



Dunbarton Energy Committee 

Neighbors Warming Neighbors

A Dunbarton Energy Committee program to provide Button-up Services to Seniors and Income Disadvantaged residents has expanded to include all income levels to develop more interest.

NWN provides DEC with community access and recognition.

Mission

- Improve energy efficiency in our community.
- Raise awareness of available energy programs through public education.
- Assist homeowners in planning their energy efficiency improvements.
- Build a caring community.





Dunbarton Energy Committee 

Goals

- Educate residents on how to start their own energy efficiency improvement program.
- Identify people who would qualify for existing state and utility energy efficiency programs.
- Assist residents in need with a volunteer team to do simple button up work.
- Improve the overall energy efficiency of the town.
- Promote an energy conservation mentality in the community.





Dunbarton Energy Committee 

What do we do?

- Make the homeowner aware of our limitations – experienced but not BPI auditor certified.
- Request that the homeowner collect their energy usage records.
- Secure the home profile data from town records (floor plan, etc.).
- Survey the home with a hand-held Infra-red imaging camera.
- Identify possible sources of heat loss and efficiency problems.
- Verify from energy usage records and home size if the homeowner qualify for a utility-funded audit program.
- Educate the homeowner about the benefits of a full energy audit by a qualified BPI auditor if they qualify.
- Produce a summary report of findings and a CD of images - a good communication tool.
- Recommend some simple remediations that the home owner can do personally or with our help.



Dunbarton Energy Committee 

How do we do it?

- Interview the homeowner to learn of known problem areas and complaints.
- Collect exterior thermal images of sides of the home on a cold morning or evening.
- Collect interior thermal images of all walls, ceilings & floors in each room.
- Look for signs of air infiltration / drafts at doors & windows in the thermal images.
- Check for insulation gaps and a water heater with no insulation wrap.
- Look for heating ducts and hot water pipes with no insulation.
- Check attic situation and insulation.
- Inventory lighting types, interior and exterior.
- Tour the basement area looking for problem areas and significant air infiltration issues.
- Review the heating system & connections for leaks.





Dunbarton Energy Committee 

How do we do it? (Cont'd)

- Show camera images to the homeowner enabling them to see visually the coldest points.
- Review window treatments and advise on the merits of inside storm windows versus the need for new windows.
- Look at their electric bills for indications of excessive usage, seasonal or year-round.
- Look for wall cavities lacking blocking that allow air to be sucked up from the basement to the attic.
- Utilize the thermal imaging camera software to add additional temperature measurements as needed. Do this after the visit to refine conclusions for the final report and minimize time spent on location.
- Run heating fuel usage and heated home area on the Home Performance with EnergyStar program qualification form to get overall reality check.





Dunbarton Energy Committee 

Typical Remediation Recommendations

- Recommend inside storm windows as a cost effective alternative to expensive new windows.
- Recommend window drapes in contact with wall or floor at top and / or bottom to prevent thermal convection syphoning of cold air.
- Recommend insulating water pipes and heating ducts.
- Suggest insulating the water heater.
- Recommend installing floor registers for homeowners using wood heat / space heaters to promote better air convection / circulation and provide a cold air return.
- Suggest adding insulation over the top of recessed lighting fixtures.
- Recommend a professional audit if the remediations are extensive or could have structural impact.
- Seal wall cavity openings to basement / crawl space - Both exterior and interior walls and chimneys. etc



