

University of Connecticut Sustainable Office Guidelines:

A Guide to working green at the University of Connecticut



Photo: Joanna Antonelli

*Written by Alissa Becker and Staff at the Office of
Environmental Policy*

Special thanks to Rich Miller, Catherine Pomposi, and Dan Britton of the Office of Environmental Policy, as well as the many departments who helped compile information, especially Rebecca Canfield and Dining Services, Karen Maloni and University Catering, Central Stores and Purchasing.

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- C. REUSE ITEMS SUCH AS NAME TAGS
- D. PAPERLESS ADVERTISEMENT USED
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- F. PRINTED MATERIALS ARE DONE ON RECYCLED PAPER
- G. BANNERS, LOGOS AND SIGNS FROM PAST EVENTS ARE USED AND NEW BANNERS ARE DESIGNED TO BE REUSED

H. DO NOT OFFER COFFEE STIRRERS, PAPER DOILIES, STRAWS OR PACKETS OF PLASTIC FLATWARE

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Section A. Reduce, Reuse, Recycle

In 1970, around the time of the first "Earth Day", the US EPA had a mission to promote the 3 Rs: Reduce, Reuse and Recycle. The saying soon became an environmental mantra for the country. Reduce is short for waste reduction and refers to consuming less and conserving more. It is the first "R" in the sequence because it prevents the very generation of waste, making it the most environmentally responsible course of action. Reuse is the second "R" and refers to repairing old items or finding new uses for them. Reusing is preferable to recycling because items don't need to be reprocessed (energy & resource intensive) in order to be used again. As the third "R", recycling has now become widely available. The recycling process takes materials out of the waste stream and turns them back into valuable materials.

There are a plethora of options for reducing, reusing, and recycling in the workplace.

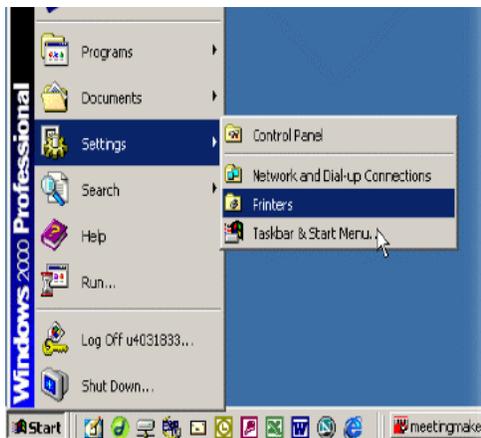
A.1. Paper

US businesses dispose about 21 million tons of paper every year, equivalent to 175 pounds for each American. In fact, 85% of all office paper in distribution is discarded each year. This is equivalent to discarding 140,000,000 trees each year! By reducing the amount of paper your office uses, you can help mitigate a number of environmental problems including global warming, clear-cutting of forests, air pollution from incinerators, water pollution from the paper-making process, and overflowing landfills. Paper products make up the single largest component of land-filled and incinerated waste and furthermore, the pulp and paper industry is the third biggest emitter of global warming pollution in industrialized nations. And if you needed another reason to conserve, saving paper saves your office money!



How can your office save paper?

A.1.a. Set the default on printers to double-sided (duplex)



Step 1: Click on the "Start" button, click on "Settings" then click on "Printers". This should open a new window with all the printers you use listed in it.

Figure 1: opening the "printers" window. Picture from www.anu.edu.au/anugreen/files/511_double_sided_printing.pdf

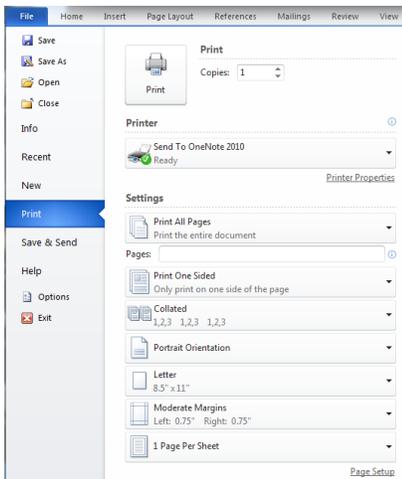
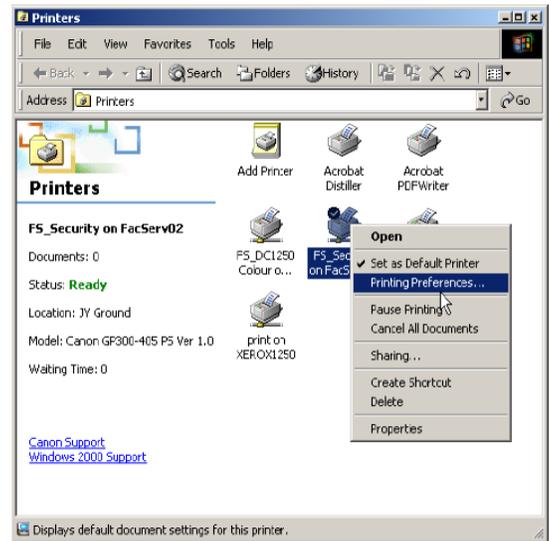
Step 2: Right-click on the icon for a printer that has double-sided capabilities. This will open up a menu, as shown in Figure 2 below. Click on "Printing Preferences". This should open up a new window with various printing options. Any changes you make in here set the default print settings for this printer.

Figure 2: opening the default print settings dialogue box

Step 3: Finding the double-sided preference will be different for every printer. Often it is located in the option titled "Finishing" or it may be located under "Advanced" options. You may be asked if you would like to "Flip on long edge" or "Flip on short edge". Flip on long edge is usually suitable for documents with a Portrait orientation, whilst flip on short edge is suitable for Landscape orientation.

Step 4: Once you've set the double-siding option, click "OK" on any open dialogue boxes.

That's it! From now on, documents you print to this printer will print double-sided by default. If for some reason you don't want to print a document double-sided, you can turn the feature off on a document-by-document basis by selecting "Printing Preferences" in the print dialogue box.



A.1.b. Always Use "Print Preview" Option before Printing

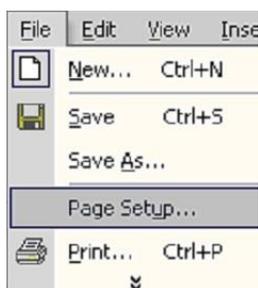
Using the print preview option before printing allows you to take a final scan over the document pending before printing. By scanning the document, you can avoid printing pages that may only have one or two lines of text at the end of a document. It also allows the view to scan for obvious formatting errors. To use the print preview option, simply left click on the file tab and find the "print preview" option.

A.1.c. Margins Reduced

Using paper area calculations, you will find that moving from a default of 1" top and bottom and 1 1/4" left and right margins to 0.6" all around you will use 25% less paper. Moving from 1" all around to 0.6" all around will save 18%. For some shocking calculations on how much paper these margins save, please visit

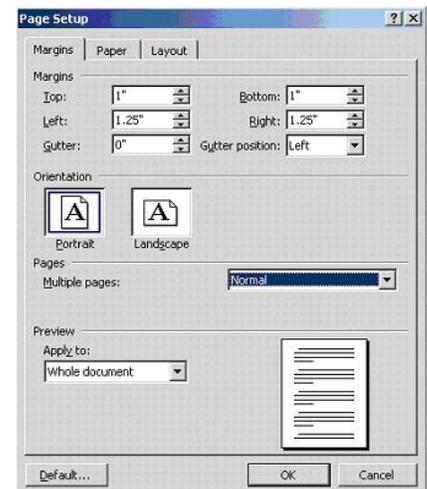
<http://www.reducethemargins.com>.

If you are using any of the Microsoft Office 2007 products, this will be easy! Click the "Page Layout" tab. Click on "Margins" and you can select the "Narrow" option which is 0.5" all around. Otherwise...



Step 1. Click File. Browse options for Page Setup. Click Page Setup.

Step 2. In the Page Setup box, click the Margins tab. You can adjust your margins; we suggest changing the Left and Right margins to read 0.75".



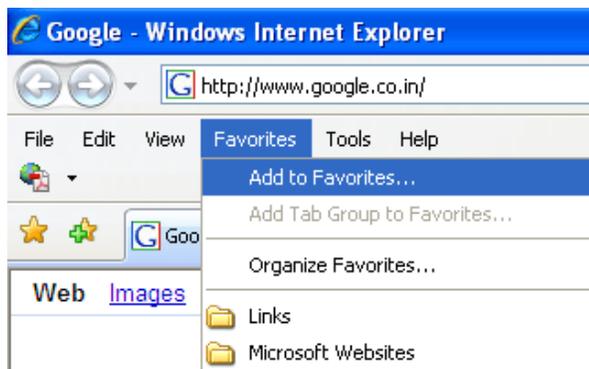
Step 3. When you are finished changing your settings click “Default”. This will make this the template for future documents. Then click “OK”.

When setting your margins, please note that most printers require about a half inch margin all the way around the page to print correctly; if you specify margins outside the printable area of the page, you will receive a warning message when you attempt to print the document.

For MAC users: On your WORD screen, go to FORMAT, then DOCUMENT. Once on DOCUMENT, click on MARGINS and you'll be able to fill in the settings for your margins.

A.1.d. Avoid Printing Whenever Possible

- ✓ There’s plenty of technology at our disposal to help avoid printing altogether!
- ✓ Use the “Bookmarks” or “Favorites” feature on your web browser to save pages for reference instead of printing them.
- ✓ Store documents on USB devices, CDs, Google Drive, or DropBox instead of keeping hard copy files.
 - ✓ Keep office handbooks, manuals, and policies in online libraries to avoid the need to distribute binders to individual staff members. This will save especially large amount of paper when working with documents that need to be updated (and therefore reprinted) regularly.
- ✓ Send memos as email documents rather than photocopies placed in mail boxes.
- ✓ Use the UConn File Drop Box to distribute documents at <http://dropbox.uconn.edu>. This service allows you to upload large files and then generates a unique URL that you can send around. Recipients can then visit the URL and download the file.



