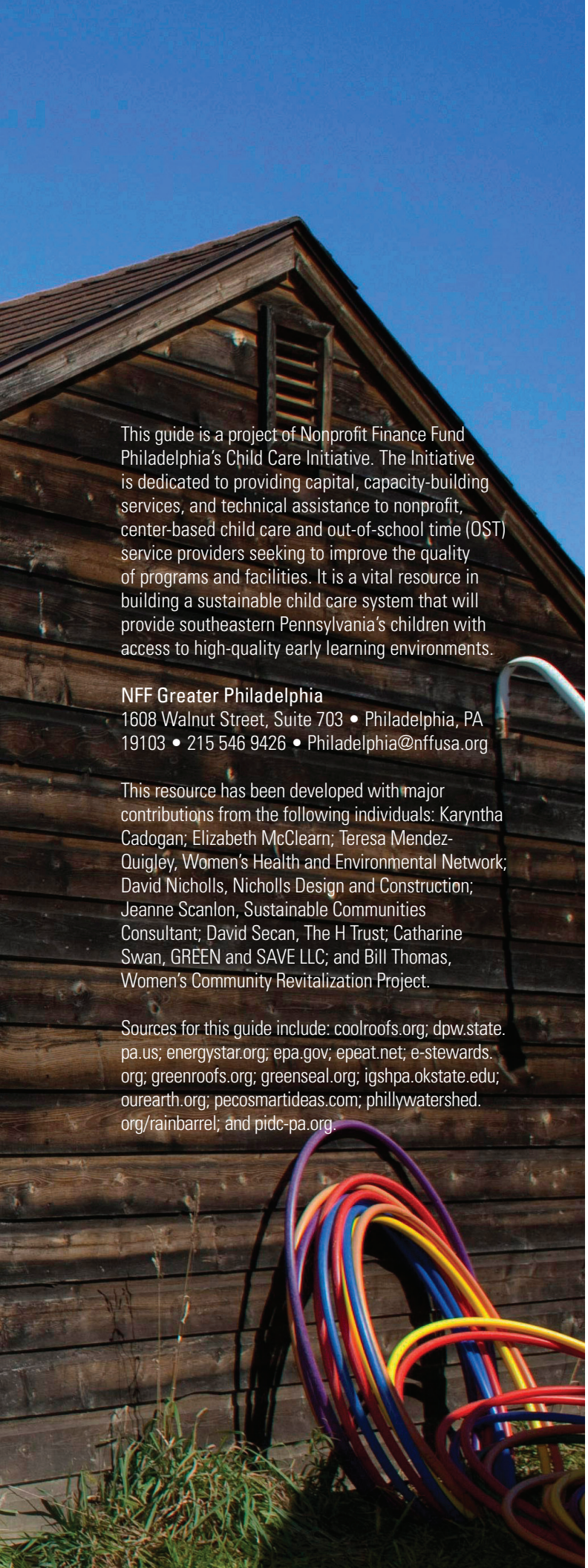
Nonprofit Finance Fund®

Where Money Meets Mission®

Saving Money While Getting Greener

Tips To Create Energy Efficient, Healthier Nonprofit Facilities

A project of NFF's Child Care Initiative
nonprofitfinancefund.org



This guide is a project of Nonprofit Finance Fund Philadelphia's Child Care Initiative. The Initiative is dedicated to providing capital, capacity-building services, and technical assistance to nonprofit, center-based child care and out-of-school time (OST) service providers seeking to improve the quality of programs and facilities. It is a vital resource in building a sustainable child care system that will provide southeastern Pennsylvania's children with access to high-quality early learning environments.

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Sources for this guide include: coolroofs.org; dpw.state.pa.us; energystar.org; epa.gov; epeat.net; e-stewards.org; greenroofs.org; greenseal.org; igshpa.okstate.edu; ourearth.org; pecosmartideas.com; phillywatershed.org/rainbarrel; and pidc-pa.org.

With simple changes, we can save both energy and money.

