KUUMA

BURN WOOD BETTER

Classic Kuuma Wood Sauna Stove

Owner's Manual

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PFS Listing Number: 529

Listed by PFS-TECO to UL 1482, Standard for Solid-Fuel Type Room Heaters

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1 Notes, Cautions, and Warnings

Statements enclosed in text boxes in this document highlight important information. Below are descriptions of the 3 different text boxes you will see throughout this manual.

NOTE:
Statements that provide further clarification.

CAUTION:
Statements identifying conditions or practices that could result in equipment or other property damage.

WARNING:
Statements identifying conditions or practices that could result in personal injury or loss of life.

2 Components

3 Installation Instructions

WARNING:
Install and use only in accordance with these installation and operating instructions.

NOTE:
Contact local building or fire officials about restrictions and installation inspection in your area.

3.1 Stove Curing

- Before using the stove for the first sauna, it is necessary to do stove-curing burns (typically 3 of them). To avoid a non-toxic odor in your sauna, it is recommended to perform the curing burn outdoors before installation.
- Before lighting a fire for a cure burn, first install the provided fire bricks as described below in section 3.2.
- Add on a (3–4) foot section of stove pipe.
- Place some newspaper or an appropriate fire starter inside the firebox near the front door.
- Next, place some small wood kindling on the newspaper.
- Finally, place 3 or 4 pieces of well-cured firewood on top of the kindling. We suggest pieces that are 15 to 16 inches in length (20” on the large model). Push these chunks back until the ends touch the back wall of the firebox.
- Move the draft-control handle (located directly below the main firebox door) to the full-open position (move the handle up as far as it will go).
- Once the fire is burning well, lower the draft control lever on the stove until it is open, only about ½ throttle or less if you have drier wood.
- Let the stove burn until the fire goes out. Do two more burns, adding an extra piece of wood each time.
- If you are doing your stove-cure burn inside your hot room, we suggest propping the sauna door open and potentially installing a room fan to help blow smoke out of the hot room.
- The stove will smoke a fair amount (non-toxic) as the paint is hard-cured, and any remaining oils and/or preservatives on the steel are burned off.
- The stove might pop, crackle, and smoke, which are all good things.
- You are now ready to enjoy your first sauna!

WARNING:
Only use cordwood as fuel and never use gasoline, gasoline-type lantern fuel, kerosene, charcoal lighter fluid, or similar liquids to start of “freshen up” a fire in this stove. Keep all such liquids well away from the stove while it is in use.

WARNING:
The stove is hot while in operation. Do not touch and keep children, clothing and combustibles (wood) away. Direct contact will cause severe burns to the skin.

3.2 Installation

- Confirm that the stove has a properly sized non-combustible surface to be set on. (See section 0)
- Confirm that the stove and stove pipe location will comply with all clearances as shown in section 6.
- Place the stove into its final resting position.

> **NOTE:**
> Because the top of the stove is made to drain water out the back, we suggest having the stove tilted slightly backwards.

- Firebrick Installation
  a. Install floor bricks first.
  b. Proceed with side bricks by sliding the top under the angled support iron and pushing the bottom against the firebox wall.
  c. By design, there should not be any firebrick on the back wall.
- The stove must be connected to:
  a. A chimney complying with the requirements for Type HT chimneys in the Standard for Chimneys, Factory-Built, Residential Type and Building Heating Appliance, UL 103, or
  b. A code-approved masonry chimney with a flue liner.
- Use a 6" diameter, minimum 24-gauge steel stove connector pipe to connect the stove to an approved chimney.
  a. In addition to our air control, we recommend installing a chimney damper in the first stove pipe section from the stove (this will help negate extremely windy conditions, prevent too much heat from being drawn up the chimney, and help arrest a chimney fire).
  b. Secure each pipe section to the next using a minimum of 3 sheet metal screws.
- Install heat shields on stove (if applicable).

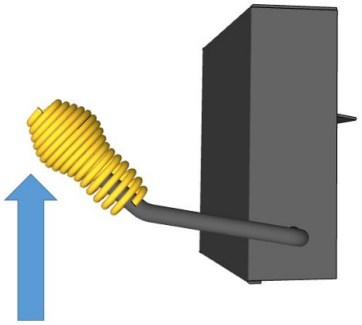
> **WARNING:**
> Never locate stove in an area (room) that is too air-tight. The stove needs air to burn and occupants need air to breathe.

4 Operation

> **WARNING:**
> Only use cordwood as fuel and never burn garbage, gasoline, or other flammable liquids.

> **WARNING:**
> The stove is hot while in operation. Do not touch and keep children, clothing and combustibles (wood) away. Direct contact will cause severe burns to the skin.