Saving a page for reference using Internet Explorer



Saving a page for reference using Mozilla Firefox



A.1.e. Reuse Envelopes

Although UConn has specific red and white envelopes for inter-office mail, you can also re-use large manila envelopes. Simply cross off or black out the old address and write in a new one.

A.1.f. Keep a scrap paper pile



Instead of throwing misprints away, place them in a scrap paper pile where they can be used to print drafts or take notes during meetings. You can also bring this paper to the *UConn Document Production Center (6-2022)* to be bound into notepads. These notepads will be substantially cheaper than what you would purchase elsewhere and serve the same purpose!

A.1.g. Boxes kept and reused for outgoing shipments

When you receive boxes, save them for future outgoing shipments. USPS recommends removing, covering or crossing out old information on the box to ensure packages reach the proper destination.

A.1.h. Reduce the amount of junk mail you receive

If you're receiving duplicate mailings at home or work or are still receiving mail for employees that have moved on, the best way to stop receiving it is to contact the senders. Look online for contact information, and request to be taken off the mailing list. Reducing the amount of incoming junk mail will cut down on a large amount of wasted paper.



A.1.i. Switch to electronic subscriptions or create a periodical library

If your office receives periodicals, switch to electronic subscriptions whenever possible. If it's important to continue receiving hard copies, create a system for sharing a single copy of the publication instead of everyone receiving their own. You can create a periodical library where staff can check out a publication for reference or create routing slips and circulate publications as they come in.

A.1.j. Print envelopes without labels

Print addresses directly onto envelopes instead of using labels. In addition to saving the paper from the label, you'll also avoid all of the chemicals and pollution associated with producing the label adhesive.

A.1.k. Work on drafts electronically

Most of us don't get it right the first time around. Instead of printing drafts, edit them on your Word Processing software by using the "edit" and "comment" features to save the paper for the final production.

Instructions for using the comment feature on Microsoft Word 2003:

Step 1) Click the "Tools" tab

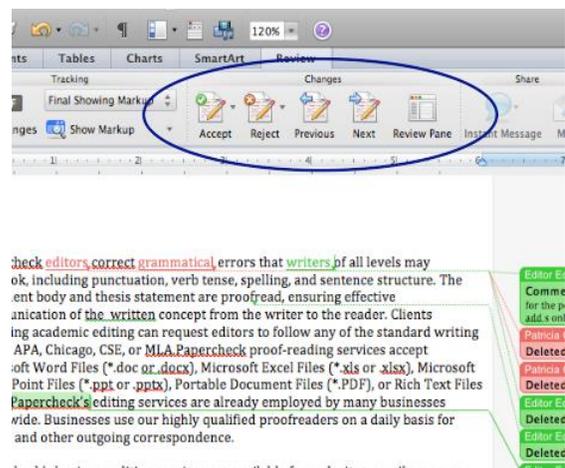
Step 2) Go to "Track Changes"

Begin edits. Markup will be shown. In the Track Changes Menu you can select whether you would like the markup to show or not on the final and original copy.

Instructions for using the comment feature on Microsoft Word 2007:

Step 1) Click the "Review" tab

Step 2) Click the "Track Changes" option



Make sure that "Final Showing Markup" is selected to see edits in red as they are made.

Section A.2. Lunchtime & Coffee Breaks



Image from blogs.guardian.co.uk/food/2008/04/20-week/

Lunchtime and coffee breaks are typically some of the most anticipated times of the workday, second only to heading home. During these breaks, there are many ways to start improving our environmental stewardship. This section highlights some ways to reduce your ecological weight while also promoting healthy eating.

A.2.a. Use Reusable Dishes, Containers, and Utensils

According to ABC News, Americans throw away enough paper & plastic cups, forks, and spoons every year to circle the equator 300 times. You can easily cut down on this waste by bringing reusable dishes, containers, and utensils from home. Lunches from home will also typically be healthier than the grab and go meals that many Americans have become accustomed to. Reusable napkins will also reduce the paper waste associated with mealtimes. If you aren't using reusable napkins, consider purchasing only paper napkins made with recycled content.



A.2.b. Reusable mugs and containers used for beverages

Research associated with Emory University's Sustainability Initiative shows that Americans throw away 2,500,000 plastic beverage bottles every hour. Many people claim that bottled water tastes better than tap water, but the EPA's standards for drinking water are actually more stringent than the FDA's standards for bottled water! Investing in a reusable cup for hot and cold beverages will save many pounds of trash in your lifetime and could also save you money too as most coffee shops now offer discounts to patrons who bring their own mugs. The reusable mug pictured at the left can be purchased at any of the University cafes for \$4.95 and is safe for hot and cold beverage. Refills cost only \$1.15!



A.3. Recycling



Recycling makes a difference. *Not only does recycling save the energy, solid waste, and pollution associated with manufacturing new products, it also slows the use of virgin natural resources. In fact, recycling one aluminum soda can saves 96% of the energy it would take to make it from ore, produces 95% less air pollution and 97% less water pollution. Without recycling, these materials end up at incinerators or landfills.*



A.3.a Recycling Bins Properly Utilized

Is your office recovering its maximum potential? It is important to make sure that items are placed in the proper bins because if there is too much cross contamination (trash in the recycling and vice versa), everything will be thrown out as trash. Custodial staff has been trained not to sort items out of the trash in case there are sharps or other dangerous objects hidden amongst the waste. If you need additional recycling bins, please call the Office of Environmental Policy at 486-5773.

A.3.b. Recycling Bins Coupled with Trash Containers

To ensure that materials end up in the proper bins, trash containers should always be coupled with recycling bins. Many people have the tendency to toss whatever they have in their hands into the nearest bin, regardless of whether it is the proper one or not. Coupling trash receptacles and recycling bins is one of the fastest, easiest ways to improve recycling rates.



A.3.c. Recycling Guidelines Displayed in Office

The University of Connecticut can accept far more items than most people are used to being



Recycling Guidelines University of Connecticut



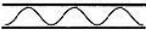
able to recycle at home. Therefore, it's especially important to have the recycling guidelines posted around the office for easy reference. We also have the recycling guidelines printed in Spanish and Polish. You can find a complete explanation of UConn's recycling guidelines and schedule at:

<http://www.ecohusky.uconn.edu/recyclingprogram.htm>

If you have any questions about the guidelines, please call the Office of Environmental Policy at 486-5773. You can print a copy of the recycling guidelines for your office using the PDF entitled "UConn Recycling Guidelines" at the end of this document.

A.3.d. Special waste properly disposed

There are programs in place at UConn to help you properly dispose of almost any item you use in the office. A full list of references for how to deal with special waste can be found on the Environmental Health and Safety website's waste stream guide at:

MATERIAL	WHAT TO RECYCLE	WHAT NOT TO RECYCLE
 <p>MIXED PAPER</p>	White & colored office paper Newspapers Magazines & catalogues Junk mail Envelopes (windows OK) Cereal (chipboard) boxes Soda or beer holders/cartons Soft & Hard cover books Brown paper bags Telephone books Shredded paper Staples and paperclips are OK	NO 3-ring binders or binder clips NO Paper plates or cups NO Tissues or napkins NO Food contaminated products NO Pizza boxes/wrapping paper NO Waxed or carbon paper NO Backing from labels NO Tyvek or FedEx envelopes NO Photographs NO Styrofoam (polystyrene)
 <p>BOTTLES & CANS</p>	#1-7 Plastic bottles, tubs, and containers Aluminum cans & foil Tin cans Bi-metal cans Glass bottles and jars Milk and juice cartons	NO Ceramics/PYREX NO Plate or stained glass NO Styrofoam NO Plastic bags NO Fuel containers NO Plastic films or bags NO Needles
 <p>CORRUGATED CARDBOARD</p>	 <p>Corrugated cardboard is the cardboard that has a wavy layer sandwiched between 2 flat layers.</p>	NO Rigid Styrofoam or plastic packaging material NO Pizza Boxes

• Please flatten cardboard & place next to large blue recycling bins

Questions? Comments? Contact the Office of Environmental Policy at 6-5773.

<http://www.ehs.uconn.edu/Chemical/UConn%20Storrs%20Campus%20Waste%20Streams.pdf>

Personal waste from home can also be brought to the office to be collected in this way.

There is an increasingly comprehensive recovery program for electronic wastes generated by students. Rechargeable batteries, ink cartridges, cell phones, and chargers can be brought to collection bins located in the Library, Co-Op, and outside of the Student Union Exchange. There are also collection points in all residential areas, mainly in mailrooms and hall directors' offices. We do receive money for turning in some of these items and all proceeds go directly into the Green Campus Fund.



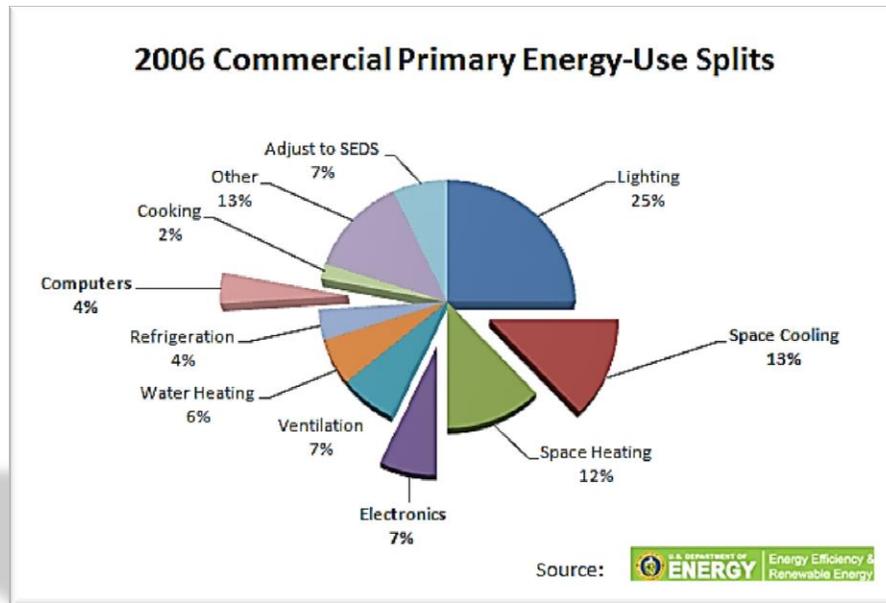
Collection point at the Student Union Exchange



Collection point at the Library

Section B. Energy Use

With the rising concern about global climate change and soaring energy prices, it seems that energy use is the topic of conversation almost everywhere you turn. Commercial buildings account for more than 60% of the nation's electricity consumption, according to government estimates, and they generate 30% of all greenhouse gas emissions. At the office, there are ways we can save tons of CO₂ as well as tons of money.



