Building Efficiency

A Report by Pet Sustainability Coalition

Lighting

Improving lighting in a building is one of the easiest and least expensive energy- efficiency measures. Actual savings depend on the technologies installed, but can reach as high as 75%! Some measures are free while

others require an initial investment. Simple paybacks are often realized within one to three years, or even less if you secure utility rebates or take advantage of bulk purchases.

Lighting strategies help you use less energy, which decrease your impact on the environment.

Efficient Lighting Strategies

Is your building wasting energy with inefficient lighting?

If your buildings have incandescent light bulbs, or lights are left on when no one is in a room, then you've just found an opportunity to save energy (and money)!

When replacing light bulbs always choose more efficient options like CFLs and LEDs instead of incandescent bulbs, even if they are a bit more expensive. The long term savings on energy bills and the long lifespan that CFLs and LEDs provide will negate their initial cost in the long run.

Making sure employees, and even customers, turn off lights when they leave a room is an easy way to reduce wasted energy. Simply turning off a light when it is not in use can save up to 15% on utility bills and doesn't cost anything to implement.

Benefits:

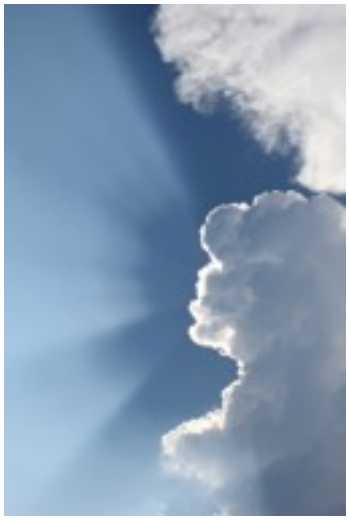
- Efficient lighting will reduce electricity bills: CFL bulbs are four times more efficient than incandescent bulbs and LED lighting uses 87% less energy.
- LED light bulbs do not use toxic mercury like traditional fluorescent lighting.

- Over its lifetime, a standard 13-watt CFL will eliminate the need to burn 210 pounds of coal used to generate electricity.
- LEDs won't heat your space.
- Natural lighting helps enhance employee performance. Studies show daylight can increase productivity 6-16%.

Reduce Lighting: Before replacing any lighting system, determine which lights you really need and which could be replaced with efficient technologies. Using fewer bulbs and more daylight creates a better experience, increases productivity, saves money, and will keep you from replacing bulbs that you do not need in the first place.

Tips & Tricks

For example, fluorescent lighting units often contain multiple light tubes. Take one tube out of each unit in a room or in hallways and see if anyone notices. Ask your coworkers if they have adequate lighting to do their job. You will likely find that you do not need as many bulbs as you thought.



Daylighting: Daylighting increases your use of natural sunlight so that you do not have to use as much electricity. Efficient lighting strategies are applicable in every room of a building, particularly in rooms where people spend a most of their day. Daylighting should be enhanced in any room with windows, especially south facing rooms.

Tips & Tricks

To increase daylighting, make sure you have blinds that employees can open (bottom-up top-down blinds help you maximize daylight) and that widows are not blocked by storage.

Lights that are on all the time should be replaced with more efficient bulbs so they will not have to be replaced as often.

Efficient Light Bulbs: To make your electric lighting more efficient you should replace incandescent lights with compact fluorescent (CFL) bulbs or even more efficient light emitting diode (LED) bulbs. LED bulbs are the most efficient electric lighting option available. LEDs can be used in overhead lighting and are especially good for task lighting.

Tips & Tricks

Tube lights: Fluorescent tube light bulbs that are common in overhead fixtures can be replaced with more efficient T-8 and T-5 bulbs to increase efficiency.

LEDs: LEDs are typically used in task lights to help you see small areas. However, LEDs can also be used in normal overhead light fixtures.

CFLs: Newer CFLs turn on instantly, are available in the warm color range, do not produce an annoying humming sound, and can be dimmable—just look for these features on the label.

