



PPL Electric Utilities

The presentation will begin shortly!

PREPARE YOUR HOME FOR WINTER



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PREPARING YOUR HOME FOR WINTER

Thank you for coming today. Remember, this is an overview!

- 60 second summary of today's topic.

- Safety projects to do now.
- Energy projects to do now.

- What is the PPL Residential Energy Efficiency program? Incentives?

- Q and A at the end – please type into the box
- No need to take notes – we'll send you the PDF

60 SECOND REVIEW

1st – BETTER AIR QUALITY = BETTER HEALTH

Closing windows and doors more often during the heating season reduces the amount of fresh air in your home. This can concentrate indoor pollutants.

To help off-set this, ask yourself - Is my house:

- 1) Clean and Maintained?**
- 2) Pollution free?**
- 3) Dry and Mold free? and**
- 4) Pest free?**

60 SECOND REVIEW

2nd – GET AN ENERGY ASSESMENT OR AUDIT

Your house is unique, but every house has a structural, plumbing, electrical and mechanical system. Put another way:

(Every house is different - Every house is the same)

An energy assessment helps you prioritize the work.

Your STRUCTURAL SYSTEM (house)

Keeps the heat in during the winter.

An auditor can test to see how well it does its job.

Your MECHANICAL SYSTEM (heater, AC, hot water)

Makes the heat (cold) and distributes the heat (cold)

An auditor can test to see how well it does its job.

1st TOPIC - HEALTHY HOME EQUATION

**A Clean, Maintained and Dry Home =
A mold free and pest free healthy home**

**Here are some pollutants you should look for
and/or test for in your home:**

Carbon monoxide, Mold, Asbestos, Radon, and
Lead

**There is a lot of information online about testing
for these and other pollutants. An energy auditor
can help you prioritize the list.**



CARBON MONOXIDE

CO is a **colorless, odorless, and tasteless gas**.
CO results from “**incomplete combustion**”:

Here’s the industry secret - Most alarms only sound at 70 ppm, and *within 3 hours of detection*
- If you hear the alarm, don’t waste any time getting out!

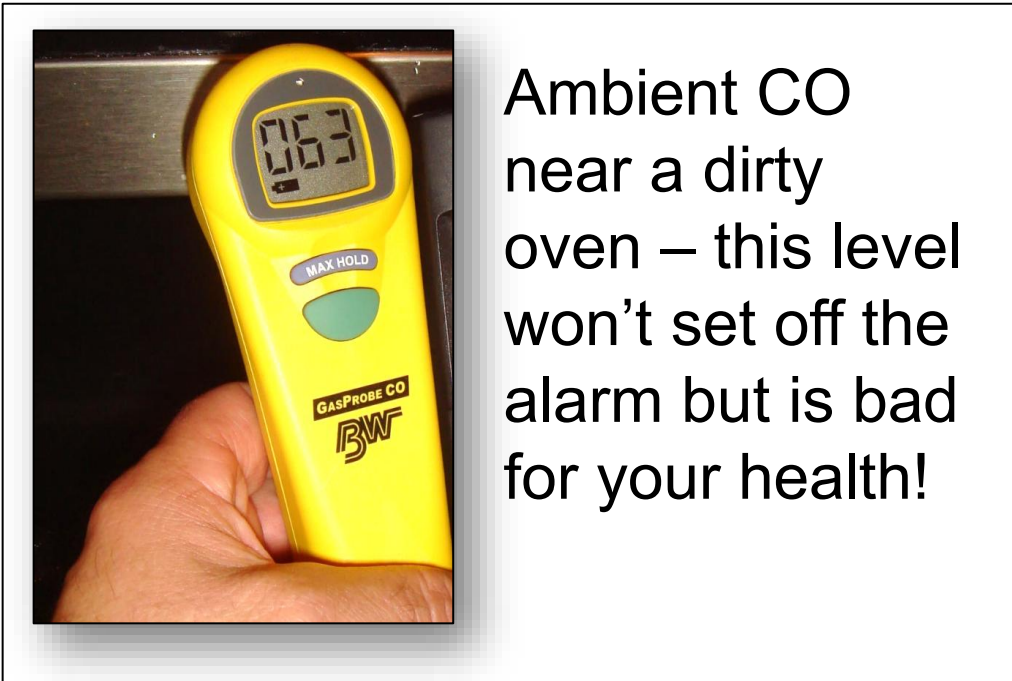
What are Common Sources of CO?

Car, Lawn mower, Snow blower, Generators
Heater and Water Heater
Wood burning stove and space heaters
Oven and range



