Faith Building Energy Audit Procedure

Updated June 2010

The purpose of the faith building audit is to guide building managers into making good decisions about their building so that operational efficiencies can be improved. The audit is a step by step process that is adaptable to the needs of the faith building.

WRGS/REEP (Waterloo Region Green Solutions) has a decade of experience carrying out energy audits on residential and faith buildings. We understand the unique characteristics of older faith buildings and have the skills necessary to work with faith groups. Faith buildings we have worked with have learned more about how their buildings work and have taken our advice to renovate and operate them more efficiently.

Grants are available to assist in this process both to cover half the cost of the audit (participating utility customers) and to carry out the retrofits (read more below).

Contact WRGS/REEP

When you contact WRGS/REEP requesting an energy audit, you should be prepared to give the following information in preparation to book a Walkthrough Audit:

1. Age of your building
2. Square footage of the floor space including the number of levels
3. How many additions and the years they were built
4. What kind of heating system(s) heats the building
5. What are your concerns with the building that is motivating you to call WRGS/REEP
6. Contact information
7. You will be asked to complete a utility bill form (that will be sent to you electronically) with three years of the building utility bill data (electricity, gas or oil). This data will need to be sent to WRGS/REEP (dklassen@reepwaterlooregion.ca) as soon as possible after the audit booking has been made in order to give time to the advisor to carry out an analysis of the bills.

Audit Procedure

- Submit three years worth of utility bill data for analysis by the advisor
- A simple Walkthrough audit is carried out on the faith building
- A 2-3 page report is written and presented to the building manager(s) as part of a discussion for the next steps, out of which may be the recommendation to do a Comprehensive Energy Audit.

Walkthrough Energy Audit

The Walkthrough Energy Audit is designed as a screening tool that identifies potential energy-saving measures for a building. It includes a partial day visit to the building by the Energy Advisor(s) that will involve a conversation with the building owner representatives discussing their concerns and reasons for the energy audit as well as observations of the building with the representatives that will include:

- An historical discussion of the building
- Observations of the building envelope characteristics
- A blower door test (depending on size and leakiness of the building) to identify air leakage;
- Observations of energy end use energy systems such as heating and cooling, lighting and appliances, in order to find energy saving opportunities.

- A 2-3 page report outlining the findings of the bill analysis and the walkthrough including recommendations for next steps.
- A presentation of the report and a discussion around the next steps which could include a recommendation for a Comprehensive Energy Audit as a next step.

Comprehensive Energy Audit Description

The Comprehensive Energy Audit will build on the Walkthrough Energy Audit and is designed to be much more detailed by gathering the necessary information to determine actual energy savings when carrying out specific energy retrofits. This data is entered into a sophisticated computer energy modeling program which is able to create before and after scenarios to determine the energy savings.

The audit includes a multi day visit to the building by the Energy Advisor(s) in order to gather data on the building necessary to model the building's heat loss and energy systems. The advisor will take measurements of the building, note insulation levels, assess heating systems, observe sources of air leakage and discuss usage patterns of the building.

The on-site visit will usually take 1-3 days depending on the size and complexity of the building and the number of advisors working on the project. Data analysis and report writing will take place off site. The report will be mailed within four weeks of the energy audit.

Report Contents

The Comprehensive Energy Audit Report will contain the following sections:

- General Description of Building, Building Systems, and Operation Schedules
  - Recommendations that would affect energy efficiency of operations
- Description of Building Envelope (insulation levels, potential air leakage)
  - Potential Upgrades to Building Envelope
- Description of Heating & Cooling Systems
  - Potential Upgrades to Heating & Cooling Systems
- General comments and efficiency upgrade potential for lighting and appliances
- List of Areas for Further Study
- Potential Funding Sources

ecoENERGY Retrofit Incentive for Buildings

Natural Resources Canada's Office of Energy Efficiency (OEE) offers the *ecoENERGY Retrofit Incentive for Buildings* which can assist those faith buildings which have significant energy efficiency upgrades they are planning, to carry out those upgrades. In order to qualify for this grant, a Comprehensive Energy Audit must be conducted by a qualified energy advisor. Buildings which have not yet begun these upgrades can apply to receive whichever is less of the following options:

- up to $10 per gigajoule of estimated energy savings
- 25 percent of eligible project costs or
- $50,000 per project.

This ecoENERGY Application must be completed and submitted along with the Comprehensive Energy Audit Report. Most of the necessary information to complete the Application will be identified in the Report.

Combined Walkthrough / Comprehensive Energy Audit
A Combined Walkthrough / Comprehensive Energy Audit is an audit that skips some of the preliminaries of the Walkthrough Audit and goes straight to the Comprehensive Audit. Faith buildings who choose this option have determined that they would like a Comprehensive Audit. There will still be a need to submit the utility bill data for the faith building but there will not be a preliminary report created. Because of this time saving, there is a reduction in the price over the paying for the two audits separately.

Energy Stewardship Workshop
This is an interactive presentation designed for faith communities who may or may not already know they want to do more to conserve energy, lower costs, and care for creation. The presenter will discuss energy audits (both faith building and residential), no-cost and low-cost steps to reduce energy costs; and retrofit opportunities. Renewable energy sources will be explained briefly. The connections between energy conservation and the impact these steps have on the environment and our future will be explained. Audiovisuals and handouts will be used to illustrate the different concepts. Grants for up to 50% of the cost of this workshop available from Greening Sacred Spaces Waterloo/Wellington/Dufferin Regions. The length and content of the workshop will determine the cost of the workshop.

Costs (inclusive)[1]

Procedure	Cost	Net cost after Utility Rebate[2]
Walkthrough Audit	$1,500	$750
Comprehensive Energy Audit		
- Up to 10,000 sq ft[3]	$4,500	$2,250
- From 10,000 – 20,000 sq ft	$5,500	$2,750
- From 30,000 – 40,000 sq ft	$6,500	$3,250
Combined Walkthrough / Comprehensive Energy Audit		
- Up to 10,000 sq ft[3]	$5,500	$2,750
- From 10,000 – 20,000 sq ft	$6,500	$3,250
- From 30,000 – 40,000 sq ft	$7,500	$3,750
Assistance with ecoENERGY Application	$1,000	$500
Utility Bill Data Entry (optional)	$125	$62.50
Outside Waterloo Region mileage (includes time)	$1/km	$0.50/km

[1] Waterloo Region Green Solutions reserves the right to revise these prices as needed.

[2] Some Utilities have made available to their customers assistance to cover 50% of the cost of the audit up to $10,000. These offerings are time sensitive so call us to confirm.

[3] Square footage is measured using exterior measurements. Basement or crawlspace area is not included in square footage calculation. Each additional floor is considered additional square footage.