Occupancy Sensors

Occupancy sensors (also referred to as motion sensors) turn lights on and off based on activity in the space. This means lights turn off when a room is unoccupied.

Install occupancy sensors in rooms where they will be most effective. Sensors are ideal for spaces that have people entering and leaving throughout the day, such as utility rooms, storage rooms, restrooms, hallways, and other areas where occupants may leave and not turn off the lights.

Benefits:

- By turning off lights automatically when people leave the room, occupancy sensors will reduce lighting costs as much as 60%.
- Reducing energy use leads to fewer GHGs emitted and a smaller impact on the climate.
- Alleviates the burden of having to remember to turn off the lights.

Lighting Shelves

Light shelves are flat, reflective shelves that are placed in or near a window to bounce visible light up toward the ceiling. They are a low cost way to spread natural light throughout a greater portion of the building and provide a natural brightness. Light shelves also help reduce the need for daytime overhead lighting and are a great day-lighting solution.

Light shelves are used with windows and can be located on the interior or exterior of a building. Renters can usually install interior light shelves, but you may have to talk to your landlord about installing exterior light shelves. Light shelves are typically used on windows that receive direct sunlight. South facing windows receive an enormous amount of direct light, causing glare and heat gain. This intense light can be diffused throughout the room using light shelves to increase natural brightness and reduce glare.

Benefits:

- Typical electricity savings from installing light shelves range between 10 and 40-watts per square foot.
- Natural lighting helps enhance employee performance. Studies show daylight can increase productivity 6-16%.
- Direct sunlight can heat up a room by several degrees. By using light shelves, the sunlight is dispersed and only gives off a little more heat than standard electric lighting.

Heating & Cooling

Keeping your building at the right temperature with heating, ventilation, and air conditioning is important to keep your customers, employees, and furry friends comfortable, but it also uses a significant amount of energy. Luckily, there are several ways to make sure that you are not wasting energy with the HVAC (Heating Ventilation and Cooling) system in your building

- Make sure your HVAC system is running efficiently by keeping it maintained
- Upgrade equipment to more efficient models—consider ENERGY STAR certified equipment
- Seal leaks in ventilation systems and the building envelope. Sealing leaks to prevent unwanted airflow is one of the simplest and most cost effective things you can do to insulate your building—the cost of sealing leaks is typically paid for in six months
- Install better insulation—payback is often a year or less
- Replace windows with more efficient, multiple pained, high performance windows. Energy savings can pay for the new windows in about two years.
- Help maintain consistent temperatures by installing green roofs.

Building Envelope

The building envelope is defined by most as the physical separator between the interior and the exterior environments of a building. Think of it as the outer shell plus the mechanical HVAC systems, which together are responsible for the indoor environment's climate control. Building envelope design is a specialized area of architectural and engineering practice that draws from all areas of building science and indoor climate control.

Proper airflow and insulation is a major factor in any building envelope as it is what helps keep heat from entering or leaving your building. Insulation in the walls, ceiling, under floors, and even windows all have

different insulation ratings. A well-insulated building is more energy efficient. Stop leaking money by sealing leaks upgrading your insulation.

Benefits:

- Sealing leaks is inexpensive and starts generating savings on your energy bills within six months. The energy savings from fixing leaks may range from 5-30% per year.
- Building envelope investments can pay for themselves within a year.
- Low-E coatings on windows can reduce energy loss by 30-50% and only cost 10-15% more.
- Customer and employee comfort is enhanced because of a more consistent temperature.

Seal Leaks: Older buildings typically have less insulation and more compromised areas than newer buildings. Sealing leaks is easy to do whether you rent or own; use the energy assessment to identify leaks and hire a contractor to expertly seal leaks for you.

Air leaks most commonly occur in door and window frames, or where different types of building materials join. Windows and doors should be properly sealed with caulk or weather stripping to prevent leaks. Caulking, spray foam, and weather stripping are inexpensive, anywhere from $3 to $20, and easy to apply and maintain.