NFF's Child Care Initiative is dedicated to helping child care providers create healthy, sustainable facilities. We work closely with nonprofit child care centers and afterschool programs to ensure that facilities are as healthy for the bottom line as they are for the children they serve. In this guide, you'll find energy saving tips for nonprofit organizations, with an emphasis on saving money on utilities, maintaining safe and healthy indoor spaces, and moving towards a more environmentally conscious approach to facility management. We encourage you to consider ways to become more energy efficient and reduce your organization's environmental footprint!

Organizational Mission and Sustainability

From lighting, to temperature control, to communication, our way of life is dependent on energy resources. Yet many of us use more energy than we actually need. A well-managed, energy efficient facility with a reasonable cost structure can improve the sustainability of your organization. And it can actually help you better fulfill your mission. Here are just a few ways:

- Energy efficient facilities can help you reduce ongoing operational expenses, allowing you to set savings aside for a building reserve fund.
- They're safer and more comfortable for staff, children, and families. Healthy product choices and practices reduce conditions under which allergies, disease, and behavioral problems flourish. Revenue losses due to illness can be reduced.
- They can improve a child's ability to learn and thrive. Healthy children are vibrant, happy, resilient, and likely to focus, learn, and perform at higher levels. As they grow, preparedness improves and success becomes self-sustaining for them – and your center.
- They help the whole community become healthier. Efficiencies reduce the load on local utilities. Unburdening those resources cuts down on harmful toxins in the environment, improving air and water quality in the community.

Heating and Cooling

Most days, your facility requires either heat or air-conditioning. Tiny cracks and openings in your building's "envelope" (roof, foundation, walls, windows, and doors) let energy escape. Tightening your building's envelope is the number one way to decrease energy waste and help you cut costs.

- Caulk and insulate around windows, doors, pipes, conduits, exterior joints, and other areas where there are cracks or holes.
- Install weather stripping and door sweeps, which are vinyl strips used to create a weatherproof seal at the bottom of your door.
- Remove or cover window A/C units during cooler months.
- Insulate the roof, attic, foundation and crawl space after sealing out drafts and moisture.
- Install self-closing doors so your heat and A/C stay inside.
- Install vestibule doors at major entrances.
- Install adjustable outdoor shading devices (e.g., awnings).
- Plant deciduous trees, which drop their leaves in autumn, on the south side of building to provide shade during summer. Select trees native to the area, as they require less watering once they are established.
- Replace single pane windows with new low-e glass (argon gas-filled) double pane windows, which reduce heat loss while admitting solar heat gain.
- Add reflective or heat absorbing film to windows to minimize solar heat gain in summer and heat loss in winter.
- Install programmable thermostats for your heat and A/C—this can be a big money saver! To keep staff comfortable, have the heat or A/C come on an hour before staff arrive.

Added Benefit
Sealing cracks and holes in your building's envelope can also prevent pests from entering!

Preserve Ventilation and Indoor Air Quality
In many older buildings, fresh air seeps in through cracks, ill-fitting windows and doors, etc. As air seepage is corrected, indoor air quality may be reduced. It is important to introduce fresh air into your facility to dilute indoor pollutants. The Centers for Disease Control and Prevention (**www.cdc.gov**) recommends 12 air changes per hour. If you tighten your building's envelope, you should consult an HVAC (Heating, Ventilating and Air-Conditioning) contractor to make sure your building gets fresh air regularly.

How to Handle Old Thermostats
Old thermostats often have mercury and must be recycled to prevent leakage into the environment, where it can directly impact children's health and brain development.

- Install tamper-proof locking covers on thermostats so that people do not adjust the temperature spontaneously.
- Change or clean HVAC (Heating, Ventilating and Air-Conditioning) filters monthly during peak cooling or heating season. Dirty filters will force the equipment to work harder, taking a toll on its useful life expectancy while also driving up monthly energy costs.
- Purchase an annual maintenance contract for the HVAC system to save energy and money. Maintenance ensures that the system will last years longer and reduces the likelihood of costly emergency repairs.

