DIY Energy Assessment

Read through the following areas of potential energy inefficiencies. Determine which you can safely access and evaluate. Once you find areas of inefficiency, lay out a plan of action to address the concerns.

Your plan of action should include:

- *available budget and appropriate alternatives.*
- *prioritization of areas to address.*
- *requirements, comfort, and experience needed to complete the improvement(s).*
- *acknowledgment of which improvement(s) will need professional or maintenance crew assistance.*

Many of the non-human tools referenced are, or will be, available for check out at both the Mesa Public Library and the White Rock Branch Library.

While the DPU will not perform these energy assessments for you, the conservation staff will help you interpret results, provide potential solutions, and understand your utility consumption patterns.

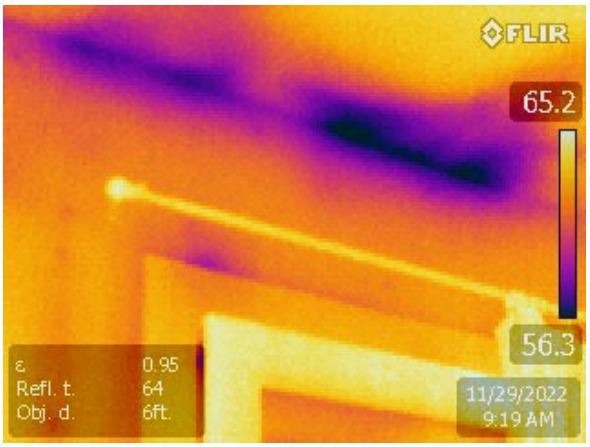
Air Leaks

Assessment Tools: Thermal Camera; Incense Sticks

Sources to investigate: windows, doors, chimney and fireplace parts, plumbing and electrical penetration points (plumbing holes in cabinets, lighting fixtures, outlets and switches), attic access points, and the locations of where two different building materials meet on the outside of a structure.

Procedure:

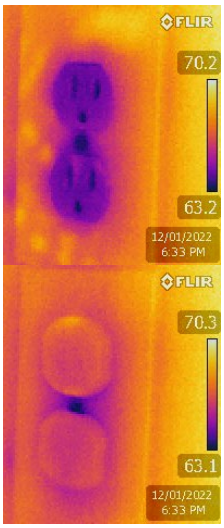
1. Close and secure all windows, doors, and flues.
2. Turn on ventilation fan (range hood and/or bathroom fan) and wait at least 10 minutes, 20 if your dwelling is larger.
3. Slowly walk around your space. If using a thermal camera, look for cold spots that look out of place in ceilings and walls or a scattered/blown look to the cold spots around doors, windows, chimneys, utility penetrations. If using incense, watch for air that blows against the rising smoke around doors and windows.
4. Alternatively, check for windows and doors that rattle while "closed."



Potential area of missing insulation in the ceiling OR the door below is so drafty on the top that cold air is blowing toward the ceiling.

Potential fixes (air leaks):

- Outside: Look for dried and cracked caulk around windows, doors, exterior faucets and outlets, and phone line and cable entry points. Scape out old caulk and apply a fresh bead of paintable acrylic latex. Look for other holes and cracks in mortar, foundation, and siding. Seal with the appropriate materials.
- Inside: apply weatherstripping or refresh any damaged existing weatherstripping around doors (even the bottom!), windows, utility penetrations.
    - Options: rope caulk, adhesive-backed foam tape, rubber foam stripping, insulating shrink kits, gap-filling spray foam insulation, door sweeps, felt strips, latex caulk
- Other: Install insulating sealers behind outlet and switch covers. Child safety caps keep little fingers and the cold out of sockets.
- Low-no cost solutions: keep drapes/curtains/blinds closed or hang extra sheet/blankets over drafty windows. Pick up your free energy efficiency kit from PEEC or DPU.

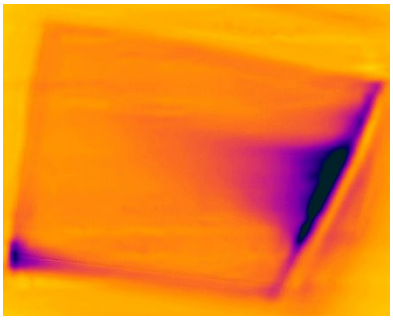


An important note about ventilation. When sealing your spaces, be aware of the danger of indoor air pollution and combustion appliance "backdrafts." Backdrafting is when the various combustion appliances and exhaust fans in the home compete for fresh air. An exhaust fan may pull the combustion gases back into the living space, increasing indoor levels of carbon monoxide. In homes where a fuel is burned (i.e., natural gas, fuel oil, propane, or wood) for heating, be certain the appliance has an adequate air supply. More information can be found at https://www.energy.gov/energysaver/ventilation.