CARBON MONOXIDE IN THE KITCHEN

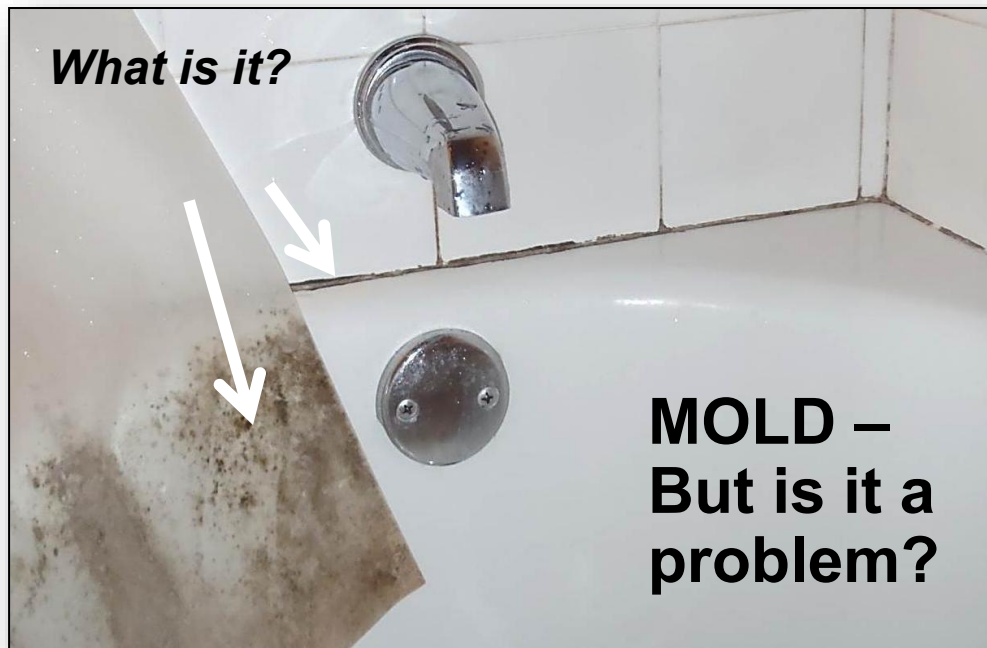
“I feel light-headed when I cook”



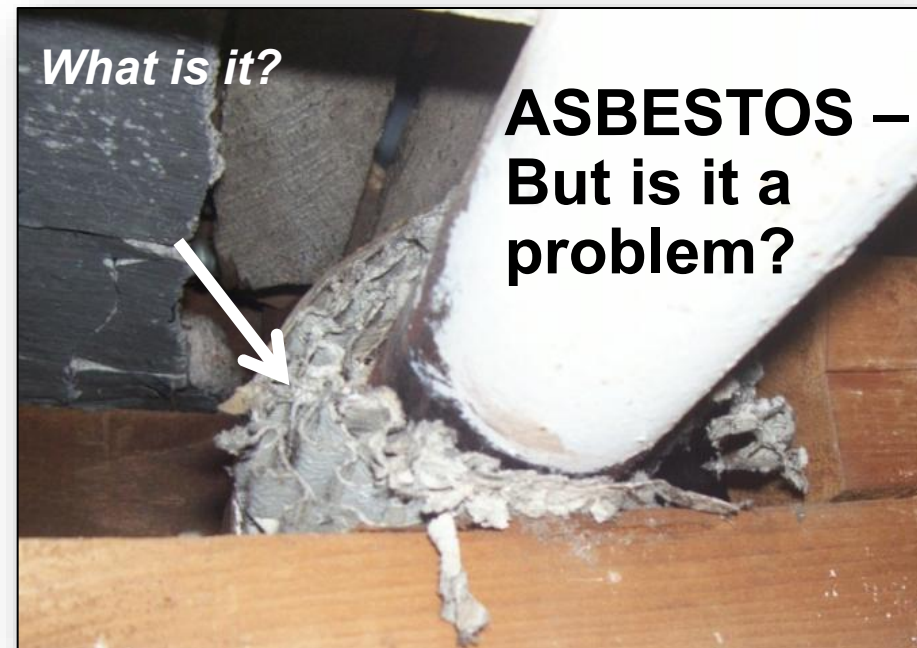
- 1) Foil at the bottom of ovens is a common cause of CO.
Make certain the foil doesn't block the flow of fresh air into the oven.
- 2) Make certain that your kitchen fan exhausts outside and
- 3) Use it when you cook

INDOOR AIR QUALITY (IAQ)

**Control the sources of pollution – but learn what is or isn't a problem.
Mold and Asbestos can be problems but often are not!**



You can develop a sensitivity to mold, but most people do not. Research the dos and don'ts about removing any potentially toxic item in your house.



Leave it alone if it's solid and isn't going to be disturbed. Test it if it's loose and might go airborne – it's useful to know if it's actually asbestos.

2nd TOPIC - ENERGY PROJECTS

The mechanical and structural systems work together to create comfort.

Is the room getting heat or cold? = Distribution through pipes or ducts

Is the room keeping the heat in or out? = Insulation + Air Sealing

Manufacturers want you to think that their product is the solution, but it's rarely that simple.

Insulation manufacturers typically say:

"Add more insulation, to save money and be more comfortable."

Never add insulation without air sealing first.

Heating manufacturers typically say:

"Buy a new system, to save money and be more comfortable."

Your heater may not be the problem - it could be the distribution system.

YOUR HOME'S SHELL HAS HOLES

“People say the windows are drafty. The contractor says add more insulation.”



Both are wrong!
This room is cold because the wall, window molding and the soffit weren't air sealed.

