Plans for 200L Brick Rocket Stove

Designed by Peter Scott/
GTZ ProBEC August 2005

Materials for constructing the 200L Brick Stove

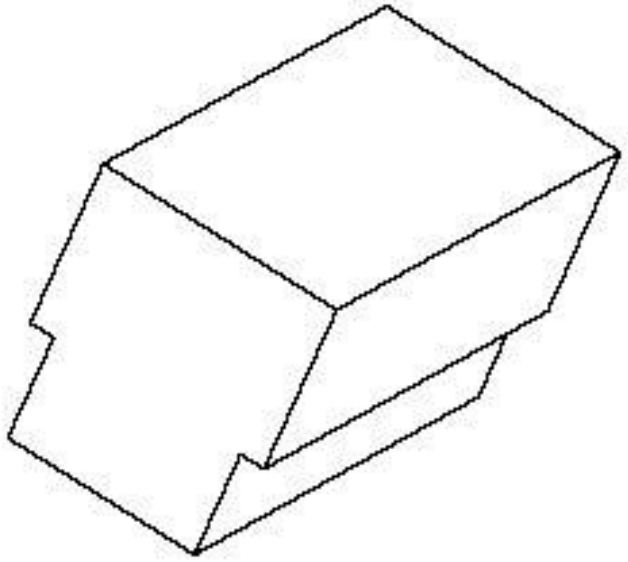
This stove should only be used with a pot 798 mm in diameter and taller than 412 mm in height

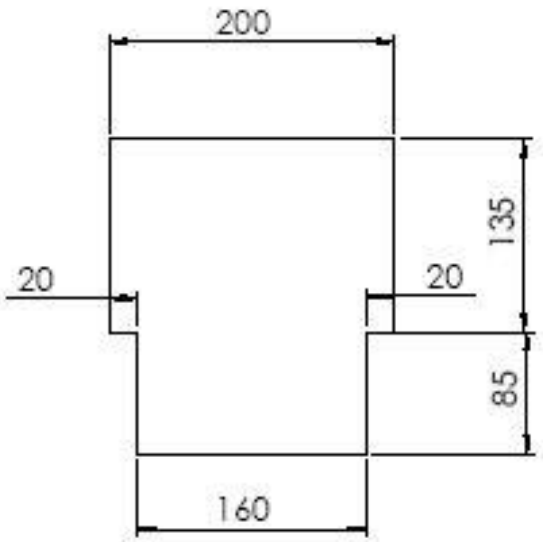
- 600 common Bricks for stove body + 100 for foundation if needed
- 2-3 bags cement
- 10-15 sacs of sand
- 25 kg of HTM High temp mortar from Dedza pottery
- Three 100L Bag of fine Sawdust
- 8 Refractory Insulative Dedza Bricks. Ref # EKIB/3 made to fit the 20 by 20 cm combustion chamber
  - **3** large bricks @ 295 by 290 by 46 mm
  - **4** medium bricks @ 295 by 190 by 46 mm
  - **1** small brick @ 190 by 190 by 46 mm
- Pot stabilizer: 3 m of 10 mm round bar
  5 m of 3-5 mm by 50 mm flat bar
- Shelf 190 by 455 piece of mild or stainless steel flat plate . Cast Iron is actually more durable and should be used if available.
- 1 wooden mould for constructing the combustion chamber (see following page for dimensions

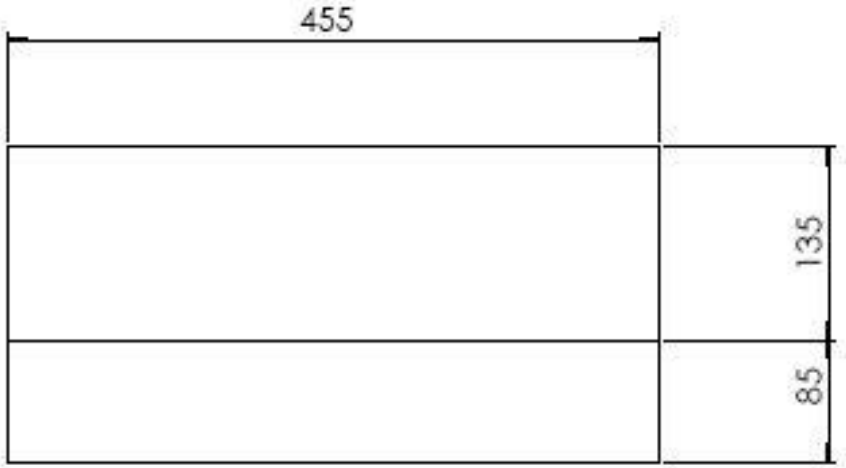
For more information about Rocket Stoves please contact Peter Scott at apropeter@hotmail.com or in Malawi Andi Michel 08 515922

