

GREEN BUILDING CERTIFICATION

UBC has a history of pursuing strong operational sustainability goals and targets and has developed numerous plans and policies that reflect the University’s vision and guide its sustainability activities.

The addition to the Totem Park neighbourhood represents an opportunity for UBC to further explore aspects of economic, social and environmental sustainability in the context of a new student residence. The sustainable strategies being considered for this project focus on promoting resident comfort, health and well-being.

These strategies include a holistic approach to energy management through:

- Strategically balancing daylighting needs with glazing performance by establishing a window to wall ratio of 30%; developing a high performance building envelope with targeted effective thermal resistive values of R30 for roof assemblies, R20 for wall assemblies, and R2 for window assemblies;
- Establishing an aggressive airtightness target of 1.5 air changes per hour at 50 Pa;
- Supplementing natural light sources with energy efficient LED lighting in all spaces;
- Designing to achieve a maximum Energy Use Intensity of 80kWh/sm/yr;
- Providing a constant supply of fresh air to all residence rooms and common spaces;
- Specifying low-VOC materials and finishes that do not negatively impact air quality;
- Recovering heat from the building’s exhaust system;
- Connecting to the campus’ low-carbon District Energy System for heating domestic hot water and ventilation air. Capacity of the DES system to meet the energy requirements of the new residence has been confirmed by UBC.

Additional sustainable strategies for the project are framed around:

- Optimizing the life-cycle impact of the appliances, fixtures, materials and finishes selected for the residence on the day-to-day operations of the facility. The products specified for the project are expected to be both reliable and durable.
- Minimizing potable water consumption by specifying low-flow fixtures and planting drought-tolerable native vegetation
- Reducing storm water flows by 50% from the previous site condition for a 1 in 10 year, 24 hour event.
- Minimizing the impact of construction activities by: minimizing the extent of the impacted site area, minimizing waste by maximizing the opportunities for prefabrication; and diverting the majority of solid construction waste to local recycling facilities.

The mandated performance target for project is LEED Gold Certification. The Project Team has adopted the LEED for Homes Multi-Family Midrise v2010 as its benchmarking tool. LEED for Homes represents a consensus standard for green homebuilding in the US. In addition to the credit categories found in most LEED rating systems, LEED for Homes also recognizes the placement of projects in a socially and environmentally responsible ways in relation to the larger community, an objective that is consistent with the goals of the Campus Plan. The LEED for Homes Multi-Family Midrise is described in detail in the following pages.



**UBC Totem Park Residence Infill Phase II Narrative:
LEED for Home Mid-rise**

The LEED for Homes Mid-rise rating system is a certification program focused on promoting healthy and sustainable homes. It is designed for developments between 3 to 12 storeys that are at least 50% residential, and encourages a hands-on approach to green building among the design team, builder, and verification team.

In order to achieve LEED Mid-rise certification, projects must earn a minimum number of credits across the following eight different sustainability categories: Innovation & Design, Location & Linkages, Sustainable Sites, Water Efficiency, Energy & Atmosphere, Materials & Resources, Indoor Environmental Quality, and Awareness & Education. Testing and verification of fundamental mechanical and ventilation systems are also required as part of the LEED Midrise pre-requisites.

Project teams work with a LEED Design Consultant to incorporate green building features and practices, establish the targeted certification level and credits, and to document these credits. The design and construction team also work closely with the LEED Midrise Green Rater/Provider, who acts on behalf of the USGBC, to verify that prerequisites and credit intents are met through site inspections and testing.

LEED for Home Mid-rise is an appropriate green building rating system to use for the Totem Park Residence Infill Phase II project. The system was designed specifically for residential buildings (as opposed to commercial) and therefore includes strategies/credits tailored to residential design and construction. In addition, the system promotes an integrated approach to design and construction, including on-site verification, which increases quality control and is consistent with UBCs sustainability process. Further more, the inclusion of LEED Midrise Green Rater/Provider helps to streamline the process by providing access to the USGBC to provide prompt responses to any questions that arise. This helps to ensure a smooth certification process.

The preliminary checklist attached indicates we are targeting 70.5 points, where 65 are required to earn LEED® Gold Certification. We have identified additional points that potentially can be achieved or used as a substitute if one or more strategies are deemed unobtainable. It should be noted that the LEED® for Homes – Multifamily Mid-Rise simple checklist is a working document and is subject to change. This preliminary checklist will form the basis of discussion with UBC and the design team during our Sustainability Workshop.