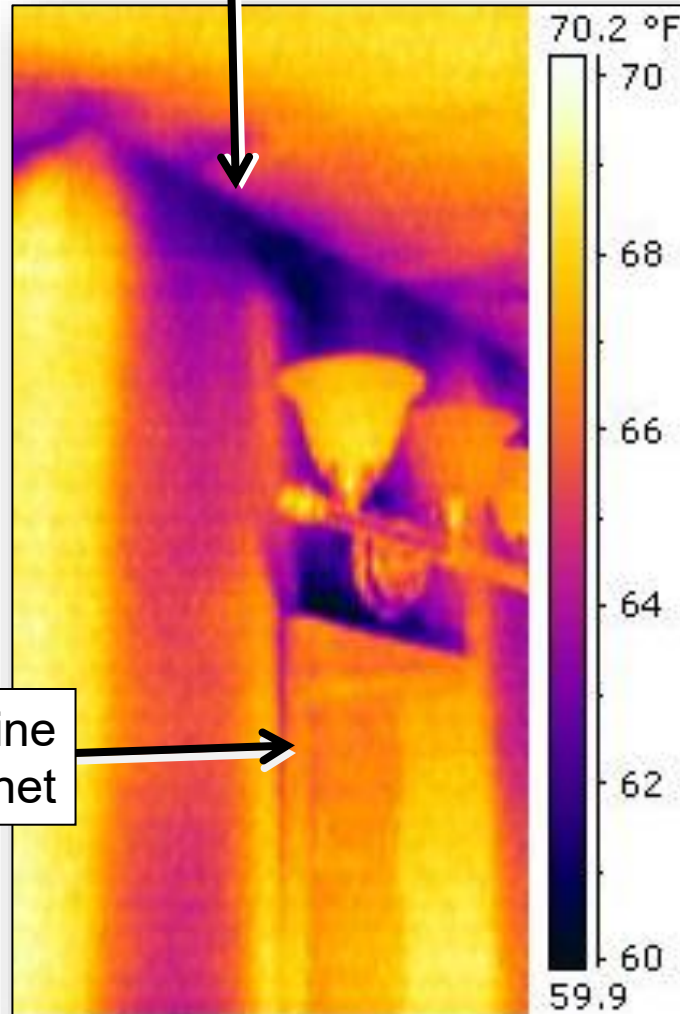
Infrared shows you the problem



SEAL THE ATTIC FLOOR – Top of walls

One of the top priorities in any house is to seal the attic floor.

ISSUE: Open top of wall



Solution: Caulking or foaming the top of the walls in the attic.

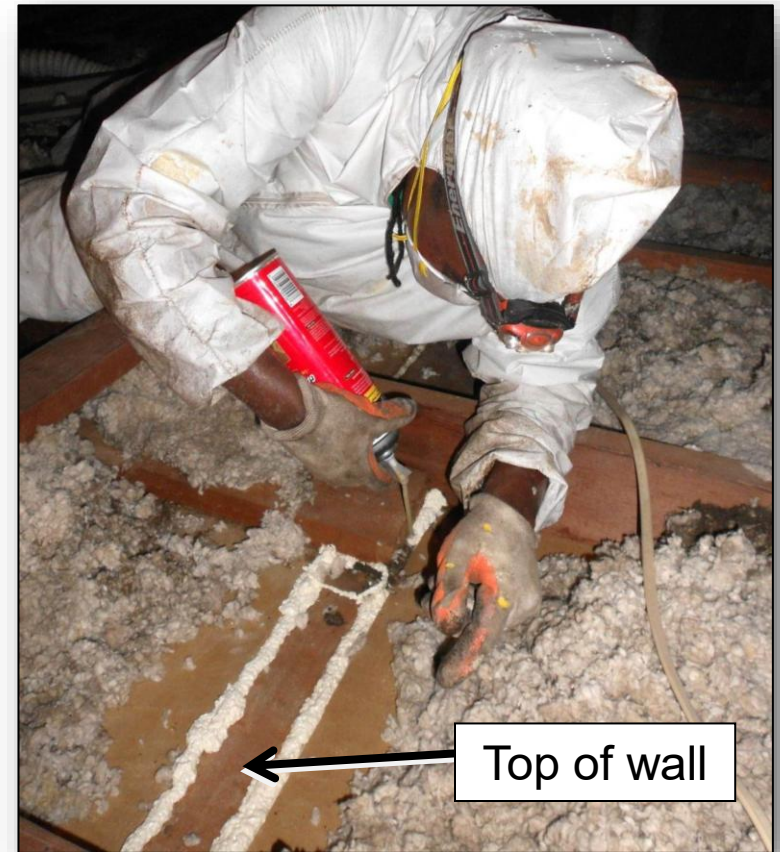
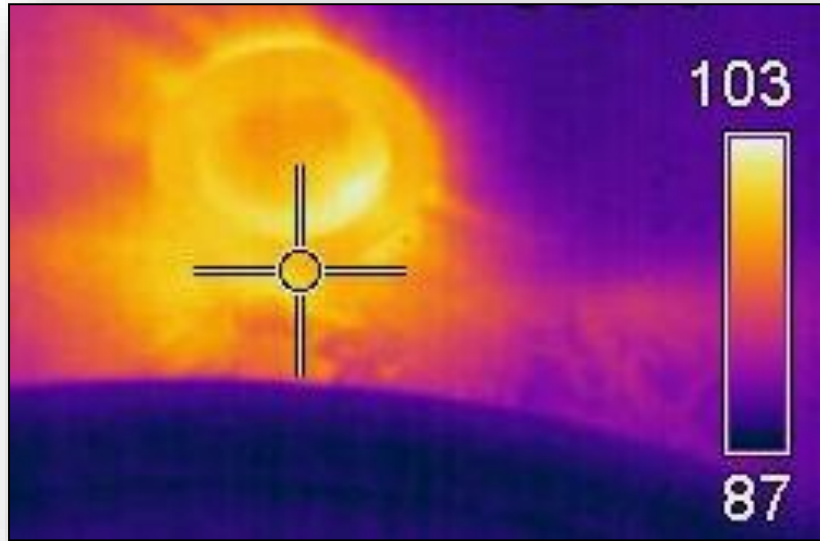


Photo shows one-part foam on either side of a wall.

