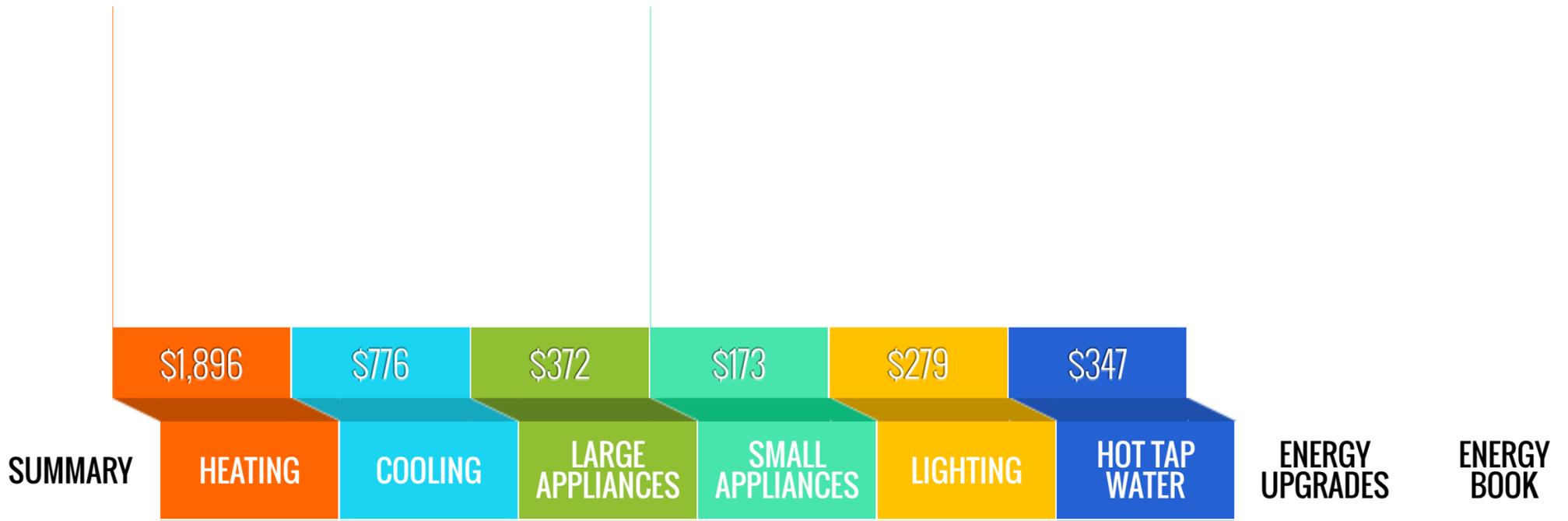




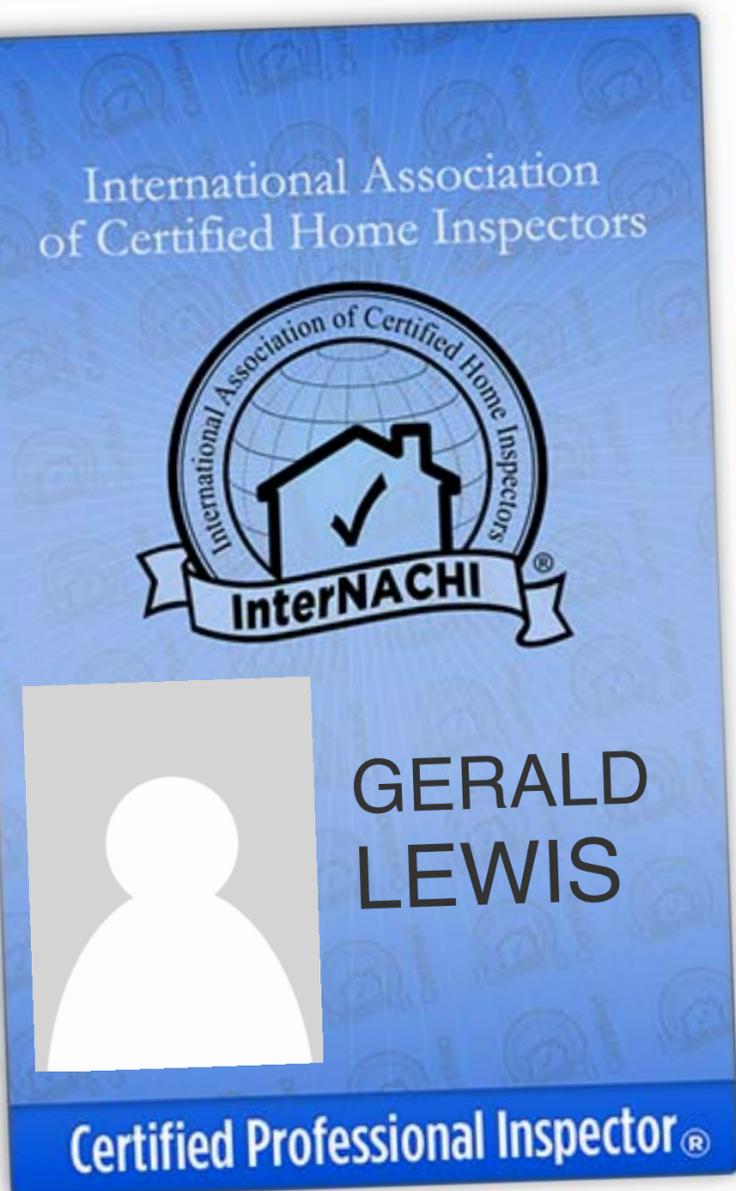
SUMMARY OF ESTIMATED YEARLY COSTS:



1234 LONG HILL RD LINTHICUM



This report was created by:



Mr John Smith,

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 [info@truepointinspections.com](mailto:info@truepointinspections.com).

Best,

Gerald Lewis

Your InterNACHI-Certified Home Inspector

THE FOLLOWING ARE ENERGY COST ESTIMATES BASED ON TYPICAL USAGE IN LINTHICUM, MD:



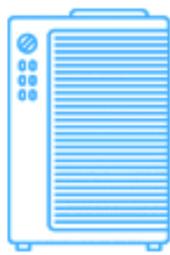
### HEATING

YEARLY BILL  
**\$1,896**

MONTHLY BILL  
**\$158**

POTENTIAL SAVINGS  
**\$957**

[SEE MORE](#)



### COOLING

YEARLY BILL  
**\$776**

MONTHLY BILL  
**\$65**

POTENTIAL SAVINGS  
**\$270**

[SEE MORE](#)



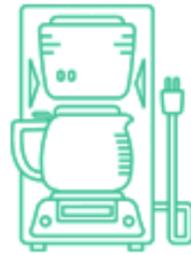
### LARGE APPLIANCES

YEARLY BILL  
**\$372**

MONTHLY BILL  
**\$31**

POTENTIAL SAVINGS  
**\$98**

[SEE MORE](#)



### SMALL APPLIANCES

YEARLY BILL  
**\$173**

MONTHLY BILL  
**\$14**

POTENTIAL SAVINGS  
**\$0**

[SEE MORE](#)



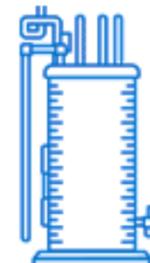
### LIGHTING

YEARLY BILL  
**\$279**

MONTHLY BILL  
**\$23**

POTENTIAL SAVINGS  
**\$213**

[SEE MORE](#)



### HOT TAP WATER

YEARLY BILL  
**\$347**

MONTHLY BILL  
**\$29**

POTENTIAL SAVINGS  
**\$134**

[SEE MORE](#)

TOTAL ESTIMATED COST

**\$3,843**



TOTAL AFTER UPGRADES

**\$2,171**

POTENTIAL SAVINGS PER YEAR

**\$1,672**



## HEATING

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 »](#)

#### QUICK TIP:

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.

