Energy Audits

An energy audit is a procedure that will identify how energy is being used in your facility and help identify practical and cost effective measures that will reduce energy use, lower operating costs and help reduce greenhouse gas emissions. Energy audits typically recommend changes that result in energy savings of 20 to 30%, depending on what energy savings measures have already been under taken. Almost every religious building in Canada can add some energy efficient measures and save energy dollars.

Types of Audits

There are four main types of energy audits

- benchmark
- simple walk-through
- detailed walk-through
- engineering

The *benchmark audit* assesses the current patterns of energy usage and cost of your building operations over time. It is done by gathering the data from at least a year's worth of your energy bills, noting the amount of energy used (in kilowatt hours of electricity, cubic metres of gas, and litres of oil) and what you paid for them each month. Other benchmark information would include weekly or monthly patterns of usage of your building, such as when people are actually using the various facilities, and perhaps the data on situational factors, such as outdoor temperature, precipitation, sunshine and wind. This kind of information can then be used to evaluate retrofit options and compare savings from potential changes.

A *simple walk-through audit* is a matter of spending a few hours walking around the building noting the most obvious ways to save energy. You might see that some lights are left on that could be turned off, or that the heat could be turned down a bit, or some older appliances replaced with more energy-efficient ones. If you wish to make a larger project out of it, this initial walk-through could become more detailed.

The *detailed walk-through audit* will give you a lot more data to analyze, and help you make decisions on which changes to implement first. It requires more preparation and time, but will give you most of the information you need to make the optimal changes to your facility. Because this type of audit is one that you might find difficult to do yourself, it is recommended that a professional auditor be used.

An *engineering audit* must be performed by professionals, mainly those people who work for engineering firms or other building contractors. They are usually brought in to provide a detailed assessment of your situation with regards to specific energy sub-systems, such as upgrades to the building envelope or replacement of the boiler. They will provide a report on what is needed and quotes on equipment and labour for doing the work

Do You Need an Energy Audit to Save Energy?

It is not always necessary to start with a detailed energy audit. Conducting your own simple "walk-through" audit will help you identify energy losses which can be corrected at little or no additional costs through maintenance, operational actions, or purchasing choices. If a more detailed technical analysis seems necessary, then this initial energy audit will provide the important preliminary data necessary for the more detailed analysis.

Getting Started

Whether you conduct your own simple audit or have a professional conduct a detailed audit for you, the first thing you will need is at least 12 months of energy information (electricity and natural gas, propane or oil). You can get this from your utility company, your fuel supplier or from your energy bills. This information is valuable as it can tell you how much energy is used for baseload equipment such as hot water,

lighting and office equipment and how much energy is used for heating and air conditioning. You can record the information on the Religious Building "Walk-Through" energy audit worksheets provided at the end of this document or plot them on graph paper which ever seems best.

Baseload Calculations

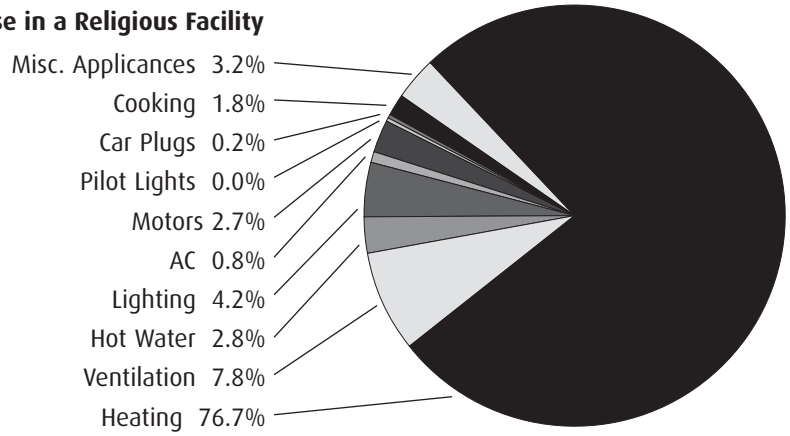
Baseload calculations in a religious building can sometimes be tricky. Religious buildings typically use fuel (natural gas, propane or oil) for heating, ventilation and hot water and sometimes kitchen equipment. Other equipment such as lighting, air conditioning, office equipment and appliances is provided by electricity. Some faith buildings are all electric; others use both fuel and electricity to heat. To get a feeling of how much energy is used for heating and ventilation, the easiest way is to look at the energy (fuel and electricity) that is consumed in May and September. May and September are two months when the heating and cooling requirements are usually minimal but the building is still being used regularly. The average use for these two months can be referred to as the baseload and any energy used above this energy level in the months of October to April is usually heating and ventilation and anything above this amount in June, July and August is usually cooling. Baseload energy use consists of lighting, hot water, office equipment and appliances. Once you have calculated how much energy is used for heating/ventilation, baseload and cooling you will have a better idea of where you should put the emphasis to get the most energy savings for your efforts.