SEAL THE ATTIC FLOOR – Recessed lights

Summer air leak seen with IR camera



Solutions:

- LED air-tight replacements (right)
- Air-tight inserts (right)
- Total replacement with Air-tight, insulation contact units
- Replace with track lights



Commercial Electric



Halo #30 Insert



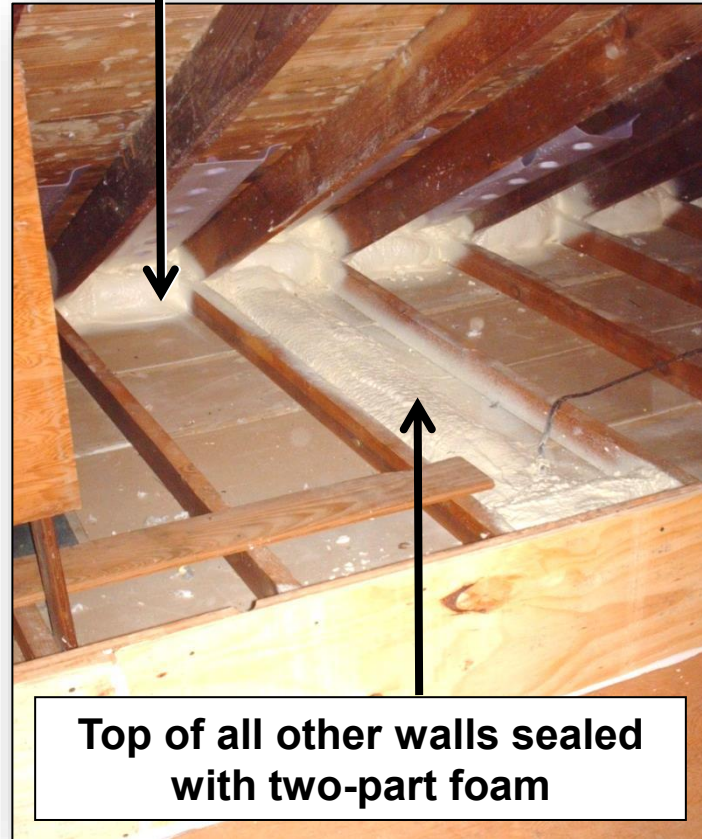
SEAL THE ATTIC FLOOR – Then Insulate

Insulation should never be installed without air sealing first.

14" of cellulose or ~ R49



Top of outside walls and attic baffles foamed

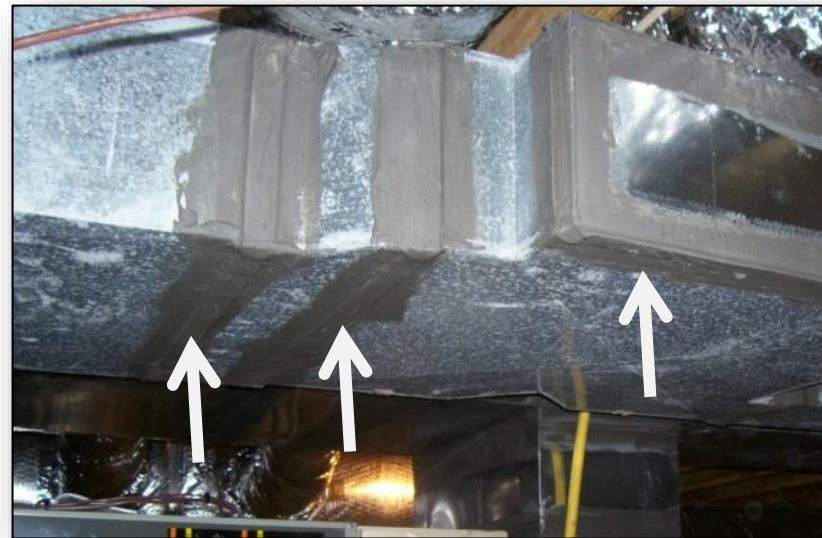
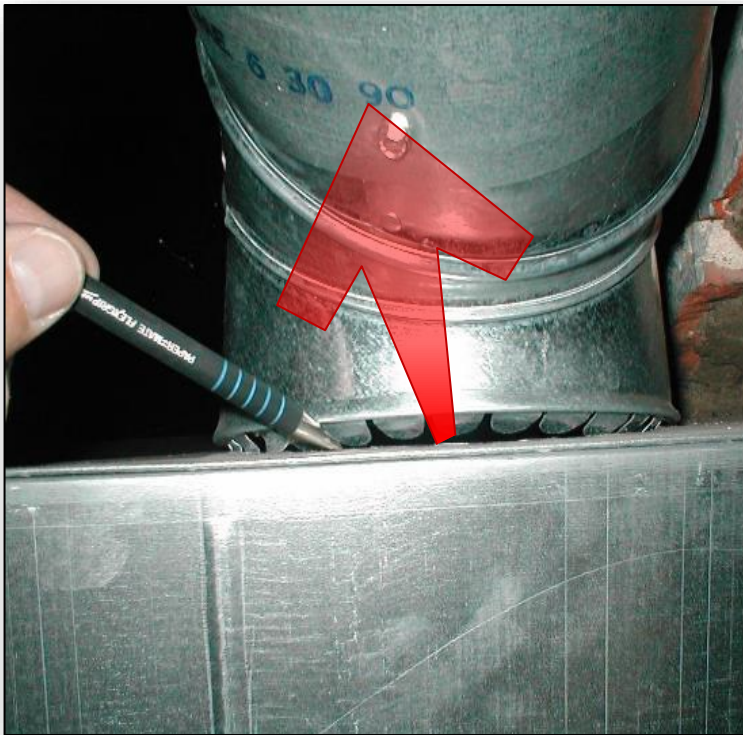