Wooden mold for a brick stove combustion chamber 200 x 200

for usage with a flat shelf





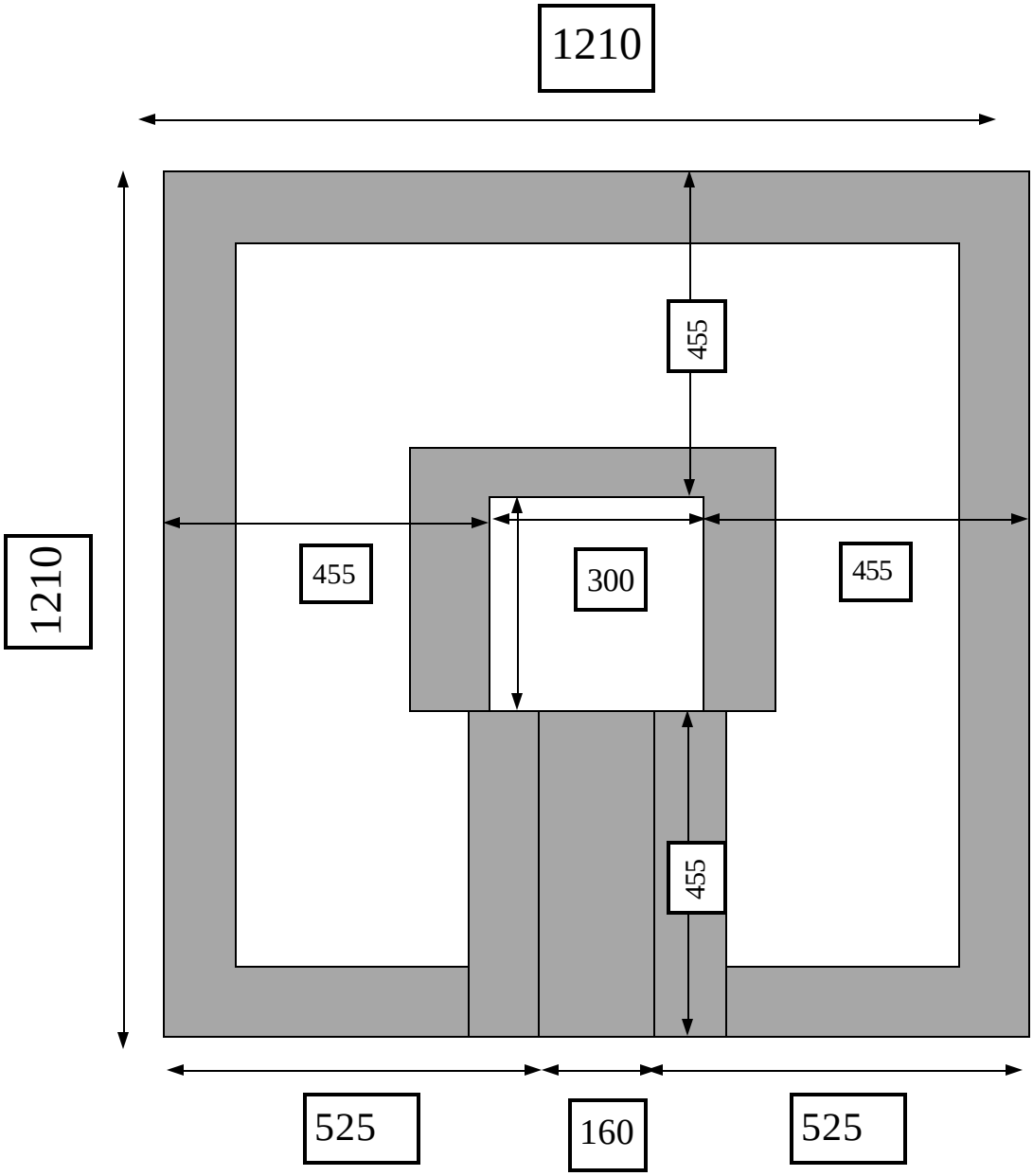


Detail of combustion chamber construction made with wooden form .

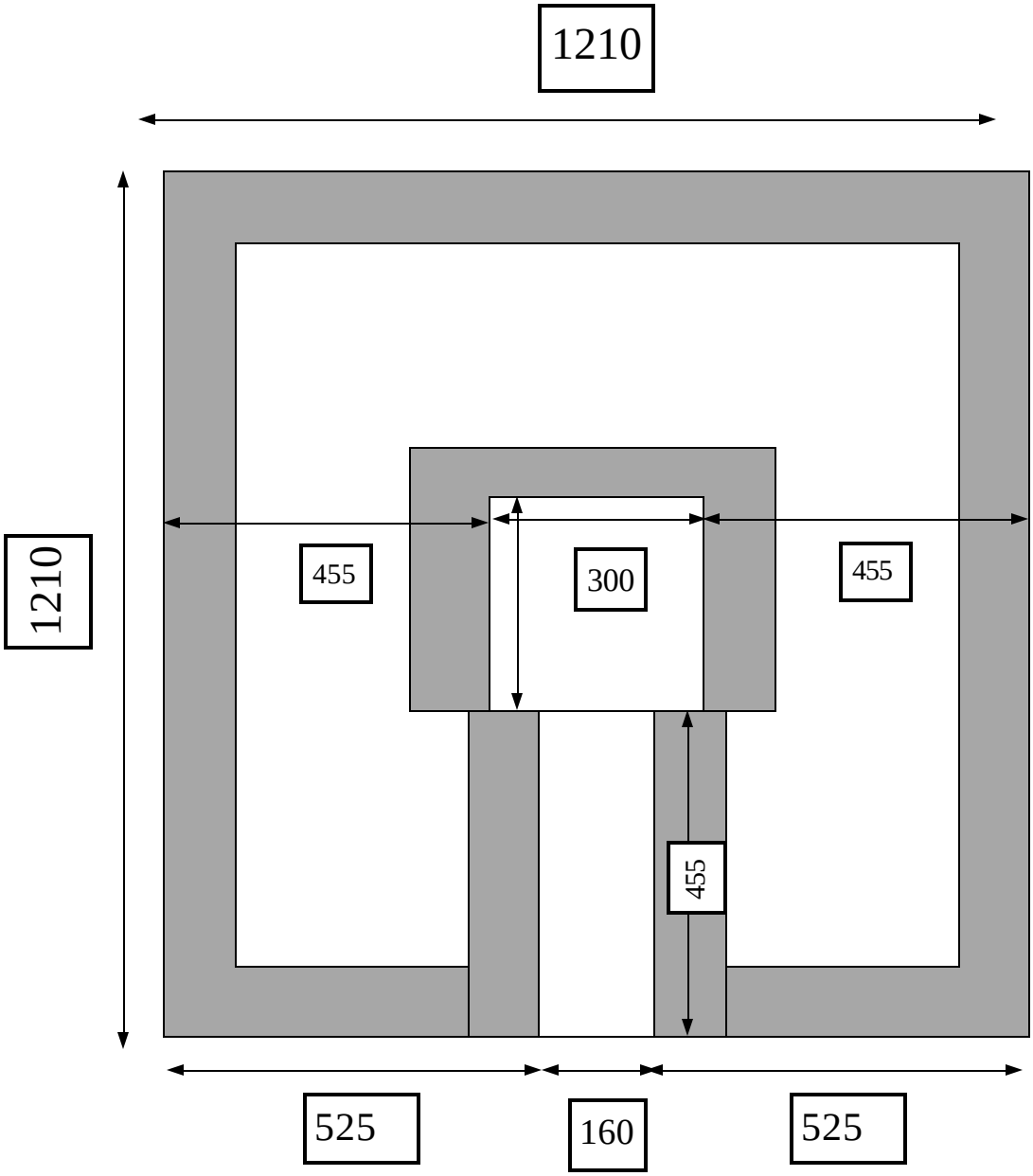
The wooden form will create two ledges that will support the 4.5 mm shelf.

