



UBC REAP 3.3 - Scorecard

Y	?	N	Energy & Emissions (E&E)	/31
precondition			P1 Energy Step Code Compliance (Step 3)	-
precondition			P2 Zero Carbon Step Code Compliance (EL-2)	-
precondition			P3 Energy Star Appliances	-
precondition			P4 Programmable Thermostats	-
precondition			P5 Energy Modeling Workshop	-
precondition			P6 Energy Commissioning	-
precondition			P7 Maintenance Contract for in-building Heating	-
precondition			P8 Building Level Energy Metering and Reporting	-
precondition			P9 Domestic Hot Water Energy Use Sub-metering and Reporting	-
precondition			P10 Refrigerant Emission Reporting	-
precondition			P11 Electric Vehicle Charging Infrastructure	-
0		16	1.1 Optimized Energy Performance (Step Code /4/PH)	16
0		6	2.1 Renewable Energy	6
0		5	3.1 Enhanced Energy Submetering and Reporting	5
0		1	4.1 Smart Thermostat	1
0		3	5.1 Electric Vehicle Charging Stations	3

Y	?	N	Water (W)	/15
precondition			P1 Low-Flow Plumbing Fixtures	-
precondition			P2 Outdoor Water Use Reduction	-
precondition			P3 Water Efficient Appliances	-
precondition			P4 Rainwater Management	-
0		7	1.1 Total Water Use Reduction	7
0		4	2.1 On-Site Rainwater Management	4
0		4	3.1 Domestic Hot Water Metering	4

Y	?	N	Biodiversity (B)	/8
precondition			P1 Ecological Planting	-
precondition			P2 Light Pollution Reduction	-
precondition			P3 Bird Friendly Design - Basic	-
0		3	1.1 Planting for Biodiversity and Ecosystem Health	3
0		1	2.1 Site Green Space	1
0		3	3.1 Bird Friendly Design - Enhanced	3
0		1	4.1 Food Growing Opportunity	1

Y	?	N	Materials & Resources (M&R)	/10
precondition			P1 Zero Waste Ready	-
precondition			P2 Embodied Carbon Reporting	-
precondition			P3 Construction and Demolition Waste	-
0		2	1.1 Responsibly Sourced Materials	2
0		5	1.2 Embodied Carbon Target	5
0		2	1.3 Mass Timber Superstructure	2
0		1	1.4 Healthy Building Materials	1

legend

	major change
	minor change
	housekeeping change

Y	?	N	Climate Adaptation (CA)	/13
precondition			P1 2050 Climate Ready Thermal Comfort Modelling and Design	-
0		7	1.1 2050 Energy Efficient Climate Ready Design	7
0		3	1.2 Enhanced Resiliency	3
0		3	1.3 On Site Backup Power	3

Y	?	N	Place & Experience (P&E)	/5
precondition			P1 Project Community Amenity Spaces	-
0		5	1.1 Project Exemplary Community Amenity Spaces	5

Y	?	N	Health & Wellbeing (H&W)	/11
precondition			P1 Bicycle Parking & Storage Room(s)	-
precondition			P2 Low-Emitting Products	-
precondition			P3 Construction Indoor Air Quality Management	-
precondition			P4 Air Filtration Requirement	-
0		1	1.1 IAQ Assessment	1
0		2	2.1 Additional Bicycle Facilities	2
0		2	3.1 Low-Emitting Products	2
0		2	4.1 Connection to Nature	2
0		2	5.1 Daylight Access	2
0		2	6.1 Active Living	2

Y	?	N	Quality (Q)	/7
precondition			P1 Sustainability Commitment	-
precondition			P2 Educate the Homeowner	-
precondition			P3 Educate the Sales & Leasing Staff	-
precondition			P4 Green Building Specialist	-
precondition			P5 Design for Security and Crime Prevention	-
precondition			P6 Integrated Design and Workshop	-
0		4	1.1 Durable Building	4
0		3	2.1 Education and Awareness	3

Y	?	N	Innovation & Research (I&R)	/10
precondition			P1 Contribution to Low Carbon Development and Research	-
0		2	1.1 Exemplary Performance	2
0		3	1.2 Innovation or Pilot	3
0		5	2.1 Research	5

Total					/100+10
Y	?	N			
0	0	100	Total Credits		100
0	0	10	Additional Innovation & Research Credits		10
Gold					50
Gold Plus					60
Platinum					70
Platinum Plus					80

ENERGY & EMISSIONS

Green Building Action Plan Goals

UBC buildings will advance the campus towards net-positive energy use and greenhouse gas neutrality by reducing energy demand and focusing UBC buildings will have indoor thermal environments that are comfortable and enhance health and wellbeing.
 UBC will integrate lessons learned to improve building energy performance.

