PREPARING YOUR HOME FOR WINTER

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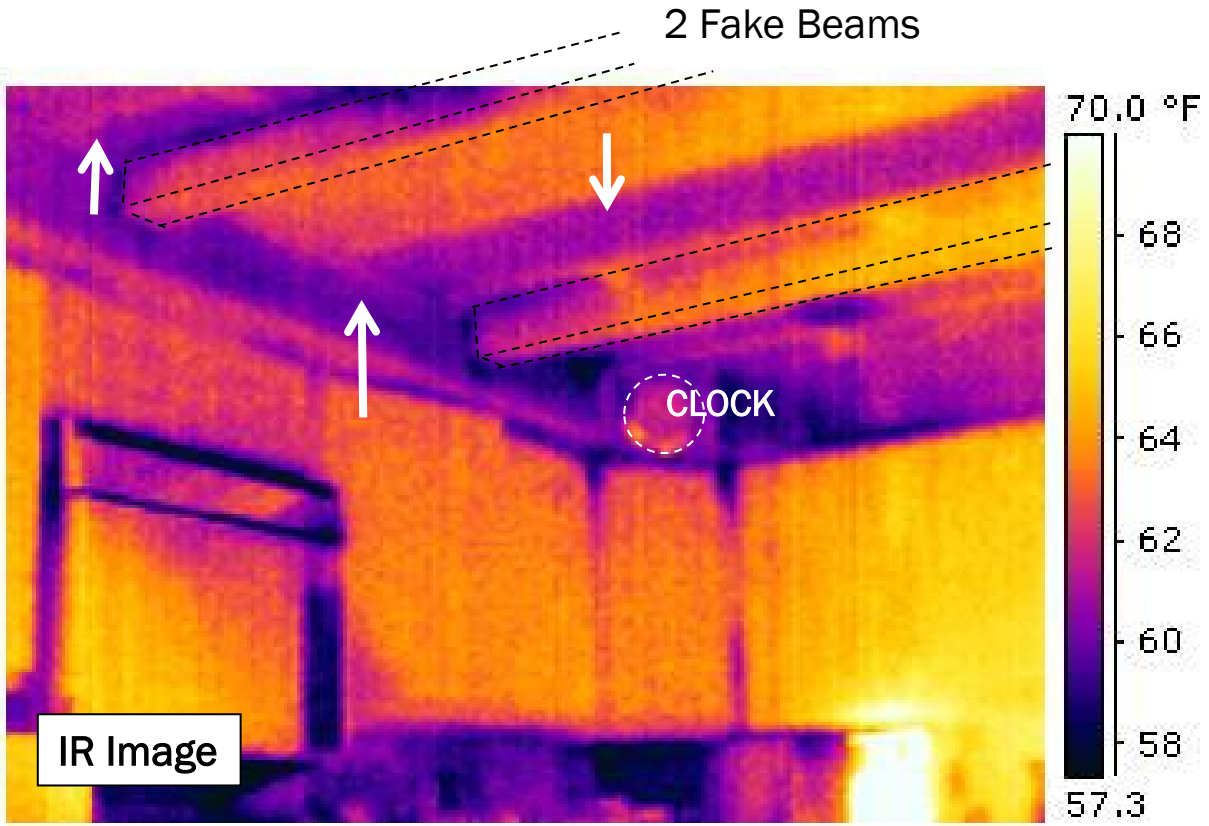
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PREPARING YOUR HOME FOR WINTER

The presentation will begin shortly!





People often report being cold even though their homes are insulated. That's because the insulation industry has historically not focused on air sealing.

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PREPARING YOUR HOME FOR WINTER

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

1 - Healthy Home Overview – because you're closing up your home
2 - Energy Project Overview – the dynamics of air sealing and insulation

- What is the 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

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OVERVIEW OF PART 1

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?

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OVERVIEW OF PART 2

Get an energy assessment or audit

Every house is different, but every house has the same basic systems: structural, mechanical, electrical, and plumbing. An assessment or audit checks these systems and tells you where to focus your efforts first.

Structural system (your house's shell)
Keeps heat in during winter. An auditor tests how well it's doing that job.

Mechanical system (heater and AC)
Makes and distributes warm or cool air. An auditor tests how well it's doing that job.