No legs are needed for the shelf

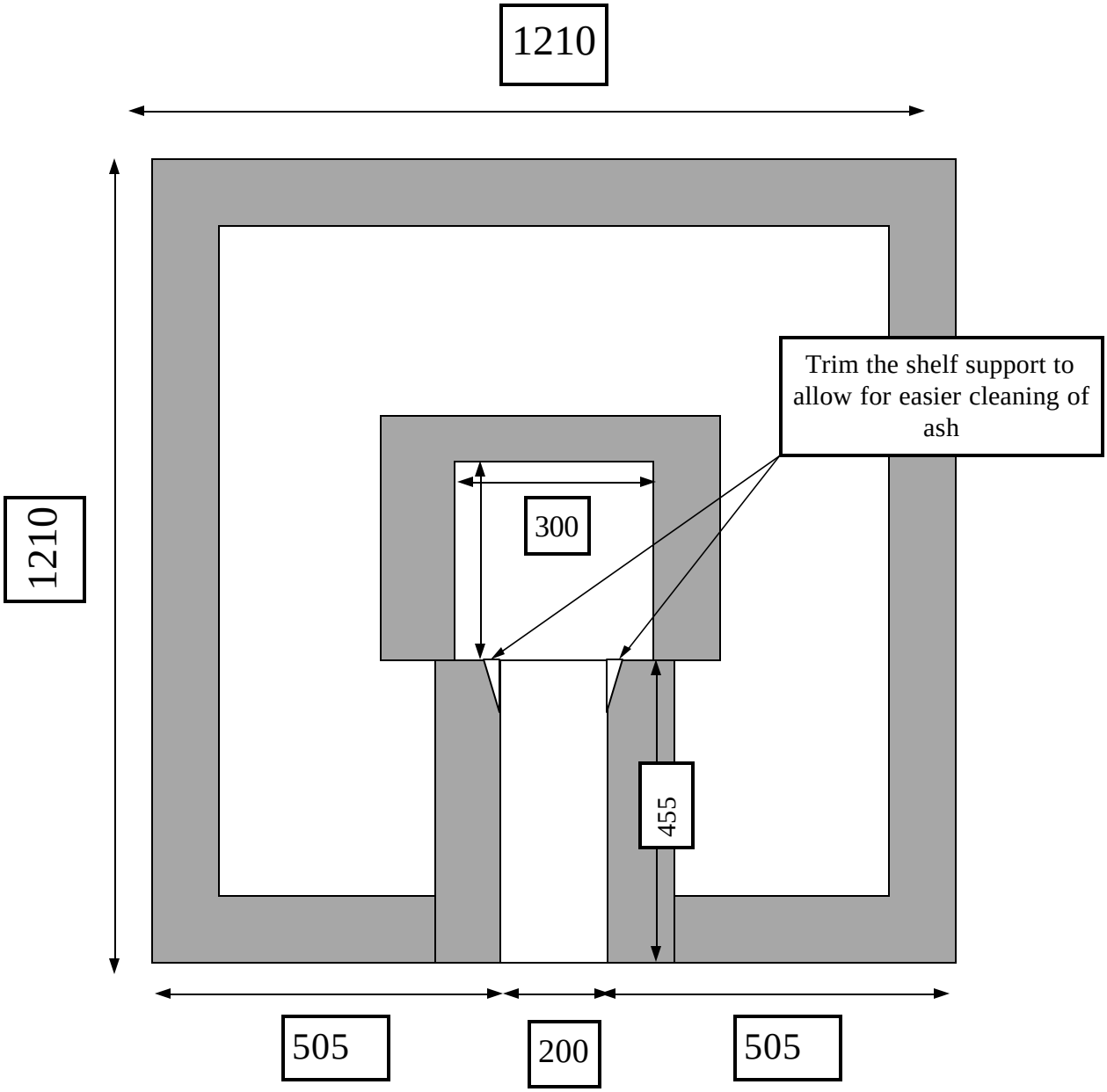
200L Brick Stove
First course /Bottom Section
Use wooden form for correct combustion chamber dimensions



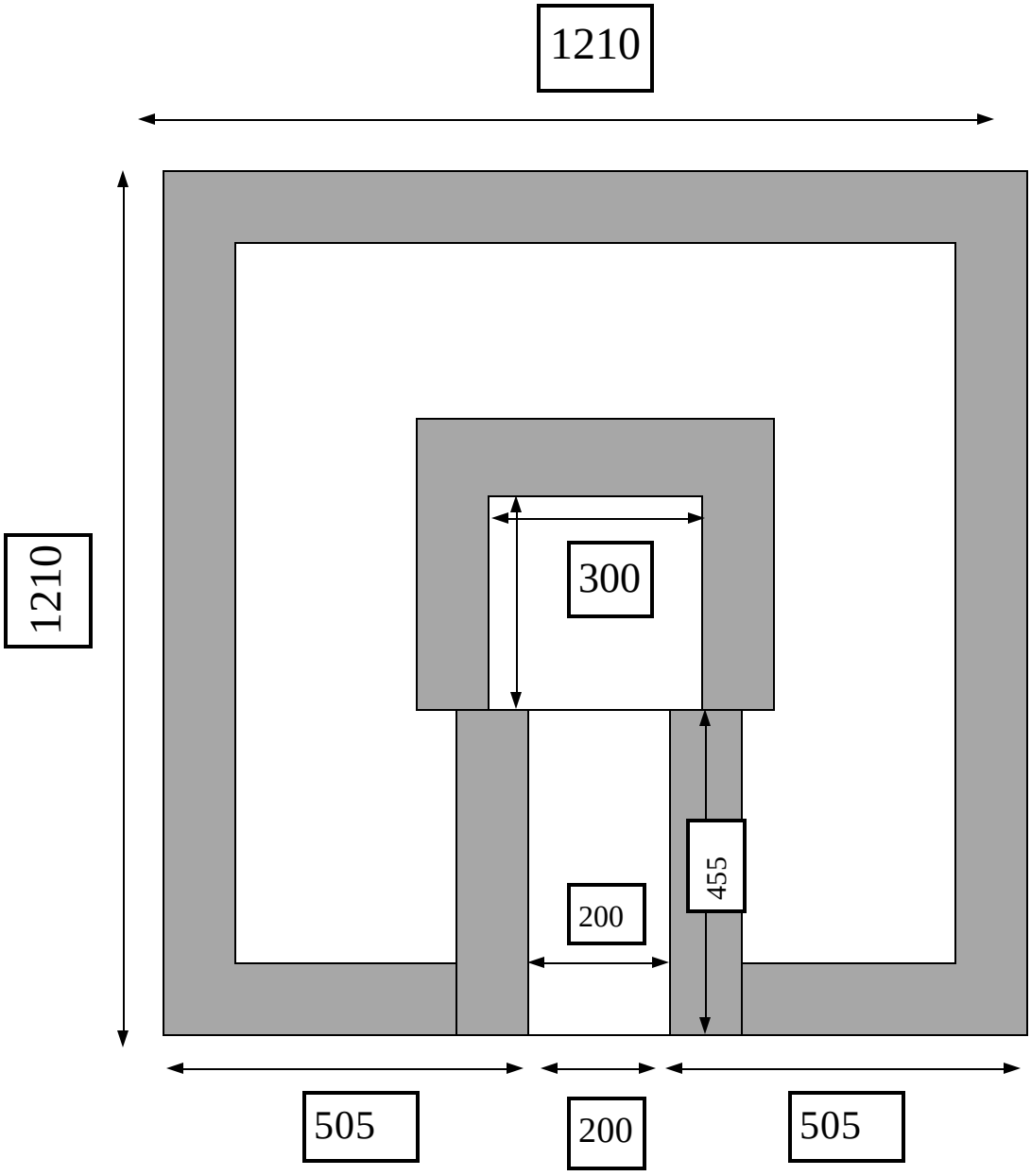
200L Brick Stove
Second course /Bottom Section
Use wooden form for correct dimensions of combustion chamber