E&E	Precondition	
P1	Energy Step Code Compliance (Step 3)	
	Design and construct buildings to conform to the following BC Energy Step Code energy performance requirements: Residential Buildings, Step 3: 120 kWh/m ² -yr (TEUI) and 30 kWh/ m ² -yr (TEDI) as specified by the Energy Step Code Regulation (Table 10.2.3.3.-H). Offices and Other Businesses, Step 2 as specified by the Energy Step Code Regulation (Table 10.2.3.3.-I and Table 10.2.3.3.-J)	
P2	Zero Carbon Step Code Compliance (EL-2)	
	Design and construct buildings to conform to the following greenhouse gas intensity (GHGI) performance requirement: BC Energy Step Code, Medium: 7 tCO ₂ e/m ² -yr (GHGI) as specified by the Energy Step Code Regulation.	
P3	Energy Star Appliances Specify and install Energy Star-labelled, or equivalent performance, driers and refrigerators in each unit.	
P4	Programmable Thermostats	
	Specify and install programmable thermostats for at least the largest heating zone in each unit.	
P5	Energy Modeling Workshop	
	Model the energy performance of the building and hold a workshop with the design team, a representative from UBC Sustainability and Engineering, and contractor to evaluate the results and optimize the design of the building.	
P6	Energy Commissioning	
	Contract a third party Commissioning Authority to develop and implement a commissioning plan for all major building energy systems, in accordance with CSA Z5000-18, and verify that they are installed, calibrated, and perform according to design intent.	

<p>P7</p>	<p>Energy Systems Maintenance Contract</p>	
	<p>For buildings with in building heating systems, establish a comprehensive and preventative maintenance contract covering the heat pump based heating and cooling system and all related building energy, HVAC and plumbing systems, established to cover a period of no less than 5 years after occupancy of the building. This precondition applies in cases where the building is not served by a utility-owned, professionally maintained and operated energy system (e.g. buildings not subject to a Community Energy Covenant as defined in the NDES Infrastructure Agreement between UBC and Corix).</p>	
<p>P8</p>	<p>Building Level Energy Metering and Reporting</p>	
	<p>Support UBC in establishing an ENERGY STAR Portfolio Manager (ESPM) account and reporting building utility consumption by:</p> <ul style="list-style-type: none"> • Providing completed auto upload permission forms where required; or • Sharing ESPM account(s) with UBC Sustainability and Engineering that have been established by a qualified service provider. For mixed-use developments, establish utility metering for each major use class (e.g., residential, commercial or retail) and building typology (e.g., high rise or townhouse). 	
<p>P9</p>	<p>Domestic Hot Water Energy Use Sub-metering and Reporting</p>	
	<p>Install energy metering for domestic hot water energy use for each major use class (e.g., residential, commercial or retail) and building typology (e.g., high rise or townhouse) and report energy use to UBC Sustainability and Engineering.</p>	
<p>P9</p>	<p>Refrigerant Emission Reporting</p>	
	<p>Determine and report the life cycle equivalent annual carbon dioxide emissions of refrigerants in buildings in kgCO2.</p>	
<p>P10</p>	<p>Electric Vehicle Charging Infrastructure</p>	
	<p>Provide a minimum of one energized level 2 outlet per residential unit. Level 2 charging capacity that provides a minimum of 40A service and a minimum performance level of 12 kWh per stall, over an eight (8) hour period must be provided. Load sharing (up to four-way) and load management systems may be utilized. Exceptions may be granted in cases where utility mandated transformer upgrades are required.</p>	

