



GREEN BUILDING CHECKLIST

The purpose of this Checklist is to make property owners and developers aware of specific green features that can be included in new developments to reduce their carbon footprints to help create a more sustainable community.

Creating walkable neighbourhoods, fostering green building technologies, making better use of our limited land base and ensuring that new development is located close to services, shops and transit are some of the means of achieving sustainability.

The Checklist which follows focuses on the use of **Green Technologies** in new buildings and major renovations. The Checklist is not a report card, it is a tool to help identify how your project can become 'greener' and to demonstrate to Council how your project will help the Township of Esquimalt meet its sustainability goals. It is not expected that each development will include all of the ideas set out in this list but Council is looking for a strong commitment to green development.

There are numerous green design standards, for example, Built Green BC; LEED ND; Living Building Challenge; Green Shores; Sustainable Sites Initiative. Esquimalt is not directing you to follow any particular standard, however, you are strongly encouraged to incorporate as many green features as possible into the design of your project.

As you review this checklist, if you have any questions please contact **Development Services at 250.414.7108** for clarification.

**New development is essential to Esquimalt.
We look forward to working with you
to ensure that development is
as green and sustainable as possible.**

Other documents containing references to building and site design and sustainability, which you are advised to review, include:

- Esquimalt's Official Community Plan
- Development Protocol Policy
- Esquimalt's Pedestrian Charter
- Tree Protection Bylaw No. 2664
- A Sustainable Development Strategic Plan for the Township of Esquimalt

Adopted on January 10th, 2011



"One-third of Canada's energy use goes to running our homes, offices and other buildings. The federal government's Office of Energy Efficiency (Natural Resources Canada) reports that a corresponding one-third of our current greenhouse gas (GHG) emissions come from the built environment."

[Green Building and Development as a Public Good, Michael Buzzelli, CPRN Research Report June 2009]

Please answer the following questions and describe the green and innovative features of your proposed development. Depending on the size and scope of your project, some of the following points may not be applicable.

Green Building Standards

Both energy use and emissions can be reduced by changing or modifying the way we build and equip our buildings.

- 1 Are you building to a recognized green building standard? ☒ Yes ☐ No
If yes, to what program and level? **Built Green CANADA, Silver**
- 2 If not, have you consulted a Green Building or LEED consultant to discuss the inclusion of green features? ☒ Yes ☐ No
- 3 Will you be using high-performance building envelope materials, rainscreen siding, durable interior finish materials or safe to re-use materials in this project? ☒ Yes ☐ No
If so, please describe them.
- 4 What percentage of the existing building[s], if any, will be incorporated into the new building? 100 %
- 5 Are you using any locally manufactured wood or stone products to reduce energy used in the transportation of construction materials? Please list any that are being used in this project.
Yes, the concrete and building material used in the project is supplied by local suppliers
- 6 Have you considered advanced framing techniques to help reduce construction costs and increase energy savings? Yes ☐ No ☐
Not applicable, concrete building
- 7 Will any wood used in this project be eco-certified or produced from sustainably managed forests? If so, by which organization? **Not applicable, concrete building**
For which parts of the building (e.g. framing, roof, sheathing etc.)? _____
- 8 Can alternatives to Chlorofluorocarbons and Hydro-chlorofluorocarbons which are often used in air conditioning, packaging, insulation, or solvents be used in this project? If so, please describe these. Yes ☐ ☒ No
- 9 List any products you are proposing that are produced using lower energy levels in manufacturing.
- 10 Are you using materials which have a recycled content [e.g. roofing materials, interior doors, ceramic tiles or carpets]? ☒ Yes ☐ No
- 11 Will any interior products [e.g. cabinets, insulation or floor sheathing] contain formaldehyde? Yes ☐ ☒ No

Water Management

The intent of the following features is to promote water conservation, re-use water on site, and reduce storm water run-off.

Indoor Water Fixtures

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|--|--|--------------------------------------|----|
| 12 | Does your project exceed the BC Building Code requirements for public lavatory faucets and have automatic shut offs? | <input checked="" type="radio"/> Yes | No |
| 13 | For commercial buildings, do flushes for urinals exceed BC Building Code requirements? | Yes | No |
| Not applicable, residential building | | | |
| 14 | Does your project use dual flush toilets and do these exceed the BC Building Code requirements? | <input checked="" type="radio"/> Yes | No |
| 15 | Does your project exceed the BC Building Code requirements for maximum flow rates for private showers? | Yes | No |
| The design is reviewing the use of low flow showerheads | | | |
| 16 | Does your project exceed the BC Building Code requirements for flow rates for kitchen and bathroom faucets? | Yes | No |
| The design is reviewing the use of low flow faucets | | | |