200L Brick Stove
Second course /Bottom Section
continued



200L Brick Stove
3rd course /Bottom Section



Brick Assembly

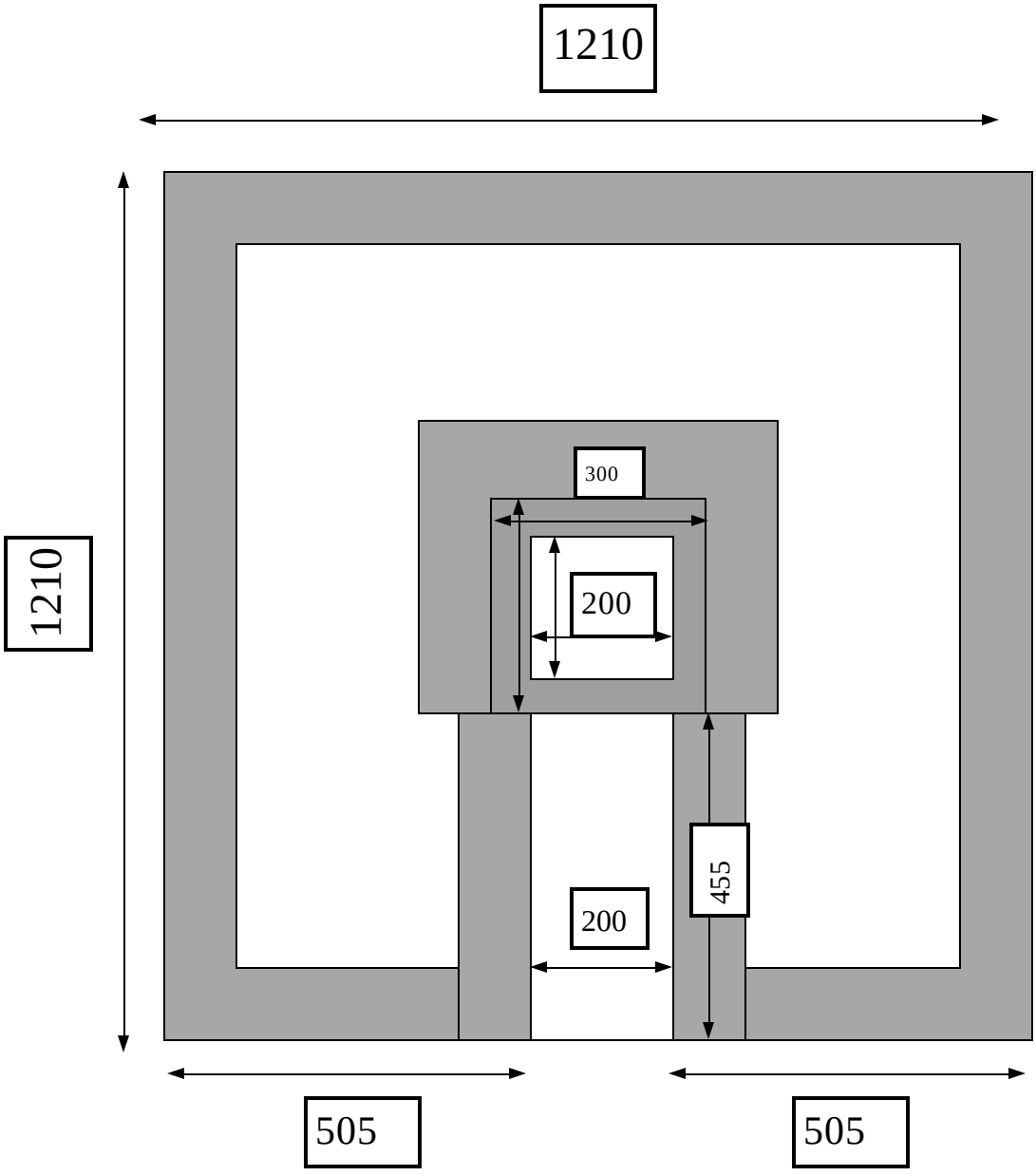
The combustion chamber requires **8** Bricks

3 large bricks @ 295 by 290 by 46 mm
4 medium bricks @ 295 by 190 by 46 mm
1 small brick @ 190 by 190 by 46 mm

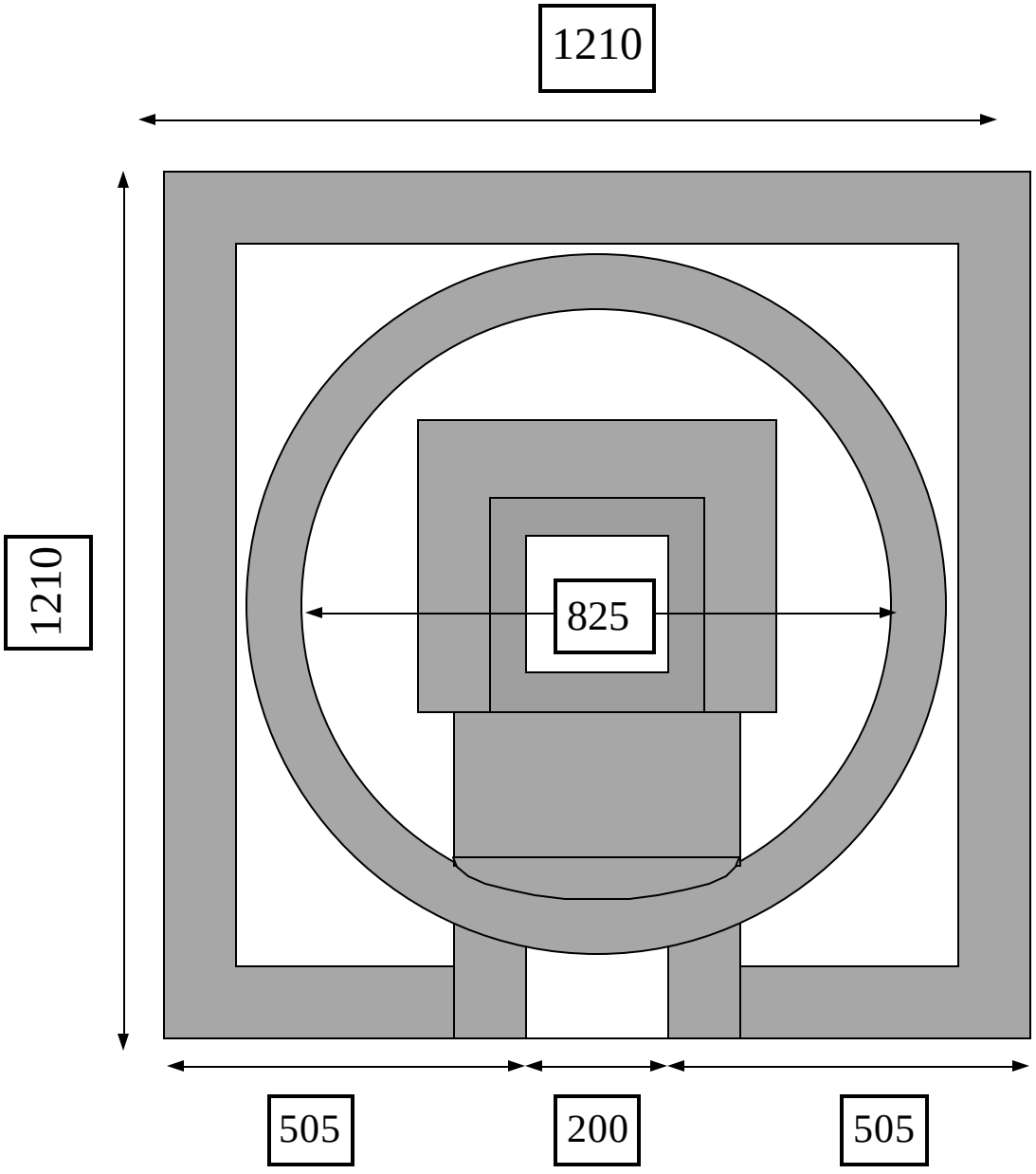
See photos below for correct placement of bricks.