E&E	Optimization	Attempted Points	Total Points
1.1	<p>Optimized Energy Performance (Step Code 4/PH)</p> <p>Design and construct the buildings to meet the following Energy Step Code Regulation performance requirements: Residential, Step 4: 100 kWh/m²-yr (TEUI) and 15 kWh/ m²-yr (TEDI) as specified by the Energy Step Code Regulation (Table 10.2.3.3.-H). Offices and Other Businesses, Step 3 as specified by the Energy Step Code Regulation (Table 10.2.3.3.-I and Table 10.2.3.3.-J) – 10 points or Passive House Performance: Design and construct the building to conform to the Passive House Planning Package, version 9 or newer, meeting the requirements of Section 10.2.3.3 (3) of the Energy Step Code Regulation. –16 points</p>		16
1.2	<p>Renewable Energy</p> <p>Use on site renewable energy systems to offset all or a portion of the building's annual electricity consumption as follows:</p> <ul style="list-style-type: none"> • 4% – 2 points • 8% – 4 points • 12% – 6 points 		6
3.1	<p>Enhanced Energy Submetering and Reporting</p> <p>Install energy metering for the following: All major energy end uses (representing 10% or more of total energy consumption) for each major use class (e.g., residential, commercial or retail) and building typology (e.g., high rise or townhouse) and/or suite level thermal energy consumption.</p> <ul style="list-style-type: none"> • Major end and space use submetering. – 2 points and /or • Suite level thermal energy submetering. – 3 points 		5
4.1	<p>Smart Thermostat</p> <p>Install a smart thermostat to control heating and cooling that has wi-fi functionality, can detect absence through geofencing or occupancy sensors and allows users to track energy use.</p>		1
5.1	<p>Electric Vehicle Charging Stations</p> <p>Install Level 2 charging stations for visitor or shared use and/or the following percentage of owners'/residents' parking.</p> <ul style="list-style-type: none"> • 1 visitor and/or shared station per 100 units. – 1 point • 5% of owners'/residents' parking. – 1 point • 10% of owners'/residents' parking. – 1 point 		3
Total Optimization Points		0	31

WATER

Green Building Action Plan Goals

UBC will practice responsible water management and use at the building and site scale by: advancing water conservation and efficiency, exploring alternative water supply and treatment solutions, and building water supply resiliency.

UBC will use a low-impact development approach to rainwater management at the site scale to mitigate risk and respect the natural hydrology of the

W	Precondition	
P1	Low-flow Plumbing Fixtures	
	Specify and install: <ul style="list-style-type: none"> • Water-saving showerheads with a maximum flow rate of 5.7 L per minute in each shower. • Low flow faucets with aerators in all bathroom sinks with a maximum flow of 3.8 L per minute. • Low flow faucets with aerators in all kitchen sinks with a maximum flow of 6.8 L per minute. 	
P2	Total Water Use Reduction	
	Option 1: Design and install a water-efficient irrigation system that includes an automated controller, rain or soil sensors and pressure regulator; for non-grass areas, use a micro- or drip-feed irrigation. Reduce the project's landscape water use by at least 30% from the site's calculated baseline of the peak watering month through plant selection and irrigation efficiency. Option 2: Install a temporary irrigation system.	
P3	Water Efficient Appliances	
	Specify and install: <ul style="list-style-type: none"> • Energy Star labelled, or equivalent performance, clothes washers; if washers are available only as an option, specify and offer only models complying to this standard. • Energy Star labelled dishwashers, or equivalent performance; if dishwashers are available only as an option, specify and offer only models complying with this credit. 	
P4	Domestic Hot Water Metering	
	Detain the 10-year, 24-hour storm volume and discharge at the 2-year, 40-hour pre- development rate on site or at a designated central facility using low-impact development and green infrastructure as far as possible.	

W	Optimization	Attempted Points	Total Points
1.1	Total Water Use Reduction		7
	Reduce the total indoor and outdoor potable water use from the calculated code baseline using efficient fixtures, efficient landscaping practices and/or alternative water sources. <ul style="list-style-type: none"> • 35% reduction from baseline. – 1 points • 40% reduction from baseline. – 2 points • 45% reduction from baseline. – 3 points • 50% reduction from baseline. – 4 points • 55% reduction from baseline. – 7 points 		
2.1	On-Site Rainwater Management		4
	Provide permeable surfaces for low impact rainwater management for a percentage of areas of the site. The following surfaces are eligible: grass with 12" topsoil, planting areas with 24" topsoil, rain gardens, extensive vegetated roofs, swale, and pervious paving. <ul style="list-style-type: none"> ● Permeable surfaces on 30% of the site. – 2 points ● Permeable surfaces on 50% of the site. – 2 points 		
3.1	Domestic Hot Water Metering		4
	In units with central domestic hot water consumption, provide building level or individual suite hot water submetering. <ul style="list-style-type: none"> • Provide submetering of hot water consumption at the building level. – 1 point • Provide submetering of hot water consumption at the suite level. – 3 points 		
Total Optimization Points		0	15