(Image from <http://www.inbuildingcolocation.com/>)

Section B.1. Office Equipment

In this section on office equipment, we are referring to every appliance found within the office from computers to coffee makers. As we can see from the chart compiled by the DOE in 1995, office equipment accounts for about 16% of office energy use. Luckily, there have been steady improvements to cut back on the amount of energy our office equipment takes from the grid. This section highlights some of these energy saving initiatives that your office could and should be doing.

B.1.a. Standby/hibernate mode activated on all computer monitors

Most new computers come with sleep software that can be activated for no additional fee. Setting your computer to use the sleep or hibernate mode when not in use is a relatively simple task. The US Department of Energy recommends that computers be turned to standby mode when idle for more than 20 minutes.

Step 1. Open your start menu and click on Control Panel.

Step 2. Look for “Power Options”. This should open a box on power options. We recommend enabling the “hibernate”, or “sleep”, mode on your computer. To do this on Windows Vista, click on the “change settings that are currently unavailable link”. For office laptops, you can specify different settings for when your computer is running off direct electricity or battery power by going into the Power Schemes tab.



This option allows for your computer to save all open files and shut down after your specified amount of time. When the computer is started again, it returns to the same state it was left.

Using sleep software is an easy and efficient way to save your company money as can be seen by this chart on Sleep Software benefits.

<i>Electricity Usage with and without 1 Computer Monitor and Computer Box</i>	<i>Without Sleep Software Activated</i>	<i>With Sleep Software Activated</i>
<i>Sleep Software System</i>		
<i>Electricity Use per Year</i>	<i>841 kWh</i>	<i>153 kWh</i>
<i>CO2 emissions per year</i> <i>@ 1.3 lbs per kW</i> <i>(/2000 for tons)</i>	<i>1093.3 lbs</i>	<i>198.9 lbs</i>
<i>Cost of unit</i>	<i>---</i>	<i>Standard on new software</i>
<i>Cost over 52 weeks</i> <i>Cost of electricity @ \$0.11/kWh (based on</i>	<i>\$92.56</i>	<i>\$16.80</i>

computer left running 24 hours/day)		
Payback Not including installation costs	----	Immediate

B.1.b. No Screen Savers Used

Screen savers don't save energy. In fact, they waste a good amount. Setting your screen saver to "none" or "blank screen" can actually reduce your office energy consumption.

Steps to Turn Screen Savers Off:

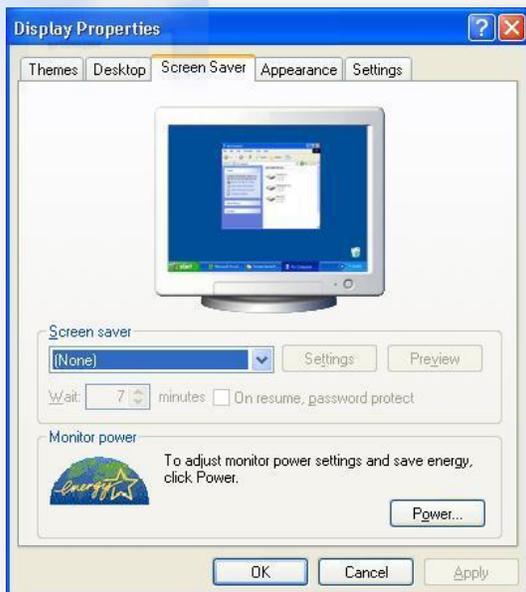
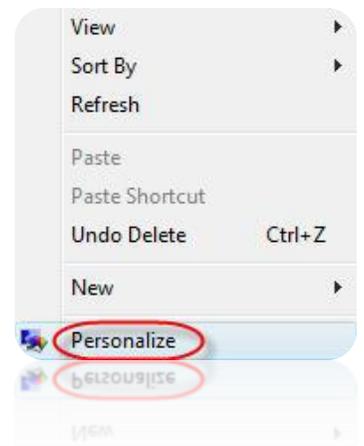
Step 1. Right click on your desktop to open the menu bar. Left click "Properties" at the bottom of the box if using Windows XP or "Personalize" if using Windows Vista.



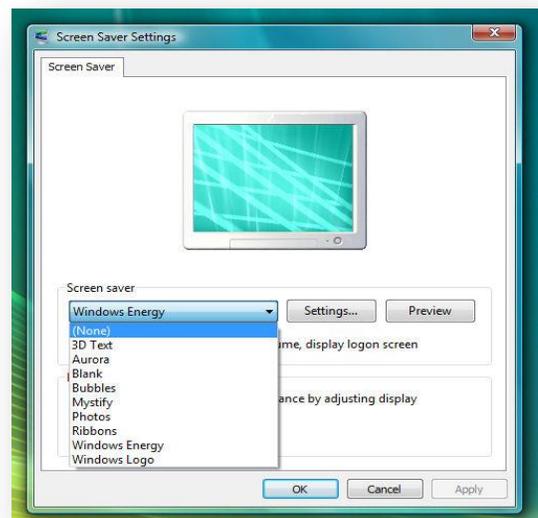
Figure 1: Box that appears when you right click on the desktop
Left- XP Right- Vista

Step 2. Left click on the Screen Saver tab in the Display Properties box. Under the Screen Saver options, select "none"

You can also adjust the power settings for your monitor and enable hibernate mode from the "Power" tab in this box or "Change Power Settings" link.



Changing to no Screen saver in Windows XP



Changing to no screen saver in Windows Vista



B.1.c. Copiers, printers, fax machines, scanners and multifunction devices turned off or to energy saving mode when not in use

Most new equipment will come with an energy saving mode that can be easily enabled. All devices are different, so please consult your owner's manual for instructions on how to enable this feature. The simplest way to save energy is to simply turn off equipment when not in use, especially at the end of the day.

B.1.d. Energy efficient models of equipment and appliances used and purchased

UConn's Purchasing Department has a policy requiring the purchase of ENERGY STAR certified products. Equipment and appliances include copiers, printers, fax machines, scanners, coffee makers, refrigerators, and computers. If you notice that your office equipment is out-of-date, operating poorly, or is not ENERGY STAR certified, visit <http://www.purchasing.uconn.edu/> to fill out a department copy of a purchasing form. The Purchasing website also has useful staff directories and buying guides to make this process simple.



B.1.e. Laptop Use Encouraged over Desktop Use



It makes sense, but most people are not aware that laptops use far less energy than desktop computers. They are smaller and more efficient. According to the US Department of Energy, "laptop computers save even more energy than ENERGY STAR-rated desktop computers/monitors. Laptops draw only 15 to 25 watts during use, compared to the 150 watts used by a conventional PC and monitor, and their sleep mode typically uses just a fraction of a watt. To maximize savings with a laptop, put the AC adapter on a power strip that can be turned off (or will turn off automatically); the transformer in the AC adapter draws power continuously, even when the laptop is not plugged into the adapter." Encourage laptop use when possible to save energy.



B.1.f. Old Monitors Replaced with LCD Screens

Though laptops are much more energy-efficient than desktop computers, on average they don't last as long. If a desktop computer is necessary, replace its old CRT monitor with a more energy-efficient LCD screen. The average 17" LCD screen only uses 35 watts per hour, while a 17" CRT screen uses 80 watts, which is more than twice as much energy.



Computers			Monitors		Apple iMac G5 w/built in 20" LCD screen	
Desktop Computer	60-250 watts	Typical 17" CRT	80 watts	Doing nothing	97 watts	
		Typical 17" LCD	35 watts			
On screen saver	60-250 watts	Apple MS 17" CRT,	63 watts	Monitor dimmed	84 watts	
	(no difference)	mostly white (blank IE window)				
Sleep / standby	1 -6 watts	Apple MS 17" CRT,	54 watts	Monitor sleep	62 watts	
		mostly black (black Windows desktop with just a few icons)				
		Screen saver (any image on screen)	same as above (no difference)	Copying files	110 watts	
Laptop	15-45 watts			Watching a DVD	110 watts	
		Sleeping monitor (dark screen)	0-15 watts	Opening a bunch of pictures	120 watts	
		Monitor turned off at switch	0-10 watts	Computer sleep	3.5 watt	

(<http://michaelbluejay.com/electricity/computers.html>)

B.2. Light Fixtures



(Image from www.homedepot.com)

Lighting accounts for roughly 30% of the electricity used in the office. Making improvements in lighting can save you 50% or more on your electricity use. We know that while some fixtures and features are out of your control, there are ways each office can improve their lighting.

You can also make suggestions to Facilities and Purchasing about what types of features you would like to see in your office in the near future. Simply showing your support for a certain type of technology or product can change University policy and revamp the current status-quo.



B.2.a. Compact fluorescent light bulbs (CFLs) used instead of incandescent bulbs

Simply replacing your old incandescent light bulbs with CFL bulbs can save you time, energy, and money. A CFL light bulb uses 4+ times less energy than incandescent bulbs and last up to 10 times longer. This not only saves on your office's energy use but also on work orders as light bulbs will need to be replaced 10 times less than before. The



table below shows how each bulb compares. Please note that CFL bulbs need to be disposed of through EH&S instead of being discarded in ordinary trash due to the small amount of mercury they contain.

