



# *Guide to Burning*

A Citizen's Guide to Burning Safely and Legally  
in Unincorporated Boulder County



# Smoke Impacts

Smoke is made up of a complex mixture of gases and fine particles produced when wood and other organic matter burn. The biggest health threat from smoke comes from fine particles. These microscopic particles can get into your eyes and respiratory system, where they can cause health problems.

## Wood Smoke: A Hazard to Our Health

- ✓ Breathing wood smoke on a high pollution day is equivalent to smoking 4-16 cigarettes a day.
- ✓ Using a non-certified wood stove for four hours emits as much carbon monoxide as driving a car 20 miles.
- ✓ Exposing oneself to wood smoke can trigger headaches, irritate the lungs and eyes, decrease alertness, cause flu-like symptoms, nausea, fatigue, rapid breathing, chest pain, confusion, impaired judgment, and increase cardiovascular problems such as angina. Respiratory diseases such as asthma, emphysema, and bronchitis can also be intensified. Briefly encountering light wood smoke causes no harm.
- ✓ Burning wood releases toxic pollutants: carbon monoxide and very tiny harmful particles into the atmosphere that can lodge in our lungs. These pollutants are released into your home as well as the atmosphere. Certified stoves and fireplaces minimize the effects of indoor and outdoor air pollution.

## Wood Smoke: An Air Quality Hazard

- ✓ Wood smoke is a major contributor to the air pollution problem in the Denver-Metro area.
- ✓ Wood burning in the Denver-Metro area can contribute up to 20% of the particulate matter (PM-10) in the air. Other sources of particulates include street sanding and vehicle emissions.
- ✓ Wood burning also contributes 15% of the carbon monoxide in the air. Other sources are vehicle emissions and fossil fuel combustion. Carbon monoxide can bind with blood hemoglobin and prevent oxygen from reaching the body.

# *Why is burning regulated?*

For you! Unregulated burning can degrade air quality and poses a risk to your health and that of your family, friends, and neighbors. Therefore, the Colorado Department of Public Health, in partnership with Boulder County, regulates burning to **protect the air quality** of the place we call home.

Boulder County is no stranger to wildfires and no one needs to be reminded that burning can be dangerous business if not undertaken carefully. It is our intention that with regulation comes **increased education, greater oversight**, and more **thoughtful, responsible burning practices**.

Boulder County recognizes both the need for—and the value of—burning for both forest health and agricultural operations. Intentional burning is an important component of managing wildfire risk. It is because we recognize its value that we have chosen to regulate it. We want to ensure it gets done, and gets done safely.

In short, open burning in Boulder County is regulated for two reasons:

**#1 Public Safety**

**#2 Air Quality**

# Alternatives

While burning slash (aka, “forest debris”) is a simple and cost-effective method of disposal, it isn’t without its drawbacks. Open burning releases **SMOKE, FINE PARTICULATE MATTER**, and **CARBON MONOXIDE** into the atmosphere which can contribute to health problems and degrade the air quality of Boulder County.

Several community sort yards and drop-off locations exist in Boulder County that will accept your slash material. Often, these materials are put to use powering biomass energy systems right here in Boulder County. Keep in mind that a burn permit application may be denied if a practical alternative method of disposal exists.

There are **3 ALTERNATIVES TO BURNING** to consider prior to applying for an open burning permit:

- ✓ Drop off your material at a **SORT YARD**
- ✓ **SCATTER** your material around your property\*
- ✓ **CHIP** your material and broadcast it onto your property\*

*\* If your slash material was generated as a result of wildland fire mitigation, scattering material or broadcasting chips is not a good alternative as there is no net reduction in wildland fuels; you have just rearranged them. If your intent is wildland fire mitigation, the best alternative to burning is dropping your material at a sort yard.*



Call **(303) 678-6368** or visit <http://www.bouldercounty.org/property/forest/pages/fhsortyards.aspx> for more information on the Community Forestry Sort Yards.

