IPRO 325A

Developing Affordable and Sustainable Energy Solutions for the World's Rural Poor

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Problem:

Approximately 2.7 million people die each year due to smoke and toxic emissions released by the burning of wood in open fires*.

*World Health Organization

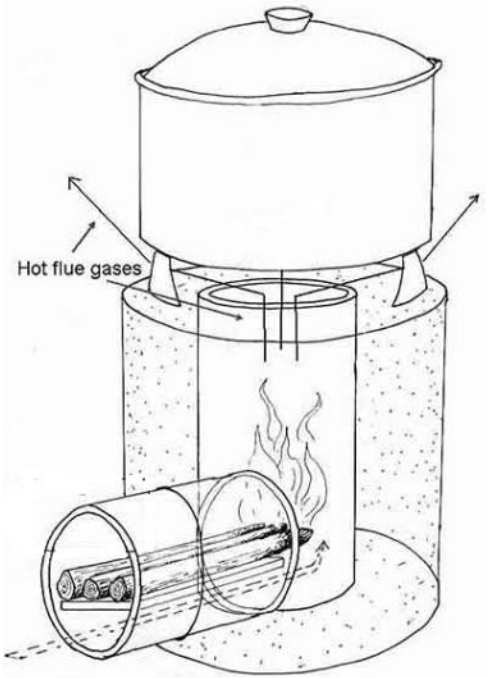
Objective:

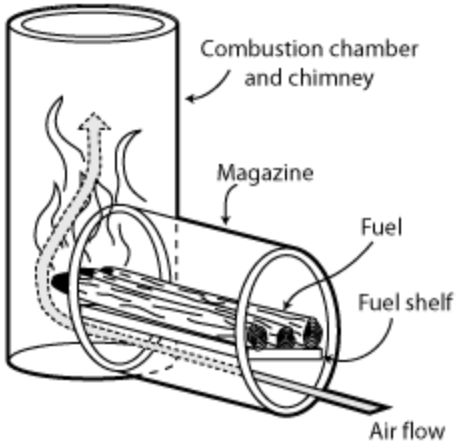
To develop and to provide a low-cost solution addressing the problem of cooking stove efficiency, safety and durability for the world's rural poor

Milestones

FA 06	Identify energy problems
SP 07	Energy problem; Develop solutions; campus awareness
FA 07	Solar Oven and Rocket Stove
WI 08	Field test in Huarmey, Peru
SP 08	Barrel-Rocket Stove; Increase awareness
SU 08	Field test & implementation in Sincape, Peru
FA 08	**Design, build and test a stove made out of bricks**
WI 09	Field Test and evaluation in Peru

