

As of August 9, 2013
UNIVERSITY OF MASSACHUSETTS LOWELL
POLICY GUIDE
TO CAMPUS ENERGY CONSERVATION

1. Introduction

UMass Lowell has a highly successful, well recognized energy conservation program. Proactive conservation reduces University and State fiscal expenditures while concurrently limiting adverse environmental impacts associated with energy production and consumption. The avoided utility costs benefit the University mission and make us good stewards of state tax dollars and student tuition. The program also contributes to student education and retention. This University energy policy and its procedures comply with State mandates and provide comfort conditions that support our academic and research mission. While maintaining energy conservation efforts, we seek to balance customer service, cost-efficiency and environmental concerns.

The policy supports the University's educational mission and commitment to environmental stewardship. Energy reduction resulting from the policy helps curtail global, social and environmental impacts including the country's dependency on fossil fuels and reduces the production of undesirable greenhouse gases.

- By establishing a comprehensive energy policy, UMass Lowell supports multiple goals and ensures compliance with state guidelines and regulations, notably: The Governor's Executive Order 484 - Lead by Example program, which among other conservation measures and initiatives establishes temperature guidelines.
- On January 9, 2012 the Chancellor Meehan signed the University's Climate Action Plan (CAP) committing UMass Lowell to proactively reduce Green-House Gas (GHG) emissions and eventually emit zero GHG and achieve climate neutrality.

2. Indoor Space Temperatures Policy

This policy sets forth goals for interior space temperature ranges, dependent upon the time of the year, for zones having temperature controls within academic, administrative and residence hall spaces. It offers the University a variety of benefits.

Pragmatically, this policy provides a standard for temperatures to be expected by occupants, depending upon the season, thus clarifying comfort concerns regarding temperature. Occupants will know that temperatures are consistent with established policies as well as with research performed by the American Society of Heating, Refrigeration and Air Conditioning Engineers (ASHRAE). From a financial perspective, adherence to the temperature guidelines will reduce inefficient, wasteful operation of heating/cooling equipment and reduce GHG caused by unnecessary consumption of energy.

The temperature standards, initially based on the Energy Conservation Building Code, are prescribed by the Governor’s Executive Order #484. They limit heating to a maximum of 70 degrees F and cooling to no lower than 77 degrees F.

The spreadsheet below summarizes the temperature guidelines for the University by occupancy category, and whether or not the space is occupied for cooling and heating seasons.

| Occupancy | Occupied Time temperature (F) | | Unoccupied Time (F) | | Accuracy (F) |
|---|--|---------|---------------------|---------|-----------------|
| | Cooling | Heating | Cooling | Heating | |
| offices, classrooms, residences and teaching labs | 77 | 70 | 85 | 55 | plus or minus 2 |
| Process and R&D Labs | The conditions in this type of space is dependent on the process and customer requirements and may vary depending on the process involved. | | | | |
| External commercial housing or dining/conference guests | Similar to conditions provided in public or private commercial sector space | | | | |

Note that, by lowering or raising the room temperature set point by 1 degree F, we have the ability to reduce the annual energy usage by approximately 3 to 4 %.

- **How We Apply the Policy**

The energy policy, energy conservation program and associated temperature guidelines which also support sustainability should be made universally known to management, employees and building occupants.

At UMass Lowell, the indoor temperature control program falls within the responsibilities of Office of Facilities Management (FM). Where installed, the centralized Energy Management System (EMS) will be the primary tool for implementation. The EMS is being expanded but in some areas, temperatures will still be controlled using local systems.

All University operated buildings will be managed by these guidelines. Recognizing there are a wide variety of buildings ranging from modern to historic, FM will strive to meet temperature guidelines as best as practical. Understandably, if a building doesn’t have HVAC systems capable of achieving guidelines, this policy isn’t an instrument to require building renovations.

When and wherever possible, use of temperate outside air will be used for building heating and cooling thereby conserving energy.

To report over-or under-heating /cooling, please call the Facilities Management Service Center at X42601. Temperatures can be checked and HVAC systems evaluated for proper functioning.

- **Special Situations:**

Select spaces or users, such as certain laboratory space, e.g., chemical, biological, research, vivarium (animal lab) and pilot development; or, exercise and therapy areas, may require special indoor environments different than those established within this policy

In the spring and autumn, outside temperatures can be extremely variable. It is difficult to present a simple description of the seasonal temperature switchover policy because of the variety of buildings and complexity of HVAC systems. When determining the date for switchover for each building, Facilities Management considers prevailing weather, building HVAC capabilities, system controls and building usage. Switchover is approximately a two week process that is not readily reversible. Statistics show that there are a couple of isolated days in the heating season that actually require cooling and conversely, the same is true for heat required in the cooling season. All must understand that, during these unpredictable days in the “intermediate” seasons, indoor temperatures may drift beyond established guidelines since little can be done other than to endure the event. In the event of a severe, elongated, temperature swing, systems will be “reverted” as quickly as possible.

- **Space Temperatures (Heating)**

The heating season is typically from mid-October to mid-April. The University’s heating policy calls for heating to no warmer than 70 degrees during normal occupied hours. During off-hours or in unoccupied spaces, temperatures may be allowed to drop as low as 55 degrees (though this temperature is rarely reached before heating is resumed).

In implementing this policy, FM staff will strive to make all spaces as close to 70 degrees F as possible without being less than that threshold. In practical terms, due to the accuracy of thermostatic controls, this means temperatures may be in the 68-72 degree F range. Heat generated by sunlight, equipment, warm pipes, windows, etc. may result in varying localized temperatures. Temperatures in this range should be comfortable for most people who are dressed appropriately for the season.

- **Space Temperature (Cooling)**

The cooling season is typically from mid-April to mid-October. The University’s air conditioning policy calls for air-conditioned facilities to be cooled to no lower than 77 degrees during normal occupied hours. During off-hours, temperatures may rise above this level. Variables similar to those found in heating may occur.

- **Unoccupied hours (Heating and Cooling Special Requests)**

We will utilize the most energy efficient means at our disposal of supplying heat or air conditioning for approved unoccupied hours heating and cooling requests. Close coordination of scheduled events, class changes and special needs is required. As a conservation measure, FM seeks to minimize the use of central fan systems during off-hours, consistent with the academic needs of the University. Unique or unexpected requests can be made by contacting the Facilities Management Service Center at X42601.

- **Holiday and Weekend “Shutdown”**

Whenever the campus calendar enables an extended period of closure (e.g. holidays, winter intercession), the University will strive to maximize energy savings. FM will make the necessary HVAC scheduling adjustments. Before the closure period, extra efforts must be made by the Campus Community to conserve by shutting off lights, computers and equipment. Draw curtains and assure windows are shut tightly. Also turn off or unplug equipment not being used like speakers, printers, office equipment, coffee pots, battery chargers, etc.

- **Portable Heaters**

Portable heaters may only be used if authorized and specified by FM and when it is determined that they are the most economical or only way of achieving temperature policy guidelines for occupied or off-hours operation. They must be turned off at night. Portable heaters are not to be used if the occupied space is within the temperature guidelines.

- **External Groups**

The University will provide reasonable heating and cooling for all external residential and other reimbursable customer groups that are housed at the University. Facilities Management will air condition residential, banquet, dining and other spaces to a range that is similar to that found in commercial facilities of the public and private sector.

- **Window Air Conditioners**

All air conditioning acquisitions and installations must receive approval as outlined in this policy. This policy applies to all University-managed space, regardless of the status of the organization that occupies the space.

Policy:

- Facilities Management will evaluate central air conditioning requests on a case-by-case basis and will provide staff assistance regarding costs and execution alternatives.
- Procurement of any and all HVAC equipment will be energy efficient products as directed by the Governor’s E.O. 484 meet the IECC and have Energy Star rating.
- No window air conditioners will be installed unless they are capable of being controlled by a programmable thermostatic control system.
- Facilities Management will administer provisions of this policy.

- **Excessive Heat -Attendance Policy (refer to HR Dept.)**

There are several University administrative buildings or portions of campus buildings that are not air-conditioned or if system failure renders the air conditioning system ineffective for an extended period of time.

During the occasions when the space temperature rises to a point where employees find it difficult to work effectively:

- Contact FM Service Desk at X42601 with concerns during normal business hours or police dispatch at X42394 after hours.
- Questions about how this might impact you if you have a reasonable accommodation, contact Equal Opportunity and Outreach (EEO) confidentially at 978-934-3566. Please do not contact Facilities Management. EEO administers requests for reasonable accommodation. They are located in Wannalancit Mills, 600 Suffolk St. - 3rd floor.

