



The Citadel Energy News

From The Citadel Physical Plant

SPRING 2010

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Energy Tips

Buying a New Energy Star Appliance?

- SC Energy Office providing \$4 million in rebates to residents of South Carolina beginning March 31, 2010 and ending when funds are exhausted
- Rebates between \$100 and \$500 are available for large appliances
- Can be used for solar water heaters, gas water heaters, tankless water heaters, heat pumps and furnaces
- Rebates of between \$50 and \$100 are available on household Energy Star appliances
- Can be used for dishwashers, refrigerators, dishwashers, clothes washers and room AC units

for more information:

<http://appliancerebates.sc.gov>

Welcome to the Spring Issue!

During Spring we continue to monitor our energy and water usage very closely. Natural gas prices are back on the rise and electricity rates continue to increase. We encourage you to seek out ways to reduce the energy and water use in your immediate area, as well as other parts of campus. If you have any questions, or suggestions, please let us know! Please call the Physical Plant at 953-5093.

This past year we implemented energy conservation measures proposed by our energy performance contractor, Ameresco. We changed the majority of lights on campus, most toilets and/or flush valves, all of the steam traps, the windows in the Bond Hall Annex, the chiller in Deas Hall and many other energy efficiency improvements on campus.

In this issue we discuss what we accomplished as part of this project and the next round of improvements planned for calendar year 2010.

Also in this issue, we suggest many **energy saving tips** that will save our valuable natural and financial resources!

Impact of the Energy Performance Contract

The Citadel executed the \$4.76 million energy performance contract with Ameresco in November of 2008. We had been working towards this goal for many years and it was very exciting to begin the lighting and steam work last December; however, it was even more exciting to see the final 1% of the lights installed and the building steam turned on to Capers Hall.

An energy performance contract is a method of obtaining new, energy efficient equipment which pays for itself through savings of energy and water. Ameresco guarantees The Citadel over \$600,000 in savings per year to ensure we can pay the debt service on the work performed. This savings is used to pay the energy loan payment that The Citadel obtained for this important project. The exciting part of this project in addition to saving energy is that at the end of the 9-year term, The Citadel will get to keep all of the financial savings estimated to be over \$600,000 each year!

The lighting on campus is now standardized to a ballast and lamp combination that provides a very efficient light output. Some spaces have increased light output while using less than half of the electricity.

The water flush valves and showerheads are standardized as well. The urinals now all flush with 1 gallon of water or less, and toilets now only use 1.6 gallons per flush. Some of the old toilets were using up to 7 gallons for each flush!

Did you know?

US DOE LED Program

The United States Department of Energy has created a new Energy Star Program to identify and certify LED replacement lighting, also known as Solid State Lighting (SSL). LED lighting has come a long way and the technology is nearing replacing the standard 60 Watt Edison bulb without any compromises.

<http://www.energystar.gov/>



Energy Star

When purchasing electronics, lights and appliances, look for the Energy Star label, which indicates more energy efficient models.



www.ENERGYSTAR.gov

Contact Us

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The irrigation systems on campus are now connected to a new weather station behind Coward Hall. The amount of water is calculated based on the type of grass and the weather conditions to save significant amounts of water. Ground sensors determine the moisture content in the soil and they now only activate the irrigation system when needed. In the past timers were used which were very inefficient.

The steam system is behind-the-scenes and mostly underground, but you know when there is a problem due to a lack of heat or hot water. All 765 steam traps were replaced, insulation was upgraded, and several steam leaks were repaired. These much needed infrastructure improvements were critical to our continued operation.

The large outside air dampers for the McAlister Field House air handling units were replaced to improve the comfort and humidity control in the Field House.

The Deas Hall chiller was replaced and now makes ice for storage at night to cool the building more effectively and efficiently during occupancy hours. The Bond Hall main chiller was upgraded to operate more efficiently. Also, the chilled water systems in Bond, Byrd and Duckett Halls were connected, so those chillers can be staged, as well as provide back-up cooling for all three buildings in case of chiller maintenance or failure.

Capers Hall was re-connected to the campus steam system. This connection improves operating efficiencies and saved the cost of installing a new boiler system in Capers Hall.

