geres

MANUAL FOR CONSTRUCTION AND OPERATION OF

“VULKAN” STOVE

INTRODUCTION

Winter fuel prices are becoming a concern for rural populations. As the availability of firewood decreases, fuel prices are going up.

To heat their houses, as well as for cooking and baking, rural residents have been burning too much fuel, such as wood, dung, coal and other types of fuel. Using the Vulkan stove, people can simultaneously do all the above mentioned activities (heating the house, cooking and baking) with one piece of equipment, and most importantly with only one fire. This means burning less fuel and spending less time and money.

By using this stove, you can not only save money but also can save forest and prevent erosion.

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1. WHY SPECIFICALLY "VULKAN" STOVE?

"Vulkan" Winter stove, first of all, is an energy efficient stove which is also very convenient and easy to use. It meets all the standards and makes houses warm and cozy.

With such stove, one can not only heat the house, but also cook and bake bread and other pastries in its oven.

By using "Vulkan" stove for heating and cooking, you can save fuel (wood, coal, dung), time and money.

2. CONSTRUCTION OF “VULKAN” STOVE

Construction method of “Vulkan stove is slightly difficult compared to construction of traditional stove and has sophisticated structure. Therefore, this manual shows as much possible detailed, step by step instructions.

Construction of “Vulkan” stove consist of the following steps:

Step 1.

Designing the stove

Step 2.

Taking measures and making parts of the stove

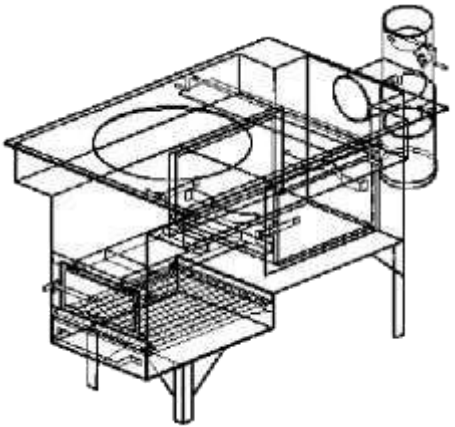
Step 3.

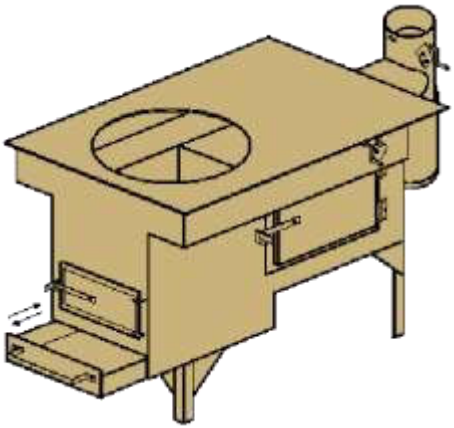
Assembling parts of the stove

Step 1

2.1. DESIGN OF THE STOVE

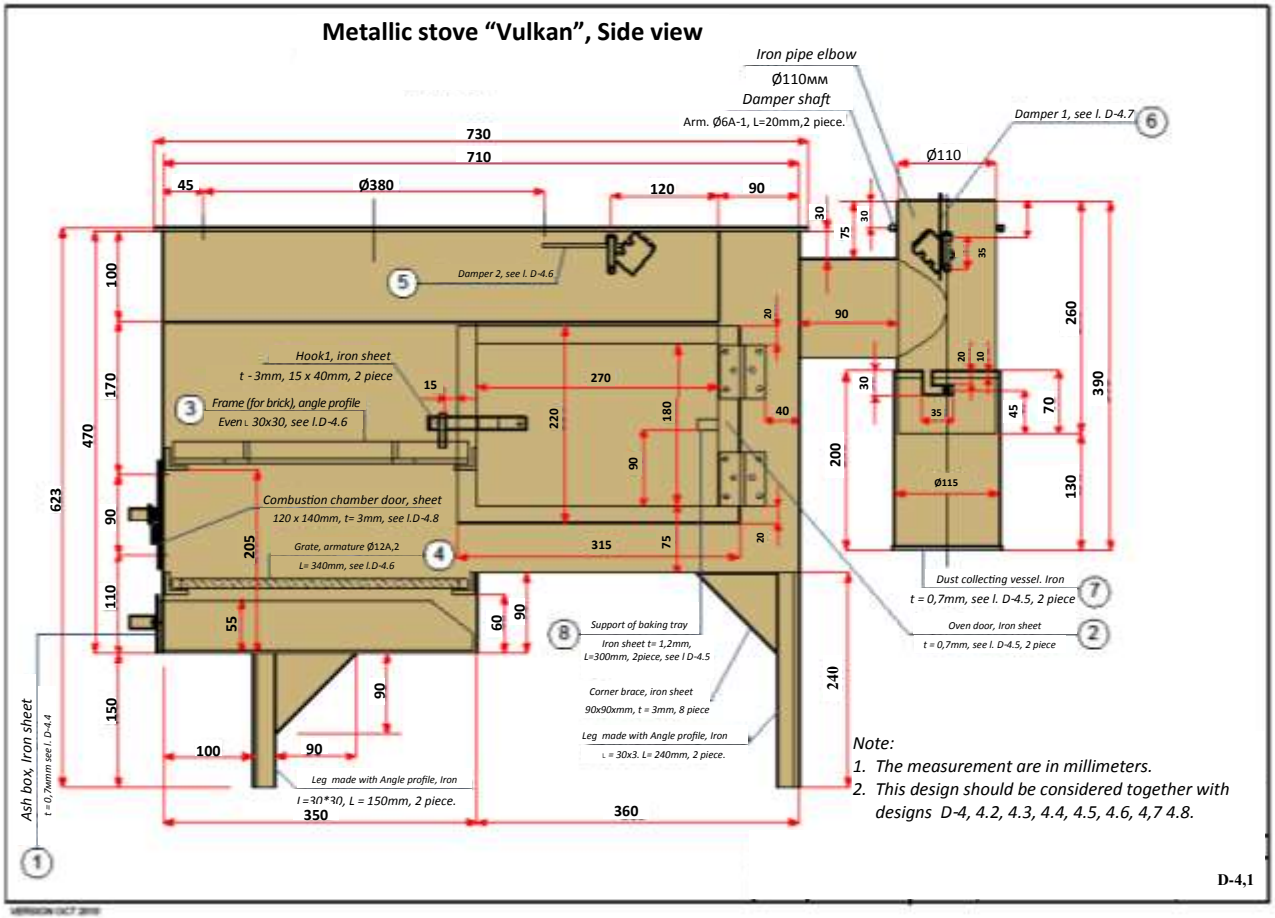
First step consists in drawing the design of the stove. To make it easy for you, design of the stove is shown here in below:





Metallic winter stove "Vulkan" General view

Metallic stove “Vulkan”, Side view



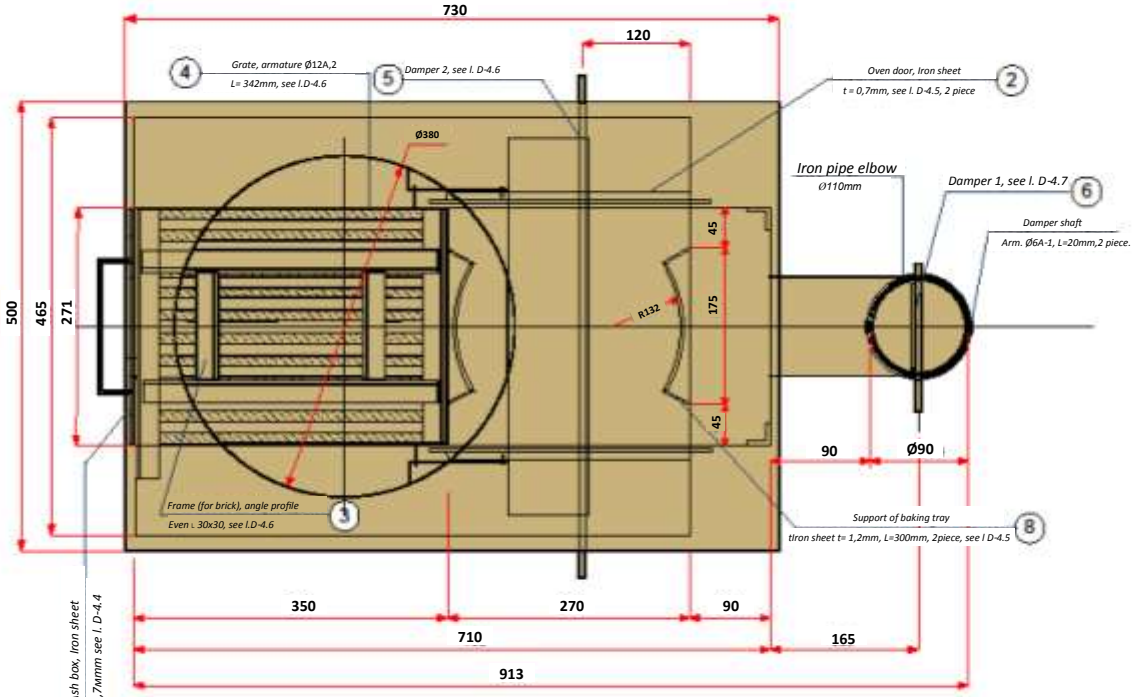
Note:

1. *The measurement are in millimeters.*
2. *This design should be considered together with designs D-4, 4.2, 4.3, 4.4, 4.5, 4.6, 4,7 4.8.*

D-4,1

Metallic stove “Vulkan”

Top view

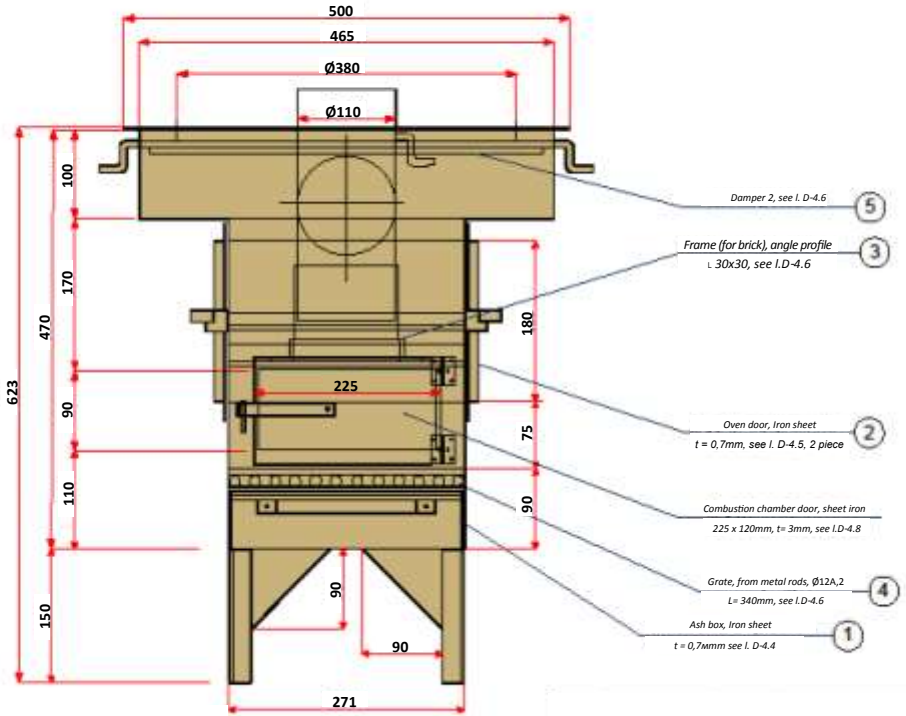


Note:

1. *The measurement are in millimeters .*
2. *This design should be considered together with designs D-4, 4.2, 4.3, 4.4, 4.5, 4.6, 4,7 4.8 .*

D-4,2

Metal stove “Vulkan”
Front view



Note:
1. *The measurement is in millimeters .*
2. *This design should be considered together with designs D-4, 4.2, 4.3, 4.4, 4.5, 4.6, 4,7 4.8 .*

D-4,3

Step 2

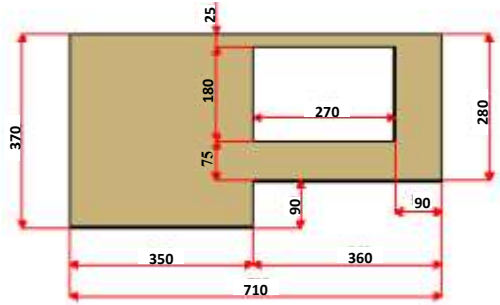
2.2. MEASURING AND BUILDING INDIVIDUAL PARTS OF THE STOVE

The stove consists of the following parts:

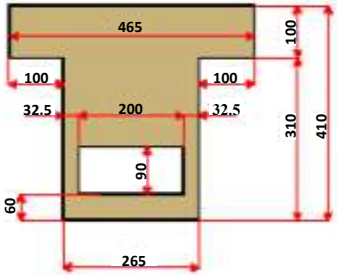
1. Lower chamber;
2. Upper chamber;
3. Ash box;
4. Oven doors;
5. Place for brick;
6. Inside grate of combustion chamber ;
7. Damper 1;
8. Damper 2;
9. Dust collecting vessel;
10. Grate for coal.

