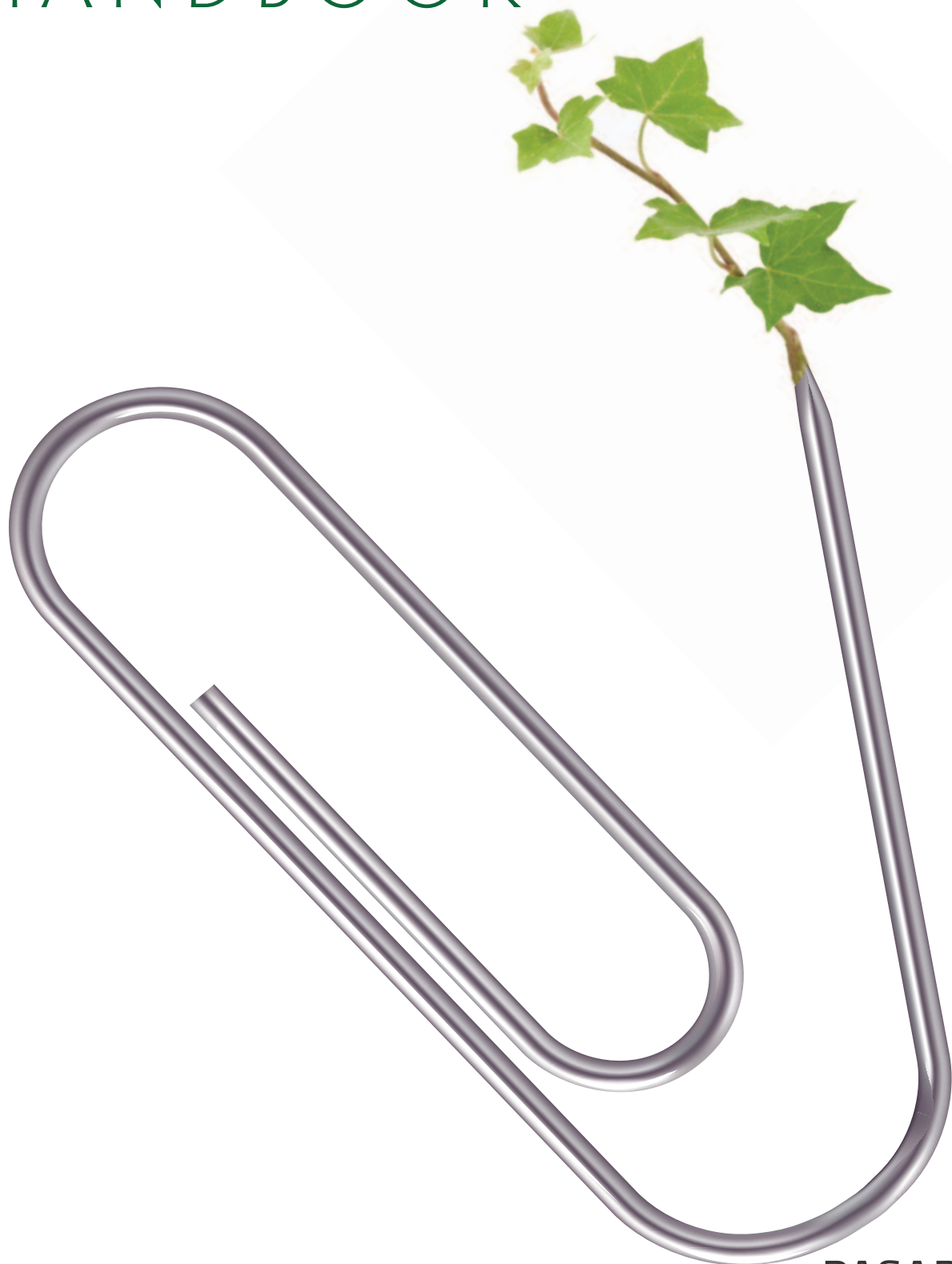


The Sustainable Office HANDBOOK



SUSTAINABLE BUSINESS PRACTICES
FOR THE TYPICAL OFFICE

PASARROYO


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Introduction

This Sustainable Office Handbook offers tenants specific ways to green operations within a typical office environment. It takes the user step by step through assessing current policies and practices, greening these policies and practices and then tracking and reporting progress. By following these guidelines, businesses can improve efficiency and cut costs while conserving natural resources. Many businesses have found that reducing the amount of solid waste and conserving natural resources, such as energy and water, can result in cost savings and improve the work environment, thereby increasing employee retention rates and enhancing worker productivity and satisfaction.¹

This handbook focuses on sustainability practices in six areas as well as specific steps to help you create a customized sustainability program for your office. The six areas include:

- Office Paper Usage
- Energy Consumption
- Purchasing
- Water Consumption
- Recycling
- Transportation

Create a “Sustainable Office” Program

This handbook provides six steps to help businesses develop and implement a plan to green their office operations.²

1. Assess existing policies and practices, utilizing employee input.
2. Set goals for improving current operations.
3. Create and implement a plan of action to achieve the established goals.
4. Educate employees about the sustainability plan and adopted goals.
5. Track and evaluate progress to ensure plan implementation and goal achievement.
6. Recognize the achievements of staff and participants in implementing the program and working toward achieving the program’s goals.



¹ Georgia Department of Sustainability *Sustainable Office Toolkit* <http://www1.gadnr.org/sustain/toolkit/index.html>

² These six steps are based on ENERGY STAR's Guidelines for Energy Management https://www.energystar.gov/index.cfm?c=guidelines.guidelines_index.



Step 1. Assess Current Practices

Information gathering is an important first step in the development of any environmental program. There are three main questions to ask when assessing current practices:

What is currently being done?

It is important to gather information on current policies and practices to establish baseline measurements before implementing a new program. Collect data on the sustainability efforts of the office and the programs and policies of building management. The information collected will depend on the initiatives being considered and the level of detail needed. This handbook provides further guidance on the data to collect for establishing baselines and tracking progress across six main categories: Office Paper, Purchasing, Recycling, Energy, Water and Transportation.