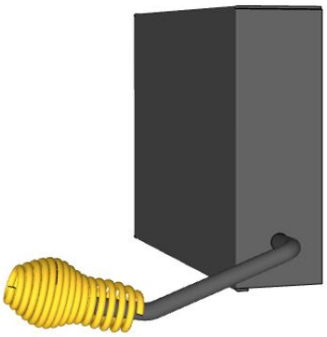
1. Place a generous amount of paper and dry kindling into the fire chamber and stack a reasonable amount of dry wood on top of kindling, keeping the front of the logs at least 1" away from the front of the stove. Never against the front.
2. Adjust the air control to the wide-open (up) position.



3. Light the fire and close the door.

> **CAUTION:**
> Never burn a stove wide open very long. Preheating the firebox and wood are the only time it's needed. This will enable the stove to last a long time and result in safe burns.

4. After (10-15) minutes of pre-heating, lower the air control lever arm to the normal burn position – about 50-60% open.



5. If you want to slow the fire down, adjust the air control to the closed (down) position

> **WARNING:**
> The pipes and stove should never become red or glow – this would indicate over firing and possibility of a pipe and/or chimney fire, which is very dangerous.

5 Stove Maintenance

5.1 Each Use

- Remove ashes from the fire chamber prior to starting a new fire.
  - Use the included rake to rake ash from the fire chamber into the ash pan. Note: the ash pan only needs to be emptied when it's full, which varies depending on usage.
  - If you don't have an ashpan, use a small coal shovel to scoop out the ash from the fire chamber.
  - Place ashes from the ash pan into a metal container with a tight-fitting lid.
  - Place the metal container on a non-combustible floor or on the ground, well away from all combustible materials.
  - Retain the ashes in the closed container until all cinders have thoroughly cooled before disposal.

CAUTION:
If ashes are permitted to build up above the grate, the grates could warp and eventually burn out.

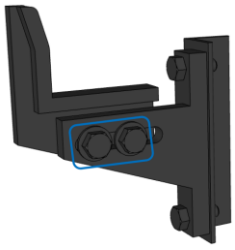
- Water tank
  - Always maintain at least a half-full level when the stove is in operation.
  - Drain the tank empty when not in use to prevent freezing and possible cracking of the tank.
- We suggest the "Bake and Breath" method following each sauna session.
  - **Bake:** When you are done with a sauna session, make sure you still have some good coals in the firebox. Pull the coals forward with the ash rake, then exit the hot room and close the door for the night (this will dry out the interior and kill any germs).
  - **Breathe:** The next morning, return to the sauna and prop open the hot room door until the next sauna session (this will air out your sauna between sessions).

5.2 Every 2 Months

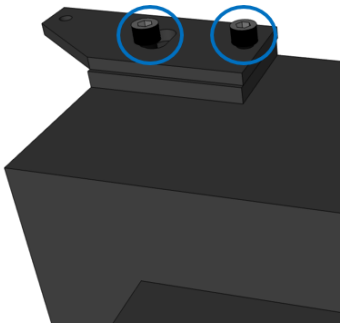
- Inspect and clean the stove pipe and chimney for creosote and soot accumulations (see section 7.1 For more information about creosote formation and the need for removal.
  - If creosote is found during inspection, it should be removed to reduce the risk of a chimney fire.
  - Clean chimney with a chimney brush.

5.3 Annually

- Vacuum inside the smoke collar on top of the baffle.
- Pull the sauna rocks, check, and replace any rocks that are disintegrating.
- Vacuum the rock box, firebox, and ash pan surround.
- Check the fire brick in the stove. Cracks are okay, but if they are disintegrating, they should be replaced.
- Use a Scotch Brite pad to scuff areas where paint has chipped, scratched, and worn away (especially in the rock box area). Then, touch up the areas with a black high-temp flat/matte paint (Stove Bright, Thurmalox, VRT, Rust-Oleum, all available at box stores, auto part stores, or on Amazon). The paint will help maintain a protective barrier between the water and the stove's metal.
- Confirm the fire box and ash pan doors close tightly and evenly across the door.
  - To adjust the door on the handle side, loosen the two screws, lower the handle behind the latch, push the door in tightly, and tighten the screws.



- Once the door handle/latch is adjusted, adjust the doors on the hinge side. Loosen the two screws on the door's top and bottom brackets, push the door in until there is a slight bind as you close, making sure it is not too tight, then tighten the screws.



- Confirm that the door is compressing the gasket evenly around the door.

- Confirm the fire box and ash pan door gaskets are not worn.
  - If the gaskets become worn, replace with ½" fiberglass rope available from local sources.

5.4 As Needed

- Glass cleaning
  - If ever needed, it's easy to clean by dipping a wet rag or crumpled piece of newspaper into ash located in either the firebox or ash pan and wiping, followed by drying with a paper towel. Ammonia also works well (soak for a few minutes when you have heavy build-up).