<i>Electricity Usage with and without 1 item unit</i>	<i>Incandescent Bulb (60 watt)</i>	<i>Compact Fluorescent Bulb (13W)</i>
<i>Electricity Use per Year</i> @ 8hr use/day	175 kWh	38 kWh
<i>CO2 emissions per year</i> @ 1.30 lbs/kWh	227.5	49.4
<i>Cost of unit</i>	\$0.50	\$3.50
<i>Cost over 52 weeks</i> Cost of electricity @ \$0.11/kWh	\$19.25	\$4.18
<i>Payback</i> Not including installation costs	-----	Three months

B.2.b. LED light bulbs used instead of Incandescent bulbs when possible

Some light fixtures, such as exit signs, can use LED bulbs instead of incandescent bulbs. LED bulbs have an average lifespan of 50,000-plus hours, or roughly 5 years and white LED bulbs last more than 20 times longer than equivalent incandescent bulbs. The savings seen from reduced maintenance costs make the payback period from investing in these bulbs less than a year, making them as friendly to the environment as they are to the operating budget. You can see how savings add up in the chart below.

Picture from <http://news.thomasnet.com/fullstory/508835>

<i>Electricity Usage Conventional</i>	<i>Incandescent Exit Sign</i>	<i>LED Exit Sign</i>
<i>And LED Exit Signs</i>	40 watt 2 bulb sign	5 watt 2 bulb sign
<i>Electricity Use per year</i>	350.4 kWh	43.8 kWh

CO2 emissions per year @ 1.3 lbs/kWh	455.52 lbs	56.94 lbs
Cost of unit	----	\$57
Maintenance Cost per year @ 3 incandescent replacements/year \$22 hr labor cost	\$33	----
Cost over 52 weeks Cost of electricity @ \$0.11/kWh	\$38.54	\$4.82
Payback Not including installation costs/ including maintenance savings	----	10 months

B.2.c. Lights turned off when rooms are unoccupied or occupancy sensors are installed

Do you remember your mother always telling you to “turn the lights off”? These simple words of wisdom still hold true in the office. In recent years, occupancy sensors, or equivalents like timers and photo cells, have become popular because of their convenience and flexibility. There are even occupancy sensors which detect noise, such as typing on a keyboard, to prevent lights from dimming while you are still in the room but relatively inactive. The EPA predicts that lighting sensors can save 50% or more on energy bills, depending on the size and occupancy of the office or building.

B.3. Energy Efficiency

We need energy to perform daily tasks in the office. No matter what we do, there will always be some amount used. However, when we do use energy, we should make sure that it is done efficiently. Focusing on energy efficiently is a smart business practice which can save a lot of money. In this section we have highlighted some easy ways that every office can make their energy use more efficient.

B.3.a. Power strips turned off or appliances, chargers, PCs and other electronics unplugged when not in use

The US Department of Energy estimates that 75% of electricity used to power home electronics is used when appliances are “turned off”. This phenomenon is often referred to as “phantom load” and it commonly occurs in the workplace as well. To avoid the phantom load, you can unplug each appliance when not in use, or simply use power strips that cut off power to a group of electronics with one simple switch.



Image from <http://sustainability.ncsu.edu/>

Smart power strips are also available. These power strips automatically turn themselves when a device is not in powered on and can be purchased for \$39.95 from Amazon.

B.3.b. Common appliances, such as coffee maker and refrigerator, shared

Having communal appliances available to all employees discourages each individual from feeling the need to keep his or her own at their desk. For example, a refrigerator uses about 200-700 watts of energy each day. If every employee kept their own mini fridge, you can see why your energy bill would soar.

B.3.c. Installation of Timed Thermostats is Recommended

EnergyStar and Hunter, among other companies, make programmable thermostats with timers that can be set to shut off the heat or air conditioning when people leave the office. This can save a lot of energy, especially on occasions when someone forgets to turn off the heat and it stays on all night. These thermostats can also allow for greater control of the overall temperature of the space.



B.3.d. Adjust the thermostat or air conditioner by a couple of degrees

One of the easiest ways to reduce your energy consumption is to turn the heat down a few degrees in the winter (cooler), or to turn the AC up a few degrees in the summer (warmer). A barely-noticeable change in temperature can yield a very noticeable reduction on the electric bill.

Also, in the summer, ceiling and window fans can do a remarkable job at cooling down a room, while using much less energy than an air conditioner. On mild summer days, consider using fans instead of the air conditioner to save energy and money.



B.3.e. Window blinds are adjusted to allow for maximum heat conservation.

Since we are in the northern hemisphere, we receive more sunlight from the south than from any other direction. Therefore south-facing windows can play a large role in the energy balance of a building. Learning to manipulate your building's energy balance can save electricity costs and lower your carbon footprint.

Close south-facing window blinds in the summer to keep heat out. Leave shaded windows open if using window or ceiling fans to cool the room. When using an air conditioner, keep all the windows shut. Open south-facing window blinds in the winter during daytime to let in sunlight, and close them at night to keep heat in.



B.3.f. Submission of a work order for furnace/ boiler inspection is recommended.

It is smart to get the office furnace inspected at the beginning of the heating season. While some furnace maintenance can be done by oneself, like cleaning and replacing the filter, other jobs are best left to professionals. Have the furnace ducts checked for leaks, which can be a huge waste of energy if not repaired. Having the furnace inspected can not only alert you to potential energy waste but it can also help keep your office safe.

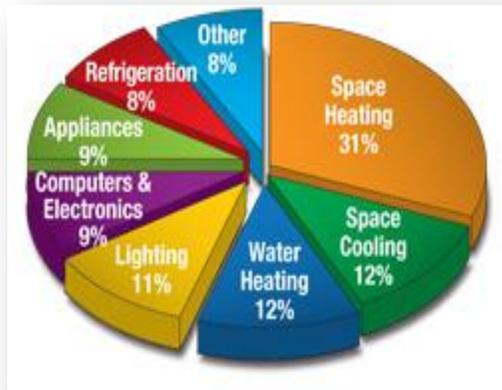
UConn Offices can request work orders for office improvements (e.g. insulation, filters, ducts, inspection of boilers/furnaces, central steam) by contacting *Work Order Control Facilities* at (860) 486-3113 or -3114.

Work orders can also be submitted online at the Facilities Operations website: <http://facilities.uconn.edu/wopolicy.html> by clicking the Faculty & Staff Request Our Services/Request Work Order link at the top of the page.



B.3.g. Energy meter monitoring is recommended.

(Image from www1.eere.energy.gov)



Having an energy meter installed in a building is an inexpensive and easy way to observe energy savings resulting from conservation. UConn is scheduled to complete the installation of submeters, which act as personal kilowatt monitors, in all buildings on campus by 2011.

An energy meter is also a helpful way of keeping energy conservation present in people's minds. Many energy meters even convert the amount of energy used into dollars spent, which is a great incentive to cut down on one's consumption of electricity.



B.3.h. Water heaters, pipes and tanks are insulated to reduce heat loss.



Standby heat loss, the heat energy that is lost through storage tank and piping walls, accounts for wasted energy that can be effectively reduced by insulating water heater storage tanks and pipes.

Insulating a water heater's storage tank can cut down on standby heat loss by 25-45%, and pre-cut insulating jackets or blankets are quite inexpensive (approximately \$10). Coupling the jackets with a rigid piece of insulation underneath the bottom of the water heater tank can conserve an additional 4-9% of water heating energy. (energysavers.gov/your_home/)

This installation should be left to the professionals. Offices can contact Facilities Operations and put in a work order to have their water heater insulated. Please refer to section B.3.f. for Facilities contact information and instructions for filling out a work order.

Section C. Meetings & Events

Meetings and events provide a great outreach opportunity for your office to show off its commitment to the environment.

C.1. Food



Food is a large part of culture. Sharing food with those who attend a meeting or event shows gratitude for participation. However, food production also has a pervasive impact on the environment. About 52% of our country's land area is used for agricultural purposes; cropland, grassland pastures, and farmsteads.

(2002, ers.usda.gov)

Food production often has grave effects on water and air quality due to the management of fertilizers, pesticides, and animal wastes. Section C.1 reviews a number of ways that we can make food service at our meetings and events more sustainable.

C.1.a. Fair-trade, shade grown, organic coffee used



Traditionally, coffee has been grown by small-scale farmers without the extensive use of chemicals or fertilizers and in forests rich with biodiversity. Due to rapid growth in demand, traditional practices have often been swapped for highly unsustainable ones. Massive deforestation occurs regularly and hybrid crops are becoming increasingly more popular. These crops require much more resource intensive agricultural practices such as heavy application of fertilizers and pesticides. Furthermore, coffee farmers rarely see much profit from their crops even though a higher yield is being produced. Buying Fair Trade, shade grown, organic products encourages environmentally friendly cultivation, which protects land, wildlife, and human communities. University Catering offers Fair Trade coffee, so be sure to request it when placing your Catering order!

C.1.b. Seasonal, locally grown, organic food options offered

Be flexible in the types of dishes you offer! Eating locally grown, seasonal food reduces the amount of traveling your food must do to reach your plate. Since transportation of foods is heavily reliant on fossil fuels, eating locally and in season is a great-tasting way to reduce your event or meeting’s carbon footprint. Plus, eating locally grown food encourages preservation of open space in your area by supporting local agriculture. Locally grown, organic foods also use less chemical preservatives, which often leave that waxy coating found on fruit, so foods are also better for your health. When planning your event, consider specifying you would like dishes made with local, seasonal food. University Catering does not have a specific sustainable menu at this time, but they are more than willing to work with you to plan a menu for your occasion.