What has been done in the past?

Determine what initiatives have been attempted in the past, why they might have failed and if any of these might be considered again in the future. Gathering this information will save time and ensure the plan that is developed focuses on realistic environmental efforts.

What sort of initiatives will employees support?

Conduct a survey to gauge the environmental practices that could be most supported among office workers. A survey encourages employee input on the direction the office's sustainability program will take. Employees are key to implementation. Understanding the environmental efforts they support is an integral part of developing the program. Sample survey questions are provided in Appendix 1.

Step 2. Set Goals

The next step is to set goals for improving current operations. Tackling all opportunities at once can be difficult. Therefore, focus on the operations and/or activities that have the greatest impact on the environment. For example, in most offices, paper use is a significant expense and generates a large amount of waste. Thus, an office might set an aggressive goal to reduce paper use. Prioritize initiatives by establishing selection criteria and then ranking the importance of each initiative. Some examples of selection criteria to consider include:



- What are the potential cost savings?
- Could success be achieved quickly to generate enthusiasm about the program?
- What initiatives could be implemented to use resources (water, energy, materials, etc.) more efficiently?
- What initiatives are already supported by the property manager?
- What initiatives have strong employee support?

Guidance for setting specific goals is provided for each of the six categories discussed in this handbook. In general, goals should be measurable, challenging and attainable.

Step 3. Create and Implement a Plan of Action

Once a goal has been set, the next step is to outline a plan of action to achieve these goals. A successful plan will incorporate a variety of best practices to provide a multi-point approach to achieve the desired goal. For example, if an office sets a goal to reduce paper use by 25%, the following could be implemented:



- *Policy:* Set a policy and procedure to file documents electronically instead of in paper form.
- *Practice:* Set all printers to automatically duplex.
- *Education:* Educate employees on ways to print less by reducing the size of margins, emailing documents like newsletters, presentations and handouts instead of printing copies for distribution and signing up for electronic versions of newsletters and magazines instead of printed versions.

By incorporating a variety of best practices, office workers are engaged in a multifaceted approach (policy, practice and education) to achieving sustainability goals. For each of the six categories discussed in this handbook, specific policies, practices and education efforts are offered to assist in the development of your plan.

Step 4. Educate and Inform

Before implementing any program, it is important to communicate the plan and goals with employees. This communication engages employees in your company's mission and encourages participation to work toward achieving goals. The following are ways to involve employees in the kick-off and implementation of the plan:



- Information and encouragement should be coming from the top of the organization, as employees often trust the words and actions of company leadership and may thus be more willing to participate.
- Designate a point of contact for office efficiency efforts – someone to make decisions and to answer questions. Make sure employees know who this person is and how to contact him/her.
- Develop a slogan and/or logo for your program. This helps provide a common thread to link the initiatives as they are introduced and reminds employees of your company's sustainability efforts.
- Educate employees about how they can participate: where the recycling bins are located, what items to recycle, new policies that have been implemented and employee roles and responsibilities. Staff meetings can be a good time to discuss the new efficiency program and encourage employees to ask questions.
- Hold competitions between individuals, groups or departments to foster employee participation.
- Provide educational resources to employees on office sustainability practices. Examples include materials available from The Environmental Protection Agency (EPA), ENERGY STAR® and WaterSense®. Such resources can be shared with employees via email distribution, an office intranet site or displayed in common areas like break rooms and copy rooms.
- Regularly send emails to staff with updates on progress, as well as new environmental initiatives. Use online calculators such as the Greenhouse Gas Equivalencies Calculator provided by the EPA to communicate progress in relatable metrics, such as equivalent number of cars taken off the road.³
- Ensure building management and maintenance staff are made aware of any new programs that could affect them.

³ A list of environmental calculators is available through the Georgia Department of Natural Resources Sustainability Toolkit resources page at http://www1.gadnr.org/sustain/toolkit/resources_environmental_calculators.html. US EPA Greenhouse Gas Equivalencies Calculator <http://www.epa.gov/cleanenergy/energy-resources/calculator.html>

Step 5. Track and Evaluate Progress

Collecting and reporting data on your office's implementation efforts is necessary in order to evaluate progress and make appropriate adjustments. This data can be used to inform leadership of the benefits of the plan and demonstrate to employees the successes of efficiency efforts. Benchmarking progress will show which sustainability initiatives are on track toward achieving respective goals and which, if any, initiatives should be reevaluated. The following are ways to collect and report data. Further details on what types of information to collect are described in each of the six sustainability categories.



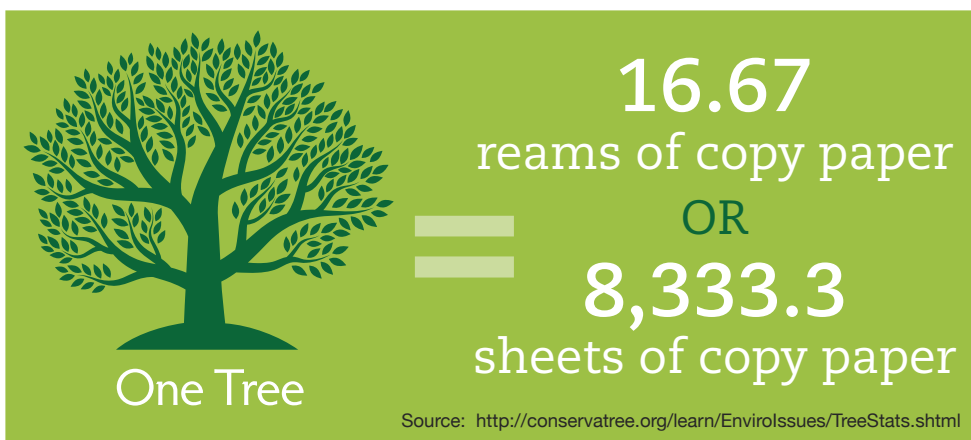
- Determine what data will effectively track progress toward goals. For example, to monitor paper reduction, record the amount and cost of paper purchased monthly. Use a spreadsheet or work with your office supply vendor to record collected data.
- Publish goals to hold employees accountable for the successes or failures of the new programs.
- Publish progress reports regularly, such as quarterly or annually, so employees can view tangible evidence of the impact of their actions. Report related financial savings. If one of the office's goals is to achieve external recognition, then measuring the success of the program will provide documentation needed to promote the activities and accomplishments of the office.
- Distribute a follow-up survey to employees to gather feedback after implementing the plan. Potential questions for this survey are provided in Appendix 2.

