



Guidebook for Green Sneakers Volunteers

*Walkin' the Talk to reduce our carbon footprint and
create smart energy solutions in the home.*



**Green Sneakers is a program of Sierra Club Maine:
Creating sustainable communities while fighting climate change.
Walkin'the Talk to reduce our carbon footprint and create smart energy solutions.**

2015

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What is the Green Sneakers Project? (An overview)

***Walkin' the Talk to reduce our carbon footprint and
create smart energy solutions.***

Green Sneakers is a program created by Sierra Club Maine as part of its campaign to cut our use of fossil fuels and reduce our carbon footprint. The Green Sneakers Project offers homeowners help in making their homes more energy efficient so they can save money on heating fuels and be more comfortable during the cold winter months. It also helps cut the emissions going into our atmosphere that are causing damage to our environment and climate disruption.

Buildings use about 40% of the energy produced by fossil fuels. The number of gallons of heating oil used each year can be multiplied by 22.4 pounds of carbon dioxide emitted as the result of burning each gallon [US Department of Energy]. If we are going to combat climate change, we need to cut that amount. Energy efficiency offers us a great opportunity to make big difference.

The State of Maine has been pursuing aggressive energy goals to reduce the state's dependence on fossil fuels, mitigate greenhouse gas emissions, and build a clean energy economy. Maine set a bold goal to weatherize 100% of its homes and 50% of its businesses by 2030. The Green Sneakers Project was designed to mobilize effective grassroots efforts to meet those goals.

In 2010 - 2011 Green Sneakers volunteers delivered over 4,000 reusable bags of energy-saving gifts such as CFL bulbs, refrigerator thermometers and foam insulation for outlets plus energy efficiency information and how to take the next steps towards home energy upgrades in 22 communities from Kittery to Fort Kent.

Since that time Green Sneakers volunteers have ...

- Completed hundreds of home walk-thru energy evaluations.
- Presented and participated in dozens of public forums focused on energy efficiency.
- Hosted "Warm House" parties at homes that completed energy upgrades.
- Created a 3-dimensional haunted house display showcasing common areas for air and energy leakage.
- Trained dozens of volunteers how to make low-cost interior storm windows.
- Coordinated with various school programs around the state, working with teens, who are our Future Homeowners, in the Green Sneakers process.

... and saved many tons of CO2 from entering our atmosphere.



Green Sneakers: Programs & Opportunities

Walkin' the Talk to reduce our carbon footprint and create smart energy solutions.

The Green Sneakers Project reaches out to homeowners in a variety of ways and volunteers are needed for all of the various programs.

1. Public Energy Information Forums and Energy Fairs: Green Sneakers volunteers have organized and worked with local groups to set up community forums and energy fairs to foster interest in the benefits of energy efficiency and provide information and resources to take further action. including links to certified energy auditors and contractors and to possible loans and funding to have energy work done.

2. The “Home “Walk-Thru” Program provides free energy evaluations to homeowners by trained volunteers. These evaluations help to identify areas in the home where the homeowner could realize energy savings. With this kind of “Walk Thru,” volunteers can suggest actions that would help make the house more energy efficient and comfortable and determine whether it makes sense to call in the professionals. Additional information provided to the homeowners would include do-it-yourself advice, as well as information on how to proceed with choosing a certified contractor, financing and rebate options, and more.

3. Warm House Gatherings: Green Sneakers volunteers have organized many “Warm House Gatherings.” Once a house has been weatherized and air sealed. Green Sneakers can hold an open house -- inviting friends and neighbors and other interested persons to see the results of what was done to the house to make it more energy efficient. People who see that their neighbors and others like them have made changes are more likely to take similar actions.

4. Making Indoor Storm Windows: Green Sneakers has arranged for demonstrations of low-cost, energy-efficient indoor storm window construction, working with people like Topher Belknap, Guy Marsden, and Scott Hart train others to make them.

5. The Future Homeowners Program works through schools to teach students about energy efficiency and how to make a difference in their local communities.

6. Green Sneakers has partnered with many other organizations in support of weatherization and air-sealing work. Project Grace, Seacoast Energy Initiative, Midcoast Habitat for Humanity, the Saco / Ossipee Rivers Heating Alliance, among others, as well as various schools have all worked with the Sierra Club and its Green Sneakers Project.



The Green Sneakers Project: Forums & Fairs

Public Forums

Public Forums are opportunities to educate the public about Climate Change and energy efficiency while learning from their neighbors, local businesses and energy advocates about smart solutions that are moving Maine towards clean energy and a green economy.

These forums are designed to offer opportunities for local contractors and homeowners who have completed energy improvements to briefly share their success stories with weatherization and energy efficiency projects that are saving energy and money while also bolstering the local economy.

Organizers outline available programs to help residents improve their energy efficiency while reducing their dependence on imported home heating oil.

