Best practices for open burning

Responsibility

Any person who starts a fire is responsible for all suppression costs and possible liability from damage caused by the fire. If you do decide to burn, choose to do so under conditions that minimize health and safety risks.

From April 1 to October 31, a burn notification number is required in a provincial forest, in park land or in any quarter section wholly or partly within 4.5 km of a provincial forest. To get one, contact your local Wildfire Management Forest Protection Area office.

Fire Risk Management

You should burn only under ideal conditions and with the necessary precautions in place to safely and effectively control the fire and prevent its escape.

Fires that go out of control may damage forest resources, buildings, equipment, crops, shelterbelts, powerlines or other values. Smoke from fires near roads or highways may reduce visibility and cause traffic accidents, leading to death or injury, and potential liability for the person who started the fire.

General Considerations

Once you start a fire, make sure that you attend the fire at all times to prevent its escape.

Wind Speed and Direction - These are two of the most important factors to take into account when deciding whether to start a fire. Don't start a fire when current or forecasted wind speeds are greater than 10 km per hour. Be sure you take into account potential for wind gusts, as they can create significant problems for control. If gusts are forecasted, don't burn. If you are burning, be sure to constantly monitor the weather and, if conditions change, extinguish your fire and wait for better and safer conditions. Sometimes burns can carry on into the next day, so pay particular attention to the forecast on both the day of the burn and the day after.

Typically, winds are lightest near dawn and strongest in the afternoon. Spring and autumn usually have the strongest winds, with generally lighter winds during summer and winter.

Temperature and Relative Humidity - Both temperature and relative humidity will directly affect the drying rates on vegetative fuels, especially grasses. You should not burn when the relative humidity falls below 25 per cent or when temperatures rise into the high twenties or above.

Thunderstorms and Cold Fronts - Pay attention to frontal passages or thunder cells. Quite often strong, gusty winds with a different direction than the prevailing breeze precede thunderstorms, showers and weather fronts. These weather conditions can create high winds and dramatic wind shifts, which in turn, can lead to extreme fire behaviour. If these conditions exist in the weather forecast, don't burn.

Fire Danger Rating – Before starting the fire, check the ministry website at www.saskatchewan.ca/fire for the current fire danger rating. The fire danger rating is a fire management system that evaluates and integrates the factors influencing fire danger and is usually identified in terms of low, moderate, high or extreme.

Time of Day – The best time for burning is usually in the early to mid morning or late afternoon. Burning during the midday poses risks such as erratic and variable winds. Midday may also see dust devils and extremely unstable atmospheric conditions that can be dangerous and unsafe for controlled burning. If you're considering burning in the late afternoon, ensure that the burn is completed at least two hours before sunset.

Time of Year - Autumn and early spring pose the most danger for lighting fires because vegetative fuel moisture content is normally at

How to Estimate Wind Speed

0-1 km/hour	Smoke rises vertically - no visible wind
1-5 km/hour	Smoke drifts - no visible wind
6-10 km/hour	Leaves rustle, weather vanes move, wind felt on face
11-19 km/hour	Light flags unfurl, leaves and twigs on trees move steadily
20-28 km/hour	Small branches move. Loose dust and paper fly about
29-38 km/hour	Leafy shrubs and trees sway

its lowest. This, in turn, makes the fuels much more volatile and unpredictable in how easily and actively they burn.

Days Since Last Rain - Avoid burning under extremely dry conditions when no precipitation has fallen for a long time. Soil moisture content is probably very low. Burning may damage microorganisms in the soil, especially close to the surface. This, in turn, may cause future loss in crop production and negatively affect the landowner.

Fuel Load (the amount of vegetative fuel available to burn, e.g. heavy straw load) - The higher the fuel load, the higher the intensity of the fire. In areas of high fuel loads, attempt to burn only if appropriate suppression equipment is in place to safely control and extinguish the fire. Otherwise, select alternate methods to rid the area of the fuel, such as the baling and removal of straw.

Fuel Moisture Content - This relates directly to weather and environmental conditions. All vegetative fuel contains some moisture. When fuel moisture content gets below approximately 10 per cent, the fuel is easily ignited. Extremely dry fuels (10 per cent moisture content or less) can create extreme fire behaviour and should not be ignited.