Storm Water

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|---|--|--------------------------------------|-------------------------------------|--------------------------------------|
| 17 | If your property has water frontage, are you planning to protect trees and vegetation within 60 metres of the high water mark? [Note: For properties located on the Gorge Waterway, please consult Sections 7.1.2.1 and 9.6 of the Esquimalt Official Community Plan.] | Yes | No | <input checked="" type="radio"/> N/A |
| 18 | Will this project eliminate or reduce inflow and infiltration between storm water and sewer pipes from this property? | <input checked="" type="radio"/> Yes | No | N/A |
| The design is considering storm water management and to be coordinated with the City for feasibility | | | | |
| 19 | Will storm water run-off be collected and managed on site (rain gardens, wetlands, or ponds) or used for irrigation or re-circulating outdoor water features? If so, please describe. _____ | Yes | <input checked="" type="radio"/> No | N/A |
| 20 | Have you considered storing rain water on site (rain barrels or cisterns) for future irrigation uses? | Yes | <input checked="" type="radio"/> No | N/A |
| 21 | Will surface pollution into storm drains will be mitigated (oil interceptors, bio-swales)? If so, please describe. _____ | Yes | No | <input checked="" type="radio"/> N/A |
| 22 | Will this project have an engineered green roof system or has the structure been designed for a future green roof installation? | <input checked="" type="radio"/> Yes | No | N/A |
| 23 | What percentage of the site will be maintained as naturally permeable surfaces? | <u>8.5%</u> | | |

Waste water

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|----|--|-----|----|--------------------------------------|
| 24 | For larger projects, has Integrated Resource Management (IRM) been considered (e.g. heat recovery from waste water or onsite waste water treatment)? If so, please describe these. _____ | Yes | No | <input checked="" type="radio"/> N/A |
|----|--|-----|----|--------------------------------------|

Natural Features/Landscaping

The way we manage the landscape can reduce water use, protect our urban forest, restore natural vegetation and help to protect the watershed and receiving bodies of water.

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| 25 | Are any healthy trees being removed? If so, how many and what species? | Yes | No | <input checked="" type="radio"/> N/A |
| _____ | | | | |
| Could your site design be altered to save these trees? | | | | |
| Have you consulted with our Parks Department regarding their removal? | | | | |

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|----|---|--------------------------------------|--------------------------|--------------------------------------|
| 26 | Will this project add new trees to the site and increase our urban forest?
If so, how many and what species? _____ | <input checked="" type="radio"/> Yes | <input type="radio"/> No | <input type="radio"/> N/A |
| 27 | Are trees [existing or new] being used to provide shade in summer or to buffer winds? | <input checked="" type="radio"/> Yes | <input type="radio"/> No | <input type="radio"/> N/A |
| 28 | Will any existing native vegetation on this site be protected?
If so, please describe where and how. _____ | <input type="radio"/> Yes | <input type="radio"/> No | <input checked="" type="radio"/> N/A |
| 29 | Will new landscaped areas incorporate any plant species native to southern Vancouver Island? | <input checked="" type="radio"/> Yes | <input type="radio"/> No | <input type="radio"/> N/A |
| 30 | Will xeriscaping (i.e. the use of drought tolerant plants) be utilized in dry areas? | <input type="radio"/> Yes | <input type="radio"/> No | <input checked="" type="radio"/> N/A |
| 31 | Will high efficiency irrigation systems be installed (e.g. drip irrigation; 'smart' controls)? | <input checked="" type="radio"/> Yes | <input type="radio"/> No | <input type="radio"/> N/A |
| 32 | Have you planned to control invasive species such as Scotch broom, English ivy, Himalayan and evergreen blackberry growing on the property? | <input checked="" type="radio"/> Yes | <input type="radio"/> No | <input type="radio"/> N/A |
| 33 | Will topsoil will be protected and reused on the site? | <input checked="" type="radio"/> Yes | <input type="radio"/> No | <input type="radio"/> N/A |

Energy Efficiency

Improvements in building technology will reduce energy consumption and in turn lower greenhouse gas [GHG] emissions. These improvements will also reduce future operating costs for building occupants.