6. Safety Dimensions and Clearances

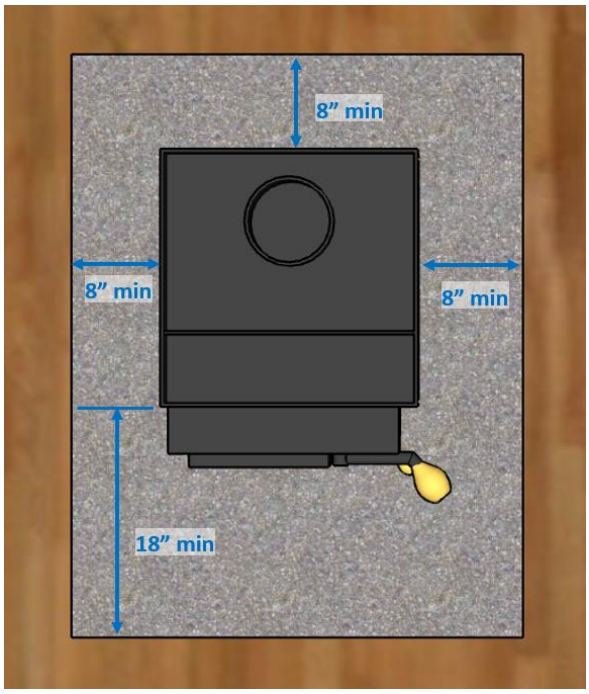
The following minimum dimensions and clearances are established through certified testing and listing by PFS-TECO to UL 1482, *Standard for Solid-Fuel Type Room Heaters*.

Certification is maintained through ongoing quarterly inspections that verify continued compliance of materials, components, assemblies, and labeling with the approved UL 1482 test report.

Installation must adhere to these listed clearances to maintain certification and comply with applicable U.S. safety standards.

6.1 Floor

The stove must be set on a non-combustible surface. This surface must extend at least 8” on the back and sides of the stove and at least 18” from the front of the stove base (not from the front of the door).



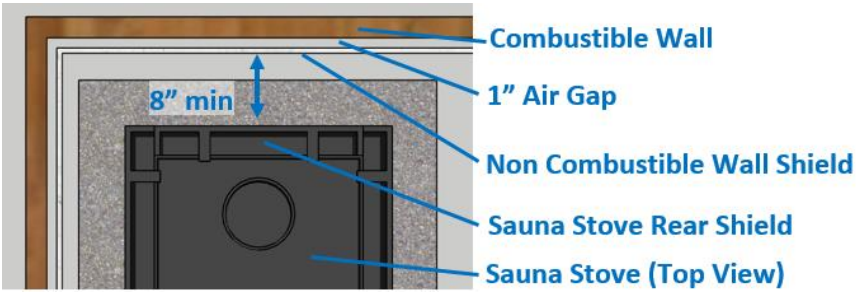
6.2 Front of Stove

There are no shielding options for the front (fuel-loading) side of the stove. All combustible materials need to remain 48” from the front of the fuel-loading door.

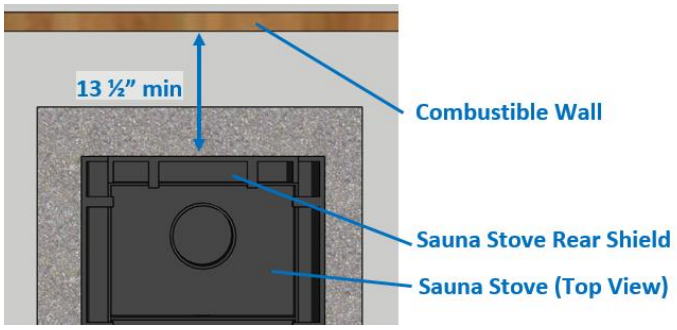
6.3 Rear of Stove

The stove's shielding and the combustible walls will determine the recommended clearances between the rear of the stove and combustible walls (or other combustible materials). Determine which of the 3 options below will work best for your application.

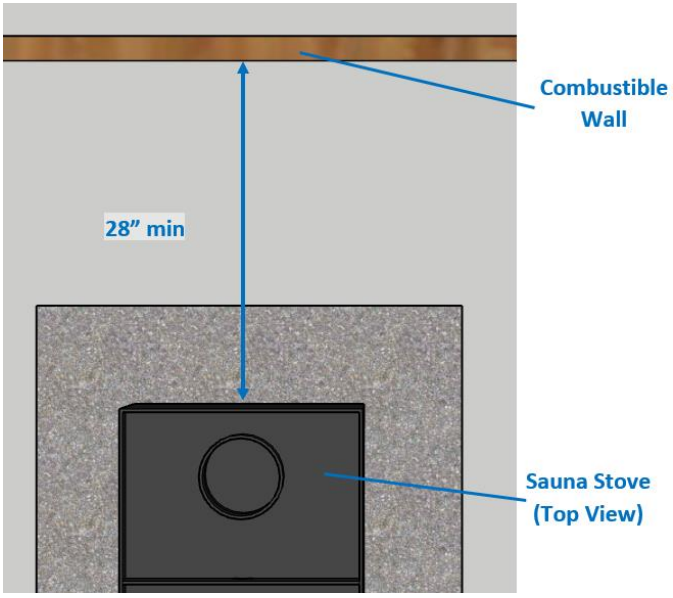
Option A (MOST POPULAR): Rear stove shield and non-combustible wall shield. Minimum clearance from the back of the stove shield to the wall shield is 8”. There is also to be a gap of 1” between the non-combustible wall shield and the combustible wall.