Water

As access to clean water becomes an increasingly relevant global concern, we can all do our part to support water conservation and minimize associated energy costs at the same time. Here are some tips to get started.

- Seal and insulate interior ductwork, hot water pipes, and hot water heaters.
- Lower thermostat on hot water heaters to a temperature suitable for hand washing without needing to mix in cold water. For example, in child care facilities, most hot water heaters are set to 140˚. The PA Department of Public Welfare (DPW) recommends 120˚, which can prevent burns and save money. DPW regulations require a relatively low temperature; consult appropriate codes and regulations for permissible water temperatures for sanitation purposes, such as operating dishwashers. It might save money to have separate water heaters for hand washing and dishwashers.
- Install automated, hands-free faucets and soap dispensers.
- Install low flow toilets and faucets.

Managing Rain Barrels
Collecting water in rain barrels reduces the amount of water that runs off your roof and enters city treatment facilities. This collected water can be used for gardens or playgrounds. If you have a rain barrel, make sure to empty it before freezing temperatures set in to avoid splitting. During warm weather, control mosquitoes by dropping in mosquito dunks that kill the larvae but are safe for people, plants and animals. Learn about Philadelphia's rain barrel program at **www.phillywatersheds.org/rainbarrel**. It lists workshops and provides installation guidelines.

Caution on Compact Fluorescent Lamps (CFLs)
Old, eco-friendly and compact fluorescent lamps all contain mercury. By law, they must be recycled. To find out how to recycle properly, visit **www.ourearth.org**.

Light

Lighting accounts for 20-38% of utilility costs. These tips will help you use less electricity for light. With a few simple changes, you can save money while still having a bright and sunny facility.

- Paint ceilings bright white (not high-gloss, which may cause glare) and walls light colors to increase reflection. Using light colors allows you to turn on fewer lights and makes rooms appear more spacious.
- Replace all incandescent bulbs with LEDs (Light Emitting Diodes) over time, with the highest priority given to lights that are on 12 hours or more, such as stairwell and exterior lights. Due to the higher initial cost of LEDs, Compact Fluorescent Lights (CFLs) can be used as an interim solution for interior lighting.
- Replace T12 (1.5" diameter, 45w) and T8 (1" diameter, 32w) lights with LED tubes. Savings can be up to 68% with a return on investment of less than two years.
- Remove two bulbs and the ballasts (starters) from existing light fixtures in areas that do not need as much light.
- Install polished reflectors in fluorescent ceiling fixtures to increase the amount of light bounced down into the room.
- Control lighting with photoelectric or time-clock controls.
- Install ENERGY STAR products and LEDs for exit signs.
- Install light motion sensors throughout the building, particularly in rooms that are infrequently used (restrooms, storage closets, staff lunch rooms). Occupancy sensors will yield anywhere from 20% to 60% in savings!
- Install an automated energy management system that will control the lighting levels throughout the building in accordance with usage.

More on LED Lighting

LEDs typically use up to 80% less energy than incandescent bulbs and last 10-60 times longer than CFLs. Specialized lighting companies offer free audits and a strategy for bulb replacement that can fit your budget.

	1 Conventional light bulb	1 LED bulb
Retail Cost	$2.00	$39.00
Electricity Used	60 watts	5 watts
How Long it Lasts	20,000 hours	80,000 hours

Green Clean

Standing water and moisture indoors can often lead to mold. While it's impossible to eliminate all mold spores, high amounts can be dangerous—particularly for children with asthma or allergies. Here are some ways to maintain a clean environment without resorting to harsh chemicals and cleansers.

Mold

The only way to control indoor mold is to control moisture. Moisture and mold problems in school settings, including trailers and portable classrooms, are often associated with delayed or insufficient maintenance. Take preventative steps by inspecting frequently for any suspected mold growth while diligently controlling moisture levels. For additional information, download the publication "Mold Remediation in Schools and Commercial Buildings" from www.epa.gov/nscep.