Fuel with a moisture content greater than 25 per cent will create more smoke. At higher moisture levels, the fuel will not ignite.

Per Cent Cure of Fine Fuels (grass-like fuels) – Vegetative fuels containing more than 50 per cent green live material will normally not sustain fire or promote its spread. As fuels dry, they become much more flammable and will support sustained open flame. Fuels cured to above 90 per cent will almost completely burn, creating higher intensity fires that are more difficult to control. Extreme caution should be exercised with fuels cured more than 90 per cent.

Fuel Types - Know what type of vegetative fuels you intend to burn. Fuels such as western snowberry and other short shrubs will burn extremely hot and fast in early spring and autumn. Fire whirls commonly form out of dense pockets of these fuel types and can carry a fire or burning embers across fuel breaks or control lines.

Smoke Management - Smoke can cause immediate public health risks and create a hazard by impairing visibility on public roadways, rail crossings or airports. Consider what values are downwind of the proposed burn area. If you are close to other homes, communities, farmyards, roads, highways or properties, take care to ensure that smoke from the fire does not harm those downwind.

Winds of 6 to 11 km/hour will disperse smoke. Where smoke is a concern, don't light fires at night or early evening. Nighttime inversions may occur with warmer air aloft settling over cooler air at the surface. In these conditions smoke will pool in low-lying areas and be trapped close to the ground.

Other Considerations

- Always pay careful attention to the fire, as fires can change in size and intensity very quickly.
- Be careful not to burn too much fuel or area at one time and use extreme caution and due diligence when burning.
- If you start fires late in the fall or winter, check them in the spring. They may have "gone to ground" and hot dry winds in spring could flare them up.
- Ensure the fire does not exceed your fire fighting capacity.
- Start lighting the fire on the downwind side of the proposed burn area up against the fuel break or control line.

Other Measures That Can Be Taken

Fuel Breaks – Construct a fuel break around the area you intend to burn. Fuel breaks should be a minimum of 10 metres wide for larger burns.

In fields where commercial grains are grown, you can construct a fuel break by tilling and turning over soil to a 10-metre width around the entire proposed burn area. On grasslands, construct a 10-metre fuel break by first mowing the fuel break as short as possible and then either using water (spray booms) to wet the fuel break down or by applying fire fighting foam over the fuel break.

There are other considerations for fuel breaks. Keep these breaks well away from steep slopes, ravines and coulees. Keep the fuel break as straight as possible and avoid sharp corners or right angle turns. Placing fuel breaks in this manner will allow good access around the entire perimeter of the fire for control purposes, and avoid any heavy fuel pockets which could cause spot fires or a high intensity section of the fire to breach the fuel break.

Outdoor Fireplace or Fire Pit - These should be constructed on mineral soil or contained in a non-combustible receptacle, located a minimum of one metre from any combustible materials, at least three metres from any overhanging vegetation and should not be used to burn rubbish, manure or domestic waste.

Burn Barrel or Other Incinerator - Burn only woody debris and yard waste (leaves and branches). Items like plastic, cardboard, garbage, chemicals, organic waste or wood that includes paint, glue or other chemicals emit toxic smoke and must not be burned. Take steps to prevent your fire from escaping:

(a) Use a fully enclosed device in good working condition made of non-combustible material and covered with a heavy gauge metal screen (mesh size of 7-16 mm) to prevent the escape of sparks;

(b) Locate over bare rock, gravel, sand, mineral soil or concrete to a distance of at least one metre from its base;

(c) Locate at least 15 metres from any standing timber, slash or other combustible material; and

(d) Make certain a sufficient supply of water (at least 100 litres) or a charged water hose is on hand.

Campfires, Smudges, Grass Burning - A campfire, smudge or small fire intended for burning grass, leaves or other woody debris should be located on an area cleared to mineral soil extending one metre from the outer edge of the pile to be burned and at least three metres from any overhanging vegetation.

Brush Piles / Windrows - Brush piles and windrows should be tightly packed, dry, preferably seasoned and free of dirt. If possible, place at right angles to the prevailing winds for more efficient burning and decreased smoke.

Windrows should not be more than 60 metres long, with eight metres between the ends of each windrow and 15 metres between parallel windrows.