Top of all other walls sealed with two-part foam

MY ROOM IS COLD – The Distribution System?

The problem may not be your home's structural system.

Gaps are common at all duct connections and seams. Air blows out supply side leaks and is sucked in on return side leaks.



Solution:

Coat all connections and seams with duct mastic. Larger gaps need to be covered with mesh tape to guarantee the mastic doesn't crack as it shrinks.

MY ROOM IS COLD – The Distribution System?

Maybe the heating pipes or ducts were installed incorrectly.

Poorly designed ducts:

- Result in low system airflow
- Low air flow = No comfort!
- Poor distribution, especially on long runs
- Comfort complaints
- Hi air flow will create noise.



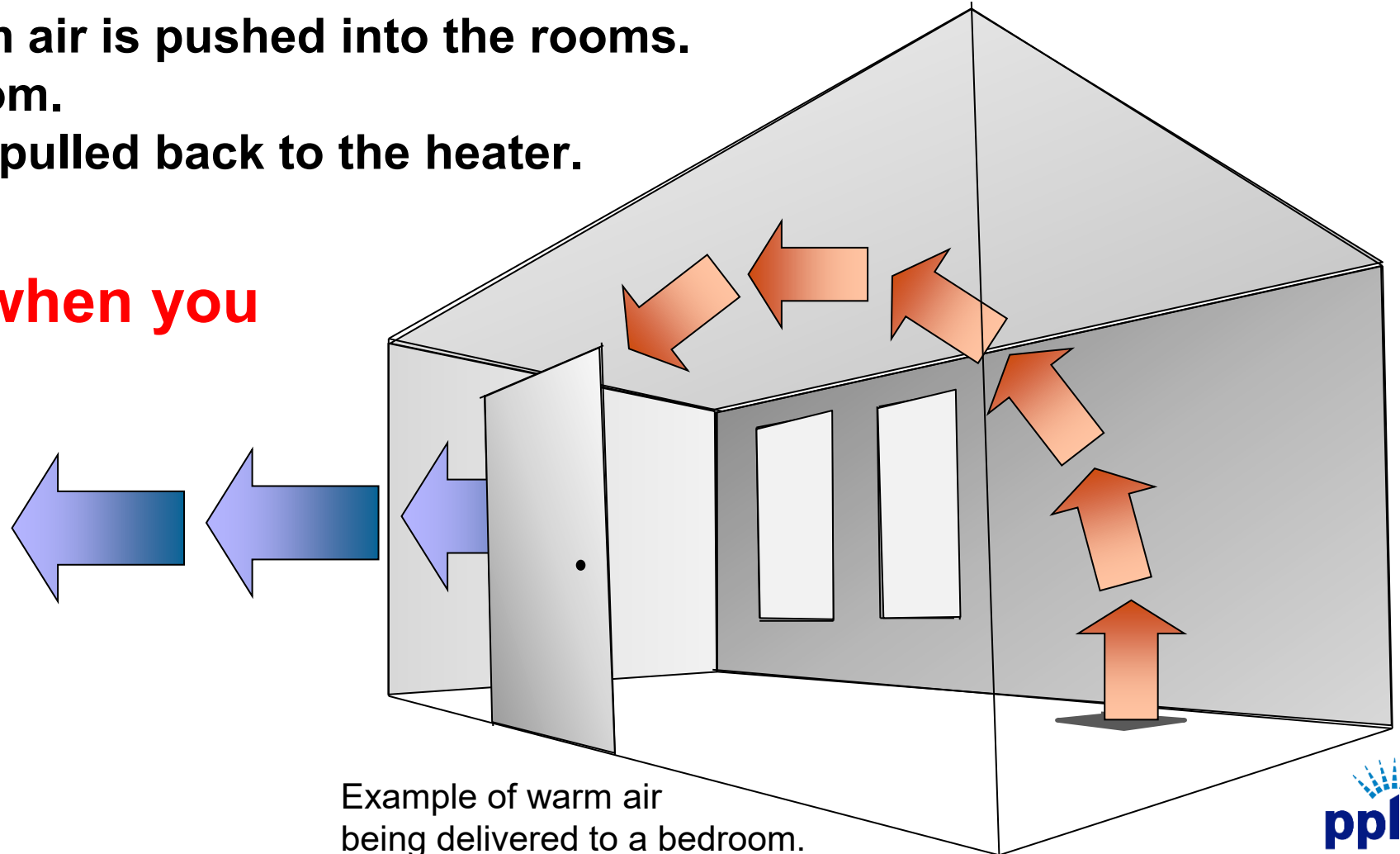
Each 90° Elbow = 30' of straight duct
30 x 4 = 120' Extra feet of duct run.

