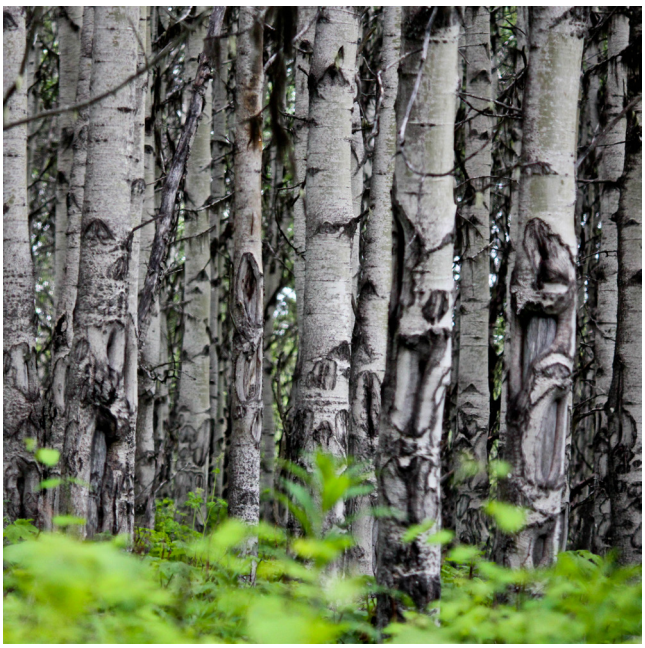
Sustainable Rural Land Development Checklist



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What is a Sustainable Rural Land Development Checklist?

This Sustainable Rural Land Development Checklist is offered to people applying for any type of development approval from the Regional District of Bulkley-Nechako. The checklist is voluntary and is intended to inform residents of development and building options that:

- support and advance community sustainability objectives;
- can result in long term reductions in energy use and maintenance costs;
- may reduce the risk from natural hazards, and reduce negative impacts on the natural environment.

The Regional District's intent is to raise public awareness of important considerations that can improve the quality of development in the region. The goal is to encourage residents to develop their land in the most responsible and effective manner possible, for both their own benefit and the benefit of the greater community.

What is Sustainable Development?

Sustainability relates to our ability to maintain or sustain a certain way of living for the long term.

When considered at the local level, increased sustainability requires that we find a way of developing that results in reduced negative social, economic, and environmental impacts on our land and our community.




Why is Sustainable Development Important?

Sustainable development is vital to the continued health of our communities, especially within the context of environmental impact and climate change. There are significant personal benefits such as savings from energy efficiency, improved public health, and reduced threat from natural hazards.

Local governments play an important role in creating more sustainable communities. Land use and development patterns that result in more complete and self-reliant communities are important considerations. However, many sustainable and smart development practices cannot be effectively regulated. It is up to each property owner to voluntarily do what they can to improve their community, reduce their impact on the environment, and protect their property and themselves from hazards.

A sustainable community is a resilient, energy efficient, self sufficient, and healthy community.

It is up to you!

Development Regulations

When considering land development or building construction in the rural area, remember that there are multiple regulations that may apply.

Official Community Plans (OCP) and Zoning

In most areas of the RDBN land use is regulated by a Zoning Bylaw. Zoning regulations control, among other things, use, lot size, density, and setback regulations. The long term vision or plan for a community's development is contained in the Area's OCP. Zoning is a tool used to implement the goals contained in the OCP.

Agricultural Land Reserve (ALR)

Lands within the ALR are subject to strict Provincial land use and subdivision regulations. Any proposed non-farm use or subdivision must undergo an application process to ensure that the Electoral Area's agricultural interests are protected. Applications are processed by the RDBN and sent to the Agricultural Land Commission for a decision.

Regulation Checklist

- ☑ Have you checked that the proposed use is consistent with Regional District Zoning and ALR regulations?
- ☑ Have you checked if building permits are required?
- ☑ Have you contacted Northern Health for a list of qualified sewage system designers/installers?
- ☑ Have you checked with the Regional District for identified archaeological sites (if present, follow up with the BC Archaeology Branch)?

