best build the competencies of the entire program. At the program level, it can be used to attract leveraged dollars by showing the skill level present in the current network.

The *Core Competencies* document was released to the network at the State Managers' Meeting held in Providence, RI, in November 2006. The OEE has released the document to the network in Ohio. If you need of copy of the *Core Competencies* or have comments about it, please contact Tim Lenahan at tlenahan@odod.state.oh.us. The Trainers' Consortium views this as a work-in-progress and welcomes your comments.

Bulk Fuel Savings

submitted by Tom Andrews, OEE

After attending and participating in the *Heat and Eat 2007 Summit*, I realized that much of our discussion on energy savings from the recent and previous Home Weatherization Assistance Program (HWAP) evaluations was regarding gas savings. Particularly, natural gas savings. This is completely understandable, with the knowledge that 71 percent of the participants of the program are natural gas customers. But what about the 14 percent of the participants that heat their homes with a bulk, non-utility fuel. This would include fuel oil, kerosene and propane. These are customers who have no safety net other than LIHEAP. There are no percentage-of-income payment plans (PIPP) for these types of fuel and in most instances, payment for the fuel is required at the time of delivery. Are we making a positive impact on their lives?

Let's start off by making a few statements.

❍Statement #1 – The percentages of participants and their fuel usage was pulled from the Process Evaluation completed on the HWAP program.

❍Statement #2 – The same amount of savings are achievable by occupants of bulk fuel heated homes as by gas heated homes. The Impact Evaluation of the HWAP stated that there was (on average) a net savings of 268 therms for gas heated homes. This may or may not be scientifically correct; but, I think my point will get across.

❍Statement #3 – If net savings were on average equal to 268 therms (1 therm contains 100,000 BTUs of heat), it is the same as saying that the net savings were 26,800,000 BTUs.

❍Statement #4 – The energy available within differing fuels is as follows: 100,000 BTUs in 1 ccf of natural gas; 140,000 BTUs in 1 gallon of No.2 Fuel Oil; and 91,600 BTUs in 1 gallon of propane.

With the above information, let's calculate what impacts, if any, are being made to the households being served through weatherization and in particular, the impact on bulk fuel users.

Natural Gas

26,800,000 BTUs divided by 100,000 BTUs /ccf equals 268 ccf of gas savings. With the average cost of gas currently around $1.15/ccf, the **average annual savings is $308.20**.

No. 2 Fuel Oil

26,800,000 BTUs divided by 140,000 BTUs per gallon equals 191.4 gallons of fuel oil savings. With the average cost of fuel oil currently around $2.159/gal, the **average annual savings is $413.23**.

Propane

26,800,000 BTUs divided by 91,600 BTUs /gal equals 292.5 gallons of propane savings. With the average cost of propane currently around $2.349/gal, the **average annual savings is $687.08**.

It would appear that a significant direct economic impact is being made, on average, by the weatherization personnel on homes being heated with bulk fuels. Significant savings should be realized by the occupants due to the reduction of fuel being used to heat their homes. And in many, many cases, this economic impact will allow the occupants to afford the delivery of fuel when it is needed during the year. *Weatherization Works*! for bulk fuel users, also.

Electric Baseload Measures and HWAP

submitted by Steve Creed, OEE

Are you, as Weatherization providers, doing all you can for your clients? Unless you're doing Electric Baseload measures, you're not. The Ohio Weatherization Program Standards (OWPS) (201-7,301-7 and 401-7) covers in detail the steps that are necessary to address electrical energy efficiency for clients. Appliance and lighting replacements are just a couple of the things you can do as a provider to help your clients conserve even more energy. All it takes is a basic, commercially available kilowatt-hour meter to measure the energy use of the appliance and either your National Energy Audit Tool (NEAT) audit with an SIR of one or greater or the charts you will find in section 1506-6 of the OWPS.

