



University of Washington Bothell & Cascadia College

18115 Campus Way NE, Bothell, WA 98011 | 18345 Campus Way NE, Bothell, WA 98011

Energy Management Plan for Tier 1 Buildings

University of Washington Bothell
Cascadia College

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Introduction

The Energy Management Plan (EMP) functions as an outline of how the facility is managing energy. It provides a map of how all the pieces of energy management fit together. The EMP ensures that the implementation of energy management is transparent to anyone at any level of the organization.

Important Definitions

Defining *Campus and Campus-Level*

A *campus* is defined by ASHRAE Standard 100, 2018 as “a collection of buildings served by a campus district heating, cooling, water reuse, and/or power system owned by the same building owner.” The University of Washington Bothell & Cascadia College are considered a *campus* since all Tier 1 buildings are served by a campus district power system and are owned by the same building owner.

Since UW Bothell & Cascadia College are a *campus*, this allows us to take advantage of the *Campus-Level* compliance pathway. This allows us to treat our Tier 1 *campus* buildings as one entity and combine the EMPs into one concise document for submission to the Department of Commerce.

Defining *Campus District Heating and/or Cooling System*

A *campus district heating and/or cooling system* is defined as “a district heating and/or cooling system that serves a campus and is owned by the building owner.” UW Bothell & Cascadia College uses a campus district cooling system to cool all Tier 1 buildings as well as the Physical Plant building in which the district cooling system is located.

Defining *Connected Buildings*

Connected Buildings are “a collection of buildings with shared energy meter(s) on contiguous property.” UW Bothell & Cascadia College do not have any energy meters shared between buildings, as each building has its own separate meter.



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Defining Complex

A *complex* is defined as “a group of buildings interconnected by conditioned spaces on contiguous property.” When buildings are a *complex*, their floor area is combined into one gross floor area measurement. UW Bothell & Cascadia College contain several *complexes*.

Defining Conditioned Space

UW Bothell & Cascadia College have several buildings that share a *conditioned space*. A *conditioned space* is defined as “an area, room or space that is enclosed within the building's thermal envelope and is directly heated or cooled or is indirectly heated or cooled. Spaces are indirectly heated or cooled where they communicate through openings with conditioned spaces, where they are separated from conditioned spaces by uninsulated walls, floors or ceilings, or where they contain uninsulated ducts, piping, or other sources of heating or cooling.”



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Summary of Tier 1 Buildings

The following table lists all Tier 1 campus buildings. Complexes, or buildings that share a conditioned space on the contiguous property, are grouped together in banded rows.

WA Building ID	Building Name	Facility Code	Gross Square Feet	Combined Square Feet	Year Constructed	Primary Street Address	Ownership
KING10243	Bothell Founders Hall	UW1	120,889		2000	18115 Campus Way NE, Bothell, WA, 98011	UW Bothell
KING10241	Bothell Commons Hall	UW2	64,736	141,693	2001	11136 NE 180th St, Bothell, WA, 98011	UW Bothell
	Bothell Discovery Hall	DISC/UW3	76,957		2014	11122 NE 180th St, Bothell, WA, 98011	
KING10232	Cascadia Building 1	CC1	75,612	114,130		18345 Campus NE Way, Bothell, WA, 98011	Cascadia College
	Cascadia Building 2	CC2	38,518		2000		
KING10231	Cascadia Building 3	CC3	58,491		2009	18428 110th NE Ave, Bothell, WA, 98011	Cascadia College
KING10240	Bothell Campus Library	LB1	90,841	159,539	2000	18225 Campus Way NE, Bothell, WA, 98011	Shared
	Bothell Library Annex	LBA	17,808		2000	18215 Campus Way NE, Bothell, WA, 98011	
	Bothell Library Building 2	LB2	50,890		2001	18325 Campus Way NE, Bothell, WA, 98011	
KING17407	Innovation Hall	INV	80,000		2023	18330 110th Ave. NE, Bothell, WA, 98011	Shared



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Whole Building Metrics

Energy Accounting

All energy accounting is completed in ENERGY STAR Portfolio Manager. UW Bothell & Cascadia College's energy sources include Puget Sound Energy electricity and natural gas. The table below outlines the cadence and reporting strategy for each source.

Type	Source	Update Frequency
Electricity	Puget Sound Energy	Automated data entry on a monthly basis, facilitated by EnergyCAP
Natural Gas	Puget Sound Energy	Automated data entry on a monthly basis, facilitated by EnergyCAP



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Net Energy Use and Energy Use Intensity (5.2, 5.1.3.3, & 5.1.2.4)

Below is a table listing the Energy Use Intensity (EUI) of each Tier 1 building on the UW Bothell & Cascadia College. Every Tier 1 building uses the same Building Activity Type, Education: College/university, which has an Energy Use Intensity Target (EUI_t) of 102 for the 4C Climate Zone. The following EUI and Weather Normalized EUI (WNEUI) calculations were taken using data from the period of August 1st, 2022 to July 31st, 2023.