Option B: Rear stove shield and unprotected combustible back wall. Minimum clearance from the back of the stove shield to the combustible wall (or any other combustible material) is 13 ½”.



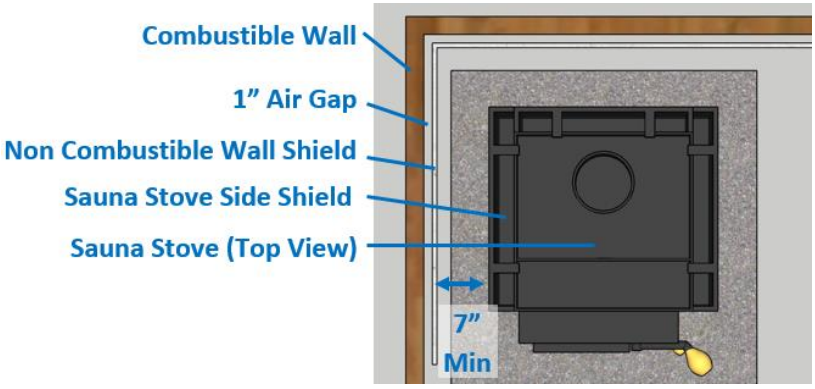
Option C: No rear stove shield and unprotected back wall. Minimum clearance from the back of the stove to the combustible wall (or any other combustible material) is 28”.



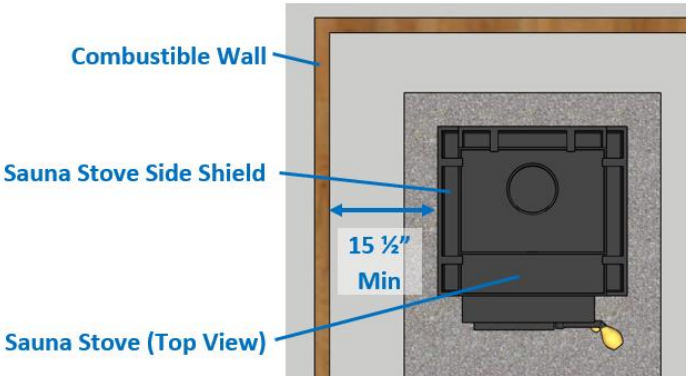
6.4 Sides of Stove

The stove's shielding and the combustible walls will determine the recommended clearances between the stove and combustible walls (or other combustible materials). Determine which of the 3 options below will work best for your application.

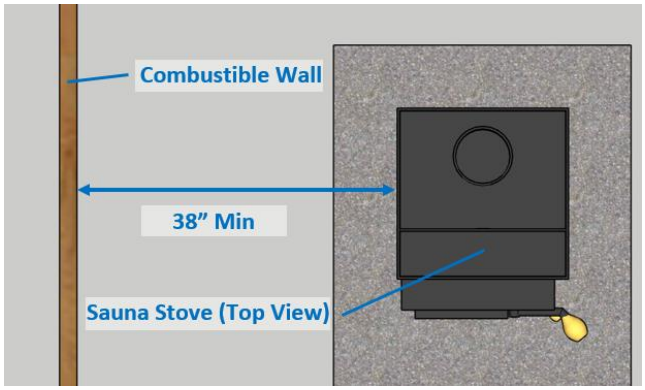
Option A (MOST POPULAR): Side stove shield and non-combustible wall shield. Minimum clearance from the side of the stove shield to the wall shield is 7". There is also to be a gap of 1" between the non-combustible wall shield and the combustible wall.



Option B: Side stove shield and unprotected side wall. Minimum clearance from the side of the stove shield to the combustible wall (or any other combustible material) is 15 ½".

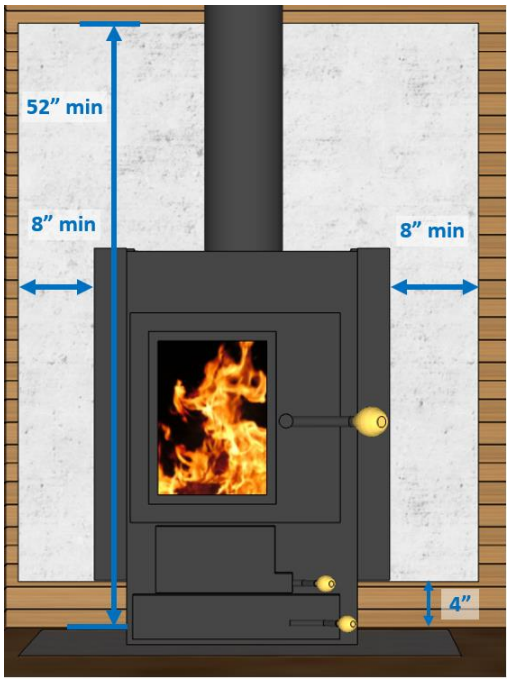


Option C: No side stove shield and unprotected side wall. Minimum clearance from the side of the stove to the combustible wall (or any other combustible material) is 38".