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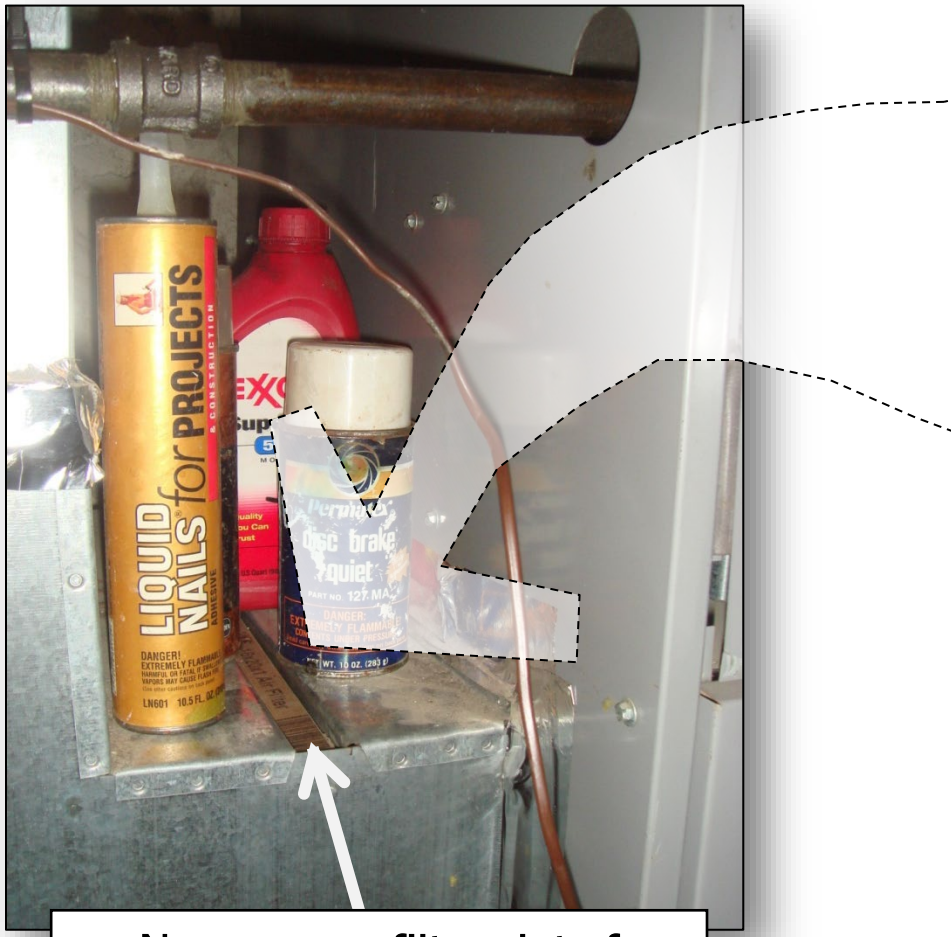
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1) HEALTHY HOME EQUATION

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

Here are just 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.



No cover on filter slot of forced hot air heater

Maintaining your HVAC system is an important part of Indoor Air Quality (IAQ)

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CARBON MONOXIDE IN THE KITCHEN

“I feel light-headed when I cook.”



Ambient CO near a dirty oven – this level won’t set off your CO alarm but is bad for your health!



- Foil at the bottom of a gas oven is a common cause of incomplete combustion and CO.
  Make certain the foil doesn’t block the flow of fresh air into the oven.
- Make certain that your kitchen fan exhausts outside and use it when you cook.
  It’s an important part of Indoor Air Quality (IAQ).

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2) ENERGY PROJECTS

The mechanical and structural systems work together to create comfort.

Is the room getting heat or cool air? = 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.

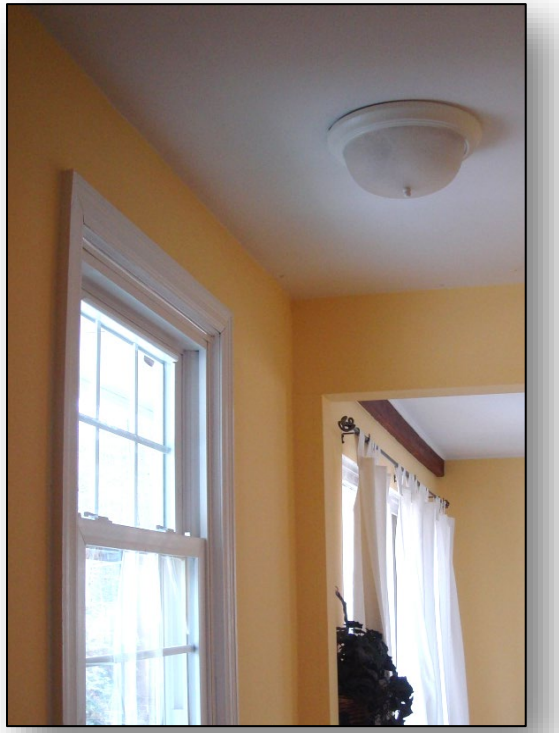
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YOUR HOME HAS HOLES