A 15-metre fuel break is recommended on each side of the area to be burned, 23 metres wide if it is adjacent to standing timber.

It is generally best to start the fire deep in the middle of each windrow first then light the ends.

Do not light any more fires than you can control.

Mop Up and Patrol - Mop up involves extinguishing all burning material, starting along the fires edge and working into the burn. Ensure all surface fire and any ground fires are extinguished.

On larger burns, mop up should take place at least 30 metres in from the perimeter of the fire. This is to ensure no burning debris can be carried over the control line (fire's edge) and start a new fire that can quickly get out of control. On smaller fires, the entire burned area should be mopped up and the burned area completely extinguished prior to leaving the site.

You must patrol of the fire area after the burn to make sure the fire is safely contained and that the fire is actually out. Areas with deep organic layers will take extensive mop up and patrol. These areas may require weeks, or even months, of patrol to ensure the fire is actually out.

Contact Information

BUFFALO NARROWS FIRE CENTRE AREA

Big River FPA	469-2500
Buffalo Narrows FPA	235-1800
Dorintosh FPA	236-7696
Ile a la Crosse FPA	833-3230

LA RONGE FIRE CENTRE AREA

Denare Beach FPA	362-5676
La Ronge FPA	425-4446
Stony Rapids FPA	439-2087

PRINCE ALBERT PROTECTION AREAS

Cypress Hills FPA	662-5400
Hudson Bay FPA	865-4500
Lower Fishing Lakes FPA	426-2600
Prince Albert FPA	953-3422
Weyakwin FPA	663-5620

Be Aware of the Danger

Over 50 per cent of Saskatchewan's fires are caused by people. Many of these fires occur when residents attempt to use fire for constructive purposes but underestimate the burning conditions.

Weather Information

Environment Canada broadcasts weather 24 hours a day on the following FM frequencies - 162.400, 162.475 and 162.550. If you do not have an FM radio you can visit Environment Canada's website for current weather information.

The information contained in this brochure is not legal advice. For more information or clarification on burning requirements contact your nearest Forest Protection Area or go to saskatchewan.ca/fire

To report a wildfire, call 911, or FireWatch at 1-800-667-9660.

When planning an open burn, contact your local Rural Municipality office to ensure that there are no by-laws in place concerning open fires.

After you obtain your Burn Notification Number, we recommend calling Emergency Management and Fire Safety's Control Burn number 1-866-404-4911 to let them know of your burn plan. This will help avoid unnecessary dispatch of volunteer fire departments or unnecessary costs via 911.

Wood/Coal Burning Facts

A solid fuel (wood/coal) fire releases particulate matter, dioxins and furans and total volatile organic compounds measured as methane, air toxics, metals including antimony, arsenic, barium, beryllium, cadmium, chromium, lead, manganese, mercury, phosphorus, titanium, particulate matter (PM), hydrogen chloride (HCl), carbon monoxide (CO) and oxides of sulfur and nitrogen into the air.

Why the concern?

Air quality impacts may be of a health concern especially to those with allergies, asthma or other respiratory or cardiovascular problems. Small appliance emissions, taken together with many other emission sources, can have a significant impact on air quality.

The design of the wood/coal burning appliance and the method of operation determine the air emissions. These appliances could consist of indoor fireplaces, outdoor fire pits, outdoor furnaces and outdoor heaters for pools or hot tubs that burn wood or coal.

Pollutants that we are most concerned about include particulates, dioxins, furans and perhaps others like benzene, PAHs, etc. These can cause a local deterioration in air quality, especially if there are several appliances in an area.

What can be done?

In light of growing evidence of health effects, the smell of woodsmoke no longer has the pleasant associations it once had.

Municipalities should consider these implications when making the decision about whether or not to permit such appliances in their areas. They should consider the collective impact of the growing number of emission sources and how they may add to the ambient air quality burden from existing industrial, transportation, energy, oil and gas and agricultural emissions from road dust, harvesting operations and crop residue burning. If they choose to approve these burning appliances, municipalities should monitor and enforce their requirements to ensure that the appliances are properly operated and maintained. Individuals and businesses should contact their local municipal offices before installing a solid fuel burning appliance for information on their bylaws or other requirements.