6.5 Wall Heat Shields

Non-combustible wall heat shields must be 4” above the floor and have a minimum total height of 52”. The width needs to extend past the sauna stove 8” on each side.



6.6 Ceiling

The required ceiling clearance is 64 inches above the stovetop without ceiling protection.

Option A **— Ceiling height 8 feet (96 inches) or greater:** No ceiling heat shield is required.

Option B **— Ceiling height from 7’4” (88 inches) to less than 8 feet (96 inches):** Install a noncombustible ceiling heat shield with a 2-inch ventilated airspace between the shield and combustible ceiling. A 3’ × 3’ shield centered around the stovepipe opening is recommended.

A 3’ × 3’ ceiling heat shield is available separately from Lamppa Manufacturing (pickup only).

Through-wall installations have additional ceiling-shielding and clearance requirements. Refer to Section 6.9, Through-Wall Throat Extension.

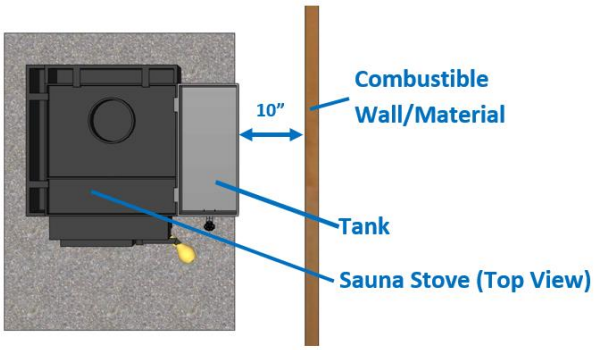
6.7 Stove Pipe

Use a 6-inch-diameter single-wall connector pipe between the stove and a listed Class A chimney system.

For a standard parallel installation with the stove’s tested side and rear heat shields installed, maintain at least 14 inches from the outside surface of the single-wall connector pipe to unprotected combustible surfaces. Install all connector and chimney components according to their manufacturers’ instructions and applicable codes. Where another requirement specifies a greater clearance, the greater clearance applies.

6.8 Water Tank

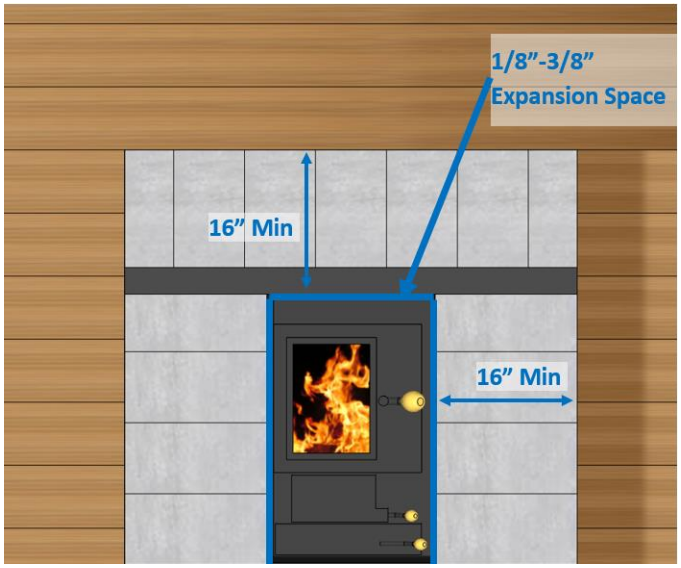
The minimum clearance from a Kuuma side-mounted water tank to combustible material is 10”.



