



SUMMARY OF ESTIMATED YEARLY COSTS:



SUMMARY



ENERGY UPGRADES

ENERGY
BOOK

123 ANY STREET BEND

Dan Demo,

In order to generate your Home Energy Report, I conducted a walk-through of the home and collected about 40 data points related to energy. I then used an advanced energy calculator developed by the International Association of Certified Home Inspectors to:

- estimate the home's yearly energy usage,
- pinpoint potential energy inefficiencies,
- develop recommendations for energy improvements, and
- determine potential energy savings.

Throughout the rest of this report, you will find information about the efficiency of the major systems in the home, and recommendations for improvements that can help reduce your energy bills while making your home more comfortable. Keep in mind that these estimates and recommendations are based on a typical family's energy usage.

Thank you so much for choosing me to perform your Home Energy Inspection. If you have any questions, feel free to email me at homeprideoregon@gmail.com.

Best,

Steve Furness, Oregon Inspector #2175
Your InterNACHI-Certified Home Inspector

This report was created by:

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THE FOLLOWING ARE ENERGY COST ESTIMATES BASED ON TYPICAL USAGE IN BEND, OR:

HEATING

YEARLY BILL

\$1,044

MONTHLY BILL

\$87

POTENTIAL SAVINGS

\$822

[SEE MORE](#)

COOLING

YEARLY BILL

\$203

MONTHLY BILL

\$17

POTENTIAL SAVINGS

\$183

[SEE MORE](#)

LARGE APPLIANCES

YEARLY BILL

\$260

MONTHLY BILL

\$22

POTENTIAL SAVINGS

\$52

[SEE MORE](#)

SMALL APPLIANCES

YEARLY BILL

\$124

MONTHLY BILL

\$10

POTENTIAL SAVINGS

\$0

[SEE MORE](#)

LIGHTING

YEARLY BILL

\$152

MONTHLY BILL

\$13

POTENTIAL SAVINGS

\$115

[SEE MORE](#)

HOT TAP WATER

YEARLY BILL

\$255

MONTHLY BILL

\$21

POTENTIAL SAVINGS

\$104

[SEE MORE](#)

TOTAL ESTIMATED COST

\$2,038

TOTAL AFTER UPGRADES

\$762

POTENTIAL SAVINGS PER YEAR

\$1,276

HEATING

Set your programmable thermostat as low as is comfortable in the winter and as high as is comfortable in the summer, as well as when you're sleeping or away from home.

Heating and cooling your home uses more energy and costs more money than any other system in your home.

No matter what kind of heating and cooling system you have in your house, you can save money and increase your comfort by properly maintaining and upgrading your equipment. But remember, an energy-efficient furnace alone will not have as great an impact on your energy bills as using the whole-house approach. By combining proper equipment maintenance and upgrades with recommended insulation, air sealing, and thermostat settings, you can cut your energy use for heating and cooling--and reduce environmental emissions--from 20%-50%.

[Read more in the Energy eBook »](#)

ESTIMATED YEARLY HEATING COST

\$1,044

AFTER UPGRADES

\$222

POTENTIAL SAVINGS PER YEAR

\$822

Notes: This house is 0% heated by wood fuel. 100% of the floor area is heated.

Heating electricity values include fan or pumping energy for homes that have forced-air or water-based heating systems powered by circulation pumps.

COOLING

Buying a bigger room air conditioner won't necessarily make you feel more comfortable during the hot summer months. In fact, a room air conditioner that's too big for the area it is supposed to cool will perform less efficiently and less effectively than a smaller, properly sized unit. Central air-conditioning systems need to be sized by professionals.

If you have a central air system in your home, set the fan to shut off at the same time as the compressor, which is usually done by setting the "auto" mode on the fan setting. In other words, don't use the system's central fan to provide air circulation--use circulating fans in individual rooms.

Instead of air conditioning, consider installing a whole-house fan. Whole-house fans work in many climates and help cool your home by pulling cool air through the house and exhausting warm air through the attic. Use the fan most effectively to cool down your house during cooler times of the day; your home will stay cooler through the hotter times of the day without using the fan.

