

How to Increase Draft in Your Wood Stove

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Lighting a Wood Burning Stove



Draft is the driving force that pulls smoke up the chimney allowing a fire to burn effectively in a fireplace or a wood stove. A wood stove with poor draft will make it difficult to get a fire going and will cause smoke to roll out of the front of the wood stove when opening the door. Smoke rolling out of the wood stove is very unpleasant and can cause soot stains on the walls and ceiling. Improving the draft of your wood stove will ensure all the smoke properly vents up the primary flue system..

1. Start with a Hot, Fast Fire

Starting a cold wood stove with a hot, fast fire will get the draft going the quickest. Being lazy starting a fire can cause a lot of smoke to linger into your living space. It is best to get the fire going hot and quickly. Generating a lot of heat into the flue will cause the draft to start more quickly and effectively pull the smoke up the chimney. The best practice is to start a fire with the top-down technique.

Build a Fire Top Down

The top-down fire starting technique will create more heat directed to the flu and increase the draft. You will start with medium sized pieces of wood for the base of the fire. Then, put a layer of paper balls or knots on top of the bottom layer. The next layer is going to be 5 or 6 more finely split pieces of wood about 2 inches in diameter. Next, another layer of paper. Next, place a very fine layer of kindling on the top and cover it with more knots of paper. The knots will cause the paper to burn more slowly. Then light the paper on the top layer. It will cause each of the next two layers to catch, creating the top-down fire. It is important to cross the layers of wood creating turbulence for the fire. Turbulence is crucial for wood to burn effectively. Tightly stacked wood is not going to have enough movement for air to become turbulent enough to drive the fire.

2. Burn Extremely Low Moisture Wood



The key to having a hot, fast fire is to burn wood with a 20% or lower moisture content. Wood with a higher moisture content will burn slower and lose most of the efficiency of the wood.

The fire is basically boiling off the excess moisture before the wood can fully combust. Moist wood will make the top-down fire starting method extremely difficult. A good draft starts with a well-lit fire and a warm chimney system. Wood smoke flow is like flowing water, it will follow the path of least resistance.

How: Use Logs that Have Lower Than 20% Moisture Content

The best way to get your wood to low moisture content is to properly stack and store your wood. Just like building a fire, the wood should be stacked loosely so air can move all around the wood. The wood should be stacked outside and covered so no driving rain can hit the wood. This will allow the wind to move through the wood and dry it out.

You should not cover the wood tightly with a tarp. Rain may not be getting on the wood in this scenario, but the tarp is trapping the moisture inside the pile, causing condensation to form which will take longer for the wood to dry out. Hardwoods such as Oak, Maple, and Ash are the best types of wood to burn in a wood stove.

Hardwoods, if stored properly, will take about 1 to 2 years to fully cure depending on the size of the split logs. Purchasing a [Moisture Meter](#) is the best way to gauge the moisture content of the wood. Must be 20% or lower.

3. Improve Airflow Around the Fire

Burning a hot fire is pivotal to having a good drafting chimney. One way to improve the performance of the firebox is to add a fireplace grate.

How: Use a Fireplace Grate

A fireplace grate is going to allow more air movement through the wood, creating more turbulence which a fire loves. Every wood burning fireplace should have a fireplace grate. If you have a wood burning stove, you will have to check with the manufacturer of the stove to determine if a fireplace grate is approved for that particular stove.

Newer EPA-rated wood stoves are designed to fully load the stove with wood allowing for longer burn times. A fireplace grate could actually hinder the efficiency of the EPA-rated stove by making the wood burn more quickly.

While a grate will help improve the draft, it is going to hinder the efficiency of the stove. Burning with a fireplace grate in a wood stove could also void the warranty of the stove. **You must check with the wood stove manufacturer before you make that decision.**

4. Warm the Chimney Flue

One of the best ways to get the draft going in a cold chimney is to heat up the flue. In extremely cold climates this will be required to even establish a draft. A very cold chimney will create a “cold bubble” that basically blocks the flue and the draft. If you try to start a fire with an extremely cold chimney,

you could fill the home with smoke because the chimney is so cold, the heat from the fire cannot overtake the cold flue conditions resulting in a smoky wood stove. **SAFETY FIRST !!!**

How: Prime the Flue Before You Start a Fire

There are many ways to preheat the flue. You can use common household products such as a hair dryer, large three-wick candle, a heat gun, or a handheld propane torch to preheat the flue. Place the heating element up the flue for a minute or two and that can create enough heat to establish a draft.

Log Lighter from Duraflame



Another option is to warm the firebox and chimney pipe with a paraffin based log lighter like the **Duraflame Firestart Wood Firelighters**. This compact, versatile firelighter quickly warms a wood stove firebox and chimney. Just light the wrapper - individually wrapped for easy lighting. One firelighter burns for 30 minutes, long enough for even difficult wood fires. This results in faster and more complete ignition of the fire, reducing emissions of particulate matter and carbon monoxide. **Available online at multiple locations.**

5. Provide Enough Air to Replace the Air That is Lost

A key component for burning wood is oxygen and fresh air. The more fresh air you have the hotter the fire is going to be. As the fire burns, it is pulling all the fresh air from the home as it continues to burn. There can be a point where the fire has depleted the room of fresh air and the fire will start to smoke and die out. However, most homes have open ducts above the kitchen stove to allow replenishment air to enter the home.