# How do I get a free permit?

1

Consider **ALTERNATIVES** to burning

2

**READ** this booklet

3

Submit the permit **APPLICATION** 20 days prior to burning.\*

4

**WAIT** for your permit to arrive via mail or email

5

**FOLLOW THE INSTRUCTIONS** in this book and on your permit

\* If you are burning 50 or more slash piles, >10 acres of grass, or >5 acres of other vegetation, you must obtain a smoke permit from the CDPHE/APCD in addition to the Boulder County burn permit. Call (303) 916-1260 or (303) 692-3224 or visit <http://www.colorado.gov/pacific/cdphe/get-pile-smoke-permit> for more information and to apply for a smoke permit.

**Burn Permit Application**

**Contact Information**

**Burn Supervisor**

**Burn Information**

**Type of Burn**

**Purpose of Burn**

# Do I need a permit?

# YES

Burns that **REQUIRE** a permit:

## **Slash Pile Burns**

A slash pile is made up of vegetative material that has been concentrated by manual or mechanical means into a pile measuring no more than 6' wide by 6' tall. Slash piles generally contain the remnants of mitigation projects or simply the forest debris cleaned up from around one's property. However, there are restrictions on what types of material can be placed in a slash pile. See page 8 for a list of items that cannot legally be burned in Boulder County.

If you are burning **more than 50 piles**, you must also obtain a smoke permit from the Colorado Department of Public Health & Environment/Air Pollution Control Division.

## **Broadcast Burns**

Often thought of as "prescribed burns," broadcast burns are defined as, "the controlled application of fire to wildland fuels in their natural or modified state over a predetermined area." Broadcast burns are often conducted to reduce wildland fire fuel loads, restore the ecological health of an area, or to clear weeds.

If you are burning **more than 10 acres of grass or more than 5 acres of other vegetation**, you must also obtain a smoke permit from the Colorado Department of Public Health & Environment/Air Pollution Control Division.



**CONFUSED?** Call us at **(303) 441-4500** or email us at **[bcfiremanagement@bouldercounty.org](mailto:bcfiremanagement@bouldercounty.org)** if you have questions about a specific burn and whether it requires a permit.



# NO

## Burns that **DO NOT REQUIRE** a permit:

### **Agricultural Burns**

Whether land is zoned as agricultural is relevant but is not determinative of whether a fire on it should be categorized as an agricultural open burn.

The open burning of cover vegetation for the purpose of preparing the soil for crop production, weed control, maintenance of water conveyance structures related to agricultural operations and other agricultural cultivation purposes.

Examples Include:

- Burning stubble from a commercial annual row crop.
- Burning of fruit tree, vine prunings and cull trees in and from an orchard or nursery.
- Improvement of habitat and disposal of tree materials and brush improving forage for livestock.
- Burning of vegetative detritus that accumulates in a reservoir.

### **Recreational Fires**

A fire used for non-commercial cooking of food for human consumption (barbecues, gas stoves, charcoal fires), for instructional or, for recreational purposes (campfires on private lands).

### **Other Exempted Burns**

Fires in a fireplace (indoor or out)  
Propane grills  
Propane lanterns  
Kerosene heaters  
Candles  
Tiki torches  
Training

# WHO can burn WHERE?

- ✓ **LANDOWNERS** or their designees may conduct a burn on their own **PRIVATE PROPERTY** with the applicable permits.
- ✓ **FIRE MANAGERS** may burn on **PRIVATE PROPERTY** with the landowner's permission, or on **PUBLIC PROPERTY** within their management jurisdiction with the applicable permits.

## Want to know about burns occurring in your neighborhood?

Visit <http://maps.bouldercounty.org/gisapps/openburnpermitviewer> for information on all approved burn permits in Boulder County for the current calendar year.

# WHAT can I burn?

## YES

**The following items MAY BE BURNED in Boulder County, but require a permit:**

- ✓ Tree branches and trunks smaller than 6" in diameter
- ✓ Clean, dry slash
- ✓ Clean, dry forest debris

## NO

**The following items CANNOT BE BURNED in Boulder County, with or without a permit:**

- ✓ Material that is wet
- ✓ Material that is full of dirt or soil
- ✓ Trash or garbage
- ✓ Buildings
- ✓ Construction debris
- ✓ Commercial or business waste
- ✓ Lumber, even if it is unpainted and untreated
- ✓ Hazardous materials, including treated wood
- ✓ Non-wood waste (tires, insulation, plastics, etc.)
- ✓ Animal carcasses
- ✓ Leaf piles and lawn clippings
- ✓ Food waste
- ✓ Stumps
- ✓ Branches larger than 6" in diameter
- ✓ Tree trunks (larger than 6" diameter)