BIODIVERSITY			
Green Building Action Plan Goals			
UBC will develop highly functioning landscapes at the building and site scale to contribute to biodiversity and natural ecosystem processes. UBC will engage campus teaching and research opportunities to enhance biodiversity management capacity.			
B	Precondition		
P1	Ecological Planting		
	Select native or adaptive plant species that are appropriate for the ecoregion, suitable for the site conditions and climate (including changing conditions); and fulfill the design intent. Mature plant height, spread and form must be considered in plant selection as a means to reduce maintenance. Select plants that are suited to the sun and shade conditions of the site and are drought tolerant. Include plants that are pollinators and provide a food source for birds.		
P2	Light Pollution Reduction		
	Do not exceed the current Illuminating Engineering Society (IES) illuminance requirements as stated in Lighting for Exterior Environments.		
P3	Bird Friendly Design - Basic		
	Identify bird collision risks in building and landscape design; and apply appropriate strategies to: <ul style="list-style-type: none"> • eliminate flythrough conditions in glazing up to height of 16m or 4 m above tallest vegetation; whichever is greater; include treatment of glass corners 5m in each direction • treat or cover by building integrated structure glazing immediately adjacent to existing bird habitat (eg ravine, natural area) or known migratory paths 		
B	Optimization	Attempted Points	Total Points
1.1	Planting for Biodiversity and Ecosystem Health		3
	Enhance biodiversity and ecosystem health by achieving the following: Develop a Landscape Maintenance Plan — 1 point Develop a landscape maintenance plan that instructs maintenance contractors on the sustainable care of plants over the lifetime of the building and landscape. Maximize Native Planting — 1 point Provide a plant list that demonstrates that 70% of the plantings (by number of plants) are native. Pollinator Gardens — 1 point Provide a plant list that demonstrates that 20% of planting choices (by number of plants) and landscape design support pollinators such as hummingbirds, native bees, butterflies, moths, and bats.		

2.1	<p>Site Green Space</p> <p>Dedicate 30% of the total site area (including the building footprint) to green space. Eligible spaces include: grass, areas with plants, vegetated roofs, living walls, balcony greenery, areas dedicated to food production (excluding paving).</p>		1
3.1	<p>Bird Friendly Design - Enhanced</p> <p>Part 1 – 2 points Treat or cover a minimum of 55% of all glazed surfaces (e.g., window glass, glass guardrails and windbreaks) of the building and surrounding glass structures up to a height of 16m or the tallest adjacent vegetation at maturity, whichever is taller and treat or cover all glazing adjacent to large areas of vegetation (over 100m²) and/ or water features (such as hard surface water features, pond, stream, rain garden)</p> <p>or</p> <p>Part 2 – 3 points Treat or cover a minimum of 85% of all glazed surfaces (e.g., window glass, glass guardrails and windbreaks) of the building and surrounding glass structures up to a height of 16m or the tallest adjacent vegetation at maturity, whichever is taller and treat or cover all glazing adjacent to large areas of vegetation (over 100m²) and/ or water features (such as hard surface water features, pond, stream, rain garden)</p>		3
4.1	<p>Food Growing Opportunity</p> <p>Provide food gardening spaces of at least 2.4 m² for 30% of residential units which do not have access to a private outdoor space of more than 9.3 m². Food gardens can be provided in raised common area garden plots on grade and/or on rooftops in planters or communal gardens.</p>		1
Total Optimization Points		0	8

MATERIAL AND RESOURCES

Green Building Action Plan Goals
 UBC will prioritize the use of building materials that have net positive environmental impacts.
 UBC will support marketplace transformation by designing buildings with materials that are not harmful to human and ecological health.
 UBC will support the development of the circular economy by promoting the adaptation, reuse and recycling of materials and products during a building's lifetime.

M&R	Precondition	
<p>P1</p>	<p>Zero Waste Ready</p> <p>1.Design buildings to be zero waste ready by providing dedicated areas for the collection and storage of waste, recyclable materials and organics (“resident recycling areas”).</p> <ul style="list-style-type: none"> ▪Recycling storage space shall be designed to promote recycling in accordance with the current version of the Metro Vancouver Technical Specifications of Recycling and Garbage Amenities in Multi-family and Commercial Developments. ▪Resident recycling areas shall be located and designed to provide convenient, accessible and pleasant recycling and organics collection locations to residents that minimize barriers to residents bringing waste and recycling to collection areas and returning to their units. ▪Identify specific strategies to minimize barriers and increase convenience beyond a typical status quo scenario (see Rationale below). Barriers include horizontal distance travelled, elevators, number of doors, walking through less secure or desirable paths such as parking areas or basement corridors, and exposure to weather. ▪Minimize the total one-way horizontal distance residents need to travel, limiting it to 50 m or less, by locating recycling areas close to elevators. ▪Centralized areas should be located at grade, or if not feasible no more than one level down from grade. ▪Areas must be accessible to all residents including those with restricted mobility. ▪Co-locate organics, recycling and garbage at recycling areas to provide equal convenience for each waste material. ▪Provide clear visual cues and signage to support residents in correct sorting of waste materials. <p>2.Waste collection areas must be provided that are accessible to waste haulers. These may be the same or separate from the resident recycling areas; in the latter case, provision must be made to ensure transfer of waste from resident recycling areas to collection areas.</p> <p>3.Provide a recycling and organics collection guide in the homeowners guide and in the storage area.</p> <p>AND</p> <p>4.Provide for the adequate collection of the following by contracting with a waste management company for the service:</p> <ul style="list-style-type: none"> ▪Mixed paper, cardboard, mixed containers and glass. ▪Food scraps. ▪Optional collection: soft plastics, styrofoam and other specialty items. 	
<p>P2</p>	<p>Embodied Carbon Reporting</p> <p>Perform a WBLCA (Whole Building Life Cycle Assessment) of the project's structure and enclosure and report the embodied carbon emissions (kg CO2-eq/sqm) following the UBC Whole Building Life Cycle Assessment Guidelines v1.0. Report the embodied carbon emission reduction of the proposed building compared to the equivalent baseline building. The LCA should be conducted with a 60-year building life, covering 'cradle to grave' impacts, excluding operational energy and water use and addressing optional 'beyond system boundary' impacts separately.</p>	
<p>P3</p>	<p>Construction and Demolition Waste</p> <p>Prepare and implement a Waste Management Plan that diverts 85% (by weight) of construction and demolition waste from landfill.</p>	

