

The University of British Columbia Building Operations		Energy Policy for Classrooms and Offices	
Policy		I-B-53	
Prepared by: Orion Henderson	Approved by: David Woodson	Issue Date: May 3, 2010	
		Replaces: New Policy	

1.0 Public Statement

1.1 Mission Statement

It is the policy of the University of British Columbia Land and Building Operations to manage all of its operations so as to ensure that the consumption of energy and water occur in the most sustainable manner possible while providing an environment that encourages learning, teaching and research.

1.2 Declaration of Commitment

The University of British Columbia is committed to improving its performance in sustainability in all areas of operations. As the stewards of the lands and buildings on the UBC campus, the department of Building Operations is responsible for upgrading, maintaining and operating the facilities in a manner that balances social, environmental and economic impacts.

Staff, faculty and students shall be made aware of energy and water consumption and shall be required to comply with the Energy and Water Management Policy unless given written permission to deviate from the policy (see section 4.0 Variance).

1.3 Policy

The policy of this organisation is to manage energy consumption:

- To minimise consumption of energy and water;
- To maximize the efficiency of that energy and water consumption;
- To avoid unnecessary budgetary expenditure;
- To improve working conditions and productivity;
- To minimise the emission of pollutants into the environment;
- To promote the use of renewable energy and waste heat recovery.

1.4 Principles

This policy was developed in accordance with the following principles:

- Trek 2010: The University of British Columbia will provide the best possible environment for all members of the campus community;
- Policy #5 – Sustainable Development: UBC seeks ways to conserve resources and reduce waste;
- Policy #7 – University Safety: The University aims to provide a safe, healthy and secure environment in which to carry on the University's affairs;

Any requests for a variance from the policy will be reviewed in the context of these principles.

1.5 Goals

Long Term:

- To be a net positive energy and water campus;

Medium Term:

- To obtain energy and natural resources services at the most economically advantageous price;
- To consume energy and natural resources in the most efficient manner possible;
- To reduce UBC's dependence on fossil fuels through utilising renewable energy and waste heat recovery technologies;
- To improve the quality of life associated with energy and water use e.g. air quality.

Short Term:

- To manage energy and water consumption and provide the infrastructure necessary to monitor consumption at the building level;
- To target reductions in energy and water consumption and report against these targets on an annual basis;
- To invest in a program of energy and water saving measures which will maximise return on investment in order to generate funds which can be re-invested in further energy and water management activities;
- To ensure UBC investments in buildings and infrastructure are consistent with the goals outlined above.

1.6 Current Board Approved Targets

Timeline 2010:

- Reduce CO₂ equivalent green house gas emissions from institutional and ancillary buildings by 25% from 2000 levels (adjusted for growth);
- Reduce non renewable energy consumption from institutional and ancillary buildings by 30% from 2000 levels (adjusted for growth);
- Reduce water consumption from institutional buildings by 30% from 2000 levels (adjusted for growth).

UBC Climate Action Plan: Reduce GHG emissions against a 2007 baseline

- 33% by 2015
- 67% by 2020
- 100% by 2050

2.0 Internal Guidance¹

2.1 Heating, Cooling and Ventilation

1. Acceptable thermal conditions shall be maintained through heating and mechanical ventilation. UBC offices and classrooms are not air conditioned unless required through variance from the UBC Technical Guidelines (see

¹ UBC will meet or exceed applicable Worksafe BC regulations
I-B-53

http://www.technicalguidelines.ubc.ca/div_15_files/Division%2015/2008%20Division%2015%20Tech%20Guidelines%20Launch.pdf);

2. Building occupied hours: Acceptable thermal comfort criteria are based upon ASHRAE Standard 55-2004 Thermal Environmental Conditions for Human Occupancy²:
 - Acceptable thermal comfort range = 20 to 27°C;
 - Building heating system target temperature = 21°C;
 - Building cooling system target temperature = 26°C;

Variance from these criteria must be approved (see section 4.0);

3. Building occupants are expected to dress appropriately for each season;
4. Ventilation rates will be set to maintain acceptable air quality during full occupancy and are based on ASHRAE Standard 62-2004. Demand control strategies will be implemented where possible;
5. Building Unoccupied Hours: Outside of normal operating hours (as specified by UBC Classroom Services; see the *UBC Building Hours*: <http://www.students.ubc.ca/facultystaff/buildings.cfm>) building systems will be 'setback' and optimized for energy conservation. This will differ between buildings but will generally be:
 - Minimum temperature = 15°C;
 - Minimum ventilation = natural ventilation;

