

Space Science Laboratory

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SSL Energy Dashboard: <http://tinyurl.com/a7tmowf>

Located in the Berkeley hills due east of the main campus, the Space Science Laboratory (SSL) houses the vast majority of faculty and student space science research. After receiving NASA's Facilities Grant in 1961, the SSL constructed the Silver Science Lab in 1966 where the SSL currently resides and manages many satellite mission operations. The SSL addition was constructed in 1998 as an expansion to the original SSL facilities. The SSL has nearly 300 employees, but about only 40 people occupy each of the laboratory buildings during the day. Its facilities are open year round during the hours of 8:00 A.M. to 6:00 P.M. However, the building is open during all hours of the day as employees have 24 hour secured access to the building. Robert Abiad (a staff member at SSL) initially contacted myPower regarding the concerns over the building's overly cooled temperature during summer months.

Lighting

The SSL's offices and labs contain many lights per room that are all connected to the same switch. Given the recurring low occupancy level of the SSL, each office/lab has very few employees who only use a small fraction of that space. As a



result, each of these spaces are overlit. Utilizing additional task lighting would be more energy-efficient. Some task lamps were found, but were installed with incandescent bulbs. In addition, we were told that lights were not

turned off manually when rooms were unoccupied during the day. The myPower team placed lighting reminder stickers and posters throughout the building as a behavioral solution. Motion sensor lighting fixtures could also alleviate this issue.

Recommendations

- Ensure that task lamps are equipped with compact fluorescent bulbs (CFLs) or LEDs.
- Assign an occupant on each floor to turn off lights at the end of the day.
- Turn off lights manually when leaving a room.
- Utilize natural light as much as possible.
- Consider installing motion sensor light switches.

Thermal Comfort

The biggest concern from the SSL is the overly-cold temperature throughout the building during the summer months. Although generally cold year round, the summer months are very cold for employees. Employees do not have control over thermostats and resort to both wearing temperature appropriate clothing and using personal space heaters. Windows are present in most office spaces and some labs, but cannot be opened. Changing localized temperature set points or providing localized thermostat control could help address this issue.

Temperature Gun Readings: North end of building 63.5°F, South end 67.5 °F, less airflow in North end of building, flow vents left on all the time.

The building does not undergo curtailment during the winter months because it is operated year round. However, curtailment could be enacted for specific building areas during holidays and long weekends to reduce overall energy consumption.

Recommendations

- Wear temperature appropriate clothing instead of using space heaters.
- Talk to a building manager in charge of the heating system to address summer cooling issue.
- Unplug space heaters when not in use.

Computers & Printers

Many employees of the SSL use laptops instead of desktops. As a result, there are no standard energy-saving settings for all occupants' laptops. Suggested energy-saving settings for all computers can be found in the "Recommendations" section below.

Of all the computers observed, the myPower team did find that some used screen savers. myPower recommends that screen savers be turned off in order to reduce energy consumption. In addition, only some desktop monitors were turned off when they were not in use. The myPower team also noticed that some desktop computers had older CRT monitors. These could potentially be upgraded for more energy efficient flat-screen monitors. LCD monitors use on average 50 – 65% less energy than CRT models.

Some occupants also use individual printers rather than a central printer even though computers are networked to central printers. Servers are located onsite on the 3rd floor of the SSL Addition.

Recommendations

- Avoid using screensavers as they don't allow monitors to enter sleep mode.
- Reduce brightness and increase contrast of computer screen.
- Turn off monitors when not in use.
- Shut off or put computers in sleep mode at end of day.
- Use proper energy saving modes (i.e. sleep) when equipment is temporarily not in use.
- Keep vents and fans on computers clean and unblocked.
- Unplug chargers when not in use.
- Consolidate printers where possible.
- Turn off power strips when not in use. Look into partial-shut-off powerstrip devices: tinyurl.com/ye5lml2
- Consider Energy Star and other energy saving technology when purchasing new appliances.

General Appliances



The general kitchenette as well as individual rooms contain many energy-using appliances (i.e. coffee machines). These appliances are generally left plugged in when not in use. Powerstrips are not used effectively as they are left on when appliances are not in use. In addition, appliances or other items are left on top of refrigerators. This forces fridges to work harder to keep their contents cool, using more energy than necessary.

Vending machines in the building run constantly. Vending machine "misers" may be of interest to reduce their energy costs by up to 46%.

Recommendations

- Consolidate refrigerators where possible.
- Clear items from top of fridges to allow them to work more efficiently.
- Unplug appliances after use, or put them on a power strip **and** turn off the entire strip when done.
- Defrost freezers regularly.
- Place reminder stickers conspicuously to prompt unplugging and power down of appliances when not in use.
- Consider Energy Star and other energy saving technology when purchasing new appliances.
- Utilize a Vending Machine Miser: <http://bit.ly/VeNd>

Further Resources

- Keep stocked with efficiency prompting posters, stickers, etc . Visit the myPower Resource Center in 192 Barrows.
- Become a Power Agent!: bit.ly/PowerAgents
- Contact Physical Plant Campus Services (PP-CS) for maintenance issues: (510) 642-1032
- myPower office tips are available at: mypower.berkeley.edu/takeaction/office.html
- Get rid of old or underutilized electronics at Berkeley Overstock and Surplus: businessservices.berkeley.edu/overstock