KUUMA

BURN WOOD BETTER

Classic Kuuma Wood Sauna Stove

Owner's Manual

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UL 1482-2022

1 Notes, Cautions and Warnings

Statements enclosed in text boxes within this document are used to bring attention to 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 a stove-curing burn. To avoid a non-toxic odor in your hot room, it is recommended to do the curing burn outdoors before installation inside your sauna.
- 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).
- Open the ash pan door to get additional combustion air during the lighting process, light the newspaper, and close the main firebox door.
- Once the newspaper and kindling are burning well (about 1 minute), close the ash-pan door. DO NOT LEAVE ASH PAN DOOR OPEN!
- 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.
- 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 6.1)
- 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 6” 24 ga. stove pipe to connect stove to an approved chimney.
    a. Install a chimney damper in the first stove pipe section from the stove (this will help negate extremely windy conditions, prevent too much heat being drawn up the chimney and to 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).

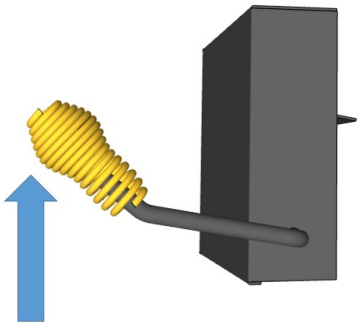
WARNING:
Never locate stove in an area (room) that is too air-tight. The stove needs air to burn and occupants need air to breathe.

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.

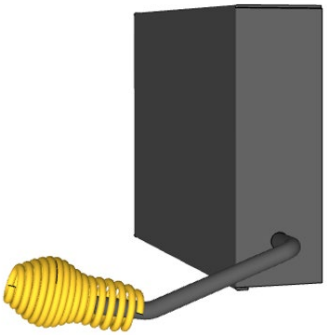
1. Place a generous amount of paper and dry kindling into fire chamber and stack a reasonable amount of dry wood on top of kindling, keeping the front of the logs at least 1” away from the front of the stove. Never against front.
2. Adjust air lever arm to wide open (up) position.



3. Open the ash pan door during the lighting process.
4. Light the fire and close the door.
5. Close the ash pan 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.

6. After 5-10 minutes of pre-heating, lower draft lever arm to the normal burn position - slightly higher than the stop position.



7. If for some reason you want to put the fire out, lower lever arm all the way down to the stop 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 fire chamber and ash pan prior to starting a new fire.
  - Use rake or small coal shovel to rake ash from fire chamber into the ash pan.
  - Place ashes from ash pan into a metal container with a tight fitting lid.

- Place 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.

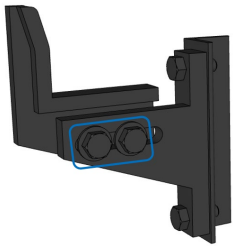
- Water tank
  - Always maintain at least a half full level when the stove is in operation.
  - Drain the tank empty when not in use to prevent freezing and possible cracking of the tank.
- We suggest the "Bake and Breath" method following each sauna session.
  - **Bake:** When you are done with a sauna session, make sure you still have some good coals in the firebox. Pull the coals forward with the ash rake, then exit your hot room and leave the door closed for the night (this will dry out the inside of the hot room 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

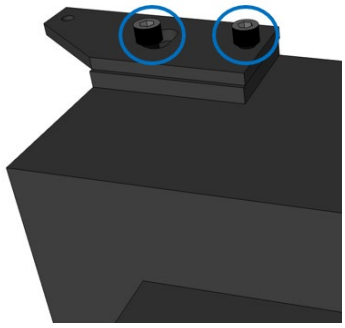
- Inspect and clean the stove pipe and chimney for creosote and soot accumulations (see section 7.2 for more information about creosote formation and need for removal).
  - If creosote is found during inspection it should be removed to reduce the risk of a chimney fire.
  - Clean chimney with a chimney 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 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 Scotchbrite 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 (StoveBrite, Thrumalox, VRT, Rustoleum, all available at box stores, auto part stores, or on Amazon). The paint will help keep a protective barrier between the water and the metal of the stove.
- 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 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 top bracket and bottom bracket of the door and 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