[Read more in the Energy eBook »](#)

ESTIMATED YEARLY COOLING COST

\$203

AFTER UPGRADES

\$20

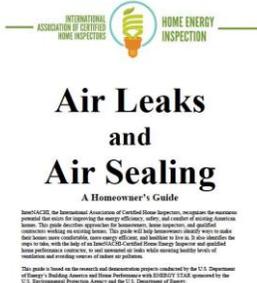
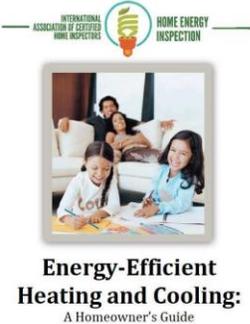
POTENTIAL SAVINGS PER YEAR

\$183

Notes: 100% of the floor area is cooled.

FREE HEATING & COOLING GUIDES

Download these free guides to help improve your heating and cooling efficiency:



LARGE APPLIANCES

The following are approximate energy costs for these appliances used by a typical family in a similar home. This includes the hot water usage of these appliances. Your appliance usage may be very different.

[Read more in the Energy eBook »](#)

Appliance	Total Cost
Refrigerator	\$43

Appliance	Total Cost
Stove	\$35
Oven	\$23
Clothes Dryer	\$81
Clothes Washer	\$43
Dishwasher	\$35
Total	\$260

ESTIMATED YEARLY APPLIANCE COST

\$260

AFTER UPGRADES

\$208

POTENTIAL SAVINGS PER YEAR

\$52

Equipment energy is the energy used by motors, heating elements, and burners inside your appliances. This number excludes the energy consumed by your water heater to supply hot water for appliances, such as clothes washers and dishwashers.

SMALL APPLIANCES

Because appliance usage is much more dependent on the homeowner than the home, the small appliance recommendations in this report are based on a **representative Redmond household**. Your actual energy consumption will vary depending on what appliances you own (TVs, computers, microwave, etc.) and your appliance usage.

[Read more in the Energy eBook »](#)

Representative Home: 1 color tv, 1 dvd player, 1 vcr, 1 cable box, 1 video game, 1 audio receiver, 1 portable audio, 1 cd player, 1 tape player, 1 computer, 1 monitor, 1 inkjet printer, 1 network router, 1 coffee drip, 1 microwave, 1 toaster, 1 vacuum upright, 2 clocks, 1 hair dryer .

Appliance	Energy Use	T
Entertainment	345 kWh	\$
Home Office	361 kWh	\$
Miscellaneous Kitchen	464 kWh	\$
Other Appliances	120 kWh	\$

ESTIMATED YEARLY APPLIANCE COST

\$124
AFTER UPGRADES
\$124
POTENTIAL SAVINGS PER YEAR
\$0

LIGHTING

You have many choices in energy-efficient lighting. The most popular light bulbs available are halogen incandescent, compact fluorescent lamps (CFLs), and light-emitting diodes (LEDs). Although they can initially cost more than traditional incandescent bulbs, over their lifetime, they save you money because they use less energy.

This home has approximately 15% high-efficient light bulbs.

APPROXIMATE LIGHTING ENERGY USAGE:

Room	Yearly Energy Use	Energy
Kitchen	176 kWh	\$16.92
Dining Room	88 kWh	\$8.46

Room	Yearly Energy Use	Energy
Living Room	264 kWh	\$25.38
Family Room	88 kWh	\$8.46
Master Bedroom	176 kWh	\$16.92
Hall	176 kWh	\$16.92
Bedrooms	176 kWh	\$16.92
Bathrooms	176 kWh	\$16.92
Garage	88 kWh	\$8.46
Outdoor	176 kWh	\$16.92
Total	1586 kWh	\$152.2

ESTIMATED YEARLY LIGHTING COST

\$152

AFTER UPGRADES

\$37
POTENTIAL SAVINGS PER YEAR
\$115



For more great information about energy-efficient lighting, visit www.energystar.gov.

HOT WATER (FAUCETS, TUBS & SHOWERS)

Drain a quart of water from your water tank every three months to remove sediment that impedes heat transfer and lowers the efficiency of your heater. Follow the manufacturer's directions.

Water heating is the second largest energy expense in your home. Much of that expense comes from laundry and dish washing, which are covered in the Large Appliances category. This section focuses on your hot water heater, and hot water usage by faucets, tubs and showers.

There are four ways to cut your water heating bills: use less hot water, turn down the thermostat on your water heater, insulate your water heater, or buy a new, more efficient model.

Although most water heaters last 10-15 years, it's best to start shopping now for a new one if yours is more than seven years old. Doing some research

before your heater fails will enable you to select one that most appropriately meets your needs.