Classrooms Scheduling (as specified by UBC Classroom Services) will dictate occupancy of classrooms. Outside this schedule, optimized conditions will be in place;

Variance from scheduled operating hours (including weekends, and statutory holidays) must be approved (see section 4.0);

6. To further the efficiency of building operation, UBC Classroom Services shall endeavour to maximise the allocation of classroom space within already occupied buildings and mechanical air domains;
7. Fume hoods shall be closed, and exhaust fans turned off, when not in operation, to prevent loss of conditioned air;
8. Portable heaters or A/C units are not to be used without approval from the building Facility Manager:
http://www.plantoperations.ubc.ca/resources/building_information.asp
9. Once through water cooling is prohibited.

² The criteria are deemed acceptable to 80% of building occupants. 20% of occupants have been found to be uncomfortable for any given set of thermal comfort criteria.

2.2 Lighting

10. Acceptable lighting levels are based upon guidelines from the most recent edition of the Illuminating Engineering Society (IES) Lighting Handbook;
11. Building users are expected to switch off lighting when leaving a room unoccupied.

2.3 Information Technology

12. Faculty and staff units shall maximise opportunities for server virtualization;
13. Faculty and staff units shall adjust power settings to maximise energy savings. The following power settings are recommended:
 - Monitor and CPU set to enter Sleep mode after 5-15 minutes of inactivity;
 - CPU set to enter Standby or Hibernate mode after 30 minutes of inactivity;
14. Computers and ancillary electronic equipment (e.g. printers) shall be turned off when not in use unless research requirements require continuous operation;
15. Server room design shall maximise opportunities for heat recovery;
16. Mechanical systems shall be designed to maintain server room temperatures at 22°C for 80% of the time.

2.4 Computers and Other Electronics

17. Electronic equipment shall be turned off when not in use;
18. Refrigerators, microwaves and coffee makers shall not be used in individual work spaces.

3.0 Implementation

The guidelines in this Policy will be implemented for all Core Academic and Ancillary Buildings within the UBC Point Grey campus. UBC Building Operations will take the lead role in applying the guidelines to building operation practices.

4.0 Variance Requests

Variance from these guidelines requires written permission from the Energy Management Committee. See Appendix I for variance request forms.

5.0 Energy Management Committee

The Energy Management Committee will review applications for variance from this policy as they arise.

6.0 Additional Information

The campus community is encouraged to comment on this policy. Please forward comments to the Campus Sustainability Office (orion.henderson@ubc.ca)

7.0 Appendices

Appendix I: Variance and Time of Day Schedule Change Request Form

The University of British Columbia Building Operations		Energy Policy for Classrooms and Offices	
Policy		I-B-53 Appendix I	
Prepared by: Orion Henderson	Approved by: David Woodson	Issue Date: May 3, 2010	Replaces: New Policy

1.0 General

All Time of Day (TOD) change or Variance requests shall be submitted by the Facilities Manager (FM) responsible for the building in question. All requests shall be submitted a minimum of 2 working weeks prior to the requested start date.

The Facilities Manager shall submit request forms to the BMS Manager. The request will be reviewed and a response given within 2 working weeks.

Requests which have the effect of increasing campus energy consumption will require thorough investigation and approval by the Energy Management Committee. This may require further review of the request with the parties involved, including the Facility Manager. If a request is denied a member of the Committee will be available to meet with the Facilities Manager and the customer to explain the decision.

2.0 Implementation

One off events will be implemented through a Work Request sent to the Operations Centre. Events will be programmed with a start date and finish date.

For multiple or complex modifications to the TOD schedule, creation of new schedules or variance from the energy and water management policy, the BMS Administration office will implement the required changes.

Follow up will be in the form of an email back to the Facilities Manager advising that the schedules have been implemented as requested.

Variance Change Request Form

CRF-1

Date:

Requester Contact Information:

Name:
Office Ph:
Cell Ph: Building Name & Number
Involved Areas
(Be as specific as possible)

Description:

Number of people effected: **Office Use Only**

Which air system/s are we dealing with?

How many other areas does it serve?

What are the current set points for this system?