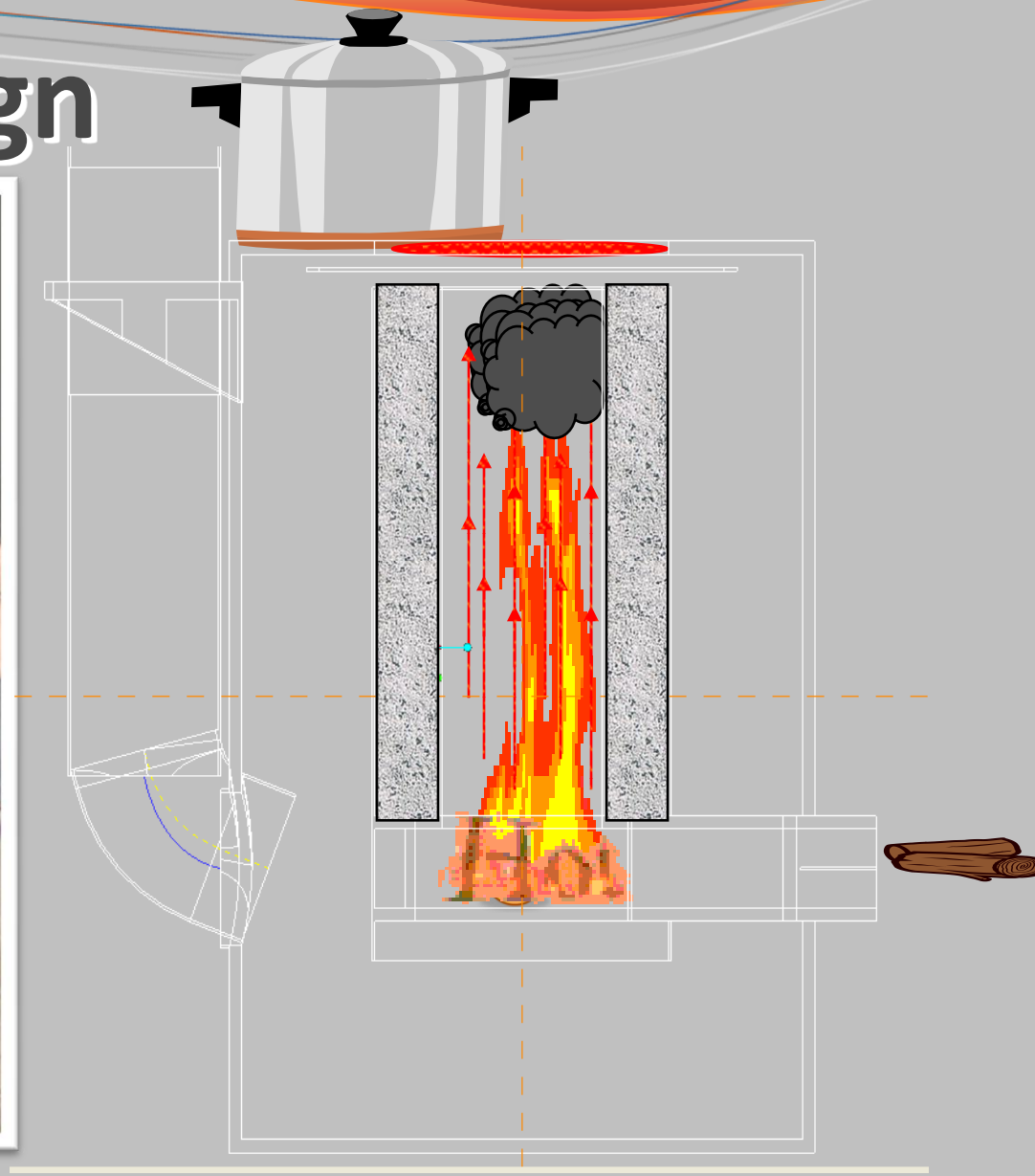
Research:





- Less massive objects
- Diameter
- Fuel magazine
- Insulation

Previous Design

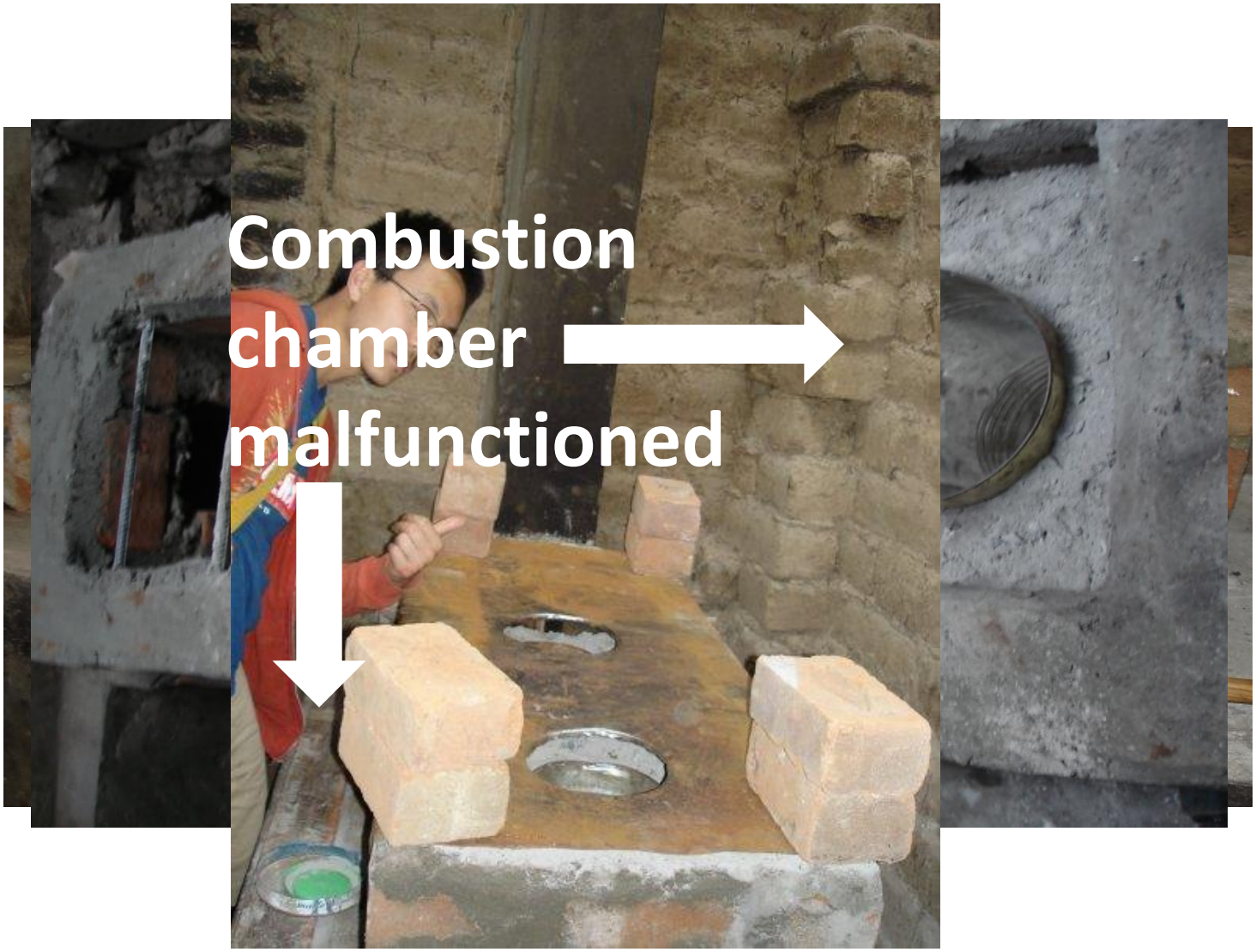


Field-test

Field-test Information

- Hard to find barrels
- Hard to find coffee cans
- Can be built with brick
- Can possibly use adobe
- Adobe is cheap and readily available