- Provide adequate ventilation to maintain indoor humidity levels between 30-60%.
- Use exhaust fans whenever cooking, dishwashing and cleaning in food service areas.
- Control humidity levels and dampness by using air-conditioners and dehumidifiers.
- Reduce the potential for condensation on cold surfaces (i.e., windows, piping, exterior walls, roof or floors) by adding insulation.
- Install storm windows and caulk around windows to keep the interior glass warmer and reduce condensation of moisture that can lead to mold growth.
- Locate and remediate water stains or discoloration on the ceiling, walls, floors and window sills.
- Look around and under sinks for standing water, water stains or mold, which require immediate attention.
- Inspect bathrooms for standing water, water stains or mold.
- Do not let water stand in air-conditioning or refrigerator drip pans.
- Check the mechanical room and roof for unsanitary conditions, leaks or spills.
- When cleaning spots and stains on the carpet, prevent excess moisture or cleaning residue accumulation and ensure that the cleaned area is dried quickly.
- In areas where there is a perpetual moisture problem, do not install carpeting (i.e., by drinking fountains or sinks).

Green the Way You Clean

Children's bodies and brains are still developing and are vulnerable to pollutants that may not affect adults in the same way. Currently, there are no federal standards for indoor air pollutants and existing research is based on adult body weight.

By using environmentally-friendly ingredients, you not only protect the health of your students and staff, but also preserve the environment. Review the list of ingredients of current cleaning products. Phase out cleaning products that are harmful to people's health. Replace with effective and cost-comparable environmentally-friendly cleaning products.

Before You Insulate...
Check for condensation to avoid mold growth

Good To Know...
One in every three cleaning chemicals used in schools causes environmental or health problems!

Protect Indoor Air Quality
If you're painting, use no-VOC paint to reduce off-gassing. Also, when insulating, avoid spray foam that contains high VOCs, which will off-gas for a long time. Off-gassing VOCs can impact health for years after the smell goes away and are especially harmful to those with asthma and/or a compromised immune system.

In choosing new products, look for phrases such as "non-toxic," "fragrance-free," "biodegradable," "chlorine free," and "free of artificial colors." You can find a list of pre-certified product names and manufacturers at www.greenseal.org. Baking soda and vinegar often make great, cheap, green cleaning products. Try to use them whenever you can.

Electronics and Machines

From computers, to printers, to microwaves, machines are an integral part of our educational, work, and home environments. These tips will help you save money and resources in your facility.

- Turn off computers. A computer left on after working hours can cost $100 a year. When not in use, turn monitors off.
- Use ENERGY STAR appliances, which are rated for energy savings. Go to **www.energystar.gov** for more information. According to the United States Environmental Protection Agency (EPA), ENERGY STAR kitchen and commercial food service equipment only use about half as much energy as conventional models. This can add up to savings of as much as $140/year for refrigerators; $100/year for freezers; $280/year for hot food holding cabinets; and $450-$820/year for steam cookers.

ENERGY STAR

ENERGY STAR, a U.S. government program, now rates office equipment such as faxes, printers and computers. Consider ENERGY STAR rated office equipment when replacing old equipment. In some cases, rebates from suppliers of ENERGY STAR equipment are available.

- Purchase green computers, TVs and other electronic equipment. The Electronic Product Environmental Assessment Tool (EPEAT) offers a way to evaluate, compare and select electronic products based on their environmental attributes. Visit **www.epeat.net** for details.
- Recycle or donate electronics to keep them out of the landfill and recover valuable components for making new computers. Visit **www.e-stewards.org** to find a responsible recycler who has been qualified as upholding the highest standard of environmental and social responsibility.

Are You Eligible for ACT 129 Rebates?

Installing some energy saving appliances makes nonprofits in Bucks, Chester, Delaware, Montgomery and Philadelphia Counties eligible for certain credits and rebates. (Please visit **www.pecosmartideas.com** for the latest information, restrictions, and eligibility):

- Install a high-efficiency natural gas furnace or boiler and receive a $300 rebate (provided funding is available).
- Participate in the "Smart A/C Saver" program and receive up to $120 in PECO bill credits per year. Technicians will install programmable thermostats throughout your center.
- Monetary incentives are available for equipment upgrades and improvements that include HVAC, lighting, refrigeration and food services.