Sustainability OfficeReceived Date: Approved: Date: By: **BMS Admin Office**Received by: Implemented by: Sequence of Operations revised by:

Description of implementation:

Time Of Day Schedule

CRF-2

Change Request Form

Date:

Requester Contact Information:

Name:

Office Ph:

Cell Ph:

Building Name & Number
Involved Areas
(Be as specific as possible)

Occupancy

	<i>Mon</i>	<i>Tues</i>	<i>Wed</i>	<i>Thur</i>	<i>Fri</i>	<i>Sat</i>	<i>Sun</i>	<i>Stat</i>
Start Time	<input style="width: 50px; height: 20px;" type="text"/>	<input style="width: 50px; height: 20px;" type="text"/>	<input style="width: 50px; height: 20px;" type="text"/>	<input style="width: 50px; height: 20px;" type="text"/>	<input style="width: 50px; height: 20px;" type="text"/>	<input style="width: 50px; height: 20px;" type="text"/>	<input style="width: 50px; height: 20px;" type="text"/>	<input style="width: 50px; height: 20px;" type="text"/>
Stop Time	<input style="width: 50px; height: 20px;" type="text"/>	<input style="width: 50px; height: 20px;" type="text"/>	<input style="width: 50px; height: 20px;" type="text"/>	<input style="width: 50px; height: 20px;" type="text"/>	<input style="width: 50px; height: 20px;" type="text"/>	<input style="width: 50px; height: 20px;" type="text"/>	<input style="width: 50px; height: 20px;" type="text"/>	<input style="width: 50px; height: 20px;" type="text"/>
Number of People	<input style="width: 50px; height: 20px;" type="text"/>	<input style="width: 50px; height: 20px;" type="text"/>	<input style="width: 50px; height: 20px;" type="text"/>	<input style="width: 50px; height: 20px;" type="text"/>	<input style="width: 50px; height: 20px;" type="text"/>	<input style="width: 50px; height: 20px;" type="text"/>	<input style="width: 50px; height: 20px;" type="text"/>	<input style="width: 50px; height: 20px;" type="text"/>

Start Date:

End Date:

Office Use Only

Which air system/s are we dealing with?

How many other areas does it serve?

Current Occupancy Schedule

	<i>Mon</i>	<i>Tues</i>	<i>Wed</i>	<i>Thur</i>	<i>Fri</i>	<i>Sat</i>	<i>Sun</i>	<i>Stat</i>
Occupied Time	<input style="width: 50px; height: 20px;" type="text"/>	<input style="width: 50px; height: 20px;" type="text"/>	<input style="width: 50px; height: 20px;" type="text"/>	<input style="width: 50px; height: 20px;" type="text"/>	<input style="width: 50px; height: 20px;" type="text"/>	<input style="width: 50px; height: 20px;" type="text"/>	<input style="width: 50px; height: 20px;" type="text"/>	<input style="width: 50px; height: 20px;" type="text"/>
Unoccupied Time	<input style="width: 50px; height: 20px;" type="text"/>	<input style="width: 50px; height: 20px;" type="text"/>	<input style="width: 50px; height: 20px;" type="text"/>	<input style="width: 50px; height: 20px;" type="text"/>	<input style="width: 50px; height: 20px;" type="text"/>	<input style="width: 50px; height: 20px;" type="text"/>	<input style="width: 50px; height: 20px;" type="text"/>	<input style="width: 50px; height: 20px;" type="text"/>

Sustainability Office

Received Date:

Approved: Yes/No Date:

By:

BMS Admin Office

Received by:

Implemented by:

Schedule as implemented

	<i>Mon</i>	<i>Tues</i>	<i>Wed</i>	<i>Thur</i>	<i>Fri</i>	<i>Sat</i>	<i>Sun</i>	<i>Holidays</i>
<input style="width: 50px; height: 20px;" type="text"/>	<input style="width: 50px; height: 20px;" type="text"/>	<input style="width: 50px; height: 20px;" type="text"/>	<input style="width: 50px; height: 20px;" type="text"/>	<input style="width: 50px; height: 20px;" type="text"/>	<input style="width: 50px; height: 20px;" type="text"/>	<input style="width: 50px; height: 20px;" type="text"/>	<input style="width: 50px; height: 20px;" type="text"/>	<input style="width: 50px; height: 20px;" type="text"/>
<input style="width: 50px; height: 20px;" type="text"/>	<input style="width: 50px; height: 20px;" type="text"/>	<input style="width: 50px; height: 20px;" type="text"/>	<input style="width: 50px; height: 20px;" type="text"/>	<input style="width: 50px; height: 20px;" type="text"/>	<input style="width: 50px; height: 20px;" type="text"/>	<input style="width: 50px; height: 20px;" type="text"/>	<input style="width: 50px; height: 20px;" type="text"/>	<input style="width: 50px; height: 20px;" type="text"/>

Start Date:

End Date: