

Cutting Your Home's Energy Bills And GHG Footprint

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Let's Go To My House

Every home is different: what works for one may not work for others. Here's a scrapbook of what we did during renovations at our 48-year old house.

'62 3-BR, 2-bath, ranch w/finished basement, 2,000 SF

- single-pane windows
- '62 oil boiler (no gas svc.)
- no DHW tank/heater
- 3" wall/roof insulation
- manual (round) thermostats
- '80s appliances & A/C units
- incan. & T12 fluor. lighting



Programmable Thermostats

- two heating zones
- each unit on its own time/temp. program
- multiple setbacks (daily, weekly)
- 4-hour override



alternative/addition: thermostatic radiator valves to adjust temperature room-by-room (if piping allows)

Double-Glazed Windows

- mix of casement and horizontal sliders
- new units are double-glazed, argon-filled, with low-e film
- added blinds or curtains



low cost option:
install temporary
plastic sheet
storm windows
from a kit.

New Boiler, DHW Tank/Heater

- new boiler downsized, based on new windows
- later downsized burner oil nozzle by 35% after insulating roof
- switched to B20 fuel
- indirect-fired DHW heater
- cut DHW temp. to $<110^{\circ}$ F (try this on your existing DHW heater or boiler)



Increased Roof Insulation

Original roof insulation was 3" fiberglass batts in a 7" ceiling/roof cavity (no attic).

We compressed those batts to fill the upper cavity and then filled the newly-empty space with blown-in cellulose.



Improved Lighting Efficiency

- installed high-efficiency fluorescent wall and ceiling-mounted fixtures
- added CFL desk lamps in home office workspace
- replaced incandescent bulbs with compact fluorescent lamps (CFL) in all screw-in sockets



Added Controls & Skylights

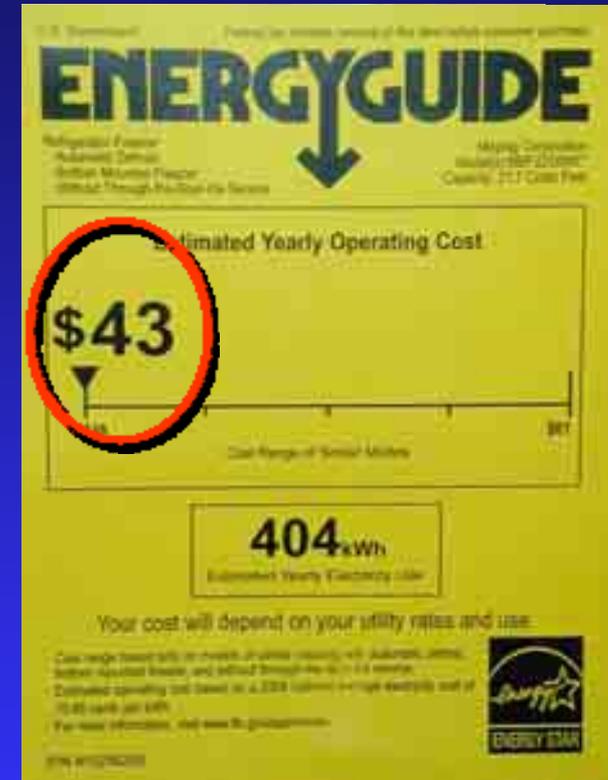
- motion sensors in dining room, hallway, and exterior lighting
- added tubular skylights to bring daylight into both basement and main floor bathrooms (may also add in hall, stairwell, kitchen)



Replaced Appliances

Over a 7-year period:

- refrigerator/freezer
- washer & dryer
- dishwasher
- 2 in-wall A/C units
- electric range
- bsmt. dehumidifier



Many Smaller Actions Taken

- added A/C covers (exterior & interior)
- “vampires” on switched power strips
- insulated hot water piping
- shutoff valves on showerheads
- low-flow faucets
- sealed air leaks (e.g., fireplace)
- add whole-house exhaust fan
- replaced exterior doors
- insulated walls during renovations
- use electric floor mats in winter
- maximized PC power management

Next project: improve wall insulation.



2 Ways to Assess Energy Use

1. New York State Energy Research and Development Authority (NYSERDA) offers \$ and help to audit and upgrade your energy systems:

<http://www.getenergysmart.org/SingleFamilyHomes/ExistingBuilding/HomeOwner.aspx>

2. To estimate energy used by your home and appliances (and potential for savings), use free online software at:

- Lawrence Berkeley Laboratory Home Energy Saver: <http://hes.lbl.gov/>

- Alliance to Save Energy Home Energy Checkup: <http://ase.org/content/article/detail/971>

Time To Get To Work

- Get a home energy audit to find and evaluate options specific to your situation.
- Within a realistic budget, work on the easy (not the exotic) measures.
- Avoid big changes in behavior (e.g., dropping night temperatures too much).
- Don't just talk about it: do it! Taking many small actions beats just talking about a few big ones.
- Everything you do to become more efficient today will make a better and safer tomorrow!



**Thank you for your
time and attention.**