From actual energy audits it has been shown that approximately 80% to 85% of the energy used in a place of worship is used for heating and ventilation. The balance of the energy is used for fans, water heating, lighting, motors, cooking equipment and office equipment.

Typical use of Energy for a Religious Building

Heating:		Cooling:		Baseload:	
Heating	76.8%	AC	0.8%	Hot Water	2.8%
Ventilation	7.8%			Lighting	4.2%
Car plugs	0.2%			Motors	2.7%
				Pilot Lights	0.02%
				Cooking	1.8%
				Misc. Equipment	3.2%

Energy Use in a Religious Facility



Some of the most cost effective things that can be done to reduce heating costs in a religious building are to caulk and weather seal around windows and doors, insulate accessible attics and uninsulated basement walls, install set back thermostats and turn off ventilation systems when not required during unoccupied times or small functions.

The Simple Walk-through Audit

Obtain a copy of the building plans or a sketch of the layout of each floor, then walk through the facility and identify all the equipment and processes that use or cause the use of energy. You will need lots of time to do this properly so allow yourself at least 4 -5 hours. Make a list of the size and location of all energy using equipment such as motors, appliances and lights. Include information such as operating hours and temperatures, condition of insulation and weather-stripping, locations of gaps around doors and windows etc. To help you identify potential energy reduction measures, ask yourself the following questions. Do the lights or equipment need to be on as long as they are? Can the operating temperature be reduced? Can smaller more efficient equipment be installed? Can insulation be added? Can windows and doors be improved or should they be replaced? Can you Turn it off, Turn it down or Tune it up?

The Detailed Walk-through Audit

Detailed walk-through audits are best done by professionals. They will often use specialized equipment and techniques, such as the 'blower door' test for air leakage, to identify problems. One of the main advantages to a professional detailed audit is that you will receive a report giving recommendations for retrofits and a cost-benefit analysis on each of those retrofits.

Develop an Energy Efficiency Plan

An important first step is to appoint an Energy Manager or an Energy Management Committee. The role of this person or committee is to document energy savings and to monitor the energy bills every month and to identify any potential problems that need to be looked at such as a high consumption in any one month. Because your temple or church is made up of many people, it is important to involve as many people as possible in your energy management program. Some suggestions to accomplish this are:

- Put up an energy chart in the foyer and keep it updated each month.
- Consider having one chart for electricity and one chart for natural gas or oil.
- Have short energy announcements or tips

Energy Action Plan Ideas

If you can see daylight around the edge of doors purchase the appropriate weather stripping without delay and install it and caulk around the casing to reduce drafts. The payback is almost immediate.

If you can see daylight around the edge of windows, purchase the appropriate weather stripping without delay and install it and caulk around the casing to reduce drafts. The payback is almost immediate.

If you feel a draft around a window that does not need to be opened in the winter consider caulking around the window using a strippable caulking. Note that there may be a considerable amount of fumes created, so consider applying the caulking when the space is not being used, if possible.

If you see a hot water or steam pipe with damaged or no insulation on it, purchase the appropriate pipe insulation without delay and install it. The payback is almost immediate.

If you have incandescent lights that are on 35 hours a week or longer, convert the incandescent lamps to compact fluorescents lamps.

If you come across a room that has the lights on 35 hours a week or longer but very few people using the room, install an occupancy sensor.

If you have T-12 fluorescent lights that are on 35 hours a week or longer, convert them to T-8 fluorescents lamps with electronic ballasts.

If you come across a room that is always heated but not always occupied consider installing a programmable thermostat.

in the bulletin, during the service or include an energy section in the newsletter.

These are usually a good ways to get everyone involved and feeling like they are helping but to keep everyone involved will require continual new ideas and education.