Tips & Tricks:

For a more complete understanding of where leaks are in your building, get an energy assessment/audit by a professional. You can also check with your City, County, and local utility for free or subsidized energy audits.

Note: It is best to get an audit through an unbiased third party, rather than a contractor who is trying to sell you their services.

Insulation: Adding insulation to walls, ceilings, and crawl spaces are effective energy saving measures that can be done without undertaking a major retrofit. If you rent your location, however, you may have to consult your landlord.

A 4% void in insulation can lead to a 50% decrease in effectiveness!

Tips & Tricks:

When you increase your building's insulation you will need a specialist.

Make sure you get several different quotes so that you can compare their recommendations and price.

Windows: Windows can also leak a significant amount of air so it is important to have high performance glazed windows that are double- or triple-paned with air or another gas between the panes that act to reduce, or in some cases, increase the amount of heat transferred into the building from the sun.

If you have single pane windows, or you can feel a significant temperature difference when you touch your windows, install more efficient windows with multiple panes—most new windows in the U.S. are double- or triple-paned.

Tips & Tricks:

Adding a low-emissivity (Low-E) coating or using an inert low-conductivity gas fill to existing windows can dramatically increase their performance. You can also add a window film on the inside of an existing pane to further decrease unwanted solar heat gain.

Green Roofs

A green roof is simply that—a roof with vegetation growing on it. Green roofs provide many benefits including, temperature regulation and reduced storm-water runoff. Green roofs can be ornamental gardens, park-type grassy areas, or edible landscapes with larger shrubs and even trees.

A green roof can be installed on almost any roof with up to a 20% slope. Installation of green roofs range from $5 to $20 per square foot for extensive roofs, and $20 to $80 per square foot for intensive roofs.

After installation, green roofs need to be monitored for the first year and periodically watered depending on local precipitation. They may also need occasional weeding. Annual maintenance costs range from $0.75–$1.50 per square foot.

Benefits:

- Green roofs remove air pollutants, reduce stormwater runoff, reduce energy use by lowering the demand for air conditioning, filter pollutants from rainfall, and provide habitat for many species.
- Green roofs absorb heat and act as insulator and reduce the energy needed to provide cooling and heating, saving up to 60% of the cost of a conventional roof over its lifetime. In addition, a green roof can lower your costs for stormwater management.

- Green roofs are a great outward facing initiative that promotes your commitment to sustainability. Make sure you get publicity for this very sustainable initiative!

Implement: Deciding on what vegetation to plant depends on the type of green roof that you choose. Intensive roofs are more expensive and require more up-keep but can provide a garden in which employees, customers, and pets can relax, play around, and eat. Typically, intensive roofing systems have a deeper growing medium, and therefore larger plants can be used. Conversely, extensive green roofs have a thinner growing media where hardy perennials are grown. Try to plant using xeriscaping methods of drought tolerant plants accustomed to your local climate.

Tips & Tricks:

Installing a green roof is a process that requires a good contractor who will consider structural issues as well as local growing conditions/climate and regulations. Locate green roof installers in your area and get quotes from them to compare their qualities. You can either decide ahead of time if you want to do an intensive or extensive green roof, or you can get quotes for each type of system.

It would also be beneficial to find out if your city, county, or state offers rebates for green roofing.

Non-CFC Air Conditioning

Chlorofluorocarbons (CFCs) were the primary refrigerants in air conditioner systems for many years. CFCs were banned in 1987 after it was discovered that they deplete the ozone layer. Non-CFC refrigerants include fluorocarbons (FCs) and hydrofluorocarbons (HFCs), which have

zero ozone depleting potential and are now commonly used in air conditioners. Other natural refrigerants such as ammonia and carbon dioxide mixed with hydrocarbons can also be found air conditioners.