Step 6. Recognize Achievements

Acknowledge employee achievements to positively reinforce participation in and continued support for the office's sustainability plan. Recognition of individuals, groups or departments implementing the office's green initiatives demonstrates to other staff members the value of program participation. Leadership should also consider pursuing outside recognition of the office's efforts. The suggestions below are ways to acknowledge employees and identify opportunities for external recognition:

- Publicly acknowledge those employees who go above and beyond by touting their efforts at meetings, via email, on the company's Intranet or through other employee activities/events. For instance, develop an Energy Saver award to be given to those employees who remember to turn off their computers and lights every day for a week.
- Incentivize participation through competition and rewards, such as a \$5 gift card for coffee or some other small gift or benefit. This readily reinforces positive behaviors and encourages employee participation.

- Prominently display office improvements. If office participants view their actions as effective, they are more likely to participate. An example would be to visibly track paper reduction by displaying in common areas posters that depict a tree that can be shaded in as the office closes in on achieving its goal, similar to graphics that track progress toward meeting fundraising goals.
 - Consider rewarding employees for achieving a goal with an activity or event funded by part of the program's savings.
 - If the implementation of a program increases the responsibilities of an employee, consider rewarding or further compensating him/her for facilitating the success of the program.
- 
- Work with building management to establish a recognition program for tenants to encourage implementation of sustainable practices throughout the building. By implementing a building-wide culture of sustainability, operating costs are reduced and the potential for external recognition is increased.
 - Research local, regional and state organizations for potential business recognition programs. Many states have pollution prevention programs available for businesses to improve operating efficiency and, in turn, recognize high-achieving partners.
 - Check with local green chambers of commerce or green business associations to identify potential recognition opportunities and exchange ideas with other businesses that are greening operations.



Six Environmental Performance Areas



1. Office Paper Usage

According to Earth911, the average office worker uses 10,000 sheets of copy paper a year.⁴ In addition to purchasing costs, a company also incurs storage, copying, printing, postage, shredding, disposal and recycling costs for the paper used. Reducing paper use makes financial sense and can have a large impact on the environment – each ton of paper recovered saves 3.3 cubic yards of landfill space.⁵

Assess Current Practices

- How much paper is used by the office each month? This can be determined using previous purchasing invoices.
- What policies are in place already to reduce paper use?
- Is electronic filing in use?
- Do the office printers duplex (print on both sides of the sheet)?
- Where is most of the office paper used? Examples may include meeting handouts, client mailings and document filing.

Set a Goal

- Determine a challenging yet attainable goal for paper reduction. The EPA states that reducing total paper use by 25% is an attainable goal for most offices.⁶
- Establish a goal to reduce the amount of paper purchased.
- Take the [Recycling at Work Pledge](#) sponsored by Keep America Beautiful.⁷

Create and Implement a Plan of Action

- **Potential Policies**
 - Implement an electronic filing policy.
 - Adopt a paperless policy that suits the needs of your office. Examples include paperless meetings, electronic invitations and announcements in lieu of mailings and online newsletter distribution.
- **Practices**
 - Maximize the default options available on office printers: utilize the duplex option, print all documents in black ink and set ink resolutions to 300 dpi (dots per inch) or select a light ink level option such as draft, ink saver or economy.

⁴ Earth911, *Paper Recycling at Work* <http://earth911.com/recycling/paper/paper-recycling-at-work/>

⁵ America's Forest & Paper Association, *Recycling: It Starts with You – A Guide to Recycling at Work*

⁶ U.S. EPA Pollution Prevention, *Why Should You Care about Preventing Waste?* <http://www.epa.gov/p2/pubs/assist/sbg.htm>

⁷ Keep America Beautiful, *Recycling at Work Pledge* <http://americarecyclesday.org/pledge-recycling-at-work/>

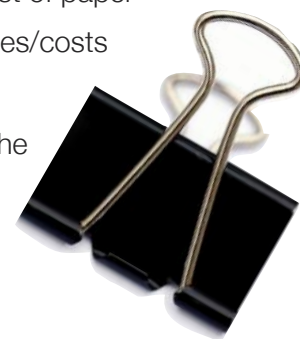
- Always review a document with Print Preview to find and correct mistakes before printing. Reduce margins and font size to maximize the amount of content able to fit on each page.
- Reuse as note paper any paper that has been printed on only one side to reduce the use of notebooks and legal pads.
- Email newsletters, presentations and handouts instead of printing copies for recipients.
- Remove your company name from mailing lists and stop junk mail. This can be done by registering on the [National Do Not Mail List](#) and/or by managing mailing subscriptions through [DMAchoice](#).⁸
- Think twice before printing a document or sharing a printed document. Encourage employees to save documents as PDFs that can be sent and filed electronically.
- Keep copiers and printers in good repair.
- When printing a webpage, copy and paste the link into [PrintWhatYouLike.com](#) to optimize the webpage for printing. Use software, such as [GreenPrint](#), which analyzes documents searching for ways to reduce waste.⁹
- When printing a large number of copies is required, try a test run first to make sure there are no mistakes before printing the entire quantity.

■ Education

- Develop a quick reference guide for employees on ways to reduce printing by implementing the practices above.
- Ask employees for their favorite paper-saving tips. Pick a few to share with the office and acknowledge the tip creators.
- Distribute any policies that are adopted and send employees a short quiz on policy details. Randomly draw a winner from those who answered all the questions correctly and reward him/her with a small prize.