Replacing inefficient refrigerators is an example of a good, cost-effective, efficiency measure. Meter each existing refrigerator for a minimum of two hours with the kilowatt-hour meter. Just hook up the meter at the start of your inspection and check it when you're done. Simply by using the information gathered during the inspection, the replacement cost and the replacement chart (which is located in section 1506-6) or your NEAT audit, you can determine which appliances can be replaced. When replacing the client's appliances, keep in mind the client's needs and habits. Should the new unit be downsized or is the existing unit the proper size? Always remember, the units taken out of service must be disposed of properly. The disposal and/or recycling costs must be added into the replacement cost and considered when determining the cost effectiveness. No units taken out of service may be returned to service for any reason.

Compact fluorescent lights (CFLs) are another example of an easy-to-do efficiency measure. The charts in section 1506-6 will tell you whether or not it is a cost-effective measure. As the cost of CFLs drop, it becomes more and more cost-effective to use them. When replacing the existing incandescent bulbs with CFLs, the customer's specific needs and habits must be considered. You must never compromise the light quality (lumens) and never install them in fixtures equipped for dimmers unless the CFL manufacturer specifically allows for it. Always make sure you educate the client about the CFLs. Explain that they are most cost-effective in applications where the light remains on for long periods of time. Fluorescent bulbs also last approximately ten times longer than incandescent bulbs, so they are perfect for those hard to access places. Also, the client must be informed of the time it takes for a CFL to warm up (30 to 90 seconds) to attain its maximum brightness. Make sure that the lighting level is adequate for the client or else they will replace it with another incandescent bulb and there goes your savings.

So the next time you perform an inspection, don't forget about the baseload. Read through your OWPS and let's do our best to make sure that when we leave a client's home, we did all we could to make that home as energy efficient as possible.

Building Tightness Limit…is it really a "limit" ???

submitted by Dennis Biddle, OEE

There seems to be some confusion over the phrase "Building Tightness Limit" or BTL. Is it really a "limit," like a highway "speed limit"? Does it mean "don't do any more air sealing once you get to this number?" With the improved air sealing capabilities of providers across the state, more and more crews/contractors are getting homes down into the BTL neighborhood. But once there, then what? Continue to air seal obvious leakage sites? Ignore them? Install a bathroom and/or kitchen exhaust fan? And whose responsibility is it to decide what to do? So many questions…

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Building Tightness Limit...
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Yes, the word “limit” is part of “Building Tightness Limit,” but no, it doesn’t really mean “don’t go past this number.” WPS 302-1.1a describes it this way: “Ensure that the BTL minimum level of air leakage is available within the home. Ensure that the home will not be brought below the BTL, or that mechanical ventilation or pressure relief is added.” The BTL numbers are “action numbers;” they let you know at what point indoor air quality may become a concern. So it’s OK to air seal below the BTL, as long as mechanical ventilation is present or added, to deal with indoor air quality issues.

The question then becomes, “how tight to make the home?” Certainly, in HWAP, folks are concerned about their unit goals, so spending labor and materials unnecessarily is not an option. Once you get past the OVERALLS Target Goal and start approaching the BTL, how much further should you be expected to go? A general guideline might be: *if it’s not an obvious by-pass, found either with the blower door and smoke or with Zone Testing, it’s probably not worth going after.* As a Final Inspector, I would do a walk-through of the home, going from the basement to the attic with the blower door running and a smoke bottle and partially closing doors as I went. If I couldn’t feel a rush of air coming through the crack in the door, there probably wasn’t an air leak on the other side of the door and I moved on to the next one. If I found a problem, it got fixed while I was there. The whole process generally took no more than 30 minutes to complete. When I was done, the house was done.

Ignoring obvious leakage is also not an option. Uncontrolled leakage wastes energy and contributes to client discomfort and the structural degradation of their home.

As an Initial Inspector, you’ll know how tight the house is once you run the PRE blower door. You should have a pretty good idea of how well your crew/contractor will address the house and approximately what range the POST-blower door number will be. So it’s <u>your</u> responsibility to call for any new mechanical ventilation to be installed - it’s a lot easier to install it before 12" of cellulose is blown into the attic. It is also the responsibility of the crew leader/contractor to let the agency know if they’ve gotten the home into the BTL neighborhood and if mechanical ventilation was not called for.