Sewage Disposal

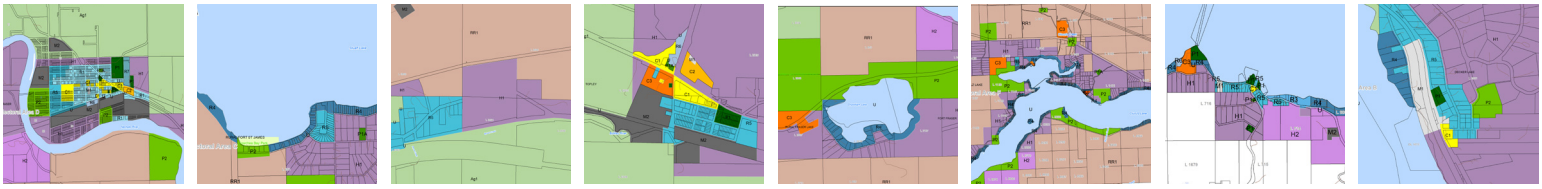
Residential on site sewage disposal systems must be designed by a person authorized under the Provincial Sewerage System Regulation. Property owners may install certain types of systems provided that a number of conditions are met. Be sure to contact Northern Health before you proceed.

Archaeological Sites

In BC archaeological sites are protected by legislation. The Regional District can check a provincial database to see if there is an identified site on a property. An archaeological site does not automatically mean you can't develop, however, a permit may be required from the Province.

Building Permits

In most areas, new construction or building alteration requires a building permit from the Regional District. Building permits are not required if the property is outside the service area or if a storage building is smaller than 25 square meters (269.1 ft2) in size. To find out if your property is within the building regulation service area, please contact the RDBN Building Inspectors or the Planning Department.



Land Use Considerations

The land use decisions made today will have long lasting consequences and will determine the future shape of the built environment. The mistakes we make today will be paid for by future generations. We need to be smart and strategic. We need to use land efficiently. We need to protect the environment.

Infill development or redevelopment of existing residential areas reduces sprawling land use patterns. Reduced sprawl results in less impact on the environment, and reduces our need to drive longer distances on a daily basis. Infill can help preserve the character of our rural and natural areas, and our quality of life.

Carefully diversifying the uses in existing residential areas can reduce transportation costs and enhance liveability. This may also provide new opportunities for employment and promote diversification of the local economy.

Land Use Checklist

- ✓ Is the development consistent with OCP?
- ✓ Does the development fill in or redevelop pre-existing vacant or underutilized parcels of land?
- ✓ Does the development improve the mix of compatible uses within an area?
- ✓ Does the development provide services or an amenity in close proximity to a residential area?
- ✓ Does the development contribute to the positive character and function of a rural area?

Environmental Considerations

Developing property effectively is important to the environment and the long term vitality of the community. By incorporating these suggestions into your development plan you protect your investment and prevent delays.

Farms need to be carefully managed to make sure they do not harm the environment. Domestic animals that use a creek, pond or lake for drinking water can trample plants that are important to that ecosystem. When possible, try to limit water access to a few small areas. Manure management is also important because manure runoff can contaminate water sources including groundwater. Manure should be collected, stored and composted in a covered place away from drainage or runoff areas.

Identify ecological and archaeological values before starting a land development project. These features may be protected or regulated, which can significantly impact the development proposal. Ecological and wildlife values are identified in an area's OCP. Archaeological values are protected and regulated by the BC Archaeology Branch.

Clustering development to one area of the property can minimize site disturbance and reduce infrastructure costs. Locate the driveway, septic system, house and outbuildings away from riparian areas. Where possible, retain natural buffers between the development and sensitive features such as riparian areas and important wildlife habitats. Runoff from disturbed soil has a significant negative impact on the watershed.

If vegetation near lakes or watercourses is already disturbed, replant native species to improve the habitat and help stabilize the shore. This protects the property from erosion. Removing invasive plant species such as Canada thistle also improves native habitat and the aesthetics of the property.

Environmental Checklist

- Does your site plan cluster development to one area of the property?
- Do you plan to protect vegetation near lakes or watercourses or other designated environmentally sensitive features?
- Do you provide for native species habitat restoration or improvement?
- Do you plan to remove invasive plant species?
- Will your proposal redevelop/ revitalize an environmentally contaminated site?
- Do you plan to use natural, water efficient landscaping with a reduced lawn area?

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Renewable Energy Sources

Renewable energy is energy derived from natural sources that are replenished at a higher rate than they are consumed. Sunlight and wind, for example, are sources that are constantly being replenished. Ground and air source heat pumps offer a sustainable source of heat for residences.