Track Progress

- Obtain paper purchasing records and establish a baseline of the quantity and cost of paper purchased for each month of the previous year. Track current and future quantities/costs and compare to baseline.
- Ask recycling and off-site paper shredding vendors to track and report monthly the weight of the office's paper recycling.
- Use paper calculators to explore the environmental effects of different paper types.¹⁰



⁸ Registration on the National Do Not Mail List can be accessed at www.directmail.com/junk_mail. DMAchoice is an online tool developed by the Direct Marketing Association to help consumers manage their mail and can be accessed at <http://www.dmchoice.org>.

⁹ GreenPrint software solutions for optimizing printed documents <http://printgreener.com>.

¹⁰ Environmental Paper Network *Paper Calculator* <http://calculator.environmentalpaper.org/home>

2. Purchasing

Greening an office's purchasing practices is an effective way to improve efficiency. Before making purchases, determine if an item is truly necessary and whether the item has already been purchased. For example, before purchasing a stapler, ask employees if there is an extra stapler not in use. Ideally, items purchased will be reusable. If a reusable version is not available, choose items that are recyclable and/or made from post-consumer recycled content. By following these guidelines, a business can reduce its demand for virgin materials, use resources more efficiently and influence the market for greener products.



Assess Current Practices

- What green purchases are already being made?
- What items are being purchased repeatedly? Can the quantity typically purchased be reduced?
- Can single-use items be purchased in a more durable form?
- What items can be shared among workers?
- Are there items that can be fixed rather than replaced?
- Are there chemicals in the items being purchased (such as cleaning products, furniture and building materials) that are harmful to humans or the environment?

Set Goals

- Reduce the purchase of common office supplies (such as pens, paper clips and pencils) by a specific percentage.
- Identify single-use purchases that can be replaced with reusable items and set a goal to reduce single-use purchases by a specific percentage.
- Identify what percentage of new office furniture items could be purchased secondhand and set a goal to reduce new office furniture purchases in favor of purchasing secondhand products.
- Identify local businesses that can meet the office's product and service needs. Set a goal for a specific percentage of purchases to be locally sourced. By purchasing locally, the office supports the local economy and reduces the cost and environmental impact of the transportation of goods.

Create and Implement a Plan of Action

- **Potential Policies**
 - Develop an environmentally preferable purchasing (EPP) policy. The EPA offers guidance on developing EPP policies at www.epa.gov/epp. Purchasing guidelines that can be included in this policy include a

preference for recycled content and recyclable products, buying local, purchasing secondhand furniture and purchasing reusable items instead of single-use items.

- Develop green specifications or language for incorporation into contracts with clients and vendors.

■ Practices

- Instead of single-use items such as conventional batteries, paper or Styrofoam cups and plates, disposable utensils and disposable water bottles, purchase reusable items, including rechargeable batteries, ceramic mugs and plates, glasses, insulated cups, stainless steel utensils, reusable coffee filters and an ENERGY STAR-labeled water cooler or purified water system.
- Buy refillable ink and toner cartridges, pens, tape dispensers and pencils.
- Buy in bulk to reduce excess packaging and transportation costs.
- If an item can be shared among employees (e.g., printers, three-hole punches, traveling display boards, etc.), purchase fewer such items and work with employees to centrally locate the items in the office.
- Verify the specifications from suppliers of products claiming any “green” element.
- Purchase biodegradable trash bags, trash bags made from recycled content or liners less than 0.7 mils thick.
- Consider disposition at product acquisition. This includes inquiring about “take-back” programs at purchase of goods, such as electronics, lamps, carpet and ceiling tile.
- Buy local—this supports the local economy and reduces transportation impacts.
- Unify product purchasing where possible to reduce the number of deliveries to your office.
- Choose items made from rapidly renewable resources, such as bamboo, cork, wheat board, straw board, linoleum and agrifiber.
- Purchase ergonomic office equipment. Or, have an ergonomist come in to properly adjust furniture for employees. Being environmentally conscious is also about creating a healthy workspace.



- Purchase products with low volatile organic compound levels, such as carpet, furniture, paints and more. Volatile Organic Compounds (VOCs) are gases emitted from new building materials that combine with nitrogen oxides to create ozone pollutants. Because these greenhouse gases can cause health problems when inhaled, purchasing low-VOC products can improve indoor air quality and contribute to a healthier workplace.

- Look for certified third-party sustainability labels on products when making purchases:
 - **Green Seal Certified®** – Green Seal provides a third-party certification for environmentally friendly products and services. Labeled products include cleaning products and services, paints, paper, disposable goods like paper towels and plates, food packaging materials, personal care products like hand soap and construction materials and equipment.
 - **Forest Stewardship Council® (FSC)** – FSC certifies wood products that are derived from responsibly managed forests. Such goods include paper, furniture, building materials and other products made of forested materials.
 - **ENERGY STAR** – The EPA labels items that are more energy efficient than their unlabeled counterparts. ENERGY STAR-labeled products include appliances, electronics, light bulbs, building products and more.
 - **WaterSense** – The EPA labels items that are more water efficient than their unlabeled counterparts. WaterSense products include toilets, urinals, faucets, showerheads and irrigation controls. Water utilities often provide rebates for the purchase and installation of these items to promote water conservation efforts.
 - **Design for the Environment (DfE)** – This EPA program identifies cleaning and other products that perform well and are safer for people and the environment.



■ Education

- Educate employees about new purchasing policies and how these policies will be implemented.
- Encourage employees to set up an office supply exchange where unused office supplies can be shared throughout the office.
- Challenge employees to identify single-use office supplies that can be replaced with reusable products and reward the employee or department that has the greatest reduction in single-use product purchases.

Track Progress

Obtain purchasing records and establish a baseline of the quantity and sustainable attributes of the various products purchased for each month of the previous year. Track current and future quantities/costs and compare to baseline.