"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



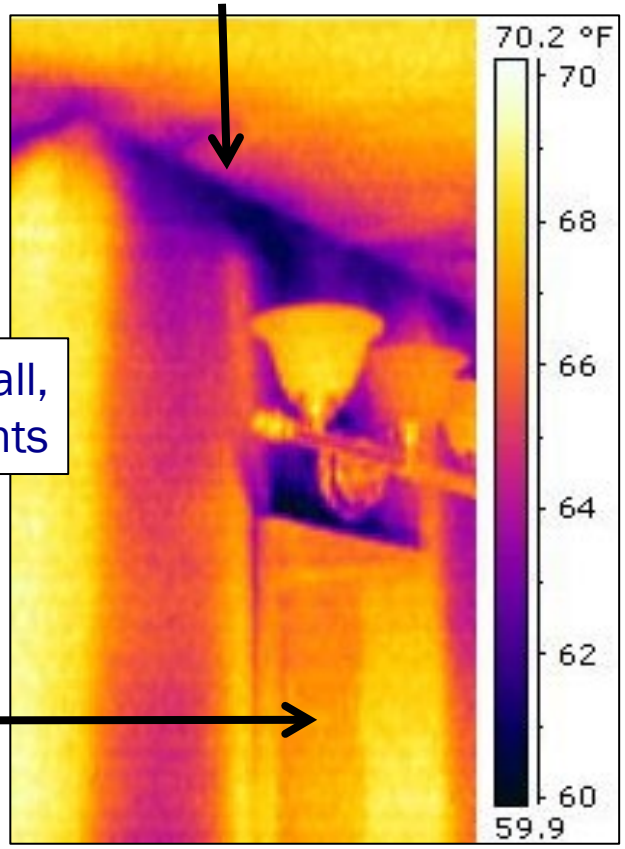
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SEAL THE ATTIC FLOOR (Top of walls)

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

ISSUE: Open top of wall



IR photo of bathroom wall, medicine cabinet and lights

Medicine cabinet

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



Top of wall

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

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HIRE A PROFESSIONAL FOR AIR SEALING

Air sealing is often dirty, difficult and uses specialty products. It's not a DIY project unless you're willing to put in a lot of hard work.



Attic crawlspace in a row house

2-Part Urethane



1-Part Urethane



Also, understand that foam vapor is toxic when foam is applied.

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SEAL THE HOLES - PLUMBING

Many home systems make holes through your attic – here's a plumbing example.

Plumbing chases are often big holes that go all the way from attic to the basement.



Solution: Bridge larger gaps with anything rigid then foam all the nooks and crannies. Remember that foams are not fireproof and need to be covered.

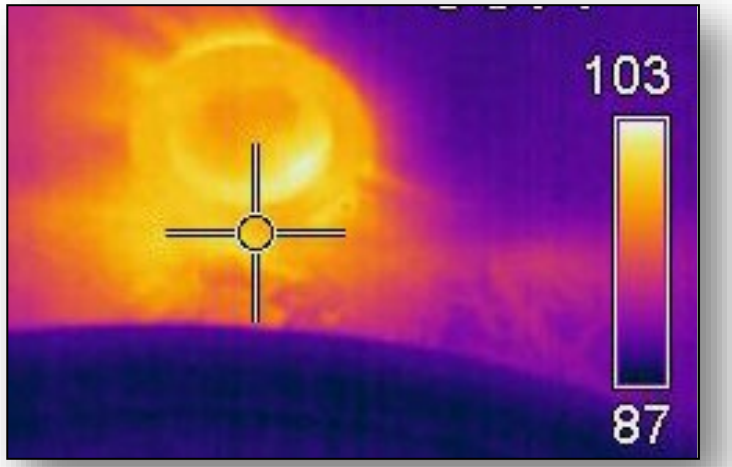


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SEAL THE ATTIC FLOOR (Recessed lights)

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
- Cover with special air-tight boxes that are air sealed to the attic floor.



