

# Parts Of A Fireplace & Chimney Explained (With Diagrams And Real Pictures)

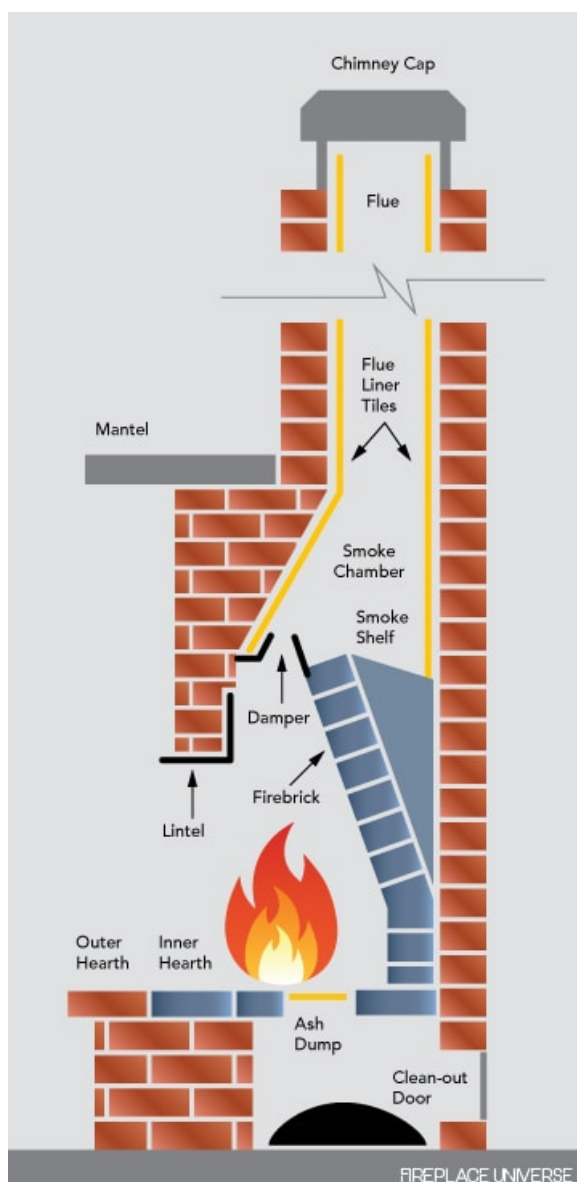
Fireplaces come in different sizes, shapes and designs, and so I've put together this fireplace components guide to explain the different parts of a fireplace and chimney that can be found in your home.

I've also put together a diagram showing the different parts of a fireplace and chimney from a side on view, showing you the whole picture of what happens when you have a fire in your traditional open fireplace.

I have two open fireplaces in my home, one of which used to have a fireplace insert, and so I've also explained each part in further detail using my own fireplaces as examples.