# WHEN can I burn?

## My burn is above 6400' elevation:

Slash piles	Year round <sup>1</sup>
Broadcast Burns	Year round <sup>1</sup>
Agricultural Burns	Year round
Recreational Fires	Year round

## My burn is below 6400' elevation:

Slash piles	March 1-October 31 <sup>1</sup>
Broadcast Burns	March 1-October 31 <sup>1</sup>
Agricultural Burns	Year round
Recreational Fires	Year round

## Time of Day (All elevations)

March 1-October 31	2 hours after sunrise to 2 hours before sunset
November 1-February 29	10:00am - 4:00pm

## Deal Breakers

YOU MAY **NOT** BURN WHILE **ANY** OF THE FOLLOWING RESTRICTIONS ARE IN PLACE, EVEN IF YOU HAVE A PERMIT.

### Weather

High Wind Warning or Watch  
Red Flag Warning  
Fire Weather Watch

### Air Quality<sup>2</sup>

Air Quality Action Day

### Public Safety

Burn Ban

1 - Requires a permit

2 - Agricultural and recreational burns are exempted from all air quality restrictions.

# Just the facts

A quick-reference guide to the basics of open burning in Boulder County

	<i>Slash Piles</i>	<i>Broadcast Burn</i>
<b>Permit required?</b>	Yes	Yes
<b>Size</b>	6 feet wide x 6 feet long x 6 feet high	>10 acres of grass or >5 acres of other vegetation
<b>Notifications you must make</b>	Fire Protection Agency Boulder County Communications CDPHE/APCD <sup>1</sup>	Fire Protection Agency Boulder County Communications CDPHE/APCD <sup>2</sup>
<b>Times you may burn</b>	10:00am-4:00pm (Nov 1-Feb 29) 2 hours after sunrise to 2 hours before sunset (Mar 1- Oct 31)	10:00am-4:00pm (Nov 1-Feb 29) 2 hours after sunrise to 2 hours before sunset (Mar 1- Oct 31)
<b>Dates allowed</b>	All year (Above 6400') Mar 1-Oct 31 (At or below 6400')	All year (Above 6400') Mar 1-Oct 31 (At or below 6400')
<b>Snow cover required</b>	<b>Mountains</b> <sup>4</sup> 5" of snow that extends 30' in all directions from pile(s) <b>Plains</b> <sup>5</sup> No snow cover required	None
<b>Deal Breakers</b> <sup>3</sup>	Air Quality Action Day High Wind Warning or Watch Red Flag Warning Fire Weather Watch Burn Ban	Air Quality Action Day High Wind Warning or Watch Red Flag Warning Fire Weather Watch Burn Ban

1 - **CDPHE/APCD** Colorado Department of Public Health & Environment/Air Pollution Control Division, only if burning 50 or more piles.

2 - **CDPHE/APCD** Colorado Department of Public Health & Environment/Air Pollution Control Division, only if burning >10 acres of grass or >5 acres of other vegetation.

3 - **Deal Breakers** You may not burn if any one of the listed restrictions is in place, even if you have a valid permit.



## *Agricultural Fire*

## *Recreational Fire*

No

No

NA

2 feet wide x 2 feet long x 3 feet high

Fire Protection Agency  
Boulder County Communications

Boulder County Communications  
recommended

No limitations

No limitations

All year

All year

None

None

NOT Recommended on High  
Wind Warning or Watch Red  
Flag Warning  
Fire Weather Watch  
Burn Ban

High Wind Warning or Watch  
Red Flag Warning  
Fire Weather Watch  
Burn Ban

4 - "Mountains" are defined as those areas located WEST of the following line: 83rd Street south to Woodland Road, Woodland Road west to 75th, 75th south to Highway 66, Highway 66 west to North Foothills Highway, North Foothills Highway south to Broadway, Broadway south to South Foothills Highway, South Foothills Highway south to the county line.

5 - Plains are defined as everything east of the "Mountains," defined above.