3. Recycling

Recycling prevents waste from entering landfills and reduces the demand for natural resources needed to create products from virgin materials. Purchasing just 20 cases of 100% recycled paper instead of paper made from virgin materials saves the equivalent of 4,100 kWh of energy, 7,000 gallons of water, 60 pounds of air emissions, 390 gallons of oil and eight cubic feet of landfill space.¹¹ EPA estimates that only 30% of waste is recycled even though about 70% of waste is recyclable. By implementing a recycling program, an office can greatly reduce the amount of waste sent to landfills and reduce its impact on the environment.



Assess Current Practices

- Analyze the office trash stream. This may entail conducting a waste audit to determine what is being thrown away that could be recycled.
- Consult building management about the availability of recycling programs for consumables (paper, glass, plastics, cardboard, batteries, food waste and metals), electronics, appliances, furniture, lamps/bulbs and ink and toner cartridges.
- If a recycling program is already in place, what are the recycling guidelines for the program? For example: Do the items need to be separated or is it single stream? Where are the recycling locations for the different types of recyclables?
- Work with building management to identify the current recycling rate for the building and the office. Calculate the recycling rate by dividing the total amount recycled by the total waste stream (total discarded and total recycled).

Set Goals

- Consider setting a goal to reduce the overall waste stream (recycling and trash) by a set amount.
- Set a challenging yet attainable recycling rate. Consider what percentage of the waste stream can be recycled and consider setting a number close to this as the office goal.
- Encourage employees to set team or departmental goals.

Create and Implement a Plan of Action

- **Potential Policies**
 - Require the document destruction vendor to recycle shredded paper and to send monthly reports on the weight of this recycled paper. Share this with building management to boost the building's recycling rate.

¹¹ San Mateo County, CA Recycle Works: *Why Buy Recycled?* http://www.recycleworks.org/paper/paper_wbr.html

- Adopt a policy to donate durable items instead of sending these items to the landfill. Identify a list of local charities and organizations that accept office furniture, office equipment, appliances and other durable goods donations to assist in the implementation of this policy.

■ Practices

- Donate or recycle any old or broken electronics.
- Use Earth911.com to search for recycling facilities for anything not handled by building management.
- Put recycling bins in visible, convenient locations where the most trash is generated (copy rooms, near printers, break rooms, etc.) and next to trash cans. Convenience and education are the keys to a successful recycling program.
- Distinguish recycling bins from trash cans. Avoid using black trash liners in recycling bins, as both employees and maintenance workers may then mistake them for trash cans. Do not use any liners at all in recycling bins to prevent more waste from being created. If a liner is needed, use a clear or blue liner. To ensure in-office shredded paper is recycled, also use either a clear or blue liner in shredders.
- To reduce bottled water waste, add a water filtration system to your tap or install an ENERGY STAR-labeled water dispenser, if no tap is available. Utilize reusable glassware instead of disposable cups.

■ Education

- Educate employees about recycling guidelines, including what items can be recycled, whether items must first be rinsed and other common program questions. Consider developing a frequently asked questions document to provide employees with answers to commonly asked questions about the program. Contact building management for assistance. Most recycling companies have free literature and/or will host tenant/employee recycling education events.
- To help prevent contamination, clearly label with text and pictures which items can be recycled in each bin.
- Encourage employees to use coffee mugs, cloth napkins and reusable lunchboxes and containers instead of disposable goods like paper/plastic cups, plates, napkins and bags.

Track Progress

- Ask waste and recycling service providers to provide monthly reports tracking the progress of the office waste reduction efforts. If reports are not available, conduct an audit of the office's waste stream on a quarterly basis to track progress.
- Join the [EPA WasteWise Partnership](http://www.epa.gov/epawaste/conservesmm/wastewise/index.htm), at no cost, to gain access to resources and tools to reduce and track office solid waste.¹²
- Take the [Recycling at Work Pledge](http://recyclingatwork.org/pledge-recycling-at-work/) sponsored by Keep America Beautiful.¹³

¹² EPA WasteWise Program <http://www.epa.gov/epawaste/conservesmm/wastewise/index.htm>

¹³ Keep America Beautiful, Recycling at Work Pledge <http://recyclingatwork.org/pledge-recycling-at-work/>



4. Energy Consumption

Businesses can reduce energy usage and costs by implementing simple no-cost and low-cost measures. Often, outside of business hours, energy is still being consumed by electronics that have been left on or plugged in. Phantom load is the energy used by appliances and electronics when plugged in; many of these devices even consume energy when in standby mode or turned off.¹⁴ These devices include TVs, chargers, coffee makers, computers, copiers, printers and most electronic devices with a plug. Office plug loads account for up to 20% of an office energy bill and phantom electricity can account for

one-fifth of this usage. Other energy-consuming devices and appliances to evaluate for energy use are refrigerators, vending machines, water coolers, fans, task lighting, personal clocks and radios. Eliminating phantom loads and improving the energy efficiency of appliances and electronics can significantly reduce an office's energy use and costs.

Assess Current Practices

- Assess the uses of office electronics to determine which electronics can be turned off when not in use, which can be turned off at the end of each work day and which can be turned off on Fridays before the weekend.
- Do employees have radios, personal fans or clocks, which can contribute to increased plug load?
- Ask IT what types of energy-efficiency measures are currently in use and what could be evaluated for implementation.
- Are there appliances currently in use that could be replaced or modified to improve energy efficiency? Specific appliances to consider include refrigerators/freezers, coffee makers, microwaves, toaster ovens, water coolers and vending machines.
- Are there measures to ensure lights are turned off when not in use?
- Could office furniture and cubicle walls be rearranged or redesigned to maximize natural daylight?

Set Goals

Set energy reduction goals. For example, aim to reduce electricity use by 8%.

Create and Implement a Plan of Action

- **Potential Policies**
 - Adopt a lights out and power down policy regarding office lighting and/or electronics when not in use—for both employees and the janitorial contractor.

¹⁴ Sator, Spencer. (2008, June). Managing Office Plug Loads. *Energy Manager's Quarterly*.