3-5 mm Mortar is required between the joints but no mortar is needed **in between** the bricks and the stove body . Use 6 parts HTM and 1 part Portland Cement to make the mortar

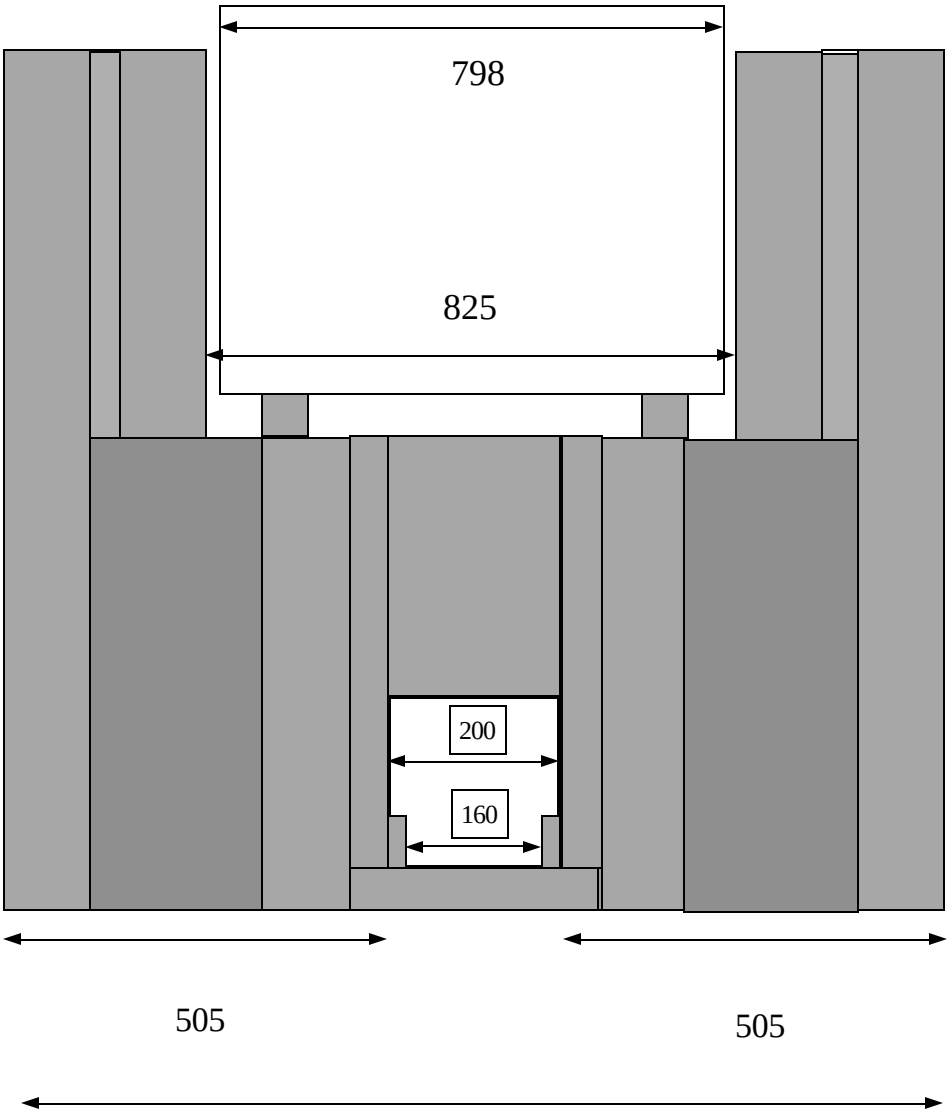
200L Brick Stove
4th course /Bottom Section



200L Brick Stove
Top View



200L Brick Stove
Front View

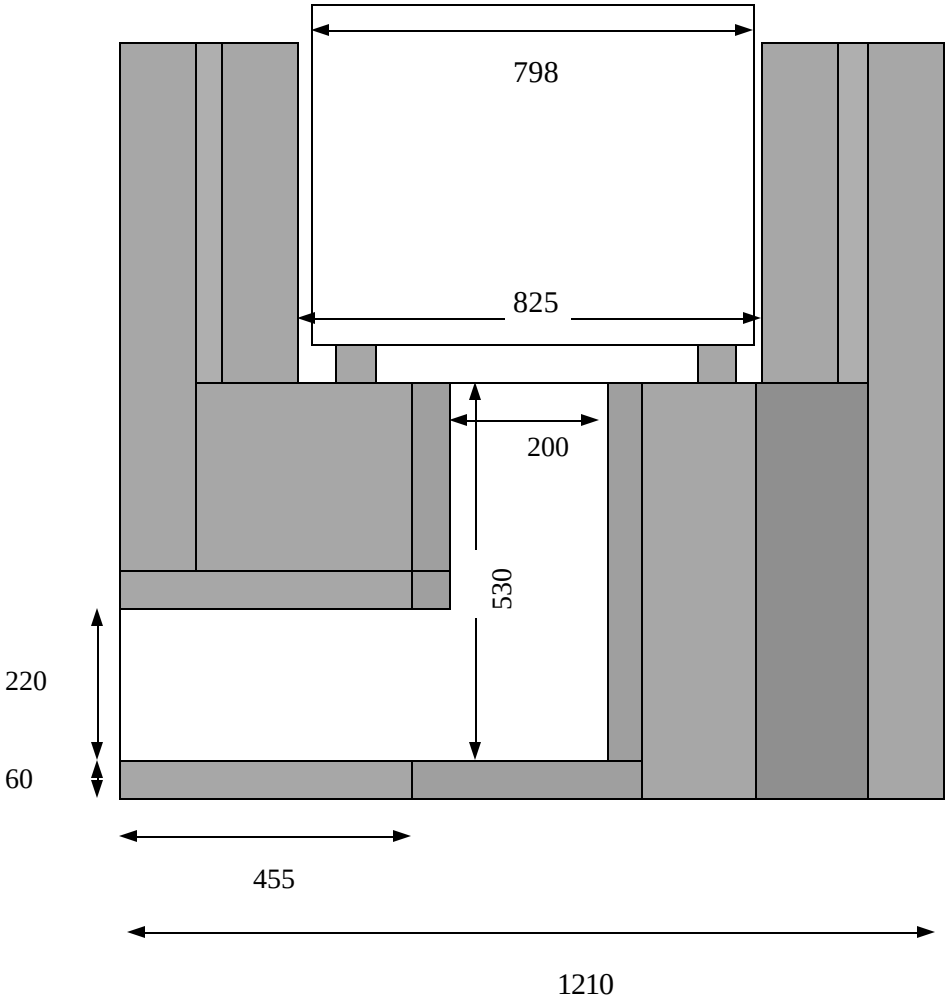


Use the wooden mould to produce the lip on the sides of the combustion chamber that will support the metal shelf