# HOW do I pile burn?

How to site, build, burn, and put out a fire like the experts

## #1 Prepare Site

### Choosing & Preparing a Burn Site

- ✓ Burn on **BARE GROUND** or **SPARSE GRASS**
- ✓ Do not place your pile over **BURIED UTILITIES**
- ✓ Do not place your pile under **OVERHEAD UTILITIES**
- ✓ Do not place your pile within **30 FEET of ANYTHING** you don't want to burn, including:
  - ✓ Other slash piles
  - ✓ Structures
  - ✓ Trees
  - ✓ Shrubs
  - ✓ Vehicles
  - ✓ Decks
  - ✓ Wood piles
  - ✓ Lawn furniture
  - ✓ Swing sets
  - ✓ Greenhouses
  - ✓ Car ports
  - ✓ Flammable fences
  - ✓ Hazardous materials
  - ✓ Fuel containers
  - ✓ Cisterns
  - ✓ Landscaping
- ✓ Ensure the smoke from your pile will not **IMPACT ANY NEARBY BUILDINGS**. Build piles downwind of structures (homes, buildings, schools), if possible.
- ✓ Ensure the smoke from your pile will not **OBSTRUCT VISIBILITY ON A ROAD**. Build piles downwind of roads, if possible. If not, keep the pile well back from road edges.

# #2 *Prepare Fuels*

## Constructing a Pile

- ✓ Place branches in pile with **THICK/BUTT ENDS UPWARD AND INWARD**. This will place the largest part of the branch into the area of greatest heat, increasing consumption of material.
- ✓ Build your pile no larger than **6 FEET HIGH** and **6 FEET IN DIAMETER**.
- ✓ Piles should be shaped like a **CONE**, a **CYLINDER**, or a **MOUND**. Conical piles will consume material more completely and more efficiently than any other shape.
- ✓ Piles should be **DENSE**. If your pile is well-built, you will not be able to pass your fist through it.
- ✓ Let your pile sit for at least **ONE YEAR**, but no longer than **TWO YEARS** before burning. A green pile will give off copious amounts of smoke and won't consume well. An overly-dry pile will burn too hot and fast to be safe.

# HOW do I burn?

How to site, build, burn, and put out a fire like the experts

## #3 Notify

Prior to your burn, notify by phone both your fire protection agency/department and Boulder County Communications (police & fire dispatch center). Notification reduces the number of false smoke reports your fire department and sheriff's deputies respond to.

### Slash Piles

**The day of your burn, prior to ignition:**

- Boulder County Communications **(303) 441-4444**
- Your local fire protection agency
- Colorado Department of Public Health & Environment/Air Pollution Control Division via email at [coleen.campbell@state.co.us](mailto:coleen.campbell@state.co.us) or fax at **(303) 782-0278**<sup>1</sup>

### Broadcast Burns

**The day of your burn, prior to ignition:**

- Boulder County Communications **(303) 441-4444**
- Your local fire protection agency
- Colorado Department of Public Health & Environment/Air Pollution Control Division via email at [coleen.campbell@state.co.us](mailto:coleen.campbell@state.co.us) or fax at **(303) 782-0278**<sup>1</sup>

### Agricultural Fires

**The day of your burn, prior to ignition:**

- Boulder County Communications **(303) 441-4444**
- Your local fire protection agency

### Recreational Fires

No notifications required but are recommended

<sup>1</sup> - Notification of CDPHE/APCD is required only if you are burning 50 or more slash piles, >10 acres of grass, or >5 acres of other vegetation.



# #4 Burn

Dig a 6-12" **TRENCH** around your pile down to mineral soil. Mineral soil is soil that contains no plant (flammable) material.

## **DRESS for the occasion.**

- ✓ Wear flame-resistant clothing (NOMEX or COTTON). When cotton burns, it consumes completely and cleanly. When nylon or polyester burns, it *melts* and may adhere to the skin.
- ✓ Do not wear any loose clothing (scarves, etc.) which may accidentally ignite
- ✓ Wear Nomex or leather work GLOVES
- ✓ Wear EYE PROTECTION (goggles or glasses) to protect your eyes from popping or floating embers
- ✓ Do not wear clothing with fuel spills on it. It can ignite.

