



# THE CRAFTSMAN BLOG

## WHAT IS A RUMFORD FIREPLACE? (AND WHY IT'S BETTER THAN YOUR FIREPLACE)

MARCH 24, 2014

by [Scott Sidler](#)



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Fireplaces have been around since the dawn of housing in one shape or another. For hundreds of years, fire was the only way to heat buildings and with indoor fires, you need a fireplace.

It wasn't until 1795 that the fireplace was finally perfected by a brilliant American named Benjamin Thompson "Count Rumford." His work instantaneously revolutionized fireplace and chimney construction.

Strangely, most people today have never heard of Count Rumford, even though most fireplaces built between 1796 and 1850 are Rumford fireplaces. The mystery is that after the 1850's, Rumford fireplaces were not built as often and by the 1900's, most masons had forgotten or never learned how to build a proper fireplace anymore!

Sadly, the modern fireplace is a poor substitute for the simple effectiveness of a Rumford fireplace. How did we step backward in our knowledge of fireplace design so much? The answer may surprise you.

## WHAT'S SO DIFFERENT?

Before Rumford's redesign, fireplaces had plenty of issues.

- Chimney's wouldn't "draw" properly (aka pull the smoke up and out)
- They wouldn't heat effectively
- Fires wouldn't burn effectively for lack of fresh air



A Rumford fireplace cures all those problems with simple tweaks in design!

A Rumford fireplace is taller and more shallow than a modern fireplace. When most people look at a Rumford fireplace, they mistakenly assume that it has been bricked in and no longer functions because of how shallow it is, or that the fire would easily fill the room with smoke. Neither is true.

Rumford fireplaces draw smoke up and out the chimney better than any other design. And the heat they fill a room with is many times that of our modern fireplaces.

Rumford redesigned a few elements on the fireplace to make it work the way he wanted.

### More Heat



First, from his studies on the [3 types of heat](#) he determined that fireplaces warm a room through radiant heat. The more direct line of sight objects in the room had with the fire, the more they would be heated.

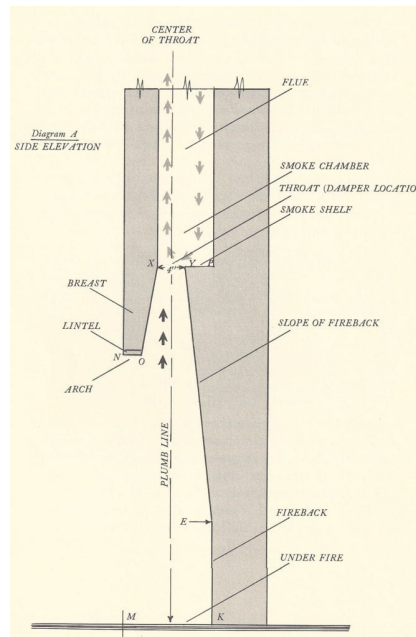


Image Credit:

The Forgotten Art of Building a Good  
Fireplace  
by Vrest Orton

To accomplish this, he made two changes. He changed the dimensions of the firebox giving it a much more shallow opening that set the fire out into the room and making it considerably taller.

The next thing to fix was the poor drafting of fireplaces. Rumford redesigned the fireplace's "throat" which is the space that draws smoke up into the chimney. By positioning and sizing it more precisely, he was able to design a fireplace that effectively removes all the smoke from the fire below into the chimney.

His design also called for a specific and slight slope to the fireback (the wall at the back of the firebox).

These small tweaks created an incredibly efficient fireplace that became the new standard.

*So why did we revert to poorly designed fireplaces by the end of the 19th century?*



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With the introduction of boilers, radiators, and eventually forced heat systems, the fireplace was relegated to second class status. No longer the primary source of heat- architects, masons and builders gave little thought to its functionality.

Fireplaces became more architectural element and less functional part of the home. Even though it was no longer a necessity, society has never been able to remove it completely from the home. From my desk here in Orlando, FL I can see my own fireplace (hardly necessary in our hot and humid climate).

If you have a modern fireplace, don't give up hope. Your fireplace can be remodeled to make it into a Rumford by a good mason without costing an arm and a leg.

The fireplace is still the heart of the home. A place where we gather as a family and sit transfixed by the dancing flames and the warmth it brings on a cold winter night. That was what Count Rumford wanted. A simple fireplace that just worked.



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**Scott Sidler**

**Founder & Editor-in-Chief**

I love old houses, working with my hands, and teaching others the excitement of doing it yourself! Everything is teachable if you only give it the chance.

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## 12 THOUGHTS ON "WHAT IS A RUMFORD FIREPLACE? (AND WHY IT'S BETTER THAN YOUR FIREPLACE)"

Pingback: Fireplace Design Rumford (19 Photos) | Best Fireplace Designs Ideas 2019

**Michael Christie-Fogg** says:

[September 15, 2018 at 8:42 am](#)

I've been consulting with Jim Buckley on Rumfordizing my poorly designed fireplace. The consultation was well worth it as he is a wealth of information with years of experience. Also a nice guy.

I encourage you to update the diagram you published in favor of a more technically and historically accurate one.

I'd like to direct everyone here to these BIA tech notes in which Buckley scathingly critiques the book by Vrest Orton: <http://www.rumford.com/articleBIA19C.html>

"Vrest Orton was the founder of the Vermont County Store. He was an interesting and eccentric New England country store keeper (one of the only places you could buy red flannel underwear with a flap in the back) and, by his own admission, he was not an architect, engineer or any kind of fireplace expert. He wrote a little book to promote Rumford fireplaces based on his own 19th century "Rumford" which was undoubtedly a variation. His was not a scholarly work so where his "Rumford" differed from what Rumford actually promoted, he dithered and glossed over."