3. Other Energy and Sustainability Guidelines

- **Involvement**

Energy conservation is the responsibility of every member of our University community. Each member of the Campus community is charged with the responsibility to proactively contribute through their daily actions. Individual actions can contribute immensely. These include such items as reducing plug loads, limiting vehicle idling, curtailing lighting, closing doors and windows, closing and opening window shades; turning off items not in use, dressing for the season, encouraging others, and generally treating the Campus as you would your own home.

- **Computers**

In addition to the energy consumed by computers and accessories, computer equipment generates heat during normal operation which imposes additional cooling loads on building air conditioning systems. Cooling demand has increased on campus because of the proliferation of computers and the creation of computer labs and server rooms.

These issues can be partially solved by users and lab managers if these simple energy conservation measures are implemented:

- Turn computers, monitors and printers on only as needed and turn off when not actively in use. Computer labs are to be set to “hibernate mode” when usage is sparse. Don’t leave equipment on continuously unless it is continuously in use.
- Make sure all computers, monitors and laser printers have their energy management features enabled (hibernate or sleep mode). Enabling these features is generally very easy and quick.
- Print using centralized printers and office equipment that is Energy Star certified and procured through the Purchasing Dept. Refrain from making paper copies and if required, always print on both sides of the page to conserve paper. Use black and white setting on printers and computers unless absolutely necessary.

Vehicles

State policies for procuring energy efficient vehicles are very well defined. Additional fuel conservation is achievable based on the manner in which the vehicles are operated and maintained. The Campus community will:

- a. With few exceptions, minimize idling time to 30 seconds. The exception is that the Transportation dept. shuttle bus service will be allowed to idle the bus within time limits established by the Commonwealth of Massachusetts.
- b. Remove excess weight (equipment, junk, etc.) to increase gas mileage
- c. Drive “gently” to increase gas mileage.
- d. Treat your vehicle as if you have to pay for the fuel yourself
- e. Plan trips to minimize travel
- f. Check air tire pressure.

- **Sustainability**

The University’s Energy Policy is a comprehensive policy which brings together all State and University energy policies and commits UMass Lowell’s energy program to a process of continuous sustainability improvement. Among other things, this policy calls on the University to:

- Meet the demands of the ACUPCC Climate Action Plan that was designed to reduce greenhouse gasses in a systematic way toward climate neutrality by 2050.
- Follow the Governor’s E.O. 484 to Lead by Example in the realm of Sustainability and Energy Conservation.
- Procure campus vehicles that operate on clean or alternative fuels and routinely reassess campus transportation needs in light of the goal to reduce energy use and energy-related emissions.
- Purchase only energy efficient products, appliances and equipment. The Energy Star program designation will be used whenever feasible.

- **Hot water**

The building code requires potable hot water for lavatory and shower use to be controlled at 110 degrees F. Potable hot water for commercial (dining hall) dish washing shall be 140 degrees F.

- **Sustainable Building Construction and Renovation**

Executive Order 484 requires all new construction at state agencies and significant renovation projects meet Mass. LEED Plus building and energy performance standards. LEED is the acronym for Leadership in Energy and Environmental Design.

The Mass. LEED Plus standard includes:

- Certification by the U.S. Green Building Council Leadership in Energy and Environmental Design (LEED) program for all new construction and major renovation projects over 20,000 square feet
- Energy Performance 20% better than the Massachusetts Energy Code;
- Independent 3rd party commissioning;
- Reduction of outdoor water consumption by 50% and indoor consumption by 20%

- **Electrical Peak-Load Curtailment**

Policy & Background: Executive Order No.484, stressed the need to reduce the load on the State's electric generation capacity and reduce consumption during peak electric demand periods. Accordingly, we are required to establish a program to quickly reduce energy consumption when directed (within 60 minutes).

In addition to meeting the governor's requirements, it is in the best interest of the University to proactively comply with the request to reduce electrical load to the maximum extent possible. This will assist with regional electrical load issues and minimize detrimental impacts and costs at our Lowell Campus. Further, it may produce financial incentive payment to the University. The requirement to reduce peak electrical consumption would most commonly occur during excessively warm days in the summer, occasionally on extreme cold winter days and in either case be of short duration.

Implementation and Action: Immediately upon being notified that electrical load reduction is necessary, the following actions will take place on campus:

- Facilities Management will adjust Heating and Cooling Systems as appropriate
- The University Community will be informed of the need to reduce loads and take individual actions such as: turning off all non-vital or unused equipment (copiers, coffee pots, personal fans, lab equipment, radios, printers, monitors and computers). Turn off all lights in unoccupied rooms and reduce lighting where possible.