## Parts Of A Fireplace Diagram

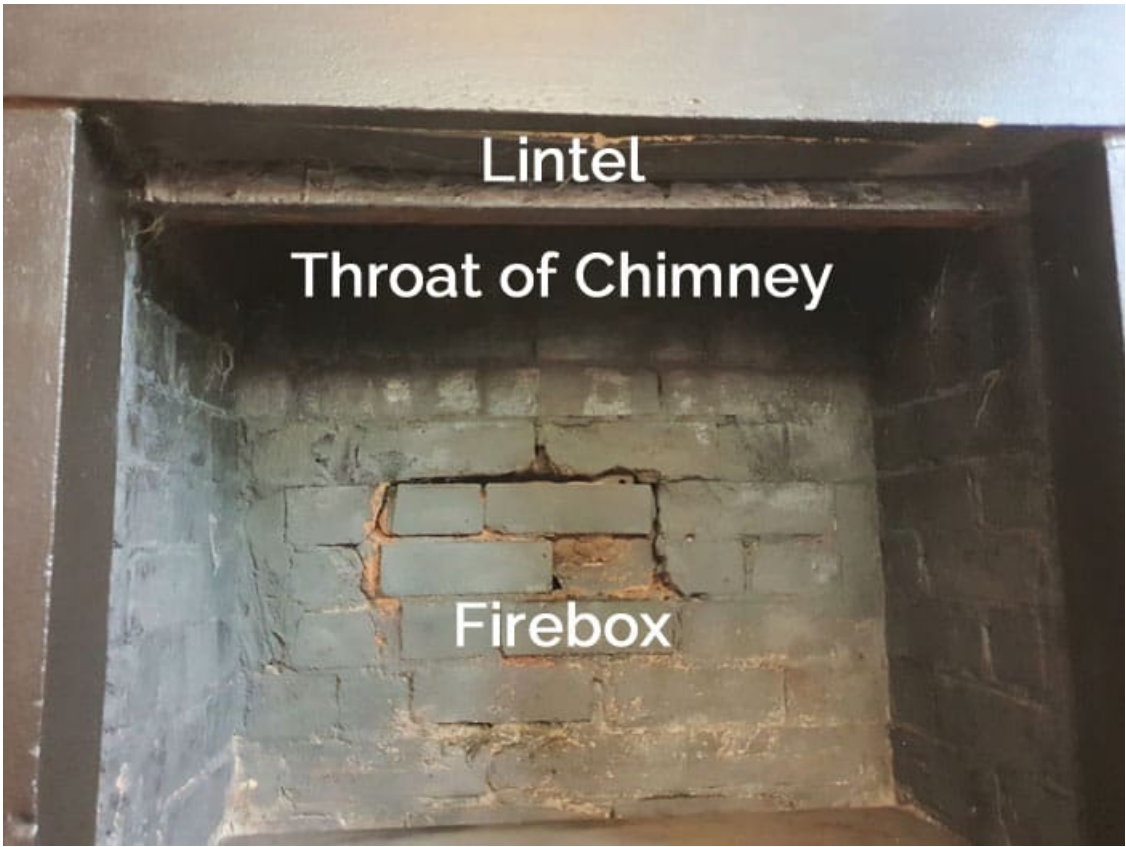
Below is a diagram of a typical fireplace and chimney:



The diagram shows the layout of a fireplace and chimney commonly found in a home, but as all houses are built differently the layout and design of your fireplace may differ from the one shown above. For example, my open fireplaces don't have dampers or ash pits.

## Anatomy Of A Fireplace (Labeled)

The images below highlight the parts of my own fireplaces located in my living room and kitchen, showing each part clearly labeled for clarity.



Lintel

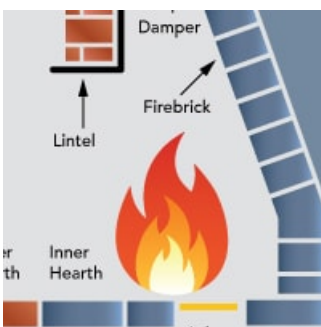
Throat of Chimney

Firebox



## Firebox

The firebox is the main part of the fireplace where the fire is built. It's usually rectangular or square in shape, and is surround by fireproof materials such as firebricks.



The firebox in my living room fireplace is made of brick that is painted black to suit the other parts of the fireplace.



At the base of the firebox is the hearth, and at the top of the firebox is the throat of the chimney, where a damper can be found in some fireplaces. The front of the firebox is called the fireplace opening, where glass doors can sometimes be found, or where a fireplace screen would be located.

## **Hearth**

The hearth is located at the base of the fireplace. It forms the base of the firebox and extends out into the room, both length ways and width ways. It's what the fire is built on or on which a fireplace grate is placed, and helps protect the floor of your thr loor of youe lthe floor ohe hearth is ddt thi



As a hearth has to deal with high temperatures, it so also needs to be made from non-combustible materials. Common materials used as a hearth include granite, marble, stone, concrete, brick, ceramic and quarry tiles.

All solid fuel burning fireplaces are required to have a hearth, and the size and depth of a hearth must comply with your local building regulations and code.

We have two open fireplaces in our home, and one of the hearths is made from granite, while the other hearth is made from concrete.