Operators of wood fueled equipment can do the following:

Choose the Right Equipment:

Not all wood burning appliances operate the same way. They are designed to burn wood at various efficiencies. The heating efficiency of any wood heater depends on how completely it burns the firewood and how much of the fire's heat gets into the room (rather than going up the flue).

Change the way you operate your stove or fireplace:

- burn only clean, seasoned wood and nonglossy white paper;
- build small, hot fires instead of large smoldering ones;
- burn seasoned cordwood, densified logs and firelogs;
- watch your chimney for smoke;
- follow your appliance's operating instructions carefully; and
- inspect often, keep your appliance and chimney in good condition.

Burning Wood Efficiently

Firing your wood-burning system correctly, you will:

- reduce the amount of wood you need to heat your home;
- educe outdoor and indoor air pollution from wood smoke;
- reduce the frequency of chimney cleaning; and
- increase the convenience and pleasure of wood burning.

What should not be burned?

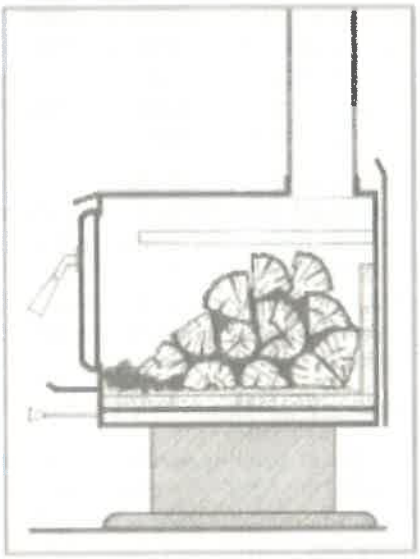
Garbage, wet or treated wood, plastic, rubber, wet or contaminated fuel (PCBs), heavy metals, paints, preservatives, petroleum products, paints, solvents, high sulphur coal, hazardous substances, animal carcasses, trash, manure or industrial waste.

Burn Short, Hot Fires

Build a small, hot fire first to preheat the firebox and chimney. Open the damper wide to help fuel the fire; leave open for about 30 minutes. To gain the most heat from each load of firewood, the wood should be flaming throughout the burn cycle until it is reduced to charcoal. You should periodically inspect your stove or fireplace to ensure a continued safe and clean-burning operation.

Preventing Smoke, Smells and Cold Hearths

The dense smoke from a slow, smoldering fire is potential heat energy that escapes up the chimney and either clings to the chimney flue as creosote or pollutes the outdoor air. Smoke contains harmful air pollutants, which can be irritating or even dangerous in high concentrations. Wood-burning systems that are properly designed, installed and operated will not spill smoke into the house. If you have been using proper burning techniques, burning only dry wood, and you still smell smoke in your home, have your system inspected.



More info?

Contact the Saskatchewan Ministry of Environment
Client Service Office at
Tel: 1-800-567-4224
(toll-free in North America)
or 306-787-2584.
Email: centre.inquiry@gov.sk.ca

WILDFIRE REDUCTION STRATEGY

The **Fire Smart** program divides the area around a home into three priority zones, similar to advice from the U.S. Fire Administration:

Priority Zone 1 (0-10m from the house):

This is the most critical area. This zone should be free of all materials that could easily ignite from a wildfire.
Trees should be thinned and pruned, and any shrubs in this area should be low flammability species.
Regularly clean roofs and gutters of dead leaves and pine needles.

Priority Zone 2 (10-30m from the house):

In this zone, you'd want to reduce materials that might help a fire spread towards your home.
Trees should be spaced at least 3 meters apart and shorter plants should be situated under trees to prevent a vertical "fire ladder."

Priority Zone 3 (30-100m from the house):

While this is the farthest zone from the house, it's still essential to manage it to reduce wildfire threats.
While you don't need to clear out all vegetation in this zone, removing the densest areas of trees or shrubs can make a significant difference.
Manage this zone to reduce the volume of vegetation and break up continuity. This can be done by spacing trees at least 10-20 feet apart, depending on the slope and size of the trees.
Trim trees regularly to keep branches a minimum of 6 to 10 feet from the ground. Remove dead plants, leaves, and vegetation.

Building Construction

Property owners are encouraged to use fire retardant cladding and roofing on structures close to any forest perimeter.