
A Beaches Home Dramatically Improves its Comfort and Value while Lowering Bills and Environmental Impact

Background

Insulation is like a blanket keeping your home warmer in winter and cooler in summer. Homes built in the early 1900's were not required to have insulation or draftproofing. Even in her 1000 sq. ft. one-storey home in the Beaches, Karen Thomas realized there was opportunity to improve the energy efficiency and make her home more comfortable.

GreenSaver is Toronto's only independent, non-profit corporation, dedicated to environmental home energy efficiency. In addition to performing energy and electrical audits, GreenSaver also provides specialized services for air sealing, draft proofing and insulation. In addition to helping homeowners protect the environment, GreenSaver helps them to achieve energy efficiency, cut annual heating costs and increase the resale value of their homes.

Karen's wood-framed house had no insulation although she had added it to the attic area up to an R40 level. The basement was unfinished and uninsulated with a low-efficiency oil furnace heating the home.



Similar housing in the Upper Beaches area.

The Problem

For Karen, the draftiness and general lack of energy efficiency were of primary concern. She knew the old furnace needed replacement but was unfamiliar with the newer products available and wanted more knowledge about how to select the right furnace for her home.

In addition, the homeowner was concerned about the rising cost of energy that would result in an increase in the cost of heating her home.

By switching to a more energy-efficient gas furnace and addressing the issues of insulation and draftproofing throughout the house, Karen had the opportunity to not only save money but to also reduce energy consumption. This would also mean a reduction in the carbon dioxide gases being generated and an improvement in greenhouse gas emissions. Furthermore, addressing energy efficiency issues now meant an increase in the potential resale value of her house in the future.

The current trend in North America is an increase of 5 to 10% in resale values for homes in which energy efficiency improvements have been made. A common rule-of-thumb seems to be that house resale values increase by \$20 for every dollar decrease in annual fuel costs that were realized after energy efficiency improvements. For an average house in Toronto, with a resale value of around \$350,000, these trends translate into a potential increase of \$17,000 to \$35,000 in value.

The Solution

A certified GreenSaver energy auditor first did a detailed energy assessment of the house over the course of more than an hour using sophisticated measuring equipment and instruments. This first step is essential to pinpoint the most affected areas of the house that need upgrading and renovation. Since every house is slightly different, a customized list of recommended changes is created. To proceed with renovations without first analyzing the problem in a comprehensive manner can often result in a poor cost benefit ratio that translates into increased, often unnecessary, expenses.

The energy audit generally includes a walk through the house and inspection of the heating and hot water boiler equipment, measuring with various devices like the blower door registering energy transfers, and analysis of the building "envelope" since a house operates as a system.



A certified Green\$aver Advisor conducts blower door test

The blower door test slightly depressurizes the house, allowing Green\$aver's expert to immediately detect sources of air leaks and drafts.

Another key area examined was the amount and quality of insulation throughout the house...in the walls, the attic, the basement...to determine its effectiveness.

The results are then entered into a computer program and a model gives a custom estimate for each house of the potential savings that could be realized if various energy efficiency improvements were implemented. A final report is provided to the homeowner that clearly identified the best improvements and provides recommendations and an action plan for the necessary retrofits.

In the Thomas house, the audit indicated a need to reduce the drafts and air leakages in order to improve the comfort of the home and decrease energy bills. It was recommended that a new high-efficiency gas furnace be installed and that insulation and draftproofing be added to the main walls in each room.

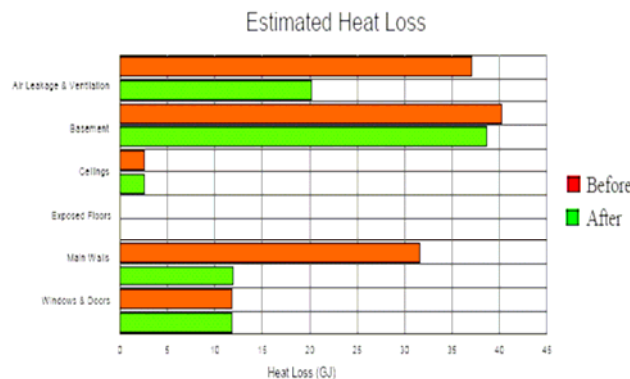
Finally Green\$aver prepared a work plan to rectify the situation and perform the necessary improvements. More than a twenty point improvement in the energy efficiency rating for this house was possible if the furnace, insulation and draftproofing was tackled. Blower door guided draft proofing to precisely pinpoint and seal the air leaks in more than 40% of the house was the goal. (Green\$aver is the only organization to offer this in the Toronto area and has trained retrofit crews to help in a timely manner with minimal disruption to the residents).

The Benefits

Although changes are still being made, the benefits for retrofitting this house are dramatic and include:

- A savings of 100% in fuel usage as result in the switch from oil to gas and 1% of the electricity usage for a total annual savings of 41% of their energy bills.
- A marked increase in the comfort levels in the house with fewer drafts and warmer rooms throughout the house.
- Significant increase in the future resale value due to the type of improvements made.

It'll take time to do the recommended changes but now I have a comprehensive plan to work through and realize what a difference even small changes make to being more comfortable, especially in winter.



Report showing possible energy efficiency improvements