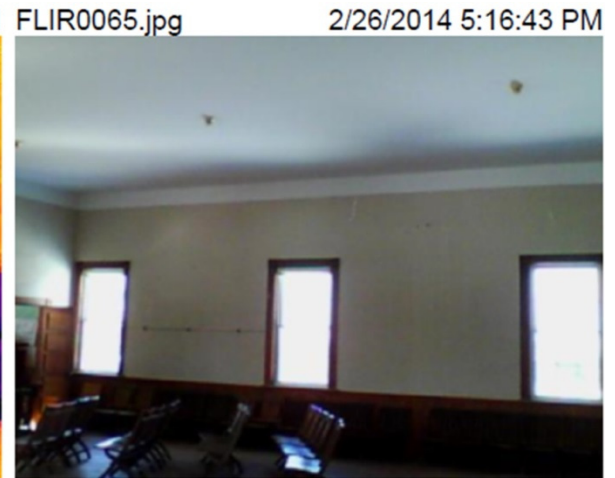
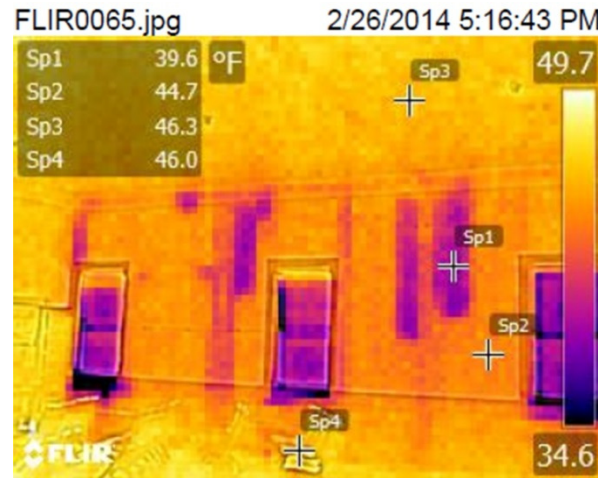
Dunbarton Energy Committee

Typical Infra-Red Images

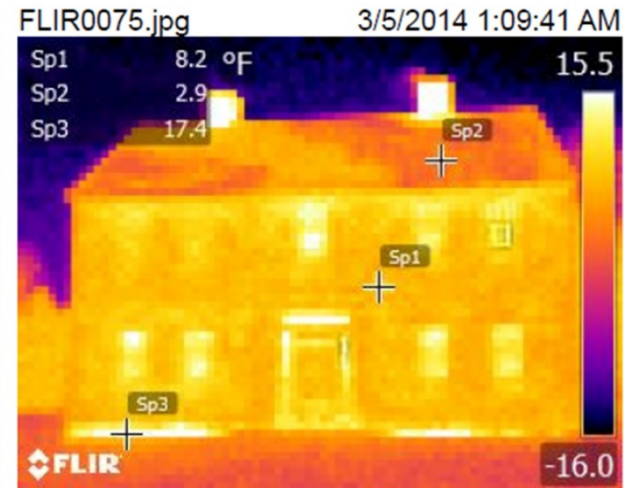
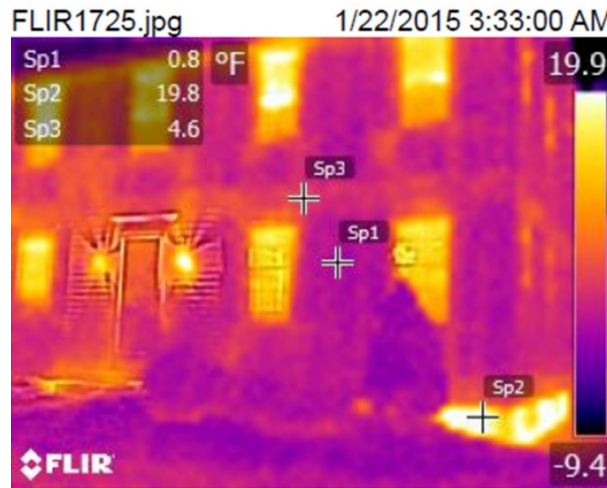
These images show:

Missing insulation →

& cold air leakage at bottom of windows →



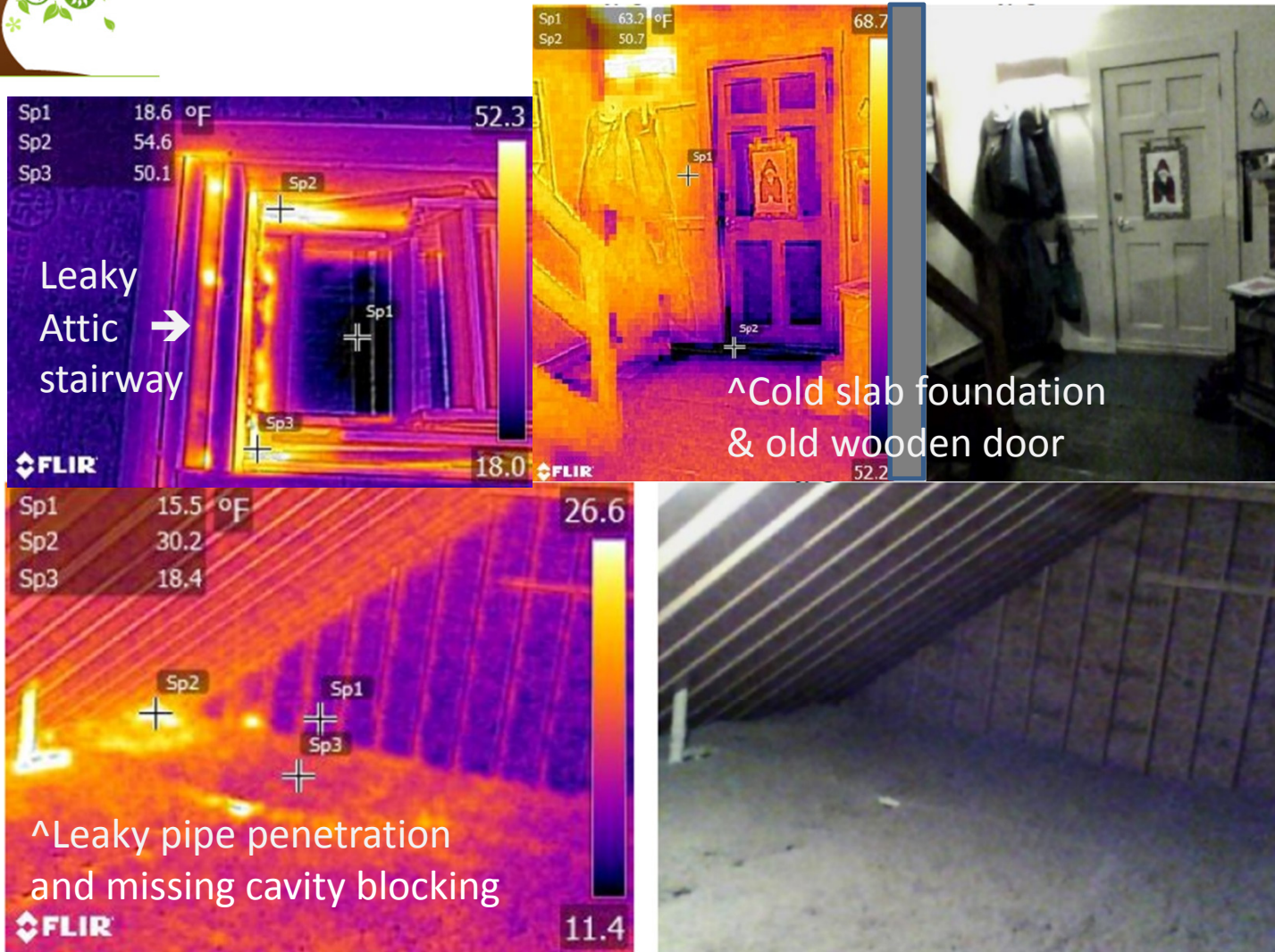
The home images showing significant heat loss from foundation walls →





Dunbarton Energy Committee

Typical Infra-Red Images (Cont'd)