M&R	Optimization	Attempted Points	Total Points
1.1	<p>Responsibly Sourced Materials</p> <p>Specify and use sustainably sourced materials for at least 90% of a building component*, by weight or volume. Materials must meet one of the following requirements:</p> <ul style="list-style-type: none"> • Contain at least 25% reclaimed material • Contain at least 25% post-consumer or 50% pre-consumer recycled content • Wood products that are certified Forest Stewardship Council, (FSC) or CSA Z809 • Bio-based material • Sustainable concrete certified by the Concrete Sustainability Council's Responsible Sourcing Certification • Manufacturer participates in an extended producer responsibility program • No finish material used (eg. concrete floor) <p>*Building components for 1 point: Floor covering, insulation, sheathing, framing, drywall (interior), concrete cement or concrete aggregate, roofing, siding.</p> <p>Building components for 0.5 point: Pedestrian doors, cabinets, counters, interior trim, deck material, windows.</p>		2
1.2	<p>Embodied Carbon Reduction</p> <p>Follow the requirements of M&R P2 Embodied Carbon Reporting and achieve the following:</p> <ul style="list-style-type: none"> • Minimum 10% reduction for embodied carbon of the project's structure and enclosure in proposed building compared to equivalent baseline building - 2 points OR • Minimum 20% reduction for embodied carbon of the project's structure and enclosure in proposed building compared to equivalent baseline building - 5 points 		5
1.3	<p>Mass Timber Superstructure</p> <p>Specify and install a building superstructure consisting of at least 50% mass timber manufactured in BC (by value of the total superstructure). — 2 points</p>		2
1.4	<p>Healthy Building Materials</p> <p>Install ten different building products from at least three different manufacturers which meet the ingredient transparency criteria of a program specified below. The chemical inventory of the products must be disclosed to an accuracy of 0.1% (1000 ppm).</p> <ul style="list-style-type: none"> • Declare Label (International Living Future Institute): Red List Free, Declared; or LBC Compliant if at least 99.9% of the ingredients are disclosed; or • Health Product Declaration (HPD); or • Manufacturers Inventory of all ingredients by Chemical Abstract Service Registry Number (CASRN). or other 		1
Total optimization points		0	10

CLIMATE ADAPTATION			
Green Building Action Plan Goals			
UBC buildings and landscapes will have the resilience to respond to both anticipated and unpredictable changes in climate. UBC will engage with researchers in a meaningful and ongoing way to inform building policy and guidelines around climate adaptability.			
CA	Precondition		
P1	2050 Climate Thermal Comfort Modelling and Design The building design must meet thermal comfort requirements for 2050s. Buildings with mechanical cooling systems must follow requirements specified in Section 2.4 of the UBC Indoor Thermal Environment Technical Guidelines (Vancouver). Passively cooled buildings must meet City of Vancouver Energy Modelling Guideline requirements for passively cooled buildings using 2050's weather files and not exceed temperature acceptability limits by more than 20 hours. Perform thermal comfort modelling for buildings using future climate weather files for the 2050's (RCP 8.5 scenario).		
CA	Optimization	Attempted Points	Total Points
1.1	2050 Climate Ready Energy Efficient Design Meet a Cooling Energy Demand Intensity (CEDI) target using 2050 future climate weather files (RCP 8.5), and following Energy Step Code energy modelling requirements as follows: •25 kWh/m2-yr – 2 points •20 kWh/m2-yr – 4 points •15 kWh/m2-yr – 7 points		7
1.2	Enhanced Resiliency Achieve appropriate design strategies from the Mobilizing Building Adaptation and Resilience (MBAR) discussion papers on "Air Quality", "Fire", "Heat waves" and "Power outages and emergencies". • 10 different design strategies with at least 1 from each paper. — 1 point • 15 different design strategies with at least 1 from each paper. — 2 points • 20 different design strategies with at least 2 from each paper. — 3 points		3
1.3	On Site Backup Power Design for protection from power outages from the grid, through strategies including permanent back-up power, switching gear and/or power hook-ups, and infrastructure for temporary generators to provide power for critical utilities such as HVAC and the electrical component of heating systems, potable water supply and security. Back up power must be provided for a duration of four consecutive days, 24 hours a day.		3
Total Optimization Points		0	13

