

# Practical Ecological Responses

## A Green Check List for Parishes and Homes

### A Do-It-Yourself Energy Audit

Here is a do-it-yourself energy audit for your parish. It provides a simple check list to help you reduce your impact on the surrounding community and at the same time save money that can be used for ministry.

- Are all windows and doors properly aligned and operational? Is there air leakage?

**Test all doors and windows for air flow when closed.**

- Is weather-stripping and caulking in place and intact on windows, doors, conduits, piping, exterior joints, or other

**Place caulk, weatherstrip and foam sealing around doors, windows and other spaces to plug air leaks.**

- Are doors and/or windows separating energized spaces from non-energized or air conditioned or heated areas (outdoors) utilized properly?

**Make signs asking people to close doors and/or windows.**

- Are all of the windows energy-efficient and double paned?

**If not, replace with double-pane Energy Star windows for approx. 1,500 lbs/year carbon reduction per window replaced.**

- Is there insulation between heat or air-conditioned and unconditioned spaces?

**Insulate the ceiling, walls and basement. Where practical, cover windows and through the wall cooling units when not in use. In windy areas, install wind screens to protect outside doors. Consider adding reflective or heat absorbing film to minimize solar heating in summer and heat loss in winter. Proper insulation can save you 25% on your heating bills.**

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Note: Special thanks to Alex Coulombis of Green Houses of Worship, McLean, Virginia, for permission to adapt portions of their check list of green options for churches.

- Is there at least 7 inches of insulation in your ceiling/roof?

**Install insulation where it is lacking and repair any roof damage. This can save you over 20% in cooling bills.**

- Are blinds and curtains used to help insulate the building?

**Keep curtains and blinds closed at night during the winter. Consider covering glass with a tinting material that will allow daylight in and block UV radiation. This will eliminate the need for opening/closing blinds.**

## **Heating, Air Conditioning and Ventilation**

- Are thermostats on heating/cooling units safe from occupant manipulation?

**Make sure that thermostats are locked or inaccessible so that occupants do not tamper with them.**

- Are space temperatures similar to thermostat settings?

**Thermostats should be in a central location, away from areas subject to temperature fluctuations (e.g. a window or heating or cooling unit).**

- Are thermostat settings adjusted for changes in seasons?

**Adjust temperatures for the seasons. Turn your thermostat down in the winter and up in the summer (try 68° in winter and 78° in summer). Use outside air rather than air conditioning for cooling and ventilation whenever possible. It may be easier or more efficient to have separate thermostats for controlling heating and cooling.**

- Does your congregation refrain from heating or cooling unoccupied or little-used areas unnecessarily?

**Try to schedule activities in spaces that can be conditioned separately from the rest of the building. In other words, use your cooled/ heated space efficiently.**

- Are exhaust system (i.e.. restroom fans) operation programmed?

**Stop using unnecessary exhaust fans and re-wire restroom exhaust fans to operate only when lights are on.**

- Do air filters and heating/cooling coils receive scheduled maintenance?

**Replace air filters regularly. Develop a maintenance schedule and install filter pressure-drop gauges. This can reduce energy costs by up to 5%!**

- Is heating/cooling equipment set to start as occupants arrive and/or set to stop operating during last hour of occupancy?

**Reduce thermostat settings by at least 10° F and/or shut down AC units at nights and for any long period of time when the space will be unoccupied (45 - 55° is good for winter). A programmable thermostat to automatically adjust temperatures can help tremendously. Experiment with start-up and shut-down times to keep the building more comfortable while it is occupied (especially at worship times).**

- Does air flow to space feel adequate and consistent from one space to another?

**Post signs reminding people not to put objects in places where they will obstruct air flow. At the same time be alert to the possibility of too little air flow. Sick building syndrome can result when there are toxics in the building and no way to vent those out of the building.**

- Is duct or pipe insulation present and intact?

**If not, install or replace worn installation. This avoids heat loss through pipes.**

## **Heating**

- Are air inlets or outlets clean and unobstructed?

**Check air duct openings and make sure that nothing is blocking the air flow. Post signs reminding people not to obstruct air flow.**

- Are boilers maintained on a scheduled basis?

**Install a new Energy Star furnace or boiler if you need one. This could mean huge operational savings – both in carbon emitted and in heating bills! Schedule annual HVAC (Heating, Ventilation and Air Conditioning) maintenance checks.**

- Is hot water temperature set so that it doesn't scald?