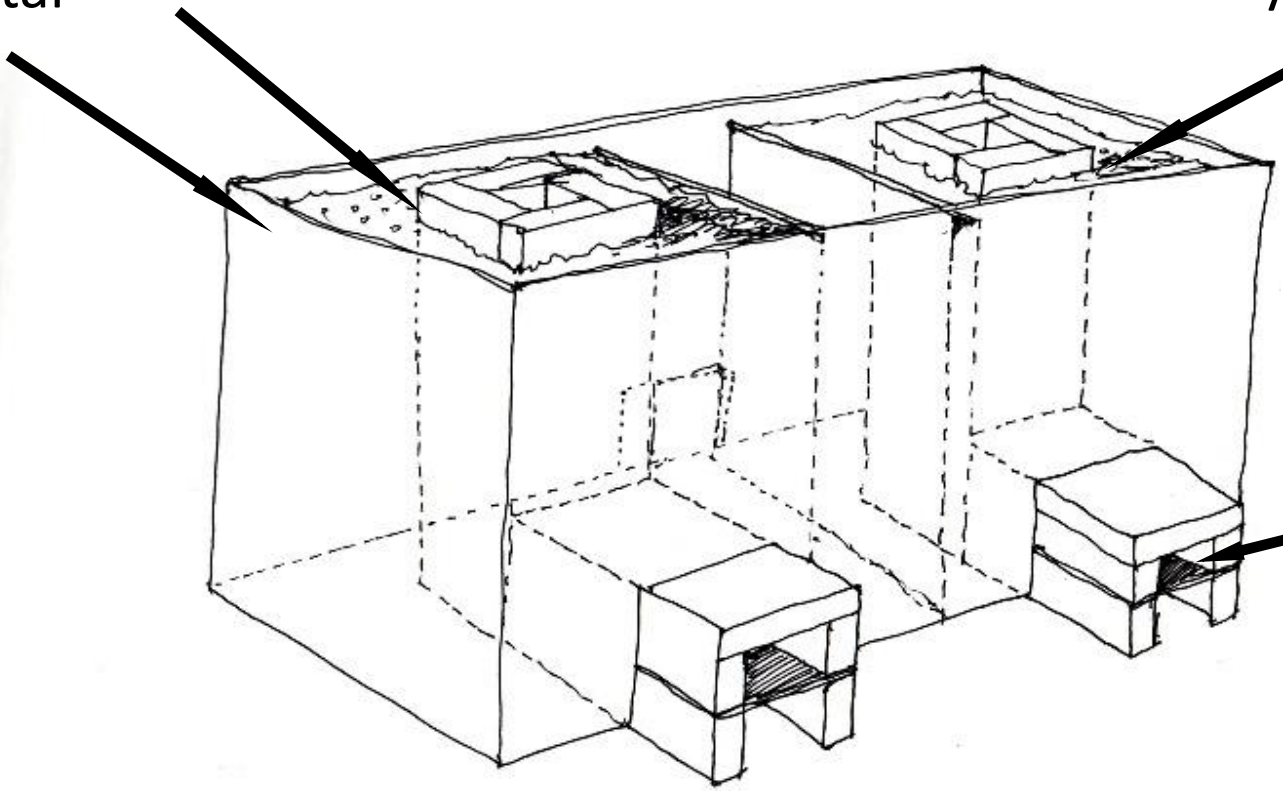
Improvised Design



Fall 2008 Design

Bricks and mortar

Ash insulation



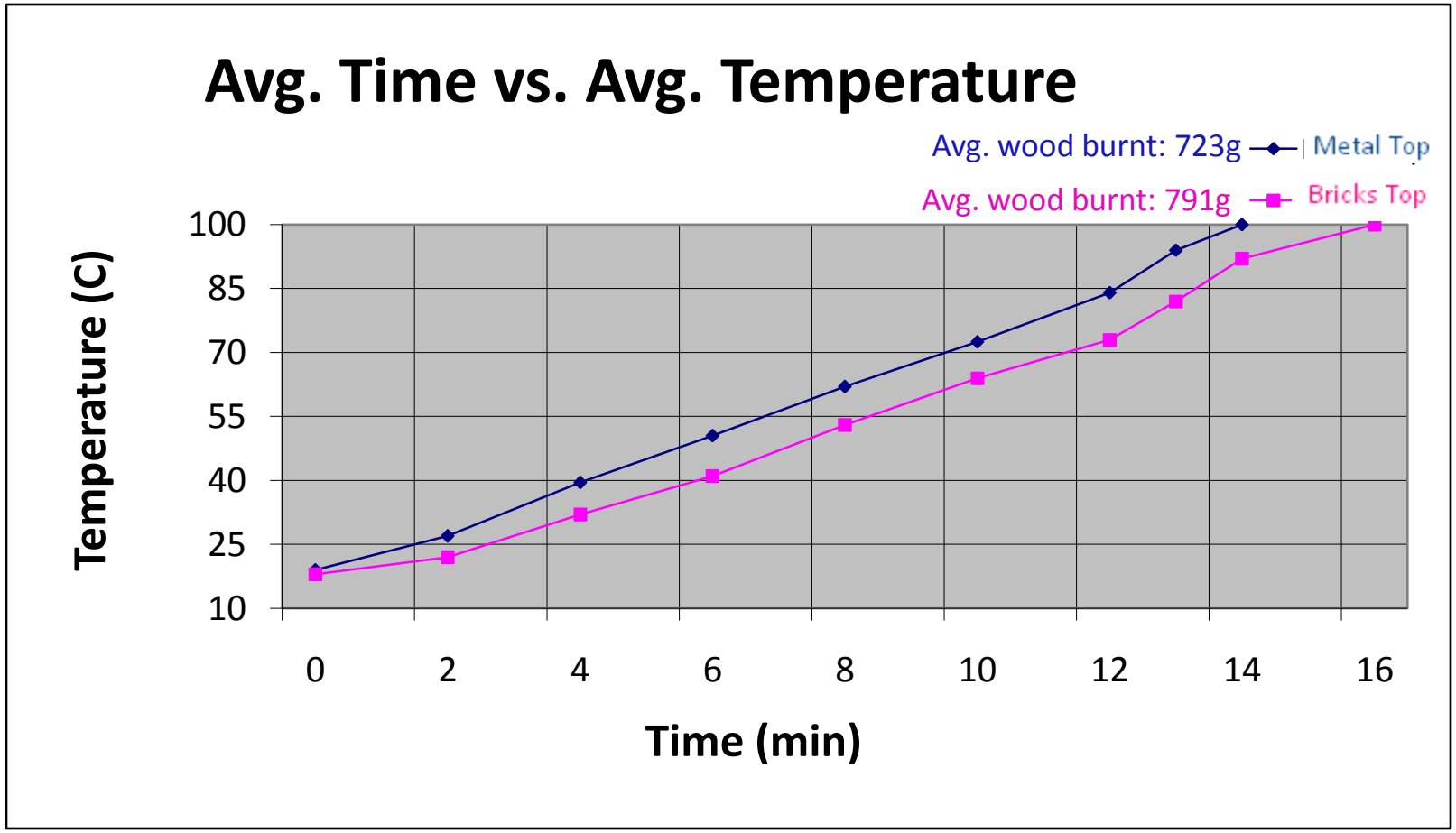
Shelf can be made from coffee can or any steel