Wind

Wind is a clean and plentiful source of energy. Small wind turbines can be installed at homes as a source of backup electricity or to offset utility power and reduce electricity bills. A small wind energy system may be a practical and economical source of electricity for your home. Be sure to contact the RDBN to make sure your wind turbine is compliant with zoning.

Ground and Air Source Heat Pumps

Ground and air source heat pumps use the difference in air and ground temperature to heat or cool and then circulate a liquid through pipes. The heat generated is then transferred into the building. This is a clean, renewable energy source that reduces GHG emissions. While installation costs may be high, heat pump systems cost little to maintain and reduce or eliminate the need for other costly heat sources. In addition, rebates and incentives are often available to help offset installation costs.

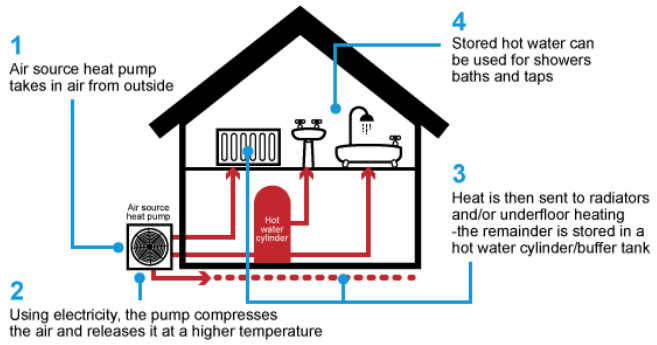
Solar

Solar energy can be used for active heating or electricity production. Solar heating applications include radiant floor heating systems and solar air heating systems. Photovoltaic solar panels convert the sun's energy into electricity, which can then be used to offset dependence on utilities. Modern solar water heaters are well suited for the Canadian climate because they can produce energy when the outside temperature is well below freezing.

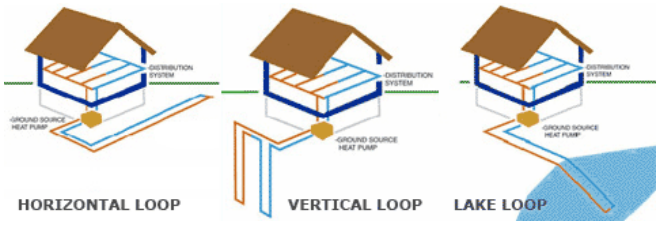
Wood Heating Systems

Ensure that any wood burning appliances, pellet stoves, or gas fireplaces are high efficiency. They use less wood, and don't smoke out your neighbours.

Air Sourced Heat Pump



Ground Sourced Heat Pump



Energy Checklist

- [ ] Can you utilize onsite renewable energy generation such as solar or wind power?
- [ ] Can you use a ground or air heat pump for heating or cooling?
- [ ] Do you have a high efficiency wood burning appliance, pellet stove or efficient gas fireplace?

Natural Hazards

People living in a rural area may be subject to increased risks associated with flooding, wildfire, snowstorms, and loss of access and communications. These risks can be reduced by careful consideration of how land is used and developed.

Floodplains are lowland areas that are susceptible to flooding. The best precaution against flooding is to avoid building in flood prone areas.

Floodplain Managment Bylaw

The Regional District's Floodplain Management Bylaw applies to all areas of the Regional District. This Bylaw specifies both elevation and setback requirements for certain buildings and structures to protect them from flood damage.

Erosion from running water or waves can cause serious property and building damage. Protect shorelines by retaining natural vegetation. If an erosion problem exists, have it evaluated by an expert that can prescribe an appropriate remediation and protection strategy.

Geotechnical Hazards include slope instability, sinking of the ground, and weak soils. Check with the RDBN to determine if your property lies within a known hazard area. If a hazard is suspected, consider hiring a geotechnical engineer to evaluate the site. It is critical to manage these risks through appropriate site investigation, good building practices, and professional input. Protect your investments!

Wildfires

Wildfires pose a significant threat to our homes and livelihoods in this region. Although wildfires are a natural phenomenon in the RDBN, we can take actions that will drastically reduce the threat of wildfires to our homes, properties, and communities. FireSmart is a program that promotes building and landscaping designs and materials that reduce fuel availability and increase wildfire resiliency.