200L Brick Stove
Side view/ cross sectional

Use the wooden mould to produce the lip on the sides of the combustion chamber that will support the metal shelf

200L Brick Stove
Side view/ cross sectional

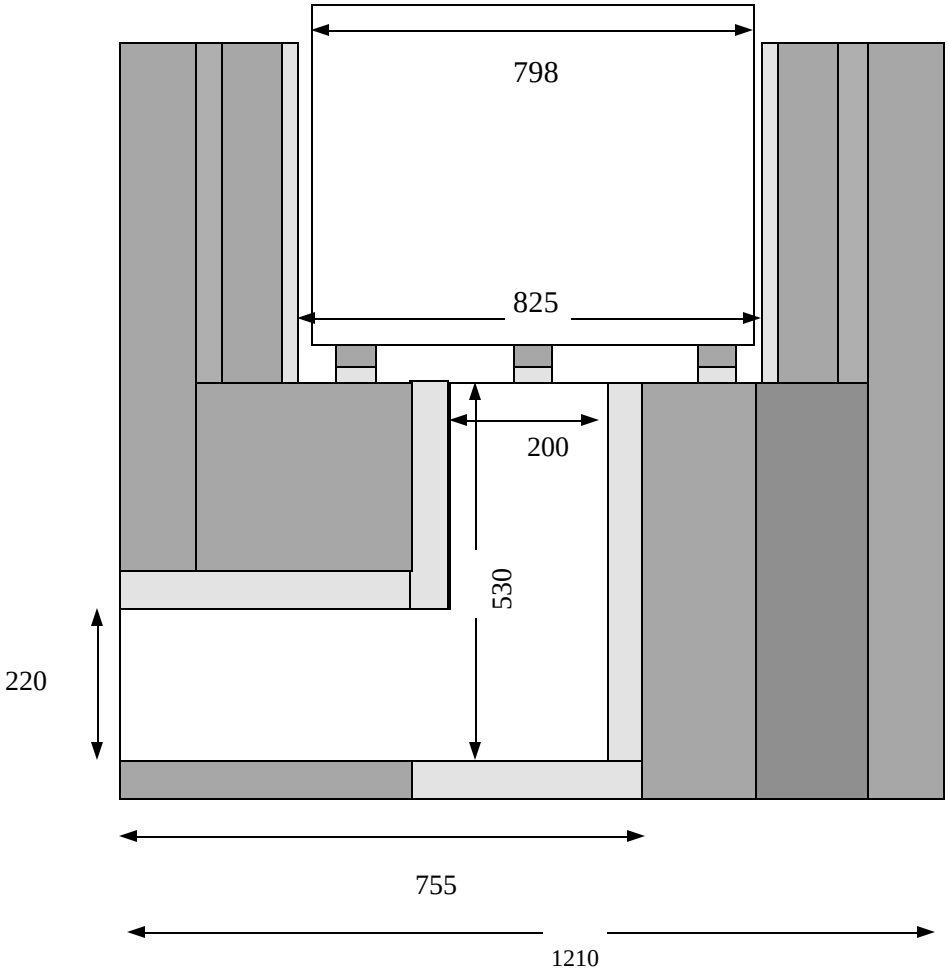


Insulated bricks

Earth / soil

Common bricks

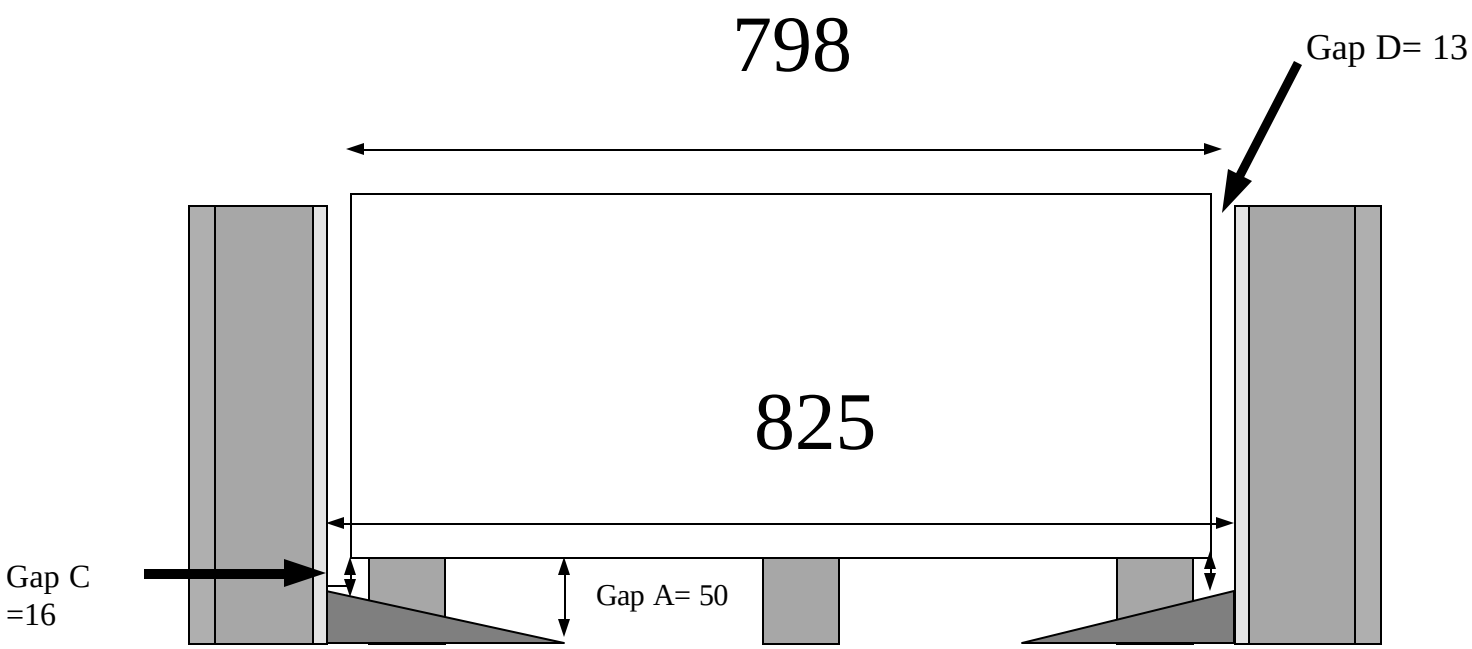
4 parts sawdust and 1 part cement



6 parts High Temp Mortar: 1 part Portland cement

Detail of slope underneath pot

Gap A =50 Gap C = 20 Gap D = 13



6 part high temp mortar : 1 part cement : 7 part fine sawdust

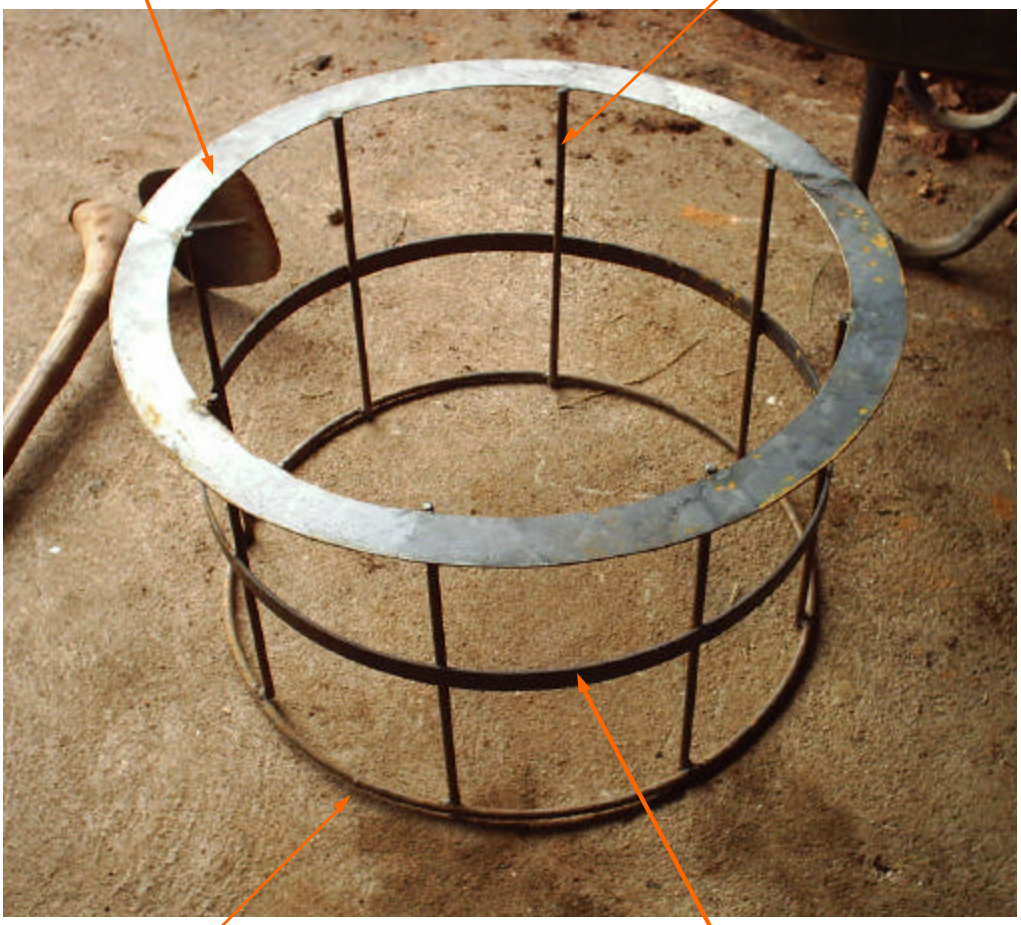
6 parts High Temp Mortar : 1 part cement

4 parts sawdust and 1 part cement

Pot Stabilizer and skeleton

Step 1 Take a 3 mm flat bar and roll it into a **flange.**

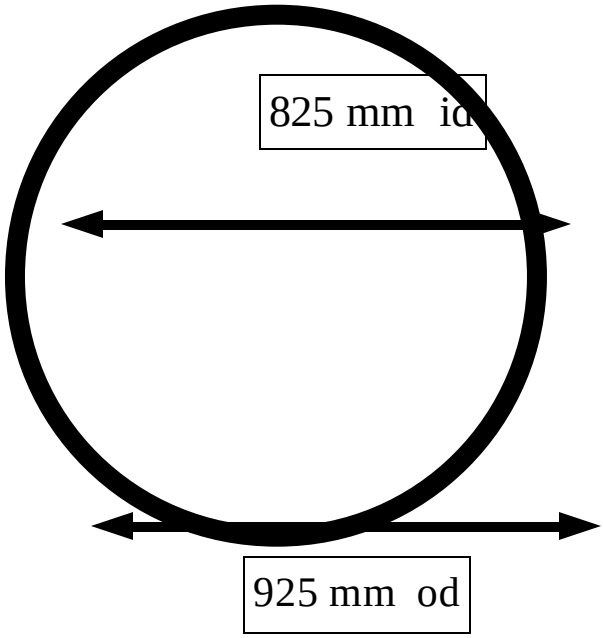
Step 3 Cut 8 pieces of 10 mm round bar and weld to the **inside** of each ring