Heating Effects of Electrical Equipment

Electrical equipment and appliances, from lighting systems and office equipment to motors and water heaters, produce the useful services they are designed to produce. But the electrical energy they use also appears as heat within the building which can either be useful or detrimental to the building's heating, ventilating and air conditioning systems, depending on the season. In cold weather, heat produced by the electrical equipment can help reduce the load on the building's heating system. In contrast, during warm weather, heat produced by electrical appliances adds to the building's air conditioning load.

Energy efficient equipment and appliances consume less energy to produce the same useful work, but they also produce less heat. As a result, efficient equipment increases the load on your heating systems in winter and reduces the load on your air conditioning systems in summer.

The impacts of energy efficient electrical equipment and appliances on the energy use for building heating and air conditioning systems are commonly called "interactive effects" or "cross effects." When considering the overall net savings of an energy efficient product it is very important to consider the interactive effects of the product on building heating and cooling systems. Weighing the interactive effects will result in better informed decisions and realistic expectations of savings. The percentage of heat that is useful in your specific building or room will depend on several factors including:

- the location of piece of equipment or product
- the locations of heaters and their thermostats:
- type of ceiling
- size of the building
- whether the room is an interior space (no outside walls or ceiling) or an exterior space (perimeter walls with or without windows)
- the time of year (spring, summer, fall or winter)
- type of heating, ventilation and air conditioning system used in each room

Unfortunately, interactive effects are often quite complex and may require assessment by an experienced mechanical engineer or technologist.

Indoor Lighting

Energy efficient lighting systems reduce lighting system operating and maintenance costs. In addition, they usually improve lighting quality and increase lighting levels. But lighting systems also contribute to the space heating requirements of religious facilities.

Electrical energy is transformed initially by a light fixture into light and two types of heating energy, then ultimately all into heat. For example, ten 100 watt incandescent lamps operating for 10 hours will transform 10 kW•h of energy into:

- Approximately 9.7 kW•h of heat transferred directly from the lamp by convection to the air surrounding them and infrared radiant energy which is absorbed by objects

within “view” of the light fixtures, as heat which is then transferred to the air by convection.

- Approximately 0.3 kW•h of visible lighting energy which is also absorbed by objects within view of the fixture and then transferred as heat to the air by convection.

Ultimately all 10 kW•h of electrical energy consumed by these light fixtures will appear as heat in the building.

If the same amount of light can be produced by retrofitting the fixtures to compact fluorescent fixtures that draw only 25 W, then in 10 hours of operation the new fixtures will produce only 2.5 kW•h of heat. When the building is heated, then the heaters may have to produce a large portion of the 7.5 kW•h of lost heat to maintain the same level of heating in the building. In this way, the energy you have saved by installing more efficient lighting will be offset by the additional heating required. The net energy saving may be near zero.

The amount of electrical energy that is transformed directly into heat, infrared radiation, and visible light will be different for the various light sources commonly used (incandescent, fluorescent, halogen, high pressure sodium, metal halide or mercury vapour etc.). However the result is the same: 100% of the electricity used by the lighting system ultimately becomes heat. If you install energy efficient lighting that reduces the amount of heat during the heating season, much of the loss will have to be made up by the heating system in the building.

If the source of heating energy is less expensive than electricity (typically geothermal heat pump or natural gas, depending on rates and furnace efficiency) the incremental cost difference of the two heat sources will be saved. If it is more expensive (typically oil or propane) the incremental cost difference of the two heat sources will be lost. If it is the same (electricity) you will break even.

When the lighting system operates in the spring and fall and neither heating nor air conditioning is needed, the net energy savings will be the same as the lighting system savings. When the lighting system operates in summer while air conditioning is required, an additional 33% to 40% for air conditioning savings can be added to the lighting energy savings.

Outdoor lighting is not affected by interactive effects.

Appendix — Energy Audit Template

The following pages contain forms and templates for detailing component parts of your energy systems in your buildings and measuring and recording your patterns of energy usage. They will help you track the savings from any energy-reducing retrofits you undertake.

If a more detailed technical analysis seems necessary, then this initial energy audit will provide the important preliminary data necessary for the detailed analysis.