For more information Contact:
 Connecticut Department of Agriculture
 765 Asylum Avenue
 Hartford, CT 06105 (860) 713-2503
<http://www.state.ct.us/doag/>



CONNECTICUT GROWN CROP AVAILABILITY CALENDAR		April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Apples										
Beans										
Beets										
Blueberries										
Broccoli										
Cabbage										
Cantaloupe										
Carrots										
Cauliflower										
Cherries										
Cucumbers										
Eggplant										
Garlic										
Greens										
Herbs										
Kohlrabi										
Leeks										
Lettuce										

CONNECTICUT GROWN CROP AVAILABILITY CALENDAR		April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Mushrooms (year-round)										
Nectarines										
Onions										
Peaches										
Pears										
Peppers										
Plums										
Potatoes										
Raspberries										
Spinach										
Strawberries										
Summer Squash										
Sweet Corn										
Tomatoes										
Greenhouse Tomatoes										
Turnips										
Watermelon										
Winter Squash										

Image from Sustainable Tabletop For more information please visit

www.sustainabletabletop.org and <http://www.nrdc.org/health/foodmiles/>



C.1.c. Food is labeled to show where it was grown

Labels should be provided near each food item to show where it was sourced. Speak with University Catering to see if this service is available for your event.

C.1.d. Food from lower on the food chain with minimal processing offered

Food production has become heavily reliant on the use of fossil fuels. Fossil fuels are used in farm equipment and to produce fertilizer. Meat is especially fuel intensive, as most livestock feed on crops like corn, which require a large amount of fossil fuel for their production.

Animals, particularly cows, raised in Concentrated Animal Feeding Operations (CAFOs), produce large amounts of methane gas due to unnatural corn-based diets. Methane is actually a more potent greenhouse gas than carbon dioxide so contributes greatly to global climate change. Eating lower on the food chain means that less petroleum, chemicals, and antibiotics go into the production of your food. Processed food also requires intensive energy use, and is also typically lower in nutritional value than fresh, unprocessed, and unbleached foods. Limit meat choices at events to locally grown or organic meat. Try to offer seasonal fruits and vegetables. Specify that you would like ingredients with minimal processing (i.e. unbleached flour) used when baking breads and desserts.

C.2. Waste

The EPA estimates that, as a nation, we spend an estimated \$1 billion a year to dispose of excess food. This money signifies not only an economic loss, but a lost opportunity to feed the many citizens who go hungry every day. When not handled properly, food waste can have devastating environmental impacts including filling out landfills and producing methane, a highly potent greenhouse gas. In fact, rotting food waste accounts for 34% of all U.S. methane emissions. (www.ecowatch.org)

Other types of waste are also created during meals. Packaging, flatware, and even centerpieces can wind up in landfills for hundreds or thousands of years. This section details efforts your office can make to reduce the amount of waste produced during meetings and events.



Picture from <http://healthnews.ediets.com/2007/11/food-waste-environment-and-hungerhow-do.html>

C.2.a. Condiment dispensers used instead of individual packets

Although small in size, individual condiment packages for mayonnaise, ketchup, mustard, sugar, etc. add up to an enormous amount of waste each year. Using condiment dispensers is an easy step we can take to reduce waste during meetings and events. They are also easier to use since opening 3 packets for one sandwich can become cumbersome. Request that condiment dispensers are used during your catered meetings and events. Also, requesting items in bulk, such as butter and bread, can also cut down on the amount of waste generated. Requesting this may make more sense for large events rather than small events. Consult University Catering to see what options will generate the least amount of waste.

C.2.b. Compostable, unbleached napkins made with recycled content

Napkins are another simple item that we throw away in large quantities. Napkins made of bleached paper negatively contribute to our environment during their chemical intensive production and also emit harmful methane gas during their decomposition in landfills. Unbleached napkins are available through University Catering, so make sure to specify this option!



C.2.c. Reusable or biodegradable cups, plates and flatware



Plastic and Styrofoam cups, plates, and flatware are filling our landfills at an alarming rate. Both are considered non-biodegradable and are fossil-fuel based. A Styrofoam cup can take about 50 years to decompose in a landfill and plastic takes about 400. (hfs.washington.edu) It is always best to use reusable cups, plates and flatware. You can request this through Catering or encourage participants to bring their own from home. If you would prefer to provide one-time use options, biodegradable cups, plates, and flatware are available through University Catering.

C.2.d. Food waste avoided through proper event planning

To avoid generating leftovers, work with University Catering to plan proper amounts of food. Depending on the time and location of your event, it may be possible to request that your left over food is also donated instead of thrown away.

C.2.e. Sustainable center pieces requested

Center pieces often wind up in the trash at the end of an event. Request that reusable center pieces are used. Most centerpieces used by University Catering are re-used at other events but it is a good idea to ask your planner to ensure that this happens. If you are bringing in center pieces from home, make sure you are also creating sustainable table toppers.

C.2.f. Adequate and appropriate number of recycling bins coupled with trash receptacles around the event

Providing an adequate number of recycling bins at your event is crucial for waste minimization. Before your event, visit the location and work with the building manager to ensure that enough bins will be provided. During the event, make sure that all recycling bins are well labeled and coupled with trash receptacles. University Catering also makes receptacles available, so make sure they are used! It is human nature to throw our trash into the nearest container, whether this means throwing trash in the recycling or the reverse. To avoid improper trash disposal, make sure that all bins are coupled together.

C.2.g. Individually-wrapped food or flatware is avoided

Providing individually-wrapped flatware or paper products is one of the quickest ways to generate a large amount of waste, and abandoning these in favor of re-usable dishes like ceramic or glass can dramatically decrease the waste generated.

In a solid waste audit done on a dining facility at Red River College in Winnipeg, Canada, it was determined that that 48% of the dining hall's wastes were disposable paper products, such as single-use utensils, dishes, and napkins. In contrast, a waste audit of a dining facility using reusable dishes showed that paper products took up only 10% of its wastes.

www.rrc.mb.ca/environment/food.htm

C.3. Advertising, Awareness and Printed Materials

C.3.a. Make participants aware of the event's sustainable aspects

Hosting a sustainable event should be a point of pride for your office. Make sure you let invitees know that you are making efforts to reduce the meeting's environmental impact. You can specify this on the invitations and announce this to guests when they arrive. This is also a great way to encourage other offices to follow in your footsteps.

C.3.b. Only laminate what is necessary

If you are producing materials that will only be used for a short amount of time, avoid laminating them. Laminating involves wrapping the material in plastic, making it impossible to recycle or decompose. Laminating makes sense if the same material will be used for several years to reduce the amount of printing needed. Think carefully about the lifecycle of your printed material and laminate wisely.

C.3.c. Reuse items such as name tags

Items like name tags can be reused indefinitely. To save money and to avoid unnecessary waste, collect name tags from participants when your meeting or event is over.

C.3.d. Paperless advertisement used

Advertising electronically is becoming increasingly popular. You can use paperless advertisement to reach large amounts of people in the University community. Here is a complete listing from the Student Activities webpage specifying how you can advertise your event most efficiently and without creating any waste. For a complete list of advertising options visit:

http://www.studentactivities.uconn.edu/student_advertising_guide.html



<i>Bulletin Boards (Student Union)</i>	<i>The Currents</i>	<i>The Daily Campus</i>	<i>Glass Showcases (Student Union)</i>
The bulletin boards are located throughout the Student Union. Create a poster or flyer and bring 6 copies of it to the Information Center. Posters can stay up for a maximum of two weeks or until your event has ended (whichever comes first). Be sure that your organization is registered with Student Activities and that your organization name is on your poster.	The Currents is a weekly publication for student organizations. It's filled with important information and updates. The newsletter is sent out every Friday to advisors and chief organizational officers. All inclusions for The Currents must be e-mailed by noon the Thursday before you would like the information included.	The Daily Campus newspaper serves the UConn and Storrs Community Monday through Friday. It has a readership of approximately 20,000. Refer to the Daily Campus Advertising Rates manual to decide on the size, day and frequency your ad will run. Create and save your ad as a PDF, JPEG or TIFF file. Fill out an Insertion Order form, e-mail and fax your ad at least 3 days in advance of when you would like it printed.	There are 4 glass display cases along Union Street in the Student Union that can be reserved to advertise for your organization. They are large in size, so there are many possibilities when choosing your items to fill them. Reserve your showcase by contacting the Event Services Office. The showcases can be reserved for two weeks at a time. They are reserved on a first come first serve basis.
Cost: Free	Cost: Free	Cost: Varies by size, color used	Cost: Free
Contact: 486-1140	Contact: 486-6588, student0785@ad.uconn.edu	Contact: 486-3407	Contact: 486-3421
http://studentunion.uconn.edu/reservations.html (Click on "The U Guide" Link)	www.getinvolved.uconn.edu and click on "The Currents" on the right.	http://www.dailycampus.com/home/adrates/	http://studentunion.uconn.edu/reservations.html

<i>Message Boards, Online Posts</i>	<i>Residence Halls</i>	<i>Shuttle Buses</i>	<i>Student Announce Listserv</i>
Many websites have message boards or areas in which you can post an event and invite people to view the advertisement. Be careful of what information you feel comfortable posting online. Remember that using the Internet makes your posts available to the public.	<i>Residence halls have bulletin boards and other designated spaces for posting event flyers. Create your flyer and be sure that it includes your student organization name, date and time of event and contact information. Bring your flyers to the appropriate Complex Coordinator of the Residence Hall you wish to have it hung. Flyers must be received at least 5 working days prior to when you would like them posted.</i>	<i>The University has an extensive bus system that uses 5 different routes a day. Eleven buses have the capacity to offer overhead advertising. Design 11 bus ads that are 11"L x 24"W with ½" margins on the top and bottom. They should also be laminated or backed with a strong flexible material. Be sure to contact the Advertising manager to ensure that there is available space. Space is sold on a weekly basis.</i>	<i>This listserv sends out an email sent by your registered UConn organization that is sent to students that sign up to be part of it. Emails must comply with the listserv rules. Emails will either be approved or unapproved by the moderator. An important rule is that no email will be accepted for an announcement sent within 24 hours of a scheduled event.</i>
Cost: Typically free, may vary	<i>Cost: Free</i>	<i>Cost: \$85 per week</i>	<i>Cost: Free</i>
www.uconn.dailyjolt.com/register.html, www.facebook.com, www.myspace.com	<i>http://www.reslife.uconn.edu/policies.html</i>	<i>Contact: 486-6637, or uconnbusads@gmail.com http://park.uconn.edu/index.php?module=transportation_advertising</i>	<i>https://listserv.uconn.edu/announce/student_announce_policy.html</i>

