

PHOENIX

Wood Pellet Boiler
Installation and exploitation guide



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Compliance with this guide is in the interest of the consumer and one of the warranty terms.

SECURITY FIRST

- This appliance is not intended for use by people (including children) with limited physical, sensory or mental abilities or lack of experience and knowledge. The installation must be performed by a qualified expert in the field of heating installations. The place and way of connecting the boiler should be selected carefully in accord with the safety instructions. Install away from flammable objects!
 - Before starting any operation, the user must read and fully understand the contents of this instruction manual. Incorrect setup may cause hazardous conditions and / or incorrect function of the boiler;
 - Do not wash the boiler with water. Water can get inside the fireplace and damage the electronics and cause an electric shock;
 - Do not put clothes to dry on the boiler. Any clothes hangers and other objects must be located within a reasonable distance from the fireplace. Fire hazard;
 - The user is fully responsible for the proper use of the product which exempts the company from liability of any users errors or misbehaviour or omissions;
 - Any intervention or replacement that is made by unauthorized people or using non original spare parts for the product can be risky for the user and release the company from all liability;
 - Most surfaces of the boiler are extremely hot (the door handle, glass, flue pipe, etc.). Avoid contact with these parts before assuring yourself that you use temperature resistant gloves as well as suitable temperature resistant instruments;
 - Under no circumstances should the fire be ignited with the door open or broken glass;
 - The product must be electrically connected to a system equipped with an effective earth conductor. (Must be grounded);
 - Turn off the boiler in case of failure or malfunction;
 - All unburned pellets in the burner after each unsuccessful attempt ignition must be removed before a new ignition;
 - When installing the product all fire safety requirements must be respected
- If there is a fire in the flue pipe, extinguish the boiler, disconnect the power cord and never open the door.
- Do not light the boiler with flammable materials if the ignition system failed;
 - Periodically check and clean the smoke outlet ducts of the boiler (connection to the flue pipe);
 - Pellet boiler is not a cooker;
 - Always keep the pellet hopper cover closed;
 - The operating pressure must not exceed 15 psi. The maximum test pressure is 50 psi.

Safe distances

When installing the product a safe distance of at least 600 mm (24 in) must be respected. This distance applies to the product located near materials of B or C flammability level. The safe distance is doubled if the product is close to materials of C3 combustion level.

INTRODUCTION

What are wood pellets?

The pellets are produced by compressed wooden waste left from the production of various furniture, sawmills and others. This type of fuel is environmentally friendly because in the production process no agglutinate agents (glues, resins and others) are added. Actually, the integrity of the pellets is guaranteed by the lignite – a natural ingredient contained in the wood itself. While the wood has a calorie capacity of 4.4 kW/kg (15% humidity at 18 months drying), the pellets have 5.2 kW/kg.



The boiler is purposed to heat domestic and public premises by the means of wood pellets only. The boiler is equipped with a steel water jacket designed for heating systems with water temperature up to 90°C (194°F) at a maximum super pressure up to 0,15 Mpa (21,75 psi). Tests are run at pressure of 0,45 Mpa (50 psi). The operating pressure must not exceed 15 psi. The boiler is designed and manufactured to work with A-class pellets only with the following characteristics:

- Material 100% pure conifer or broad-leaf wood;
- Diameter $\Phi 6/8$ mm (0.23/0.31 in);
- Length 20-30mm (0.78/0.12 in);
- Calorie capacity 5.2 kW/kg (39 kbtu/lb);
- Ash content < 8%;



The use of pellets with characteristics different from those recommended can lead to a decrease in power, unstable and inconsistent operation of the boiler.
Pellets with a high dirt and/or sand content can cause the burner to clog.

Info: To ensure the proper work of the boiler the pellets must be stored in a dry place!

Recharging of pellets can be done during work, with the following sequence:

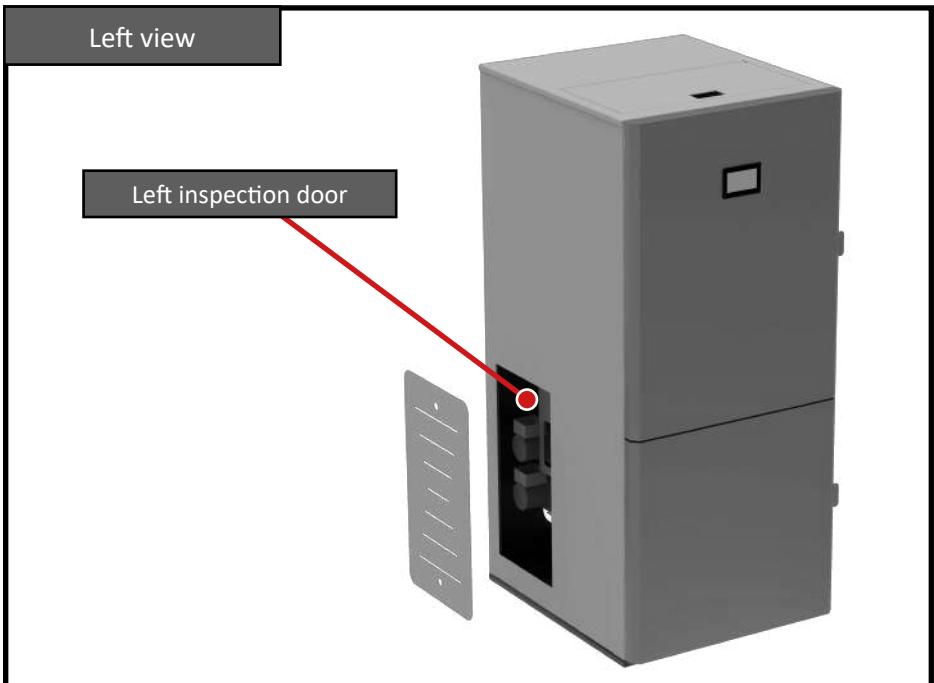
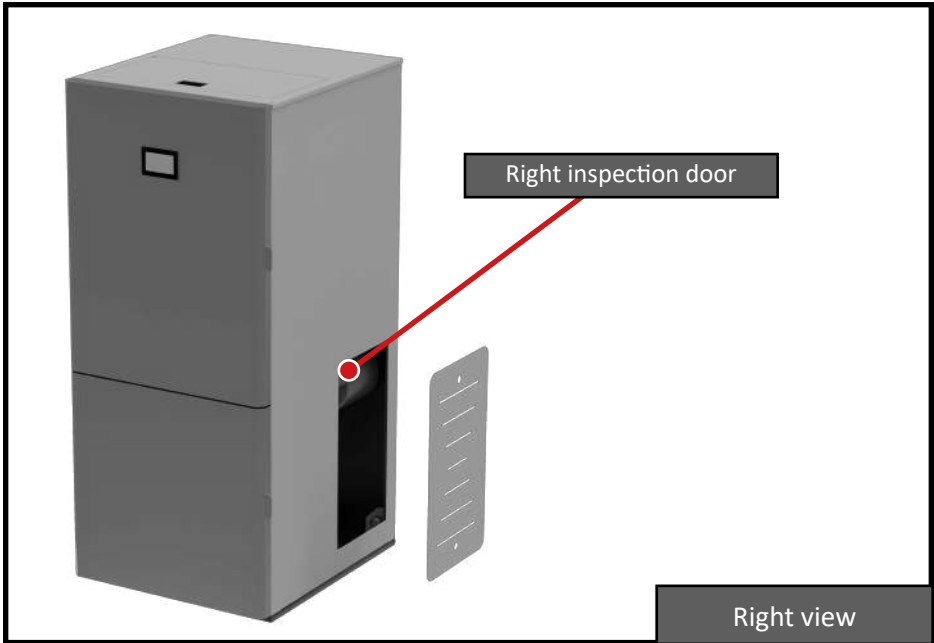
1. Open the hopper (located at the top of the product);
2. Fill the hopper, using non-combustible container;
3. Close the lid of the hopper;

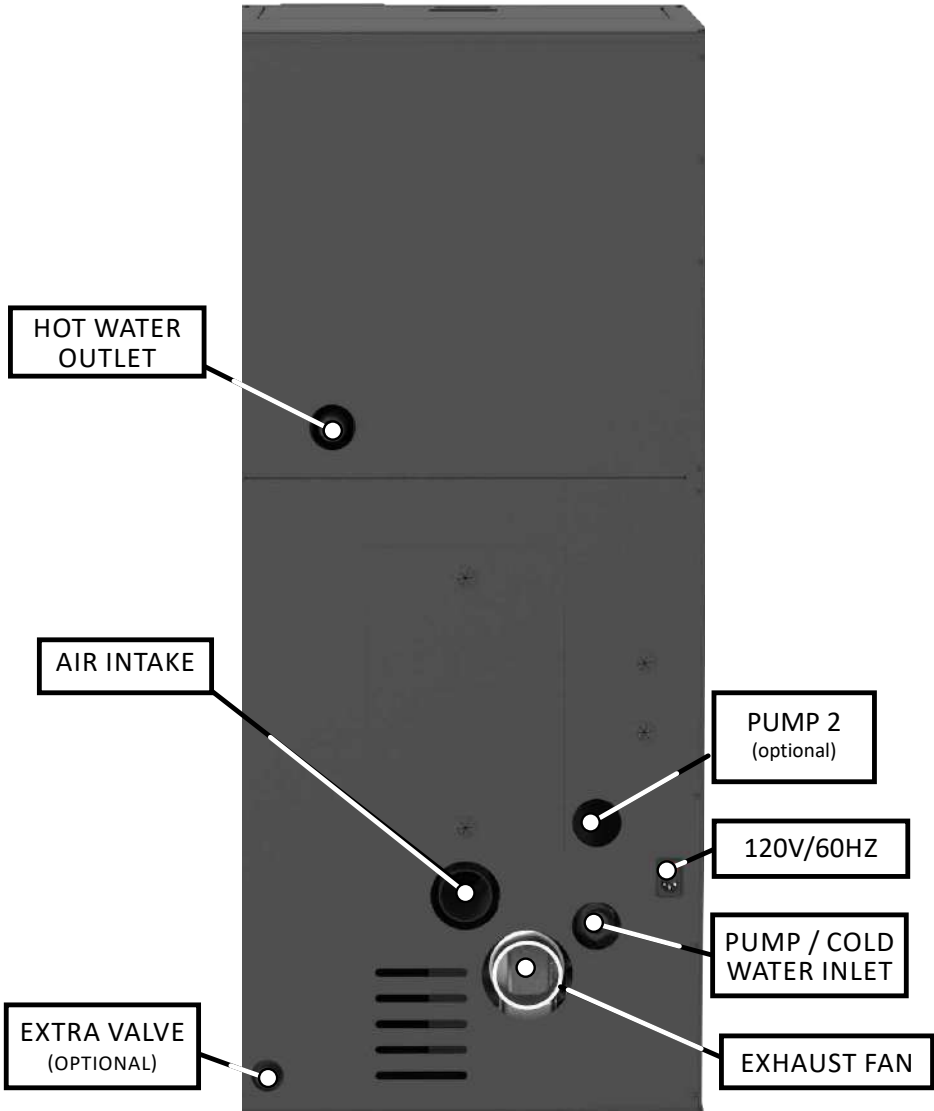


Attention!!! Use gloves! Beware of hot surfaces!

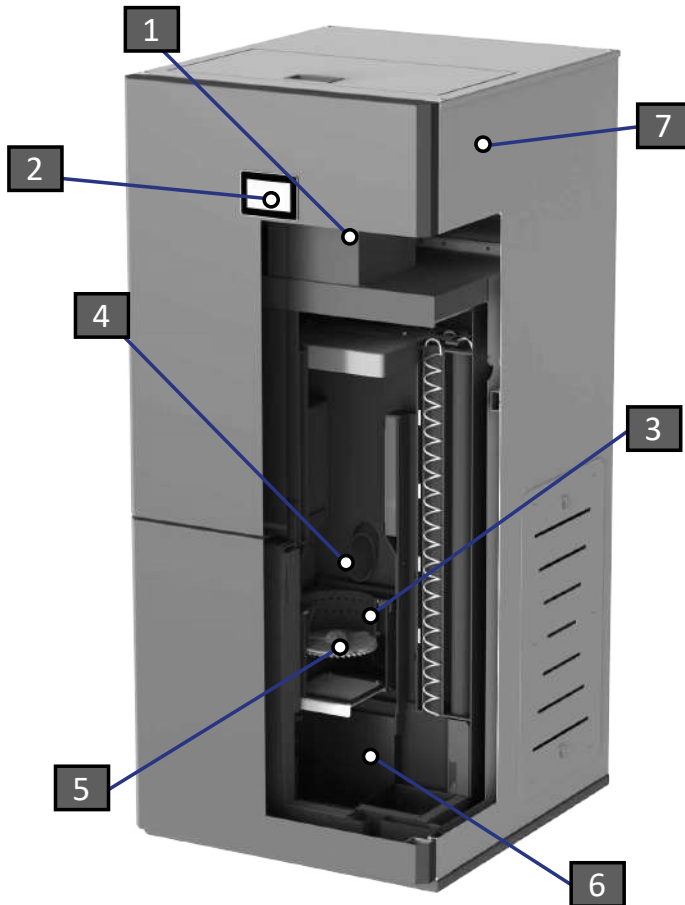
BOILER OVERVIEW





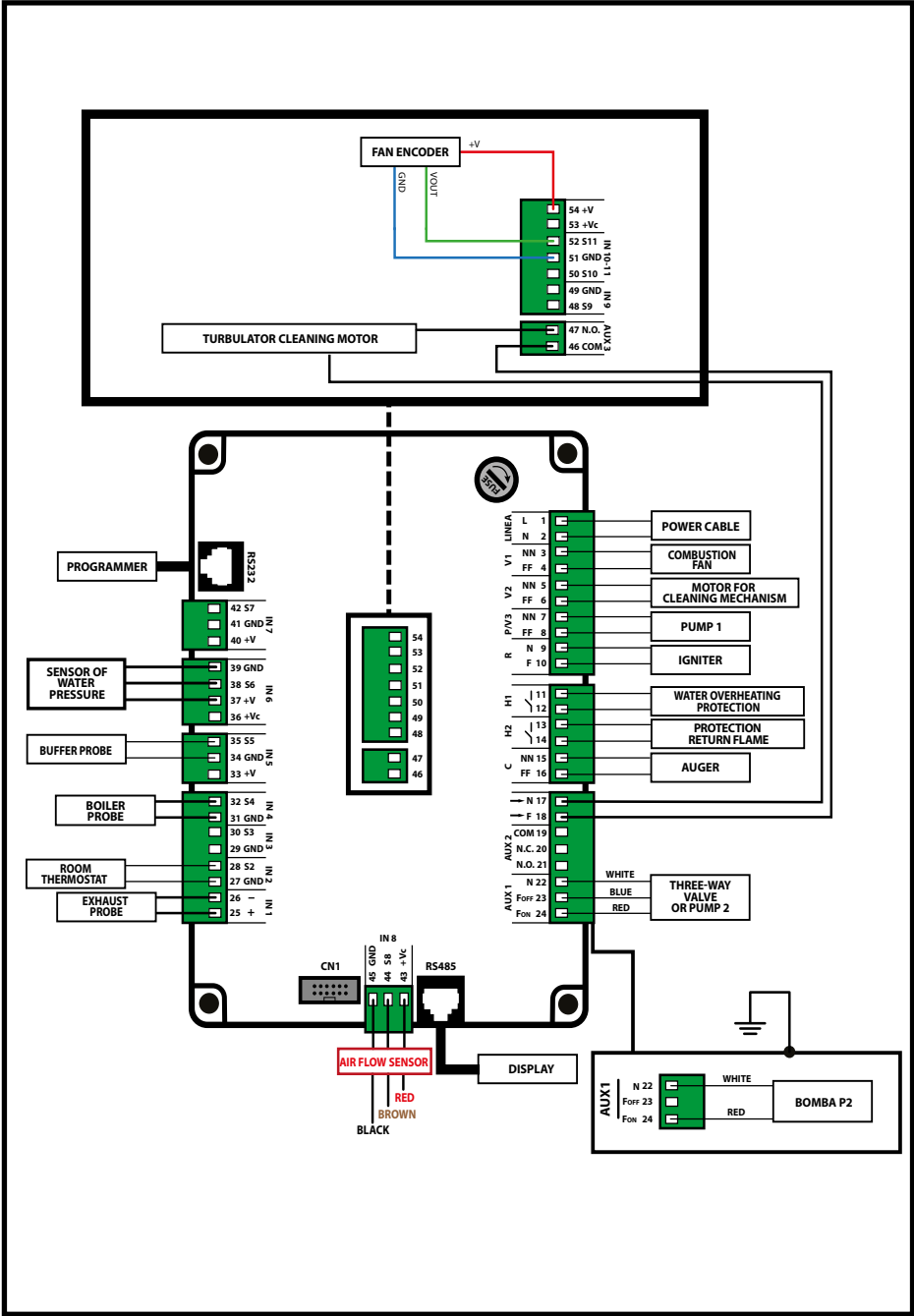


Components



- 1) Cleaning mechanism for the heat exchanger tubulators
- 2) Display
- 3) Combustion chamber
- 4) Igniter
- 5) Automatic cleaning mechanism for the brazier
- 6) Ashtray
- 7) Hopper

Electrical schematic



Technical data table

Model		18	35	50
Heated area	ft ² /m ²	2500/418	4500/418	5600/520
Height H	mm/in	1465/57,6	1510/59,5	1615/63,6
Width W	mm/in	600/23,6	630/24,75	808/31,8
Depth D	mm/in	795/31,3	791/31,15	861/33,9
Pellet hopper volume	kg/lb	109/240	109/240	145/320
Exhaust gas pipe	mm/in	80/3	102/4	102/4
Air inlet	mm/in	60/2,3	76/3	76/3
Weight	kg/lb	320/705	360/794	445/981
Fuel type	mm	Pellets ONLY - Ø6-Ø8		
Minimum chimney draft	Pa/Inch of water	12/0.048		
Electrical consumption	Wmin/Wmax	60/350		
Electrical input supply	V/Hz	120/60		
Electrical accessory outputs	V/Hz	240/60		
Water jacket capacity	L/Gal	38/10	50/13,2	86/22,7
Required working pressure	Bar/Psi	0,5-2/7-29		
Ambiant working temp	Cmin-Cmax/Fmin-Fmax	5-40/41-104		
Max ambient humidity	%	85		
Energy conversion efficiency	%	>96		
Co Emissions	Mg/m3	<300		
Temperature of the flue gas	C/F	~ 96/205		
Max. water temperature	C/F	90/194		

INSTALLATION

All national, regional and European requirements for safe operation of the appliance must be respected during installation and operation.

Prior to installation, load capacity of the place where the boiler will be intended must be ensured. The weight of the boiler is specified in the technical data table.

To ensure the correct and safe operation of the boiler, the following conditions must be met:

The installation of the boiler and its accessories must be carried out by authorized persons. The floor where the boiler is installed should be flat and horizontal, made of fire-resistant materials at least 59 in (1500 mm) in front of the fireplace and not less than 16 in (400 mm) on both sides and at the back of the wall.

Minimum distances from the wall to the boiler should be at least 16 in (400 mm). The minimum space in front of the fireplace should be 59 in (1500 mm). The minimal distance of the boiler from combustion materials should be no less than 59 in (1500 mm).

The door of the fireplace should be closed tightly during the work process. Opening it during work is absolutely forbidden.

When installing the boiler, the connections between the individual pipes and the chimney roof-top must be dense.

When the fire is first ignited, a smell occurs as a result of the paint being heated.

The fireplace is painted with heat-resistant paint, which achieves its ultimate resistance after repeated use of the boiler. THEREFORE KEEP OUTSIDE INTERACTIONS WITH THE COATING TO A MINIMUM in order not to damage it.

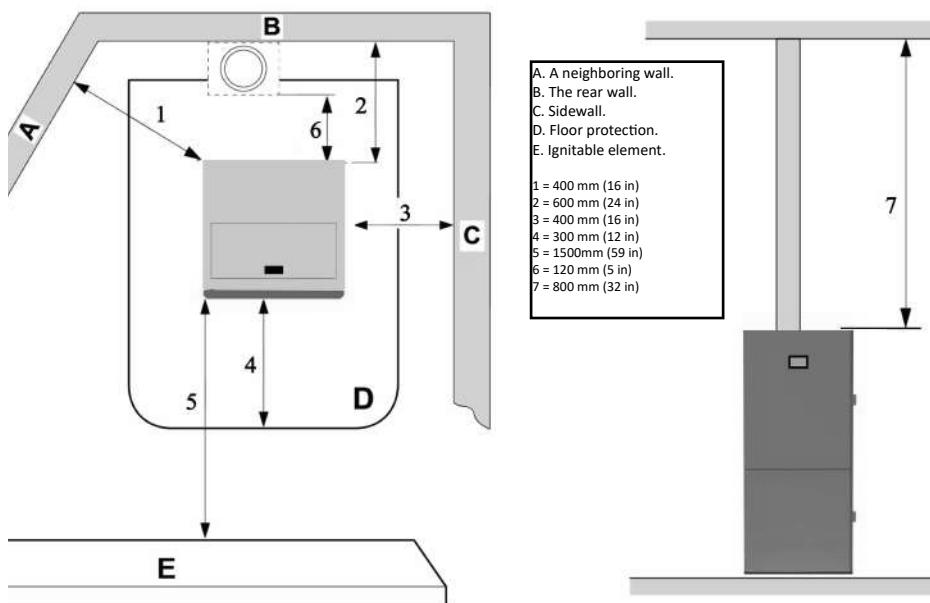
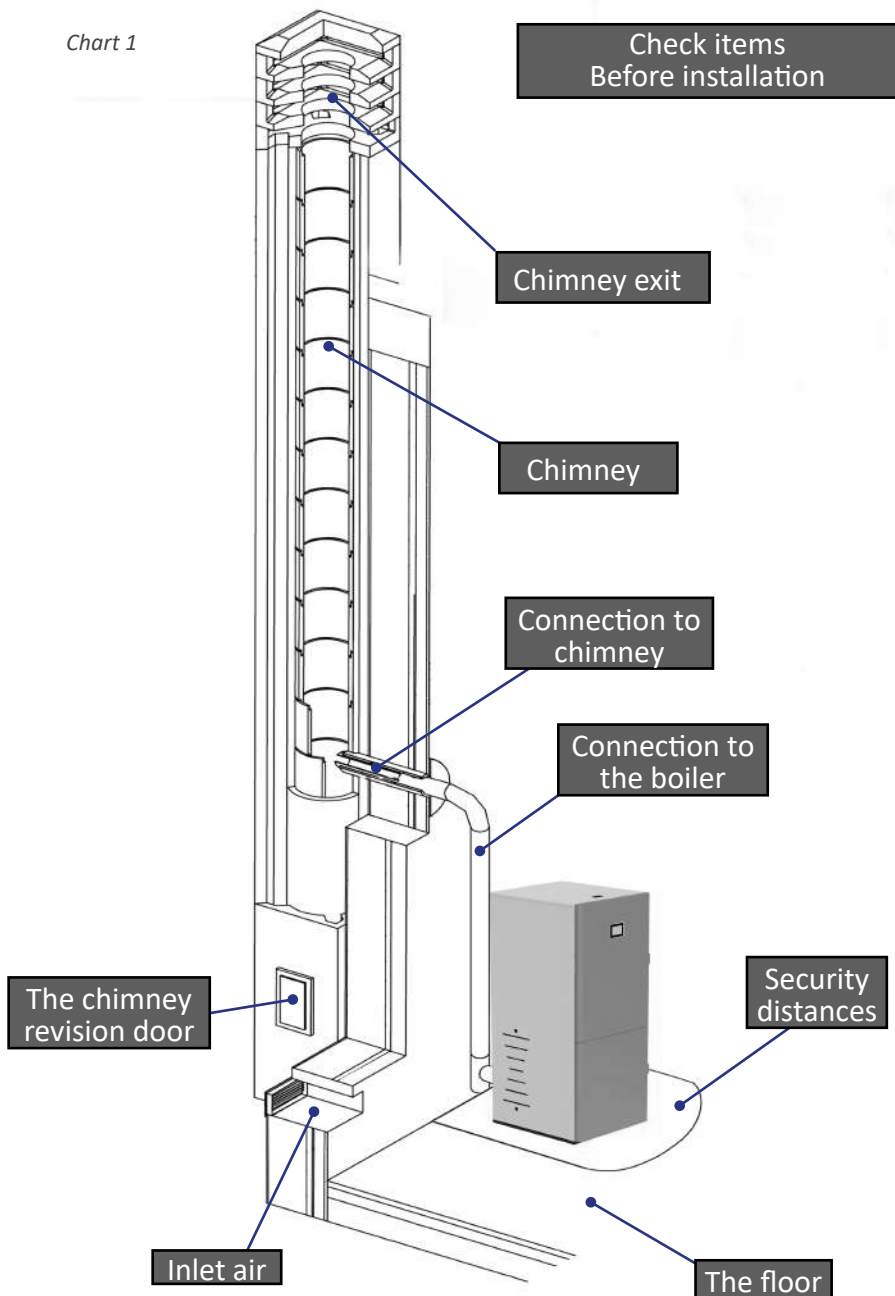


Chart 1



Basic rules and prescriptions

The boiler with water jacket operates on water heating boiler principle.

The advantage of this type of heating system is the maximum utilization of the heat that is produced during the combustion process.

- Ensure that every branch and element of the installation is airtight at every single moment of its exploitation.
- All elements of the chimney must be insulated and protected from freezing, especially if the enlarging pot or other parts are situated in non-heated premises.
- The circulation pump can be chosen by the capacity required

The circulation pump can be turned on and off by the means of a thermostat in combination with the boiler relay (PUMP 1 in the Electrical Schematic).

- The first service cleaning of the pump's filter must be done immediately after testing the installation.
- If an old installation is going to be used it must be washed several times to ensure the removal of any accumulated dirt on the surfaces of the water jacket.
- Do not drain the circulating water of the installation during the non-heated season.
- Chemical treatment of the circulating water is not recommended.

Chart 1 shows a one storey heating with a compulsory circulation. The enlarging pot must have a direct atmosphere connection which means that it must be placed on the highest spot in the system. Its capacity can be determined as 0,1 part of the total capacity of the system.

Chart 2 is a basic combined chart for heating with solid fuel boiler.

The filling or unloading of the system is done via a hose through a facet mounted in the lowest area.

During the initial 3-4 start-ups a condensation on the surfaces of the water jacket may occur which depending on the fuel's humidity and the temperature of the incoming water may reach 0,3 liter on a single start-up. The accumulating char reduces the temperature difference and the condensation.

- The warranty is not valid in case of a boiler with a swollen water jacket which is a result of pressure increase in the system and improper connecting.
- The water jackets are tested under pressure of 345 kPa (50 psi).

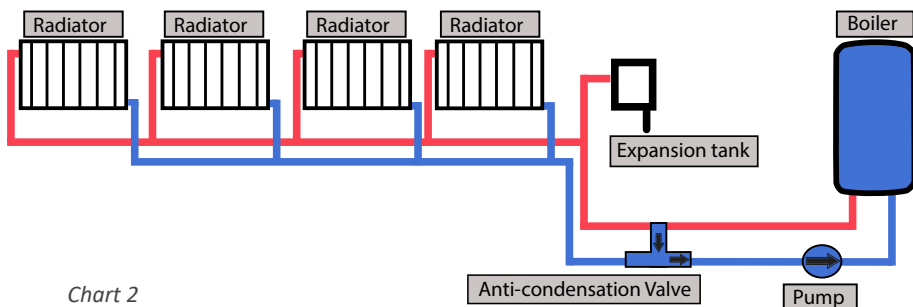
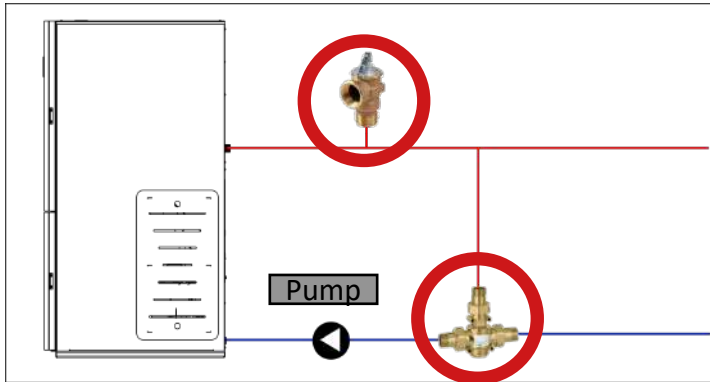


Chart 2

Example scheme for installation of an anti-condensation valve. It is recommended that the valve be set to at least 122°F (50° C). At the discretion of the installer, a valve with a higher return water temperature may be installed.



The installation of a boiler Anti-condensation protection valve and a Pressure relief valve (~30 PSI) is mandatory to maintain the validity of the warranty.

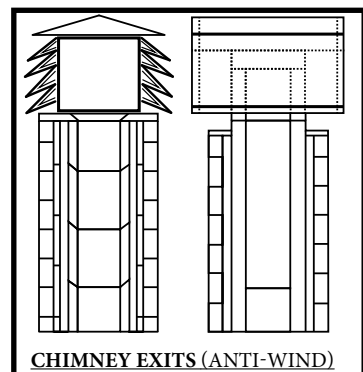


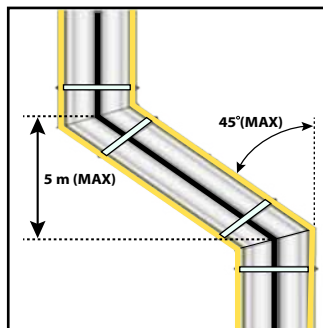
Duct components and pipes

For the assembly of the duct pipes the use of non-flammable materials, resistant to the flammable products and condensation is obligatory. The assembly must be performed in such a manner so it guarantees the airtight sealing and prevents condensation. If possible, avoid adding horizontal sections. Direction shift is done by using knee joints with a max angle of 45°.

The following instructions must be observed:

- Horizontal sections must have a minimum incline of 3° upwards;
- The length of the horizontal sections must be as short as possible, but without exceeding 3 m;
- More than four direction shifts are forbidden, including the cases where a T-shaped element is used;
- The duct components must be airtight and to be insulated if extending outside the premises in which the fireplace is installed;
- The duct components must allow a soot cleaning;
- The duct components must have a constant section. A section change is allowed only in the chimney joint;





Chimney

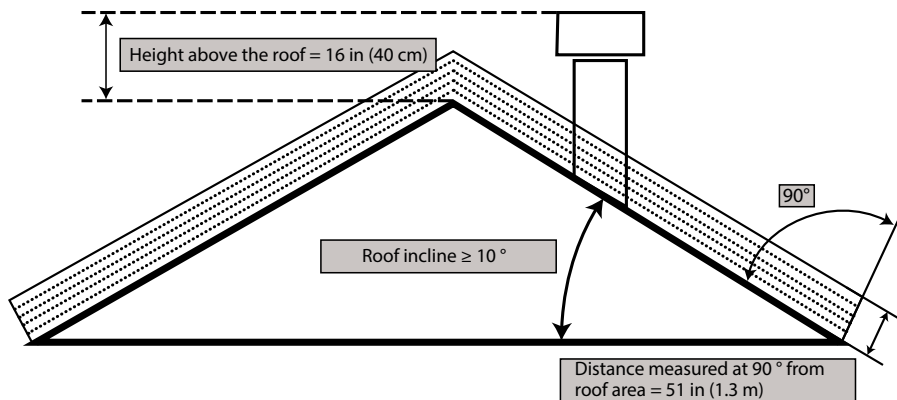
The chimney or the duct component must conform with the following requirements: to be airtight, waterproof and properly insulated, to be constructed with materials resistant to the normal mechanical wear and to the heat coming from the combustion products and condensation.

- To be kept away from flammable materials.

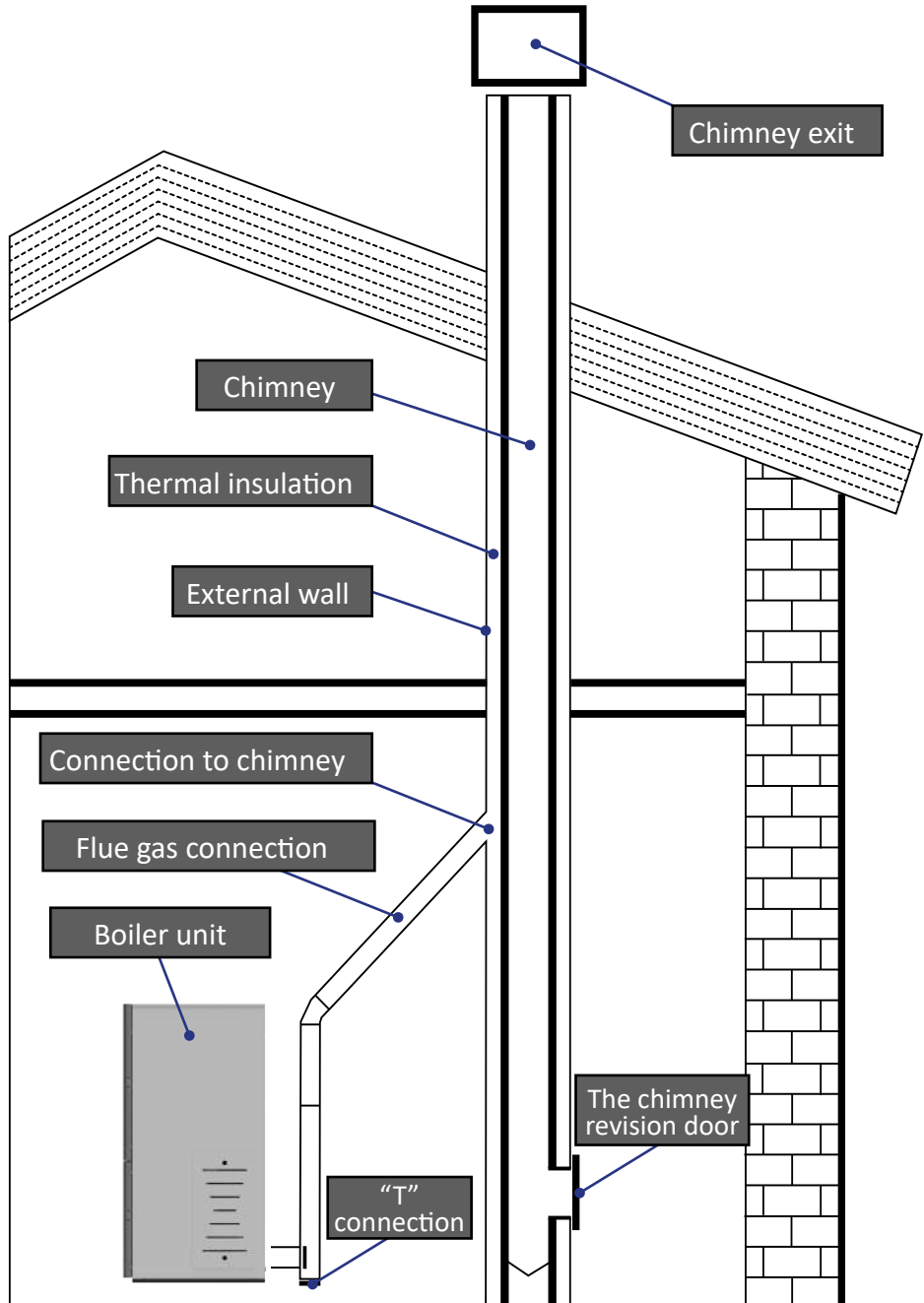
The recommended chimney draft at work: from 12 to 20 Pa.



Attention!!! In case of a fire hazard turn off the product from the display. This will stop the oxygen flow to the product.



Types of connection to the chimney



Air intake

Suction pipe or air intake is placed in the back and has a circular section with a diameter of ~2 in (48 mm).

The combustion air can be aspirated:

- From the camera, as long as it is near an air intake communicating with the outside wall having a minimum area of 15.5 in² (100 cm²), properly positioned and protected by a grid.
- Or by connecting directly outside with a suitable tubing having an inner diameter of 2 in (48 mm) and a maximum length of 59 in (1.5 M).

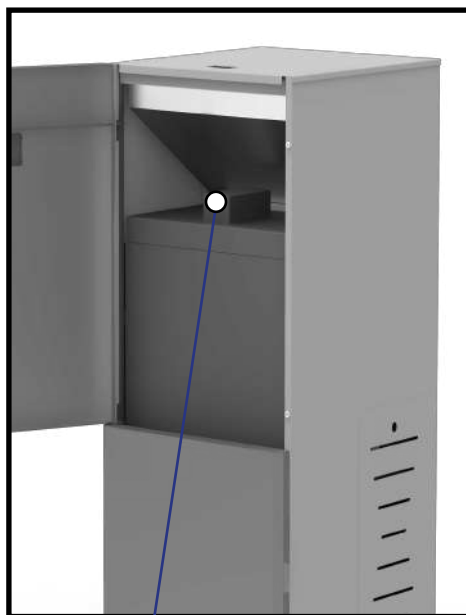
MAINTENANCE

Cleaning

Cleaning the fireplace should be done only when cold. The cleaning of the combustion chamber must be carried out frequently. The firepot and the heat exchangers clean themselves automatically.



Combustion Chamber



Cleaning mechanism for the heat exchangers

General view



Cleaning the glass with a non-abrasive cloth

Brazier ash slider



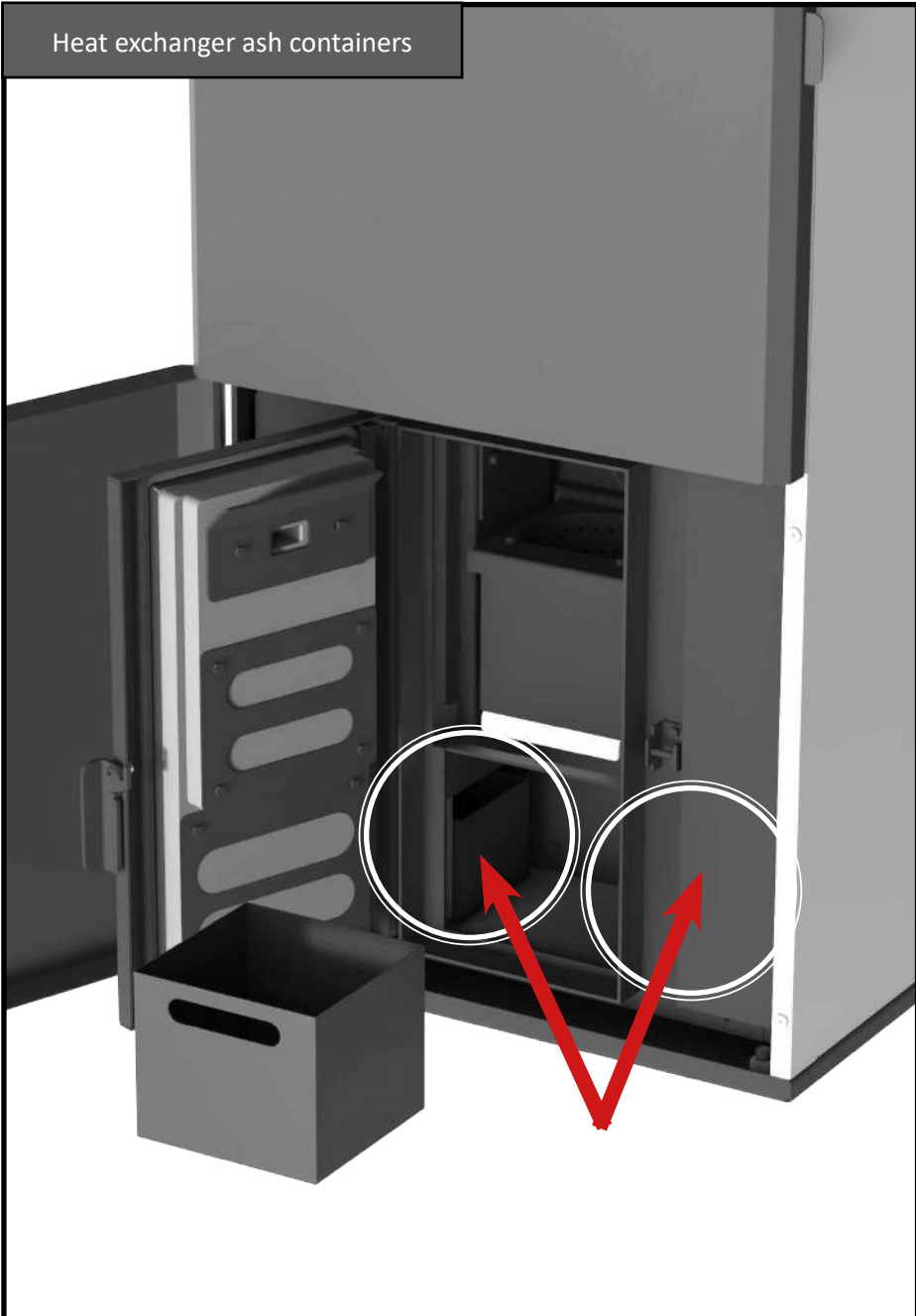
IT IS MANDATORY THAT AT EACH EMPTYING OF THE ASH CONTAINERS, THE COMBUSTION BOX IS ALSO CLEANED.

Main ash container



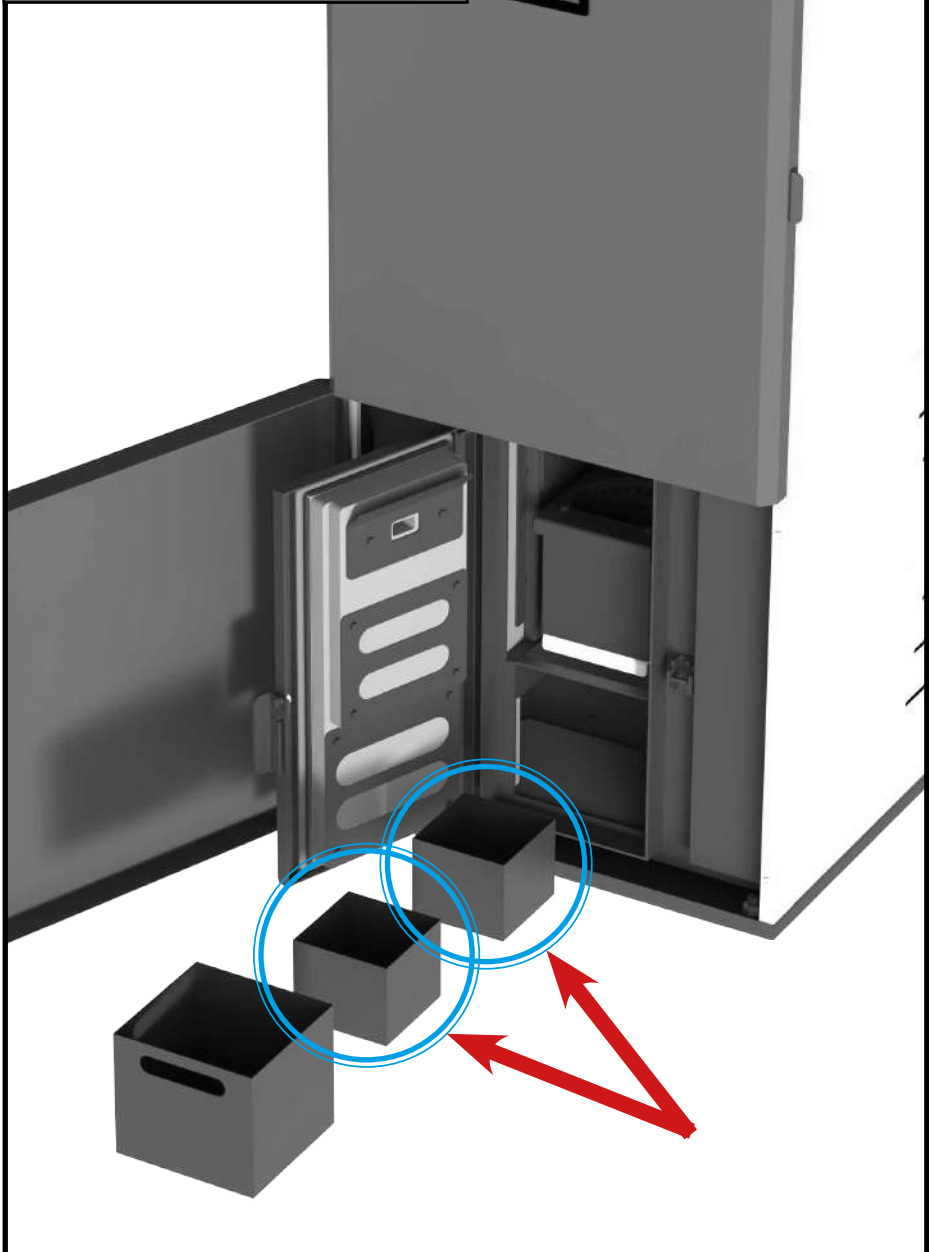
EMPTY THE FIRST ASH CONTAINER

Heat exchanger ash containers



REMOVE THE 2 OTHER ASH CONTAINERS FROM THE SIDES.

Heat exchanger ash containers



EMPTY THE 2 SIDE ASH CONTAINERS

Maintenance/Inspection program				
	At each ignition	Weekly	Twice per season	Annual
Combustion chamber	●			
Clean the ashtray		●		
Clean the heat exchanger by pulling 5x the lever (if manual)		●		
The Door		●		
Clean the flue gas outlet				●
Door seals			●	
Chimney				●

Safety and unexpected risks

Terms of danger may arise in the following cases:

- Automated pellet boiler is used incorrectly;
- The unit is installed by unqualified personnel;
- The safety instructions described in this management are not met;

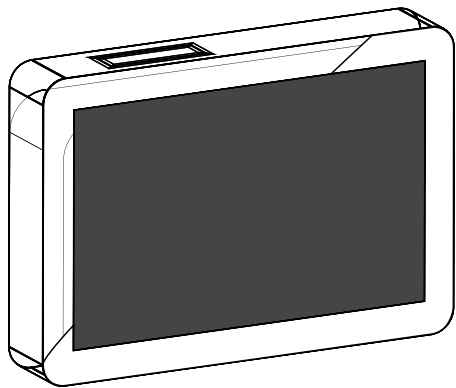
Unforeseen risks:

Unit has been designed and manufactured in accordance with the safety requirements on the national and regional levels. Although considered possible risks arising from improper use, you may experience the following risks:

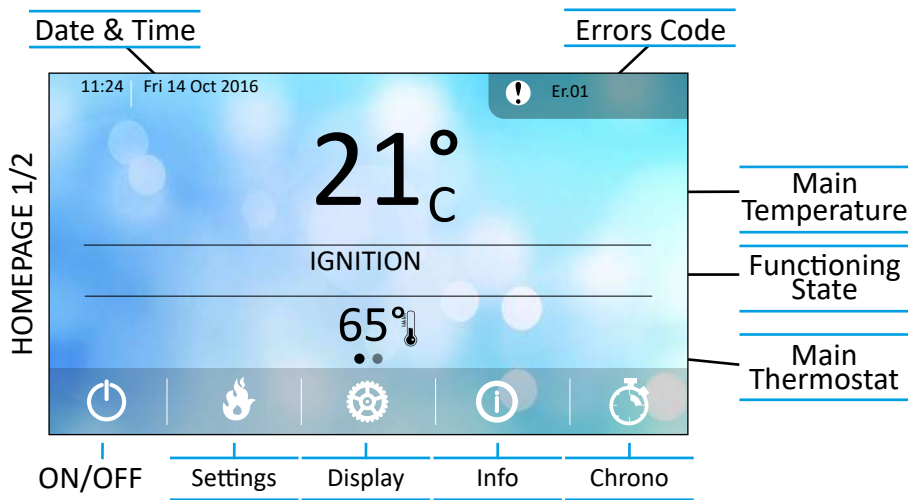
Risks of spreading combustion outside fireplace - opening the door of the chamber of the fireplace may fall hot / burning particles (as hot ash and small particles burning coal), which could lead to a fire in the heated room. It is therefore necessary that the product always works with a tightly closed door. It can only be opened when the product has completely cooled down;
Risks of burns caused by high temperatures as a result of the combustion process in the combustion chamber and / or access to the door of this burn chamber when the product is not completely cool;

In case of fire hazard the product should be stopped by the controller and power supply until the cause of the problem is determined.

TOUCH SCREEN SETTINGS



Home screen



Home screen 2



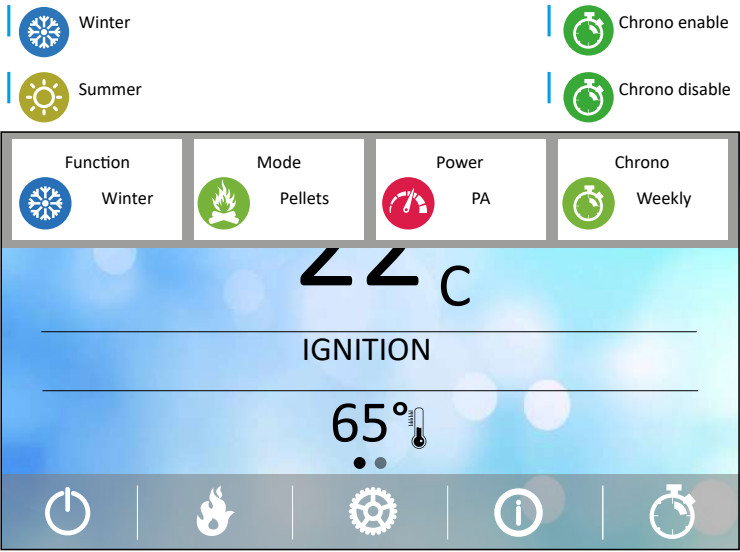
In order to go to Homepage 2 a horizontal swipe must be performed to the right side of the screen.



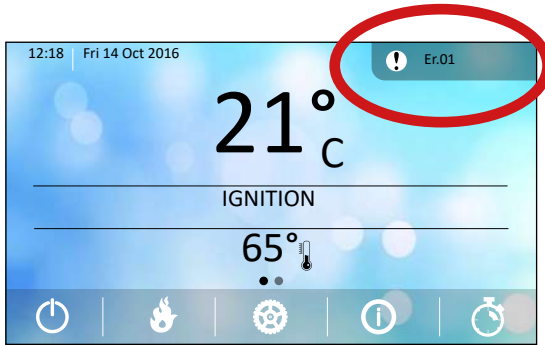
Quick visualization



The Quick visualization of the system main function is accessed through a vertical swipe to the top side of the screen.



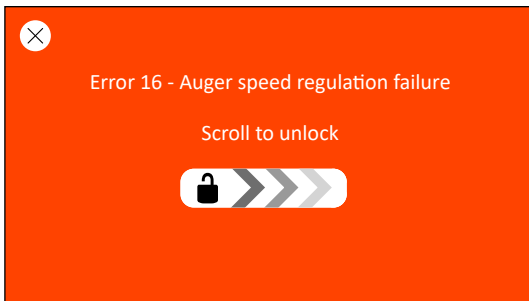
Error list and unblock



Blocking or non-blocking error is highlighted with a ! and the related error code. When pressed the error window opens

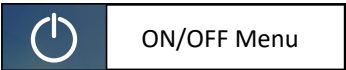
Error List	
Er10	10:50
Er 53	11:20
Er 53	11:20
Er 53	11:20
Er 53	11:20

By clicking on () you can see the errors stored by date / time and description



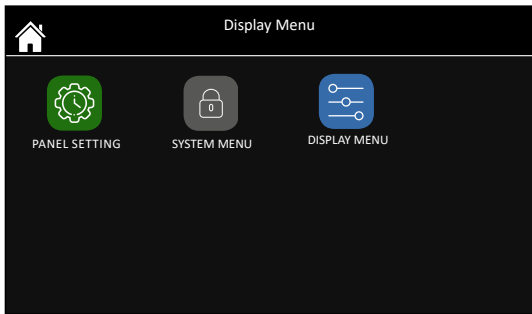
When this message is on screen this means that the product is in blocking mode and you can remove the error. You can do this by swiping to the right in the center of the screen.

Main functions

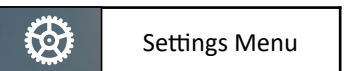
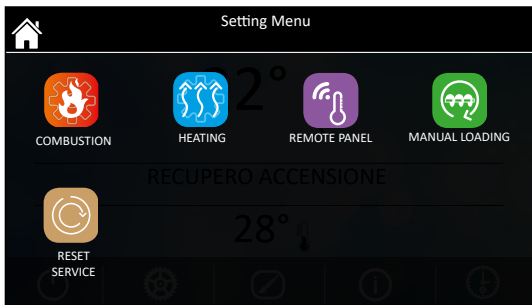


Screen image :

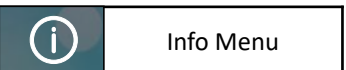
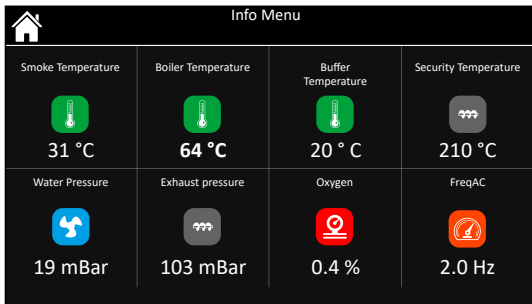
- System power ON
- System power OFF
- Alarms reset



In this screen you can view all the variables of the control panel. Furthermore, it is possible to access the SYSTEM MENU which is reserved exclusively for technical personnel.

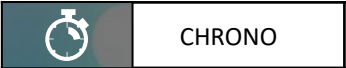
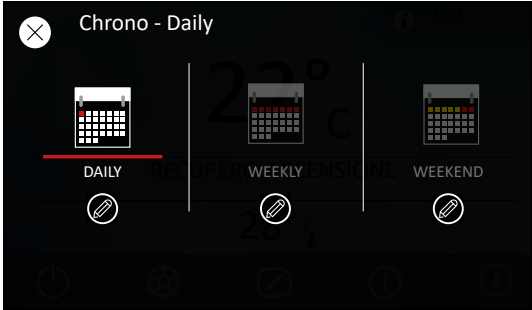


From this screen it is possible to view all the variables for the proper functioning of the heating system.



From this screen it is only possible to display the values of all inputs and outputs physically connected to the boiler.

Chrono: Time schedules

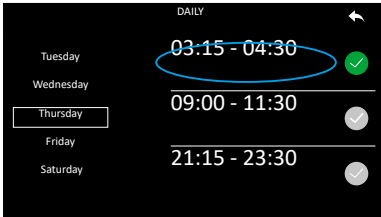


To select the desired CHRONO program, press on the respective tabs:

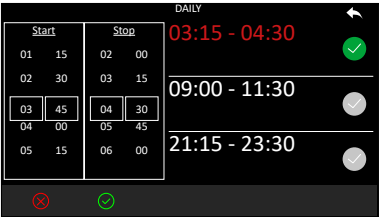
- Daily
- Weekly
- Weekend.

To change the chrono program, press on .

If the Chrono function is disabled all the tabs are grey.



To edit the time slots, press on the corresponding Frame Time.



Scroll Up or Down to change the System on/off Time

	From the display Menu the user can access the panel settings and select one of 24 languages.
	Brightness.
	Minimum brightness: this function allows you to choose the minimum brightness level which the device automatically sets to after 30 sec. of inactivity.
	Standby display: if enabled, this function will set the screen to standby after 1 minute of inactivity.
	Control panel address: password-protected menu (1810) and used to set the control panel address. In modbus, the address reserved for the local control panel is 16. The address of the first remote control panel is 17 and subsequently the others according to the number provided by the system.
	Control panel restart: this function allows the control panel to be restarted.
	Sound: this function allows the user to enable / disable the sounds emitted from the control panel.
	Delete error list: this password protected function (the same as in the technical menu) allows the user to delete the list of errors recorded by the control panel. The errors recorded are 64.

Nodes list: this menu allows the user to view all the devices connected via Modbus, with their related firmware and revision.

Wallpaper: menu used to select wallpapers loaded in the device. 8 backgrounds are available.

Control panel info: this menu allows the user to view the firmware and revisions that make up the control panel in detail.

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Phoenix Wood Boilers disclaims any responsibility for possible inaccuracies contained in this manual if they are due to printing or transcription errors. We reserve the right to make any change that appears to be necessary or useful without harm the essential characteristics.

CLEARANCES FOR UNCERTIFIED WOOD – BURNING UNITS

1. Definition of Uncertified Units

An uncertified unit is any wood-burning appliance that does not carry a certification label from a recognized testing laboratory specifying its installation requirements. These appliances must comply with the most stringent clearance rules.

2. Combustible vs. Non-Combustible Materials

Combustible materials: Any substance that can ignite or burn when exposed to heat or flame, including wood, drywall, plasterboard, fabrics, and plastics.

Non-combustible materials: Substances that do not ignite, burn, or release flammable vapors when exposed to high heat, such as brick, stone, concrete, metal, or certain glass types.

Maintaining proper clearance between the unit and combustible materials is essential for fire safety.

3. Standard Clearances (Without Heat Shield)

For uncertified appliances installed near combustible walls or ceilings, the minimum required clearance is:

- 48 in. (1200 mm) — from all sides of the appliance (front, back, and sides).
- 6 in. (150 mm) — from double-wall chimney pipe to combustibles.
- 18 in. (450 mm) — from single-wall chimney pipe to combustibles
- 48 in. (1200 mm) — minimum clearance in front of the appliance.
- 84 in. (2130 mm) — minimum ceiling height, measured from floor to ceiling.

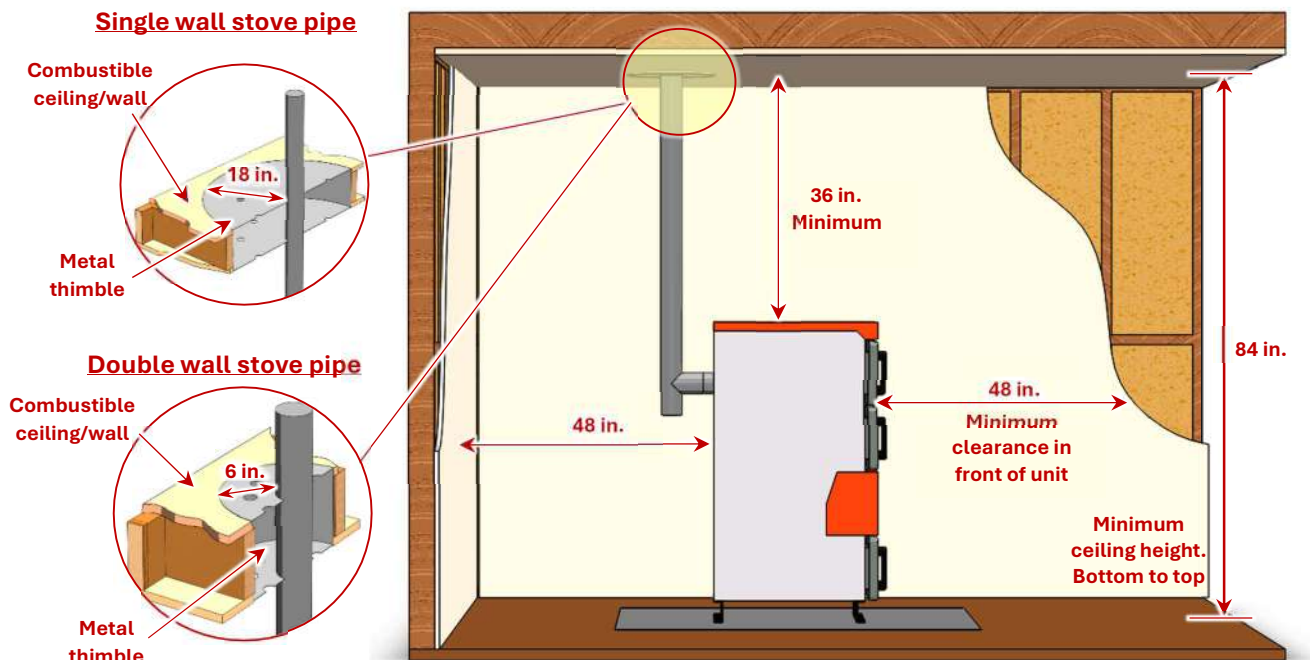


Figure 1 – Minimum clearances for uncertified units (no heat shield)

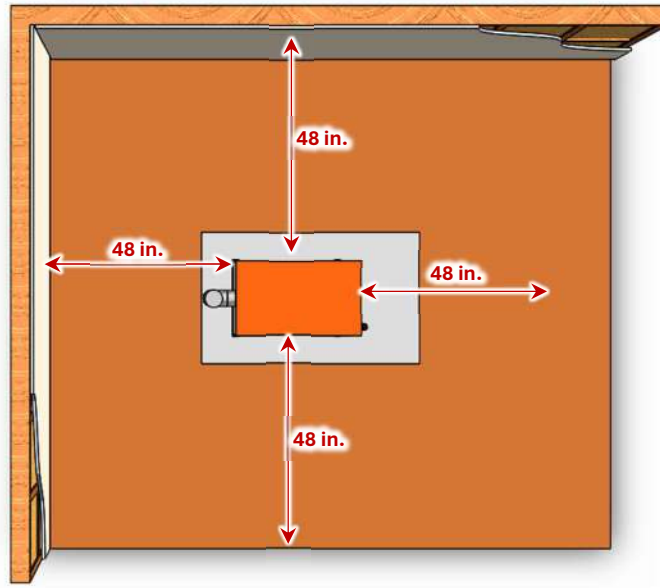


Figure 2 – Clearance to combustible walls (no heat shield)

4. Clearances with a Metal Heat Shield

When a properly constructed 29-gauge sheet metal heat shield is installed with a 1 in. (25 mm) air gap, clearances may be reduced under CSA B365 rules.

Heat Shield Construction Requirements

- Minimum air space between shield and wall/ceiling: 1 in. (25 mm).
- Clearance at bottom of shield: 1–3 in. (25–75 mm).
- Clearance at top of shield: 3 in. (75 mm).
- Shield must extend:
 - 20 in. (500 mm) above the top of the unit.
 - 18 in. (450 mm) beyond each side of the unit.
- Ceiling shields: maintain 3 in. (75 mm) edge clearance.
- Mounting hardware must allow full vertical ventilation and not transfer heat directly to combustibles.

Functional Principle

The heat shield creates a ventilated air space, allowing heat to dissipate before reaching combustible surfaces. This reduces the minimum required clearance safely.

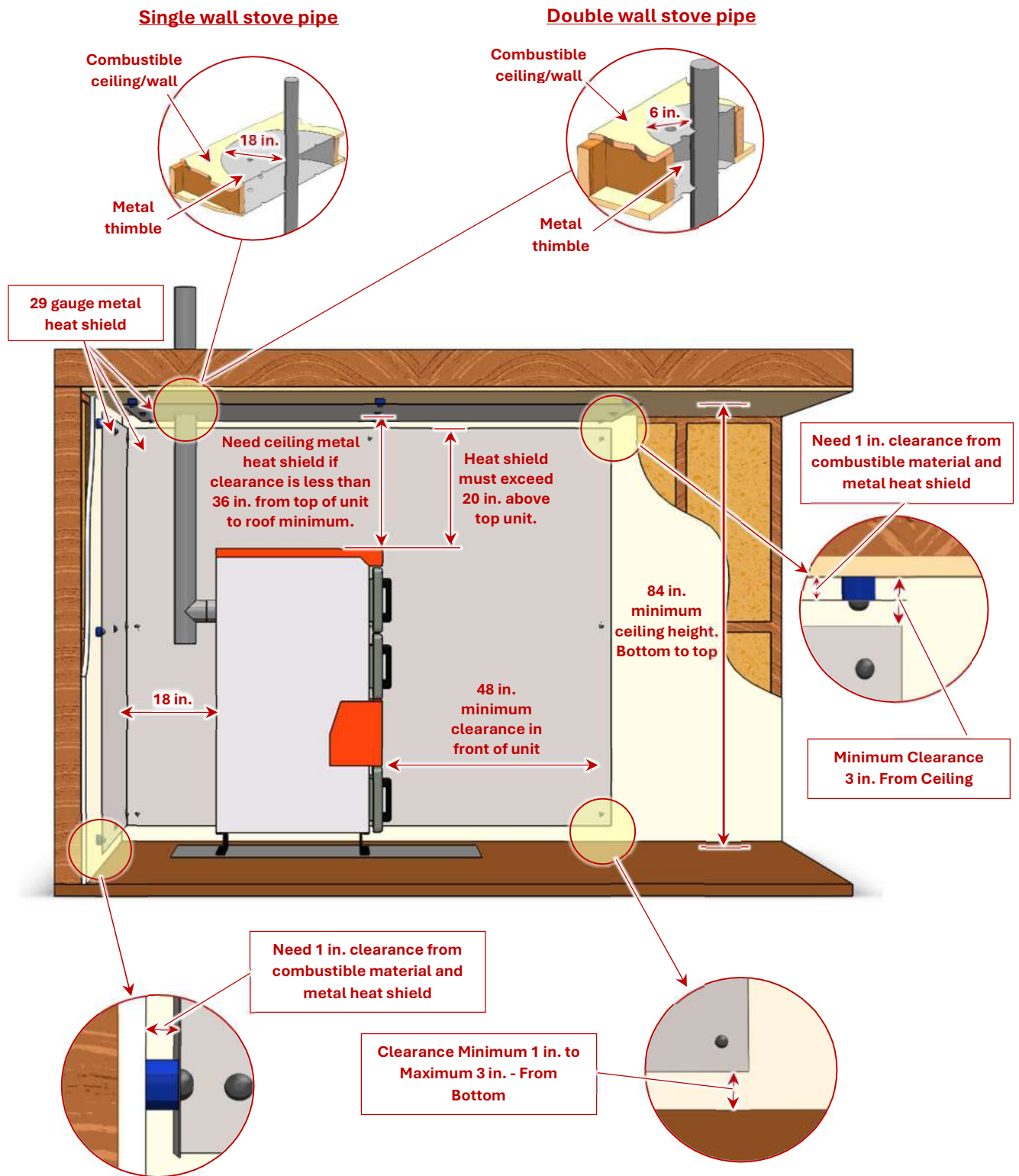


Figure 3 – Minimum clearances for uncertified units (with heat shield)

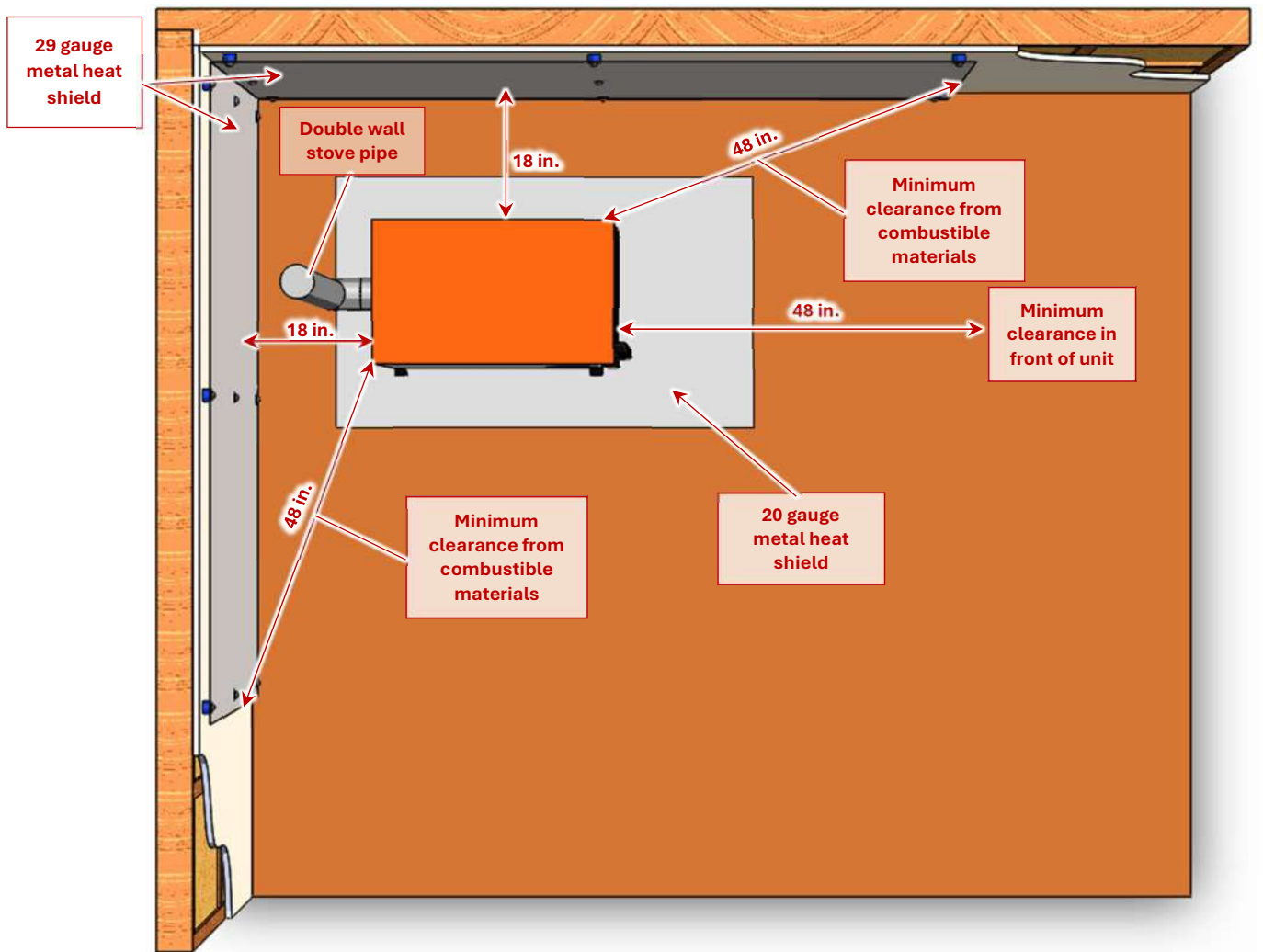


Figure 4 – Clearance to combustible walls (with heat shield)

5. Floor Protection

Ensuring proper floor protection for uncertified wood stove the floor must be protected with two elements:

1. **Floor Pad (Ember Protection):** Protects against live embers and sparks that may fall during fire tending or ash removal.
 - The floor pad must be made of continuous non-combustible material (e.g., ceramic tile, flagstone, brick, or block).
 - It must extend 18 in. (450 mm) beyond any side with a loading door and 8 in. (200 mm) beyond all other sides.
 - All joints between tiles or stones must be properly grouted or mortared to prevent debris accumulation and ensure a continuous surface.

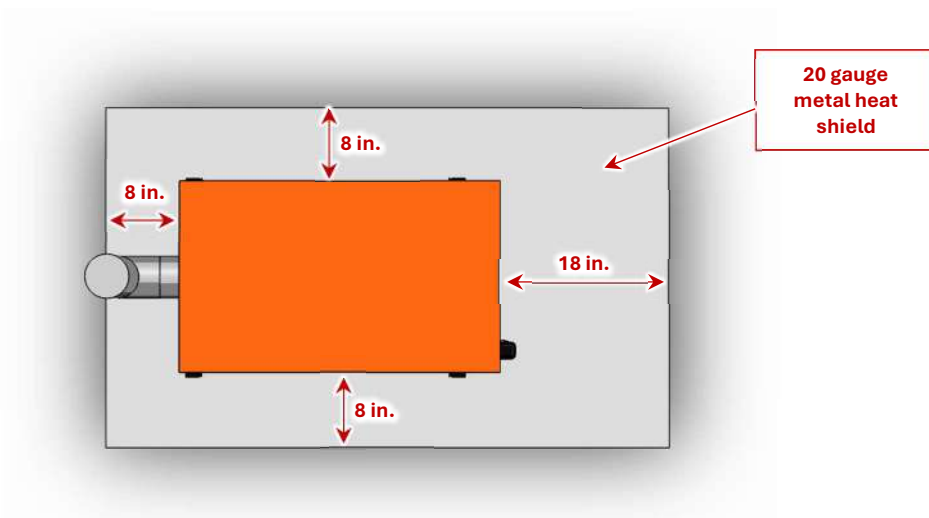
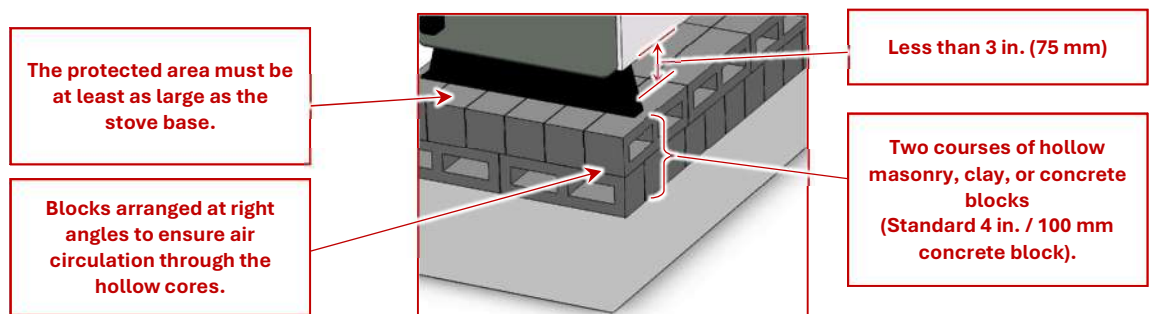


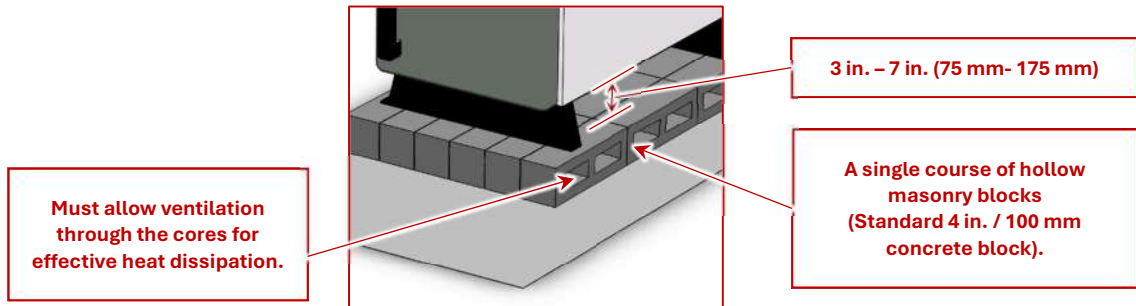
Figure 5 – Floor Pad dimensions (Ember Protection)

2. **Heat Shield or Thermal Protection (Overheating Protection):** Prevents the floor from overheating due to heat radiation from the stove's base. The required construction depends on the clearance between the bottom of the appliance and the floor.

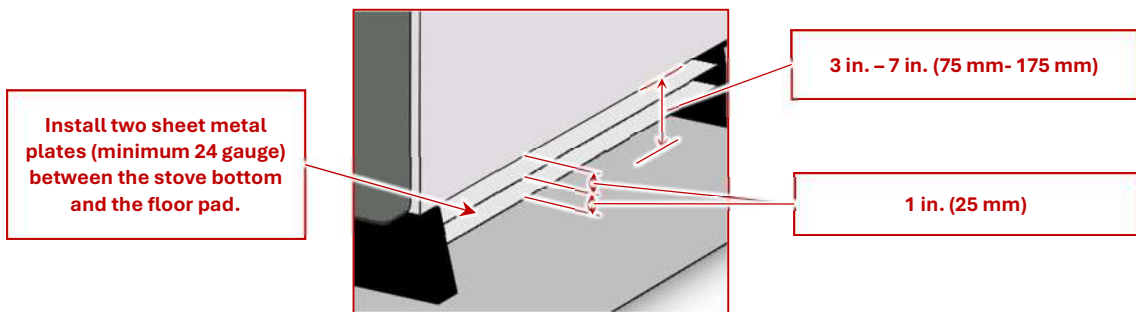
Option 1 – Clearance less than 3 in. (75 mm).



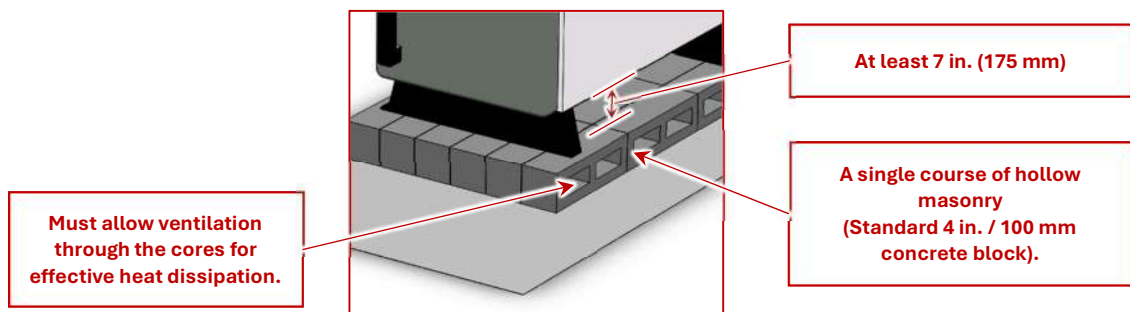
Option 2.1 – Clearance between 3 in. (75 mm) and 7 in. (175 mm) – Hollow Masonry



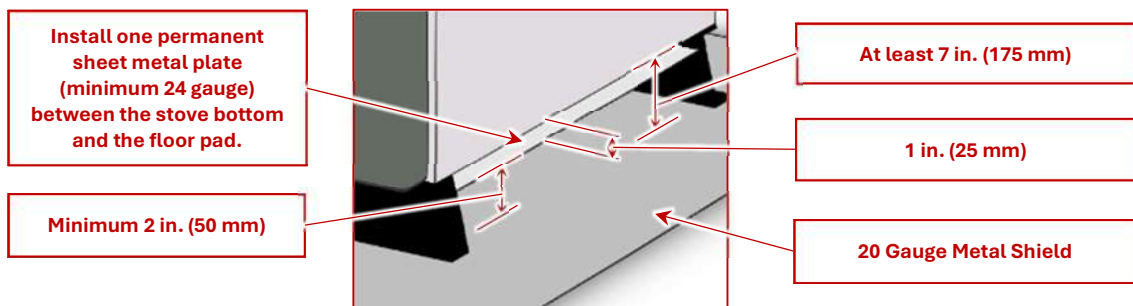
Option 2.2 – Clearance between 3 in. (75 mm) and 7 in. (175 mm) – Metal Plates



Option 3.1 – Clearance greater than 7 in. (175 mm) – Hollow Masonry



Option 3.2 – Clearance greater than 7 in. (175 mm) – Metal Plates



6. Summary

Summary of Clearance and Floor Protection Requirements for Uncertified Wood – Burning Units

Requirement	Without Heat Shield	With 29-Gauge Metal Heat Shield	Notes
Side / Back Clearance	48 in. (1200 mm)	Reduced as per CSA B365 (min. 18 in. / 450 mm with shield)	Heat shield must extend 20 in. above and 18 in. beyond appliance sides
Front Clearance	48 in. (1200 mm)	48 in. (1200 mm)	No reduction permitted
Ceiling Clearance	36 in. (915 mm) minimum	May be reduced with ceiling heat shield (min. 3 in. / 75 mm gap)	Ceiling height must be at least 84 in. (2130 mm)
Single-Wall Stove Pipe	18 in. (450 mm)	18 in. (450 mm)	Must use non-combustible thimble through walls/ceilings
Double-Wall Stove Pipe	6 in. (150 mm)	6 in. (150 mm)	Certified double-wall only
Floor Pad (Ember Protection)	Extend 18 in. (450 mm) in front of loading door and 8 in. (200 mm) on other sides	Extend 18 in. (450 mm) in front of loading door and 8 in. (200 mm) on other sides	Must be continuous non-combustible surface
Thermal Floor Protection (Overheating Protection)	Required (depends on clearance under stove)	Required (depends on clearance under stove)	Options described below

Floor Protection Options (Thermal Overheating Protection)

Clearance Under Stove	Protection Option	Description
Less than 3 in. (75 mm)	Option 1	Two courses of hollow masonry/concrete blocks (100 mm thick), arranged for airflow
3–7 in. (75–175 mm)	Option 2.1	Single course of hollow masonry units with ventilated cores
	Option 2.2	Two sheet metal plates (min. 24 gauge), spaced 1 in. apart
More than 7 in. (175 mm)	Option 3.1	Single course of hollow masonry units with ventilated cores
	Option 3.2	One permanent sheet metal plate (min. 24 gauge), 2 in. above floor pad and 1 in. below stove bottom



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