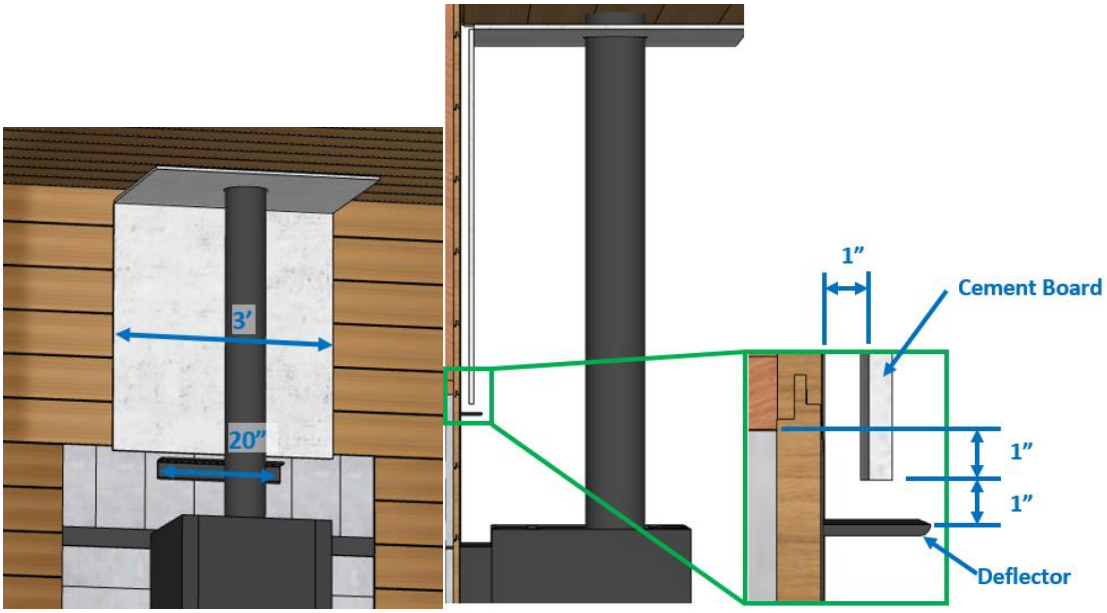
NOTE:
Always keep the water tank at least half full when the stove is operating.

6.9 Through-wall Throat Extension (8” or 12”)

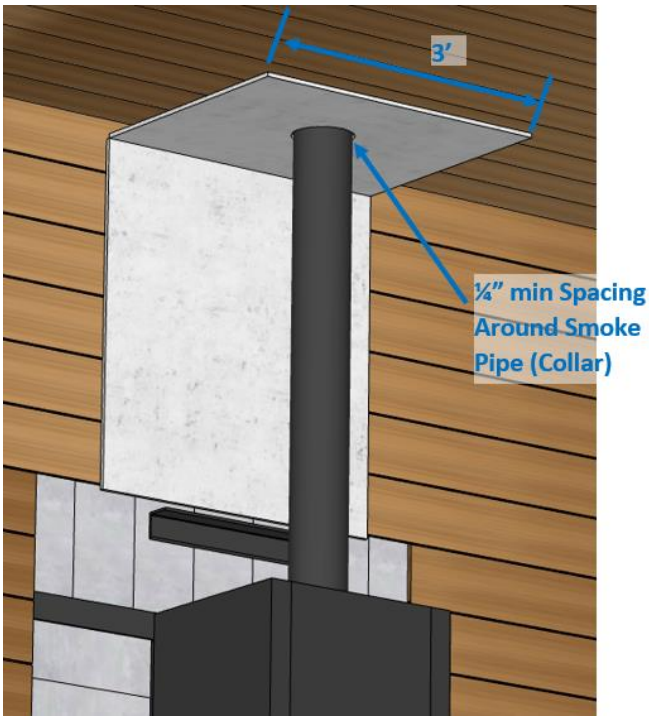
- Throat extension must be completely surrounded by brick or other non-combustible material (16” min). Allow 1/8”-3/8” expansion space at the top and sides. Fill the space with high-temperature silicone or fiberglass rope.

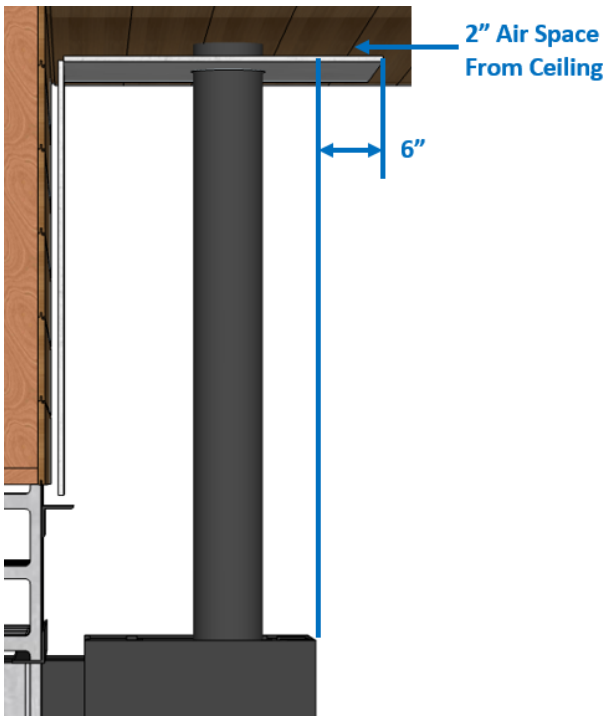


- The inner wall directly above the stove must be protected with cement board, such as Durock. The wall shield must be 3 feet wide and installed with a 1-inch ventilated airspace between the shield and combustible wall. Extend the front wall shield 1 inch below the joint between the noncombustible wall surface and wood. Install a 3-inch-wide × 20-inch-long cement-board deflector 1 inch below the inner front wall shield. Secure the deflector to the cement blocks with angle iron. Center the deflector over the 18-inch-wide × 12-inch-deep throat extension.