<i>Student Union Theater</i>	<i>Table Tents</i>	<i>UCTV Channel</i>	<i>University Events Calendar</i>
The Student Union Theatre plays movies Thursday through Sunday during the semester. Advertisement stills are run before each showing. Visit the theatre advertising website and download the template to design your ad in Power Point. Be sure to abide by all rules that are listed on the theatre advertising page. Save your advertisement as a jpeg or pdf file and e-mail it along with information about when you would like it run to the theatre advertising contact. Be sure to send your advertisement at least 2 weeks in advance of the date you would like it to run.	<i>Table tents are plastic displays that are located in the dining halls on campus. They hold 3 advertisements at a time for 2 week intervals. Make a reservation for your table tent (do this far in advance as the reservations tend to fill up quickly). You can design an ad or you can have dining services design an ad for you for a small fee.</i>	<i>UCTV is a student-run television station that broadcasts on "HUSKYvision" channel 14. You can contact UCTV to create a commercial for your organization. Contact the advertising director at least a month in advance of when you would like the commercial air. Provide the advertising director with information about the event and any ideas that you may have for the commercial. You may also create your own commercial and submit it to UCTV.</i>	<i>The University Events calendar is a website that displays a calendar of all registered events on all UConn campuses. You simply go to the online form and fill in the information about your event. You will receive a confirmation e-mail letting you know if your event was accepted.</i>
Cost: Free	<i>Cost: \$215 - \$250 per 2 week interval</i>	<i>Cost: Varies (see website)</i>	<i>Cost: Free</i>

Contact: anna.milot@uconn.edu	Contact: gail.merril@uconn.edu	advertising@uctv.uconn.edu	http://events.uconn.edu/
http://www.subog.uconn.edu/theatre_ad_form.html	http://dining.uconn.edu/advertising.html	http://www.studentactivities.uconn.edu/docs/uctv_rates_and_policies.pdf	

<i>WHUS Radio Station</i>	<i>Wilbur Cross Information Center</i>
WHUS 91.7 is the local FM radio station at the University. It has many listeners and superior reach for a college radio station. They run ads during and between programs. Write up the announcement that your group would like to make and e-mail it to the production director. Announcements may not have qualitative or quantitative information, or a call to action (i.e. "Best event ever!" or "Come to the meeting this Friday"). Instead your announcement should say, "This Friday we will be having a meeting."	<i>The Wilbur Cross Information Center provides the University community with a one stop location to perform the most common student service tasks. They have bulletin board space available for registered student organization events on a first come first serve basis. Create your poster or flyer and bring 2 copies to the Information Center. The Information Center also has large flat screen television screens that play advertising stills. Create a Power Point slide with information about your event and send it to the Information Center contact.</i>
Cost: Free	<i>Cost: Free</i>
Contact: productiondirector@whus.org	<i>Contact: 486-9182, jane.zopfj@uconn.edu</i>
www.whus.org	<i>http://www.studentservices.uconn.edu/</i>

C.3.e. Paperless invitations used

Invite guests electronically. Send out email invitations instead of printed invitations. This will save you time, paper, and money.

C.3.f. Printed materials are done on recycled paper

If you need to print materials for your event, do it on paper made with recycled content. The university's purchasing standard is 30%, but for a truly sustainable event shoot for a higher percentage. When your advertisements are taken down, make sure they are recycled to complete the cycle.



C.3.g. Banners, logos and signs from past events used and new banners designed to be reused

If you are having vinyl signs, banners or logos made for the event, try to design them so they can be reused. Vinyl is another petroleum based product that will not biodegrade and will emit harmful toxins when incinerated. It is, however, durable, so products made from it can be reused for many years. Designing for reuse will save you time and money, while making your event more sustainable.

C.3.h. Do not offer coffee stirrers, paper doilies, straws or packets of plastic flatware

It is common to see extraneous single use items provided at meetings and events on campus. While these items may appeal to some as professional, they generate unnecessary waste. To make your event sustainable, do not offer coffee stirrers, straws, or packets of plastic flatware. Paper doilies are also unnecessary. Use a table cloth or reusable decorations instead.

C.4. Energy

This section provides some ways your office can minimize and offset the energy used during the event.

C.4.a. Use Natural Lighting

If the event is held during the day, hold it in a room with adequate daytime lighting to offset lighting needs. Holding your event outside is another welcomed option during months when temperate weather prevails.



C.4.b. Purchase Renewable Energy Credits (RECs)

Purchasing RECs is an easy way to make your event carbon neutral. Work with your event planner to estimate how much energy your event will use. For an easy assessment of your event's footprint visit:

www.carbonfootprint.com/calculator.aspx.

After you determine your carbon footprint, use a reputable provider of offsets such as Native Energy (<http://www.nativeenergy.com>) or Sterling Planet (www.sterlingplanet.com). For more information about using REC credits, call the Office of Environmental Policy at 860-486-5773.

C.4.c. Provide information about alternative transportation to the event

A few days in advance, try to provide a list of attendees with contact information and where they will be commuting from. This is useful to encourage carpooling of people coming from the same area. Provide a list of alternative transportation available to the event, including local bus systems. Make sure this information is posted on the event webpage or is available in the email invitation.

C.4.d. Offer virtual conferencing means

If you are planning to invite participants from many miles away, offer virtual conferencing means. Travel, especially by air, can be expensive and causes a large amount of pollution

Section D. Purchasing

Voting with your dollar is one of the most effective statements you make each day. When purchasing supplies for your office, you are sending signals to UConn and its contracted vendors about what you want. Even if purchasing does not provide what you would like, you may always make a special request for it. Eventually, if enough requests are made, they will start stocking more environmentally friendly products at Central Stores, and making bids contingent upon providing items like Energy Star Equipment.

D.1. Paper

D.1.a. Recycled content office paper

UConn follows the state purchasing mandate of supplying paper made with 30% post-consumer content. However, spot purchases are accommodated if you would like to purchase paper with a higher recycled content. Each item in your office supply catalogue should detail what percent of recycled content it is made with. We recommend using paper with a higher percentage of post-consumer material in normal printers, fax machines, and photo copiers.

D.1.b. Unbleached paper

If it is available in your catalogue, always opt for unbleached items. Paper bleaching is unnecessary and paper mills are notorious for their environmental degradation, especially water contamination, due mostly to the use of chlorine in the bleaching process.

D.1.c. Paper products are purchased from companies with environmentally ethical practices

Forest Ethics has a green grades office supply report card which compares the environmental practices of the companies that create them. Use this document to help inform your paper purchasing decisions.

It can be downloaded here: <http://forestethics.org/use-our-green-grades-2009-to-inform-your-paper-purchasing-decisions>

D.2. Office Supplies

D.2.a. Purchase recycled toner and ink cartridges

In the past, UConn Purchasing has held a contract with Flow-tech to buy remanufactured Hewlett Packer ink cartridges for offices that use their printers. Unfortunately, this contract is seldom used. Ink cartridges are made from oil-based plastic. When they reach our landfills or incinerators, toxins from inks are released into the environment. It makes sense to continue using a perfectly good ink cartridge by simply refilling the ink. Again, if more specific inquiries are made regarding this to purchasing, we may see a change in policy.

D.2.b. Green cleaning

Type of Product	Chemical Brand	Green Brand
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Laundry Detergent (liquid)	Tide = 5.95/qt	Seventh Generation = 5.05/qt
	Wisk = 5.18/qt	All Free & Clear = 4.41/qt
Fabric Softener	Downy = 4.76/qt	Seventh Generation = 4.07/qt
Dish Soap	Palmolive = 4.47/qt	Seventh Generation = 3.83/qt
Glass Cleaner	Windex = 4.66/qt	Nature's Source = 4.66/qt
Paper Towels	Brawny = 1.87/100 count	Marcal Small Steps = 1.49/100 count

In compliance with the Governor’s Executive Order No. 14 and Connecticut Public Act No. 07-100, on October 1, 2007, UConn was mandated to switch to Green Seal certified cleaning products whenever available through vendors. We encourage offices to comply with these laws when buying small items like desktop cleaners. Central Stores stocks green cleaning products and if you are going to purchase items outside the UConn system, look for products that are Green Seal Certified. It used to be that these cleaners were more expensive than conventional cleaners but this doesn’t hold true anymore.

<http://www.ecohusky.uconn.edu/greencleaninghowto.html>

D.2.c. Desktop items made with recycled content



Corporate Express is the University’s contracted vendor for common desktop items. In their catalogue, corporate express denotes environmentally friendly products with the Ecooffice logo, a green dot with 2 arrows following one another around the outer edge. There is also a list of all items that have some recycled content in the index under “R”, each one beginning with “Recycled Products” in green (e.g. **Recycled Products** Writing pads.....716-718). If you are ordering online via Eway.com, click on the search bar labeled “Ecooffice”. All products in that section are designated with symbols that represent a specific way in which they are “environmentally preferable.” Clicking on any of the symbols will open a box containing a legend for all of the symbols.

D.2.d. Buy in bulk to avoid excess packaging

Containers and packaging waste account for approximately 28% of US waste. (www.epa.gov) Buying in bulk or avoiding products that have excess packaging is a simple way for offices to help reduce this number. Much packaging waste consists of plastics which sit in landfills indefinitely. Consult the appropriate vendor to find out what options exist for buying in bulk, which many times will also save you money.