Topics may include:

- Happy homeowners and local contractors share their stories about saving energy/saving money.
- Update of Efficiency Maine's rebate opportunities
- Solar energy opportunities
- Information on the Green Sneakers Project and how it can help

Energy Fairs

An energy fair is usually an event that features a multitude of ideas and services that can save homeowners energy, money and make their homes more comfortable. Everyone is invited. It usually includes participation from various organizations and community groups. Usually Green Sneakers teams up with one or more local groups and gives support and organization to the event. It could include demonstrations, speakers, groups that offer weatherization services or financial aid to low-income folks, and more. Past energy fairs have included home walk-thrus, presentations by energy auditors, Green Sneakers, electric cars, interior storm window demonstrations, recycling, talks by people who have had their homes air sealed and weatherized, an overview of solar and renewable energy opportunities, handouts of free CFL or LED bulbs, and more. Some have been held indoors in large meeting rooms or gymnasiums and others have been outside. The goal is to interest and educate homeowners about how they can save energy. The goal is to get homeowners to take the next step to make their home more energy efficient.

Publicize these events through local papers, on-line listings of community events, & through local groups. The Sierra Club Maine office can also help.



What is a Home Energy Walk-Thru?

The Green Sneakers Project has recruited and trained volunteers of all ages to provide a one-hour home visit and a walk-through to interested homeowners, searching for ways the home could become more energy efficient. The role of the volunteer is NOT to provide an energy audit (Green Sneakers volunteers are NOT energy professionals). They are trained to look for problem areas and to engage homeowners in looking at their home's energy use through new eyes. Volunteers can suggest some easy energy-saving tips and can also provide information on professional energy evaluation and services and financing opportunities available to make upgrades.

Training is provided by Sierra Club leaders and certified professional energy evaluators and is offered from time to time. Check with the Sierra Club Maine office to sign up for the next training. (207-761-5616). After training, volunteers participate in several walk-thrus until they feel comfortable to lead a walk-thru. It is a good idea for volunteers to team up, especially when visiting the home of someone not known to the volunteer. If no trained partner is available, then take a friend.

Homeowners are recruited through publicity campaigns, use of local media, postcards to targeted neighborhoods, energy fairs and forums, Warm Home Gatherings and other methods.

Some basic low-cost energy savings tools, such as hot water pipe wrap, outlet insulation, CFL and LED bulbs are discussed during training and volunteers pass that kind of information on to homeowners. Volunteers can also refer homeowners to those who make low-cost interior storm windows which, if made correctly, can save homeowners as much as 15% to 25% of their heat use, especially in old buildings. Handy homeowners might want to make some of their own energy efficient upgrades. One list of helpful suggestions is ***Tips and Tricks for Do-It-Yourself Homeowners to Save Energy*** that is included at the end of this manual.

The Green Sneakers Project maintains contact with homeowners and others who have expressed an interest. Records are kept on homeowners who have had a Walk-Thru and reviews results of energy upgrades. Homeowners are encouraged to share their success stories and allow a Warm Home Gathering to share their success with others.