Benefits:

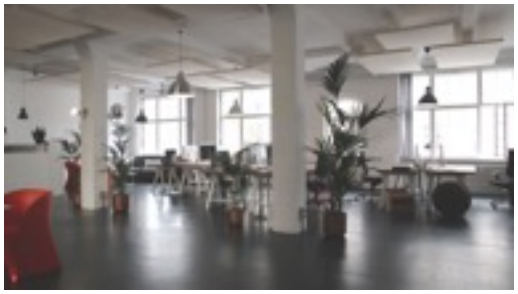
- Newer air conditioning units are more efficient and will save you money on your energy bills—high-efficiency equipment can reduce energy consumption between 20% and 50%.
- Newer air conditioning systems do not release ozone-depleting chemicals and are more energy efficient, which reduces your use of fossil fuels.

Implement: If you currently have an air conditioning unit check to make sure it does not use CFCs. If your unit was created on or before 1987 replace it with a more efficient non-CFC air conditioner. In 1987, CFCs started to be phased out in air conditioners. Most likely, your air conditioner has been replaced since 1987 given that AC units normally only last around 14 years.

Tips & Tricks:

Have your unit serviced at least once a year, to ensure that the refrigerant is not leaking, whether it contains CFCs or not.

Zoning Controls



Zoning controls allow you to regulate the temperatures of different areas of your building allowing you to keep some rooms cooler while others maintain a warmer temperature. These are often referred as Building Automation

Systems (BAS) or Direct Digital Control (DDC).

Zoning controls can be added to existing forced air heating or cooling systems or installed with a new HVAC system. If your newer building came equipped with an HVAC system that has zoning controls, be sure to find out how you can best manage the system. Where zoning controls are not possible, programmable thermostats are a good alternative, allowing you to automatically regulate temperatures on a schedule.

Benefits:

- Buildings with zoning controls greatly reduce energy use, usually saving 15% annually.
- Setting a programmable thermostat 10-15 degrees lower overnight (eight hours) can save around 10% on heating and cooling costs annually.
- Keeping a more even temperature throughout your building keeps your employees and customers more comfortable.

Office Equipment

You use equipment every day in every building of your business. Computers, registers, printers, etc. all use energy. But did you know that even when you turn off some equipment, such as computers, they still use energy? As long as the equipment is plugged into the wall, it is still using power. This hidden drain of energy is referred to as phantom power.

Reducing the amount of power you use for equipment is easy. Managing your energy use by unplugging equipment and purchasing more efficient electronics can save you money and reduce your climate impact.

Doing things as simple as using smart power strips to turn off equipment can save you up to $20 per month per strip!

Power Management

Power management is the practice of actively managing and reducing the power you use. It is important because many appliances use a substantial amount of energy even when they are not in use. Luckily, unplugging and turning off equipment is free and power strips are inexpensive.

The first step in managing your power use is being conscious of the energy used by your equipment and turning off or unplugging appliances and equipment when they are not in use. Some electronics, such as computers, have built in features for power management that you can set to sleep or shut down after a certain amount of inactivity.

Benefits:

- Plugging equipment into power strips and turning them off when not in use can save up to $23 a month per strip.
- Activating system standby and power down settings can cut computer energy used in half, saving up to $75 per computer annually.

- Using less energy reduces your impact on the climate and the environment. If all computers in the United States automatically powered down, there would be a reduction of 14.4 million tons of Carbon Dioxide (CO2) emissions annually.

Power Strips: Power strips can be used anywhere you have multiple electronics that need to be turned off daily to stop phantom power. In the office, power strips—especially smart strips—are great for plugging in computers, monitors, printers, etc so that at the end of the day only one switch is needed to turn them all off. Smart strips also work well with other more complex equipment like TVs.

Tips & Tricks:

Use power strips to make it easier for employees: one button turns off the power supply to multiple appliances and reduces phantom power energy losses.

Computers: Power management features, typically located on computers and other more complex devices, should be used to reduce wasted energy. Computers have settings to put them to sleep after they are inactive for a certain amount of time (15 minutes is suggested). When a computer is asleep the functions that use the most energy are suspended.