Preparing parts of lower chamber

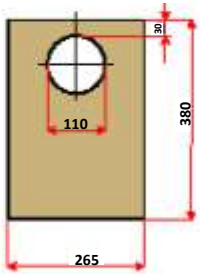
Side walls
Iron sheet
t=3mm, 2 pieces



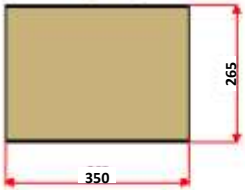
Front wall
Iron sheets
t=3mm 1 item



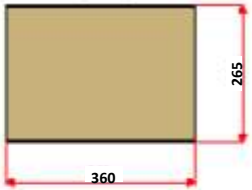
Back wall
Iron sheet
t=3mm, 1 piece



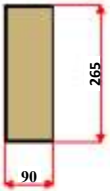
Ash box bottom,
Iron sheet
t=3mm, 1 piece



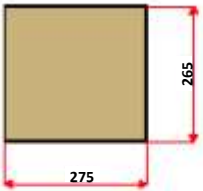
Oven bottom,
Iron sheet
t=3mm, 1 piece



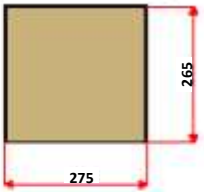
Ash box Back side
Iron sheet
t=3mm, 1 piece



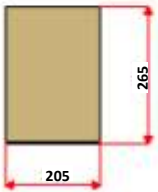
Lower side of oven
Iron sheet
t=3mm, 1 piece



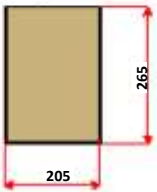
Upper side of oven,
Iron sheet
t=1,2мм, 1 дона



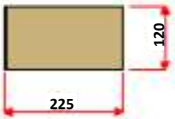
Left side wall of oven,
Iron sheet
t=3mm, 1 piece



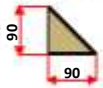
Right side wall of oven
Iron sheet t=1.2mm, 1 piece



Combustion chamber door, Iron sheet
t=3mm, 1 piece



Corner brace
Iron sheet
t=3mm, 8 pieces



Note:

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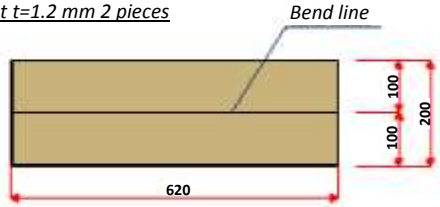
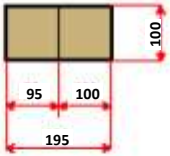
Preparing parts of upper chamber

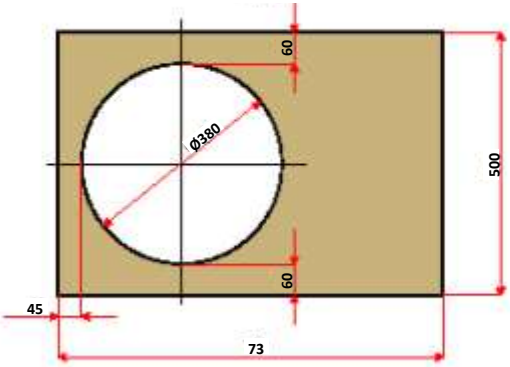
Side walls of upper chamber (left and right),
Iron sheet t=1.2 mm 2 pieces



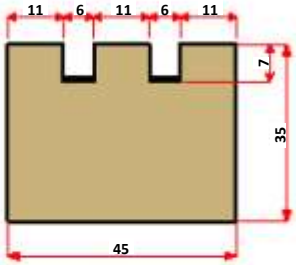
Back side of upper chamber (left and right),
Iron sheet t=1.2mm, 2 pieces



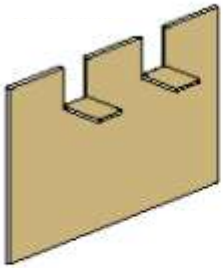
Upper plate of stove
Iron sheet t=3mm, 1 piece



8. Hook for linking damper 2,
Iron sheet t=1.5mm, 1 piece



General view of hook,



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2. *This design should be considered together with designs D-4, 4.2, 4.3, 4.4, 4.5, 4.6, 4,7 4.8.*

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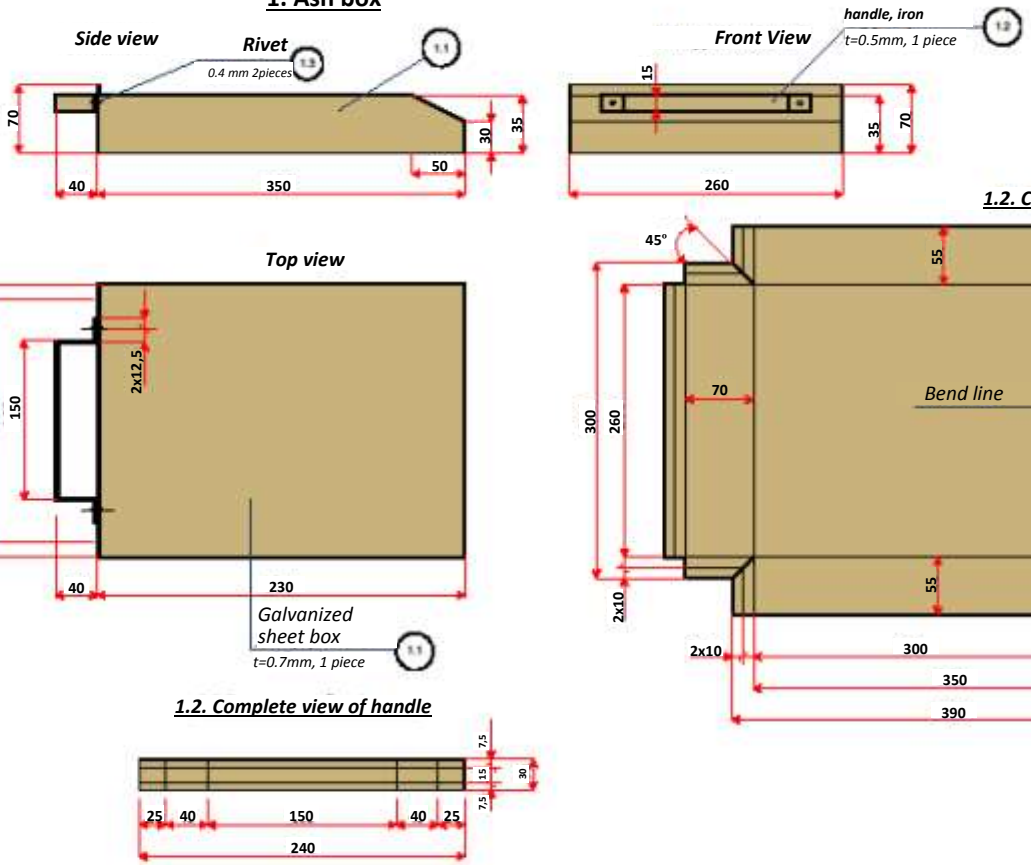
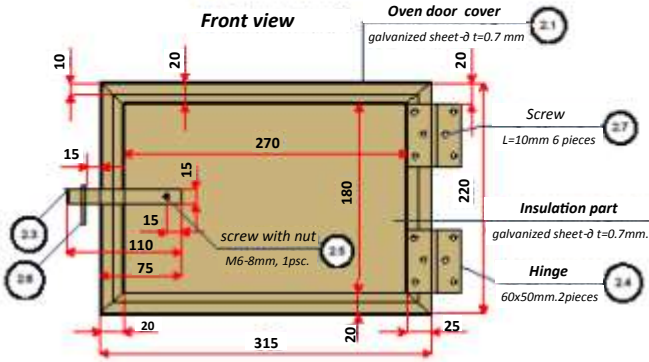
1. Ash box