MY ROOM IS COLD – Bedroom door closed?

Distribution is circular - air needs to return to the source.

- In the winter warm air is pushed into the rooms.
- This heats the room.
- Cooler air is then pulled back to the heater.

What happens when you close the door?



Example of warm air
being delivered to a bedroom.

PREPARING FOR WINTER – REVIEW

You close your house up for the winter. That means you may be trapping pollution inside for the next four to five months.

1st ACTION

Research online to get the latest information about indoor air quality. You want your house to be:

1) Clean and Maintained, 2) Pollution free, 3) Dry and Mold free, 4) Pest free?

2nd ACTION

Get an energy virtual assessment or in-home audit

An energy assessment helps you prioritize the work to your

1) Structural system and/or 2) Mechanical system

And prepares you to talk with contractors.

SAVING ENERGY MADE EASY . . .

Here are three of the many ways that PPL Electric Utilities helps you understand and reduce your electric usage.

1) Energy Analyzer

An online computer tool that displays your monthly usage and gives you suggestions on what actions to take to save energy and money.

2) Virtual Energy Assessment

A phone or video visit so you can explain your comfort problems to a trained energy auditor.

3) Full, In-home Energy Audit

An energy auditor comes to your house to do an in-depth investigation of how your shell and mechanical systems affect your comfort and usage.

THE ENERGY ANALYZER

This is the PPL online tool for you to understand how your electric appliances use energy.

This new tool shows you when, where and how your home uses energy by appliance type.

Open your online bill and select the Analyzer Energy Usage button

Answer the Home Survey questions to help the Analyzer give you more accurate recommendations.



VIRTUAL ENERGY ASSESSMENTS

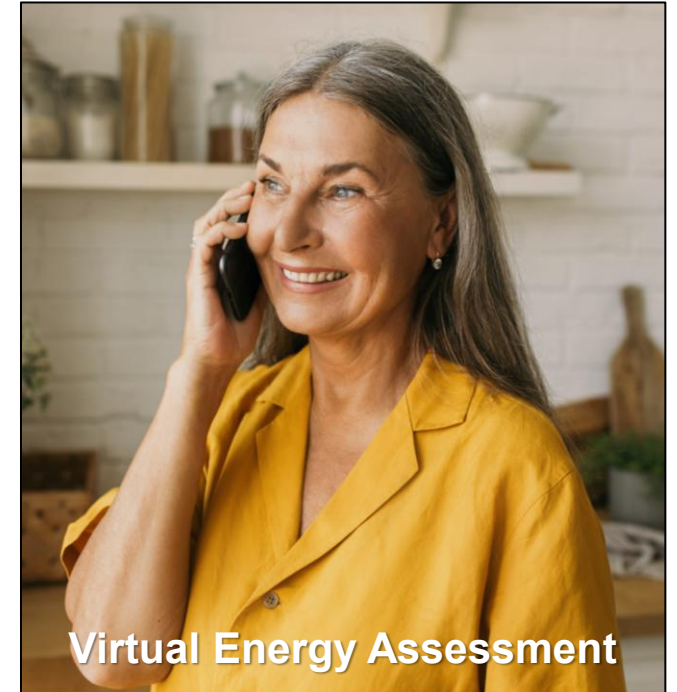
Phone-based review of issues you have found at home

Your choice:

A voice or video call with an Energy Advisor

FREE for electric heating or central air customers and comes with a free energy savings kit mailed to your home.

Call 877-486-9204 to schedule



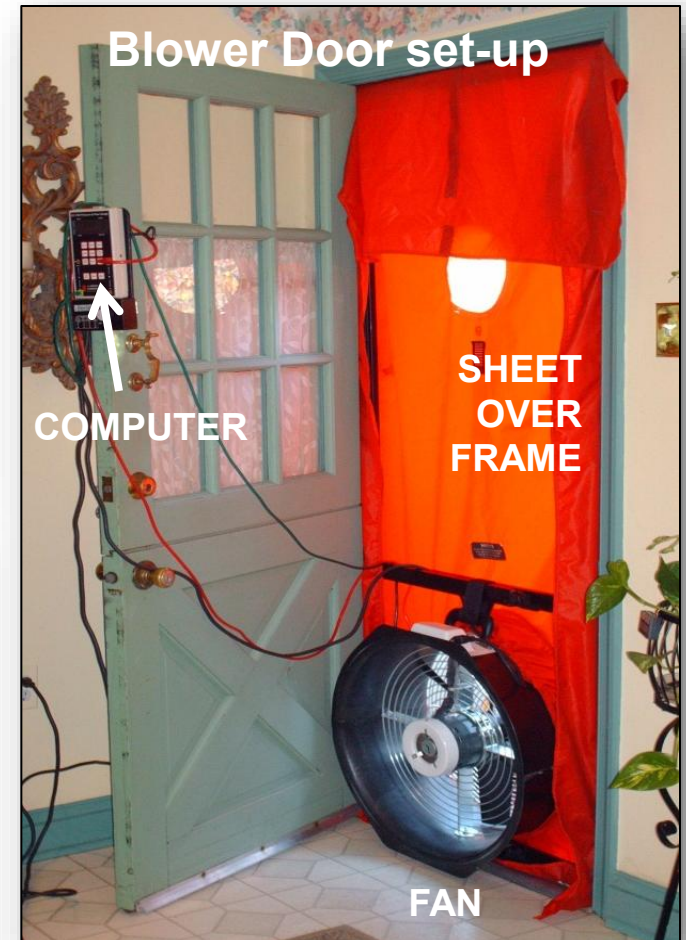
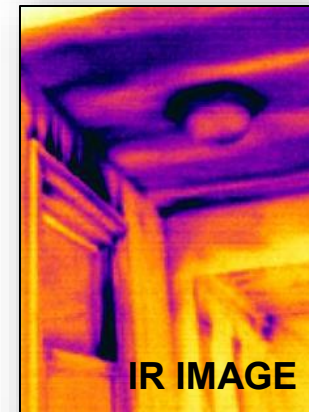
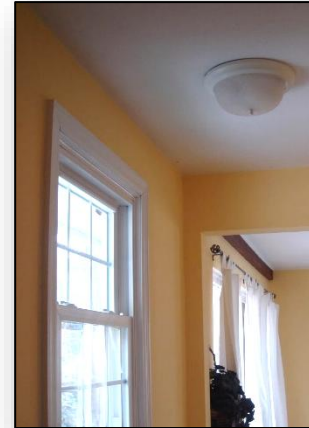
IN-HOME ENERGY AUDIT