**Maintain your hot water heater at no higher than 120°.**

- Is system insulation present and intact?

**If your water heater is more than five years old, wrap it in an insulating jacket. Consider replacing water heaters that are over twenty years old with tankless “instant heat” water heaters.**

- Is the hot water system de-centralized with small domestic hot water heaters instead of a large central boiler?

**Replace standard electric water heaters with the new high-efficiency Energy Star units that provide on-demand hot water.**

- Are water temperatures reduced during unoccupied periods?

**Reduce water temperatures to the lowest setting during times when the facility is unoccupied.**

## **Lighting**

- Are fluorescent or LED lamps used instead of incandescents in offices, meeting spaces, hallways, and sanctuaries (wherever possible) ? Are your exit signs LED?

**Replace old incandescent light bulbs with LED lights (this saves 200 lbs of CO2 per year for each bulb).**

- Is lighting always turned off in unoccupied areas?

**Turn off the lights, make signs, install motion sensors or timed switches.**

When burned out fluorescent lamps and/or ballasts have been replaced, have more efficient lights been installed (i.e. lower watts in sunny rooms used primarily during the day)?

**Replace T12 fluorescent lights with T8 bulbs (will need retrofiting). There are one for one LED replacements for T8 bulbs. Consider using these newer LED lights.**

Is decorative lighting used sparingly and/or controlled optimally? In fixtures where fluorescent lamps have been removed, have the ballasts been disconnected?

**Don't use more light than you need. Remove extraneous bulbs and disconnect their ballasts. Replace unnecessary fluorescent tubes with "dummy" types that don't draw much current but still provide uniform lighting. If possible, have lighting calculations done to optimize lighting.**

Are lamps and fixtures clean? Do ceilings and other room surfaces adequately reflect light because they are clean, bright and free from dirt?

**Dust buildup reduces reflectivity and effectiveness. Maintain a cleaning schedule for lamps, light fixtures, ceilings and other reflective surfaces.**

Is daylight used effectively (i.e. are work stations close to windows)?

**Use natural lighting whenever you can. Position work stations close to windows and turn off the lights when it's sunny.**

Is security/outdoor lighting automatically controlled? Do lighting levels stay within adequate boundaries (i.e. they're not excessive)?

**Turn these off too when they are not needed. Consider using the new LED lights.**

## Refrigeration and Appliances

- Is kitchen equipment used efficiently (i.e. exhaust hood fans off when not in use, coffee makers off when coffee is finished brewing)?

**Cook with lids on, only preheat ovens for baked goods, provide ovens with loads all of the time they are heated and on, shut down exhaust hood fans when exhaust is not required, and use microwave ovens to heat small quantities of food.**

- Are refrigeration condensers or coils clean, unclogged and/or functioning efficiently?

**Schedule regular maintenance for your air conditioner (AC). Make sure that your AC's condensers or coils are clean, unclogged and functional. Replace your old AC with a more efficient one.**

- Is your freezer free of icy build-up?

**Make sure that your refrigerator/freezer condensers or coils are clean, unclogged and functional.**

- Is your refrigerator temperature set correctly (i.e. a telling sign is that food toward the back top is sometimes frozen)?

**Make sure that your refrigerator is set to be adequately cool, but no colder than necessary.**

- Is laundry equipment used efficiently if it is present?

**Replace inefficient washers with Energy Star appliances, wash with full loads, clean lint screens before and after each use, use cold water rather than hot when possible, and hang laundry out to dry when possible.**

- Are freezers and refrigerators kept full?

**Save 2,300 lbs of CO<sup>2</sup> per year by replacing refrigerators more than ten years old and other old appliances with Energy Star models. Dispose of unnecessary or unused old appliances. Dealers will remove your old appliance when they deliver a new one. If there is a lot of extra space in your refrigerator or freezer, fill it with containers filled with water.**

- Are electronic devices and office equipment turned off and unplugged when they are not in use?

**Cut your phantom usage by turning off computers, chargers and other standby electronics by unplugging or by using a power strip. (Phantom loads are the energy that appliances use when they are plugged in, even if they are not on. This accounts for 6% of electrical usage in the US.)**

- Are LED Holiday lights used?

**Switching to LED lights on one tree will save 122 lbs. of carbon per season.**

- Are LED exit signs installed?

**Exit sign requirements differ from state to state, so learn about your code requirements before you buy new signs.**

## **Transportation**

- Does a parish ride sharing program exist?