Step 2 Take a 10 mm round bar and roll it into a **ring**

Step 4 Take a 3 mm mild steel flat bar and roll it into a **ring**

Step 1 Make a **flange** from a 3 mm by 50 mm mild steel **flat bar** with an internal diameter of 825 and an external diameter of 925 mm. This flange will give an accurate dimension to the top of the pot support stabilizer



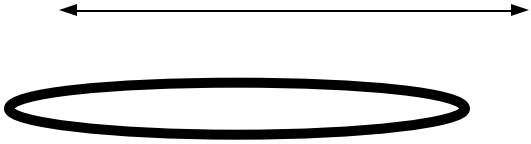
To make the **flange** take a piece of 3 mm by 50 mm mild steel flat bar and cut a **2749** mm length . A special flange rolling machine will be required for rolling the flange into a perfect circle

2749 by 50 by 3 mm

Step 2 Take a 2624 mm length of 10 mm round bar and roll it into a circle

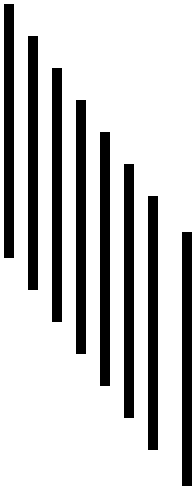
10 mm round bar
1 piece @ 2624 mm

825 mm id

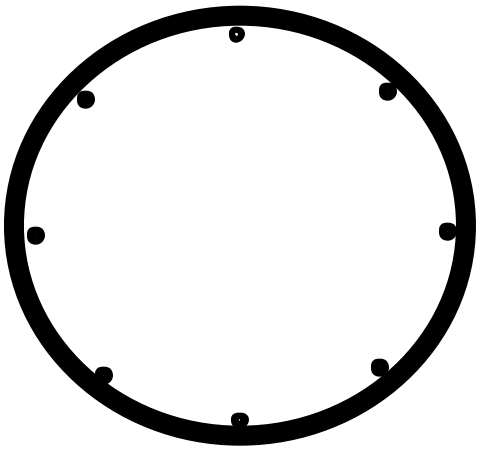


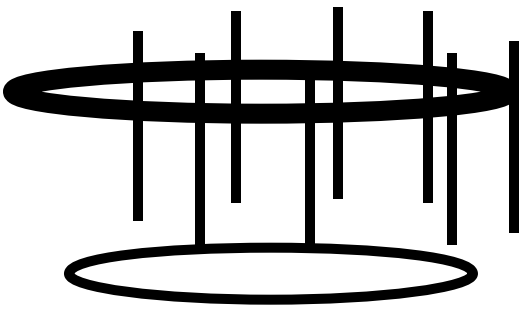
Step 3 Cut 8 pieces of 10 mm round bar @ 445 mm