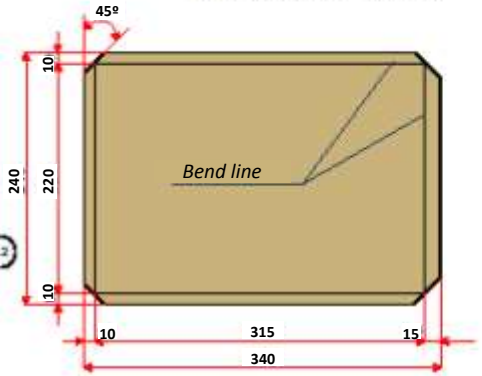
Note

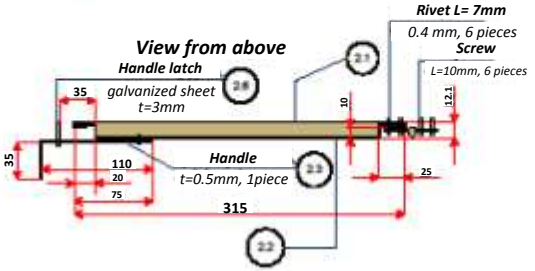
1. All the measurements are in millimeters.
2. This design should be considered together with D-4, 4.1, 4.3

2. Oven door, 2 pieces

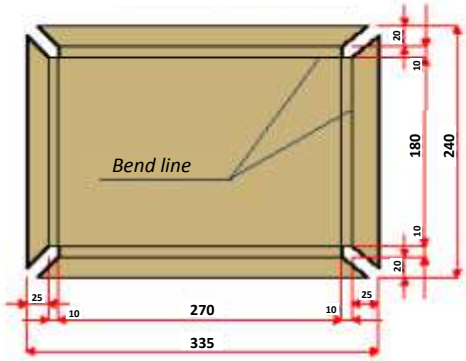


2.1. Full view of cover

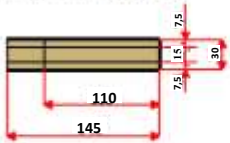




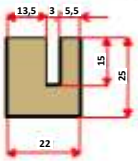
2.2. Full view of insulation part



2.3. Full view of handle

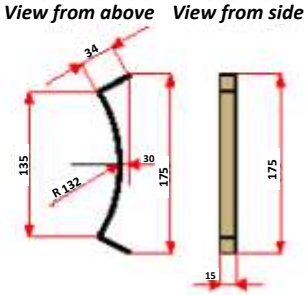


2.6. Hook of the handle



8. brace for stovetop 2 pieces

Galvanized sheet t=1.2mm.



Note

1. All the measurements are in millimeters .
2. This design should be considered together with D-4, 4.1, 4.2, 4.3

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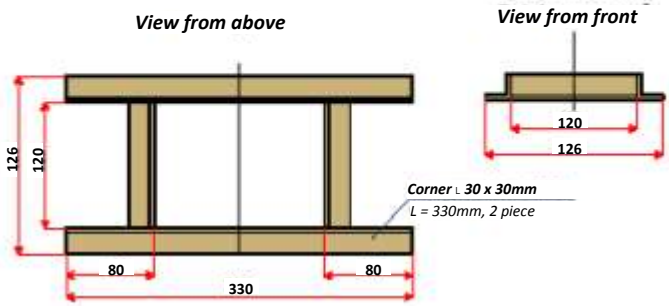
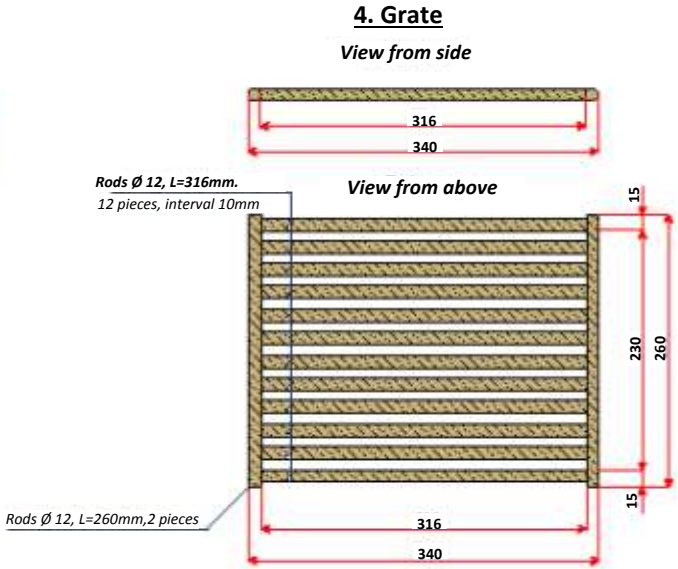
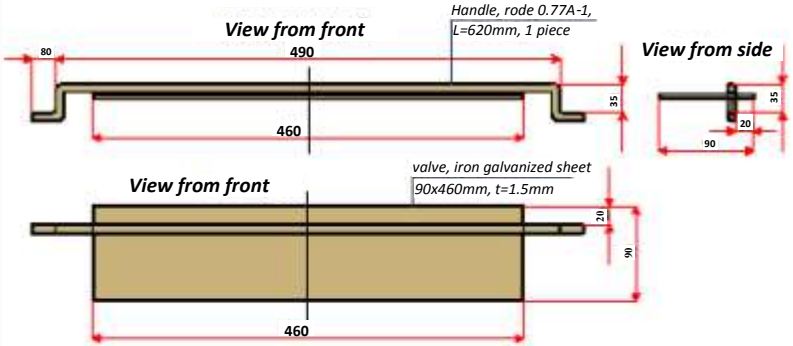
2. Frame