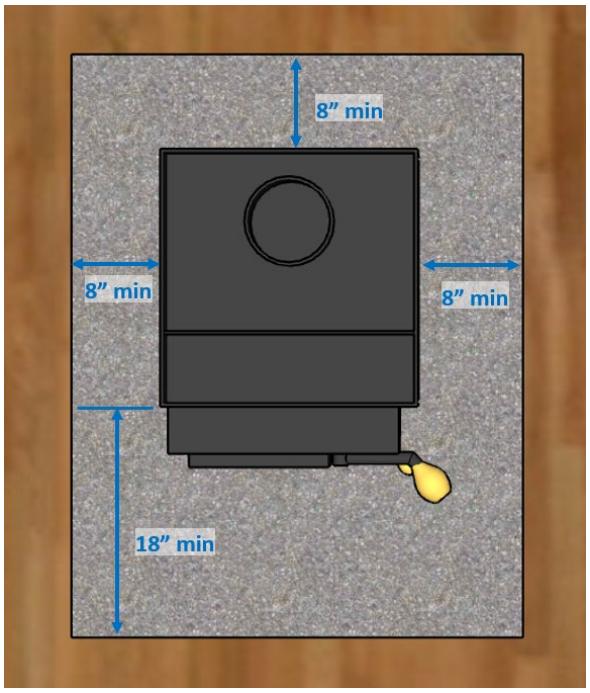
- Glass cleaning
  - If ever needed, it's easy to clean by dipping a wet rag or crumpled piece of newspaper into ash located in either the firebox or ash pan and wiping, followed by drying with a paper towel. Ammonia also works well.

6 Safety Dimensions and Clearances

The following recommended dimensions are based on the testing done to approve the Kuuma sauna stove to UL 1482.

6.1 Floor

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



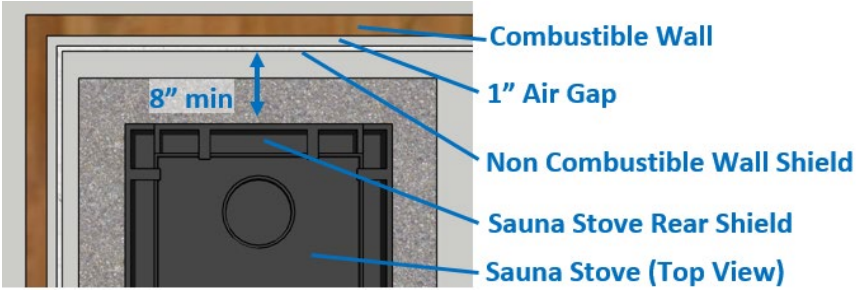
6.2 Front of Stove

There is 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.

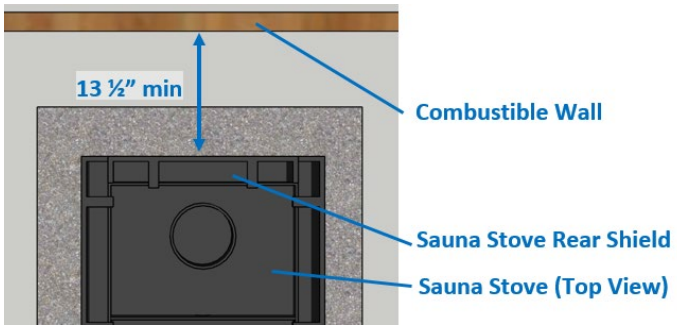
6.3 Rear of Stove

The shielding of the stove and combustible walls will determine the suggested clearances between the rear of the stove and a combustible wall (or any other combustible material). Determine which of the 3 options below will work best for your application.

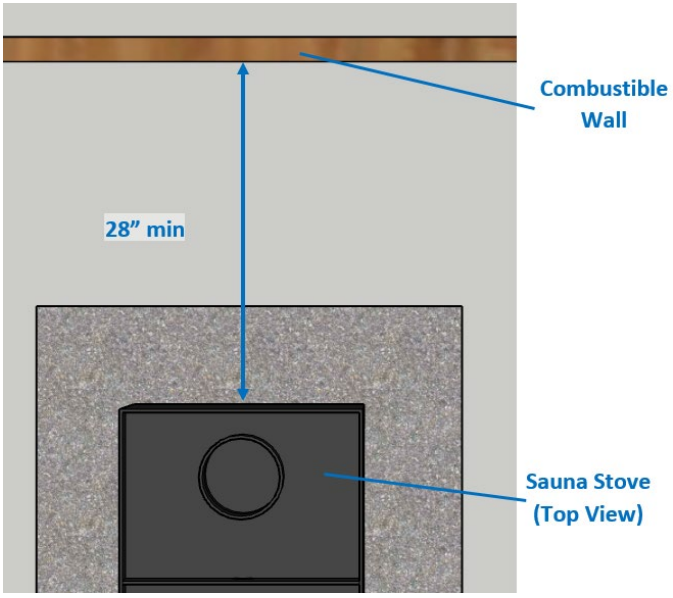
Option A (MOST POPULAR): Rear stove shield and non-combustible wall shield. Minimum clearance from the back of the stove shield to the wall shield is 8”. There is also to be a gap of 1” between the non-combustible wall shield and the combustible wall.



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”.



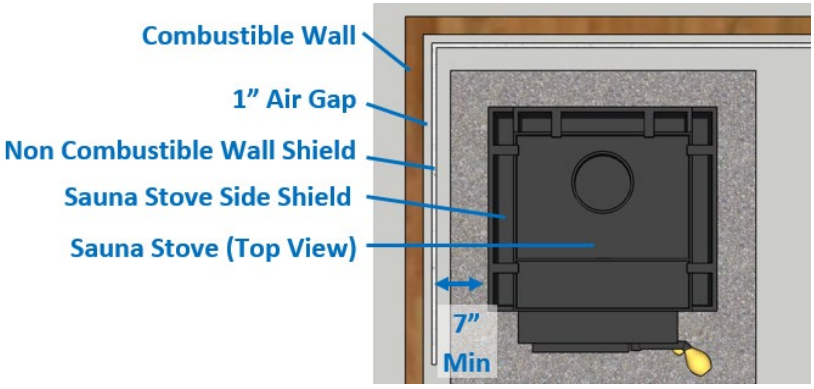
Option C: No rear stove shield and unprotected back wall. Minimum clearance from the back of the stove to the combustible wall (or any other combustible material) is 28”.



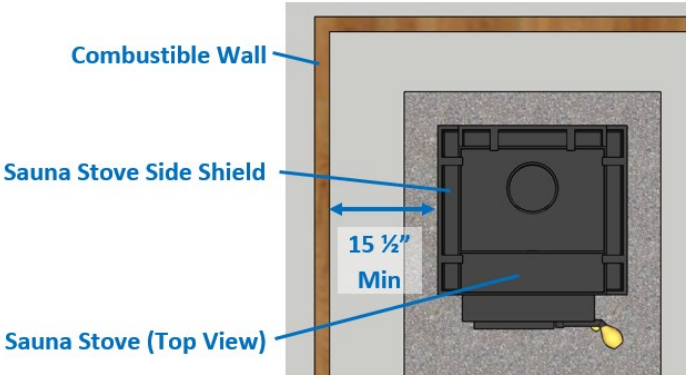
6.4 Sides of Stove

The shielding of the stove and combustible walls will determine the suggested clearances between the side of the stove and a combustible wall (or any other combustible material). Determine which of the 3 options below will work best for your application.

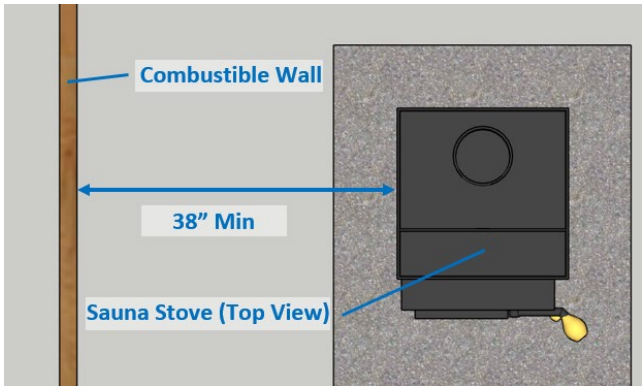
Option A (MOST POPULAR): Side stove shield and non-combustible wall shield. Minimum clearance from the side of the stove shield to the wall shield is 7". There is also to be a gap of 1" between the non-combustible wall shield and the combustible wall.



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".

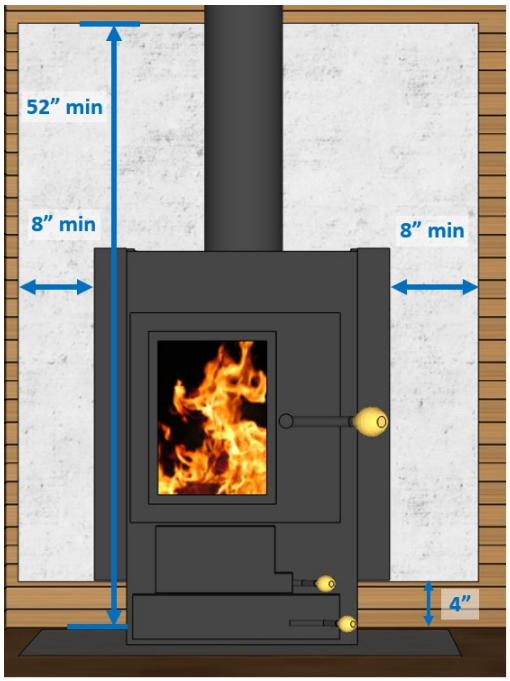


Option C: No side stove shield and unprotected side wall. Minimum clearance from the side of the stove to the combustible wall (or any other combustible material) is 38".



6.5 Wall Heat Shields

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



6.6 Ceiling

The minimum ceiling height for this stove is 7’ 4” (88”) from the surface that the stove sits on to the ceiling. Depending on how high the ceiling is will determine if a noncombustible ceiling surface is suggested.

Option A (MOST POPULAR): If your ceiling height is greater than 8’, no ceiling heat shielding needs to be applied.

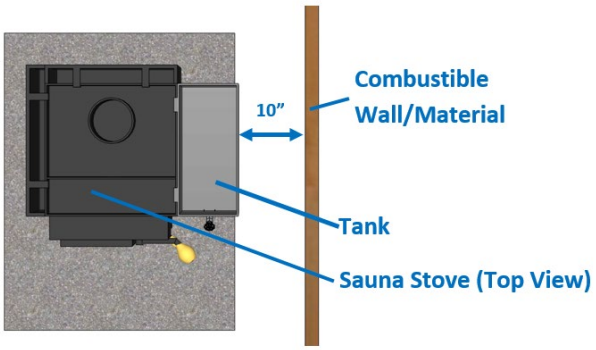
Option B: If your ceiling height is ≥88” and ≤96”, a 3’x5’ heat shield is to be placed on the ceiling with a 2” air gap between the heat shield and the combustible ceiling material. The heat shield should also be within 1” of an adjacent side or back wall.

6.7 Stove Pipe

The stove pipe needs 18” clearance in all directions from anything combustible, unless double or triple walled pipe is used. If using double or triple walled pipe, check the manufacturer’s specifications for clearances.

6.8 Water Tank

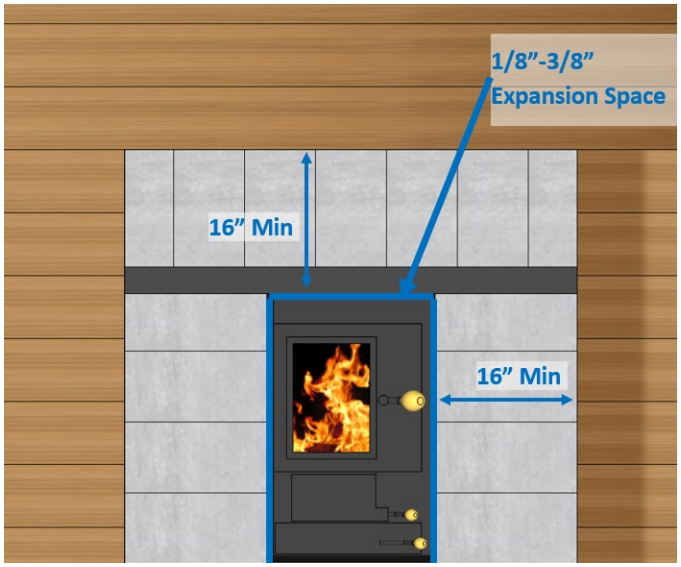
The minimum clearance from a Kuuma side mounted water tank to combustible material is 10”.



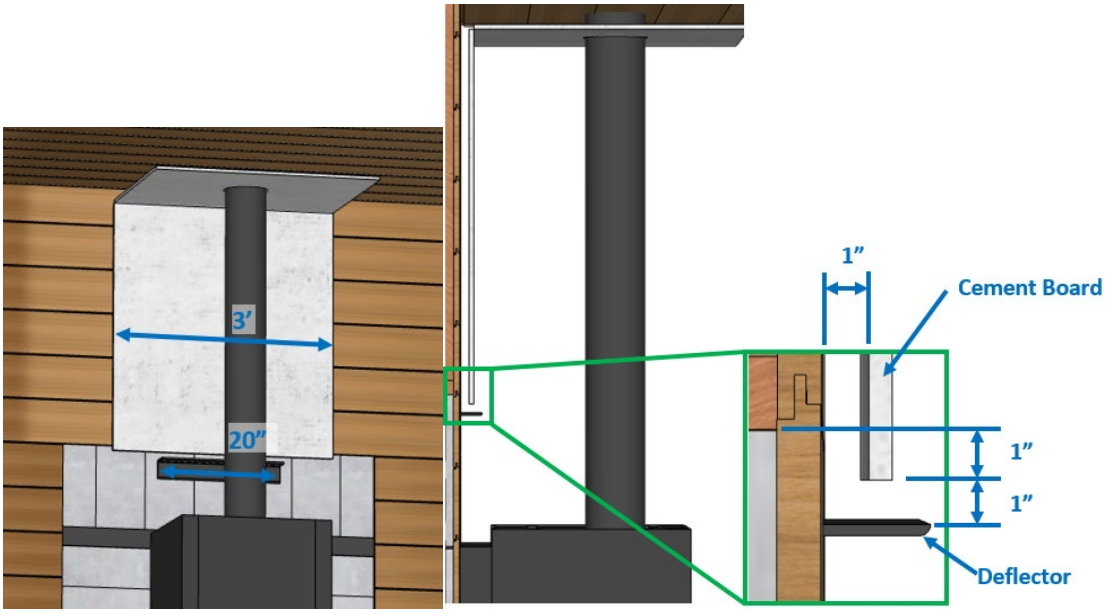
NOTE:
Always keep the water tank at least half full when the stove is operating.

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

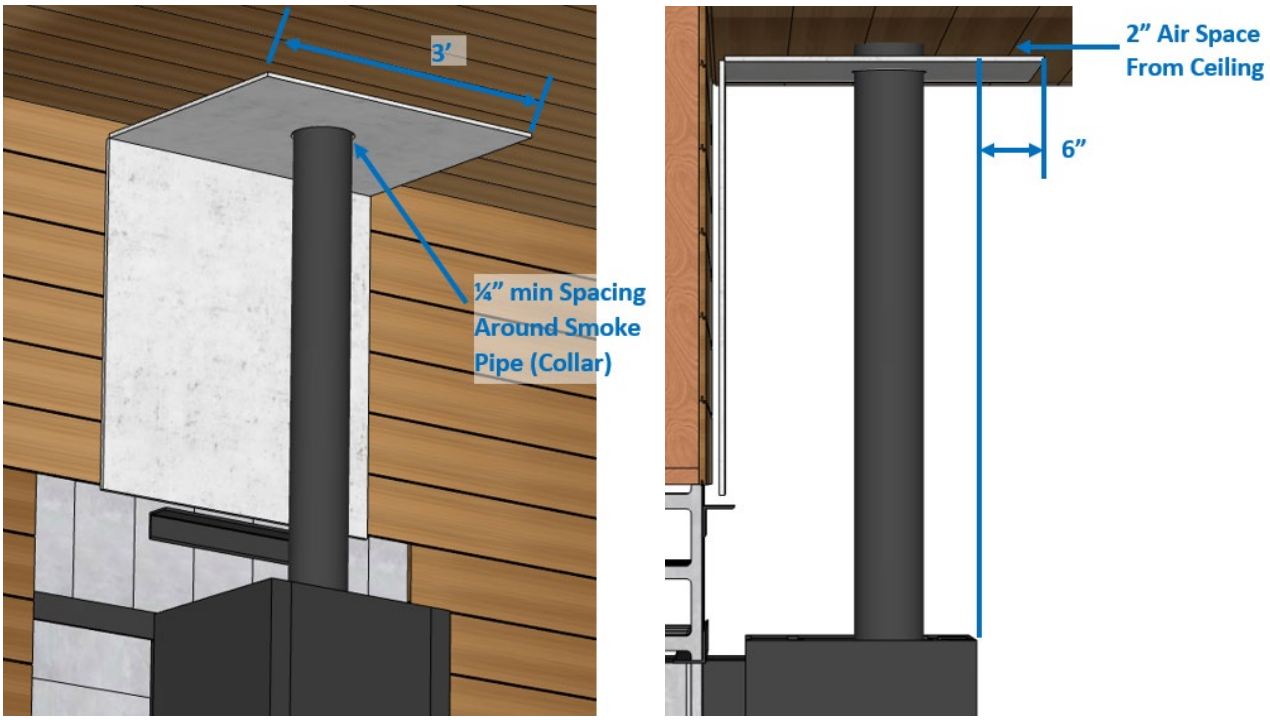
- Throat extension must be completely surrounded by brick or other non-combustible material (16” min). Allow 1/8” - 3/8” expansion space on the top and sides. Fill space with high temperature silicone or fiberglass rope.



- The inner wall directly above the stove must be shielded with cement board (such as Durarock). The shielding is to be 3’ wide with 1” air space between the combustible wall and shield. Extend the front face cement board 1” below the joint of the non-combustible wall surface and the wood. Install a 3” wide x 20” long cement board deflector 1” below the inner front face wall cement board shield. Use an angle iron underneath it to secure it to cement blocks. The deflector should be centered over the 18”w x 12” deep throat extensions.



- The ceiling directly above the stove must be shielded with cement board. The shielding is to be 3’ wide and is to extend 6” beyond the back end of the stove. A 2” air space is to be between the combustible ceiling and the shield. Use ¼” minimum spacing around the smoke pipe (collar) at the ceiling when going through the ceiling cement board.



