Neighbors Warming Neighbors

A Dunbarton Energy Committee program to provide Button-up Services to Seniors and Income Disadvantaged residents

We have expanded it to include all income levels to develop more interest.

NWN provides DEC with community access and recognition.

**Our 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.
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.
What do we do?

- Make the homeowner aware of our limitations – we are 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 if the homeowner qualify for a utility-funded audit program from energy usage records and home size.
- 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 thermal images - a good communication tool.
- Recommend some simple remediations that the home owner can do personally or with our help.
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 the attic situation and attic 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.
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.
• Add additional temperature measurements as needed, using the thermal imaging camera software. 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.
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.
• Seal wall cavity openings to basement/crawl space - Both exterior and interior walls and around chimneys. etc
• Recommend a professional audit if the remediations are extensive or could have structural impact.
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

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Typical Infra-Red Images (Cont’d)

Leaky Attic stairway

^Leaky pipe penetration and missing cavity blocking

^Cold slab foundation & old wooden door
The bookcase cold air siphon effect ➔

Leaky cloth drapes ➔

and leaky accordion shades ➔
• 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 the 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.
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 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 bag 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 a thermal imaging camera that finds problems in areas where you would not have thought to look.
• Understanding of thermodynamics & heat transfer, heat conduction and convection, and air infiltration are ideal skills
• Understanding the dangers of moisture migration and the use of vapor barriers to control water vapor are very helpful in determining when a situation requires significant advanced expertise
• Retired engineers interested in giving back are prime candidates