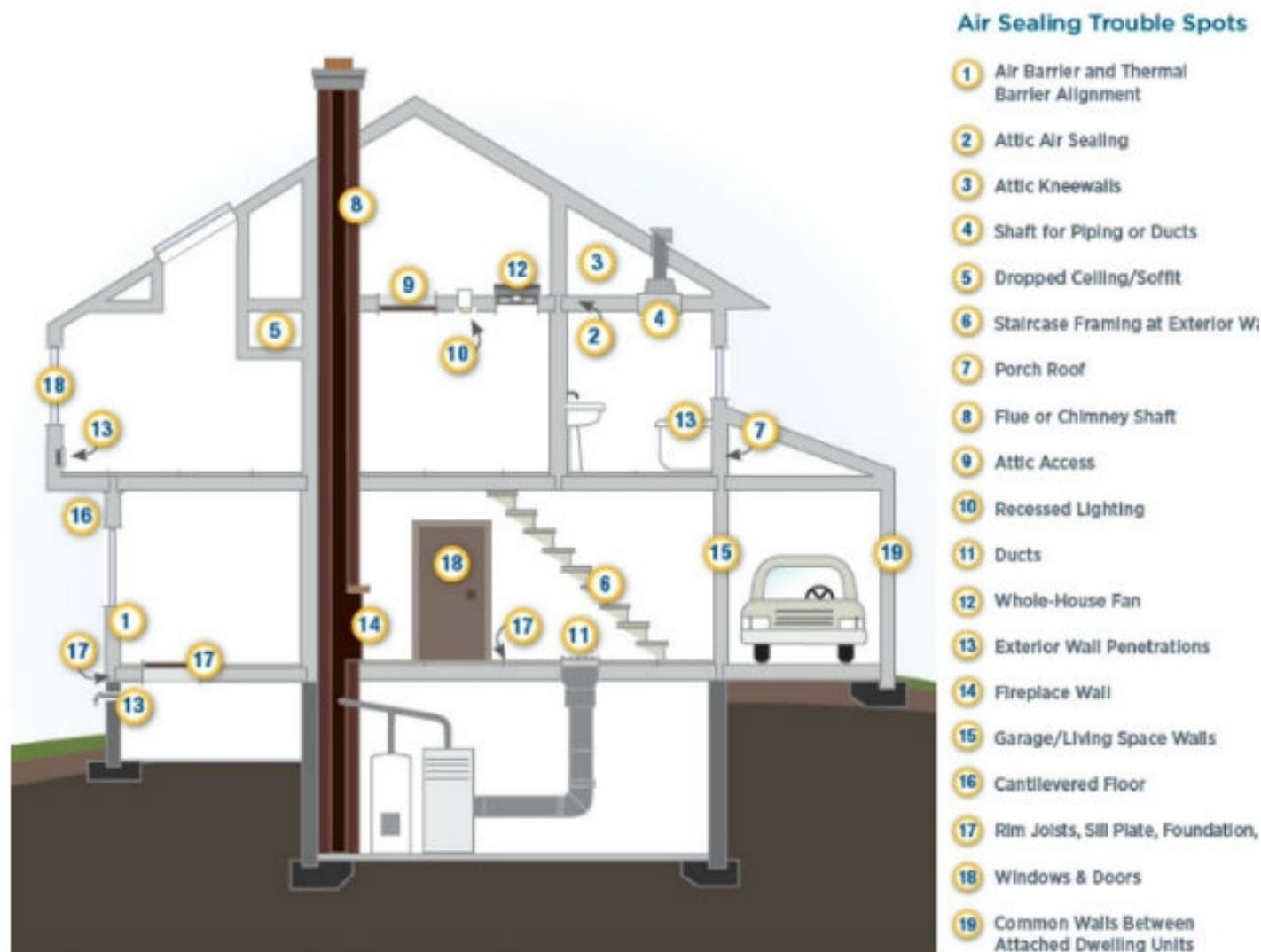
BASIC CONCEPTS TO SAVING ENERGY, SAVING MONEY AND SAVING THE PLANET

FROM



ENERGY.GOV

Air Sealing Your Home



Save on heating and cooling costs by checking for air leaks in common trouble spots in your home.

WHAT DOES THIS MEAN FOR ME?

Reducing the amount of air that leaks in and out of your home is a cost-effective way to cut heating and cooling costs, improve durability, increase comfort, and create a healthier indoor environment. [Caulking](#) and [weatherstripping](#) are two simple and

effective air-sealing techniques that offer quick returns on investment, often one year or less. Caulk is generally used for cracks and openings between stationary house components such as around door and window frames, and weatherstripping is used to seal components that move, such as doors and operable windows.

AIR LEAKAGE

Air leakage occurs when outside air enters and conditioned air leaves your house uncontrollably through cracks and openings. It is unwise to rely on air leakage for [ventilation](#). During cold or windy weather, too much air may enter the house. When it's warmer and less windy, not enough air may enter, which can result in poor indoor air quality. Air leakage also contributes to [moisture](#) problems that can affect occupants' health and the structure's durability. An added benefit is that sealing cracks and openings reduces drafts and cold spots, improving comfort.

The recommended strategy is to reduce air leakage as much as possible and to provide controlled ventilation as needed. Before air sealing, you should first:

- [Detect air leaks](#)
- [Assess your ventilation needs for indoor air quality](#).

You can then apply air sealing techniques and materials, including [caulk](#) and [weatherstripping](#). If you're planning an extensive remodel of your home that will include some construction, review some of the techniques used for [air sealing in new home construction](#) and consider a [home energy audit](#) to identify all the ways your home wastes energy and money.

Note that air sealing alone doesn't eliminate the need for proper [insulation](#) to reduce heat flow through the building envelope.



The ABC's of Home Walk-Thru's

A. Prior to Walk-Thru

- Contact Homeowner to set date & time, get directions
- Go over what to expect from visit
- Ask homeowner to gather information on electricity used (kW/year) and heating fuel (gallons) and/or cords of wood used over the last complete heating season and dollars spent on that energy plus square footage of heated areas of house.

B. Conducting the Walk-Thru

Take another trained volunteer with you (or a friend if no volunteer available)
Interview the homeowner

- Go over information requested over phone
- Talk about areas of concern the homeowner has such as moisture issues or drafts or areas of the house that are colder than others

Conduct the Walk-Thru using checklist (make a copy of the one in the manual, fill it out, use it for discussion purposes)

Discussion with homeowner of findings and next-steps

Information to leave with homeowner

- Air leaks in the envelope graphic
- 10 year cost of oil usage handout
- Efficiency Maine info & rebates and/or other resources
- Green Sneakers info
- Link to certified energy advisors
- DIY manual & tips

C. Follow-up

Check back with the homeowners to find out what steps he/she took

Ask if other information needed?

If air sealing & weatherization work done, what were the results? See if homeowner would share comparisons of energy use before and after and write about the differences they have observed with the understanding that the Sierra Club may use their observations in press releases, publications, and other media.