Religious Building "Walk-Through" Energy Audit Form

Date:_____

GENERAL INFORMATION

Facility Name:_____

Mailing Address:_____

Town: _____

Postal Code: _____

Name of Facility Operator: _____

Title: _____

Phone Number:_____ Fax Number:_____

Email Address: _____

Name of person completing this form: _____

Title: _____

Phone Number:_____Fax Number: _____

Email Address: _____

Brief Description of Function or Use of Facility: _____

_____

_____

Total Floor area of Facility (sq. m./sq. ft.):_____

Religious Building "Walk-Through" Energy Audit Form

Electrical Worksheet

Complete one form for each electric meter in your facility. The completed form is necessary, as part of the information needed to establish your energy usage and Greenhouse Gas (GHG) baselines. This information will also provide you with a much better understanding of what your actual energy costs are.

Facility Name:_____

Meter Descriptor (Entire Facility, Area, Equipment, Etc.): _____

Service — Phase(s): _____ Voltage: _____

Utility Company Name:_____ Account Number: _____

Hydro Rate Class (e.g. General Service Small — Non Demand):_____

Year: _____ No. of Months:_____ First Month:_____

Provincial Tax (%): _____ GST (%):_____ City Tax (%): _____

Electrical Data (A-Adjusted, R-Company Read, E-Estimated, V-Verified, M- Manual Estimated)

Month/Year or Date Meter Read	Demand		Electrical Consumption (kWh)	Total Cost $	Reading Type (A,R,E,V,M)
	Actual (kVA)	Billed (kVA)			
1.					
2.					
3.					
4.					
5.					
6.					
7.					
8.					
9.					
10.					
11.					
12.					
TOTALS					

Religious Building "Walk-Through" Energy Audit Form

Natural Gas/Propane Worksheet

Complete one form for each natural gas or propane meter in your facility. The completed form is necessary, as part of the information needed to establish your energy usage and GHG baselines. This information will also provide you with a much better understanding of what your actual energy costs are.

Facility Name:_____

Units Of Metering — Imperial (Mcf, ccf): _____ Or Metrics (Cubic Metres - m3): _____

Utility Company Name:_____

Account Number:_____ Rate Code: _____

Fuel Use (Entire Facility, Area, Equipment, Etc.): _____

Year: _____ No. of Months:_____ First Month:_____

Provincial Tax (%): _____ GST (%):_____ City Tax (%): _____

Natural Gas/Propane Data (A-Adjusted, R-Company Read, E-Estimated, V-Verified, M- Manual Estimated)

Month/Year or Date Meter Read	Natural Gas/ Propane Consumption Units	Total Cost $	Reading Type (A,R,E,V,M)
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
TOTALS			

Religious Building "Walk-Through" Energy Audit Form

Bulk Fuel Worksheet

Complete one form for each bulk fuel (propane, oil, coal, wood, etc.) used in your facility. The completed form is necessary, as part of the information needed to establish your energy usage and GHG baselines. This information will also provide you with a much better understanding of what your actual energy costs are.

Facility Name:_____

Fuel Company Name: _____

Fuel Type:_____ Fuel Delivery Units (litres, tonnes cords etc): _____

Account Number: _____ Fuel cost/Unit: _____

Fuel Use (Entire Facility, Area, Equipment, Etc.): _____

Year: _____ No. of Months:_____ First Month:_____

Provincial Tax (%): _____ GST (%):_____ City Tax (%): _____

Fuel Type _____

Month/Year Fuel Delivered Units	Monthly Fuel Consumption $	Total Cost
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		
11.		
12.		
TOTALS		

Religious Building "Walk-Through" Energy Audit Form

Lighting

Facility:_____ Location of Lights: _____

Please use a new sheet for each area, location or room in the facility.

Existing Lights and Controls

	Type 1	Type 2	Type 3	Type 4
Type of fixtures (see legend):				
Number of fixtures:				
Number of lamps per fixture:				
If fluorescent indicate length of lamps (2 ft, 3 ft, 4 ft, 8 ft):				
Watts per fixture: (Include ballast wattage if known)				
Fixture height from work surface (ft/m)				
Foot-candle level (if known) — measured at work surface — foot candles				
Present operation of lights — hours/day				
Present operation of lights — days/week				
Present operation of lights — weeks/year				