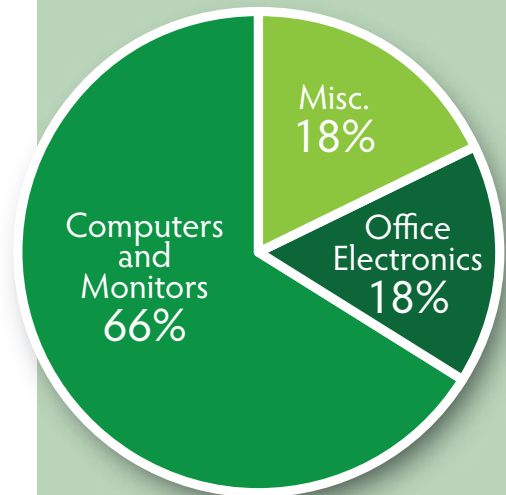
- Adopt a policy to purchase ENERGY STAR-labeled products when replacing existing or purchasing new electronics and appliances.

■ Practices

- Work with building management to install occupancy sensors or other lighting controls to ensure lights are turned off when not in use.
- Work with building management to ensure the most energy-efficient lamps are being used.
- Work with IT staff to improve the energy efficiency of office computers. Consider installing Energy Management Option (EMO) software that will automatically shut off, log off, hibernate or restart computers based on a schedule. ENERGY STAR's free **EZ GPO software tool** centrally manages Windows power settings by leveraging Active Directory and Group Policy Objects (GPOs).¹⁵
- Identify ways to improve data center efficiency. Refer to ENERGY STAR's *Top Twelve Ways to Decrease the Energy Consumption of Your Data Center*.¹⁶
- Work with employees and IT staff to restore computer defaults to the most energy-efficient modes. Other settings to consider include discouraging the use of screen savers, disabling wireless and Bluetooth functions when not in use and reducing screen brightness.
- Ensure the sleep setting is enabled for all printers, copiers, fax machines and other business electronics.
- Consider using "smart" power strips to reduce the power consumed by task lighting, computer accessories and other miscellaneous plug loads when not in use. There are three types of "smart" power strips to consider when choosing the best option for controlling plug loads¹⁷:

- **Timer-equipped power strips** have outlets controlled by programmable timers that can be scheduled to automatically turn off or on the electronics plugged into them.

Energy Consumption of Office Electronics



According to research conducted on office energy use for the California Energy Commission, plug loads consume an estimated 20% of total office electricity use. Computers and monitors account for two-thirds of this energy use, while office electronics (printers, copiers, computer speakers, external drives, etc.) and miscellaneous devices (paper shredders, adding machines, desk lamps, telephones, coffee makers, etc.) account for the remaining one-third of energy use.

Source: Adapted from California Energy Commission *Office Plug Load Monitoring Report, 2011*

¹⁵ ENERGY STAR *EZ GPO* http://www.energystar.gov/index.cfm?c=power_mgt.pr_power_mgt_ez_gpo

¹⁶ ENERGY STAR *Data Center Energy Efficiency Strategies* http://www.energystar.gov/index.cfm?c=power_mgt.datacenter_efficiency

¹⁷ ENERGY STAR *More IT Energy Saving Tips* http://www.energystar.gov/index.cfm?c=power_mgt.pr_power_mgt_more_tips

- **Occupancy-sensing power strips** have outlets that are controlled by a motion detector and devices plugged into them can automatically turn off or on in response to the worker's physical presence, or after a user-defined period of time elapses.
- **Current-sensing power strips** can automatically turn several outlets off or on when they detect that a monitor (plugged into the “master outlet”) either enters a low-powered sleep mode, is turned off or is turned on.

- Where applicable, work with building management to install a programmable thermostat and utilize energy-saving temperature settings.¹⁸
- Set the temperature in refrigerators and freezers to optimal temperatures. The EPA recommends setting refrigerator temperatures to 37°F and freezer temperatures to 3°F to conserve energy while maintaining food safety temperatures.
- Regularly clean out refrigerators and freezers to improve air flow and cooling efficiency.
- Keep lights and lamps dust-free to maximize lighting efficiency.
- Allow natural daylight into work spaces by rearranging furniture and opening blinds.
- Investigate and leverage any local utility company incentives.



■ Education

- Encourage employee participation in identifying and reducing energy use by purchasing a device that measures electricity use, such as the Kill A Watt™ EZ kWh Monitor, and have employees assess the energy use of electronics in their office spaces. Provide employees with tips on how to reduce the energy use of these devices and have a competition between employees or departments to reduce phantom load energy use by implementing as many of these energy-saving tips as possible.
- Label electronic devices with instructions for users regarding when to turn them off and/or unplug them (e.g., when not in use, at the end of each work day or on Fridays before the weekend).

Track Progress

- If energy use is submetered, establish a baseline of energy use for each month of the previous year. Track current and future energy usage and compare to baseline.
- Calculate estimated energy consumption, operating costs and the potential energy savings with the **ENERGY STAR calculators** for office equipment, appliances, vending machines, programmable thermostats and other electronics.¹⁹
- Use **calculators** available through the U.S. Department of Energy to estimate energy and cost savings of energy-efficient products.²⁰

¹⁸ ENERGY STAR, *Programmable Thermostats* http://www.energystar.gov/index.cfm?fuseaction=find_a_product.showProductGroup&pgw_code=TH

¹⁹ ENERGY STAR *Purchasing and Procurement*, Step 4: Estimate Your Potential Savings http://www.energystar.gov/index.cfm?c=bulk_purchasing.bus_purchasing.

²⁰ U.S. Department of Energy Federal Energy Management Program *Energy and Cost Savings Calculators for Energy-Efficient Products* http://www1.eere.energy.gov/femp/technologies/eep_eccalculators.html

5. Water Consumption

Improving water efficiency reduces the amount of water consumed and also the energy needed to transport and heat water. Benefits of water conservation include reduced water and sewer costs and contributing to the protection of drinking water supplies and aquatic habitats.