If air-sealing & weatherization work done would the homeowner be willing to hold a Warm House Gathering to show off the work done?

Send copy of report to: your local organization and/or Sierra Club Maine, Suite 301, 44 Oak Street, Portland ME 04101

Homeowner's Name:
Address:
Phone #:
Email:
Date of visit:

Home Walk-Thru Checklist

Always be on the lookout for places heat, air, or moisture may be getting through the envelope of the house.

A. Outside the Home

- Do gutters and drain pipes guide water away from the house?
- Does land slope away from the house, guiding water away from the foundation?
- Are there gaps around pipes, wires, etc. that go through the building's envelope?
- Are there any signs of rot? (A good indication of too much moisture)
- Does the house get ice dams on the roof in the winter? If yes, an indication of heat escaping.
- Does the foundation look solid? Or do you see crumbled concrete or mortar or gaps around stones or blocks or bricks?
- Is the foundation insulated? If so, is the insulation intact?

B. Upstairs Living Space

- Are there drafts or cold spots? Do windows rattle in the wind?
- Are windows single, double or triple pane? Are they sealed and caulked?
- Are there storm windows?
- Are there rooms with signs of mold or mildew, peeling paint or wallpaper? If so, where is the moisture coming from?

- Does the house stay warm in winter without outrageous energy bills? (An average house in Maine (1500 sq ft) uses about 750 gallons of oil a year}
- Is there a programmable thermostat?

C. Basement (much of this applies to crawl spaces, too)

Heating system:

- What kind of heating system is there?
- How old is it?
- Does it have an energy star sign?
- Has it been serviced in the last year?
- Is it adequately and safely vented?
- If there is an oil tank, is there any evidence of leaks?
- Are heating ducts or pipes insulated?

Hot water tank:

- How is water heated?
- Could the tank use added insulation? (Some types are not designed for an extra blanket of insulation)
- Are hot water pipes insulated?

Clothes Dryer – if there is one, does it have a damper? Is it vented to the outside?

Floors:

- Does the basement floor look and/or smell damp or wet?
- Is there mildew, mold or peeling paint?

- Do posts or basement stairs look wet or look like they may have been wet?
- Does it flood during storms?
- If any of the above are observed or confirmed by the homeowner, where is the moisture coming from?

Walls:

- Do you feel any draft or see cobwebs or other items moving in a draft? Does the homeowner feel drafts?
- What are the walls made of? Concrete, stone?
- Do you see any gaps in the walls or crumbling mortar?
- Are the walls insulated from inside? How?
- Are the bays along the rim joists above the concrete walls sealed and insulated?
- Look for holes (fuel pipe, dryer vent, water, etc.) through the walls to the outside. Are they sealed?
- If there is a bulkhead or door to the exterior is it sealed and insulated?
- If walls have been foamed, do they have a coat of fire-resistant paint?

D. Attic (if accessible)

- What kind of insulation is in the attic?
- Is the insulation in the floor or in the rafters? (Where is the building envelope here)?
- How thick is it? Could it use more?
- Is it spread evenly without gaps? (Check along rafters or joists)

- Is there a gap between the insulation and the eaves that should be sealed and insulated?
- If there is a chimney, is the space around it sealed with non-flammable material?
- Are there any other unsealed penetrations through the envelope such as vents, recessed lights, etc.?
- Is the door or hatch to the attic sealed and insulated?
- Is there evidence of mold, wetness, frost, or water stains on the sheathing? If so, where are the leaks?

Other Observations:

Evaluator's Name:

Date:

Follow up:

Date:

Notes:



Warm Home Gatherings

A Warm Home Gathering demonstrates to others the benefits of energy retrofits or upgrades homeowners and contractors have done to make a house more energy efficient and comfortable. Green Sneakers volunteers take care of setting up the event and the homeowner agrees to open the house to show others the energy upgrades.

The Host:

- Sets the date for the Gathering
- Provides the Green Sneakers Team the contractors name & a list of friends and neighbors to invite
- Greet the guests
- Shares the weatherization experience from his/her point of view

Green Sneakers Volunteers:

Before the event:

- Send email invitations to the list (may include Sierra Club Members in the area)
- Maintains contact with homeowner about details of event.
- Arranges for refreshments, gathers handouts, sign-in sheets, etc.

Day of the event:

- Green Sneakers volunteer(s) arrives about 1 hour ahead of the scheduled event time to do set up and put out the food, and yard/street signs (available at the Sierra Club Maine office).
- Greet guests, encourage them to sign in and enjoy refreshments.
- When most guests have arrived the volunteer welcomes everyone, thanks the host(s), contractor(s) and attendees for their participation, briefly shares how the evening will run, and shares a bit about the Green Sneakers Project and encourages everyone to pick up materials about the program, energy efficiency and other handouts.
- Contractor can also put out cards/materials for the guests to take.
- Host talks about the weatherization experience...what it was like, results they've already experienced, any challenges, etc. If they have information about \$\$\$ they've saved, this is a great time to share that. Some hosts have made copies of their savings while others just describe it.
- Contractor then talks about the challenges and what they found, how they solved the problems and the results. (5-10 minutes)
- Tour the house, usually starting with the basement (but this is up to the contractor/host(s) depending on what has been done.)
- Encourage questions and exchange of experiences all around.