A fireplace screen is placed onto the hearth to help prevent any hot embers from getting into the room. [Read more about fireplace screens here.](#) You can also read my complete guide to fireplace hearths, including examples of materials used as hearths, and regulations for sizes and depths.

## **Fireplace Face**

The fireplace face is located around the opening of the fireplace and is the part sticks out into the room.

Similarly to the hearth and firebox, it's also made from a non-combustible material. The face of our living room fireplace is made from concrete; the same material used for the hearth. It has been painted black to match the firebox.

A fireplace surround may be found on a fireplace instead of a face.

## **Surround**

A fireplace surround is similar to the face of a fireplace, but is usually more of a decorative feature. It can be found around the opening of a fireplace, but isn't always found as a non-combustible material like the face of a fireplace.

Before redecorating our kitchen, there was a gas insert in the kitchen fireplace with a wooden fireplace surround. I've since taken the fireplace surround and gas fireplace insert out, but you can see pictures of what our wooden fireplace looks like below.



To learn more about fireplace surrounds, as well as see what they look like from behind, [click here](#).

**Back Panel**



The fireplace back panel is located between the opening of the fireplace and the surround. It can be used to compliment the look of the hearth to improve the design of the fireplace.

Here's an image of the cast iron back panel I removed from my kitchen fireplace:



You can see what a back panel looks like in more detail [here](#).

## **Mantel**

The mantel is located at the top of the fireplace surround, or top of the face of an open fireplace.

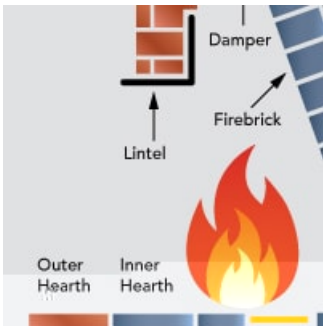
The mantel provides a shelf on which decorations and other items can be placed, but can sometimes help with preventing smoke from the fire from coming into the room.

The mantel in our living room is made from concrete, while the mantel of the fireplace surround I removed from our kitchen is made of wood.



## **Lintel**

The lintel is located at the top of the firebox, between the throat of the chimney and the fireplace surround. Its main purpose is structural, and helps spread the load of the chimneybreast across the sides of the fireplace.



Here's what the lintel looks like in our living room fireplace.



## Chimney Throat

The throat of the chimney is located at the intersection between the chimney and the fireplace, at the base of the chimney and at the top of the firebox.

Below is a picture of me looking up into the throat of the chimney from our living room fireplace.



In many fireplaces, a damper can be found located within the throat of the chimney.

## **Damper**

If a fireplace has a damper, it's typically found within the throat of the chimney, but can also be found located at the very top.

A throat damper is a plate made from a fire resistant material such as metal or ceramic and sits just above the firebox, covering the entire internal area of the chimney.



A throat damper can be manually opened or closed using a handle or lever, and helps to prevent loss of warm air from a home when the fireplace isn't being used. It may also be used to reduce the draft on the fireplace from the chimney by closing it down.

If you have a top-mounted damper that's located at the top of the chimney, you're likely to have a chain that hangs down into the fireplace which can be used to open and close the damper.

The damper must be open before a fire is started or smoke will come into the house rather than up the chimney.

For more information on fireplace dampers, I've put together the complete guide to dampers right here.

A chimney provides a safe passageway for waste smoke and gases from a fire to leave the fireplace and be removed from a home.



The chimney starts at the top of the firebox and extends vertically through the roof of the house. The chimney must protrude a certain distance above the roofline of the house to ensure sufficient draw on the fireplace.



The internal diameter of the fireplace must be designed along with the height of the chimney, and the size of the firebox and opening of the fireplace to provide an efficiently operating fireplace.

## **Chimney Cap**

The cap is located at the very top of the chimney and acts as a roof to the chimney. Its main purpose is to help prevent wet weather, animals and debris from making their way down the chimney and into the fireplace.

Like ours, not all chimneys have a cap, but can be installed by a professional.