[Read more in the Energy eBook »](#)

ESTIMATED YEARLY WATER HEATING COST

\$255

AFTER UPGRADES

\$151

POTENTIAL SAVINGS PER YEAR

\$104

LONG-TERM SAVINGS TIPS

Set the thermostat on your water heater to 120° F to get comfortable hot water for most uses.

Buy a new energy-efficient water heater. While it may cost more initially than a standard water heater, the energy savings will continue during the lifetime of the appliance. Look for the ENERGY STAR and EnergyGuide labels. You can find the ENERGY STAR label on efficient water heaters in the following categories: high-efficiency gas non-condensing, gas condensing, electric heat pump, gas tankless, and solar.

Consider natural gas on-demand or tankless water heaters, which heat water directly without using a storage tank. Researchers have found that energy savings can be up to 30% compared with a standard natural gas storage tank water heater.

Consider installing a drain-water waste heat recovery system. Drainwater (or greywater) heat-recovery systems capture the energy from waste hot water—such as showers and dishwashers—to preheat cold water entering the water heater or going to other water fixtures. Energy savings will vary depending on individual household usage.

ENERGY UPGRADE RECOMMENDATIONS

These upgrades are recommended based on a 4-year pay back period (upgrades that will pay for themselves within 4 years).

PRIORITY #1:

Upgrade to a programmable thermostat.

Install an ENERGY STAR-labeled programmable thermostat, and program it to change the temperature settings when you are away from home and at night. EPA estimates that ENERGY STAR-labeled programmable thermostats can save consumers 10-15% on heating and cooling bills when used properly. Note: Our calculations bill savings and cost-effectiveness assume that the heating-season set-point is decreased 4 degrees F during the day 9 am to 5 pm and at night 11 am to 7 pm, while the cooling-season set-point is increased 3 degrees F during those same periods. Larger set-point adjustments can provide additional bill savings.

BENEFITS:

Programmable thermostats can help keep your home more comfortable.

TIPS:

- Some programmable thermostats have a "smart" feature designed to maximize energy savings. These thermostats continually monitor usage patterns in order to determine the best time to turn the system on in order to reach the desired temperature setting, while minimizing energy use.

This upgrade will save approximately 4557 pounds of carbon dioxide per year (not including other greenhouse-gases which may also be reduced).

THE NUMBERS

ESTIMATED SAVINGS:

\$505 per year

ESTIMATED COST OF UPGRADE:

\$85 to \$119 total

RETURN ON INVESTMENT:

588%

PAYBACK TIME:

0 year(s)

PRIORITY #2:

Replace any existing incandescent light bulbs (particularly, in areas you use most) with compact fluorescent bulbs (CFLs) or LEDs.

Replace high-use incandescent lamps with compact fluorescent lamps. These units can save up to 75% of the energy used by an ordinary incandescent bulb.

BENEFITS:

Fluorescent lamps last several times longer than ordinary incandescent bulbs, which saves you the time and expense of replacing bulbs when they burn out.

TIPS:

- Compare the light output in Lumens of the bulb you are replacing to ensure you are using the appropriate CFL. Most CFLs list their light output and equivalent incandescent wattage on their package.
- CFLs are available in many shapes and sizes, which will allow replacing nearly any incandescent bulb.
- When buying new light fixtures, look for ENERGY STAR qualified models.
- CFLs are a good investment for lights that are used 2-3 hours per day on average or more.

This upgrade will save approximately 986 pounds of carbon dioxide per year (not including other greenhouse-gases which may also be reduced).

THE NUMBERS

ESTIMATED SAVINGS:

\$37 per year

ESTIMATED COST OF UPGRADE:

\$7 to \$10 total

RETURN ON INVESTMENT:

526%

PAYBACK TIME:

0 year(s)

PRIORITY #3:

If, in the future, you decide to replace your clothes washer, pick a new one with an ENERGY STAR label.

When replacing your clothes washer, choose an ENERGY STAR-labeled model. ENERGY STAR clothes washers can reduce energy consumption by up to 70% and are available in top-loading and front-loading designs. Some ENERGY STAR models use up to 50% less water in addition to saving energy.

Note: Our calculations bill savings, typical upgrade costs, and cost-effectiveness are for a model with the lowest efficiency that qualifies for the ENERGY STAR label.