PLACE AND EXPERIENCE

Green Building Action Plan Goals

UBC buildings and landscapes will provide opportunities for collaboration, innovation and community development to reflect the social and environmental sustainability aspirations of the University.

P&E	Precondition		
P1	Project Community Amenity Spaces		
	Provide community amenity spaces for residents including: <ul style="list-style-type: none"> • Outdoor spaces for residents which allow for opportunities for both quiet and social gathering activities, minimum one area for each activity; AND • A multi-purpose indoor space designed to support community activities and meeting the following requirements: located on the ground floor with direct access to the outdoors; includes an accessible washroom; and has a minimum floor area of 37.16 m² (400 sq ft). 		
P&E	Optimization	Attempted Points	Total Points
1.1	Project Exemplary Community Amenity Spaces		5
	Install indoor and outdoor community amenities from the list below. Each listed amenity is awarded 1 or 2 points, for up to 5 points in total. If more than 2 points are targeted, a minimum of one indoor amenity and one outdoor amenity is required.		
	Indoor Amenities		
	Family friendly community spaces (additional to PE P1) within or adjacent to enhanced lobbies or multi-purpose rooms such as a community play area or youth friendly space. The total area should be minimum 91.44 m ² (300 sq ft).		2
	A shared utilitarian multi-purpose space for messy or noisy activities such as a workshop space, pet wash, community mudroom, or small kitchen area etc.		1
	A secure community storage area on the ground floor for baby strollers with a minimum of one storage space per ten units. Strollers are used by young families on a daily basis and are often bulky to keep in the home.		1
	Small-scale gathering spaces within circulation routes or the end of corridors on different floors to increase opportunities for relaxing, studying, and meetings or social activities. The total area should be minimum 91.44 m ² (300 sq ft).		2
	Designate a bookable guest suite within the building near the lobby.		1
A community space for secure package delivery (in response to online shopping and food delivery services).		1	

A new innovative community indoor amenity (additional to PE P1) that supports a range of intergenerational social and recreational opportunities.		1
Pet friendly washable flooring finishes installed for indoor common spaces.		1
Outdoor amenities		
One accessible outdoor wash station for bikes and pets with a concrete pad, water source and good drainage.		1
A variety of outdoor spaces for small quiet gatherings to increase recreational choices and activities such as a BBQ area, fireplace, and comfortable seating and picnic tables etc. There must be a minimum of two defined spaces.		1
Roof top social spaces outfitted with comfortable seating and planters. The space would be able to comfortably accommodate a minimum of 10 people.		2
A small child friendly play area with complementary seating for adults.		1
A new innovative community outdoor amenity that supports a range of intergenerational social and recreational opportunities.		1
Total Optimization Points		5

HEALTH & WELLBEING

Green Building Action Plan Goals

UBC will enhance the mental, physical and social dimensions of wellbeing by making them integral to building and landscape design decisions. UBC researchers, community stakeholders and building occupants will be engaged in a meaningful and ongoing way to inform building design decisions. UBC will become a leader in enhancing wellbeing through the built environment within the context of higher education in Canada.