- Back to refreshments, folks do a bit more visiting – Volunteer(s) clean up.
- Thank the hosts and contractors, etc.

Report number of guests, names, contact information to your local organization and/or the Sierra Club office for follow up.



Sierra Club Maine, Suite 301, 44 Oak Street, Portland, Maine 04101 761-5616



Future Homeowners/ Youth Leader Project

The Green Sneakers Project launched a door-to-door neighborhood campaign created to motivate local, personal actions that address the global challenge of climate change and deteriorating air quality. They recruited and trained teams of local volunteers, including many students, in eight communities. Volunteers went door-to-door with weatherization and energy efficiency information and available cost-saving and reached at least 4,000 Maine households.

The Future Homeowners/Youth Leader Project works to recruit and train high school students to do a Green Sneakers canvas campaign with their families, neighbors, or a targeted neighborhood. The students distribute reusable bags of energy-saving gifts and information, as they talk with family/neighbors about energy saving opportunities. Students are encouraged to do the home walk thru training to conduct energy efficiency reviews in their own homes and work with their own families to take energy-saving measures.

Included in the building science training is:

- An understanding of heat
- How heat flows
- What is R-value?
- Your home's thermal envelope
- How homes are like hot air balloons
- Air leaks in the thermal envelope
- Signs of excessive moisture
- Humidity levels and respiratory problems
- Seasonal properties of water vapor in air
- Sources of water vapor in the home
- How changes in one affect the others

Students are shown how a professional evaluates a home's energy leaks, including the use of an infrared camera.

Students could also launch a community carbon challenge, with displays and demonstrations in local libraries, community centers and in their schools..

The goal of this project is to educate future homeowners and community leaders about energy efficiency and building science, while their own families and communities become more energy-efficient. their families and community. They will be helping others to save energy, same money and gain the experience in addressing global issues by acting locally.



***Green Sneakers Forms and Handouts to
Copy, Adapt, and Use***

Following are some forms, templates and handouts that can be copied and used at Green Sneakers Events.

- a) Sign up/in Sheet – 1 page
- b) Home energy savings estimator – 1 page
- c) Calculate the amount of CO₂ your house emits – 1 page
- d) Pledge to “Walk the Talk” – 4 per page
- e) Home Walk-Thru Checklist – 4 pages
- f) Tips and Tricks for Do-It-Yourself Homeowners to Save Energy
– 3 pages
- g) Do It Yourself Interior Storm Windows (courtesy of Midcoast
Green Collaborative) – 2 pages

Sign up for more information



Return to: Sierra Club Maine, Suite 301, 44 Oak Street, Portland, Maine 04041



Home Energy Savings Estimator

Calculate your possible savings if you make your home more energy efficient.

Gallons of oil used last year _____ or Cords of wood used _____
Current cost of heating oil per gallon _____ Cost of a cord of wood _____

Cost to heat your house last year:

Multiply number of gallons (or cords) X Cost per gallon =: A. _____

1 cord of wood is the equivalent of approximately 200 gallons of oil.

If you take measures to save 25% of energy used, you'll spend:

(Multiply the current cost per year (A) X .75) B. _____

Savings per year at current prices: Subtract A - B C. _____

If you take measures to save 50% of energy used, you'll spend:

(Multiply the current cost per year (A) X .5) D. _____

Savings per year at current prices: Subtract A - B E. _____

Consider how much you would save in 5 years or 10 years.

Also consider that heating oil prices will probably rise in coming years. Change the cost per gallon to what you think it might be in 5 or 10 years and recalculate your savings.

Save even more!

There may be additional rebates and tax incentives to further reduce the cost. There may be deductions for energy work that you can claim on your Federal Income Tax Return and rebates and special programs through Efficiency Maine.

Efficiency Maine: Efficiencymaine.com

IRS Income Tax Form: Residential Energy Credits. Form 5695 (for Tax Year 2015)

<http://www.irs.gov/uac/Form-5695,-Residential-Energy-Credits>

How much CO₂ does your house emit?

Carbon Dioxide Emissions Coefficients by Heating Fuel

Source: U.S. Energy Information Administration estimates.