4. Grate



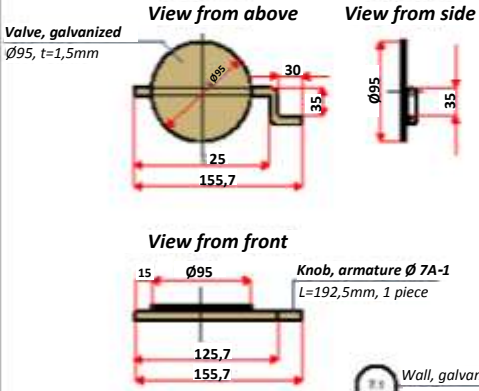
5. Damper



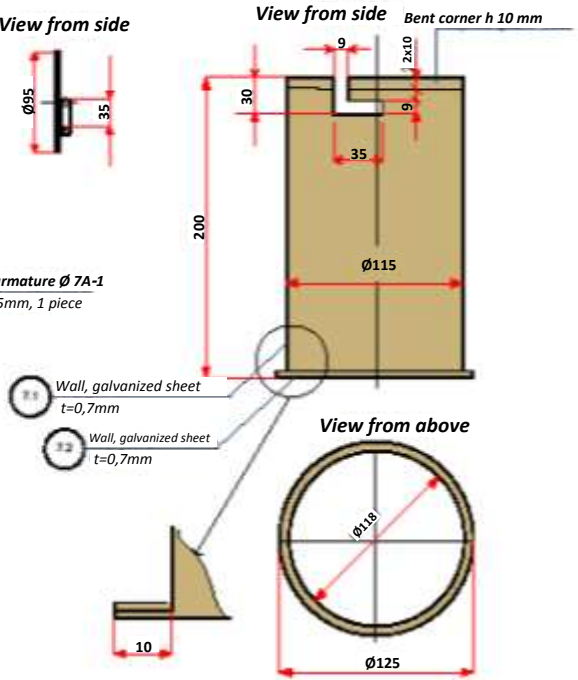
Note:

1. All the measurements are noted in mm.
2. This design should be considered in conjunction with D-4, 4.1, 4.2, 4.3

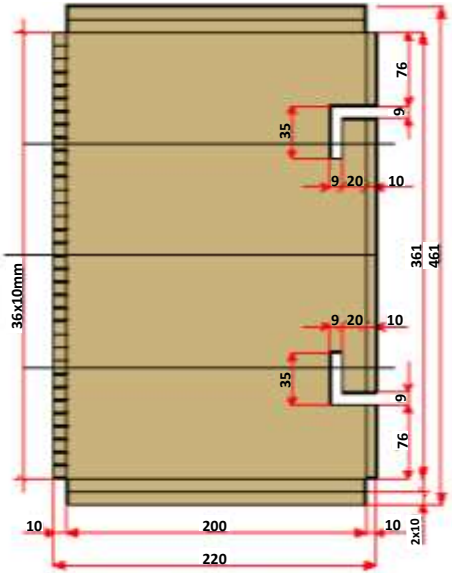
6. Damper



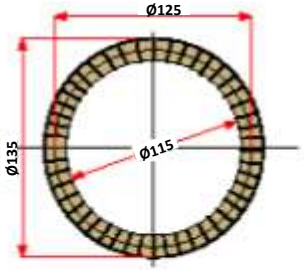
7. Dust collecting vessel



7.1. Full view of dust collecting vessel

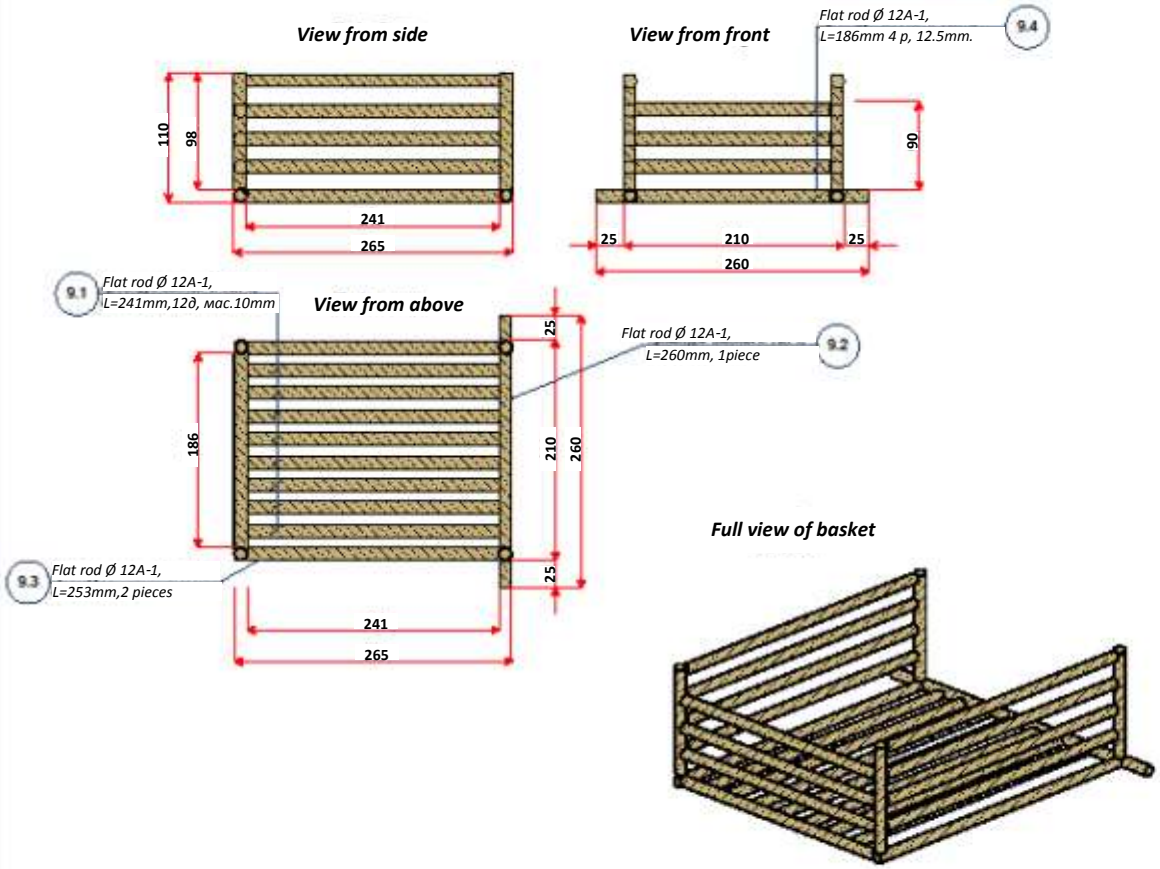


7.2. Full view of dust collecting vessel from the bottom



Note:
1. All the measurements are noted in mm.
2. This design should be considered in line with D-4, 4.1, 4.2, 4.3

9. Iron basket for coal



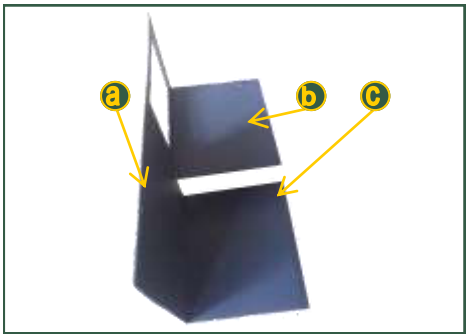
Note:

1. All the measurement are noted in millimeters.
2. This design should be considered in conjunction with designs D-4, 4.1, 4.2, 4.3

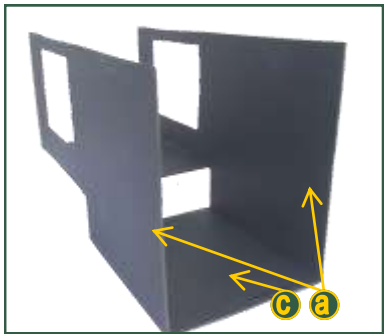
Step 3

2.3. PUTTING PARTS OF STOVE TOGETHER

After drawing design and preparing all the parts, it is time to put the parts together. This section shows how to put separate parts together step by step:



Installing the side walls



Installing the left side walls

1. Installing side walls

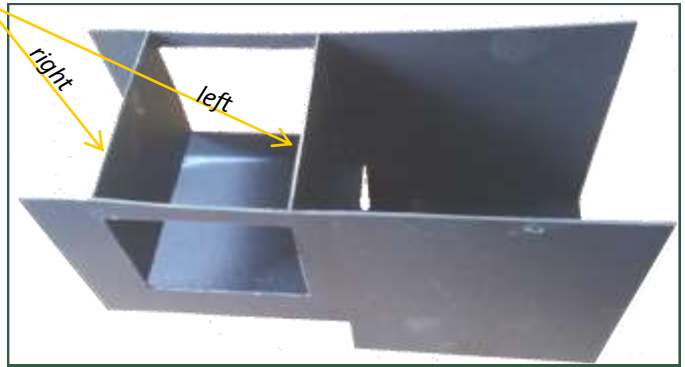
Side walls of lower chamber are installed to **(a)** underside of oven **(b)**, the measurement of which is shown in the design.

Then install the underside of the ventilation **(в)** between the side walls.

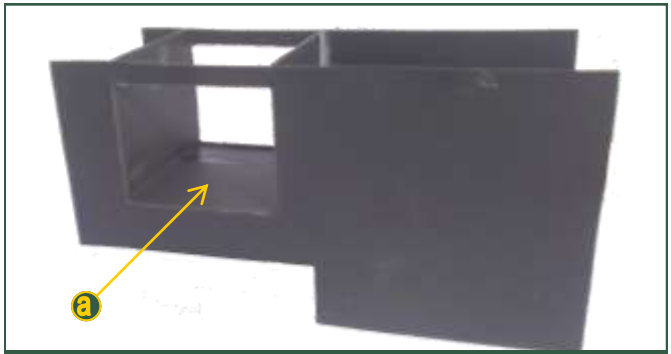
2. Installing the side walls of oven.
Another step of installing the side walls of the lower chamber is installing the two side walls (left and right) of stove oven.

3. Installing lower and upper walls of oven.

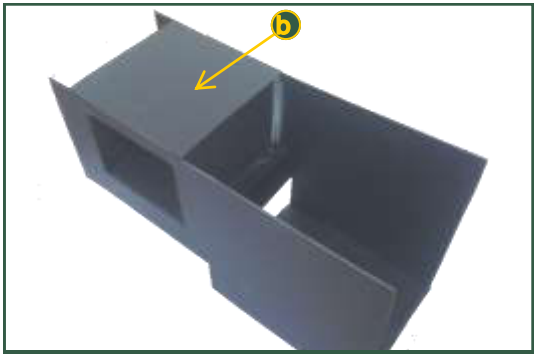
a) Install the lower wall of oven.
b) Install the upper walls of the oven as shown in the design.



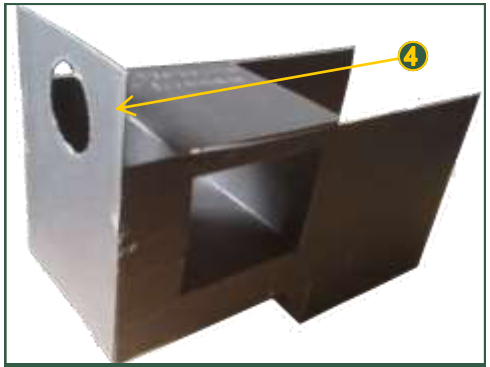
Installing the side wall oven.



Installing the lower wall of the oven



Installing upper wall of oven

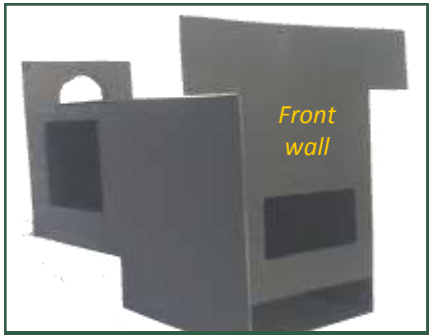


Installing the back walls of chamber

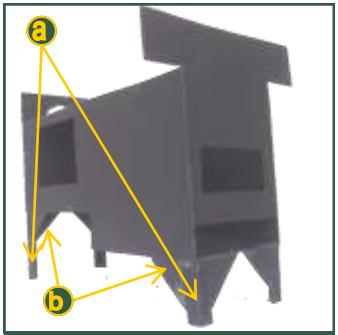
Installing back walls of ventilation

4. Installing the back wall of lower chamber.
The back wall of lower chamber is installed between the side walls of the chamber.