H&W	Precondition	
P1	<p>Bicycle Parking & Storage Room(s)</p> <p>Provide the bicycle storage and facilities below:</p> <ul style="list-style-type: none"> • Provide Class 1 bicycle storage facilities at a rate of: 1.5 spaces per studio or one bedroom unit; 2.5 spaces per 2 bedroom unit; and 3 spaces per 3 or 4 bedroom units. (Requirements include 10% oversize spaces, and one electrical outlet per two spaces); and • An in building bicycle repair station; and • 0.5 Class 2 bicycle storage spaces per dwelling unit; and • A 2 x 3 m concrete pad outside the building, close to the building entrance, with a standard outlet or conduit for electrified bike share. <p>All bicycle parking and storage to be provided in accordance with the UBC Development Handbook.</p>	
P2	<p>Low-Emitting Products</p> <p>Specify and use:</p> <ul style="list-style-type: none"> • Adhesives, sealants and sealant primers that have been tested and found compliant with the California Department of Public Health Standard Method V1.1–2010, using CA Section 01350, Appendix B, New Single-Family Residence Scenario, for emissions testing guidance. • Paints and coatings rated at a minimum GPS-2 by the Master Painter’s Institute on the interior of the building. 	
P3	<p>Construction Indoor Air Quality Management</p> <p>Prepare and implement an Indoor Air Quality (IAQ) Management Plan for the construction and pre-occupancy phases of the building. During construction, meet or exceed all applicable recommended control measures of the Sheet Metal and Air Conditioning National Contractors Association (SMACNA) IAQ Guidelines for Occupied Buildings under Construction, 2nd edition, 2007, ANSI/SMACNA 008–2008, Chapter 3.</p>	
P4	<p>Air Filtration</p> <p>Ventilation systems will be designed to include filtration devices with a Minimum Efficiency Reporting Value (MERV) of 13, as defined by ANSI/ASHRAE 52.2 to protect against airborne fine particulate matter, viruses and bacteria.</p>	

H&W	Optimization	Attempted Points	Total Points
1.1	<p>IAQ Assessment</p> <p>After construction has ended and the building has been completely cleaned, prior to occupancy, complete one of the following:</p> <ul style="list-style-type: none"> • Install new filtration media and flush out the building by supplying an outside air volume of 4,267,14 litres per square metre of gross floor area; or • Conduct a Baseline Indoor Air Quality Test. 		1
2.1	<p>Additional Bicycle Facilities</p> <p>In addition to the requirements for bicycle parking in HW P1, provide one of the following:</p> <ul style="list-style-type: none"> • Provide an additional 0.25 Class I bicycle storage per bedroom; or • Provide an at grade, Class I bicycle storage room for at least 50% of the Class I spaces with a bike specific entrance; or • Provide points for giving each unit an on-campus bike share membership for the duration of their stay in the building. 		2
3.1	<p>Low-Emitting Products</p> <p>Specify and install products that meet the following requirements:</p> <ul style="list-style-type: none"> • Carpets and carpet cushions: Carpet and Rug Institute Green Label Plus or has been tested according to California Department of Public Health (CDPH) Standard Method v1.2–2017 and can demonstrate compliance with the VOC limits in Table 4-1 of the method. — 1 point • Interior composite wood products, such as cabinetry doors and boxes, flooring, doors, trim, etc.: CARB ultra low emitting or have no added urea formaldehyde. — 1 point 		2
4.1	<p>Connection to Nature</p> <p>Demonstrate connections to nature through direct visual connections to plants, sunlight, and views of nature and/or, indirect connections to nature through the use of natural materials, patterns, colours, or images.</p> <p>Ensure connections to nature in:</p> <ul style="list-style-type: none"> • 95% of units, with nature visible from the living room and at least one bedroom. • All occupied amenity spaces and lobbies; and 90% of building corridors. 		2
5.1	<p>Daylight Access</p> <p>Ensure adequate levels of daylight within each unit by achieving the following requirements:</p> <ul style="list-style-type: none"> • Transparent envelope glazing area is a minimum of 7% of the unit floor area. • Visible light transmittance (VLT) of envelope glazing is greater than 40%. • 30% of the area is within 6 m (20 ft) of transparent envelope glazing. 		2

<p>6.1</p>	<p>Active Living</p> <p>Design a secondary staircase that is safe, visually appealing, and invites regular use through the following strategies:</p> <ul style="list-style-type: none"> • Ensure the staircase services all floors of the project, excluding the parking garage, and can be accessed by all regular building occupants. • Locate the staircase so that it is visible from the building entrance. • Install transparent fire-rated glazing to each floor level of the staircase. The area of glazing must span at least 0.93 square meters (10 square feet) in order to increase visibility of the staircase and provide views to the interior, from inside the staircase. • Use appealing materials and finishes. • Install visible signage at elevators and the entrance to the staircase to encourage stair use. 		<p>2</p>
<p>Total Optimization Points</p>		<p>0</p>	<p>11</p>

QUALITY

Green Building Action Plan Goals

UBC buildings and landscapes will be durable, reliable and resilient.

