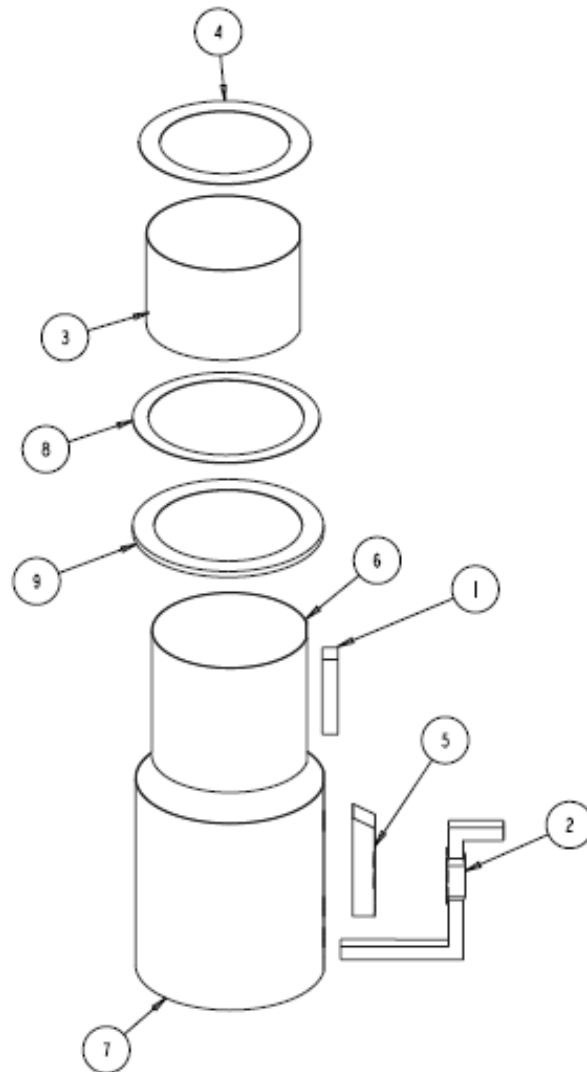


Manufacturing Process for the Cook Stove for Haiti

This document is an operations manual describing the steps taken in order to build the 13441 Haitian stove. Included is a list of materials and tools needed to complete the construction of the stove and ducting for the complete assembly. The following instructions are modeled after the methodology taken in order to create the stove and ducting in a third world country setting. Additional help and tooling may come from the Rochester Institute of Technology Machine Shop and staff as needed for prototype production.



MATERIAL

Stove:

Note: Numbers match exploded view on first page

Item	Component	Material	Dimensions	Qty
1	Air Inlet Ducting	1016 Cold Rolled Steel*	1.25" x 1.25" tubing	12"
2	Cold Air Ducting	1016 Cold Rolled Steel*	See construction below	1
3	Combustion Chamber	1016 Cold Rolled Steel*	46" x 8.67"	1
4	Combustion Chamber Flange	1016 Cold Rolled Steel*	14.5" OD 11" ID	1
5	Hot Air Exit Ducting	1016 Cold Rolled Steel*	See construction below	1
6	Inner Wall	1016 Cold Rolled Steel*	46" x 12"	1
7	Outer Wall	1016 Cold Rolled Steel*	55" x 18"	1
8	Skirt Flange	1016 Cold Rolled Steel*	15.8" OD 13.13" ID	1
9	Skirt Connector	1016 Cold Rolled Steel*	16" OD 12.5" ID	1
10	Base (not pictured)	1016 Cold Rolled Steel*	18"	1

Hardware:

Item	Component	Material	Dimensions	Qty
1	Heatsinks	Aluminum	40 cm x 40 cm	2
2	Bolt (fastener)	Steel	2.5"	4
3	Nut	Steel	-	4
4	Heat Resistant Insulation	Woven Fiberglass	46" x 12"	1
5	Screws	Steel	1.5"	4
6	Fan	Plastic	1.25" x 1.25"	1