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|----|--|--------------------------------------|-------------------------------------|---------------------------|
| 34 | Will the building design be certified by an independent energy auditor/analyst?
If so, what will the rating be? <i>The project will comply with the energy performance requirements of British Columbia Building Code 2012</i> | <input checked="" type="radio"/> Yes | <input type="radio"/> No | <input type="radio"/> N/A |
| 35 | Have you considered passive solar design principles for space heating and cooling or planned for natural day lighting? <i>Yes, the design incorporates passive solar heating and natural ventilation cooling, as well as maximized daylighting with narrow and long floor plate</i> | <input checked="" type="radio"/> Yes | <input type="radio"/> No | <input type="radio"/> N/A |
| 36 | Does the design and siting of buildings maximize exposure to natural light?
What percentage of interior spaces will be illuminated by sunlight? _____ %
<i>Yes, narrow and long floor plate of the building maximizes access to natural daylight. It is estimated that greater than 50% of the livable areas are illuminated by sunlight throughout the day</i> | <input checked="" type="radio"/> Yes | <input type="radio"/> No | <input type="radio"/> N/A |
| 37 | Will heating and cooling systems be of enhanced energy efficiency (ie. geothermal, air source heat pump, solar hot water, solar air exchange, etc.)?
If so, please describe. <i>The project is considering to provide heat and cool using VRF systems, that have great energy performance by sharing energy between the suites and low green house gas emissions</i>
If you are considering a heat pump, what measures will you take to mitigate any noise associated with the pump? <i>The VRF system has been proved to have little noise compared to conventional heat pump systems</i> | <input checked="" type="radio"/> Yes | <input type="radio"/> No | <input type="radio"/> N/A |
| 38 | Has the building been designed to be solar ready? | <input type="radio"/> Yes | <input checked="" type="radio"/> No | <input type="radio"/> N/A |
| 39 | Have you considered using roof mounted photovoltaic panels to convert solar energy to electricity? | <input type="radio"/> Yes | <input checked="" type="radio"/> No | <input type="radio"/> N/A |
| 40 | Do windows exceed the BC Building Code heat transfer coefficient standards? | <input checked="" type="radio"/> Yes | <input type="radio"/> No | <input type="radio"/> N/A |
| 41 | Are energy efficient appliances being installed in this project?
If so, please describe. <i>Yes, Energy Star appliances will be specified for this project</i> | | | |
| 42 | Will high efficiency light fixtures be used in this project?
If so, please describe. <i>Yes, the design is considering a full-LED lighting option, with occupancy sensors where safety is not compromised</i> | <input checked="" type="radio"/> Yes | <input type="radio"/> No | <input type="radio"/> N/A |
| 43 | Will building occupants have control over thermal, ventilation and light levels?
<i>Yes, occupants will have full control over light levels, temperature set-points, and ventilation shut off</i> | <input checked="" type="radio"/> Yes | <input type="radio"/> No | <input type="radio"/> N/A |
| 44 | Will outdoor areas have automatic lighting [i.e. motion sensors or time set]?
<i>Yes, the design is reviewing various options and will pick the control system with greatest safety and energy performance</i> | <input checked="" type="radio"/> Yes | <input type="radio"/> No | <input type="radio"/> N/A |
| 45 | Will underground parking areas have automatic lighting? | <input checked="" type="radio"/> Yes | <input type="radio"/> No | <input type="radio"/> N/A |

Air Quality

The following items are intended to ensure optimal air quality for building occupants by reducing the use of products which give off gases and odours and allowing occupants control over ventilation.

46	Will ventilation systems be protected from contamination during construction and certified clean post construction?	<input checked="" type="radio"/> Yes	No	N/A
47	Are you using any natural, non-toxic, water soluble or low-VOC [volatile organic compound] paints, finishes or other products? If so, please describe. _____	<input checked="" type="radio"/> Yes	No	N/A
48	Will the building have windows that occupants can open?	<input checked="" type="radio"/> Yes	No	N/A
49	Will hard floor surface materials cover more than 75% of the liveable floor area?	<input checked="" type="radio"/> Yes	No	N/A
50	Will fresh air intakes be located away from air pollution sources?	<input checked="" type="radio"/> Yes	No	N/A

Solid Waste

Reuse and recycling of material reduces the impact on our landfills, lowers transportation costs, extends the life-cycle of products, and reduces the amount of natural resources used to manufacture new products.

51	Will materials be recycled during demolition of existing buildings and structures? If so, please describe. <u>Yes, recyclable materials such as plastic, glass and papers will be separated and recycled during demolition and construction of the new building</u>	<input checked="" type="radio"/> Yes	No	N/A
52	Will materials be recycled during the construction phase? If so, please describe. _____	<input checked="" type="radio"/> Yes	No	N/A
53	Does your project provide enhanced waste diversion facilities i.e. on-site recycling for cardboard, bottles, cans and or recyclables or on-site composting?	<input checked="" type="radio"/> Yes	No	N/A
54	For new commercial development, are you providing waste and recycling receptacles for customers?	Yes	No	<input checked="" type="radio"/> N/A

Green Mobility

The intent is to encourage the use of sustainable transportation modes and walking to reduce our reliance on personal vehicles that burn fossil fuels which contributes to poor air quality.

55	Is pedestrian lighting provided in the pathways through parking and landscaped areas and at the entrances to your building[s]?	<input checked="" type="radio"/> Yes	No	N/A
56	For commercial developments, are pedestrians provided with a safe path[s] through the parking areas and across vehicles accesses?	Yes	No	<input checked="" type="radio"/> N/A
57	Is access provided for those with assisted mobility devices?	<input checked="" type="radio"/> Yes	No	N/A
58	Are accessible bike racks provided for visitors?	<input checked="" type="radio"/> Yes	No	N/A
59	Are secure covered bicycle parking and dedicated lockers provided for residents or employees?	<input checked="" type="radio"/> Yes	No	N/A
60	Does your development provide residents or employees with any of the following features to reduce personal automobile use [check all that apply]: <input type="checkbox"/> transit passes <input type="checkbox"/> car share memberships <input checked="" type="checkbox"/> shared bicycles for short term use <input checked="" type="checkbox"/> weather protected bus shelters <input checked="" type="checkbox"/> plug-ins for electric vehicles	The project is planning to deliver a weather protected bus shelter, and shared bicycle to the building and community. It is planned to utilize one parking stall with plug-in to accommodate electric vehicles		

Is there something unique or innovative about your project that has not been addressed by this Checklist? If so, please add extra pages to describe it.