Insulation Insulation Insulation

The level of required insulation in a living space has changed over time. So, depending on the age of the structure you are living in – and what has been "improved" over time – you may want to check the insulation blanket around you. For an interesting blog post on the History of Insulation, check out https://www.yellowhammerroofing.com/blog/history-of-insulation-required-home/.

Assessment Tools: Thermal Camera; Ladder and Eyes



Attic access with an air leak

Procedure:

1. Slowly walk around your space(s). Look for cold spots with the thermal camera that appear out of place in ceilings and walls. Take photos of questionable areas.
2. If you are able, go up into your attic and crawlspace/basement spaces and assess the amount and condition of insulation.
3. Investigate the attic access point(s). The backside of it should be heavily insulated, have weatherstripping along the frame, and preferably close tightly.

Potential fixes:

1. If you are able, or hire a professional to, add additional insulation to the necessary spaces.
    a. You'll need a permit from Community Development.
    b. Make sure you, or the professional, are completing improvements correctly and to code.

Inspect Heating and Cooling Equipment

Perform inspections at least annually. If your unit(s) is more than 15 years old, consider developing a replacement plan now, instead of when the unit ceases to work.

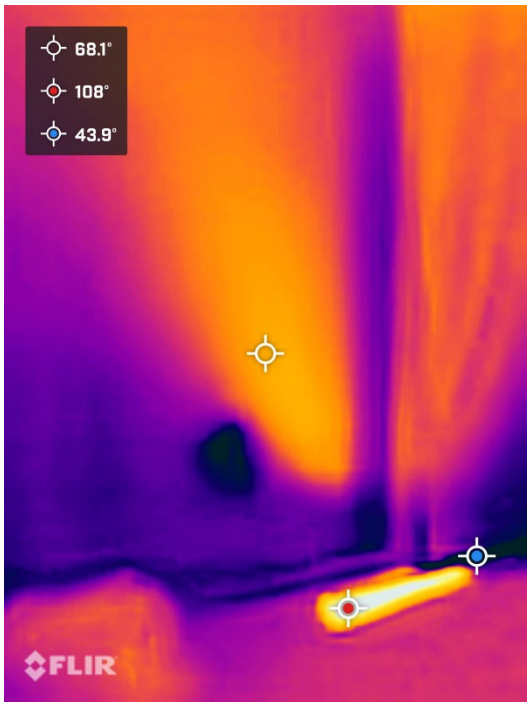
Assessment Tool: Hands and Eyes

Procedure:

1. Turn on your unit(s) BEFORE you need them to make sure they start up and are running properly.
2. Check to see if your ductwork is attached to register vents. Do you see any gaps between the duct and the flooring when looking from inside the home.
3. If you are able, access where the rest of the ducting is housed, look for holes, cracks, gaps, and loose tape in the ductwork.

Potential fixes:

1. Change or clean the air filters regularly.
2. Dust off vents and make sure no open ones are blocked by furniture or long drapes.
3. Have a professional perform annual maintenance and ask for an AFUE (annual fuel utilization efficiency) rating. This will let you know the efficiency of your dinosaur and if it's time for a replacement (beyond what a deep clean and maintenance can improve).



Notice the pattern of heat blowing up (orange color) from the heating vent (bright yellow). The dark/black areas are an interior outlet on an exterior wall and the bottom of a door leading to the outside. Look at the variation of temperatures as well.

Lighting

Did you know the average US home uses 70 light bulbs!

Assessment Tool: Eyes

Procedure:

1. Identify which fixtures and appliances are not using LED or energy-efficient bulbs.

Potential fixes:

1. Make a plan to phase in more LED bulbs or replace/upgrade any inefficient fixtures.
2. Focus on the most-used spaces first: kitchen, bathrooms, living room.
3. Consider the use of sensors, dimmers, or timers to reduce lighting use.

