

Appendix A-7

Wildfire Interface Development Permit Design Guidelines



These Design Guidelines will be used in reviewing Development Permit applications. It is important that construction within the development permit wildfire interface area designated in the Official Community Plan show a consideration of these guidelines. While these guidelines directly apply only to development permit areas, the recommendations for the reduction of wildfire hazard would be wise considerations for many homeowners in the Regional District. Flying embers can ignite structures up to 1.5 kilometers from the fire source.

A detailed set of design guidelines including examples and a more detailed explanation is available from the Regional District. Please obtain the detailed design guidelines prior to making an application.

These Design Guidelines will be used in reviewing Development Permit applications as set out in this Official Community Plan. It is important that any plan submitted for a Development Permit demonstrate consideration of the Objectives and Design Guidelines

A development permit is not required ...

Where plans for construction within the development permit wildfire interface area;

- Are submitted for a building permit and;
- The plans show compliance with these guidelines, and,
- An undertaking is provided by the property owner, and
- A restrictive covenant registered to the title of the property, or,

Where a wildfire interface construction development permit previously was issued and the above conditions have previously been met, a development permit will not be required, or, Where the construction, or alterations in accessory buildings or structures, is not in excess of 40 square meters, a development permit will not be required.

Introduction

The Okanagan has a naturally dry climate and a large community interface with forested land. Homes have been lost to wildfire and it will be an ever-present danger in the valley.



An important part of reducing wildfire hazard involves modifying how individual homes are constructed near areas of forested public land such as provincial forest or large forested parks. The accumulation of small choices such as siding material, building material, screening of soffits, screening the tops of chimneys, using noncombustible landscape mulch, and the choice of landscape plants, can add up to either saving or losing a home to wildfire.

The basis for the Guidelines is the document “FireSmart, Protecting Your Community from Wildfire” supported by the Alberta Department of Sustainable Resource Development, the British Columbia Forest Service, Natural Resources Canada, most Canadian provinces and endorsed by the report of the Province of BC “2003 Firestorm Provincial Review”.

The design guidelines do not cover all measures for wildfire hazard reduction possible but are minimum standards that focus mainly on new home construction, large additions, and their immediate vicinity. A good source for additional information is www.for.gov.bc.ca/protect/safety/. The Planning Department of the Regional District also has brochures available.

Zones of Fuel Management

The design guidelines are based upon the typical Priority 1 zone of 10 metres from the building established for flat land. While these guidelines represent some minimum requirements, it is advisable to consider a larger Priority 1 zone for properties on a slope, especially on the downhill side. There are three priority areas as outlined in “Fire Smart, Protecting Your Community from Wildfire”:

Priority 1 zone is within 10 metres (30 feet) of a building and is the most critical zone. The development permit deals only with this area. While these design guidelines deal with the typical situation, a property owner may wish to consider widening the priority area if located on a slope, especially on the downhill side.

Priority 2 zone begins 10 metres (30 feet) from a building and extends to 30 metres (100 feet) depending upon topography. The more the land slopes, the more the zone should be extended. Radiant heat and burning embers originating from an area this close to a structure may cause it to burn. Vegetation and potential fuels in this area should be managed to reduce fire intensity and rate of spread by methods such as removing dead needles, dead wood and combustible debris from the ground, removing any tree limbs within 2 metres of the ground, and spacing trees so that no tree limb is closer than 3 metres to the next.

Priority 3 zone begins 30 metres from a building and extend to 200 metres or more. High intensity crown fires that occur in this zone may be a potential high source of burning embers.

The guidelines reduce the level of the threat to structures from wildfire but do not eliminate it.

Objective

The objective is to reduce the susceptibility to wildfire of new construction or large additions near the provincial forest interface, or the interface with large forested parks.



Guidelines

- 1. Roofing – The roof covering shall conform to Class A, B or C fire resistance as defined in the BC Building Code.**



Roofs catching fire are the number one cause of building losses during a wildfire event. The roof presents a large, flat area that fire embers can land on and start a new fire. Roofing material has several classifications with Class A being the most fire resistant. Some materials that either fall within the rating system or, can be obtained in forms that meet Class A, B or C requirements, include composite (asphalt and fiberglass) shingles, concrete or clay tile, metal roofing, and wood shake roofing.

- 2. Exterior Wall Finishes – Any material used for exterior wall finishes should be fire resistant such as stucco, metal siding, brick, cement shingles, concrete block, poured concrete, logs or heavy timbers as defined in the BC Building Code, and rock.**

Second only to the roof material, siding material is the part of the building most prone to ignite in a wildfire event. The intense heat of the fire itself, fire embers, and burning vegetation at the base of the wall, can individually or all together cause the side of a building to catch fire.