BENEFITS:

ENERGY STAR® clothes washers can reduce water use significantly, leave the clothes drier thus reducing drying time and energy consumption, and reduce wear and tear on clothes.

TIPS:

- Choose a clothes washer with high-speed spin cycles. This feature removes more water from clothes, which reduces the energy and time required for drying.
- Select a low water-use, high efficiency washer. Front-loading tumble-action washers can cut energy use by up to 70 percent, reduce water consumption significantly, and may actually get clothes cleaner.
- Look for pre-soaking and/or "suds saver" options which conserve energy.
- Clothes washers come with EnergyGuide yellow and black labels. Use these labels to select the most efficient model for the capacity you have chosen.

ABOUT THE ESTIMATED COST:

Because this recommendation involves choosing a more efficient product **when replacing an existing one**, the estimated cost shown and used in the analysis is the **additional cost** of the efficient unit compared to that of a standard-efficiency new unit. It is not the total cost of the new product. You will pay more out of pocket than the amount we show for the

better device, but only a portion of that will be the "added cost" compared to going with a less efficient option.

This upgrade will save approximately 162 pounds of carbon dioxide per year (not including other greenhouse-gases which may also be reduced).

THE NUMBERS

ESTIMATED SAVINGS:

\$33 per year

ESTIMATED COST OF UPGRADE:

Add'l \$90 to \$126

RETURN ON INVESTMENT:

36%

PAYBACK TIME:

3 year(s)

PRIORITY #4:

When replacing your water heater, pick an energy efficient heater (refer to the EnergyGuide and Energy Factor labels).

When replacing your gas water heater, choose an energy-efficient model with an Energy Factor of 0.62 or higher.

Note: Our calculations bill savings, typical upgrade costs, and cost-effectiveness assume the efficient water heater has an energy factor of 0.62 and recovery efficiency of 0.76. Higher efficiency units are available, and would provide additional energy savings.

BENEFITS:

Efficient gas-fired water heaters may hold their temperature longer following power interruptions and operate more safely.

TIPS:

- The most important measure of efficiency for water heaters is the Energy Factor EF. The higher the EF, the more efficient the water heater.
- Purchase a water heater whose tank is internally insulated with at least R-16.
- A water heater that is too large for your home not only has a higher purchase cost but will increase your energy costs due to excessive cycling and standby losses. The resources below provide good, simple guidance on proper sizing of water heaters. The size, or "capacity", of a fuel-fired water heater should be judged by its first hour rating FHR, not its tank size. Due to larger burners, some gas water heaters with smaller tanks actually have higher capacities FHRs than models with larger tanks.
- Many types of water heaters are now available, such as "demand" tankless, "indirect" or "integrated", and solar-assisted water heaters.
- New and/or efficient gas water heaters may have different venting and flue requirements. When replacing your water heater make sure your contractor assesses your existing flue, follows new code requirements for venting water heaters, and obtains necessary permits and inspections.

ABOUT THE ESTIMATED COST:

Because this recommendation involves choosing a more efficient product **when replacing an existing one**, the estimated cost shown and used in the analysis is the **additional cost** of the efficient unit compared to that of a standard-efficiency new unit. It is not the total cost of the new product. You will pay more out of pocket than the amount we show for the better device, but only a portion of that will be the "added cost" compared to going with a less efficient option.

This upgrade will save approximately 456 pounds of carbon dioxide per year (not including other greenhouse-gases which may also be reduced).

THE NUMBERS

ESTIMATED SAVINGS:

\$49 per year

ESTIMATED COST OF UPGRADE:

Add'l \$180 to \$252

RETURN ON INVESTMENT:

26%

PAYBACK TIME:

4 year(s)

PRIORITY #5:

If, in the future, you need to replace your siding, add insulating sheathing underneath it.

Add R-5 rigid foam insulation to the exterior of walls that already contain cavity insulation. In a typical home, half or more of the energy loss is through the exterior walls, floor and roof. Proper insulation, as well as sealing air leaks in your home's shell, is vital to reducing these energy losses. Exterior walls can be the most important part of your shell to insulate, because of their large area.

Note: The annual bill savings and cost-effectiveness assume that you upgrade all of your exterior walls R-5 sheathing in addition to R-11 wall-cavity insulation. The bill savings will be less if you do not upgrade the entire wall area, but the cost-effectiveness of upgrading less than all of your wall area

should be approximately the same as shown above. The default cost for this upgrade assumes that the exterior wall finish siding, stucco, etc. is already being replaced, so the cost to remove and replace finish materials is not included in the upgrade cost.