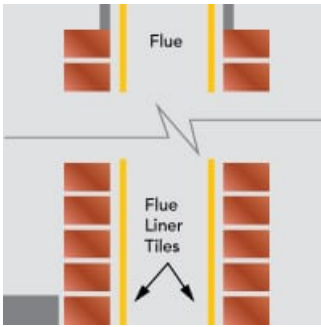
## **Chimney Crown**

The crown is located at the top of the chimney alongside the chimney cap, and helps to protect the materials used within chimney from the weather.

The crown helps keep the inside of the chimney moisture free by diverting water away from the chimney.

## **Flue**

The internal passageway of the chimney can be known as the flue.



The flue can be lined with a heat resistant material such as clay or ceramic, and protects the structure of the chimney from both moisture and the heat of the rising gases from a fire.

## Glass Doors

Traditional fireplaces can sometimes be found with glass doors located on the opening of a fireplace.



Much like a damper, glass doors can help to prevent heat loss from a home when the fireplace isn't in use.

It's recommended by the US Fire Administration (USFA) that fireplace glass doors should always be open when having a fire.

For more information on glass doors for fireplaces, check out my article explaining whether wood burning fireplaces need glass doors, and what purpose they serve.

## Ash Pit

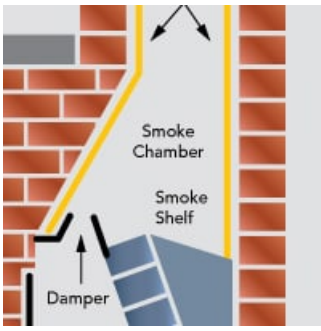
An ash pit may be found underneath a fireplace, in which ash falls into to be stored and collected for later use. Not all fireplaces will have an ash pit (ours don't), but the ash can sometimes be removed from a basement through a clean-out door.

Ash falls down from the firebox into the ash pit through an ash dump.

## Smoke Chamber

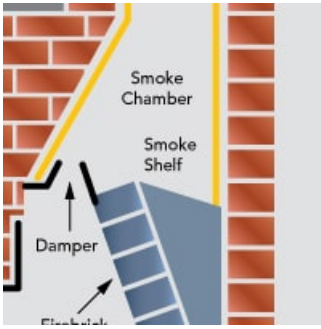
The smoke chamber is located just above the throat of the chimney, and above any throat damper.

The smoke chamber helps to compress byproducts from a fire before moving further up the chimney.



## Smoke Shelf

The smoke shelf is located at the base of the smoke chamber, and helps to prevent backdrafts down into the firebox.



The smoke shelf also collects and helps to protect the firebox from any water or debris that makes its way down the chimney.

## Evergreen NexGen-Fyre™ Insert

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## Evergreen NexGen-Fyre™ Insert

DESIGNER FACES & TRIMS WHAT'S THE MAGIC





## Evergreen NexGen-Fyre™ Insert

WHAT'S THE MAGIC

### Premium Contemporary Insert with Big Heat Output

The mid-sized Evergreen NexGen-Fyre™ Wood Insert hits the mark on performance, function, and design. This sleek insert presents clean lines and complements any home's décor, while featuring heavy gauge steel unibody construction and a three-piece cast iron door assembly. The result is exquisite and reliable heat for decades to come.

### WATCH A VIDEO ON THIS INSERT

Lopi® Evergreen NexGen Wood Insert from Travis Industries on Vimeo.

- Description

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Possible causes and solutions:

1- The moisture content of your wood is too high.

Solution: Make sure you use good, seasoned wood. The wood you burn plays an important role in the overall performance of your heater. Your wood should have been properly dried for about one year. Furthermore, it is better to use hardwood, such as oak, maple, beech, or ash. For the same volume, hardwood will produce more heat. Storage is also very important. Wood that has been cut for one, two or even more years, will not necessarily be dry if it has been stored in poor conditions. Under extreme conditions, it may have rotted instead of drying. Smaller pieces of wood will dry faster. The wood should be stored in a place where the grass is not too long, and where the wind will be able to circulate between the logs. A 12-inch gap should be kept between the cords. The wood should be placed in the sunniest area and should be protected from the rain and snow on top, but not on the sides. Use a moisture reader to measure the moisture content of your wood. Ideally, it should be below 25%.