Finally, the windows in the Bond Hall Annex were replaced. Not only do the windows improve the appearance of the building and match the remainder of Bond Hall, they are thermally efficient and significantly improve the individual comfort level of the occupants of the building.

More Energy Projects on the Way

As part of The American Recovery and Reinvestment Act (ARRA) the South Carolina Energy Office received State Energy Program (SEP) funds of \$40 million for public colleges, state agencies and school districts to increase energy efficiency. The savings and payback requirements for funding were stringent and complex. The Citadel applied for and was awarded a grant of \$448,567 to complete 8 energy measures that are estimated to save us \$87,975 per year in electricity and natural gas.

The majority of the work is to expand the energy management control system across campus. This allows us to better troubleshoot, identify problems early, schedule rooms, and of course, save energy.

Energy Management Controls work will take place in Bond Hall, Duckett Hall, Grimsley Hall, Mark Clark Hall, Coward Hall, the Earle Tennis Center, PT Barracks, and Murray Barracks.

Most of this work will occur this summer, but some will be completed during Spring Break. All of this work must be completed on or before December 15, 2010.

For More Information on the SEP Grant Program:

<http://energy.sc.gov/>



Night Setback, Scheduling and Occupancy

As we continue to expand The Citadel's energy management system (EMS), one of the major benefits is the ability to schedule rooms, floors, and entire buildings more closely to the facility's actual occupancy. The savings are significant when changing the set point 5-10° up in summer and 5-10° down in winter, especially in buildings as large as Bond Hall and Grimsley Hall.

Several hundred room occupancy light sensors were installed campus-wide last year as part of the Ameresco contract. They either replace the normal light switch or they are attached to the ceiling to sense if people are in the room. If you have any questions about how these work, please do not hesitate to contact us at 953-5093.



Programmable Thermostat



Turn it Off when not in use!



Place in "sleep" mode!

A typical power strip:



Easy Energy Savers at the Office

1. Have your computer and monitor turn itself off at night! In Windows, under display settings Screen Saver → Power you can set them to turn off after 10 minutes of inactivity. Screen savers do not save energy because the monitor is still on!
2. If you put your computer in Standby, it will use almost zero power and will come back up when you press any key in seconds!
3. Make sure the light in your desk lamp is a Compact Fluorescent (CFL), if it is incandescent The Citadel is paying 4 times more than necessary to run the light plus we have to remove the heat via air conditioning!
4. Dress appropriately in layers for the weather both outside and inside your office.
5. Make sure your printer and copier "go to sleep" when not in use.
6. When you leave the office, turn off anything optional that is plugged in. The easiest way to accomplish this is to plug your lamp, radio, monitor, computer speakers etc. into a dedicated power strip and click it off.
7. Turn off the lights if you will be gone for more than 1 minute.
8. Let PPLT (3-5093) know if it is too cold in your area.
9. Use the stairs rather than the elevator as much as possible.
10. Recycle

Easy Energy Savers in the Home

1. Set your thermostat back when you are not home, or better yet install a programmable thermostat.
2. Make sure your outdoor AC unit is clear of leaves, debris and weeds/vines. It needs good airflow to run efficiently.
3. Replace air filters on a regular basis.
4. When you are away on vacation, unplug your TV, computer and other electronics, but you might want to keep your DVR plugged in! You can also turn off the breaker to your water heater, just remember to turn it back on when you get home!
5. Switch to Compact Fluorescent lamps (CFL) in your most used fixtures and lamps. If you are used to incandescent bulbs, be sure to choose 'warm white' or a color temperature between 2700°K and 3500°K.
6. When possible, use a microwave or toaster oven, when the air conditioner is on instead of your large oven. This saves you money!
7. Run your full dishwasher at night and turn off the heated dry feature.
8. If you have a horizontal (HE) washing machine, enable the high speed spin feature at the end of the cycle to remove more water.
9. Use the automatic setting on your clothes dryer and clean the lint filter for every load. Or, better yet, line dry them!
10. Cover all food in the refrigerator, especially liquids.

Have a wonderful Spring and Summer and save our valuable energy and financial resources!!