Appliances and Electronics

Determine what is drawing power when. If a device has an indicator light, a charger or AC adapter on the cord, or a digital clock, it's consuming power. Use this check to see how much is being added onto your bill.

Tool: Kill-o-Watt

Procedure:

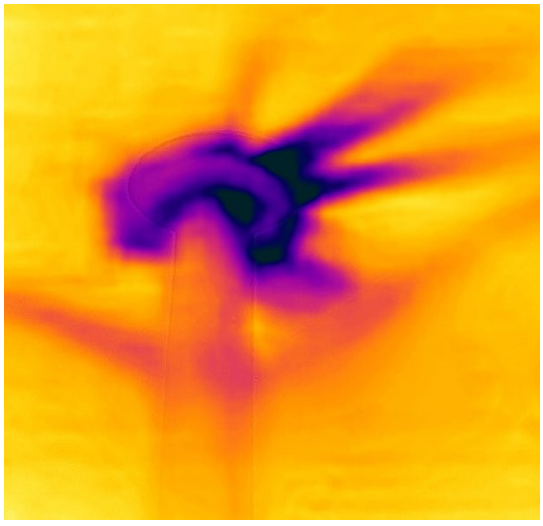
1. Turn off and unplug the device/appliance to be measured.
2. Plug the Kill A Watt meter into the outlet and then plug the device/appliance into the meter.
    a. If an outlet is in an inconvenient location, first connect a quality extension cord to the outlet, then the meter, then the device/appliance.
3. Follow the manual instructions to make sure the unit is reset and will display usage based on correct utility rates.
4. The longer the device/appliance remains plugged into the power meter, the more accurate the projection will be. This is especially true for appliances that cycle on and off.
5. DO NOT plug in appliances that draw large amounts of electricity such as ranges, hot water heaters, or dryers.

Potential fixes:

1. Insulate water heaters and hot water pipes that are warm to the touch. You're paying to heat the water, not the air around the units. Local hardware stores stock water heater insulation blankets and pipe insulation wraps.
2. Turn the temperature of hot water heaters down. It is not recommended to go below 120F.
3. Unplug items or use power strips to prevent phantom loads.
4. Change the settings on items or use them less often.
5. Invest in a more energy efficient product.

Fireplaces

10-20% of warmed air might be going right up the chimney.



Air leak where the chimney enters the ceiling.

Procedure:

1. Close the damper, hold a lit candle inside the fireplace and watch the flame. If it flickers or blows out, air is flowing up the chimney.
2. Check penetration points (chimney, gas lines) for air leaks.

Potential fixes:

1. Replace or fix a rusted, damaged, and loose-fitting damper.
2. Appropriately seal where the chimney goes through the ceiling and roof.
3. In the off season, use an inflatable chimney balloon to seal the flue.

Fridges and Freezers

Tools: Strong and mobile body; coil brush cleaning kit; vacuum

Procedure:

1. Check the condition of the rubber seals. Clean seals and gaskets regularly and consider replacing damaged or moldy seals.
2. Dust (get help if needed) the coils underneath or on the back of the fridge or freezer. Dusty coils make units work harder. If you don't have access to one of the coil brush cleaning sets, getting a vacuum hose in there will help eliminate some of the buildup.

Whole-House Plan

Below are some resources designed to help you understand your usage and get tips on improvements.

1. DPU's AMI Portal
    a. Access your Automated Metering Infrastructure (AMI) portal to see what your utility consumption looks like in near real-time between billings.
    b. Evaluate patterns to identify out-of-place spikes in usage.
    c. Set up leak alerts and usage thresholds.
    d. Log in or sign up at www.ladpu.com/MyMeters.
2. ENERGY STAR Home Energy Yardstick
    a. Designed as a simple assessment of your home's annual energy use compared to similar homes.
    b. Gain insights into how much of your home's energy is going into heating/cooling versus other everyday uses. Find it at portfoliomanager.energystar.gov/pm/hey
    c. Receive an ENERGY STAR score for your home and guidance on how to increase your score, improve comfort, and potentially lower your utility bill.

A note about the Yardstick: The Home Energy Yardstick is currently only available for single-family homes, mobile homes, townhouses, rowhouses, and duplexes. The score and guidance provided is not utilized by DPU in any capacity but can be used as an additional educational resource for customers to improve their home's efficiency. Hire professionals and secured permits as necessary and required.

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REDUCE & CONSERVE electricity, natural gas & water