Change your power management settings on computers to help them be more efficient. These tips will help you reduce the energy your computer consumes:

Turn off screen saver settings and have the computer go into sleep mode rather than turn on a screen saver. Screen savers user energy.

Set monitors and laptops to enter sleep mode after 5 to 10 minutes.

Set the computer to hibernate after 30 to 45 minutes of inactivity.

Have each employee manually power down all computers at the end of the day.

Tips & Tricks:

For help changing power management settings download instructions for Mac, Windows XP, and WindowsVista.

Engage: Get everyone involved! Talk with employees at the next staff or team meeting to discuss the importance of unplugging and turning off equipment when not in use. Make it a policy to unplug and turn off electronics when they are not being used.

To make it easier for staff to turn off equipment, purchase power strips. Smart strips (more advanced power strips) have three different types of plugs:

1. Command plugs that you plug your main device into (computer).
2. Peripheral plugs for devices that are auxiliary to the main device (computer speakers, printer, desk lamp)
3. Constant plugs that stay on for phones and other equipment you do not want to turn off.

The versatility of these smart strips really makes power management easy.

Tips & Tricks:

To remind employees to turn off equipment, post Turn Off Equipment Signs in break rooms, offices, and other employee only spaces.

To find smart strips you can go to an office supply, home improvement, or everything store.

Purchase Efficient Equipment: Efficient equipment uses less energy. One good way to identify more efficient electronics is to look for the ENERGY STAR® logo. ENERGY STAR® started as a joint program of the U.S. Department of Energy and the U.S. Environmental Protection Agency and aims to lower energy costs and help the environment by conserving energy. The program is now used as an international standard for product efficiency.

Benefits:

- Upgrading to more efficient equipment can save you money on your energy bill. Efficient equipment can use up to 65% less electricity than older equipment.
- Efficient equipment, such as ENERGY STAR® appliances, use less energy, which decreases your environmental impact. They also tend to last longer, reducing the amount of waste you produce.
- Buying machines that combine functions like printing, faxing, scanning, and copying, will reduce the amount of space needed to house equipment. Also, when there is less equipment, the user experience is improved.

Implement: When buying or replacing equipment, purchase those with maximum efficiency. To narrow your search, you can look for the ENERGY

STAR® logo on the equipment or the box. You can also check the ENERGY STAR® website to look for certified products. To maximize the efficiency of your equipment, be sure to use them properly (i.e. only run dishwashers when full.)

Tips & Tricks:

To maximize your savings, search for rebates here. Most states offer rebates for purchasing ENERGY STAR® equipment.

To save more energy, purchase equipment with multiple functions like a printer-scanner-copy machine.

Water

Water is a vital resource that is used to keep pets healthy as well as manufacture the products they use from toys to food. As a result it makes economic and environmental sense to take steps to reduce water use at

your business. Most water conservation measures will save you money, with a payback of anywhere from a few months to a few years.

In addition to water conservation, you should also consider energy saving and waste reduction measures related to water. For example, installing a water cooler for guests and employees will reduce the number of plastic bottles that may end up in the trash. Also, better insulating a water heater, making sure it's maintained properly, or investing in a tankless water heater will significantly decrease the energy used to heat the water, reducing energy bills.

Low-Flow Fixtures and Aerators

Low-flow and aerating faucet fixtures decreases the amount of water used without decreasing water pressure or performance. These fixtures are an inexpensive and easy way to cut down on water use without having to change existing habits.

Faucet aerators range from a couple of dollars to $25 and you can purchase a quality low-flow fixture for $10 to $20.

Benefits:

- Faucet aerators and low flow faucets allow employees and customers to use less water without having to think about it.
- Faucet aerators help to reduce water use by 40%, saving about $25 annually and providing a 33% Return on Investment per faucet.
- Quality low-flow fixtures achieve water savings of 25% to 60% and only cost between $10 and $20 a piece.
- By using water more efficiently, you can help conserve water resources for the future, save money, and protect the environment.