ESTIMATED YEARLY HEATING COST

**\$1,896**



AFTER UPGRADES

**\$939**

POTENTIAL SAVINGS PER YEAR

**\$957**

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

**\$776**



AFTER UPGRADES

**\$506**

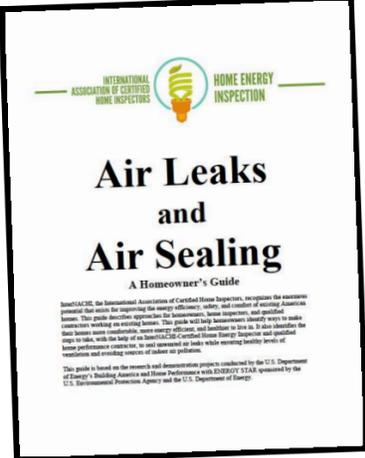
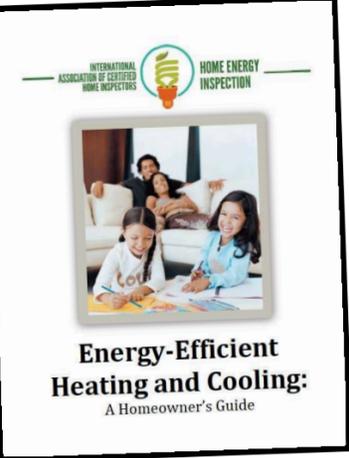
**POTENTIAL SAVINGS PER YEAR**

**\$270**

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	\$60
Stove	\$49
Oven	\$32
Clothes Dryer	\$113
Clothes Washer	\$65
Dishwasher	\$53
<b>Total</b>	<b>\$372</b>

ESTIMATED YEARLY APPLIANCE COST

**\$372**



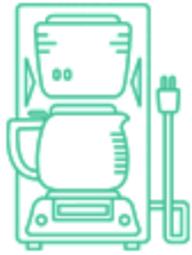
AFTER UPGRADES

**\$274**

**POTENTIAL SAVINGS PER YEAR**

**\$98**

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 Baltimore 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	Total Cost
Entertainment	345 kWh	\$46
Home Office	361 kWh	\$48
Miscellaneous Kitchen	464 kWh	\$62
Other Appliances	120 kWh	\$16

ESTIMATED YEARLY APPLIANCE COST

**\$173**



AFTER UPGRADES

**\$173**

**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 17% high-efficient light bulbs.



## APPROXIMATE LIGHTING ENERGY USAGE:

Room	Yearly Energy Use	Energy Costs
Kitchen	232 kWh	\$31.04
Dining Room	116 kWh	\$15.52
Living Room	348 kWh	\$46.57
Family Room	116 kWh	\$15.52
Master Bedroom	232 kWh	\$31.04
Hall	232 kWh	\$31.04
Bedrooms	232 kWh	\$31.04
Bathrooms	232 kWh	\$31.04
Garage	116 kWh	\$15.52
Outdoor	232 kWh	\$31.04
<b>Total</b>	<b>2085 kWh</b>	<b>\$279.39</b>

ESTIMATED YEARLY LIGHTING COST

**\$279**

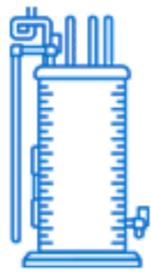


AFTER UPGRADES

**\$66**

**POTENTIAL SAVINGS PER YEAR**

**\$213**



## HOT WATER (FAUCETS, TUBS & SHOWERS)

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

**\$347**



AFTER UPGRADES

**\$213**

POTENTIAL SAVINGS PER YEAR

**\$134**

## LONG-TERM SAVINGS TIPS

### QUICK TIP:

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 5-year pay back period (upgrades that will pay for themselves within 5 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 9115 pounds of carbon dioxide per year (not including other greenhouse-gases which may also be reduced).