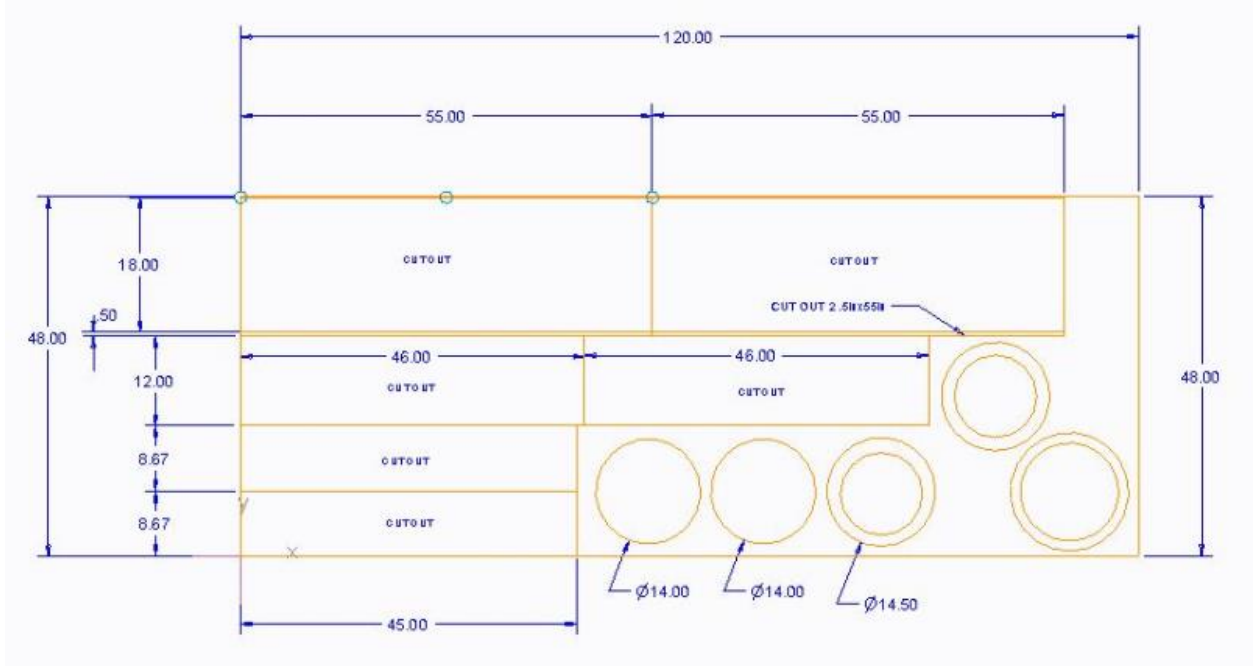
Tooling:

A	Roller or equivalent equipment
B	Cutting wheel
C	Welding equipment
D	Hammer
E	Clamps
F	Flat surface for hammering
G	Hand Drill

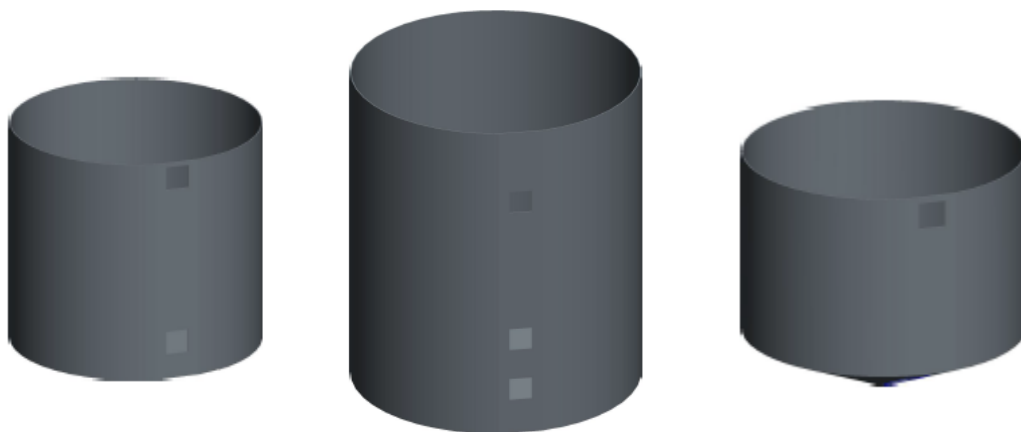
INSTRUCTIONS:

STOVE BODY

- 1) Obtain sheet metal.
- 2) Cut into desired sizes as seen in the Stove Dimensions section above or seen below.
(below represents the cut outs for 2 stoves)

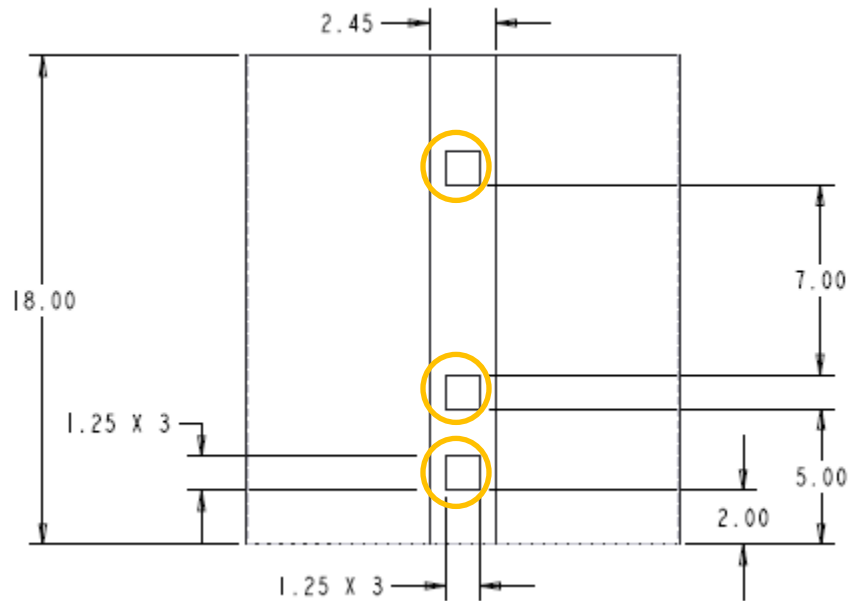


- 3) Use roller (or equivalent equipment) to roll the rectangular pieces into a circle. Below are examples of the combustions inner and outer walls and combustion chamber (respectively).

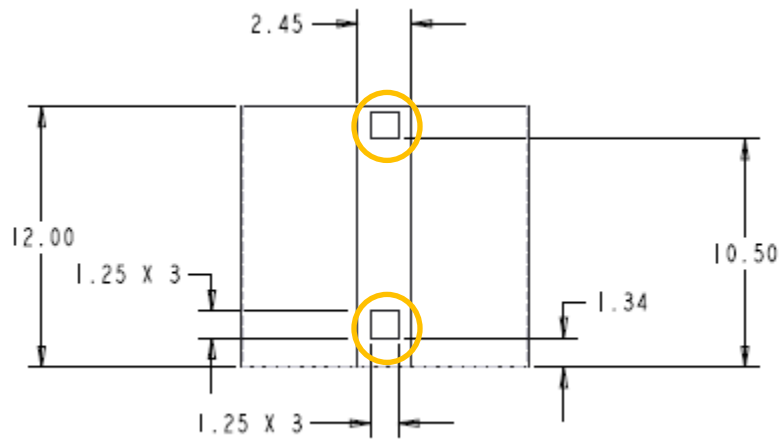


- 4) Clamp edges together and weld seams of the circular shape to form a large circular tube.
- 5) Cut square holes in the inner and outer walls at specified location seen in the pictures below. The holes are highlighted in orange circles.

OUTER WALL:

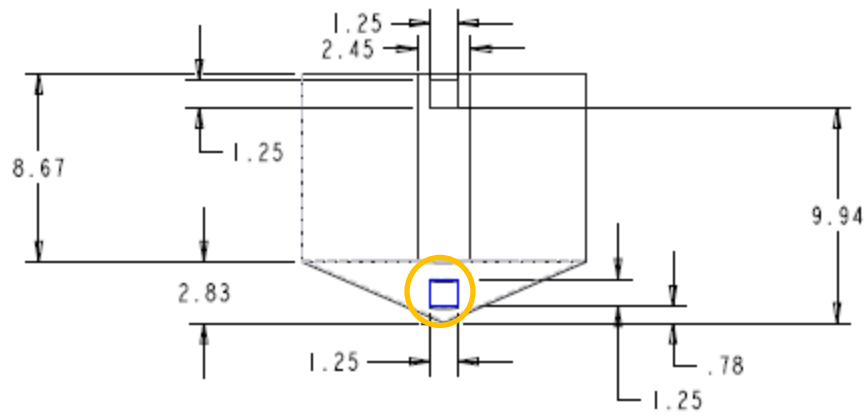


INNER WALL:

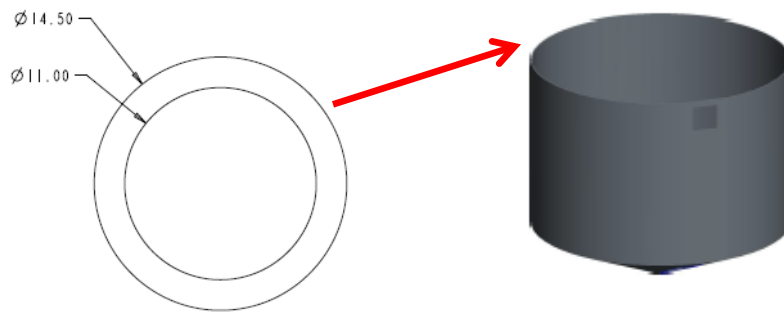


- 6) Cut scrap metal pieces into pie shaped wedges and weld into a cone shape on the bottom of the combustion chamber. Reference picture below for visual. Then cut holes in specified location as seen on drawing below.

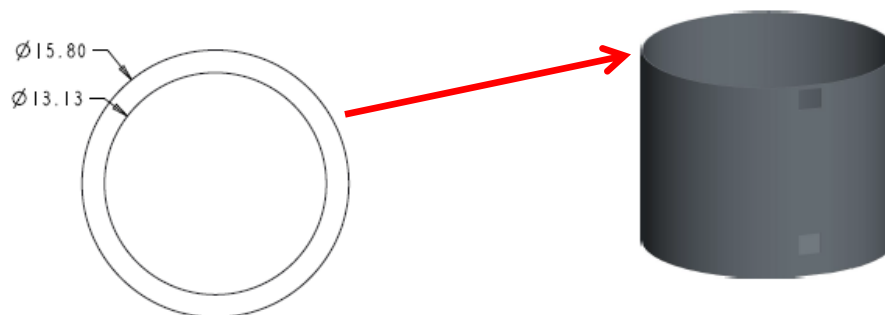
COMBUSTION CHAMBER:



- 7) After all of the square holes have been cut into the combustion chamber, inner and outer walls then weld the outer wall to the base of the stove.
- 8) Weld the combustion chamber flange onto the combustion chamber.



- 9) Weld skirt flange onto the inner wall.

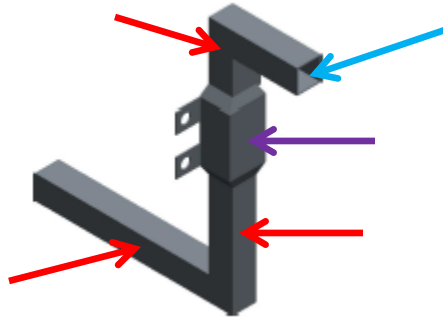


- 10) Place combustion chamber inside inner wall and then the inner wall into the outer wall.
- 11) The ring connector sits on top of the outer wall and should be capable of being removed.

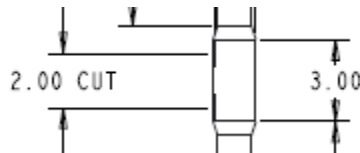
DUCTING

The ducting is made from 1.25" x 1.25" square tubing and scrap metal pieces.

A) Construction of the cold air entrance duct



- 1) The following sections are the square tubing. They need to be welded to the box (arrow in purple) that holds the heat sink.
- 2) The cold heat sink sits on top of 2 screws that are screwed into the heat sink box.
- 3) The heat sink box is fabricated using scrap pieces of metal that are the following sizes (seen in drawing below) that have been welded together.



- 4) Fan is placed inside of the area highlighted by a blue arrow. It is secured with screws.
- 5) The tabs are added to hold the nut and bolt which holds the TEM in place. The tabs are welded onto the box.

B) Construction of the hot air exit duct



