Comox Valley REGIONAL DISTRICT

Board Policy

Policy Title: Green Building Policy	**Policy Number:** P122
Policy Category: Buildings – Facilities and Properties	
Approval Date: December 10, 2024	**Policy Owner:** Planning and Development Branch
Approved by: CVRD Board	**File Reference:** 0340-50

PREAMBLE

1. In 2021, the Comox Valley Regional District (CVRD) initiated an update to the 2011 Corporate Energy Plan. The Corporate Energy and Emissions Plan (CEEP) was endorsed by the CVRD Board in January 2023.

PRINCIPLES

2. CEEP establishes greenhouse gas reduction targets for CVRD emissions and provides a pathway of initiatives to achieve reductions through the decarbonization of CVRD buildings and vehicles. Greenhouse gas reduction targets are 50 per cent below 2019 levels by 2030 and net zero by 2050.

3. Buildings represent the majority of the CVRD's corporate GHG emissions.

4. Initiative B1 of the CEEP is the implementation of green building requirements for new CVRD buildings and large-scale building renovation projects. This Green Building Policy identifies those requirements as well as general recommendations for sustainable building projects.

PURPOSE

5. The objectives of the Green Building Policy include:
   a. providing guidance on best practices for energy efficient, low carbon building design, construction and renovations;
   b. improving the environmental performance of buildings and demonstrate leadership in climate action;
   c. prevention or reduce reliance on fossil fuels in CVRD buildings and improve building energy efficiency;
   d. improving the health and comfort of building occupants;
   e. increasing the climate resilience of buildings;

f. increasing the long-term financial sustainability of CVRD building infrastructure by considering the full life cycle cost of design decisions and reducing building energy costs;
g. limiting or preventing accumulation of CVRD assets that require future retrofits to decarbonize.

SCOPE

6. This Policy applies to all building projects by the CVRD where the building is to be occupied for reasonable amounts of the day, including all building expansion projects where the size of the addition is greater than 500 square meters, and all building renovation projects where the construction budget is greater than $500,000.

7. For building expansion projects, the Policy applies only to the expanded portion and not the pre-existing building.

8. For building renovation projects, the Policy applies only to components of the building that are significantly altered or impacted by the renovation.

9. The Policy does not apply when constructing unoccupied buildings. However, for all unoccupied buildings (e.g. pump stations), no fossil fuel heating systems should be utilized, and attention should be given to selecting equipment of the highest energy efficiency possible and setting any temperature setpoints as low as possible. Solar photovoltaics should also be considered to offset electrical emissions from pumps and other electrical equipment.

DEFINITIONS

- **Renovation:** Substantial building reconstruction that impacts the majority of building components, including but not limited to foundations, building envelop, ventilation systems, and mechanical and electrical systems.
- **Occupied building:** Any building that is occupied by staff, contractors or members of the public for reasonable amounts of the day and which requires space heating for the purposes of thermal comfort of occupants (e.g., fire hall, office space).
- **Life cycle cost analysis (LCCA)**: Process to establish the net present value of all costs associated with a project over its expected life. The analysis considers all costs associated with obtaining (capital), owning (energy, emissions, maintenance and replacement), and disposing of an investment.

- **Life cycle assessment:** A systematic analysis of environmental impact over the entire life cycle of a product, material, process, or other measurable activity.
- **Whole building lifecycle assessment:** A life cycle assessment applied to a building-related functional equivalent (a whole building, or part of a building).
- **RETScreen:** An energy management software platform for low-carbon planning, implementation, monitoring and reporting.
- **Building energy model:** A virtual model capable of simulating the thermal dynamics of a building's envelope and the energy performance characteristics of mechanical, electrical, and plumbing systems.

POLICY STATEMENTS

10. Fossil fuel-based equipment will not be installed as a primary heating or domestic hot water source in any building unless no feasible alternative is available that meets the operational needs of the facility. If no feasible alternative is apparent, the design team will formulate solutions to drastically limit the use of fossil fuels in the building. This applies to new construction, renovations and building additions.

11. All new buildings will be designed "solar-ready" unless no solar access is available at the building site. Internal guidelines have been developed to support staff and consultants with this requirement. The addition of roof-mounted solar photovoltaics should be considered during major roof repairs or reconstruction.

12. Projects will include building automation and submetering. Specific building automation and submetering requirements will be decided on a project-specific basis.

13. For the design of new buildings or applicable building expansions, design priority should be given to maximizing passive thermal performance. Focus should be given to the following design principles:
    a. Maximize air tightness;
    b. Maximize insulation;
    c. Maximize passive solar gains;
    d. Minimize window-to-wall ratio on North-facing wall exposures;
    e. Utilize effective solar shading to minimize solar gains during peak cooling season;

f. Utilize heat recovery ventilation to provide adequate fresh air requirements, recapture waste heat from exhaust air and maintain appropriate humidity levels;
g. Consider opportunities for cross-ventilation.

Sections 14 through 19 apply only to newly constructed, stand-alone buildings.

14. Buildings will be designed at minimum to meet the LEED Gold performance standard with one point in Materials and Resources category for Building Life-cycle Impact Reduction through credit option 2, requiring a cradle-to-grave whole building life cycle assessment of the building's structure and enclosure (*LEED v4.1 for Building Design and Construction,* p. 165). No LEED certification is required.

15. Beginning in 2040, new buildings will meet the LEED Platinum performance standard.

16. A building energy model will be developed for all projects during the design phase. Energy models require software at a level of sophistication equal to or greater than RETScreen modeling software (Hot2000 energy models do not provide enough detail or accuracy and are not considered sufficient). The energy model should be completed as early as possible to inform the LCCA in section 16 and provide staff with a fulsome understanding of the energy emissions and life cycle cost impact of design alterations before significant design decisions are made.

17. A life cycle cost analysis (LCCA) will be performed as early as possible to inform decision making and will include internal carbon costs as per the CVRD Internal Cost of Carbon Policy. The LCCA should be completed as early as possible in the project life to provide staff with a fulsome understanding of the life cycle cost impact of design alterations throughout the entirety of the design process and before key decisions are made. Staff responsible for managing building projects will work with the Financial Services to ensure LCCA procedures are followed.

18. Post-construction air tightness testing is required to ensure thermal envelope performance adheres to design requirements. Testing can be performed at any time after all building envelope penetrations have been sealed and before building occupancy.

19. Electric vehicle charging stations should be installed as required to provide sufficient charging capacity for any fleet vehicles that will be regularly located at the site.

ROLES AND RESPONSIBILITIES

20. Board - Consider the Green Building Policy when approving strategic and capital infrastructure plans, and funding for major building projects.

21. Planning and Development Services - Support departments to implement green building requirements.

22. Financial Services - Assist departments with life cycle cost analysis and ensure relevant decision-making information is included for relevant capital projects put forth during the budget process.

23. Procurement - Ensure Green Building Policy requirements are embedded into all building project requests for proposals.

24. All Staff
    a) Ensure Green Building Policy requirements are followed during planning, design and construction of CVRD buildings.
    b) Request support from Planning and Development Services if unsure how to implement Green Building Policy requirements.
    c) Incorporate life cycle cost analyses into all major building projects, including energy costs, carbon taxes and the Internal Cost of Carbon policy.
    d) Consider the greenhouse gas emissions impact of decisions during all phases of building project.