Assess Current Practices

- Conduct a water audit to identify leaks and evaluate the water use of toilets, urinals, sinks, showers and water-using appliances.²¹
- Where and how is water currently used in your space/operations?
- What water-efficient practices are currently in place?
- Are high-efficiency plumbing fixtures installed?
- Are automatic toilets and faucets operating at optimum performance? Do employees know how to report leaks and malfunctioning restroom or irrigation equipment?



A leaky faucet
can waste 100 gallons
of water a day.

Set Goals

After assessing current practices, identify opportunities to save water and, where plausible, set a goal to reduce water use by a specific percentage.

Create and Implement a Plan of Action

- **Potential Policies**
 - Adopt a policy to purchase water-efficient appliances and consider those with cycle and load size adjustments.
- **Practices**
 - Install water-efficient appliances where possible.
 - New air-cooled ice machines use less energy and water and make ice more quickly and efficiently than water-cooled ice machines.²²
 - Work with building management to evaluate low-cost retrofits to existing plumbing to save water and costs.
 - If automatic toilets are flushing too frequently or faucets stay on too long, contact building management to reset the sensors and modify the settings.

²¹ The Arizona Municipal Water Users Association developed the *Facility Manager's Guide to Water Management* to provide guidance on conducting water audits and it is available at http://www.amwua.org/pdfs/facility_managers_guide.pdf.

²² Alliance for Water Efficiency, *Ice Machines* http://www.allianceforwaterefficiency.org/Ice_Machines.aspx

- Use foam hand soap instead of traditional hand soap to reduce the amount of water used for rinsing.
- Encourage employees to scrape dishes clean instead of rinsing in water before placing them in the dishwasher and to only run the dishwasher when full.
- Investigate and leverage any local utility company incentives.

■ Education

- Educate employees about the reporting procedure for water waste or leaks. Inform employees regarding the various types of water waste, such as automatic toilets that flush too often, leaking faucets and broken sprinkler heads.
- Create reminder signage for employees in break rooms and kitchen areas to encourage them to utilize water-saving tips.
- Develop a suggestion and incentives program to encourage employees to share their own water-saving ideas.

Track Progress

If water use for the office is metered, obtain water bills and establish a baseline of the office’s water use for each month of the previous year. Track current and future water usage and compare to baseline. If water usage is shared with other tenants in the building, work with building management to track the building’s water savings.

High-Efficiency Plumbing Fixtures*

Toilets	1.28 GPF or less
Urinals	0.5 GPF or 0.125 (pint)
Public Lavatories	0.5 GPM
Pantry Faucets	1.5 GPM
Showerheads	2.0 GPM or less

GPF = gallons per flush GPM = gallons per minute

*Meet either these specifications or those of your local City code, whichever are more stringent.



6. Transportation

A company's carbon footprint includes its employees' commutes to work and travel to conferences and client meetings.²³ There are a variety of ways to reduce a company's greenhouse gas emissions – fewer trips, alternative transportation, telecommuting and compressed work schedules. Each gallon of gasoline adds about 20 lbs. of carbon dioxide to the atmosphere. Over one year, two trees are needed to absorb the carbon dioxide emitted by just one gallon of gasoline.²⁴

Assess Current Practices

- Ask building management about alternative transportation resources available through the local and/or regional transportation authority such as educational opportunities and financial incentives.
- Conduct a survey to see what types of alternative transportation policies or incentives employees would like to see implemented.
- How do employees travel to nearby client meetings (e.g., company vehicles, personal vehicle alone, carpool with others, walk, take transit, etc.)?
- How do employees commute to work and what alternative commute options would they consider?
- How often do employees travel by plane?

Set Goals

- Set a goal to increase the use of alternative transportation by employees commuting to work by a set percentage.
- Set a goal to increase the use of alternative transportation by employees attending nearby client meetings.
- Set a goal to reduce plane travel and instead use alternative conferencing technologies such as **GoToMeeting** and **Skype**.

Create and Implement a Plan

- **Potential Policies**
 - Adopt a commute options program for employees that may include telecommuting, compressed work week schedules and using alternative commuting options, such as vanpools, carpools, transit, biking and walking.²⁵

²³ Greenhouse Gas Protocol (GHG Protocol) <http://www.ghgprotocol.org/>

²⁴ U.S. Department of Transportation, *Public Transportation's Role in Responding to Climate Change 2009* <http://www.fta.dot.gov/documents/PublicTransportationsRoleInRespondingToClimateChange.pdf>

²⁵ A commute options program promotes choices that reduce the impacts of driving alone. For more information on commute options programs, visit www.commuteoptions.org.

- Based on the employee survey, what policies or programs can be established to encourage the use of alternative transportation? Alternative transportation is the use of any mode of transportation other than driving alone in a car, such as vanpooling, carpooling, riding transit, bicycling and walking.
- Develop a policy for business travel that provides clear guidance regarding when travel by plane is necessary versus when video conferencing technologies should be used. Also consider consolidating trips to meet with multiple clients in one trip versus scheduling multiple trips.

■ Practices

- Consider a bike share program for use by employees for trips during the work day.
- Partner with a car-sharing program, such as [Zipcar](#), to provide employees utilizing alternative transportation with access to a car for travel during the business day.
- Utilize video conferencing and software like [GoToMeeting](#) to meet with clients virtually in lieu of face-to-face meetings.
- Encourage employees to carpool or take transit to client meetings instead of driving alone. Employees can use online maps such as [Google Maps](#) to plan a route to a client meeting using public transit.²⁶
- Provide a way for those willing to carpool to find and communicate with each other, such as sending out an office-wide email about getting in contact with those willing to drive together.

■ Education

- Invite employees to a lunch-and-learn to educate them about the benefits of using alternative transportation for commuting to work and nearby client meetings, such as less stress and reduced commuting costs. Encourage employees to see how much they can save with carpooling by evaluating their commutes using a [carpool cost-savings calculator](#).²⁷

Track Progress

Many local and regional transportation authorities offer online surveys local businesses can use free of charge to track employee commuting patterns.