Carbon Dioxide (CO ₂) Factors:	Pounds CO ₂ Per Unit of Volume or Mass	Pounds CO ₂ Per Million Btu
Propane	12.7/gallon	139.0
Butane	14.8/gallon	143.2
Butane/Propane Mix	13.7/gallon	141.1
Home Heating and Diesel Fuel	22.4/gallon	161.3
Kerosene	21.5/gallon	159.4
Coal (All types)	4,631.5/short ton	210.2
Natural Gas	119.9/thousand cubic feet	117.0
Gasoline	19.6/gallon	157.2
Residual Heating Fuel (Businesses only)	26/gallon	173.7

http://www.eia.gov/environment/emissions/co2_vol_mass.cfm

Burn Wood? Each cord of hardwood burned results in about 7,400 pounds of CO₂ emissions.

What about electricity?

The production of electricity also creates CO₂ emissions. How much electricity does your house use? On average, electricity sources emit 1.222lbs CO₂ per kWh.

Check your electricity bills. Multiply the total number of kWh used by your house last year by 1.2 to calculate the number of pounds CO₂ your house was responsible for emitting due to electricity use.



YES! This household is ready to “Walk the Talk!”

We PLEDGE to take the following steps to save energy & money:

- ☐ Complete a free energy evaluation
- ☐ Schedule an energy audit by ____/____/____ (date)
- ☐ Follow low-cost energy-efficient tips beginning TODAY!
- ☐ Take measures to install energy-saving devices ASAP.
- ☐ Tell your friends and neighbors how they can save energy & money, too!

**Green Sneakers Project/ Sierra Club
Maine**



YES! This household is ready to “Walk the Talk!”

We PLEDGE to take the following steps to save energy & money:

- ☐ Complete a free energy evaluation
- ☐ Schedule an energy audit by ____/____/____ (date)
- ☐ Follow low-cost energy-efficient tips beginning TODAY!
- ☐ Take measures to install energy-saving devices ASAP.
- ☐ Tell your friends and neighbors how they can save energy & money, too!

**Green Sneakers Project/ Sierra Club
Maine**



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- ☐ Schedule an energy audit by ____/____/____ (date)
- ☐ Follow low-cost energy-efficient tips beginning TODAY!
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- ☐ Tell your friends and neighbors how they can save energy & money, too!

**Green Sneakers Project/ Sierra
Club Maine**



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- ☐ Tell your friends and neighbors how they can save energy & money, too!

**Green Sneakers Project/ Sierra
Club Maine**

Homeowner's Name:

Address:

Phone #:

Email:

Date of visit:

Home Walk-Thru Checklist

Always be on the lookout for places heat, air, or moisture may be getting through the envelope of the house.

A. Outside the Home

- Do gutters and drain pipes guide water away from the house?
- Does land slope away from the house, guiding water away from the foundation?
- Are there gaps around pipes, wires, etc. that go through the building's envelope?
- Are there any signs of rot? (A good indication of too much moisture)
- Does the house get ice dams on the roof in the winter? If yes, an indication of heat escaping.
- Does the foundation look solid? Or do you see crumbled concrete or mortar or gaps around stones or blocks or bricks?
- Is the foundation insulated? If so, is the insulation intact?

B. Upstairs Living Space

- Are there drafts or cold spots? Do windows rattle in the wind?
- Are windows single, double or triple pane? Are they sealed and caulked?
- Are there storm windows?
- Are there rooms with signs of mold or mildew, peeling paint or wallpaper? If so, where is the moisture coming from?
Does the house stay warm in winter without outrageous energy bills? (An average

house in Maine (1500 sq ft) uses about 750 gallons of oil a year}

- Is there a programmable thermostat?

C. Basement (much of this applies to crawl spaces, too)

Heating system:

- What kind of heating system is there?
- How old is it?
- Does it have an energy star sign?
- Has it been serviced in the last year?
- Is it adequately and safely vented?
- If there is an oil tank, is there any evidence of leaks?
- Are heating ducts or pipes insulated?

Hot water tank:

- How is water heated?
- Could the tank use added insulation? (Some types are not designed for an extra blanket of insulation)
- Are hot water pipes insulated?

Clothes Dryer – if there is one, does it have a damper? Is it vented to the outside?

Floors:

- Does the basement floor look and/or smell damp or wet?
- Is there mildew, mold or peeling paint?

- Do posts or basement stairs look wet or look like they may have been wet?
- Does it flood during storms?
- If any of the above are observed or confirmed by the homeowner, where is the moisture coming from?

Walls:

- Do you feel any draft or see cobwebs or other items moving in a draft? Does the homeowner feel drafts?
- What are the walls made of? Concrete, stone?
- Do you see any gaps in the walls or crumbling mortar?
- Are the walls insulated from inside? How?
- Are the bays along the rim joists above the concrete walls sealed and insulated?
- Look for holes (fuel pipe, dryer vent, water, etc.) through the walls to the outside. Are they sealed?
- If there is a bulkhead or door to the exterior is it sealed and insulated?
- If walls have been foamed, do they have a coat of fire-resistant paint?