## **Choose the right IGNITION DEVICE**

- ✓ FUSEES and PROPANE TORCHES are the best choice if you have them available
- ✓ If using a drip torch or other petroleum delivery system to light the burn, a less-flammable 3-parts-diesel to 1-part-unleaded mix will ensure a less explosive combustion.

✓ **WARNING! Dousing your pile with pure gasoline before lighting it can cause an explosive ignition that can severely burn you! This method is strongly discouraged!**

## **Establish a WATER SOURCE for extinguishment**

- ✓ Water source should be adequate to quickly extinguish the pile in full involvement
- ✓ As a rule of thumb, have 100 gallons of water on hand for every slash pile to be burned or 500 gallons per acre.
- ✓ Water source should be nearby and immediately available

Make a **PLAN** in the event your burn escapes. That plan should include calling 911 IMMEDIATELY. Small wildland fires are *much* easier to catch than large ones.

**NEVER BURN ALONE**

# HOW do I burn?

How to site, build, burn, and put out a fire like the experts

## #5 Mop Up

**MOP-UP** \`mäp-`əp\ vt 1: a concluding action 2: to beat decisively 3: to clear an area of remaining pockets of military resistance 4: to completely extinguish a fire, removing all traces of heat

The importance of a comprehensive mop-up process cannot be overstated. Few people realize how long a pile of ashes and partially burned woody material can hold heat. A pile that has not been properly mopped up can reignite days, weeks, even several months after the last wisp of visible smoke escapes. Don't be fooled into believing your pile is truly extinguished until you have actually **felt** cold material with your own hands **throughout** your ash pile. Even a trace of warmth overlain with cold material can reignite. No amount of latent heat is acceptable. Any material or ash that is even lukewarm still poses a risk of re-ignition. Piles must be truly **COLD TO THE TOUCH all the way down to mineral soil.**

### HOURS POST-IGNITION & ACCOMPANYING MOP-UP ACTIVITY

HOUR	ACTIVITY
------	----------

0	Ignite burn
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4-6	Let pile burn down as completely as possible. Scrape a 6-12" wide trench down to mineral soil around the perimeter of the pile, separating burned material from unburned. Leave no burnable or burned material within your trench.
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IGNITION

BEGIN MOP-UP  
6-8 hours post-ignition

ADD WATER  
& STIR

BURN 8

MOP-UP

24

MONITOR





- 6-8** Begin mop up and extinguishment.  
Add water. Stir and turn the ashes with a shovel or other tool.  
Mix warm material with wet to cool it.  
Carefully and slowly feel for heat. First by hovering the back of a bare hand over the ashes, then, if no heat is felt, by placing your hand slowly and carefully into the ashes to feel for warmth.  
Continue stirring and adding water until no warmth can be detected by a bare hand at any depth within the ash pile.
- 24** Apply and stir additional water into the ashes.  
Continue stirring and adding water until no warmth can be detected **at any depth** within the ash pile. It's not uncommon for a pile that felt cold everywhere on one day to have new heat on a later day.
- 48** Apply and stir additional water into the ashes.  
Continue stirring and adding water until no warmth can be detected **at any depth** within the ash pile.
- 72** You should be able to touch the ashes and burned material with your bare hand, ensuring it is "out."  
Continue to add water and stir as long as it takes to make the pile cold to the touch.  
Rehabilitate any scarred soil and vegetation by replacing organic soil and scraped-up vegetation. Use a rake or shovel to pull removed material back over the barren soil.

ADD WATER  
& STIR

FIRE OUT &  
COLD

48 MONITOR

72 REHAB

# Burn Checklist

## PILE CONSTRUCTION

- My pile is situated on **bare ground** or sparse grass
- All branches in my pile are less than **6" in diameter**
- My pile is not built under **overhead utilities**
- I am not burning a **building** or **structure**
- I have confirmed there is **no reasonable alternative** for disposing of this material.
- There is a **6-12"-wide trench** dug down to mineral soil around my entire pile

### The fuels I intend to burn are:

- Clean
- Dry

### Nothing in my burn pile is:

- Trash or garbage
- Hazardous material
- Construction debris or lumber
- A leaf pile or lawn clippings
- All or part of an animal carcass
- Pinecones (except incidental to pine slash)
- Food waste
- Stumps
- Tree trunks (larger than 6" diameter)