Present light levels: Bright_____ Adequate _____ Dim_____

Reflectance of walls and ceilings: Good _____ Average _____ Poor _____

Can lights be switched on and off as desired? Yes_____ No _____ Comment: _____

Can lower wattage lamps be installed? Yes ____ No_____ Comment: _____

Can existing lamps/fixtures be retrofitted? Yes_____ No_____ Comment: _____

Is there an automatic timer? Yes_____ No_____ Is it set properly? Yes_____ No_____

Is there an occupancy sensor? Yes _____ No _____

If No, can an occupancy sensor be installed? Yes_____ No_____

Energy Action Plan Ideas: _____

_____

Lighting Legend

A. Incandescent
B. Fluorescent T-12
C. Fluorescent T-12 HO (High Output)
D. Compact Fluorescent
E. Mercury Vapour
F. Fluorescent T-12 VHO (VH Output)
G. High Pressure Sodium
H. Low Pressure Sodium
I. Metal Halide (White Light)
J. Fluorescent T-8
K. Quartz Halogen
L. Exit lamp — incandescent
M. Exit lamp — compact fluor.
N. Exit lamp — LED
O. Other-specify _____

Religious Building "Walk-Through" Energy Audit Form

Building Envelope

Facility: _____ Direction Wall Faces _____

For each wall area of facility (front, sides and back of a building) please use one sheet.

Windows (Please circle appropriate Yes or No)

Are storm windows used?	Number of glazings	Description of window type (double hung, slider, casement, etc)	Do windows open?	Window fit (poor, fair, good)	Number of windows
Yes No			Yes No		
Yes No			Yes No		
Yes No			Yes No		

Doors (Please circle appropriate Yes or No) (Please circle units used)

Are storm doors used?	Is door insulated?	Description of door type (overhead, insulated metal, wood, etc)	Condition of door (warped, cracked)	Door fit poor, fair, good)	Number doors
Yes No	Yes No				
Yes No	Yes No				
Yes No	Yes No				

Number/Location of broken or cracked windows: _____

_____

Description of door or window repairs or replacements needed (including door closers):

_____

Caulking: _____ ft/metres required

Weather-stripping: _____ ft/metres required

Inside (Please circle appropriate Yes or No)

Insulation	Insulated?	Present Thickness	Insulation Types
Location			
Ceiling (Attic)	Yes No		
Walls	Yes No		
Basement/Crawlspace walls	Yes No		
Floor slab	Yes No		

Location of drafts (use strip of tissue to locate):e.g. doors, windows, elec. outlets, attic hatches cracks etc.

_____

_____

Is attic ventilation installed? Yes _____ No _____

Comments _____

Energy Action Plan Ideas: _____

_____

Religious Building "Walk-Through" Energy Audit Form

Water System

Facility Name:_____

Please fill in one sheet for each tank of hot water
System Components (Please circle units used)

Type of water heater, energy (fuel) used: _____

Tank storage capacity: _____ gallons/litres Number of tanks: _____

Recovery rate: _____ gallons/litres per hour Size of heating element:_____

Temperature setting:_____ºC/ºF

Make, Model, Age: _____

Tank insulation (Type/Thickness): if known _____

Is tank equipped with a Heat Trap? Yes _____ No _____

Location, description of other heaters, if any: _____

Length of heated uninsulated distribution piping:_____feet/metres

Hot Water Temperatures (Please circle units used)

At showerhead: _____ºC/ºF. At faucet nearest tank: _____ºC/ºF

At dishwasher:_____ºC/ºF. At washing machine:_____ºC/ºF

At other location: (_____): _____ºC/ºF

Showerheads, faucets, toilets, Other (Please circle units used)

Showerheads: Rate of flow:_____gal./litres/minute_____

Average use/day:_____minutes/shower _____

Faucets: Rate of flow:_____gal./litres/minute_____

Number of Toilets: _____ Tank Size: _____ gallons/litres. Times used/week: _____

Dishwasher: Capacity: _____ gallons/litres.: Times used/week: _____

Washing Machine Capacity: _____ gal./litres. Times used/week: _____

Have cool water washing machines been tried? Yes _____ No _____

Comment _____

Energy Action Plan Ideas: _____

_____

Religious Building "Walk-Through" Energy Audit Form

Heating, Ventilating and Air Conditioning (HVAC)

Facility Name: _____

Please use another sheet if required.