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 state, creosote is present in the unburnt gases given off by burning wood. Creosote may build up a considerable thickness on the interior surface of the chimney and flue pipes, reducing the cross-sectional area where air flows.

The amount of creosote deposited in the pipe and chimney is dependent on the amount of moisture in the flue gases, the temperature of the stack, and how completely the combustible elements in the flue gases have been burned in the combustion process.

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, which combine with expelled moisture to 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 portion 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

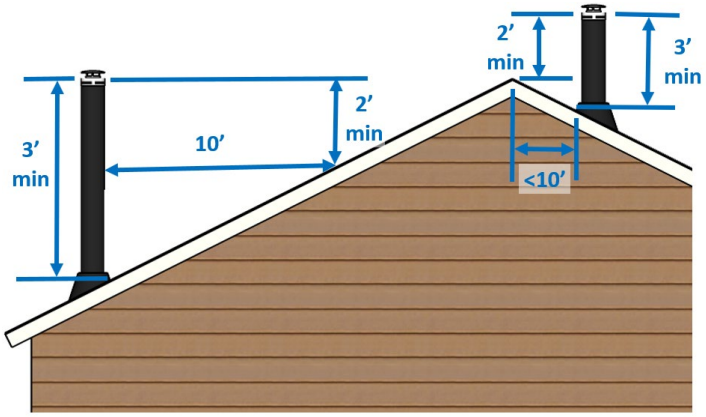
This stove must be connected to:

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

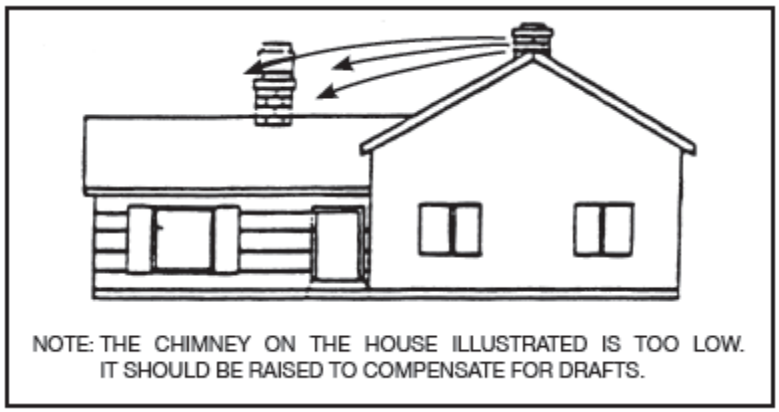


REASONS FOR INSUFFICIENT DRAFT READINGS:

1. Leaky Chimney – Air leaking in around a loos 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 NFPA 211.
3. Obstructions – Obstructions in the chimney. Check prior to using holding a mirror in chimney cleanout door. This will give an inside view of the chimney.
4. Trees or other topographical barriers – Impending the chimneys operation or causing a down draft condition to exist. This can also be caused by an adjacent building or the roof of the same structure where the chimney is not high enough (see figure below).



5. Chimney size – Chimney is not properly sized to adequately fit the appliance. It is either too small or too large. Minimum Diameter – 6 inches.
6. Chimney Offsets – chimneys with offsets should not be used. They cause an obstruction to draft as well as a place for debris to collect.
7. Elbow Restrictions – The flue pipe is connected to the chimney with too many elbows reducing the draft 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 rise in a spiraling path.

The most important thing to remember about chimneys is there need for maintenance and cleaning. If chimneys are not cleaned on a regular basis, it effects the draft, as well as make an attributing cause to 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 at that time.

This wood should also be stored out of the weather, if possible. If the wood is to remain outside, be sure to cover with plastic, etc. 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 hard woods.

Know what types of wood to burn. Wood is safe, clean and economical fuel. Freshly felled wood is not suitable fuel due to the moisture content of the wood, well-seasoned wood is best for the proper production of heat. The following table will give you some relative values of 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
Tamarach	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