The wildfire threat has increased due to dead timber associated with the Mountain Pine Beetle infestation, historic wildfire suppression practices, and climate change. Development standards play a significant role in reducing the potential impact a wildfire will have on a community. A building is more likely to be destroyed in a wildfire when it is located in a high-density area where fire is able to easily transfer from building to building. The potential for damage intensifies when flammable building materials are used. The following summarizes recommendations from the FireSmart Canada Home Development Guide. The complete guide can be found online at **firesmartcanada.ca**.

ROOFING MATERIAL AND DESIGN

The roof is the most vulnerable component of your home. Sparks and burning embers from a wildfire can travel long distances and quickly ignite flammable roofing material.

SIDING, VENTS AND OPENINGS

With the exception of the roof, siding material is the structural component most vulnerable to wildfire. Combustible debris can accumulate at the vents and openings on your home and be ignited by embers during a wildfire.

GUTTERS AND EAVES

The gutters on your home provide a place for combustible debris to accumulate and open eaves create an entry point for sparks and embers.

DECKS AND PORCHES

The materials used to build the deck, combustible materials you store under your deck, and the vegetation around it all contribute to how vulnerable your deck will be.

FENCING

Wooden fences and boardwalks create a direct line to your home and can contribute to the spread of wildfire.

LANDSCAPING

A FireSmart yard includes making smart choices for your plants, shrubs, grass and mulch. Selecting fire resistant plants and materials can increase the likelihood of your home surviving a wildfire. Ensure there is a 1.5 metre horizontal noncombustible surface perimeter along the outer walls of the primary structure (house).

FIRESMART HOME PARTNERS PROGRAM

FireSmart Home Partners is a voluntary property assessment program that helps residents identify specific actions they can take on their property to reduce wildfire hazards.

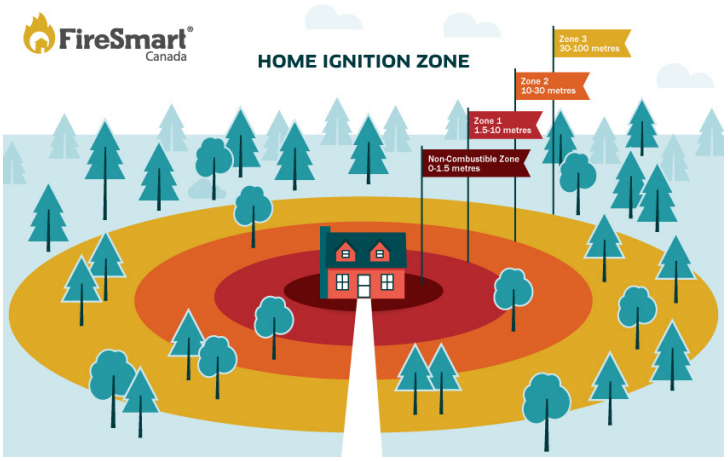
FireSmart Home Partners property assessments provide residents:

• An in-depth, on-site assessment conducted by experienced fire professionals;

• An opportunity for property owners to identify mitigation actions unique to your property;

• A detailed follow up report with customized mitigation actions designed to measurably reduce the wildfire risk to your property;

For more information about the FireSmart Home Partners Program or to request an assessment contact the RDBN at 250-692-3195.



Resources on the Fire Smart Program are available at

firesmartcanada.ca/resources/

Natural Hazard Checklist

- Is the new development designed to provide adequate emergency vehicle access and alternate escape routes?
- Are your house and outbuildings located away from the top of sloped lands?
- Have you removed combustible materials within 10m of your house and outbuildings?
- Are you using non-combustible roofing and siding materials, and are you keeping your roof clear of combustible materials?
- Have you had your property examined for signs of a geotechnical hazard or erosion?
- Have you contacted the Regional District to determine if your building is subject to the Floodplain Management Bylaw regulations?

Building Considerations

The greatest opportunity for energy savings can be realized during the planning and design stages of a construction project. A home constructed with energy efficiency in mind is more comfortable to live in year round. An energy efficient home may have higher initial costs, but over time these costs can be recuperated due to lower energy and maintenance costs.

Building Site Selection

An assessment of a property prior to the commencement of a construction project is critical.