D.2.e. Buy facial tissues with recycled content

Throughout each year, we go through hundreds, if not thousands, of tissues. Fall brings hay fever, winter brings cold season, and spring allergies are also on the rise. Buying facial tissues made with recycled content can help lesson the environmental impact of these one-time-use products. For those who are really green, carry a handkerchief which can be washed and reused indefinitely.



D.2.f. Purchase and use rechargeable batteries



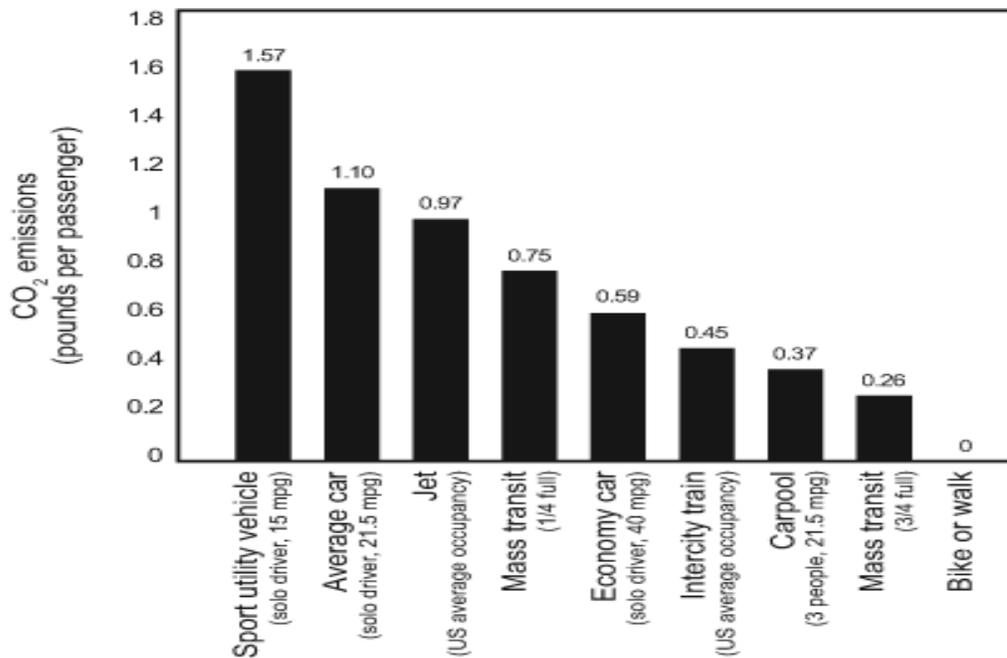
When applicable, purchase rechargeable batteries for office equipment like cameras and voice recorders. It is estimated that the U.S. produces at least 146,000 tons of battery waste annually. (www.informinc.org) When batteries decompose in landfills or are burned in incinerators, toxic heavy metals such as mercury, cadmium, and lead can enter our groundwater and eventually infiltrate our food chain. Making the switch to rechargeables may seem expensive at first, ranging from \$20-\$30 for a battery charger and \$1-\$6 each for the batteries, but they are much less costly than single-use cells in the long run.

<i>Annual Cost of Non-Rechargeable AA Batteries (120 batteries/year)</i>	<i>Startup Cost of Rechargeable AA Batteries (36 batteries + charger)</i>	<i>Annual Maintenance Cost of Rechargeable AA Batteries</i>
\$77.7/year	148.74	\$0.24 /year
<i>Total Money Spent</i>	<i>Non-Rechargeables</i>	<i>Rechargeables</i>
<i>1st year</i>	\$77.70	\$148.98
<i>2nd year</i>	\$155.40	149.22
<i>3rd year</i>	\$233.10	\$149.46

<http://www.thesimpledollar.com/2008/04/25/are-rechargeable-batteries-really-cost-effective/>

Section E. Transportation

As oil prices continue to rise, the cost of driving to work may seem overwhelming to some. Driving to work each day may seem like a crime to both the environment and your wallet but there are many ways to reduce the environmental impacts of commuting.



CO₂ Emissions per Mile Traveled

Source: see endnote 7.

Chart from
www.sightline.org

Section E.1. Automobiles

In this section, we will explore the alternatives to typical fossil-fuel powered cars, which dump huge amounts of greenhouse gases into the atmosphere each year. On average, 94-95 percent of passenger vehicle emissions will be COs, while the remaining 5-6 percent will be in the form of CH₄ (methane), N₂O (nitrous oxide), and HFCs, other damaging greenhouse gases. Technology to improve fuel efficiency in vehicles is on the rise and a recent state mandate requires the use of these types of vehicles in the UConn fleet. Here, we also detail ways in which employees can utilize the carpool network set up by the university.



E.1.a. Fuel-efficient vehicles used and purchased

As of January 2008, Section 122 of Public Act 07-242, applicable to all state agencies, requires that "any car or light duty truck purchased by the state shall have an efficiency rating that is in the top third of all vehicles in such purchased vehicle's class and fifty per cent of such cars and light duty trucks shall be an alternative fueled, hybrid electric or plug-in electric vehicle." UConn will also need to increase its use of fuel-efficient vehicles to meet our carbon-neutrality goal as a signatory of the American College & University Presidents Climate Commitment. You can find a list of vehicles from UConn vendors that fall in the top third of their class at the following website: <http://www.ecohusky.uconn.edu/preferredlist.htm>

E.1.b. Employees using a carpool program

Carpooling can significantly reduce the number of vehicle miles traveled each year, thereby drastically reducing greenhouse gas emissions and water pollution associated with run-off from roadways. You can follow the steps outlined below to access the UConn carpool program.

Step 1. Access the UConn carpooling network at <https://secure.uconn.edu/hr/carpool/>

Step 2. Enter a valid NetID and password

Step 3. Enter your information, including the Uconn campus you seek transportation to and from, to create a carpool candidate profile

Step 4. Connect with others who live nearby you to set up a carpool system and get on your way!

Section E.2. Alternative Transportation

There are many positive environmental benefits, as well as personal health benefits, to using alternative transportation, which may be more convenient than you think.

E.2.a. Employees encouraged to walk or bike to work

Recommend walking or riding a bike to work for those employees who live close to campus. The environmental benefits from using non motorized transportation are enormous. In a short, 4-mile bike ride, it is assumed that 15 pounds of air pollutants are saved from entering the atmosphere. You should also highlight the health benefits of walking or biking, such as the exercise one gets from utilizing these kinds of transportation. Using human-powered



transportation will also save you money on car maintenance and gas bills.

Chart of Calories Burned				
Activity (1 hour)	130lbs	155lbs	190lbs	225lbs
<i>Aerobics, general, low impact</i>	354	422	518	621
<i>Aerobics, high impact</i>	413	493	604	715
<i>Basketball, game</i>	472	563	690	837
<i>Bicycling, 10-11.9 mph, light effort</i>	354	422	518	593
<i>Bicycling, 12-13.9 mph, moderate effort</i>	472	563	690	891
<i>Bicycling, 14-15.9 mph, vigorous effort</i>	590	704	863	1080
<i>Bicycling, 16-19 mph, fast, racing</i>	708	844	1035	1220
<i>Bicycling, >20 mph, very fast, racing</i>	944	1126	1380	1540
<i>Bicycling, BMX or mountain</i>	502	598	733	864
<i>Running, 6 mph (10 min mile)</i>	590	704	863	1026
<i>Running, 10.9 mph (5.5 min mile)</i>	1062	1267	1553	1836
<i>Walking, 2.0 mph, slow pace</i>	148	176	218	284
<i>Walking, 3.0 mph, moderate pace, walking dog</i>	207	246	343	445
<i>Walking, 4.0 mph, very brisk pace</i>	236	281	402	526

(Chart from <http://www.bicycleman.com/health-and-fitness.htm>)

E.2.b. Staff Bike available for use around campus

Even if your commute is too long to bike, you can opt to use a bike once on campus for the day. Having a designated office bike to share between employees encourages biking between locations on campus rather than driving everywhere. Biking may also save time, especially during the academic year when traffic and parking can be extremely congested. Check out these local bike shops:

Tolland Bike 252 Merrow Rd. (Route 195) Tolland, Connecticut (860)872-8248	Willimantic Bike Shop 385 Valley St Willimantic, CT 06226 (860) 423-7182	Scott's Cyclery 1171 Main Street Willimantic, Connecticut 860-423-8889
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Section E.3. Public Transportation

This section details the kinds of public transportation that are available on the commute to campus as well as the commute around campus.

E.3.a. Employees encouraged to use Public Transportation



Public transportation helps lessen both traffic congestion and air pollution. One great branch of CT's public transportation is the Park and Ride system, where individuals can park in lots free of charge, and ride buses to work. The easiest way to find a Park and Ride closest to you is to go to <http://www.conndot.ct.gov/tig/pride.htm>.

Other options for public transportation can be found at <http://www.ctrides.com>.

Image from www.virginiadot.org



Utilizing public transportation while on campus is simple and convenient. Transportation Services runs bus service during the semester, Monday through Thursday from 6:30am - 12:00am, Fridays from 6:30am - 10:00pm, Saturdays from 11:00am - 6:00pm, and Sundays from 6:00pm - 12:00am. They run twelve buses on five different routes throughout the day with fewer buses in the evenings and on the weekends. Students pay a mandatory transit fee which allows them unlimited access to all the campus shuttles and for those who need it, access to the handicapped van service. The UConn campus bus schedules and route maps can be found at <http://park.uconn.edu/index.php?module=busroutes>.

Section E.4. Reduced Travel

By reducing the amount we travel, significant amounts of pollutants and greenhouse gases can be kept out of the atmosphere.

E.4.a. Flying Discouraged

The fuel ratio used by an airline, per person and per mile, is one of the highest for any kind of transportation. Furthermore, some chemicals (i.e. nitrogen oxide) commonly emitted by airplanes have a more severe impact on the environment because of the altitude at which they are release. When traveling relatively short distances, it is best to carpool or use other forms of public transportation.