Open a Window or Vent in the Room the Chimney is In

A newer home that is constructed to be energy efficient and very airtight can cause a woodstove to pull the fresh air out more quickly, thus hindering the draft. If this happens you can crack a window or a door for a few minutes to provide fresh air to the stove.

What If These Steps Do Not Improve Your Draft?

You could be doing everything correctly with how you store your wood, build a fire and operate your stove and you are still experiencing poor draft. This could be a result of the configuration of your chimney or stove pipes.

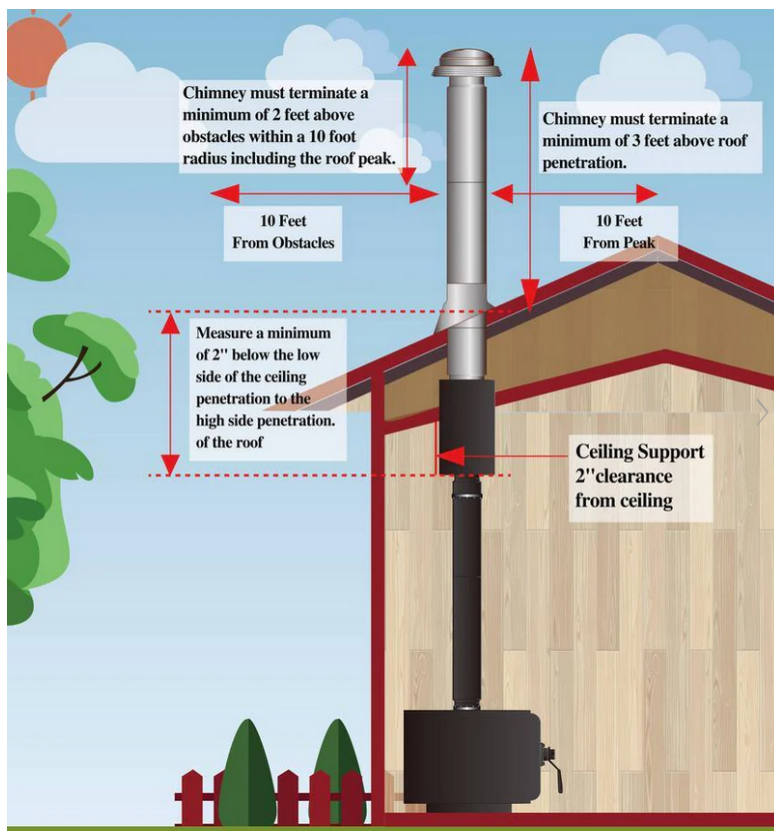
A free standing wood stove should never have more than two 90 degree elbows in the stove pipe configuration. More than two 90 degree elbows will inhibit the draft because there is too much resistance for the exhaust. You could fix this problem by reconfiguring your stove pipes and use 45 degree elbows instead of 90 degree elbows.

Another reason could be a long run of horizontal stove pipe. Smoke and heat strive to rise, but having a long horizontal section of stove pipe will make the smoke rise slower and affect the draft. A horizontal stove pipe should also not be truly horizontal. The stove pipe should have a minimum of a 1/4" of rise per foot of horizontal stove pipe heading to the chimney. The length of the horizontal stove pipe should not be greater than 50% of the height of the chimney. A simple reconfiguration of the stove pipes can drastically change and help the draft of the stove.

One of the most common causes of poor draft for a fireplace and a wood stove is insufficient chimney height. Even though your chimney may be up to code and the correct height above the roof, your chimney can still not be tall enough for proper draft.

Generally, the more distance you have between the hot fire and the outside cold air will create a stronger draft. Wood stove manufacturers generally state that the minimum chimney height should be no less than 15'. Based on their tests, 15' is the height where you will start to have an optimal draft.

If your wood stove has worked perfectly for a while and you start noticing that it is not drafting like it always has. The reason could be a dirty or blocked chimney flue. When the flue begins to accumulate creosote the flue area begins to shrink. If the flue is blocked and too much creosote has built up on the wall of the chimney, it will not have enough area to have a proper draft.



The easiest way to fix the draft issue in this situation is to simply clean the chimney flue. Removing the creosote from the walls of the chimney creates the proper area in the flue to properly exhaust the smoke. Not to mention cleaning the chimney flue is extremely important to prevent chimney fires.

It is also important to ensure that you have a chimney termination cap on the top of the chimney. This will prevent water from entering the flue system during rainy weather.

Graphic on left shows minimal dimensions required for safe installation resulting in optimum chimney draft.