BENEFITS:

Wall insulation can make your home more comfortable and quieter, reduce the risk of moisture damage, enhance fire safety, make your home more disaster-resistant, and help guard against pipe freezing.

TIPS:

- If your home does not currently have insulation in the wall cavities, insulate that area first before applying exterior foam sheathing. Whenever you have work done on your home that involves removing the exterior wall finish, however, it's a good time to consider adding exterior rigid foam insulation to that area.
- You may be able to tell if the wall cavities are insulated by removing an outlet cover on an exterior wall and looking into the wall cavity. Or, choose a closet or cabinet along an exterior wall. Drill two 1/4" holes into the wall about 4" apart, with one hole above the other; any insulation should be apparent. If you don't see any insulation inside the wall cavity, hire an insulation contractor to blow cellulose or fiberglass insulation into the exterior walls. Blown-in insulation does not require the walls to be torn open.
- When comparing contractors' bids, make sure they are for the same insulating value R-value, not just the same number of inches.

This upgrade will save approximately 2478 pounds of carbon dioxide per year (not including other greenhouse-gases which may also be reduced).

THE NUMBERS

ESTIMATED SAVINGS:

\$269 per year

ESTIMATED COST OF UPGRADE:

\$1,083 to \$1,516 total

RETURN ON INVESTMENT:

25%

PAYBACK TIME:

4 year(s)

PRIORITY #6:

If, in the future, you need to replace your furnace, pick a new one with an ENERGY STAR label.

When replacing your gas furnace, choose an ENERGY STAR-labeled model. These units can save 15% or more of your heating bill.

Note: Our calculations bill savings, typical upgrade costs, and cost-effectiveness are for a furnace with the lowest efficiency that qualifies for the ENERGY STAR label 90 AFUE. Higher efficiency models are available, which can provide additional bill savings.

BENEFITS:

ENERGY STAR® gas-fired furnaces make your home more comfortable. Some models are less prone to causing indoor air quality problems or house fires.

TIPS:

- Buy the right size of furnace for your needs. If you have upgraded your home's insulation or windows since your last furnace was installed, you may be able to down-size your furnace i. e., buy a smaller-capacity furnace which can reduce the cost. If you buy a furnace that is too big for your home's needs, it will have short cycle times and reduced efficiency

as a result. A furnace that is properly sized costs less to operate. Be sure to have your contractor perform a heat-loss, heat-gain calculation, and do not rely on rule-of-thumb sizing estimates, which are often inaccurate.

- If you live in a large house, consider purchasing one of the higher efficiency furnaces that come with two-stage burners. These burners allow the furnace to operate at lower burn rates using less fuel when the home's heating demand is low. When the heating demand is higher, the second stage burner is employed. The additional savings from this feature may well be worth the cost if you live in a large home.
- New and/or efficient furnaces often have different venting and flue requirements. When replacing your furnace make sure your contractor assesses your existing flue, follows new code requirements for venting furnaces, and obtains necessary permits and inspections.
- All new furnaces are labeled with their Annual Fuel Utilization Efficiency AFUE. The higher the AFUE, the more efficient the unit.
- Consider selecting a furnace with an electronically commutated, or ECM, blower motor. ECM motors are considerably more efficient than standard motors. Consider this feature especially if you run your furnace fan all year long for such things as comfort or air cleaning. A furnace fan with an ECM motor could cut the cost of running the furnace fan by a factor of 5.³
- If your duct system has leaks or disconnected portions, you will not reap the full energy savings you could get from a high efficiency furnace. Consider having your heating contractor check the entire length of your ductwork for leaks and seal any leaks with mastic-type sealant, not duct tape. It's now possible for a contractor to perform verified duct sealing by using a special fan to test duct system leakage before and after sealing. Also have the contractor check for and repair disconnected ducts - a common problem. Insulate any ducts in unheated spaces to at least R-6.
- If you don't already have one, consider purchasing a programmable thermostat and having your contractor install it along with your new furnace.

ABOUT THE ESTIMATED COST:

Because this recommendation involves choosing a more efficient product **when replacing an existing one**, the estimated cost shown and used in the analysis is the **additional cost** of the efficient unit compared to that of a standard-efficiency new unit. It is not the total cost of the new product. You will pay more out of pocket than the amount we show for the better device, but only a portion of that will be the "added cost" compared to going with a less efficient option.