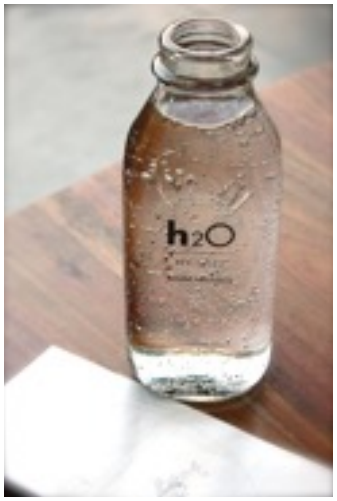
Implement: Your water utility may provide these to you free of charge, if not, you can find them at your local hardware store.

Aerators are very easy to install; attachments for faucets usually have a screw-on tip aerator that regulates the flow of water from the faucet. If you have designer faucets, it might be necessary to take measurements before visiting a retailer or ordering online. To see how to install faucet aerators you can watch this how to video.

Tips & Tricks:

Monitor how much water you are saving in your building; take a reading of the water meter before and after you install any low-flow fixtures.

Reduce Bottled Water: Bottled water is one thing sustainably minded clients and customers notice immediately.



Although it is often convenient to have bottled water, bottles contribute to landfill waste and the transportation of the water is energy intensive. Additionally, for each gallon of water that is bottled, an additional two gallons of water are used in the production process. That's three gallons of water so that we can drink one!

What is also surprising is that bottled water is often no safer, healthier, or different than tap water. Some companies simply bottle tap water, and then sell it for nearly 1,000 times the price. Many of the negative impacts of bottled water can be easily avoided by switching to tap water and using filters where needed to

improve water quality in your buildings. Tap water costs about a penny per gallon; bottled water costs almost $10.00 per gallon.

Benefits:

- Quality faucet filters provide a payback of less than a month even if you only purchased bottled water a few times per week.
- Water coolers reduce your carbon footprint, decrease contribution to landfills, and reduce energy consumption. Americans buy more than nine billion bottles of water a year and about 86% end up in landfills rather than being recycled.
- Filtering your own water saves the two extra gallons of water needed to make one gallon of bottled drinking water

Filters:

- There are several ways to provide quality water in your buildings:
- Filters that attach to your faucet
- Pitchers with filters, such as Brita
- Water coolers, with local spring water if it's available

Faucet water filters are $15 to $30. Pitcher water filters are $8 to $25. Point-of-use water coolers are more expensive and range from $300 to $700.

Tips & Tricks:

To maximize the benefit of providing filtered water, also provide reusable cups and water bottles. Encourage employees to bring in their own water containers. These outward-facing measures will show your employees

and customers how important sustainability and the environment are to your business.

Efficient Landscape Water Use: Outside your building, there are many opportunities to save water and money. Efficient landscape water use seeks to reduce the amount of water required in the area outside of your building by using methods such as xeriscaping, drip-irrigation, or hand watering.

Converting to a water-efficient landscape through a proper choice of plants and careful irrigation design can reduce outdoor water use by 20-50% in most cases. Opening a new location? This can be the perfect time to think about sustainability in a big way. Site design can greatly impact how your building interacts with natural water processes such as storm water absorption and filtration of pollutants.

Benefits:

- Retrofitting irrigation systems to ensure efficient water use can help to cut water costs by 50%.
- Switching to xeriscaped landscapes with proper irrigation saves 30-80% on water.
- Converting to a water-efficient landscape through a proper choice of locally adapted plants and careful irrigation design can reduce water use by 20-50%.
- Thriving, native plant life is aesthetically pleasing to guests and employees.