Q	Precondition	
P1	<p>Sustainability Commitment Submit a "Sustainability Statement" that describes how the development will be designed to achieve high environmental standards related to UBC's Green building Action Plan and the university's sustainability policies in the eight component areas AND Provide a list of professionals or responsible parties who will sign declaration letters for meeting requirements of REAP preconditions and credits.</p>	
P2	<p>Educate the Homeowner Provide a homeowners' manual to educate homeowners on the features of the building as well as the proper use and maintenance of facilities and equipment. Include the following details in the homeowners' manual: • A completed checklist of REAP credits, including product manufacturers' manuals for all equipment, fixtures, and appliances with Energy Star details; and • Guidance on how to minimize energy, water, and resource use in everyday activities and choices throughout the home to promote sustainable behavior; and • Information on sorting and recycling in the building; And • Ensure the manual is incorporated into record drawings or some form that will be accessible beyond the first generation of owners/residents; and • Conduct a one-hour walkthrough with the occupants and building manager(s) to educate them on all sustainable equipment and features.</p>	
P3	<p>Educate the Sales & Leasing Staff Develop marketing materials based on the environmental performance of the project and ensure the sales or leasing staff is knowledgeable about the green building features.</p>	
P4	<p>Green Building Specialist Engage a Green Building Specialist who is an expert in green buildings and sustainable construction practices to provide advice on effective green building strategies to the design team.</p>	
P5	<p>Design for Security and Crime Prevention Demonstrate that the design has been reviewed by an expert in Crime Prevention Through Environmental Design (CPTED) and that recommendations have been followed.</p>	

P6	Integrated Design Workshop		
	<p>Beginning in pre-design and continuing throughout the design phases, Identify and use opportunities to achieve synergies across disciplines and building systems; and</p> <p>Hold a preliminary workshop during schematic design based on REAP preliminary workshop requirements:</p> <ul style="list-style-type: none"> •Conduct a facilitated workshop/meeting which provides, using REAP as a basis, a focus on site conditions, building massing & orientation, building materials, embodied carbon, envelope attributes, sustainable energy and water systems, operational parameters, and climate resiliency •Explore ideas for the project based on REAP credits as well as UBC’s GBAP goals, targets and vision •Investigate design strategy synergies that will meet project goals •Present preliminary energy/ carbon and water budget analysis to verify targets, performance benchmarks, and potential strategies to achieve project goals •Explore synergies among systems and components 		
Q	Optimization	Attempted Points	Total Points
1.1	Durable Building		4
	<p>Develop and implement a Building Durability Plan in accordance with the principles in CSA S478:19 - Durability in Buildings. Include: Structure, building cladding assemblies, glazing assemblies and roofing assemblies.</p> <ul style="list-style-type: none"> • Design service life is 60 years. • Where component and assembly design service lives are shorter than the design service life, design so they can be readily replaced. • Develop and manage a quality management program in accordance with CSA S478. • Categories of failure are 6,7, or in table 3 use a design service life equal to the design service life. • Categories of failure 4 or 5 in table 3 use a design service life quality to at least half of the design service life of the building. • Qualified building science professional to develop and deliver the Building Durability Plan. 		
2.1	Education and Awareness		3
	<p>Develop the following programs to educate occupants and visitors about the benefits of the green building and the sustainable features of the project:</p> <ul style="list-style-type: none"> • A script for a guided tour of the building describing the sustainable features of the project; and • A case-study highlighting the sustainable features of the project to inform the UBC community and future buildings of the successes of the project. 		
Total Optimization Points		0	7

INNOVATION & RESEARCH

GREEN BUILDING ACTION PLAN GOALS

UBC buildings and landscapes will be durable, reliable and resilient.

I&R	Precondition		
P1	Contribution to Low Carbon Mobility and Research		
	Contribute to a Low Carbon Development Fund which will help resource low carbon community mobility initiatives and support REAP research projects.		
I&R	Optimization	Attempted Points	Total Points
1.1	Exemplary Performance		2
	Demonstrate exceptional performance above the requirements set by an existing credit, to reach the next performance level.		
1.2	Innovation or Pilot		3
	Achieve significant, measurable sustainable building performance using a strategy not addressed in REAP; or		
2.1	Research		5
	Developer to collaborate in a research project related to UBC neighbourhood residential building and landscape design and which has a likelihood of providing information relevant to policy outcomes for UBC and/or the broader community. The research project is to be conducted in coordination with UBC SEEDs or UBC Campus as a Living Lab Initiative with a project proposal preapproved by C&CP. Project topic must be related to the following : <ul style="list-style-type: none"> ■Climate action: reduction in operational or embodied emissions and/or adaption to current and future climate on a building or community scale. ■Goals, targets, indicators and actions in UBC’s Green Building Action Plan: residential section (starts page 66). 		
Total Optimization Points		0	10