Commercial Electric Insert



Halo #30 Insert



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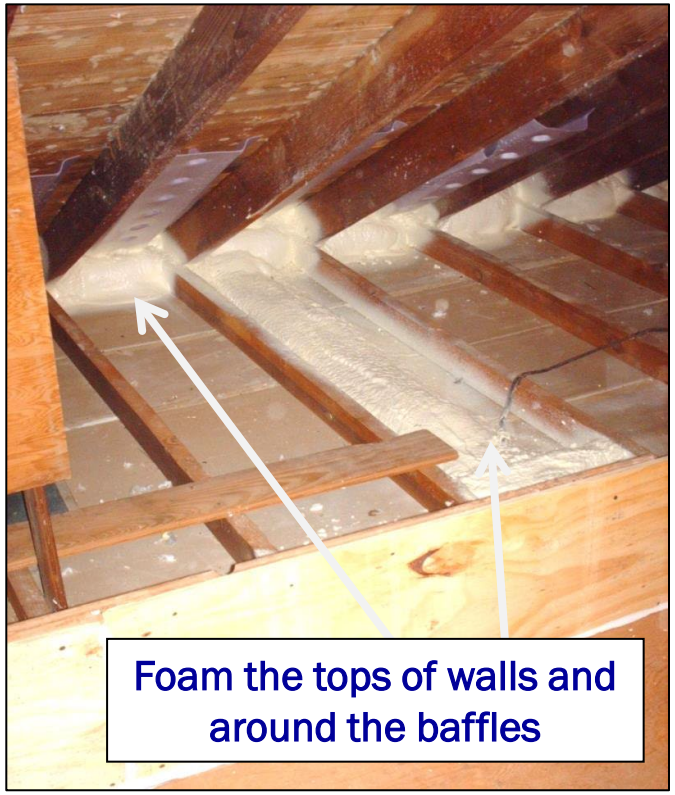
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SEAL THE ATTIC FLOOR (Then insulate)

Insulation should never be installed without air sealing first.



This example shows air going through and under the insulation



On this job, the insulation was removed for air sealing.



Insulation after everything was air sealed and tested.

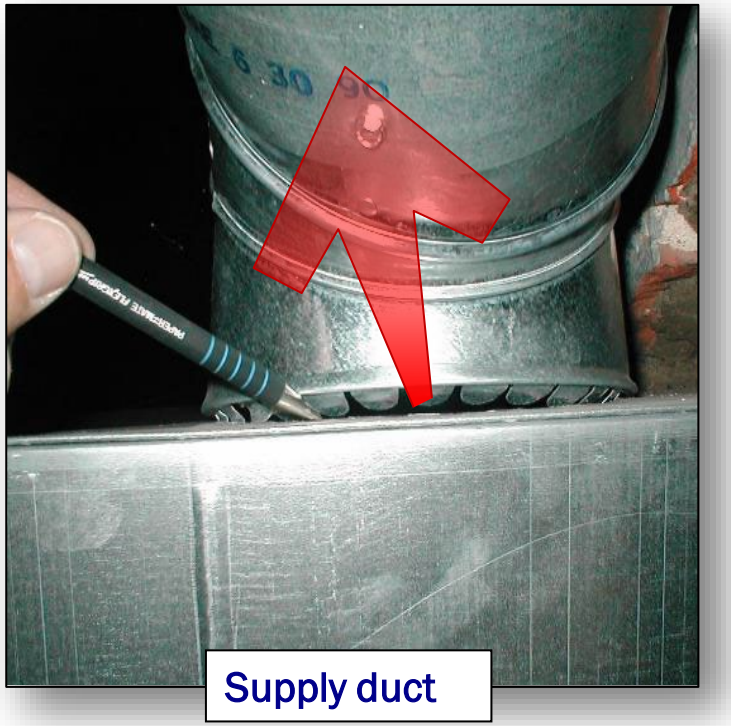
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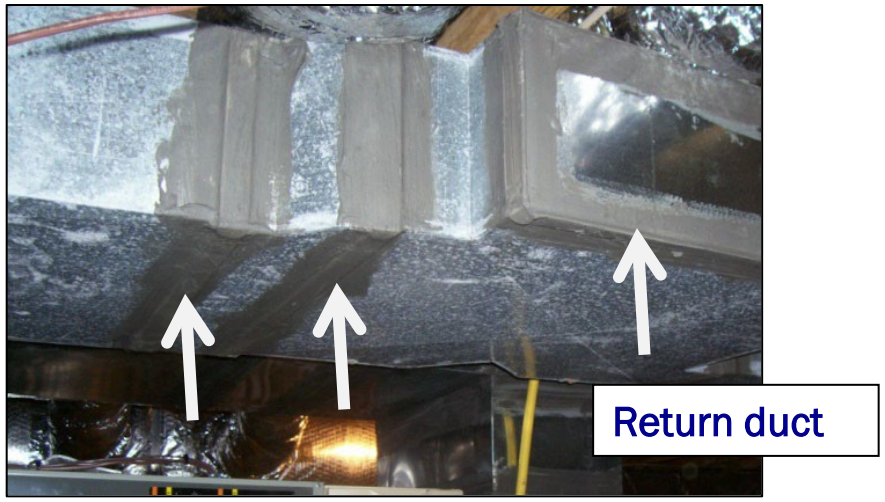
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MY ROOM IS COLD (The Distribution System?)