Big Picture, Big Projects

Our way of managing resources and considering the environment is changing. Over time, more government funding may become available for major energy saving improvements.

Cool roofs

These roofs are coated with a white or light-colored material so that they reflect heat. This saves on A/C costs and helps the roof last longer. (To learn more, see www.consumerenergycenter.org/coolroof or www.coolroofs.org.)

Green roofs

A green roof uses plants to insulate against heat and cold. Green roofs save on heating/cooling costs, can double the life of your roof, and reduce storm water run-off. (See www.greenroofs.org.) They are also a great excuse to start a garden on your roof, which can provide environmentally friendly vegetables and herbs year round. Gardening could also be a great activity to do with both children and adults your nonprofit serves.

Solar water heaters

Install a solar water heater to assist in meeting your building's hot water demand.

Ground source (geothermal) heat pumps

Geothermal pumps draw energy from below ground—where stable temperatures are higher than air temperature in the winter and lower in the summer— and send the earth-warmed or -cooled air into a building.

Although the earth's temperature may vary depending on the geographic location, using heat pumps will likely make your facility at least 20 degrees more moderate, either cooler or warmer, than air temperature for that location. This reduces the amount of fossil fuels you would need to manage indoor temperatures. (For more information, visit the International Ground Source Heat Pump Association: www.igshpa.okstate.edu/geothermal/faq.htm).

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Possible Rebates and Loans

Financing resources for energy saving measures may also be available through your local utility company. For example, in the greater Philadelphia region, PECO's Smart Ideas program offers rebates for solar installations and energy efficient retrofits.

In addition, the Greenworks Loan Fund administered by Philadelphia Industrial Development Corporation provides low-interest loans to support energy efficient building retrofits, energy efficient machinery and equipment purchases; building-sited renewable energy systems, and energy efficient building practices in new construction projects. Visit www.pidc-pa.org for more information.

Light shelves

Install light shelves near tops of windows. A light shelf is a reflective panel, usually installed both inside and outside a window, which directs light onto the ceiling. It can almost double the amount of light coming from a window and reduce the need for electric lights.

Photovoltaics

Solar cells, currently in the form of either roof panels or free-standing arrays, convert sunlight into electricity. They offer an environmentally important alternative to coal-generated electricity. Although the technology is improving rapidly, it's still rather expensive and imperfect. Therefore, it is extremely important to find a reputable installer.

Solar tubes

Install solar tubes in appropriate places on the roof to increase access to daylight and decrease the need for electric lighting. Such highly reflective tubes may be installed with manual shades to reduce excess sun during key periods (e.g. naptimes).

Special thanks to Ridge and Valley Charter School and photographer Chasi Annexy for all photos in this booklet. Ridge and Valley, an NFF client, is a New Jersey-based, tuition-free public elementary school for children ages K-8. The school is dedicated to Earth literacy, sustainability, experiential outdoor education and child-centered learning.

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About Nonprofit Finance Fund®

As one of the nation's leading community development financial institutions (CDFI), Nonprofit Finance Fund (NFF) makes millions of dollars in loans to nonprofits and pushes for fundamental improvement in how money is given and used in the sector. Since 1980, we've worked to connect money to mission effectively so that nonprofits can keep doing what they do so well.

We provide a continuum of financing, consulting, and advocacy services to nonprofits and funders nationwide. Our services are designed to help great organizations stay in balance, so that they're able to successfully adapt to changing financial circumstances—in both good and bad economic times—and grow and innovate when they're ready. In addition to loans and lines of credit for a variety of purposes, we organize financial training workshops, perform business analyses, and customize our services to meet the financial needs of each client. For funders, we provide support with structuring of philanthropic capital and program-related investments, manage capital for guided investment in programs, and provide advice and research to help maximize the impact of grants.