- The ceiling directly above the stove must be protected with cement board or equivalent non-combustible material. Maintain at least **56 inches** from the top of the stove to the combustible ceiling. The ceiling shield must be 3 feet wide, extend at least 6 inches beyond the back of the stove, and be installed with a 2-inch ventilated airspace between the shield and combustible ceiling. Maintain at least 1/4 inch of clearance around the stovepipe where it passes through the ceiling shield.





7 Reference Information

7.1 Creosote

> **WARNING:**
> Serious fire may result if a sufficient creosote "build-up" is permitted over an extended period of time.

Highly combustible in its solid and semi-liquid states, creosote is present in the unburnt gases emitted by burning wood. Creosote may build up to considerable thickness on the interior surfaces of the chimney and flue pipes, reducing the cross-sectional area through which air flows.

The amount of creosote deposited in the pipe and chimney depends on the moisture content of the flue gases, the stack temperature, and the extent to which the combustible elements in the flue gases have been burned during combustion.

Moisture in the flue gases may be controlled by using the driest wood possible, mixing small pieces with a very full load, and never using only large wood when combustion is relatively slow.

When wood is burned slowly, it produces tar and other organic vapors that, when combined with moisture expelled during burning, form creosote. The creosote vapors condense in the relatively cool chimney flue of a slow-burning fire. As a result, creosote residue accumulates on the flue lining. When ignited, this creosote makes an extremely hot fire. The chimney connector and chimney should be inspected at least once every two months during the heating season to determine if a creosote buildup has occurred. If creosote has accumulated, it should be removed to reduce the risk of a chimney fire.

> **NOTE:**
> In the event of a chimney fire:
> - Ensure the fire box door and ash tray door are fully closed
> - Close the draft lever
> - Close the manual damper on the stove pipe
> - Call the fire department

7.2 Chimney Design

The chimney is one of the most important yet most neglected and misunderstood components of any solid-fuel-burning installation.

> **CAUTION:**
> The chimney must be a class "A" chimney in good operating condition. Do not connect this unit to a chimney flue servicing another appliance.

There are two types of Class "A" chimneys

This stove must be connected to:

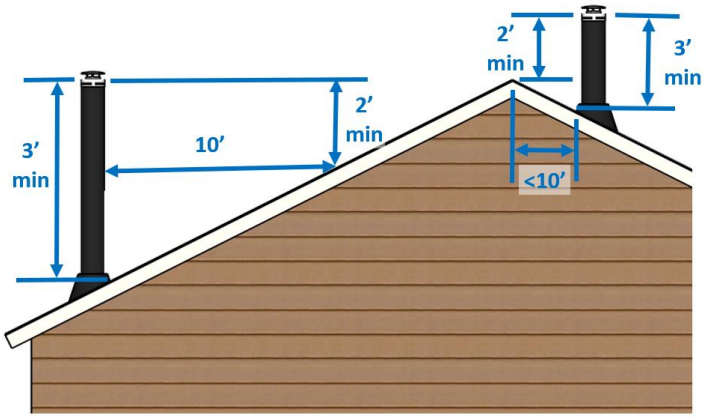
1. A chimney complying with the requirements for Type HT chimneys in the Standard for Chimneys, Factory-Built, Residential Type and Building Heating Appliance, UL 103, or
2. A code-approved masonry chimney with a flue liner.

CAUTION:

Never connect to an outside chimney unless it is sufficiently insulated to reduce the amount of condensation to a level that will not interfere with the exhaust of the flue gasses.

Always follow the 3-2-10 rule when determining how high the chimney needs to protrude out of the roof:

- The chimney's shortest side must be at least 3 feet above the roof
- The chimney's top must be at least 2 feet higher than any part of the building within 10 feet



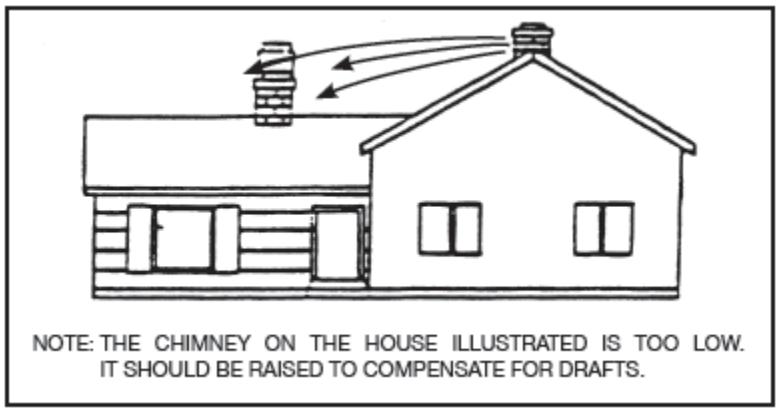
REASONS FOR INSUFFICIENT DRAFT READINGS:

1. Leaky Chimney – Air leaking in around a loose-fitting clean-out door, flue pipes not tight at the joints, improper plug openings, or defective masonry.