What other safeguards are there? How about the *Plate Pal*? Having an educated client aware of their indoor humidity level is invaluable, both for themselves and for the agency. You’ve tightened up their home and you’ve ensured they have mechanical ventilation; they need to be sure it’s working and how to use it. Then there’s always the Worst Case Draft Test, which verifies that the combustion appliances are drafting properly and that the CAZ-wrt-Outside pressure is acceptable.

“Build it tight, ventilate it right!”

Contractors Recognized for their Work in the Community

reprinted with permission from Michelle Oakar, Cuyahoga County

The Cuyahoga County's Home Weatherization Assistance Program (HWAP) recognized the local Weatherization Contractors at the November 2, 2006, board meeting. The contractors attended the Commissioners' weekly board meeting and were individually recognized and received a proclamation from the Commissioners for their continued support of the County's HWAP as well as the low- to-moderate-income residents who annually benefit from the state of Ohio's HWAP.

Cuyahoga County's Home Weatherization Assistance Program (HWAP) Staff

Weatherization: Saving More than Just Money

submitted by Tonya Pate, Cincinnati-Hamilton County CAA

Weatherization is no longer simply about making utility bills affordable for low-income families. Today, it is also an important weapon in the fight against global warming. By using home weatherization techniques to improve energy efficiency, weatherization reduces the amount of coal, oil and natural gas that power plants must burn. Burning less fuel results in a reduction of the greenhouses gases that contribute to global warming.

Combating global warming is quickly becoming a priority all over the world. Typical solutions reference making our cars more fuel efficient or using cleaner burning fuels, such as ethanol, to run our automobiles. However, some experts report that the average home may be responsible for twice the greenhouse gas emissions of the average car.

Weatherization techniques dramatically reduce the amount of harmful carbon dioxide gases that our power plants release into the atmosphere:

- Replacing regular light bulbs with compact fluorescent light bulbs will save about 300 pounds of carbon dioxide a year because they require 60% less energy to produce the same amount of light;
- Cleaning a dirty furnace filter or replacing it can save 350 pounds of carbon dioxide per year;
- Wrapping a water heater in an insulation blanket can save 1,000 pounds of carbon dioxide over the course of a year;
- Setting the water heater thermostat to no higher than 120°F can save 550 pounds per year;
- Properly insulating walls and ceilings can save 2,000 pounds of carbon dioxide annually; and
- Caulking and weather-stripping can save 1,700 pounds of carbon dioxide in a year.

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Weatherization: Saving More than Just Money
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Through these simple techniques, we reduce carbon dioxide emissions by approximately 5,900 pounds per year, per house. This does not even include the emission reductions that are possible through replacing appliances. For example, installing a high-efficiency refrigerator can reduce carbon dioxide emissions by 220 pounds per year. A high-efficiency washing machine can reduce emissions by 440 pounds a year. If every household in the US used the most high-efficiency appliances available, this would save 175 million tons of carbon dioxide emissions every year.

So what do these carbon dioxide reductions mean for our environment? A great deal considering that U.S. power plants are responsible for 40 percent of the country's carbon dioxide emissions and 10 percent of global carbon dioxide emissions. By reducing the amount of carbon dioxide emitted by our power plants one home at a time, weatherization programs are helping to ensure a safer, cleaner environment for many generations to come.

Grateful Customers in Cincinnati
submitted by Kim Sullivan, PWC

Widowed and disabled, Mattie Glenn dreaded opening her heat and electric bill each month. Her aging Cape Cod style home was drafty and cold, and her utility bills were well beyond the limits of her monthly Social Security check. Not wanting to lose her home, she started looking for help… and found it through energy programs from People Working Cooperatively (PWC) in Cincinnati.

"I didn't know who to turn to," Glenn said. "When the heat got cold, I was worried I would freeze to death, but a friend told me about PWC. They weatherized my home, replaced my light bulbs, even replaced my refrigerator. They did so much – I don't know what I would do without them."

PWC serves over 10,000 very low-income, elderly and disabled clients annually, in the southwestern Ohio and northern Kentucky area, with critical home repairs. The typical PWC client earns less than $13,000 annually and is facing hardship due to disability, illness and death of a spouse or other crisis situations. Most of PWC's clients juggle food and medical expenses along with utility bills and some try to heat their homes with a stove or other dangerous method.