(Image from http://www.sightline.org/research/energy/res_pubs/rel_air_travel_aug04)



E.4.b. Webinars, teleconferences, and videoconferences used

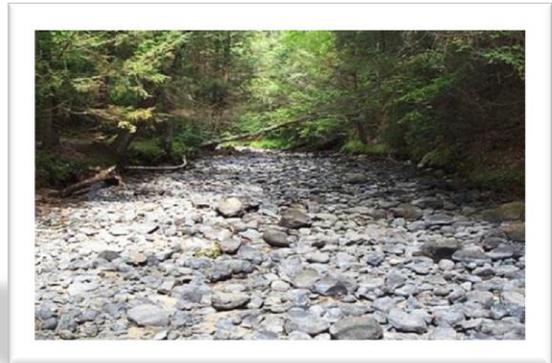
It is now easy and efficient to avoid taking climate-cooking flights and driving long distances for meetings. Many offices are using webinars in place of conferences, especially if the conference will involve hundreds or thousands of participants. Videoconferences are also being offered more regularly.

To schedule a teleconference with Media Services, contact Patti Miller at 860-486- 1771 or patricia.miller@uconn.edu, or visit <http://www.ucimt.uconn.edu/teleconferencing.html>

Section F. Water Conservation

As a region, the North East typically does not see how scarce fresh water resources can be. UConn operates the public water supply and distribution system for nearly 25,000 users, including the university, as well as several municipal facilities and commercial buildings in the Town of Mansfield, and about 100 private homes surrounding the campus. Although the water supply in our wellfields and storage tanks is relatively abundant, pumping our wells during dry periods that tend to coincide with peak demand for water can increase the environmental stress on rivers near our wellfields. In recent years, these occurrences have necessitated stronger water conservation measures and have become factors in limiting the potential for growth and development in Mansfield and at the University. There are several different steps we can take in the office to help ensure that UConn continues to reduce its water usage.

(www.ecohusky.uconn.edu/waterconservation.html)



F.1. Air conditioning used sparingly

As quoted from Jason Coite, Compliance Analyst at UConn's Office of Environmental Policy:

Many of the campus buildings run their air conditioning off the Central Utility Plant. The Central Utility Plant "makes" chilled water. The chilled water is circulated to the buildings in a closed loop. At each building, the chilled water is used to lower the temperature of the air by "absorbing" the heat. The heated chilled-water returns to the Plant to get re-cooled and then sent back to the buildings. It's a constant loop.

To re-cool all that heated chilled-water, the Plant needs something to absorb all that heat. The Plant uses domestic water to do that. When the domestic water absorbs all that heat in an open system, it get's so hot it evaporates. On a hot, humid day, the Plant will easily cause 300,000 - 400,000 gallons of our domestic water to evaporate.

The process of transferring all that heat also requires a lot of power, some of which we get in the form of steam pressure as a by-product of making our own electricity. The steam pressure is not enough, though, so

some chillers use strictly electricity (generated by burning natural gas or diesel). Keeping our indoor air slightly warmer means the Plant doesn't have to make as much chilled water, and we lose less domestic water to evaporation. Also, less electricity is used.

Gravity-flush Toilets

Pressure-assist Toilets

Those buildings that are not connected to the Plant's chilled water system have their own air conditioning systems. Some larger buildings have their own "chiller" system like the Plant's but on a much smaller scale. These building will also cause a significant amount of water to evaporate on a hot day, so keeping those warmer will also make a difference.



F.2. Leaks reported immediately

Early detection and reporting of leaks can save millions of gallons of water each year. Report leaky fixtures, faucets, toilets and pipes in UConn campus buildings and facilities by calling **(860) 486-3113**.

F.3. UConn water conservation advisories followed

To make sure local water resources are not overused, UConn periodically issues water conservation advisories. These advisories are typically issued in August and September when the risk of drought is highest.

To view current and past advisories please visit <http://www.ecohusky.uconn.edu/wateradvisories.htm>. When advisories are issued, encourage all office employees to take the suggested measures seriously.

Successful Past Initiatives	Results	Successful past Initiatives	Results
A waterless urinal donated to the University was installed in Facilities and tested for a period of one month.	To measure the reduction in water usage	Upgraded current watering system used for the chicken coops to install a closed loop system which will provide recycling of flowing water to prevent waste.	1,000,000 gallons of water saved per year
Continue to research potential "phase-out" of "once-through" or single-pass cooling for laboratory equipment, air conditioning equipment, and the steam plant.	Promoted closed-loop and forced-air cooling systems	Installed 522 Maytag Neptune, high efficiency – front load washing machines on campus. These washers will use 15-18 gallons per load, compared to the 30-32 with top loader machines	2,600,000 gallons of water saved per year with the front load machines
Irrigation-reducing landscape – encourage native, non-invasive species, xeriscaping, hydrozones, and smart-sprinkler system	Reduced surface runoff		

F.4. Installation of low-flow toilets and faucet aerators recommended

Low-flow toilets are legally restricted to a maximum of 1.6 gallons per flush. Earlier models used about 3.5 gallons per flush. Compared with older models, low-flow toilets save the average U.S. household (2.64 people) about 25 gallons of water per day, or more than 9,000 gallons per year.¹⁴

In a 2005 performance rating done by Veritec Consulting and Koeller and Co., the following low-flow toilets received the best ratings:¹⁴

<p><u>American Standard</u> (\$250–\$700)</p> <ul style="list-style-type: none"> - Champion (2018, 2002, 2057, 2087) - Doral Champion (2367, 2368) - Doral Classic (2058, 2074) - Flush Right Cadet 3 (2383) - Oakmont Champion (2738, 2625, 2627) - Skyline Champion (3225, 3110 bowl; 4077 tank) - Townsend Champion (2733, 2735) - Yorkville (2320) <p><u>Vitra</u> (\$325)</p> <ul style="list-style-type: none"> - Corina Comfort (5069 bowl; 5070 tank) <p><u>Western Pottery</u> (\$245)</p> <ul style="list-style-type: none"> - Challenger Hi-Boy (872 bowl; ULF-8 tank) 	<p><u>Gerber</u> (\$320–\$530)</p> <ul style="list-style-type: none"> - Ultra Dual Flush (DF-21-302, DF-21-304, DF-21-312, DF-21-314, DF-21-318, DF-21-324, DF-21-325) - Ultra Flush (21-311, 21-312, 21-314, 21-317, 21-318, 21-324, 21-325, EF 21-302, EF 21-304) <p><u>Kohler</u> (\$450–\$700)</p> <ul style="list-style-type: none"> - Barrington Pressure Lite (3554) - Wellworth Pressure Lite (3505) <p><u>Zurn</u> (\$500)</p> <ul style="list-style-type: none"> - EcoVantage (Z5561, 5560, 5562)
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Dual Flush Toilet Retrofit Kits

If installing a new low-flow toilet is too expensive a retrofit for your home or office, consider installing a low-flow converter kit onto a standard toilet. New dual-action controllable flush kits are cost-effective and save gallons of water per flush. Push the handle down for a 1.5 gallon half-flush, and pull the handle up for a full flush. Instead of spending several hundred dollars on a new dual-flush toilet, installing a Dual Flush Conversion kit on an existing toilet will only range from \$20-\$50 in price.

Here is a list of Dual Flush retrofit kits that received high customer satisfaction ratings.

Name	Price	Found at
<u>H2o Mizer Push Button Dual Flush Converter</u>	\$21.97	Amazon.com
<u>One2Flush Dual Flush Toilet Converter Kit</u>	\$25.95	Amazon.com, Smarthome.com, Acehardware.com
<u>HydroRight Dual Flush Converter</u>	\$24.99	Amazon.com, Acehardware.com

(*evmwd.com
water
conservation*)

HOW MUCH WATER DOES INSTALLING A 1.6 GALLON TOILET SAVE?

If you replace a Pre-1980 model that uses 7 gallons per flush
You'll save 5.4 gallons per flush or 77%

If you replace a Pre-1980 model that uses 5 gallons per flush
You'll save 3.4 gallons per flush or 68%

If you replace a Post-1980 model that uses 3.5 gallons per flush
You'll save 1.9 gallons per flush or 54%

Whether you replace one toilet in a single bathroom or several hundred toilets in a large commercial or residential complex, you can expect to see significant savings. For example, replacing a typical 3.5 gallon toilet with a 1.6 gallon model will save a family of four 11,096 gallons per year. That's a 54% reduction in toilet water use. The more water the toilet you're replacing uses, the more you'll save.

Low-flow faucet aerators are a cheap, simple, and immediate way to reduce water consumption. Installing aerators on all the faucets in a building can reduce water consumption by up to 50% and the energy cost of water heating by up to 50%.

Name	Picture	Best Use	Flow Rate	Price	Found at
Sink Faucet Aerator		Bathroom sink	0.5 gpm	\$1.50	- Amazon.com - USA Landlord - Energy Federation Incorporated (EFI)
Niagara Conversation Sink faucet aerator		Kitchen sink	1.5 gpm	\$1.95	- Amazon - USA Landlord - EFI
Deluxe Flip aerator		Bathroom or kitchen	Up to 2.5 gpm	\$6.50	- Amazon - EFI
Deluxe Kitchen Swivel aerator		Kitchen sink	Up to 2.2 gpm	\$7	- Amazon - USA Landlord - EFI
High-performance "Vacuum Flow" aerator		Kitchen sink	0.375, 0.5, and 0.7 gpm	\$25	- SaveWaterUS

Aerators have their flow rate imprinted on the side. If your building already has them, inspect the aerators for the flow rate; it should be below 2.75 gpm, or gallons per minute.¹⁵

In an assessment done by MetaEfficient.com, a list of the most efficient faucet aerators of 2008 was compiled.¹

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