²⁶ Google Transit www.google.com/transit

²⁷ City of Baltimore, MD *Commute Cost and Emissions Calculator* <http://cityservices.baltimorecity.gov/RideShareCalc/>

Sustaining Progress

Once a company has implemented a sustainability program, it is important to keep employees engaged in the process long-term. By tracking the office's progress toward achieving each goal, the program can be evaluated for effectiveness while publicizing its successes. Below are suggestions on how to sustain the support of employees and further the office's environmental efforts:

- Periodically assess the office's progress toward achieving the established goals to determine if additional or alternative policies, actions or education efforts should be implemented.
- Listen to and address feedback and suggestions from office employees. Because employee participation is key to the success of sustainability initiatives, the provided feedback can be used to hone the program, increase employee involvement and maximize results.
- Apply for internal and external recognition programs to demonstrate pride in and commitment to the office's sustainability efforts.
- Plan events throughout the year that engage and remind employees about the sustainability program and goals.
- When rewarding employees with incentives and prizes, ensure these rewards reflect the overall goals of the program. For example, the items should be reusable, made of recycled materials, encourage a green practice at home or send another message that reinforces the sustainability efforts being implemented in the office.



APPENDIX 1

Sample Initial Survey Questions

- Please rank each of the six sustainability categories in order of importance to you, with “1” as the most important. Six categories: Paper, Purchasing, Recycling, Energy, Water and Transportation.
- What types of sustainability initiatives would you like to see implemented in the office?
- What environmentally friendly choices do you already make at the office? Do your coworkers make these same choices?
- What sustainability initiatives are currently being implemented that you would like improved? What improvements would you suggest?
- Do you recycle at the office? What would increase your participation in recycling (e.g., to have only a recycling bin at your desk, education about what is recyclable, etc.)?
- How do you currently commute to work?
- If a program were set up to encourage carpooling among co-workers, would you be interested in participating?
- How do you currently travel to meetings within driving distance?
- If available, would you use mugs and dishes over single-use cups, paper plates and plastic ware?
- Do you already make a conscious effort to recycle and use resources efficiently both at home and in the office?

APPENDIX 2

Sample Follow-Up Survey Questions

- What is the slogan/logo for the office’s environmental program?
- Do you know who to contact if you have questions or need more information on the sustainability program?
- Do you know where the recycling bins are located around the office? Do you know what can be recycled?
- Do you feel significant progress has been made in the office regarding waste, water use and energy use reduction?
- Do you support the new office sustainability policies?
- Have you implemented any environmentally friendly initiatives at home based on your involvement in the office sustainability program?
- Has your perspective regarding human impact on the environment changed due to the office’s sustainability program?
- Do you have any suggestions on how to improve one or more of the initiatives implemented?
- Do you have any suggestions regarding other areas in which you’d like to see the office improve its environmental impact?

APPENDIX 3

Resources

The NRDC (National Resource Defense Council) on Recycling has information available on recycling, including how to purchase recycled-content materials, educational information and sample recycling signs.

<http://www.nrdc.org/recycling/default.asp>

The EPA's ENERGY STAR website includes information on the ENERGY STAR program, how to improve office energy efficiency, what products receive the ENERGY STAR label and free educational resources for office employees. www.energystar.gov

The U.S. Department of Energy maintains a database of energy efficiency-related tax credits, rebates and savings by state. www.energy.gov/savings

The EPA maintains a list of national, state and local green building programs and funding opportunities.

<http://www.epa.gov/greenbuilding/tools/funding.htm>

The U.S. Department of Energy Database of State Incentives for Renewables & Energy (DSIRE) provides a list of state, local, utility and federal incentives and policies that promote renewable energy and energy efficiency. www.dsireusa.org

EPA's Waste Reduction Model (WARM) was designed for waste managers to calculate the benefits of alternative end-of-life waste management decisions. The tool recognizes 46 material types and can be used to track greenhouse gas emissions reductions and energy savings from several different waste management practices.

www.epa.gov/climatechange/wycd/waste/calculators/Warm_home.html

EPA's Recycled Content (ReCon) Tool was designed for companies and individuals to estimate life-cycle greenhouse gas (GHG) emissions and energy impacts from purchasing and/or manufacturing materials with varying degrees of post-consumer recycled content.

www.epa.gov/climatechange/waste/calculators/ReCon_home.html

The EPA WasteWise partnership is a free, voluntary program through which organizations eliminate costly municipal solid waste and select industrial wastes, benefiting their bottom line and the environment.

The program offers partners access to the WasteWise Re-TRAC data management and reporting system to track their company's waste.

<http://www.epa.gov/epawaste/conservesmm/wastewise/index.htm>

The Sustainable Office Toolkit was developed by the Georgia Department of Natural Resources, but it is applicable to businesses everywhere. It helps offices of all types and sizes implement sustainable practices such as waste reduction, water efficiency and environmentally preferable purchasing.

<http://www.epa.gov/p2/pubs/p2week/pubs/Talukder.pdf>

The *Plug Load Best Practices Guide* outlines no-cost and low-cost measures for reducing the energy and costs associated with plug loads, or any device that is plugged into a building's electrical system – think computers, printers and data servers. The guide, based on research by Ecova and NBI, was developed to help office managers, facilities managers and occupants alike manage the growing plug load associated with office equipment.

<http://www.advancedbuildings.net/plug-loads>

Keep America Beautiful's Recycling at Work Pledge offers businesses the opportunity to utilize the program's resources to enhance recycling programs.

<http://recyclingatwork.org/pledge-recycling-at-work/>

Recycling in the Workplace, Ready. Set. Go! offers useful recycling tips. Its originator, paperrecycles.org, was launched in 2005 as a dedicated resource to provide up-to-date information on paper recycling news, tools and events.

<http://www.paperrecycles.org/docs/default-source/default-document-library/workplacerecyclingguide.pdf?sfvrsn=0>