Sp1 18.6 °F
Sp2 54.6
Sp3 50.1

Leaky Attic → stairway

FLIR 52.3 18.0

Sp1 63.2 °F
Sp2 50.7

68.7

Sp1
Sp2

^Cold slab foundation & old wooden door

Sp1 15.5 °F
Sp2 30.2
Sp3 18.4

26.6

Sp2
Sp1
Sp3

^Leaky pipe penetration and missing cavity blocking

FLIR 11.4



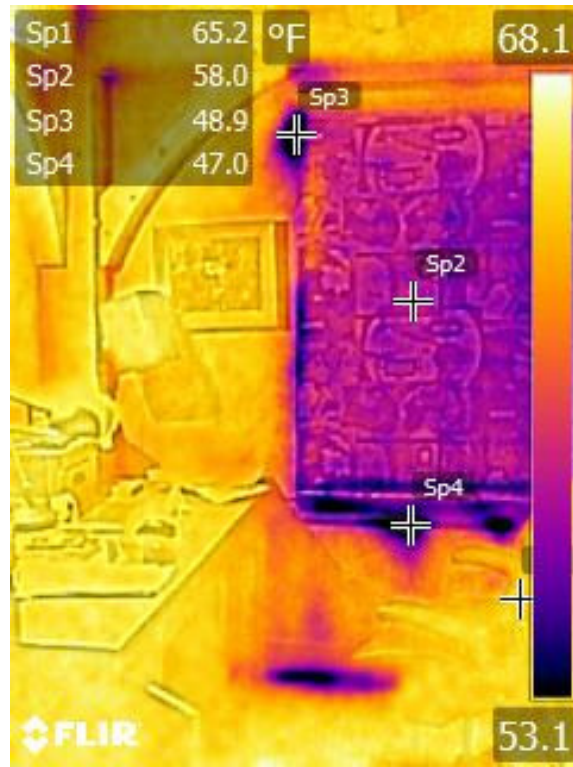
Dunbarton Energy Committee

Typical Infra-Red Images (Cont'd)

The bookcase cold air siphon effect →



Leaky cloth drapes →



and leaky accordion shades →





Dunbarton Energy Committee 

Issues & Challenges

- A thermal imaging based survey program is only effective in the cool season without a blower door.
- It is difficult to identify the residents in need. Including people of all income levels may reduce any possible stigma while continuing the focus on those who need the most help.
- Program should be associated with an official town energy committee, but actual work needs to be done by volunteers to avoid town liability issues.
- Some residents are already enduring discomfort and possible health risk by lowering room temperatures down below 60° in the winter to reduce heating costs, so their bills do not reflect their true need.
- Assisting renters can be a problem if the landlord is not receptive. Approach the landlord for permission and make 2 reports; one for the landlord and one for the tenant to avoid landlord – tenant issues. Tenant report should be approved by the landlord before giving to tenant.



Dunbarton Energy Committee 

Where are we now?

- Assisting any resident who is interested in improving their energy efficiency,
- Learning from what our clients have tried in the past & passing it on to others.
- Actively working to foster a local regional energy efficiency interest group
- Willing to help and support other groups who also want to assist their own community
- Sponsoring an annual Energy Fair
- Preparing a community education & advice on Solar installations
- Our kit is ready to do more homes!





What do you need to start a similar program?

- A town energy committee or local non-commercial entity is very desirable.
- At least one subject matter expert (SME) with energy related background and /or building & construction experience (or previous audit experience)
- Volunteers willing to watch lots of button-up videos and learn the standard techniques, and have a desire to help their neighbors
- Access to an IR thermal device - we started with IR laser gun (single point) Graduated to thermal imaging, it finds problems in areas where it would not have occurred to you to look
- Understanding of thermodynamics & heat transfer, heat conduction and convection, and air infiltration is ideal skill set
- Understanding the dangers of moisture migration and the use of vapor barriers to control water vapor are very helpful to determine when a situation requires significant advanced expertise
- Retired engineers interested in giving back are prime candidates