2- The air control mechanism is not open enough.

Solution: Adjust the air control mechanism in order to keep the flue temperature within the comfort zone (between 250 °F and 475 °F) on your chimney thermometer. The air control mechanism must always be closed gradually. You need to obtain a good bed of red embers and the logs must be completely lit up before you close the air control completely. This can easily take up to one hour.

3- The logs that you are using are too big.

Solution: Use smaller pieces of wood and place them to allow proper air circulation between the logs. The same weight of wood cut in many small pieces will produce more heat than fewer, larger logs. Only add big logs when you have a good bed of red embers. Logs with a diameter exceeding 6 inches should always be split. Avoid stacking logs to the top of the firebox.

4- The chimney draft is too weak.

Solution #1: In many cases, a weak draft is simply due to insufficient heat in the exhaust system. Build a small, intense fire, and leave the door ajar (never leave the heater unattended). Before inserting larger logs, use dry kindling to obtain a good bed of red embers. Gradually increase the size of the logs. Close the unit's door when you reach a flue temperature of approximately 475 °F on the chimney thermometer. Leave the air intake fully open for approximately 15 minutes. Then, gradually close the air intake control. Note that there is no danger in letting the temperature inside the flue reach approximately 700 °F during the start-up. This is even favorable in order to properly start your heater. You must, however, avoid maintaining excessive temperatures (above the comfort zone on your thermometer) during a long period of time. Your chimney thermometer should be positioned on the exhaust pipe, approximately 18 inches above the unit.

Solution #2: Your heater may not have all the oxygen it needs to allow for a sufficient draft. You first need to ensure that the room where the heater is located is sufficiently large and well ventilated. Open the nearest window by approximately 2 inches. If you notice a significant improvement, it is a sign that the unit needs more oxygen. The room may be too insulated or too small. Without an additional source of oxygen, the draft will remain weak and cause the glass stay dirty.

Solution #3: The chimney may be too short. In order to obtain a sufficient draft, your chimney must have a minimum height. Twelve feet (from the heater to the chimney cap outside the house) is a minimum. A height of 15 feet or higher is ideal.

Solution #4: Your exhaust system may be too restrictive or may lack a sufficient rise. Ideally, your exhaust system should not have more than one 90° elbow. Furthermore, all horizontal sections should be as short as possible and have a minimum slope of ¼" per foot.

Solution #5: Your exhaust system may be oversized. When your chimney is oversized, the volume of air that needs to be warmed-up is larger. It is therefore difficult to reach temperatures that will allow for a sufficient draft. Most advanced combustion systems (those certified to EPA/CSAB415.1-10) have a 6" flue outlet (152 mm). If your exhaust system does not have a 6" diameter, a solution is to insert a stainless liner with a 6" diameter inside the exhaust system.

If you have verified all the points mentioned above and your heater works fine, but still does not produce enough heat, you may be asking for more than what your appliance can realistically give you.

Stoves, fireplaces, and inserts are used for "zone heating". It is normal that the heat is distributed unevenly inside your home. It will always be colder in the rooms that are distant from the heater. Furthermore, since heat rises, a heater located at the ground-floor level will not heat your basement.

Solution 6: It is possible to increase heat circulation between the floors by installing floor traps. The location of your heater is also important. Try to install it in a central location. If you want to heat both your basement and the ground floor, install your heater in the basement. The heat will rise to the upper floors. Verify that the area you try to heat respects your appliance's heating capacity. Your appliance's heating capacity can be found on the printed literature, in the owner's manual, or in the technical data section on our web site. Keep in mind that your appliance's heating capacity assumes optimum conditions. It may be too low in situations where a house is poorly insulated, or highly exposed to wind. If you already have an appliance with a high heating capacity that works normally but does not heat enough, you probably need a central heating system, such as a warm air wood furnace.