Location: In general, the potential for water and financial savings varies greatly depending on a host of factors, including geographic location,

season, and local water ordinances. Irrigation and landscaping in the west and southwest tend to take more water than other wetter regions of the U.S. where rainfall is more abundant. For this reason, buildings in the west and southwest are more likely to achieve greater savings, though improvements and savings can be realized across the U.S. regardless of location.

Tips & Tricks:

Xeriscaped landscapes are adapted to local weather fluctuations, such as drought, so there is generally less plant loss or damage. They also require no chemical inputs, and provide habitat for local wildlife.

Xeriscaping: Xeriscaping is planting native, "climate-appropriate," and low water-use plants and materials– reduces the amount of water that you use for irrigation. Whether you do some of your landscaping yourself, or hire a landscaper, water conservation should be the focus. If you hire a landscaper, make sure that you choose one that has experience in your area with native plants and efficient irrigation methods. To find a landscape contractor that does xeriscaping, click here and enter Landscape

Contractors: Xeriscaping and your U.S. location: If you are doing some of the landscaping on your own, remember that use of mulch and stones are a great alternative to turf grass, and can be placed between other plants and shrubs. In addition, by mulching around each plant or shrub,

you are increasing the soil's ability to hold moisture from precipitation, requiring less water overall.

Tips & Tricks:

The first year with new plants will require more water to make sure the plants take hold, but after that they will require less water.

Irrigation: Irrigation and watering schedules are important in reducing wasted water. By watering in the early morning or late evening you can ensure your plants absorb the maximum amount of water. You should never water during the hottest times of the day because a lot of water will evaporate. Drip-irrigation is a great water saving alternative to sprinklers and can be easily installed—most companies make a drip irrigation starter kit that comes with pieces that easily snap together.

Tips & Tricks:

Most traditional artificial landscape layouts contain plants from various regions that are not climate- appropriate and require supplemental water to thrive. Irrigation becomes necessary to make up the difference between landscape water requirements and the natural rainfall of the area. Minimize your irrigated landscape through xeriscaping. If you have xeriscaping, but not drip irrigation, make sure that you are only watering when necessary.

Waste

Waste will inevitably occur every day in your building. But the amount of waste material that you produce and send to landfills can be reduced.

The average American creates about 4.5 pounds of waste per day. Of those 4.5 pounds, only 1.5 pounds gets recycled. Sending waste to the landfill negatively impacts the environment, because landfills emit methane, which contributes to climate change, and they use precious land space. Also, many landfills leak toxins into the surrounding environment and water sources.

You can decrease the amount of waste your building produces by using the commonly referred to three R's—reduce, reuse, and recycle.

Reduce

The best way to reduce the amount of waste you create is to reduce what you consume. Since containers and packaging account for almost 30% of municipal sold waste, being conscious of packaging and what you purchase can make a big impact on how much you throw away. You can reduce the packaging that comes into your building by buying in bulk or purchasing items that have reduced packaging.

You can also reduce the amount of waste created, by purchasing reusable items such as coffee mugs and whiteboards.

Benefits:

- Reducing materials helps conserve resources and natural spaces.
- By printing double sided, paper use and costs can be reduced by 50 percent.

Implement: Each business can reduce the amount of materials they use throughout their buildings through common strategies and innovative solutions. Some common tricks that businesses use are:

- Printing only when necessary or printing to PDF
- E-mailing files instead of faxing.
- Printing double sided when it is necessary to print. Did you know the typical U.S. office worker uses about 10,000 sheets of copy paper each year?
- When purchasing new office equipment, purchase combination equipment like a printer-scanner-fax-copy machine.
- Use whiteboards for notes. If you want to keep the notes, use a camera or smart phone to take picture and store them on a computer.
- Reduce disposable items by purchasing reusable or used items wherever possible: Mugs instead of Styrofoam cups, refilled ink cartridges for printers/copiers, and refillable pens.

Tips and Tricks:

To make a bigger impact, rethink the way you traditionally do business to use fewer materials.