Detailed home walk-through

Most in-home audits are free if you assign the rebate to the contractor. Check with your independent auditor if the assessment is free before you schedule an appointment.

\$350 rebate for electric heating and central AC customers

\$200 rebate for electric heating or central AC customers



<https://www.pplelectricsavings.com//ppl/homeequipment/contractor/>

ENERGY EFFICIENT HOME REBATES

<https://www.pplelectric.com/rebates>

Single Weatherization Upgrades	Rebate	Notes	SHELL SYSTEM
Attic Insulation (electric heat)	\$500	75% of cost up to a max of \$500	
Attic Insulation (central A/C, non-electric heat)	\$200	75% of cost up to a max of \$200	
Basement Wall Insulation (electric heat)	\$500	75% of cost up to a max of \$500	
Basement Wall Insulation (central A/C, non-electric heat)	\$200	75% of cost up to a max of \$200	
Air Sealing	\$200	Air infiltration reduction (@ CFM50) x \$0.25 up to a max of \$200	
Single Efficient Equipment Upgrades	Rebate	Notes	MECHANICAL SYSTEM
Smart Thermostat (self-install)	\$50	ENERGY STAR® certified	
Smart Thermostat (professional install)	\$100	ENERGY STAR certified. Must be installed by a PPL Electric Utilities qualified contractor.	
Heat Pump Water Heater	\$400	Universal Energy Factor (UEF) ≥ 3.3	
Air Source Heat Pump	\$350	≥ 15.2 HSPF2, ≥ 11.7 EER2, ≥ 7.8 HSPF2	
Air Source Heat Pump	\$450	≥ 16.3 SEER2, ≥ 12.9 EER2, ≥ 8.2 HSPF2	
Ductless Mini-Split Heat Pump	\$400 (per outdoor unit)	≥ 15.2 SEER2, ≥ 11.7 EER2, ≥ 7.8 HSPF2	
Central Air Conditioner	\$200	≥ 15.2 SEER2, ≥ 12 EER2	
Central Air Conditioner	\$300	≥ 16.3 SEER2, ≥ 12.9 EER2	

Thermostats are not “major treatments” when it comes to rebate bundling – next slide.

PPL BONUS REBATES

Comprehensive Retrofit Bonus 1 (\$250)

(2 major treatments installed within 12 months) (1 weatherization upgrade + 1 major mechanical upgrade)

Comprehensive Retrofit Bonus 2 (+\$100 or \$350 total)

(3 major treatments installed within 12 months) (Bonus Tier 1 + 1 or more additional major upgrades)

Deep Energy Retrofit Bonus (\$500)

(In-Home energy audit + 3 treatments done on the same contract)

(At least 1 shell and 1 mechanical treatment)

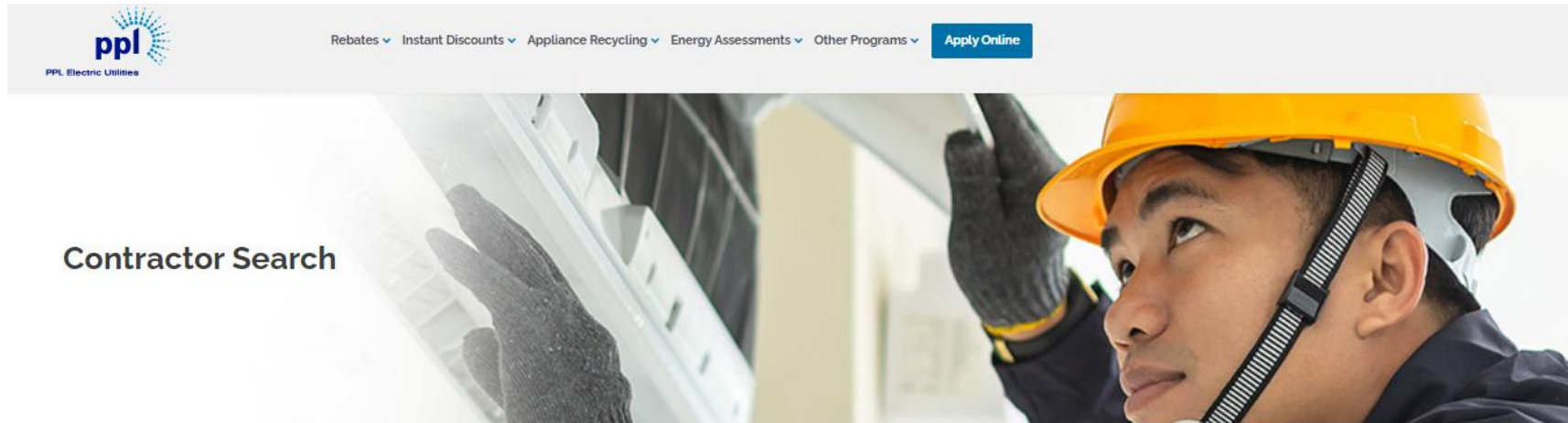
(Cannot be used with Bonus 1 or 2)