D. Attic (if accessible)

- What kind of insulation is in the attic?
- Is the insulation in the floor or in the rafters? (Where is the building envelope here)?
- How thick is it? Could it use more?
- Is it spread evenly without gaps? (Check along rafters or joists)

- Is there a gap between the insulation and the eaves that should be sealed and insulated?
- If there is a chimney, is the space around it sealed with non-flammable material?
- Are there any other unsealed penetrations through the envelope such as vents, recessed lights, etc.?
- Is the door or hatch to the attic sealed and insulated?
- Is there evidence of mold, wetness, frost, or water stains on the sheathing? If so, where are the leaks?

Other Observations:

Evaluator's Name:

Date:

Follow up:

Date:

Notes:

Do·It·Yourself

Interior Storm Windows

Do you feel cold standing next to your windows? With easy to make interior storm windows, you can feel warmer while saving money on your fuel bills. These storms will increase the R-value of your windows by around 2.3, however they will reduce the solar heat gain by about 15%. For most windows, this is a good trade- off. Not only do this save energy and therefore money, they also increase comfort and reduce outside noise.

MATERIALS

1" x 2" board @ \$ 0.40 per linear foot heat shrink film @ \$0.09 per square foot 1/2" double sided tape @ \$0.02 per linear foot 2.6 mil 2" clear packing tape @ \$0.02 per linear foot 3" drywall screws @ \$0.05 each (8 needed per window) 1/2" x 1/2" foam weatherstrip @ \$0.06 per linear foot

DIRECTIONS

TOOLS

Saw Sharp knife Square Sandpaper Screwdriver

MEASURE: The storm windows should be put as close as possible to the glass of your windows (1/2" is best). However it should be placed such that it contacts the frame all the way around, if necessary it can be placed on the window trim, and held on with clips. Having determined where you will put the storm measure carefully the width and height of each window. Measure in at least two places, and then subtract the thickness of your weatherstrip 1/2" (which will compress 2 thicknesses by half giving a nice seal). The short side will need to be shorter by the width of two pieces to make the butt joint.

FRAME: 1 x 2s can be made by ripping down a 1 x 4. The wood does not need to be high quality, #3 pine works fine. But pre-primed is easy for frames which will be painted (or white). And clear pine looks great unpainted. There are many ways of making the corners of the frame. The easiest is a butt joint held with two 3" drywall screws at each corner. Screw from the long side into the short side (as shown). Sand the frame smooth and knock the edges off slightly. Now is the time to paint, finish, if desired. Also be sure to label which window the frame goes into, on the top outside surface.

FILMS: This works best if done in a clean environment. Put the double sided tape around the edge of the frame . Leave the paper on for now. Cut the film to cover the frame plus a little for slop. Start at one end, and remove the tape, and carefully stretch the film and place it over the exposed tape. Press it down with the back of your fingernail. Remove a bit of the tape down both sides, and work your way down the frame.

Once it is firmly in place, shrink using a hair dryer (a heat gun can be used if you are *very* careful). Stay 6 to 8 inches away from the film until you see how it goes. Slower is better than melting a hole in the film. It should end up drum tight with no wrinkles. Looking at it obliquely to the light will show any remaining wrinkles. Trim the excess film at the outer edge. Repeat with the other face. Try to make sure that the inside faces of the film are clean, as once assembled, they can't be cleaned.

TAPE: The 2" tape is used to cover the film edge and the outer wood. I find it easiest to center

the tape on the outer edge and slowly crease it over onto the faces. One side for each edge (4 pieces all together) works best for me. Use a short piece of tape to create one or two tabs to make it possible to remove the storm.

WEATHERSTRIP: The weatherstrip (1/2" wide, 1/2" thick) is placed on the outer edge toward the front face of the frame. If the window is to be installed against the window trim, it should be placed on the back face, of course.

USE

The storms should be swapped out with your bug screens when you are starting up your heating system. (Removing the screens will save you about 1% to 3% of your fuel bill by itself). Store them for the summer where you store your screens. Be sure to lock the windows before installing the storm, windows do not seal properly unless they are locked. Arrangements should be made to ensure easy removal in any window which is an emergency egress.

SAVINGS

Given the prices above (which are for small quantities) a typical 3 by 4 foot window would cost, \$9.59 and probably require less than an hour to build. The savings depend on what kind of windows you currently have and what kind of fuel you are using. For single pane windows, the savings would \$202 in electricity, \$135 in oil, or \$69 in wood. For double pane (soft coat) lo-e windows, the savings would be \$68 in electricity, \$45 in oil, or \$23 in wood. All of which would give a payback at less than one year (at today's prices, imagine prices in ten years). These savings are tax free, repeat every year, and increase along with fuel prices. Triple pane, or south facing hard coat lo-e double pane windows are the only windows that might not benefit from this approach.

The film is susceptible to tearing if it is poked with anything sharp, but with proper care there is no reason these couldn't last at least ten years.

Over the past year, since these made their debut at last year's expo, over a thousand of them have been made by Mainer and for Mainer. The Midcoast Green Collaborative is proud to have been instrumental in helping Mainer thorough this past winter.