5. Installing the back wall of ventilation.
Back wall of ventilation is installed between the side walls of lower chamber and underside of ventilation and oven.



Installing the front wall of lower combustion chamber



Installing the legs with a corner brace

6. Installing the front walls of lower chamber.
The front walls of the lower chamber of stove are installed between the side walls of the combustion chamber.

7. Installing the legs with edges.
a) in accordance with the above design 4 legs are installed.
b) Both sides of the legs are fastened with a corner brace.

In this section, we have finished constructing the parts of the lower chamber.

Now, let's look at how the upper chamber of Vulkan stove is constructed.

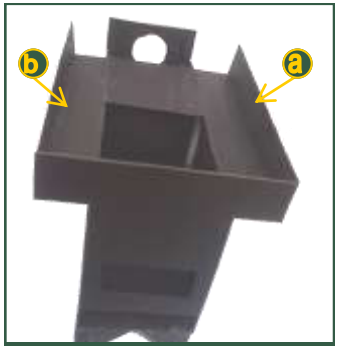
At the final stage, the upper chamber is covered by galvanized sheet. However, in order to show you all the future steps, this action is not shown in this section.

8. Installing the side walls of upper chamber.

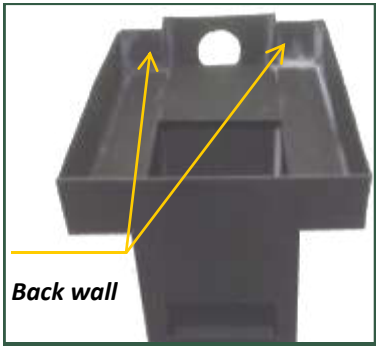
First, we will install the left **(a)** and right **(b)** side walls of upper chamber as shown in the picture.

9. Installing the back wall of the upper chamber.

After installing the side walls, the back walls of upper chamber are installed. It connects the side walls with the back wall lower chamber.



Upper chamber Installing the side walls



Upper chamber Installing the back wall

Now construct the separate parts of the stove.

10. Construction of ash box.

Construct the ash box in accordance with the design and place it in the lower part of the stove **(a)**.

Ash box is inside the stove. Side view

Place the ash box inside the stove

Flap, Closed position

Flap. Open position

11. Building damper.

Flap is built from galvanized sheet and thick wire. It is connected to the upper chamber in a way so that one can easily close and open it. The damper handle is on the outside of the stove**(a)**.

Placing grate inside the stove

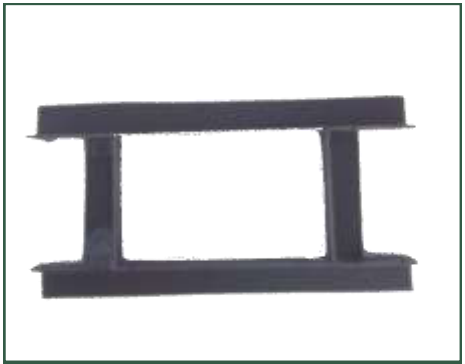
Placing grate inside the stove

12. Constructing iron grate.

Iron grate is constructed from rods with 12mm diameter. It is placed inside the stove, between furnace and ash box.

13. Constructing box for bricks.

Brick box is built from 4 pieces of corner brace inside the stove above the oven fire-box door. With the help of baked bricks, it gives opportunity to keep the heat for longer time.



Picture of complete brick box

Brick box inside the furnace

14. Attaching the stove pipe.

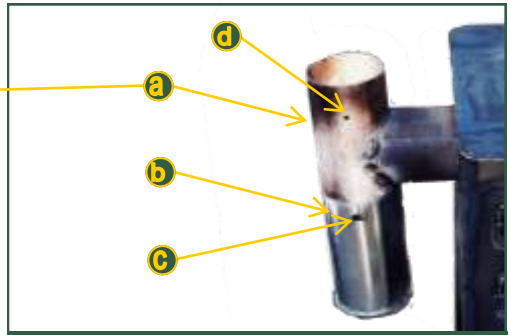
Stove pipe is built in T shape **(a)** and attached to the outlet in the back wall of lower chamber.

In the lower part of the pipe, place dust collecting vessel made from galvanized sheet **(b)**.

Attach dust collecting vessel to the pipe two small notches that a rod fits into **(c)** which makes it easy to open when needed.

In the upper part of the pipe, put damper with handle. **(d).**

Installing the stovepipe to the back walls of lower chamber

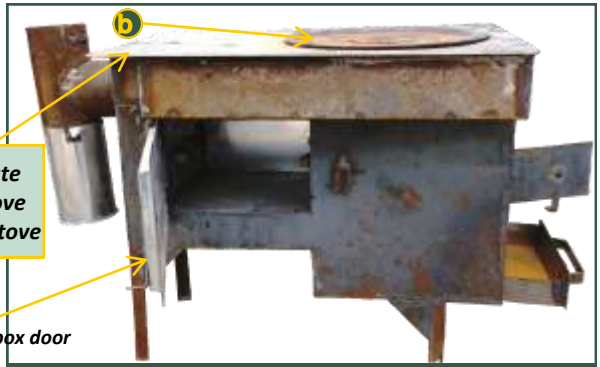


Placing dust collecting vessel on lower part of stovepipe

15. Covering the top of the stove with iron plate.
After having installed all the inside parts cover the top of the stove with iron plate. The plate must be square and in the front part must have hole with 380 mm diameter for placing pot.

16. Placing rings under pot.
On top of the stove burner which is designed for placing pot, place rings with different sizes. Hoops can be made from iron **(a)** or cast iron **(b).**

Right door of the oven. Open position.



Left door of the oven. Open position

With this section, we have finished construction of Vulkan stove.

17. Installing oven door.
Oven has two doors, one from each side. The doors are made from galvanized sheet and placed between the empty layers for insulation.