WA Building ID	Building Name	Facility Code	Gross Floor Area	Combined Square Feet	Site Net Energy Use (kBtu)	Energy Use Intensity	Weather Normalized Energy Use Intensity
KING10243	Bothell Founders Hall	UW1	120889		5682588	47	43.2
KING10241	Bothell Commons Hall	UW2	64736	141693	10520874	74.3	73
	Bothell Discovery Hall	DISC / UW3	76957				
KING10232	Cascadia Building 1	CC1	75612	114130	7441405	65.2	62.1
	Cascadia Building 2	CC2	38518				
KING10231	Cascadia Building 3	CC3	58491		3112128	53.2	52.4
KING10240	Bothell Campus Library	LB1	90841	159539	8054802	50.5	47.9
	Bothell Library Annex	LBA	17808				
	Bothell Library Building 2	LB2	50890				
KING17407	Innovation Hall	INV	80000		TBD	TBD	TBD



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Building Changes (5.1.2.5)

The major energy drivers that may impact the WNEUI and EUI at UW Bothell & Cascadia College include operating hours, occupants, weather, and energy using equipment.

Operating Hours:

UW Bothell operates two major operating profiles: 1) Fall, Winter, Spring, and 2) Summer.

Building	Fall, Winter, Spring	Summer
UW1	M-Th: 7AM-10PM F: 7AM-10PM Sa: 8AM-8PM Su: 12-8PM	M-Th: 7AM-10PM F: 7AM-10PM
UW2 & UW3	M-Th: 7AM-10PM F: 7AM-10PM Sa: 8AM-8PM Su: 12-8PM	M-F: 7AM-10PM
CC1 & CC2	M-Th: 7AM-9PM F: 7AM-7:30PM	M&W: 7AM-9PM T&Th: 7AM-7PM
CC3	M-F: 5:30AM-7PM	M-Th: 7AM-7PM
LB1 & LB2	M-Th: 8AM-10PM F: 8AM-6PM Sa: 10AM-5PM Su: 1-8PM	M-Th: 10AM-4PM F: 10AM-4PM
LBA	M-Th: 7AM-6PM F: 7AM-5PM	M-Th: 10AM-4PM



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Occupants:

The total number of occupants for each building fluctuates within a small percentage based on enrollment, but the energy use of the buildings is not heavily impacted. The campus typically sees the highest level of enrollment during the Fall quarter, followed by the Winter quarter, Spring quarter, and finally Summer quarter. Enrollment levels from year to year have not changed significantly.



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Energy Efficiency and Training

Energy Audit Reports

UW Bothell is an active member of the Commercial Strategic Energy Management (CSEM) Program provided by Puget Sound Energy. Since the EUI for all UW Bothell & Cascadia College buildings are less than or equal to the EUI of their activity types, no energy efficiency measures need to be implemented at this time.

Occupant Education (5.1.2.8)

UW Bothell has taken proactive steps to minimize energy consumption through a series of occupant education programs. These initiatives aim to raise awareness among building occupants and encourage sustainable practices. Let's delve into the specifics:

1. Energy-Saving Signage: Strategically placed signs serve as gentle reminders for occupants. After leaving a classroom, they are prompted to switch off lights, thereby reducing unnecessary energy usage. Additionally, these signs advocate for closing operable windows to maintain indoor temperatures efficiently.
2. Transparency and Monitoring: The campus fosters transparency by monitoring total energy consumption in various buildings. Dashboard monitors, accessible in locations like UW1, Discovery Hall, the Library, and CC3, display real-time data for everyone to see. This not only promotes accountability but also allows us to track energy trends over time.

Staff Training (5.1.2.9)

UW Bothell maintenance staff are highly encouraged to enroll in training and certification programs designed to help them operate buildings as efficiently as possible. The recommended training programs are as follows:

Building Operator Certification: Fundamentals, hosted by Building Potential

Building Operator Certification: Level I, hosted by Building Potential

Building Operator Certification: Level II, hosted by Building Potential

Certified Energy Manager Program, Offered by AEE

Resource Conservation Management Program, offered by the WSU Energy Program

Educational Courses from the Lighting Design Lab



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Capital Management Plan (5.1.2.10)

Our facilities team has created a capital management plan identifying energy-efficient or Energy Star-rated equipment replacements in case of equipment failures. A table showing equipment with their energy-efficient replacements can be found in the spreadsheet provided here:

[!\[\]\(a870788d6ed9b8fd294b7654a8c8526b_img.jpg\) **UW Bothell EMP: Energy Efficient Equipment Replacements**](#)



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Energy Manager Designation (5.1.1)

We have designated Tammy Cox to be our Energy Manager. Ms. Cox currently serves in the maintenance Supervisor II position. She will be responsible for maintaining this Energy Management Plan

Contact List (5.1.2.11)

The contact list for the UW Bothell energy management staff, preferred energy auditors, and local suppliers can be found in the table below.

Contact Name	Role	Organization	Contact Info
Tammy Cox	Energy Manager	UW Bothell	coxtam@uw.edu
Moe Salem		ATS	moes@atsinc.org
Lonn Inman		Ameresco	linman@ameresco.com
Michael Coffey		Macdonald Miller	Michael.Coffey@macmiller.com

Lighting

Performance (5.1.2.12)

Since all Tier 1 buildings have met their EUI_t, a lighting schedule is not required.

Occupant Satisfaction (5.1.2.13)

Since all Tier 1 buildings have met their EUI_t, a lighting satisfaction survey is not required.



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Endorsement

The Energy Manager will be responsible for reviewing and updating our energy management plan on an annual basis. Signatures from the Senior Director of Facilities Services and the Interim Vice President of Administrative Services will endorse their work.

University of Washington Bothell

Senior Director of Facilities Services

Nicole Sanderson _____

[Name]

Nicole Sanderson _____

[Signature]

04/03/2024 _____

[Date]

Cascadia College

Interim Vice President of Administrative Services

Shawna Pitts _____

[Name]

Shawna Pitts _____

[Signature]

04/03/2024 _____

[Date]