## PRIORITY #2:

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

### THE NUMBERS

ESTIMATED SAVINGS:

**\$1138 per year**

ESTIMATED COST OF UPGRADE:

**\$85 to \$119 total**

RETURN ON INVESTMENT:

**1429%**

PAYBACK TIME:

**0 year(s)**

### THE NUMBERS

ESTIMATED SAVINGS:

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 1503 pounds of carbon dioxide per year (not including other greenhouse-gases which may also be reduced).

## PRIORITY #3:

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

When replacing your electric water heater, choose an energy-efficient model with an Energy Factor of 0.95.

Note: Our calculations bill savings, typical upgrade costs, and cost-effectiveness assume the efficient water heater has an energy factor of 0.95 and recovery efficiency of 0.98.

#### 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 water heater should be judged by

**\$67 per year**

ESTIMATED COST OF UPGRADE:

**\$7 to \$10 total**

RETURN ON INVESTMENT:

**1000%**

PAYBACK TIME:

**0 year(s)**

## THE NUMBERS

ESTIMATED SAVINGS:

**\$66 per year**

ESTIMATED COST OF UPGRADE:

**Add'l \$90 to \$126**

RETURN ON INVESTMENT:

**74%**

PAYBACK TIME:

**1 year(s)**

its first hour rating FHR, not its tank size.

- If you have natural gas or propane service at your home, consider switching to a gas-fired water heater to reduce your water heating bills.
- Many types of water heaters are now available, such as "demand" tankless, "indirect" or "integrated", and solar-assisted water heaters.

#### 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 468 pounds of carbon dioxide per year (not including other greenhouse-gases which may also be reduced).

## PRIORITY #4:

**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

## THE NUMBERS

ESTIMATED SAVINGS:

**\$41 per year**

ESTIMATED COST OF UPGRADE:

**Add'l \$90 to \$126**

RETURN ON INVESTMENT:

**45%**

PAYBACK TIME:

**2 year(s)**

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 187 pounds of carbon dioxide per year (not including other greenhouse-gases which may also be reduced).

## PRIORITY #5:

### **Air tightness: Have a professional seal the cracks and leaks in your home.**

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

## THE NUMBERS

ESTIMATED SAVINGS:

**\$204 per year**

ESTIMATED COST OF UPGRADE:

**\$850 to \$1,190 total**

RETURN ON INVESTMENT:

**24%**

PAYBACK TIME:

**4 year(s)**

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 the safety of your home's occupants.
- If you choose to do the work yourself, follow the guidance in ENERGY STAR's

This upgrade will save approximately 1791 pounds of carbon dioxide per year (not including other greenhouse-gases which may also be reduced).

## PRIORITY #6:

### **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

## THE NUMBERS

ESTIMATED SAVINGS:

**\$589 per year**

ESTIMATED COST OF UPGRADE:

**\$2,753 to \$3,854 total**

RETURN ON INVESTMENT:

**21%**

PAYBACK TIME:

**5 year(s)**

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 5096 pounds of carbon dioxide per year (not including other greenhouse-gases which may also be reduced).

## PRIORITY #7:

**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.

## THE NUMBERS

ESTIMATED SAVINGS:

**\$72 per year**

ESTIMATED COST OF UPGRADE:

**Add'l \$340 to \$476**

RETURN ON INVESTMENT:

**19%**

PAYBACK TIME:

**5 year(s)**

This upgrade will save approximately 159 pounds of carbon dioxide per year (not including other greenhouse-gases which may also be reduced).

## PRIORITY #8:

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

When replacing your central air conditioner, choose an ENERGY STAR-labeled model. These units can save 20% or more of your cooling bill.

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 14 SEER. Higher efficiency models are available, which would provide additional bill savings.

### BENEFITS:

ENERGY STAR® central air conditioners may operate more quietly, be more visually appealing, have better temperature and/or moisture control, and be easier to maintain than minimum efficiency air conditioners.