3. OPERATION OF VULKAN STOVE

Some simple steps to make your house warm and cozy

Manual for operation of Vulkan winter stove

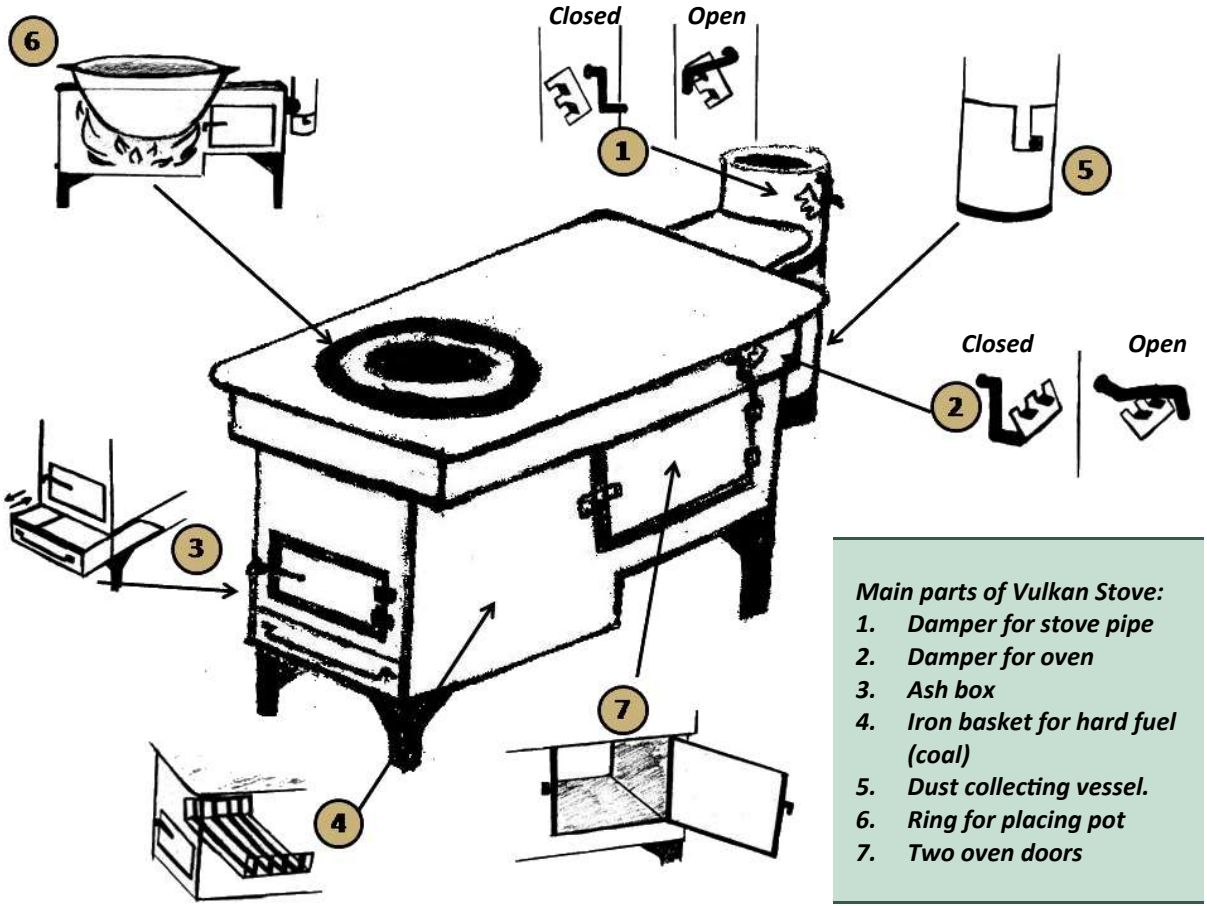
Step 1. Before putting fire in the stove, open the flaps of stovepipe **(1) and** oven **(2)** to let the fuel burn easily and not to smoke.

Step 2. Take the ash box **(3)** out for a little while to the air in to the furnace.

Step 3. If you are heating the stove with coal, then you must place iron basket for coal **(4)** inside the stove. It will protect stove from contacting with burning coal. This way, the stove can serve you for longer time.

Step 4. In the evening, when you are done working with the stove, but there are some ember (burning wood or coal) is left, cover the pipe with its flap **(1)**, not to let the heat out through the stovepipe. This will help to keep the heat in the stove for longer time and warm your house.

Step 5. Close the oven flap to use the oven **(2)**. This way, heat will circulate around the oven. While using the oven, open both its firebox doors **(7)** to let the stove give more heat!



Main parts of Vulkan Stove:

1. *Damper for stove pipe*
2. *Damper for oven*
3. *Ash box*
4. *Iron basket for hard fuel (coal)*
5. *Dust collecting vessel.*
6. *Ring for placing pot*
7. *Two oven doors*

How to clean Vulkan Stove

- In order to clean the stove, take out the ash box **(3)** and clean it from ash. Then, put the ash box back to its place.
- In order to clean the stovepipe, **first hit it several times** and then, take the dust collecting vessel **(5)** out, which is located in the lower part of the stovepipe and clean it. Then, put the vessel back to its place.

How to save more fuel with Vulkan stove?

The Vulkan stove is used only during winter.

- Place the Vulkan stove in a place, where you can easily open both its firebox doors. This way, the stove can give more heat to your house.
- It is recommended to keep the flap of oven closed all the time, to spread the heat all over the stove. Open firebox doors only when you need to put more fire. **(7**)
- While cooking, choose the right size hoop for placing pot **(6)** , so that the pot can sink in deep enough. It will increase the contact of pot with fire inside the stove, lessen cooking time, thus save more fuel.
- In order to keep the heat for longer duration, inside the oven, put baked bricks in brick box. While burning, they will eventually warm the house even after putting the fire off.
- While putting fire, there is no need to fill up the stove with wood. To put the fire, you just need dry and thin wood.

4. CONTACT INFORMATION OF DEALERS

	In Ayni district	In Asht district
To purchase Vulkan stove, please contact:	***Khalifaev Sharrof.*** *Address: Pinyon village, jamoat Fondaryo.* *Phone.: 92 738 76 76*	***Ismoilov Orifali.*** *Address: Marhamat village, jamoat Oshoba.* *Phone: 92 757 03 24*
To purchase construction materials, please contact:	***Sarvoda Construction Store*** *Address: Sarvoda town (near hospital)*	***Uppon village market.*** *Address: Upponi Bolo village, jamoat Oshoba*
For more information and consultation, please contact:	***Sirojiddinov Asliddin,*** *Fondaryo jamoat,* *Phone.: 92-764-20-52.*	***Abdulloev Faizullo,*** *Jamoat Oshoba,* *Phone: 92-727-06-51.*

For notes:

European Union

French Development Agency

Women in Europe for a Common Future

German cooperation

Deutsche Gesellschaft fuer Internationale Zusammenarbeit (GIZ) GmbH

UKAID

Abbé Pierre Foundation

Groupe Energies Renouvelables, Environnement et Solidarités

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