Construction

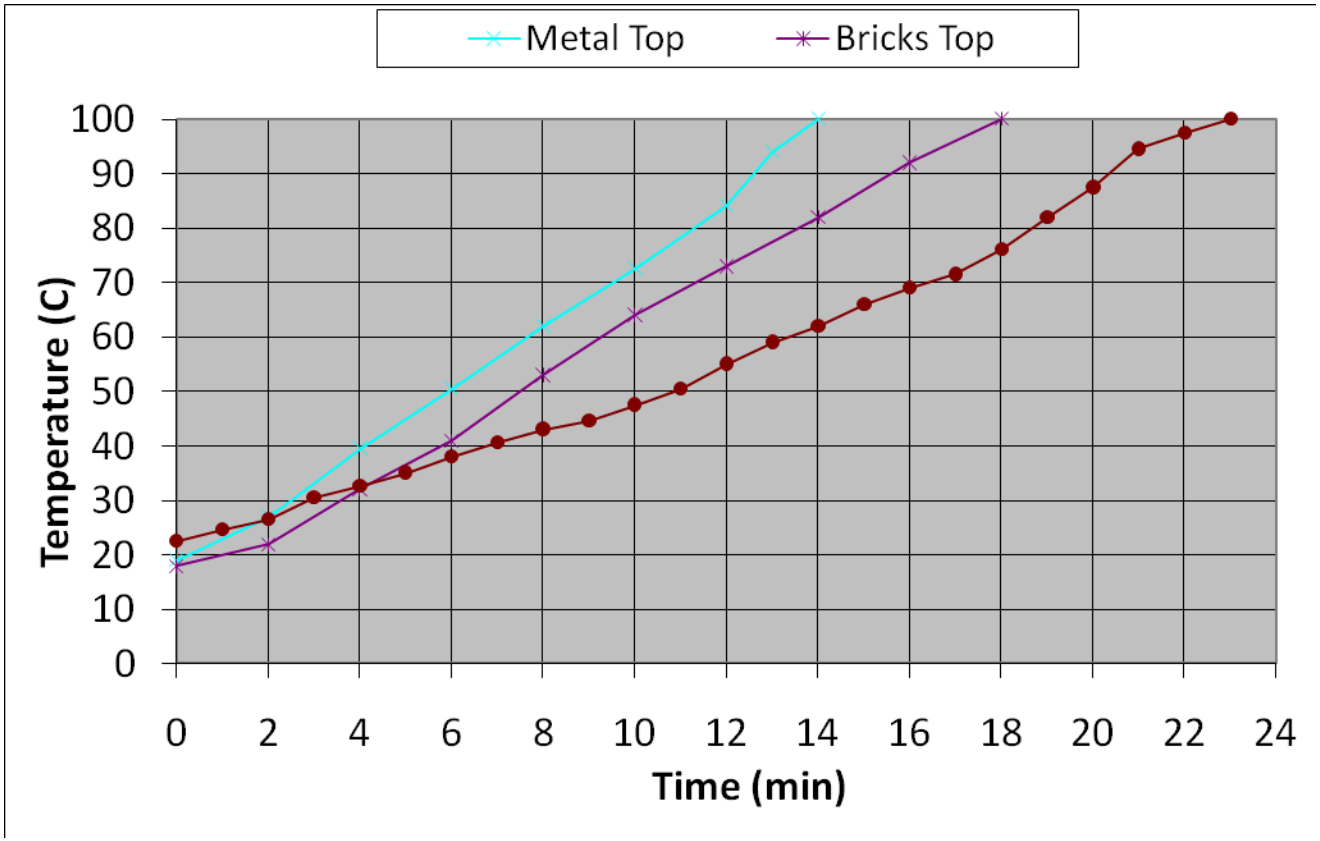
Obstacles:

- Test location
- Construction
- Inconsistent data due to foul temperature

Fall 2008 Test Result:



Spring08 vs. Fall08 Test Result:



Type of Stove	Avg. Wood Burned (g)
Bricks Top	791
Metal Top	723
Last Semester Prototype	528

Budget:

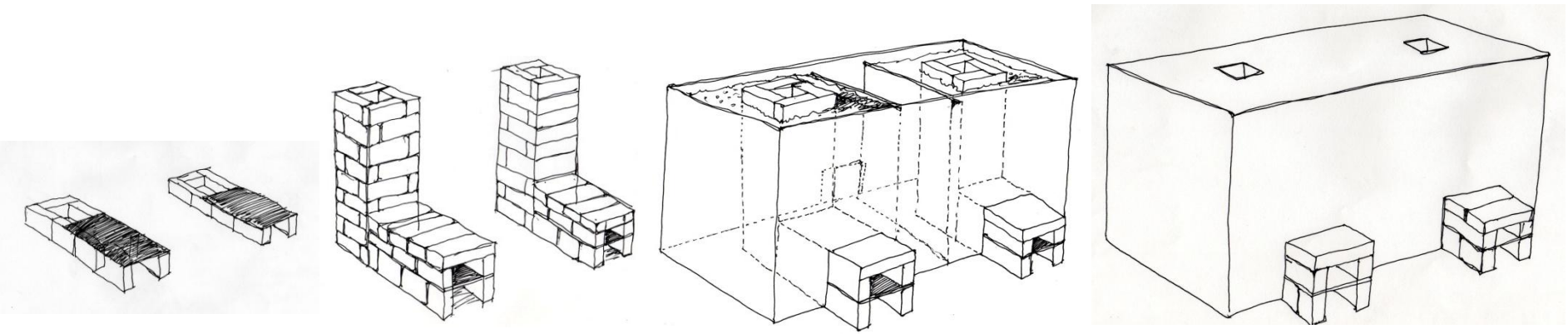
Item	Quantity	Price
Red face bricks	400 pieces	$ 80.00
Firebrick	60 pieces	$ 72.00
Mortar	8 bags	$ 29.00
Aluminum sheet		$ 22.00
Metal sheet		$ 60.00
Transportation		$ 50.00
Total		**$ 313.00**

Time:

Activity	Time Spent (hr)
Research	23
Design	28
Construction	57
Testing	41
Other	63.7
Total	**210.7**

Next:

- Field manual in Spanish
- Follow-up in Sincape, Peru
- More research about the test site
- Improve the stove design



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Questions?