## SITE CHARACTERISTICS

- The smoke from my pile will not significantly affect any **nearby buildings**
- The smoke from my pile will not obstruct visibility on a **road**

### There is nothing within 30' of my pile in any direction that I don't want to burn, including:

- Structures
- Overhead power lines
- Vehicles
- Other slash piles
- Trees
- Roads



## ONE WEEK PRIOR

- I have read the **Guide to Burning** in its entirety
- I have obtained a **burn permit** from Boulder County
- I have obtained a **smoke permit** from CDPHE/APCD<sup>1</sup>
- The **project description** on my permit is accurate
- I have obtained any permits required by my local fire protection agency (if applicable)

## PRIOR TO IGNITION

- It's after **10:00 am** (Nov 1-Feb 29) or **2 hours after sunrise** (Mar 1-Oct 31)
- I can easily complete and **extinguish this burn before 4:00 pm** (Nov 1-Feb 29) or **2 hours before sunset** (Mar 1-Oct 31)
- I don't have **anywhere else** I need to be today
- There is a **6-12"-wide trench** down to mineral soil dug around my pile (Only if there is less than 5" of snow on the ground)
- There is **5" of snow** on the ground (Mountain<sup>2</sup> areas only)
- I have confirmed there are no **burn bans** in effect today
- I have confirmed today is not an **Air Quality Action Day**<sup>3</sup>
- I have confirmed there is no **Red Flag Warning** in effect
- I have confirmed there is no **High Wind Warning** or **Watch** in effect
- I have confirmed there is no **Fire Weather Watch** in effect
- I have a **propane torch, fusees, or a 3:1 diesel-to-unleaded mix** to ignite my pile
- I have a reliable, adequate, and immediately available **water source** for suppression
- I am wearing **cotton** or **Nomex clothing**. I have no loose-fitting clothing items (scarves, etc.) that may ignite accidentally. I am not wearing ANYTHING that is nylon or polyester, including my underclothes and socks.
- I am wearing **leather work gloves** and **eye protection**
- I have notified **CDPHE/APCD**<sup>1</sup>
- I have notified my local **fire protection agency** by phone
- I have notified **Boulder County Communications** at (303) 441-4444
- I have a **plan** if my burn escapes

1 - Required only if burning 50 or more piles, >10 acres of grass, or >5 acres of other vegetation

2 - See page 11 for a definition of "Mountain" areas

3 - Applies to slash pile and broadcast burns only

# Definitions

## **AGRICULTURAL BURNING**

The open burning of cover vegetation for the purpose of preparing the soil for crop production, weed control, maintenance of water conveyance structures related to agricultural operations and other agricultural cultivation purposes.

## **OPEN BURNING**

An open burn is a fire started and used intentionally for grassland or forest management, including vegetative, habitat, or fuel management.

## **MINERAL SOIL**

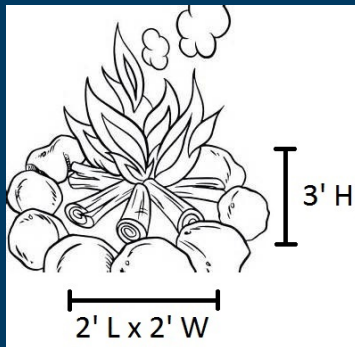
Soil that contains no organic matter, and therefore, no flammable components.

## **FIREPLACE**

A non-flammable, semi-permanent enclosure for containing fire with a chimney for arresting embers.

## **CAMPFIRE**

A single fire no larger than 2 feet length (L) x 2 feet wide (W) x 3 feet high (H) that is contained by a fireplace or fire pit, which is used for cooking, personal warmth, lighting, ceremonial, or aesthetic purposes that is not within or mounted on any structure. Charcoal grills and gas stoves are considered campfires.



### Contact Information:

Colorado Department of Public Health & Environment:  
phone: (303) 916-1260 or (303) 692- 3224  
website: <http://www.colorado.gov/pacific/cdphe>

Boulder County Fire Management Program:  
phone: (303) 441-4500  
email: [bcfiremanagement@bouldercounty.org](mailto:bcfiremanagement@bouldercounty.org)

Boulder County Communications:  
phone: (303) 441-4444