445 mm



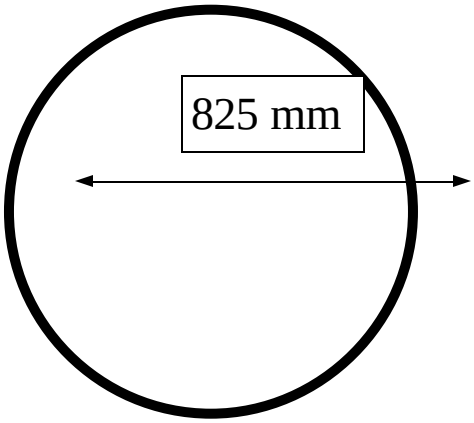
Step 3b Weld the 8 pieces of 445 mm round bar to the inside of the flat bar flange and to the inside of the 10 mm ring



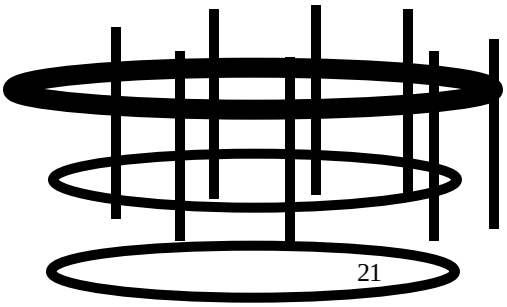


Step 4 Take the 3 mm flat bar and cut
1 piece @ 2602 mm
Roll this into a 825 mm diameter circle

2602 mm



Weld the flat bar around the **outside** of the eight 10 mm round bar pot stabilizers



Place the pot stabilizer skeleton level with the **top** of the combustion chamber .

A thin layer of cement under the skeleton will help to keep it in the ideal position .

Make sure that the 3 brick pot supports are **level** before you begin soldiering the bricks around the skeleton

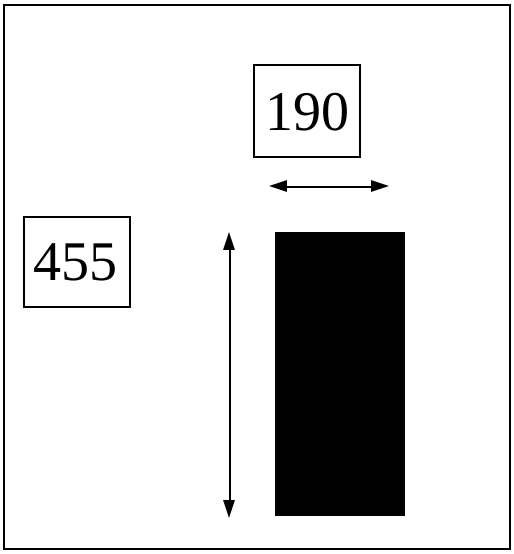
Soldier the bricks, placing them on **top** of the bottom round bar ring, around the **outside** of the middle flat bar ring, and **flush** with the inside of the flat bar flange at the top of the skeleton. After soldiering the bricks, cover them with a thin (2-3 mm) coating made of 5

Give the stove a steel float finish.

Taper the **top** of the stove to give a gentle slope **away** from the pot. This will help to drain water away from the stove .

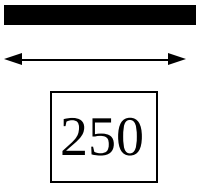
Allow 3 weeks to dry before first use. First firing should be a small fire to drive out any remaining moisture.

Legless wood shelf



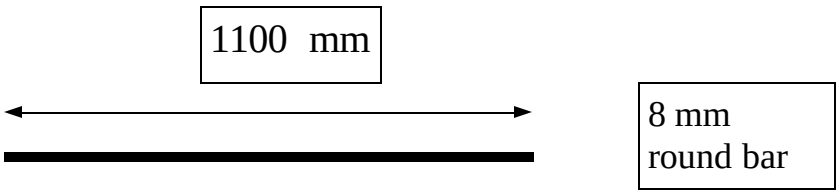
Take a piece of 4.5 mm stainless steel sheet, cast iron, or mild steel and cut a 190 by 455 mm length

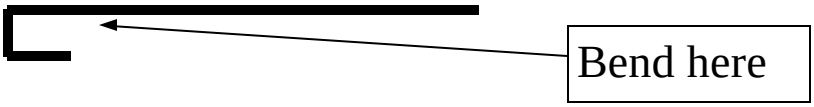
Cut a 10 mm Round
250 mm

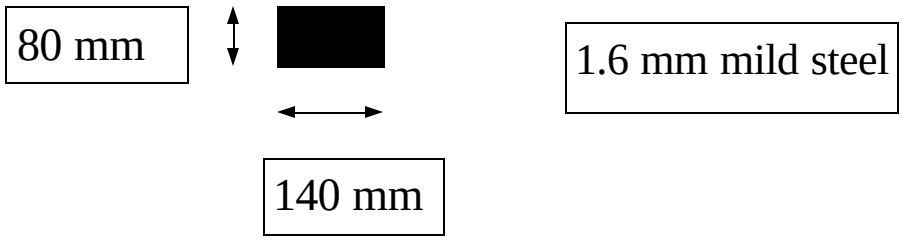


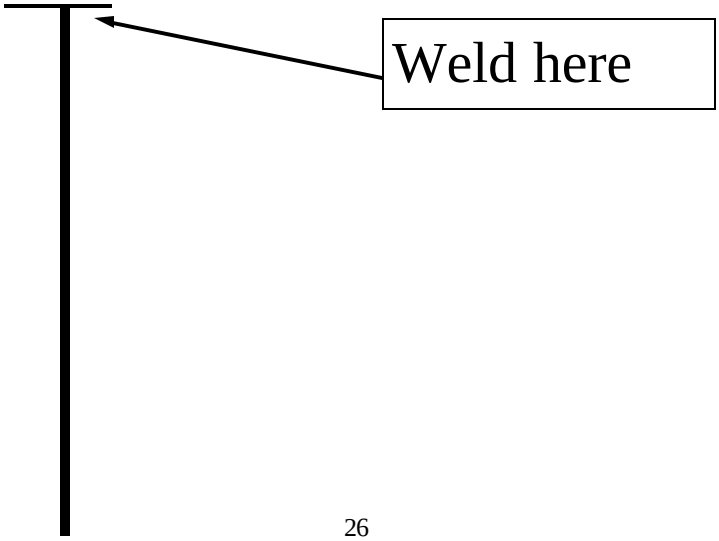
Weld the round bar to the back of the 4.5 mm plate. This will stop the shelf from going to deep into the stove

Ash rake


1100 mm
8 mm
round bar


Bend here


80 mm
1.6 mm mild steel
140 mm


Weld here