CAUTION:

You must check your chimney flue pipe connector frequently when first starting to burn wood to determine the amount of chimney maintenance (cleaning) that will be required. This, of course, is also dependent on wood type, moisture, and, in general, how the stove/furnace is used.

2. Chimney Improper Height – Chimney does not extend through the roof to a sufficient height to promote sufficient draft, or causes a down-drafting condition to take place. See 3-2-10 rule above.
3. Obstructions – Obstructions in the chimney. Check the area before use by holding a mirror in the chimney cleanout door. This will give an inside view of the chimney.
4. Trees or other topographical barriers – Impeding the chimney's operation or causing a downdraft condition to exist. This can also be caused by an adjacent building or by the roof of the same structure, which is not high enough (see figure below).



5. Chimney size – Chimney is not properly sized to fit the appliance adequately. It is either too small or too large—minimum Diameter – 6 inches.
6. Chimney Offsets – Chimneys with offsets should not be used. They obstruct the draft and provide a place for debris to collect.
7. Elbow Restrictions – The flue pipe is connected to the chimney with too many elbows, reducing the draft that the chimney can provide.
8. Multiple Venting – When more than one (1) device vents into the same chimney flue.

When smoke rises into the chimney, it will follow a spiral path.

The most important thing to remember about chimneys is that they require maintenance and cleaning. If chimneys are not cleaned regularly, it can affect draft and increase the risk of a chimney fire.

If the chimney cannot supply this constant draft, the unit will not operate properly.

7.3 Best Wood for Burning

Generally, wood should be cut at least a year in advance and properly split then.

This wood should also be stored out of the weather, if possible. If the wood is to remain outside, be sure to cover it with plastic or similar protection. This wood should be brought inside and stored there for at least two (2) weeks before it is fired to obtain top performance.

Soft woods burn at a faster rate per cord than do hardwoods.

Know what types of wood to burn. Wood is a safe, clean, and economical fuel. Freshly felled wood is not suitable fuel due to its moisture content; well-seasoned wood is best for proper heat production. The following table gives relative values for the heating content of some of the more readily available wood.

Type	Weight Cord	BTU's Per Cord Air Dried Wood	Equivalent Value #2 Fuel Oil Gals.
White Pine	1800#	17,000,000	120
Aspen	1900	17,500,000	125
Spruce	2100	18,000,000	130
Ash	2900	22,500,000	160
Tamarack	2500	24,000,000	170
Soft Maple	2500	24,000,000	170
Elm	2750	24,500,000	175
Yellow Birch	3000	26,000,000	185
Red Oak	3250	27,000,000	195

White Oak	3750	27,700,000	200
Hard Maple	3000	29,000,000	200
Hickory	3500	30,500,000	215

7.4 Useful Facts

No. 2 Fuel Oil	140,000	BTU/gallon
Natural Gas	100,000	BTU/therm
Propane Gas	93,300	BTU/gallon
Butane Gas	100,671	BTU/gallon
Electricity	3,413	BTU/kilowatt-hour

8 Troubleshooting

8.1 The stove is not burning properly (quick checks)

- Chimney draft is incorrect and is being restricted.
    - Remove the mesh from the chimney cap. It is not designed for modern wood-burning appliances, because it reduces your draft.
    - Chimney is too low. Increase chimney height. (see section 7.2)
- The hot room is airtight, and you don't have a dedicated air inlet for the stove. If this is the case, the stove will usually start burning more efficiently when you open the sauna door while it is operating. This is super easy to test. Have someone open and close the hot room door as usual. If you see flame movement in your firebox, you need to increase airflow in your hot room. Add a dedicated air inlet for the stove to ensure it draws enough air.
- Using non-seasoned wood or pieces that are too large to burn well initially. Larger pieces work much better after the stove has been preheated.
- Follow stove maintenance instructions. (see section 5)

8.2 Overheating

- You operate with more wood than needed. Overheating typically won't occur until the reload.
- Incorrect-sized stove for the hot room.

8.3 Underheating

- Using non-seasoned wood or pieces that are too large to burn well initially. Larger pieces work much better after the stove has been preheated.
- Incorrect-sized stove for the hot room.
- Poor Draft

8.4 Visible Smoke after 15 minutes

- Chimney is too low. Increase chimney height. (see section 7.2)
- Using non-seasoned wood or pieces that are too large to burn well initially. Larger pieces work much better after the stove has been preheated.
- The draft inlet is blocked from the bottom front on the inside of the stove. Push the wood back with the ash rake and/or clean the inlet.
- Wood is smoldering – (bad start, it happens to everyone at some point). Ensure the draft control is fully open, or use the ashpan for a short time to improve airflow and help the wood burn well.