[Reply](#)

**Mary A. Talley** says:

[September 4, 2018 at 7:10 am](#)

Find a mason who is adept at building Rumfords. Have him come out & examine

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**Kevin** says:

[November 11, 2017 at 2:59 pm](#)

I had an excellent masonry contractor build me a correct Rumford fireplace, without using any pre-fab components.

It has a 42" square opening, with a two story chimney. All dimensions and specs were taken from Rumford's book.

We use it a few days a week in season. It draws like a wind tunnel, and has NEVER thrown as much as a wisp of smoke into the room! We have to be careful not to build too large a fire, or the heat will be uncomfortable, even on the coldest days. Even with a small fire, you have to sit back a good distance from it. I'm going to be building a timber frame house in Northern Maine next spring, and will find a top notch mason up there who is experienced in building Rumfords. I would love to hear from anyone who can recommend a good one!

I was surprised to see photos of supposedly "Rumford" fireplaces, that have raised hearths. This was a huge taboo for Count Rumford, who insisted that the hearth be exactly the same height as the adjacent floor, otherwise the air flow across the floor would be interrupted by the wall up to a raised hearth.

[Reply](#)

**Phil Grimm** says:

[March 12, 2017 at 4:42 pm](#)

I have a Rumford Fireplace and have a lot of smoke billow out into the room to the point we do not want to burn it. I am about ready to have it replaced with a standard fireplace. It is so disappointing that we cannot enjoy our fires. Do you have any suggestions?

[Reply](#)

**Scott Sidler** says:

[March 13, 2017 at 10:11 pm](#)

Phil, before you give up on your Rumford try this post to troubleshoot a smoking Rumford: <http://www.rumford.com/smoky.html>

[Reply](#)

**Phil Grimm** says:

[March 13, 2017 at 10:38 pm](#)

Thank you for providing this information. I will definitely follow up with that site.

[Reply](#)

**Mike in Philly** says:

[March 13, 2017 at 10:45 pm](#)

I would not replace the Rumford with a "standard" fireplace. If you are having a problem, whatever you would do to "unRumfordize" your fireplace i would be

In addition to Scott's link, I would look up whatever further discussion has been on the Journal of Light Construction.

As I said previously, what was discussed at the JLC and is evident at the link, is that the area on the diagram above marked "arch" and "breast" with the "o" is NOT to be squared off as it is, but is to be a curve. If your "Rumford" looks like the cross section of the diagram, compare that to the link. The structure at the link clearly shows a convex curve.

Years ago I did a crude modification of our "standard" fireplace by adding a curved sheet of aluminum to make the convex curve and make use of the venturi effect as discussed in the JLC. It made a remarkable improvement, doing nothing else.

[Reply](#)

**Francis Casini** says:

[August 20, 2019 at 3:07 am](#)

I've been working on enabling technology that makes both StraightBack and Orton Rumford highly choke able.

Throat ratios range around 1/20 th of the fireplace opening in StraightBacks and 1/10 th to 1/15 th in slants.

I've attained 1/40 th in my 50" orton to 1/50 th in 36" models. StraightBacks also responded to 1/50 th in the 36" size range.

This is now the 5 th year for avid burning at 1:40 throat ratio choked flow burning in my 50" Orton with 6 cords yearly.

The radiant heat from the coals and medium to small flames is greatly increased by thermal mass that is enabled with much less flow escaping the chimney.

[Reply](#)

**Ben** says:

[August 14, 2017 at 6:16 pm](#)

Have you tried priming the fireplace before you light a fire? To do this, light the end of a piece of kindling or rolled up newspaper and hold it inside the fireplace such that the flame is entering the flue. Keep it there for 30 seconds or so to warm the flue and get the draft going. Then light your fire and it should carry the smoke up the flue more effectively in the time it takes for the fire to get going.

[Reply](#)

**John Crane** says:

[October 5, 2021 at 4:44 am](#)

Your throat and chimney are too narrow. It is not the fireplace that needs to be replaced you do not have enough draw. Open up a little hole to the outside also in the back of the fireplace to let air in if your house is hermetically sealed.

[Reply](#)

Hmmm.

I do not see what I understand to be

“the” secret in the drawing of smoke up the chimney in a Rumford fireplace, from the arch up into the throat is to be shaped in a parabolic curve, making use of something called the Venturi effect. I learned this some years ago on an on-line publication called The Journal of Light Construction. There are companies that make firebrick in proper shapes for this design.

It was interesting looking at some of the ideas that had come-and gone- recently in the engineering of fire places. For one thing, everybody knows part of the inefficiency of a fireplace is sucking warm air from the home up and out through the chimney. So...the “obvious” answer was to have an air supply pipe coming from the outside into the bottom of the firebox. I actually have a home improvement book from a very reputable outfit that shows this design. Only problem is that when you do that the draw up the chimney is disrupted and you get a smokey room....

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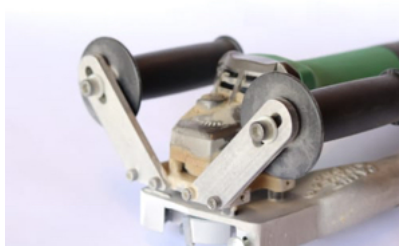
Old houses can be daunting and that's why I'm here to help you figure them out. I'm a general contractor working in historic restoration, a #1 Amazon best selling author, and I'm here to show you how you can do-it-yourself! [Read more...](#)

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