

Wildfire Hazard Reduction

Residential Construction and Landscaping Recommendations

Regional District of Central Okanagan



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.



There are several choices homeowners can make that will reduce the susceptibility of their homes to the threat of wildfire.

An important part of reducing wildfire hazard involves modifying how individual homes are constructed. The result 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 recommendations 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 recommendations do not cover all measures for wildfire hazard reduction possible but are minimum standards that focus mainly on home construction and landscaping in the immediate vicinity of the home. 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.

The wildfire hazard reduction measures in these recommendations would be wise considerations for many homeowners in the Regional District. Flying embers can ignite structures up to 1.5 kilometers from the fire.

The recommendations reduce the level of the threat to buildings from wildfire but do not eliminate it. Each homeowner, especially in high-risk areas, should be prepared for emergency situations.

Zones of Fuel Management

There are three priority areas outlined in “FireSmart, Protecting Your Community from Wildfire”: The Priority 1 or highest priority zone (for flat land) extends for 10 metres from the building. It is advisable to consider a larger Priority 1 zone for properties on a slope, especially on the downhill side. The recommendations in this document focus on the Priority 1 zone.

Priority 1 zone is within 10 metres (30 feet) of a building and is the most critical zone. The eleven recommendations in this document deal with this area. While these recommendations discuss a 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 building 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 neighbouring tree limbs

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 Objective

The objective of the following recommendations is to reduce the susceptibility of homes to wildfire.



The Recommendations

1. **Roofing – The roof covering should 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 improved to meet Class A, B or C requirements, include composite (asphalt and fiberglass) shingles, concrete or clay tile, metal roofing, and factory treated 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 underfloor 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 should 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 heat 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 underside that can trap embers and be a source of fuel for fires. It is important to enclose the underside of decks and large overhangs.



Remember that open frame construction can trap burning embers that not only fall from above but also are blown in from all directions.

- 7. Landscaping on the property within 10 metres (Priority 1 zone) of a building should 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 should 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. If the decision is made to retain coniferous evergreen trees that lie within 10 metres (Priority 1 zone) of the building those trees should;**
- Have limbs pruned such that they are at least 2 meters above the ground.**
 - 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 neighbouring trees).**
 - 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. If the decision is made to place trees in the Priority 1 area, deciduous trees are a safer alternative to evergreen. The measures outlined here somewhat reduce 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 should 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 mulches, such as bark chips, are also highly flammable. The combination of flammability and a large volume of material covering a large 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.

11. Don't store combustible material and debris such as firewood piles, lumber, compost piles, prunings, or BBQ's with propane tanks within 10 meters of the home.



Homeowners can create additional fuel sources for wildfire and so unknowingly increase the threat to their homes. It is recommended that the homeowner evaluate the Priority 1 area (located within 10 metres of the building) outside of the home looking for potential added fuel sources.

A good source for additional information is at the BC Ministry of Forests website: www.for.gov.bc.ca/protect/safety/.