Remember to identify any archaeological sites, riparian areas, environmentally sensitive features, and natural hazards. Also, look for game trails or unique animal habitat that can be left in its natural state.

Leave the natural vegetation adjacent to any water feature undisturbed. The RDBN brochure titled "Responsible Waterfront Development" should be consulted if you have a water feature.

Carefully observe the way that water flows over the property. Be sure to not negatively impact natural drainage patterns or drainage on a neighbour's property.

Consider the location of the sun, prevailing winds, shade and other site features that can be utilized to increase your energy efficiency and your enjoyment of your property.

Site Management

During construction it is important to plan for waste and soil disturbance. Where possible, recycle construction waste, or truck it to a transfer station instead of burning. If treed areas are cleared, avoid outdoor burning in populated areas. Large trees may be suitable for future use as firewood, or wood waste may be chipped and dispersed on your property. Replant any areas of disturbed soil immediately to prevent the establishment of invasive plant species and to reduce erosion and sedimentation. Use erosion control measures such as silt fences to prevent sedimentation of watercourses from disturbed soils. When possible, use local materials and labour to reduce transportation related GHGs.

Building Checklist

- ☑ Do you have a construction waste recycling plan and a no-burn policy on site?
- ☑ Do you have a plan in place to reduce erosion and sedimentation during construction?
- ☑ Do you have a drainage plan for the house and property?
- ☑ Have you avoided environmentally sensitive or high value areas?

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Energy Efficient Design

A combination of energy efficient design features including building orientation, thicker walls, reduction in thermal bridging, additional insulation, air tightness and proper ventilation can significantly reduce the energy demands of a home. To let the sun inside the house in winter, most windows should be on the southern side. Windows on the east and west tend to lose more heat than they gain in winter and they can cause overheating in summer since they receive hot morning and afternoon sun. A roof overhang over southern windows shades the windows in summer while allowing sunshine in during the winter.

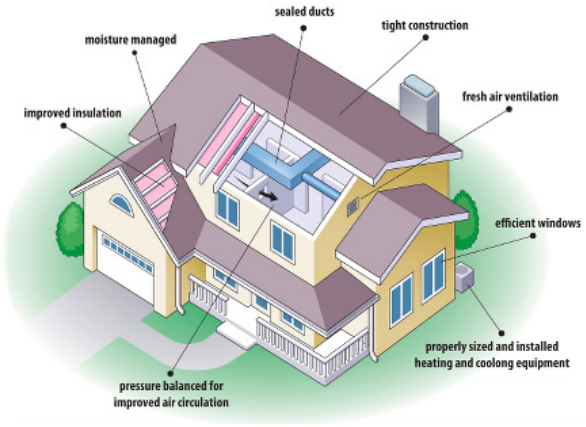
Small and compact buildings are generally better suited for a winter climate. The longer side of the house should be orientated so that it faces south to ensure that the house receives the maximum amount of sunlight throughout the day. Internal rooms should be planned in such a way that the rooms generally used during the day, such as the living room and kitchen are situated on the south side of the house. Also, build on southern slopes to maximize exposure to the sun.

Landscaping can have a significant impact on building energy efficiency. Planting of deciduous trees on the south side of a building allows the sun through in winter and provides shade in the summer. Planting coniferous trees and vegetation on the north side of a building can provide a buffer from the wind in order to reduce heat loss in cold weather.

The BC Energy Step Code, set to take effect in December of 2022, requires builders to do an energy model of the building at the design phase and conduct on-site testing to demonstrate that both their design and the constructed building meet the requirements of the standard. The regulation sets performance targets for new construction and groups them into "steps" that apply across various building types and regions of the province.

Better Homes BC is British Columbia's online hub for homeowners and businesses to access information, incentives and support to reduce energy use and greenhouse gas emissions in new and existing homes and buildings. Better Homes BC incentives are administered by BC Hydro, FortisBC and BC Housing.

Better Homes BC keeps an up to date list of Energy Advisors who can help you with your project. For more information, please visit their website at **betterhomesbc.ca**



Construction Methods and Materials Checklist

- Is your building orientated towards open space, views and/or daylight?
- Have you contacted an Energy Advisor? and will you use materials with recycled content?
- Do you plan to install dual flush toilets, low flow shower heads and faucet aerators?
- Will you install energy efficient windows?

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