Reuse

Reuse extends the life of a product, prevents landfilling, and preserves the energy and materials used to create the item. Items can be reused for their original intended purpose or reused to serve another function. Reusing is different than recycling because the material is not reprocessed and retains its original form.

Product reuse is a familiar waste management option. Any time you have donated books or clothing, saved rubber bands, or used empty containers multiple times, you have reduced waste. By reusing paper,

folders, cups, boxes, and other materials the company can conserve materials, lower waste management fees, reduce reporting costs, and minimize environmental impacts.

Benefits:

- Employees can show customers their commitment to sustainability by drinking out of reusable mugs and water bottles.
- One reusable mug replaces the 500 disposable cups that an average office worker uses in a year.
- Reuse reduces waste and the negative impacts of landfills and incinerators that pollute the environment with GHG emissions, and toxins that leach into groundwater and surrounding environments.
- Reuse also reduces pollution caused by manufacturing virgin materials.

Tips & Tricks:

Providing reusable plates, silverware, cups, etc. that can be washed and used over and over again or suggesting employees bring in their favorite water bottle or mug to work helps to reduce environmental impact.

Using reusable dishes reduces the amount of virgin material needed to produce disposable products, reduces purchasing expenses, and saves money.

Recycle

After reducing and reusing materials, recycling and composting are important next steps to decrease the amount of landfill waste generated by your building. Recycled materials are not sent to the

landfill and have the chance to become new products. Be sure to close the recycling loop by purchasing items made with recycled materials.

- Start a Recycling program
- Use recycled materials and create recyclable products

Benefits:

- Recycling helps us use our resources more efficiently and effectively, reducing the pressure we put on the ecosystems that support life on earth.
- Recycling reduces the need for new landfills, prevents pollution, and reduces greenhouse gas emissions.
- Recycling saves energy—recycling 1 ton of aluminum cans saves 36 barrels of oil, or 1,665 gallons of gasoline.
- Recycling helps create and keep jobs in your local community—recycling and remanufacturing industries provide about 1 million manufacturing jobs.

Implement: Setting up a recycling program is usually the first thing companies do to reduce their waste. If your building does not recycle common materials like paper and plastic bottles, set up a recycling program by first calling your current waste hauler and asking if they also pick up recyclables.

You will need to engage your employees so that they understand new waste procedures and why it is important to separate materials for recycling. Be sure to place recycle bins directly next to trash bins and

post signs describing clearly what is recyclable so that it is easy for employees and customers to recycle. For a larger impact, monitor your progress and find creative ways to encourage your team to continually improve your waste reduction strategies.

Tips & Tricks:

Less common or hazardous materials like batteries and electronics must be sent to special facilities. To find out where to send materials, go to earth911.

Compost Pet Waste

Sixty percent of dog waste in urban corridors is dumped into garbage bins that are emptied into landfills. Studies performed by the EPA have shown that dog excrement accounts for 20% of polluting bacteria in water quality tests. The bacteria found in animal waste can cause a plethora of different diseases in humans and wildlife, and are a significant contaminant in urban watersheds. If pet waste is not disposed of properly, it can transmit diseases to humans, contaminate rivers and streams, and attract pests.

Benefits:

- Properly disposing of pet waste keeps harmful bacteria out of local waterways.
- Outward facing pet waste composting programs help spread awareness to customers.

Implement: There are a variety of ways to better manage animal waste at your facility to improve your company's sustainability. One option would be to partner with a local composting or pet waste facility that accepts

pet waste. While pet waste is not recommended for your backyard compost, there are commercial facilities and services that will collect and deliver pet waste to appropriate composting facilities like Colorado's EnviroWagg. Alternatively, consider contracting with a company like Pet Scoop based in Denver, Colorado that offers scheduled pet waste pick-up and collection services.

Tips & Tricks:

Looking for an outward initiative that can demonstrate to customers your commitment to sustainability? Because waste produces methane as it decomposes, installing an underground digester could fuel gas burning lamp posts on site! Check out The Park Spark Project for information.