DER Bonus webpage: <https://pplelectric.com/retrofit>

CONTRACTORS

Log onto the PPL Electric Utilities website for more program information or to identify a Trade Ally you'd like to hire.

<https://www.pplelectricsavings.com//ppl/homeequipment/contractor/>



The Trade Allies below are qualified to provide In-home Energy Audits with the Deep Energy Retrofit BONUS.

**Advanced Efficiency Worx
Energy Services Group
King Conservation
MT Weatherization**

support@aeworxpa.com
info@energysvc.com
casey@kingconservationgroup.com
ACastles@tennygroup.com

LAST CALL FOR TAX CREDITS

Federal energy tax credits are stopping this year.

Your qualifying treatment must be installed this year to get a maximum of \$3,200 from two different “buckets”:

- 30% up to \$2,000 for higher performance mechanical improvements and
- 30% up to \$1,200 home improvements.
(This includes air sealing and insulation)

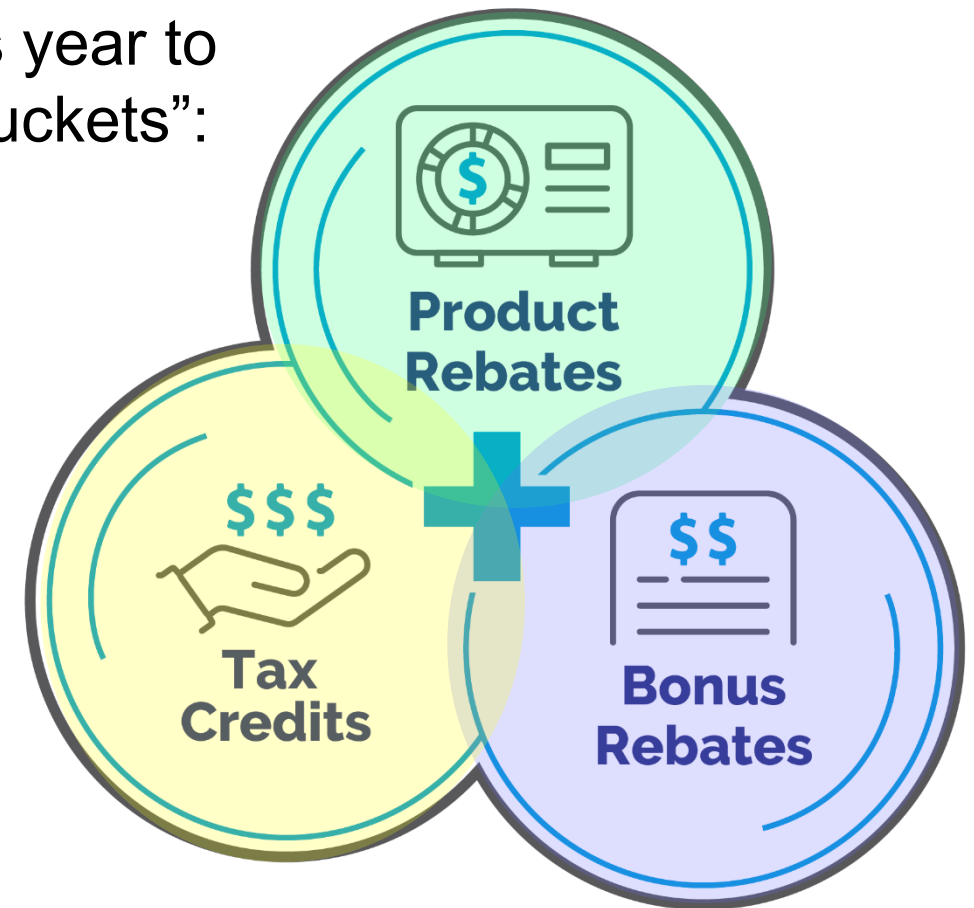
<https://www.EnergyStar.gov/about/federal-tax-credits>

Example if you bundle air sealing and insulation:

(Up to \$200 – PPL rebate for air sealing)

(75% up to \$1,000 – PPL rebates for basement and attic insulation if you have electric heat)

(30% of cost up to \$1,200 for federal tax credit)



QUESTIONS and COMMENTS ?

Please type them into the questions box





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Thank you for coming today



Hap Haven
PPL Pilot Manager



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Marketing Manager