"We're here to try to help when there are no other solutions," said PWC's President Jock Pitts. "Energy conservation and weatherization can really make an impact upon someone who is struggling to keep their home warm."

Funded primarily by Duke Energy, PWC is also a provider for Ohio's Electric Partnership Program (EPP). Together these programs provide comprehensive energy conservation services like furnace cleaning and tuning, insulation, air sealing, carbon monoxide testing, hot water heater wraps, and refrigerator or furnace replacement, if a client is eligible. The agency employs 80 full-time professionals to perform repair and energy conservation services.

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Grateful Customers in Cincinnati
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Energy Awareness & Savings Education

PWC has a new program, Energy Awareness & Savings Education (EASE), that helps local families save on utility bills. EASE is funded by a grant from Duke Energy and offers a host of energy awareness classes taught by energy experts from PWC. While PWC's other energy conservation programs are only available to low income homeowners and renters who pay their own utilities, the EASE classes are open to the entire southwestern Ohio community.

The classes, which range in size from five to 20 participants, are scheduled through local community groups and businesses. The hands-on energy awareness class covers such basics as changing furnace filters, low-flow showerheads, weather-stripping, energy efficient light bulbs and more. Twenty attendees from each class receive a special energy kit. The class is typically about an hour long.

"It's a great way for people to learn the basics of how their home uses energy and the little things they can do that will save them money," said PWC program manager and EASE educator Tony Gray.

EASE started in 2006 and served 400 people in its initial year. It is open to all there are no income restrictions and classes are scheduled based on supply and demand. Businesses, local community agencies and residents in the Cincinnati area who are interested in attending or hosting an EASE class should contact PWC at (513) 351-7921 to make the arrangements.

OWTC TRAINING SCHEDULE
April, May and June

Below is the COAD OWTC Training Schedule for March, April and May. When registering for a course, please register online using the new online registration website at **http://coadinc.org/Main.php?page=programs-cdds-training**. Classes are held in Athens, Ohio, unless otherwise noted.

If you have any questions about the courses offered or course location, please contact Buzz Caul at (740) 594-8499 ext. 220.

CLASSES ARE SUBJECT TO CHANGE WITHOUT NOTICE

April

April 3-5	House Diagnostics (HD) **Location**: TBD Heating Tech Refresher (HTR)
April 4-5	Blower Door Use (BDU) **Location:** TBD
April 9-12	Initial Inspection (IINS)
April 10-13	Weatherization Skills and Theory (WxST)
April 16-20	Heating Unit Inspection (HUI) Week 1

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OWTC TRAINING SCHEDULE
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May

May 1-4	Final Inspection Series (FINS)
	House and Heating System Electricity (HHSE)
May 8-11	Heating Unit Inspection (HUI) Week 2
May 15-17	Combustion Analysis for Contractors (COMB)
May 22-23	Mobile Home Weatherization (MHWx) Week 1
May 22-23	National Energy Audit Tool (NEAT)
May 24	Mobile Home Energy Audit (MHEA)
May 30-31	Consumer Energy Education (CEE)
May 30-June 1	Gas Furnace Maintenance and Repair (GFMR)

June

June 4-8	Heating Unit Inspection (HUI)
June 6-7	Mobile Home Weatherization (MHWx) Week 2
June 8	OEE Inspector Orientation (IIO) **Location**: Columbus
June 12-15	Weatheriation Skills and Theory (WxST)
	Combustion Analysis for Contractors (COMB)
	Electric Partnership Program (EPP)
June 19-21	House Diagnostics (HD)
June 19-22	Heating Unit Inspection (HUI)
	Electric Partnership Program (EPP)
June 26-27	Codes and Standards (CoSt)
June 26-29	Initial Inspection (IINS)
June 28-29	Blower Door Use (BDU)

Upcoming Events

ACI Home Performance Conference
Cleveland Renaisance
April 23-27, 2007

OEE Inspector Orientation
Location: TBD
June 8, 2007

OEE Inspector Orientation
Location: TBD
September 7, 2007

OEE Inspector Orientation
Location: TBD
December 7, 2007