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.

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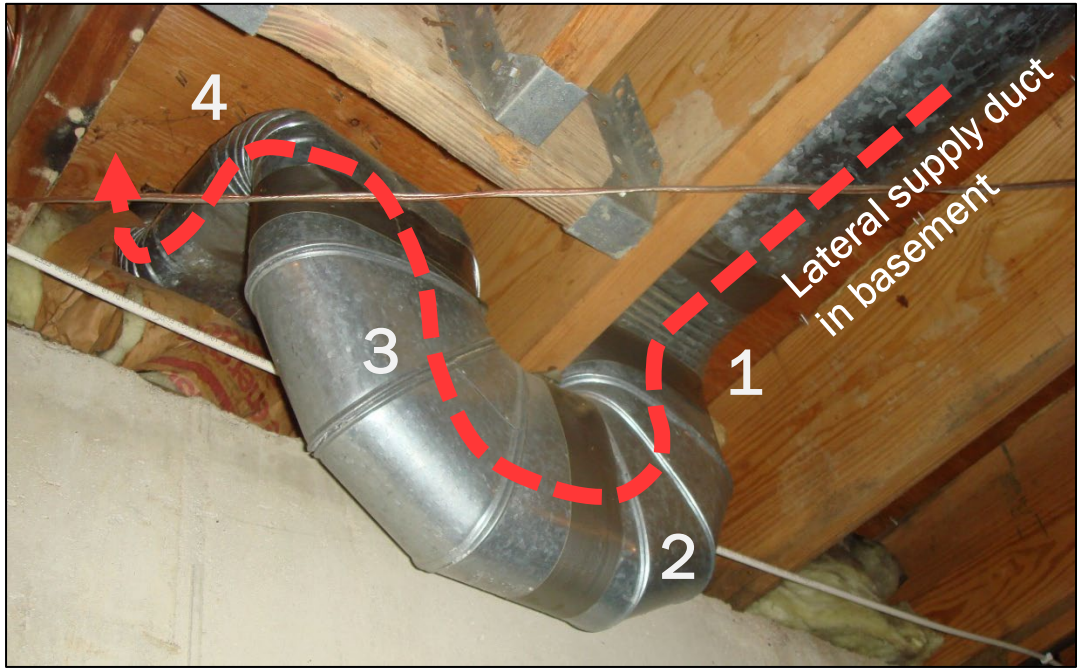
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MY ROOM IS COLD (The Distribution System?)

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
- High air flow will create noise



Each 90˚ Elbow = 30’ of straight duct

30 x 4 = 120’ Extra feet of duct run.

