

5 KEY AREAS THAT CAN IMPROVE THE ENERGY EFFICIENCY OF RELIGIOUS BUILDINGS

When faced with the task of making your buildings more energy efficient, this list can be used as a guide. It is divided by how much labor, time, and money is required to make the various improvements.

Labor intensive



Time consuming



Expensive



- LIGHTING
- HEATING AND COOLING SYSTEMS (HVAC)
- PLUG LOADS AND APPLIANCES
- WATER (HOT WATER SYSTEMS)
- BUILDING ENVELOPE

LIGHTING



- Place reminder signs to turn off lights near doors, washrooms, and offices
- Make sure that exterior lights are turned off during the day.
- Make use of dimmable lighting to control the electricity use.
- Instal motion sensor lighting: washrooms and for outdoor security.
- Opt for LED exit signs instead of incandescent ones.



- Use smart lighting controls such as lighting appliances with timers and occupancy/motion sensors.
- Change the light fixtures to LED compatible (as some may not be compatible)
- Use only LED bulbs in all your lighting fixtures and avoid high wattages.
- Opt for T5/T8 tubes rather than T12 tubes.

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HEATING AND COOLING SYSTEMS (HVAC)

Use insulating shades such as multi-layered/blackout curtains.

Use natural ventilation such as windows or door screens.

Set thermostats to ideal and energy efficient temperatures, depending on the season.

Put weather stripping/door seals on doors to prevent air leakage.

Install caulking around opening that are susceptible to air leakage, this can be around windows, outlets, attic hatches, baseboards, and ducts.

Ensure that ceiling fans are rotating counter-clockwise during the summer and clockwise during the winter.

Make sure fan and furnace filters are clean and well maintained.

Make sure cooling and reheat coils are well maintained.

Make use of natural heat and light from the sunlight in the windows to acquire passive solar energy.

Use heating only as needed and reduce the temperature in unoccupied areas.

Ensure adequate and proper pipes/ducts insulation to limit heat loss/transfer; and also, to prevent condensation.

Turn off furnaces, boilers, and exhaust fans when not in use.

Turn off standing natural gas pilots in furnaces/boilers during the spring, which is when the heating season ends.

Use a dehumidistat to control exhaust fans in areas with high humidity.



Use smart and setback thermostats.

Use high efficiency air filters.

Install a heat recovery ventilator.

Insulate the attic with spray foam insulation to seal all openings and prevent air leakage.

Upgrade air conditioning units, opt for ones that have higher Seasonal Energy Efficiency Ratio (SEER) and Coefficient of Performance (COP)

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HEATING AND COOLING SYSTEMS (HVAC) continued



Use rooftop units (RTUs).

Upgrade to geothermal heating and cooling.

Upgrade to a high efficiency condensing furnace.

Upgrade to a high efficiency condensing boiler.

Opt for/make use of a decentralized heating system to have the flexibility of heating only the occupied or necessary rooms.

PLUG LOADS AND APPLIANCES



Make use of the “power saver” feature of your appliances, if applicable.

Unplug charger once battery is fully charged.

Maximize freezer space (use water bottles to fill empty space)

Ensure correct fridge (2.5° - 5°) and freezer (-18°) temperatures for energy efficiency.

Unplug appliances that are not in use as they continuously siphon electricity even when turned off.



Use smart power strips/bars that have motion sensors or features that allows it to turn off when other peripheral devices are turned off as well.

Make use of timers that have programmed schedules, making outlets turn on/off upon the arrival/departure of occupants.



Upgrade/replace appliances (Refrigerator, stove, dryer) with ENERGY STAR certified ones as they have more high energy efficiency standard and energy optimization.

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WATER (HOT WATER SYSTEMS)



Insulate the hot water tank with an insulating blanket to reduce heat loss.

Insulate the first 5 feet of hot and cold water pipes connected to the water tank.

Do the laundry with cold water instead of hot.



Opt for low-flow water fixtures such as more energy efficient showerheads, faucets, toilets
Anticipate and repair leaks in the plumbing fixtures.

Turn off and drain hot water tanks (used for winter heating) in the summer.

Install toilet retrofit devices, such as early closure devices, to reduce water usage in toilets.

Use low-flow aerators



Install a tankless water heater.

Install a condensing hot water tank.

Upgrade to an electric water heater.

BUILDING ENVELOPE

Inspect the interior and exterior building envelope regularly to remain aware of the building's condition.

Such inspection can be visual, or more extensive



Use a thermal imaging camera to identify weak spots that are susceptible to heat loss.

Hire a professional to perform a professional building energy audit.

Upgrade damaged or old doors to energy efficient ones, ones with a higher resistance value.



Insulate areas that have gaps and are prone to thermal bridging.

Upgrade windows to ones that have higher U-values.

Opt for double/triple-pane glass.



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