This upgrade will save approximately 1370 pounds of carbon dioxide per year (not including other greenhouse-gases which may also be reduced).

THE NUMBERS

ESTIMATED SAVINGS:

\$148 per year

ESTIMATED COST OF UPGRADE:

Add'l \$663 to \$928

RETURN ON INVESTMENT:

22%

PAYBACK TIME:

4 year(s)

PRIORITY #7:

Attic: Add insulation in the attic floor. Try to get to R-38.

Insulate your ceiling to at least R-38. In a typical home, half or more of the energy loss is through the exterior walls, floor and roof. Proper insulation, as

well as sealing air leaks in your home's shell, is vital to reducing these energy losses.

Note: Our calculations bill savings, typical upgrade costs, and cost-effectiveness assume the ceiling insulation is increased to R-38. Insulating to a higher R-value would provide additional energy savings.

BENEFITS:

A well-insulated ceiling can make your home more comfortable and quieter, reduce the risk of moisture damage, enhance fire safety, make your home more disaster-resistant, and help guard against pipe freezing.

TIPS:

- Make sure all holes in the attic floor are sealed before you install insulation. Make sure there is a vapor retarder between the attic floor and the insulation to help prevent excess moisture from condensing on the insulation. However, if you are adding insulation on top of pre-existing insulation, don't install a vapor retarder, since it may trap moisture in the old insulation underneath.
- If access to the attic is limited, blown-in cellulose or fiberglass insulation is your best bet.
- Make sure the insulation does not block the attic vents, and that it is even and free of gaps.
- When comparing contractors' bids, make sure they are for the same insulating value R-value, not just the same number of inches.
- If you are doing the installation yourself, consider using cellulose. Cellulose insulation is less expensive and has a higher R-value per inch than fiberglass, and will not irritate your skin and lungs.

This upgrade will save approximately 1269 pounds of carbon dioxide per year (not including other greenhouse-gases which may also be reduced).

THE NUMBERS

ESTIMATED SAVINGS:

\$138 per year

ESTIMATED COST OF UPGRADE:

\$712 to \$997 total

RETURN ON INVESTMENT:

19%

PAYBACK TIME:

5 year(s)

PRIORITY #8:

If, in the future, you decide to replace your electric clothes dryer, pick a natural gas dryer with an ENERGY STAR label.

When replacing your electric clothes dryer, select a natural gas model. In many situations, this will reduce your overall energy bill because natural gas tends to cost less than electricity, for the same heating value.

Note: Our calculations bill savings, typical upgrade costs, and cost-effectiveness are for a minimum-efficiency natural gas dryer model. The default upgrade cost provided here assumes that a natural gas connection is available at your clothes dryer. If this is not the case, be sure to include the cost of extending

BENEFITS:

Natural gas clothes dryers reduce your home's peak load on the power grid compared to an electric dryer.

TIPS:

- To use a gas dryer, your laundry room must have a gas hookup, with proper connections and safe venting of the gas's exhaust, in addition to an electrical outlet
- Look for a dryer with a moisture sensor, and use the dryness settings rather than timed drying.
- When replacing your clothes washer, choose a model with high-speed spin cycles. This feature removes more water from clothes, which reduces the energy and time required for drying.

ABOUT THE ESTIMATED COST:

Because this recommendation involves choosing a more efficient product **when replacing an existing one**, the estimated cost shown and used in the analysis is the **additional cost** of the efficient unit compared to that of a standard-efficiency new unit. It is not the total cost of the new product. You will pay more out of pocket than the amount we show for the better device, but only a portion of that will be the "added cost" compared to going with a less efficient option.

This upgrade will save approximately 68 pounds of carbon dioxide per year (not including other greenhouse-gases which may also be reduced).

THE NUMBERS

ESTIMATED SAVINGS:

\$67 per year

ESTIMATED COST OF UPGRADE:

Add'l \$340 to \$476

RETURN ON INVESTMENT:

17%

PAYBACK TIME:

5 year(s)

PRIORITY #9:

Air tightness: Have a professional seal your ducts to reduce leakage

Have a qualified professional seal your home's air leaks. Leaky houses waste energy because heated or cooled air can easily escape. Older homes tend to be leakier than newer homes. Tightening up a leaky house will reduce the heating and cooling bills. Recent advancements in air sealing technology allow specialists to go beyond the old techniques of caulking and weatherstripping around obvious places such as doors and windows. The biggest problems are usually hidden leaks in out of the way places such as attics, floors and walls, which are easily found and sealed by a specialist. Note: The annual bill savings and cost-effectiveness assume that your home's air leakage is reduced by 25%.