1353B Pemberton Avenue, North Vancouver, BC V7P 2R6
604-924-0094



215-3811 COPCOUAVST
VANCOUVER/BC/V8B 1E5
TEL: 604 683-4323
FAX: 604 683-4313
WWW.PUBLICDESIGNCA

**UBC Totem Park Infill
Phase 2**

2525 West Mall, Vancouver, BC

PROJECT CODE 1537	STATUS DD
SCALE	DATE September 25, 2015

**Green Building
Certification 1**

SHEET
A0.00e

GREEN BUILDING CERTIFICATION

Checklist issued by Kane Consulting
Issued on: 2015-09-24

Checklist issued by Kane Consulting
Issued on: 2015-09-24



for Homes

LEED for Homes Mid-rise Project Checklist

Project Name: Totem Infill Phase 2

Project Point Total Targeted: 70.5	Maybe: 33	Certification Thresholds Certified: 35 Gold: 65
Certification Level Targeted: Gold	Points needed: 65	Silver: 50 Platinum: 80

Innovation and Design Process (ID)		(No Minimum Points Required)		OR	Max	Y/Pts	?	No
1. Integrated Project Planning	1.1 Preliminary Rating	Prereq	Y					
	1.2 Energy Expertise for MID-RISE	Prereq	Y					
	1.3 Professional Credentialed with Respect to LEED for Homes	1	1	0	0			
	1.4 Design Charrette	1	1	0	0			
	1.5 Building Orientation for Solar Design	1	0	0	1			
	1.6 Trades Training for MID-RISE	1	1	0	0			
2. Durability Management Process	2.1 Durability Planning	Prereq	Y					
	2.2 Durability Management	Prereq	Y					
	2.3 Third-Party Durability Management Verification	3	3	0	0			
3. Innovative or Regional Design	3.1 Innovation #1 Green Cleaning	1	0	1	0			
	3.2 Innovation #2 Enter innovation strategy	1	0	0	1			
	3.3 Innovation #3 Enter innovation strategy	1	0	0	1			
	3.4 Innovation #4 Enter innovation strategy	1	0	0	1			
<i>Sub-Total for ID Category:</i>				11	6	1	4	

Location and Linkages (LL)		(No Minimum Points Required)		OR	Max	Y/Pts	?	No
1. LEED ND	1 LEED for Neighborhood Development	LL2-6	10	0	0	10		
	2 Site Selection	2	2	0	0			
3. Preferred Locations	3.1 Edge Development	1	1	0	0			
	3.2 Infill	LL3.1	2	0	1	1		
	3.3 Brownfield Redevelopment for MID-RISE	1	0	0	1			
4. Infrastructure	4 Existing Infrastructure	1	1	0	0			
5. Community Resources/Transit	5.1 Basic Community Resources for MID-RISE	1	0	1	0			
	5.2 Extensive Community Resources for MID-RISE	LL 5.1, 5.3	2	0	0	2		
	5.3 Outstanding Community Resources for MID-RISE	LL 5.1, 5.2	3	0	0	3		
6. Access to Open Space	6 Access to Open Space	1	1	0	0			
<i>Sub-Total for LL Category:</i>				10	5	2	17	

Sustainable Sites (SS)		(Minimum of 5 SS Points Required)		OR	Max	Y/Pts	?	No
1. Site Stewardship	1.1 Erosion Controls During Construction	Prereq	Y					
	1.2 Minimize Disturbed Area of Site for MID-RISE	1	1	0	0			
2. Landscaping	2.1 No Invasive Plants	Prereq	Y					
	2.2 Basic Landscape Design	SS 2.5	1	1	0	0		
	2.3 Limit Conventional Turf for MID-RISE	SS 2.5	2	2	0	0		
	2.4 Drought Tolerant Plants for MID-RISE	SS 2.5	1	1	0	0		
	2.5 Reduce Overall Irrigation Demand by at Least 20% for MID-RISE	SS 2.5	3	0	0	3		
3. Local Heat Island Effects	3.1 Reduce Site Heat Island Effects for MID-RISE	1	0	1	0			
	3.2 Reduce Roof Heat Island Effects for MID-RISE	1	1	0	0			
4. Surface Water Management	4.1 Permeable Lot for MID-RISE	2	0	2	0			
	4.2 Permanent Erosion Controls	1	0	1	0			
	4.3 Stormwater Quality Control for MID-RISE	2	0	2	0			
5. Nontoxic Pest Control	5 Pest Control Alternatives	2	1.5	0.5	0			
6. Compact Development	6.1 Moderate Density for MID-RISE	2	0	0	2			
	6.2 High Density for MID-RISE	SS 6.1, 6.3	3	0	0	3		
	6.3 Very High Density for MID-RISE	SS 6.1, 6.2	4	4	0	0		
7. Alternative Transportation	7.1 Public Transit for MID-RISE	2	1	0	1			
	7.2 Bicycle Storage for MID-RISE	1	1	0	0			
	7.3 Parking Capacity/Low-Emitting Vehicles for MID-RISE	1	1	0	0			
<i>Sub-Total for SS Category:</i>				22	14.5	6.5	9	

Water Efficiency (WE)		(Minimum of 3 WE Points Required)		OR	Max	Y/Pts	?	No
1. Water Reuse	1.1 Water Reuse for MID-RISE	5	0	0	5			
	2.1 High Efficiency Irrigation System for MID-RISE	WE 2.2	2	2	0	0		
2. Irrigation System	2.2 Reduce Overall Irrigation Demand by at least 45% for MID-RISE	2	0	0	2			
	3.1 High-Efficiency Fixtures and Fittings	3	1	0	2			
3. Indoor Water Use	3.2 Very High Efficiency Fixtures and Fittings	6	4	0	2			
	3.3 Water Efficient Appliances for MID-RISE	2	2	0	0			
	<i>Sub-Total for WE Category:</i>				15	9	0	11