- 3. Chimneys – All chimneys should have spark arrestors made of 12 gauge (or better) welded or woven wire mesh with mesh openings of less than 12 millimetres.**



Chimneys can present a serious hazard as a source of sparks that can start fires, and as a way for burning embers to enter a building.

4. **Eaves, vents, and openings – All eaves, attic and under floor openings should be screened with corrosion-resistant, 3-millimetre noncombustible wire mesh (as a minimum).**



Vents are important for the healthy air exchange and moisture escape required in a building. They also are ready-made accesses into a building. Unprotected eaves can allow burning embers to enter and also allow flames that are spreading up a wall to penetrate into the roof structure.

5. **Windows and glazing – All windows must be double paned or tempered.**

Glass can be shattered by the heat of a fire and create openings for fire and burning debris to enter the building. It is highly unlikely that an interior will ignite from thermal radiation through intact glass.

A single pane thickness of glass is most susceptible to collapse. The larger the pane of glass, the more likely it is to shatter.



6. **Balconies, decks and porches –**
 - a. **Decks should be constructed of heavy timber as defined in the BC Building Code, or, with 1-hour fire resistant rated assemblies or noncombustible construction as defined by the BC Building Code.**
 - b. **Manufactured homes should be skirted with a fire resistant material as outlined in the previous guideline for exterior wall finishes.**

As with roofs, decks present a large horizontal surface for burning embers to land on and take hold. In addition, decks have an undersurface that also can be a source of fuel for fires. It is important to consider the vulnerability of decks to fire from both above and below.

7. **Landscaping on the property within 10 metres (Priority 1 zone) of a building shall not include coniferous evergreen shrubs such as junipers, mugo pines, or coniferous evergreen hedges.**



There are three priority zones for the modification of vegetation to reduce wildfire hazard. Priority Zone 1, the most important, is within 10 metres (30 feet) of the building. Without fuel modification in this critical area, the fire intensity and the rate of spread can make firefighting difficult or impossible.

Coniferous evergreen shrubs are resinous and have a large surface area. They are an excellent fuel for fire and can be a source of flames and sparks that can enter a building. Coniferous evergreen shrubs can also be a source of heat that can burn or melt

materials and shatter windows.

It is important to choose plants that are less combustible and burn with less intensity. Deciduous shrubs (shrubs that lose their leaves in the winter), broad-leaved evergreen shrubs (such as bearberry, Oregon grape, cotoneaster, rhododendrons, etc.), perennials, annuals and trimmed grass are preferred.

8. **No additional or new coniferous evergreen trees are to be planted within 10 metres of the building.**
9. **It is not advisable to retain previously existing mature coniferous evergreen trees within 10 metres (Priority 1 zone) of the building. Any coniferous evergreen trees that are to be retained on the property that lie within 10 metres (Priority 1 zone) of the building must;**
 - a. **Have limbs pruned such that they are at least 2 meters above the ground.**
 - b. **Be spaced so that they have 3 metres between crowns. (In other words, the tips of the branches of a tree are no closer than 3 meters to the tips of the branches of another).**
 - c. **No limbs should be within 3 meters of the building or attachments such as balconies.**



Evergreen trees contain resin, have needles that provide a lot of surface area, and are excellent fuel for fires. Close to a building, they act as a ladder that allows the fire to climb onto the building, under eaves and leap onto roofs. They can also be a source of heat that shatters windows. Deciduous trees are a safer alternative in the Priority 1 area. However, the measures outlined here somewhat limit the hazard should the choice be made to retain pre-existing evergreen trees in the Priority 1 area. White pine,

ponderosa pine and western larch have a medium flammability while most other coniferous evergreens are highly flammability.

10. Landscaping on the property within 10 metres (Priority 1 zone) of a building shall use only noncombustible landscape mulches.



Areas covered with landscape mulches are a large horizontal surface for embers to land on, much like roofs and decks. Some commonly used mulch, such as bark chips, are also highly flammable. The combination of flammability and a large surface area creates a perfect environment for fire. Combustible fuel sources should not be located next to a building.

Various sizes and colours of landscape rock are a common alternative. Another ground covering choice is low-lying plants that are either deciduous (lose their leaves in the fall), or broadleaved evergreen, trimmed grass, annuals or perennials. The use of landscape fabric can reduce the need for a very thick layer of mulch.