Air Conditioning

Number of units: _____

Make, type, size, location of each: _____

_____

Frequency of servicing: _____ Date of last servicing: _____

Has the HVAC system been "balanced"? Yes _____ No _____

Heat Pumps

Number of units: _____

Make, type, size, location of each: _____

_____

Do they have auxiliary heating? Yes _____ No _____

If so, do they have controls that minimizing use of that heating? Yes _____ No _____

Frequency of servicing: _____ Date of last servicing: _____

Central Heating Plant and System (Please circle units used)

Location: _____

Type of fuel used: _____

Type of system (e.g., hot water, steam, warm air) _____

If you have a steam system, when were the traps last checked? _____

Number of zones: _____

Age of boiler or furnace: _____ Type, condition of insulation on boiler: _____

Age of burner: _____ Is domestic hot water heated by the boiler? _____

Steam pressure _____(PSI) Or hot water temperature _____(°C/°F)

Type and condition of insulation on air ducts or on distribution piping: _____

Frequency of testing/cleaning adjustment: _____ Date of last test/service: _____

Results of test (e.g., combustion efficiency %): _____

_____

Energy Action Plan Ideas: _____

_____

Religious Building "Walk-Through" Energy Audit Form

Heating, Ventilating and Air Conditioning (HVAC)

Facility Name: _____

Temperature Set Back Schedule

Day of Week Group Meets	Group's Name (Scouts, Cubs, Choir, etc.)	Room Name	Time of use of room		Can temperature be set back during unoccupied times?		Set back temperature °C
			Start-time	Stop-time			
					Yes	No	
					Yes	No	
					Yes	No	
					Yes	No	
					Yes	No	
					Yes	No	
					Yes	No	
					Yes	No	
					Yes	No	
					Yes	No	
					Yes	No	
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					Yes	No	
					Yes	No	
					Yes	No	
					Yes	No	
					Yes	No	
					Yes	No	
					Yes	No	
					Yes	No	
					Yes	No	
					Yes	No	
					Yes	No	
					Yes	No	
					Yes	No	

Religious Building "Walk-Through" Energy Audit Form

HVAC (continued)

Facility Name:_____

Please use a new sheet for each zone, area, or room in the facility.

Controls/Use (Please circle units used)

Location(s) and description of thermostats: _____

Location of setback clock/setback thermostat: _____

Cold weather thermostat setting: _____ºC/ºF.

Is temperature setback at night and on weekends? _____

If Yes what are setback times and temperatures for: nighttime _____ weekend _____

Is temperature setback automatic_____ or manual?_____

Hot weather thermostat setting:_____ºC/ºF.

Is temperature setup at night and on weekends?_____

If Yes what are setup times and temperatures for: nighttime _____ weekend _____

Is temperature setup automatic _____ or manual?_____

How many hours a week and weeks per year is the system used? _____

Hours & weeks in hot weather _____ Hours & weeks in cold weather _____

When is system turned on/off in relation to daily occupancy (i.e., before, after, by how long)?

_____

Which areas are too hot? _____

Which areas are too cold?_____

Fans (Supply, Return, Exhaust, Circulating etc.) (Please circle appropriate Yes or No)

Function: (supply, return etc)	Area served:	Fan operating hours	Can fans be cycled to reduce operating times?
		hours/ day days / week/ weeks year	
			Yes No
			Yes No
			Yes No
			Yes No
			Yes No
			Yes No
			Yes No

Energy Action Plan Ideas: _____

_____

_____

Religious Building "Walk-Through" Energy Audit Form

Office Machines and Equipment
(Computers, printers, photocopiers, etc)

Facility Name:_____

Office machine:

Machine type, location _____

Wattage (nameplate watts, or amps x volts): _____

Is it left on overnight? _____ Over weekends? _____

Daily hours of operation: _____ Hours per day it could be turned off: _____

Office machine:

Machine type, location _____

Wattage (nameplate watts, or amps x volts): _____

Is it left on overnight? _____ Over weekends? _____

Daily hours of operation: _____ Hours per day it could be turned off: _____

Office machine:

Machine type, location _____

Wattage (nameplate watts, or amps x volts): _____

Is it left on overnight? _____ Over weekends? _____

Daily hours of operation: _____ Hours per day it could be turned off: _____

Office machine:

Machine type, location _____

Wattage (nameplate watts, or amps x volts): _____

Is it left on overnight? _____ Over weekends? _____

Daily hours of operation: _____ Hours per day it could be turned off: _____

Office machine:

Machine type, location _____

Wattage (nameplate watts, or amps x volts): _____

Is it left on overnight? _____ Over weekends? _____

Daily hours of operation: _____ Hours per day it could be turned off: _____

Energy Action Plan Ideas: _____

_____

_____

Appliances

Facility Name:____

Refrigeration and Freezing (Please circle units used)

Type, age, energy used: ____

Compressor rating: _______ hp; age: _____years. Present temperature: ºC/ºF ___________

Hours per day of use: _______ Weeks per year equipment is used ____________________

Do doors close completely, by themselves?________ Condition of door seals:____________

Refrigeration and Freezing (Please circle units used)

Type, age, energy used: ____

Compressor rating: _______ hp; age: _____years. Present temperature: ºC/ºF ___________

Hours per day of use: _______ Weeks per year equipment is used ____________________

Do doors close completely, by themselves?________ Condition of door seals:____________

Refrigeration and Freezing (Please circle units used)

Type, age, energy used: ____

Compressor rating: _______ hp; age: _____years. Present temperature: ºC/ºF ___________

Hours per day of use: _______ Weeks per year equipment is used ____________________

Do doors close completely, by themselves?________ Condition of door seals:____________

Cooking (Range, oven, grill, etc) (Please circle units used)

Type, age, energy used: _____ Temperature now used: ºC/ºF _____

Is this the lowest possible temperature? Yes _____ No _____

Is equipment turned off when possible? _____

Are exhaust hoods installed over all cooking equipment? Yes_____ No _____

Cooking (Range, oven, grill, etc) (Please circle units used)

Type, age, energy used: _____ Temperature now used: ºC/ºF _____

Is this the lowest possible temperature? Yes _____ No _____

Is equipment turned off when possible? _____

Are exhaust hoods installed over all cooking equipment? Yes_____ No _____

Energy Action Plan Ideas: _____

_____

_____

Religious Building "Walk-Through" Energy Audit Form

Miscellaneous Appliances

Facility Name: _____

Please use another sheet if required

Washer Dryer (If applicable)

Type, age, energy used: _____

Temperature now used: Hot_____ Warm _____ Cold _____

Are machines fully and properly loaded? Yes _____ No _____

Can lower washing/rinse water temperatures be used? Yes _____ No _____

Dish Washing (If applicable)

Type, age, energy used: _____

Temperature now used: Hot_____ Warm _____ Cold _____

Are machines fully and properly loaded? Yes _____ No _____

Can lower washing/rinse water temperatures be used? Yes _____ No _____

Dish Washing (If applicable)

Type, age, energy used: _____

Temperature now used: Hot_____ Warm _____ Cold _____

Are machines fully and properly loaded? Yes _____ No _____

Can lower washing/rinse water temperatures be used? Yes _____ No _____

Car Plugs (Car, Block or Car & Block Heaters.) (Please circle appropriate Yes or No) (relevant?)

Function: (car, block car & block)	Description of parking: lot served:	Plug operating hours	Can plugs be cycled to reduce operating times?
		hours/ day days / week/ weeks year	
			Yes No
			Yes No
			Yes No
			Yes No
			Yes No
			Yes No
			Yes No

Energy Action Plan Ideas: _____

_____

_____

Religious Building "Walk-Through" Energy Audit Form

Landscape

Facility Name:_____

Complete forms for "green" areas. The completed form is a necessary part of the information needed to establish how your water is being used.

Irrigation Practices:

Irrigated Area	Length of time irrigated/week	Sprinkler flow rate	Total water use/week

Best Management Practices

- Specifically mandate the use of heat-tolerant low-water use plants (this is known as xeriscaping).
- Limit turf areas.
- Mow regularly, but leave grass 2 1/2"-3" high.
- Use mulch around groundcovers, trees, shrubs, etc.
- Do not over-fertilize or over-prune.
- Eliminate use of pesticides through integrated pest management practices
- Monitor for and fix leaks and broken sprinkler heads.
- Ensure your irrigation system is efficient (rates of water flow for each area are appropriate)
- Control application of water with moisture sensors or timers.
- If possible, irrigate in the early morning to reduce evaporation caused by heat and wind.
- Consider the use of a drip irrigation system rather than sprinklers.
- Be sure hoses have shut-off nozzle.

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