### TIPS:

- All new central air conditioners are labeled with a Seasonal Energy Efficiency Ratio SEER rating. Use the SEER to compare different models. The higher the SEER, the more efficient the unit.
- For maximum efficiency, ask your contractor to make sure the efficiency ratings for the indoor and outdoor coils match. Have the contractor install removable airtight access panels in the indoor unit so a service technician can clean the cooling coil easily.
- Don't buy an oversized unit. A unit that's too big for your needs will waste energy, have less ability to control humidity, and have a shorter life due to excessive on-off cycling. Ask your contractor for an exact heat-gain calculation following ACCA Manual J procedures to determine the proper size unit for your house. Make sure the contractor sizes the unit based on the latent cooling load as well as the sensible cooling load. Do not rely on rule-of-thumb estimates as they tend to be inaccurate. If you've improved your home's efficiency since the last time you purchased an air conditioner, you may be able to purchase a smaller unit.
- Consider buying a two-speed air conditioner, which can run very efficiently at its lower speed during most of the cooling season, while using its higher speed to provide all the cooling you need on the hottest days.
- Locate the outside unit properly. Install it in a cool, shaded spot about two feet from the north or east side of your home. Avoid direct sunlight, which makes the unit work harder, and keep the unit away from other objects. Don't enclose the unit with a deck or shrubbery - it needs room to breathe.<sup>4</sup>

## THE NUMBERS

ESTIMATED SAVINGS:

**\$41 per year**

ESTIMATED COST OF UPGRADE:

**Add'l \$218 to \$305**

RETURN ON INVESTMENT:

**17%**

PAYBACK TIME:

**5 year(s)**

- If your duct system has leaks or disconnected portions, you will not reap the full energy savings you could get from a high efficiency air conditioner. Consider having your 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 with R-6 or higher insulation.
- If you don't already have one, consider purchasing a programmable thermostat and having your contractor install it along with your new air conditioner.

#### 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 286 pounds of carbon dioxide per year (not including other greenhouse-gases which may also be reduced).

## PRIORITY #9:

**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:

## THE NUMBERS

ESTIMATED SAVINGS:  
**\$155 per year**

ESTIMATED COST OF UPGRADE:  
**Add'l \$1,296 to \$1,814**

RETURN ON INVESTMENT:  
**12%**

PAYBACK TIME:  
**8 year(s)**

- 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.<sup>6</sup>
- 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.<sup>6</sup>

#### 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 1174 pounds of carbon dioxide per year (not including other greenhouse-gases which may also be reduced).

## PRIORITY #10:

**Basement walls: Add more insulation in the walls. Try to get to R-11.**

Insulate your basement walls to at least R-11. Uninsulated basements can account for as much as 25% of a home's total heat loss. Proper insulation, as well as sealing air leaks in your home's thermal shell, is vital to reducing these energy losses.

## THE NUMBERS

ESTIMATED SAVINGS:

**\$294 per year**

Note: The annual bill savings and cost-effectiveness assume that you upgrade the entire basement wall area to R-11. The bill savings will be less if you do not upgrade the entire area, but the cost-effectiveness of upgrading less than all of the basement wall area should be approximately the same as shown above.

#### BENEFITS:

Well-insulated basement walls can make your home more comfortable and quieter, and guard against moisture problems and water pipe breakage.

#### TIPS:

- When comparing contractors' bids, make sure they are for the same insulating value R-value, not just the same number of inches.
- For a finished or heated basement, the best insulation option is to add 2x4 studs inside the basement walls, insulate between the studs with fiberglass insulation, and cover with drywall. This option is costly, but may be worth it as it also gives a more finished look to the basement.
- To protect the insulation from moisture damage, be sure to provide an air space between the basement walls and the insulation. [7](#)
- Before insulating, you should correct drainage problems on the outside of your house if water leaks into your basement. Hire a qualified contractor who understands foundation drainage.

This upgrade will save approximately 2571 pounds of carbon dioxide per year (not including other greenhouse-gases which may also be reduced).

ESTIMATED COST OF UPGRADE:

**\$2,662 to \$3,727  
total**

RETURN ON INVESTMENT:

**10%**

PAYBACK TIME:

**9 year(s)**