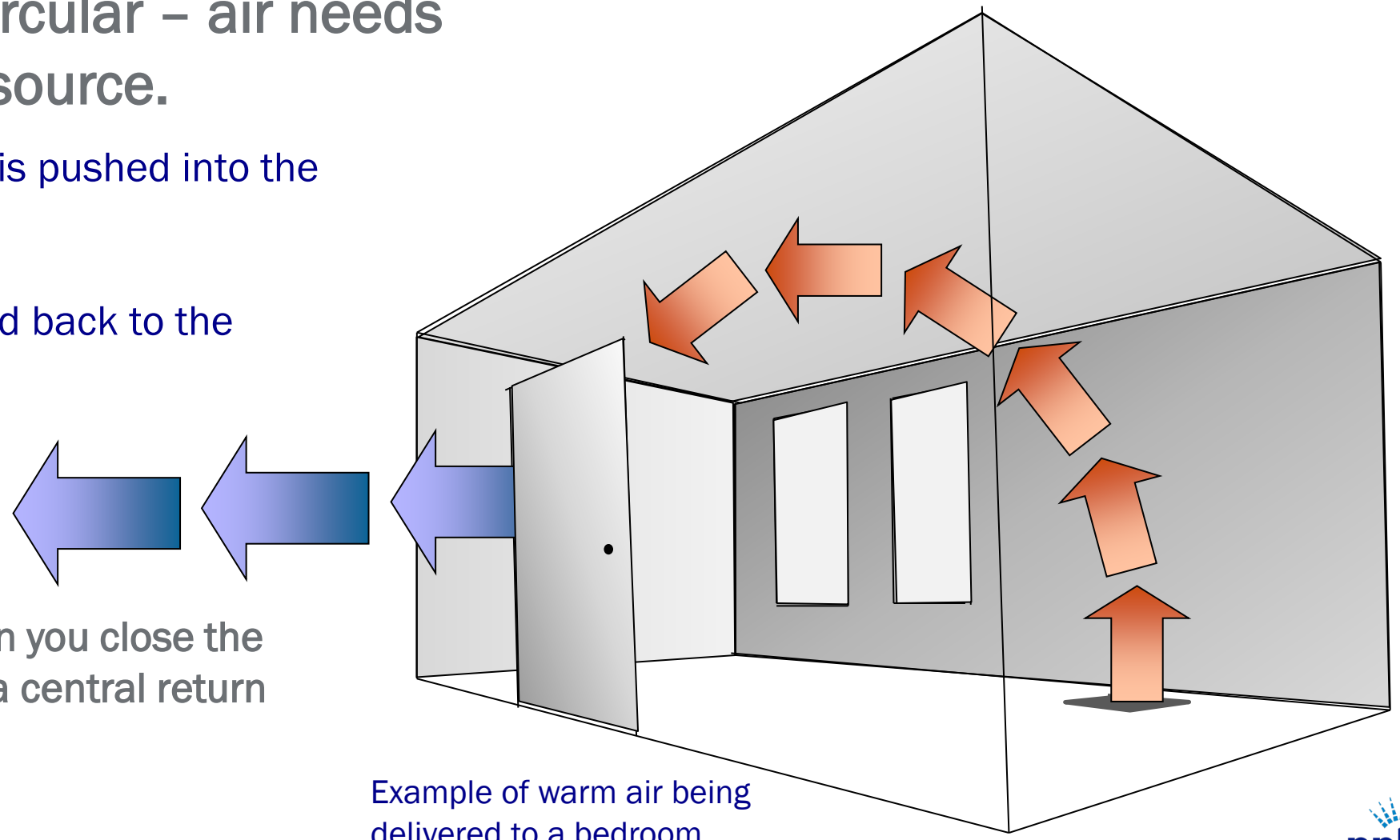
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MY ROOM IS COLD (Bedroom door closed?)

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, but you have a central return duct?

Example of warm air being delivered to a bedroom.

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PREPARING YOUR HOUSE FOR WINTER (Review)

1) ACTIONS for a HEALTHY HOME

Take steps to create a Clean, Maintained, Pollution-free, Dry, Mold-free, and Pest-free home

2) ACTIONS to SAVE ENERGY

The Energy Analyzer

FREE — on your PPL online account page. Learn about your usage and what to ask during an assessment or audit.



Virtual Assessments

Describe your problem to an Energy Advisor by phone or video call. Free for electric heating/central air customers, includes a free energy savings kit. Call 877-486-9204 to schedule



In-Home Auditing

A deep-dive to find hidden problems and solutions.
Ask your auditor if the assessment is free before scheduling.