Energy and Atmosphere (EA)		(Minimum of 0 EA Points Required)		OR	Max	Y/Pts	?	No
1. Optimize Energy Performance	1.1 Minimum Energy Performance for MID-RISE	Prereq	Y					
	1.2 Testing and Verification for MID-RISE	Prereq	Y					
	1.3 Optimize Energy Performance for MID-RISE	34	10	9	15			
7. Water Heating	7.1 Efficient Hot Water Distribution	2	0	0	2			
	7.2 Pipe Insulation	1	0	1	0			
11. Residential Refrigerant Management	11.1 Refrigerant Charge Test	Prereq	Y					
	11.2 Appropriate HVAC Refrigerants	1	1	0	0			
<i>Sub-Total for EA Category:</i>				38	11	10	17	

Materials and Resources (MR)		(Minimum of 2 MR Points Required)		OR	Max	Y/Pts	?	No
1. Material-Efficient Framing	1.1 Framing Order Waste Factor Limit	Prereq	Y					
	1.2 Detailed Framing Documents	MR 1.5	1	0	1	0		
	1.3 Detailed Cut List and Lumber Order	MR 1.5	1	0	0	1		
	1.4 Framing Efficiencies	MR 1.5	3	1	1	1		
	1.5 Off-site Fabrication	4	0	4	0			
2. Environmentally Preferable Products	2.1 FSC Certified Tropical Wood	Prereq	Y					
	2.2 Environmentally Preferable Products	8	6.5	0	1.5			
3. Waste Management	3.1 Construction Waste Management Planning	Prereq	Y					
	3.2 Construction Waste Reduction	3	2.5	0.5	0			
<i>Sub-Total for MR Category:</i>				16	10	6.5	3.5	

Indoor Environmental Quality (EQ)		(Minimum of 6 EQ Points Required)		OR	Max	Y/Pts	?	No
2. Combustion Venting	2 Basic Combustion Venting Measures	Prereq	Y					
	3 Moisture Load Control	1	0	1	0			
4. Outdoor Air Ventilation	4.1 Basic Outdoor Air Ventilation for MID-RISE	Prereq	Y					
	4.2 Enhanced Outdoor Air Ventilation for MID-RISE	2	2	0	0			
	4.3 Third-Party Performance Testing for MID-RISE	1	1	0	0			
5. Local Exhaust	5.1 Basic Local Exhaust	Prereq	Y					
	5.2 Enhanced Local Exhaust	1	1	0	0			
	5.3 Third-Party Performance Testing	1	1	0	0			
6. Distribution of Space Heating and Cooling	6.1 Room-by-Room Load Calculations	Prereq	Y					
	6.2 Return Air Flow / Room by Room Controls	1	1	0	0			
	6.3 Third-Party Performance Test / Multiple Zones	2	2	0	0			
7. Air Filtering	7.1 Good Filters	Prereq	Y					
	7.2 Better Filters	EQ 7.3	1	0	0	1		
	7.3 Best Filters	2	0	2	0			
8. Contaminant Control	8.1 Indoor Contaminant Control during Construction	1	1	0	0			
	8.2 Indoor Contaminant Control for MID-RISE	2	0	2	0			
	8.3 Preoccupancy Flush	1	1	0	0			
9. Radon Protection	9.1 Radon-Resistant Construction in High-Risk Areas	Prereq	Y					
	9.2 Radon-Resistant Construction in Moderate-Risk-Areas	1	0	0	1			
10. Garage Pollutant Protection	10.1 No HVAC in Garage for MID-RISE	Prereq	Y					
	10.2 Minimize Pollutants from Garage for MID-RISE	EQ10.3	2	0	0	2		
	10.3 Detached Garage or No Garage for MID-RISE	3	3	0	0			
11. ETS Control	11 Environmental Tobacco Smoke Reduction for MID-RISE	1	1	0	0			
12. Compartmentalization of Units	12.1 Compartmentalization for Units	Prereq	Y					
	12.2 Enhanced Compartmentalization of Units	1	0	1	0			
<i>Sub-Total for EQ Category:</i>				21	14	6	4	

Awareness and Education (AE)		(Minimum of 0 AE Points Required)		OR	Max	Y/Pts	?	No
1. Education of the Homeowner or Tenant	1.1 Basic Operations Training	Prereq	Y					
	1.2 Enhanced Training	1	0	0	1			
	1.3 Public Awareness	1	0	1	0			
2. Education of Building Manager	2 Education of Building Manager	1	1	0	0			
	<i>Sub-Total for AE Category:</i>				3	1	1	1

public

215-381-0000/0141ST
VANCOUVER/BC/4815
TEL: 604 788-4323
FAX: 604 788-4313
WWW.PUBLICDESIGNCA

UBC Totem Park Infill Phase 2

2525 West Mall, Vancouver, BC

PROJECT CODE: 1537
SCALE: DD
STATUS: DD
DATE: September 25, 2015

Green Building Certification 2

Sheet
A0.00f