Download a copy of this from:

http://www.midcoastgreencollaborative.org/Documents/storm_pamphlet.pdf More details and a cost spreadsheet are available at: <http://www.arttec.net/Thermal-Windows/index.html>

photos courtesy of Guy Marsden

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Tips and Tricks for Do-It-Yourself Homeowners To Save Energy

Note: Many of these tips apply especially to cold weather months.

Easy

- Heating is the biggest energy hog. In the winter for every degree you set the thermostat down for an 8-hour period (i.e. when you are asleep), you save about 1% of your heating costs. Turn it up in summer.
- Close off rooms that are not in use & turn down the heat to them.
- Close closet doors. You don't need to heat that space.
- Clean and replace furnace filters regularly and schedule a furnace "tune up" yearly.
- The hot water heater is the 2nd biggest energy hog in your house. Turn the temperature on your hot water heater down a degree or two. Should be around 110 ° to 120° & don't run hot water needlessly.
- Install "low-flow" adaptors on faucets.
- Get some foam insulation to wrap around hot water pipes.
- Insulate your hot water heater (there are jackets you can buy.)
- Turn off lights, TV, computers, etc. when not in use. Laptops are far more energy efficient than desktop computers.
- Use "Smart Strips" for plugging in your electronic gadgets. When not in use, the strip automatically turns off power to them.
- Replace incandescent bulbs with CFL's or (even better) LED's. Prices are coming down and quality is going up.
- Add foam inserts/gaskets behind switch & outlet covers on exterior walls.
- During the winter, close curtains or shades at night.
- Wash clothes in cold water. Wash & dry full loads. Clean dryer lint filter regularly (or better yet) hang clothes outside when you can.
- Only run a dishwasher when it is full and turn off the "Heat dry" function if you can.
- Use microwaves and crock-pots whenever possible. They use less energy than a stove.
- Vacuum refrigerator condenser coils at least once a year. Make sure temperature is between 37° and 40 ° for fresh food and 0 for freezer.
- Get rid of the extra fridge. It's probably old and sapping at least \$200 of electricity per year.
- If you have a fireplace, when you are not using it close the damper.

A Little Harder

- Install weather-stripping around opening doors and windows.
- Caulk around window and door frames and around any pipes, ductwork or other penetrations through exterior walls.
- Insulate and weather-strip doors or hatches to an unheated attic.
- Install a programmable thermostat.
- Make interior storm windows for your house. These are lightweight wood frames with a double layer of heat-shrink film wrapped around them that are custom made to fit tightly over your windows. (Directions available).
- Make (or have someone make) insulated curtains or shades for windows. The tighter they fit the space, the better. Cellular shades are good insulators (but would not be compatible with interior storm windows)
- If you have a fireplace that you use, consider glass doors that can be kept shut when not in use to keep warm air from escaping up the chimney.
- If you NEVER use your fireplace, consider blocking off the chimney.
- Replace old appliances with new, more energy-efficient Energy Star appliances.
- Install a ceiling fan. In winter run it at low speed in a clockwise direction to push warm air down. This will allow you to lower your thermostat and save up to \$100 per year on heating bills.
- Seal air leaks. Common places are behind kneewalls, the attic hatch, around wiring holes, plumbing vents, open soffits, recessed lights, furnace flue or duct chaseways (the hollow box or wall feature that hides ducts), basement rim joists (where the foundation meets the wood framing), & windows and doors.

The EPA has an excellent booklet called ***A Do-It-Yourself Guide to Sealing and Insulating with Energy Star: Sealing air leaks and adding attic insulation***. If you would like to learn how to find and seal hidden attic and basement air leaks, determine if your attic insulation is adequate, and how to add more attic insulation safely and reduce energy bills, this is definitely worth looking at.

You can find it at:

http://www.energystar.gov/ia/partners/publications/pubdocs/DIY_Guide_May_2008.pdf

Or check out:

https://www.energystar.gov/index.cfm?c=home_sealing.hm_improvement_seal_insulate

EXTREMELY IMPORTANT !

You may need to hire a contractor, especially if you find any of these conditions:

- Wet or damp insulation indicating a leaky roof.
- Moldy or rotted attic rafters.
- Kitchen, bathroom or dryer vents that exhaust moist air directly into the attic space instead of outdoors
- A history of ice dams and large icicles at the edge of your roof in the winter (indication of serious air leaks)
- Knob and tube electrical wiring (pre 1930's)

Efficiency Maine lists certified contractors in your area:

<http://www efficiencymaine.com/at-home/vendor-locator/>



*For more information about
energy efficiency and/or the Green Sneakers Project, contact*

Sierra Club Maine

44 Oak Street, Portland ME 04101

maine.chapter@sierraclub.org (207) 761-5616

For more information about the Green Sneakers Project
Contact:

Sierra Club Maine

[44 Oak Street, Suite 301](#)

[Portland, ME 04101-3936](#)

Phone: 207-761-5616

Email: maine.chapter@sierraclub.org