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EASY ACCESS TO PPL INFORMATION

- Income-based offers — pplelectric.com/IncomeBased, pplelectric.com/WRAP
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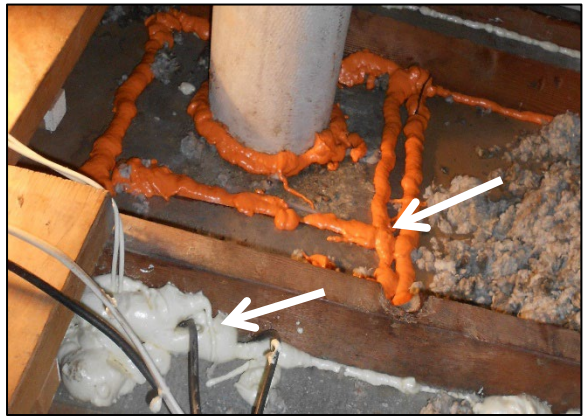
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SAMPLE REBATE GRID

Project	Qualification Notes	Rebates (Available to all customers)	Enhanced Rebates (Up to 250% FPL)
◊ **Air Sealing**	Up to $0.25 per CFM reduction	Up to $150	Up to $165
◊ **Attic Insulation** (Home With Electric Heat and Central A/C)	The new insulation must achieve an R-value greater than the existing insulation R-value.	Up to $500	Up to $575
◊ **Attic Insulation** (Home With Non-Electric Heat and Central A/C)	The new insulation must achieve an R-value greater than the existing insulation R-value.	Up to $200	Up to $250
◊ **Basement Wall Insulation** (Home With Electric Heat and Central A/C)	The new insulation's R-value must be ≥R-15 for continuous sheathing for interior or exterior of the home or ≥R-19 cavity insulation.	Up to $500	Up to $575
◊ **Basement Wall Insulation** (Home With Non-Electric Heat and Central A/C)	The new insulation's R-value must be ≥R-15 for continuous sheathing for interior or exterior of the home or ≥R-19 cavity insulation.	Up to $200	Up to $250

Energy Link: This same air sealing lowers your bills — pair it with fresh-air ventilation to protect indoor air quality too.

Air Sealing (like the foam pictured below) is always recommended first, because it is the most cost-effective treatment available. Insulation typically doesn't work well without air sealing.



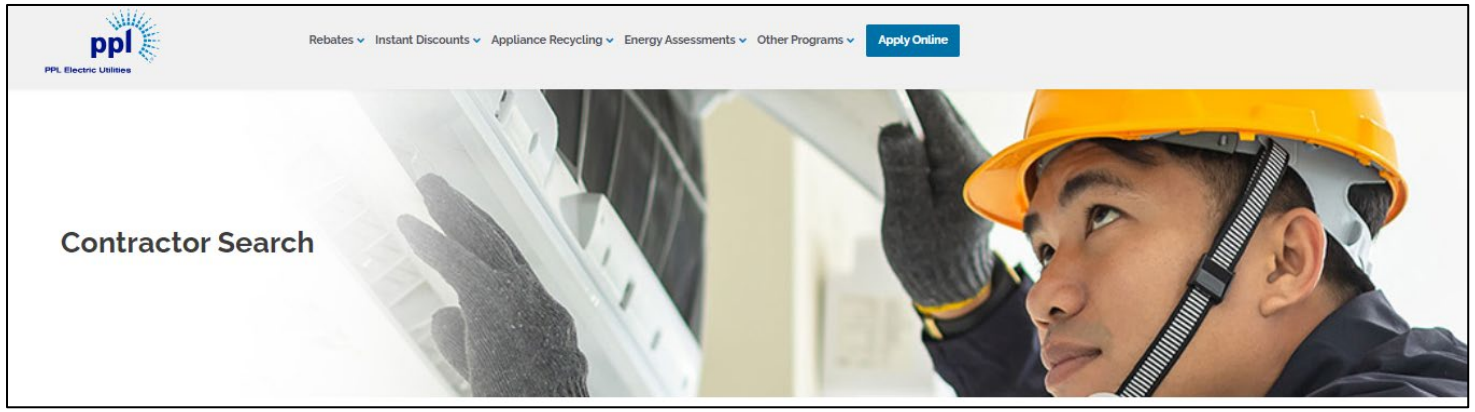
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FIND A CONTRACTOR

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

pplelectric.com/Contractor



You can filter our Contractor Search page to find contractors who serve your county.

Note - contractors are not PPL Electric employees

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QUESTIONS and COMMENTS ?

Please type them into the Q&A box



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Thank you for coming to today's webinar

Preparing Your Home For Winter

You'll be emailed this presentation as a PDF file along with more information about the PPL programs.



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