**Encourage carpooling by organizing a ride sharing system for the parish. Identify the public transportation stops that are closest to your church and encourage people to use them, even if it means organizing a shuttle system to get them to and from services.**

- Do congregation-owned vehicles receive proper maintenance?

**Regular tune-ups, maintenance of tire pressure and changing the air filter will increase fuel efficiency and decrease pollution.**

- Are bike racks installed at your parish?

**Cultivate a bicycle-friendly atmosphere and encourage it by installing bike racks on church property. You might consider a promotional “bike to worship” days.**

- Do you maintain pesticide-free outdoor lawns and plant with manual tools?

**Consider using manual tools. Gasoline powered landscape equipment (mowers, trimmers, blowers, chainsaws) account for over 5% of urban air pollution. Reduce or stop the use of pesticides. Reduce pesticide use. Residential applications are typically 20 times that of farms per acre.**

- Does your congregation make good use of its land?

**Think about planting a community garden or a native prairie. Plant trees. Tear up impermeable surfaces that aren't being used and replace them with plants - a lawn has less than 10% of the water absorption capacity of a natural field or woodland.**

- For areas with depleted ground water, use permeable surfaces for parking and walk ways.

**Water runoff often goes into sewers and not into the ground. Many parts of the U.S. are facing water shortages and the water is needed for those with wells.**

- How often do you incorporate environmental themes into parish education?

**Encourage sermons and talks that educate parishioners about Orthodox responsibility for God's creation. Use organic, seasonal and/or potted altar flowers, organic communion wine and bread, etc.**

- Have you identified ways to involve young people in ecological activity?

**Organize activities and integrate environmental issues into the youth curriculum, or have your youth group sell CFLs as a fundraiser as a way to help parish members reduce energy and save money at home.**

- Are office supplies and cleaning products purchased in bulk to reduce packaging?

**Avoid unnecessary and excessive packaging wherever possible.**



- Have you eliminated styrofoam products from the parish?

**Styrofoam doesn't decompose. If burned, it creates toxic fumes. Avoid purchasing items that include styrofoam. For hot drinks consider real cups.**

- Are toxic chemicals and other hazardous materials present on parish property?

**Be consistently pro-life. Toxic chemicals are dangerous to human health and are responsible for avoidable cancers, and other diseases. Avoid laundry bleach, detergents, window cleaners, and mold inhibitors that contain toxic ingredients. Use safe, non-toxic substitutes. Make a special effort to remove these unsafe items from parish grounds.**

- Do you purchase eco-sensitive products (recycled post-consumer waste paper and petroleum-free, chemically sensitive cleaning products)?

**Emphasize locally grown organic foods; recycled and sustainable office supplies and paper products; non-toxic cleaning supplies, furniture and fixtures, textiles, printing and publishing, and construction and renovations. Ask your custodian or cleaning service to find out which eco-friendly products they prefer and are willing to start using.**

- Eliminate all pesticide use on parish grounds or inside buildings.

**Use boric acid which is less poisonous, but much less harmful to people and pets. It is slow acting, but sure. For fleas, use diatomaceous earth. For ants, use a honey with boric acid mixture. For ticks, use silica gel.**

- Are foods and refreshments purchased sustainably (as locally and as organic as possible)?

**Buy locally when possible to reduce the distance food needs to be transported. Buy organic to reduce the need for synthetic fertilizers and pesticides and to reduce toxics in parish food.**

Does your parish recycle all of its paper, plastic, glass, and metal?

Check out local recycling information at [www.earth911.org](http://www.earth911.org) or the website of your local government. For each ton of aluminum recycled, ten tons of carbon dioxide are saved. For every ton of glass, 0.32 tons of CO<sup>2</sup> are saved, and for every ton of plastic, approximately 1.7 tons.

Does your parish (or home) compost food/yard waste?

Even if your kitchen waste is large, you can reuse yard clippings as mulch. According to the EPA, yard wastes, mostly brush and grass clippings, comprise 20% of municipal solid waste; most still ends up in landfills. Find out how to compost at <http://www.howtocompost.org/>.

*“The enormous amount of energy that is consumed for... the prodigality of modern life far exceeds reasonable human needs....*

*“Beloved children and brethren in the Lord, let us take action, each one from his own position and giving every effort to an amelioration of senseless consumption. Let us work toward a restoration of a harmonious working of the planet on which we live, so that in tranquility our children may enjoy all the blessings of the creation of our loving God, the blessing He offers to all people.”*

- HAH Ecumenical Patriarch Bartholomew  
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