BENEFITS:

Having a professional seal your home's air leaks can make your home more comfortable, reduce the risk of moisture damage, improve indoor air quality and fire safety, and help to prevent frozen water pipes.

TIPS:

- To get the best results, hire a qualified contractor, preferably a "building performance contractor", or "energy auditor" to find out where the leaks are in your home's shell. Make sure the contractor uses a "blower door" test to find the air leaks. An infrared scan can be beneficial in addition to the blower door test. Check with your utility company; some offer no- or low-cost basic energy audits. However, the extra money you would spend to have the audit done by a home performance contractor is often well worth it.
- Make sure your contractor tests the leakage rate after completing the sealing, not only to determine the degree of improvement, but also to ensure that the ventilation in your home is adequate. If you don't

already have proper mechanical ventilation, consider installing a ventilation system. Proper home ventilation will make your home healthier and more comfortable.

- Make sure your contractor performs a combustion safety test after sealing your home's air leaks. This test checks for backdrafting and carbon monoxide, and will help assure your home is safe.
- If you choose to do the work yourself, follow the guidance in ENERGY STAR's .

This upgrade will save approximately 1470 pounds of carbon dioxide per year (not including other greenhouse-gases which may also be reduced).

THE NUMBERS

ESTIMATED SAVINGS:

\$158 per year

ESTIMATED COST OF UPGRADE:

\$890 to \$1,246 total

RETURN ON INVESTMENT:

16%

PAYBACK TIME:

6 year(s)

PRIORITY #10:

If, in the future, you decide to replace your windows, pick new ones with double-pane solar-control low-E argon gas panes and a wood frame.

When replacing windows, choose a double-pane, solar-control low-E, argon gas-filled, wood or vinyl frame window.

Note: The annual bill savings and cost-effectiveness assume that you replace all of your windows with windows that have U-factor=0.36 and SHGC=0.31 see the links in More Information for an explanation of these units. Bill savings will be less if you do not replace all of your windows, but the cost-effectiveness of replacing less than all of your windows should be approximately the same as shown above. Windows with even better performance are available, and could provide additional energy savings.

BENEFITS:

Energy-efficient windows can make your home more comfortable year-round, reduce condensation, block outside noise, improve fire safety, and cut back on ultraviolet radiation that can fade your carpets and furniture.

TIPS:

- Choose a window that is appropriate for your climate. ENERGY STAR window labels have a Climate Region Map that indicates which of four broad climate regions Northern, North/Central, South/Central, or Southern the window qualifies for. Make sure the window you choose is appropriate for the region you live in.
- Consider different types of glazing for windows on different sides of your house to benefit from passive solar energy and maximize energy benefits. Install the lowest U-value windows you can afford on north-facing windows. Select windows with appropriate low-e coatings for your location on the east, west, and south sides of your house.
- To maximize energy performance, choose windows with larger unbroken glazing areas instead of multi-pane or true-divided-light windows. Applied grills that simulate true- divided-light windows, however, do not reduce energy efficiency.
- Choose windows with good warranties against the loss of the air seal. If the glazing seal is lost, not only will fogging occur, but also any low-conductivity gas between the layers of glass will immediately be lost.⁶

- If summer heat gain is a problem in your house, look for windows with low-e coatings, especially spectrally selective low-e coatings, which significantly reduce solar heat gain and improve insulation without affecting visible light or color. Tinted windows also reduce solar heat gain, but they transmit less visible light.
- Look for the National Fenestration Rating Council NFRC label to help you compare performance and other features."
- Select windows with low air leakage ratings - between 0.01 and 0.06 cfm/ft. ⁶

ABOUT THE ESTIMATED COST:

Because this recommendation involves choosing a more efficient product **when replacing an existing one**, the estimated cost shown and used in the analysis is the **additional cost** of the efficient unit compared to that of a standard-efficiency new unit. It is not the total cost of the new product. You will pay more out of pocket than the amount we show for the better device, but only a portion of that will be the "added cost" compared to going with a less efficient option.

This upgrade will save approximately 1520 pounds of carbon dioxide per year (not including other greenhouse-gases which may also be reduced).