Pakistan Quick Facts

About two-thirds of Pakistan's population lives in rural areas. Within this, about 36% are below the poverty line.

Many homes lack insulation and fuel sources for heating are scare. This poses a major problem in the cold climate of northern Pakistan.

The remote locations of homes in northern Pakistan means that building materials must be hauled out by hand.

Recycling by the numbers:

6,600 tons solid waste generated every day in Karachi, the largest city.

Of this 800 tons is sorted by housewives and collected by recycling centers.

Plastic bottles make up about 1% of this waste, 8 tons, or about 500,000 bottles.

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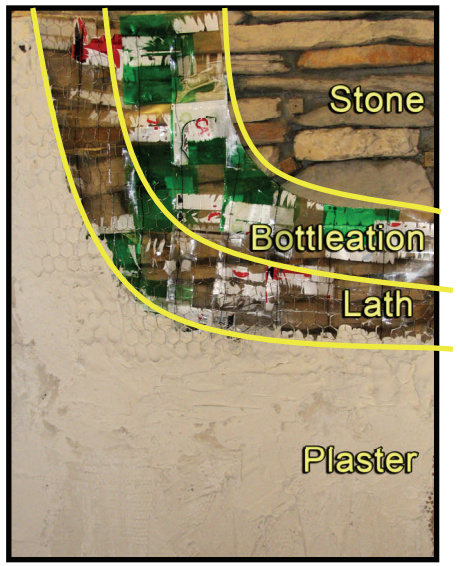
Bottleation

Red Team

Bottle*ation* Properties

Bottle*ated* Wall

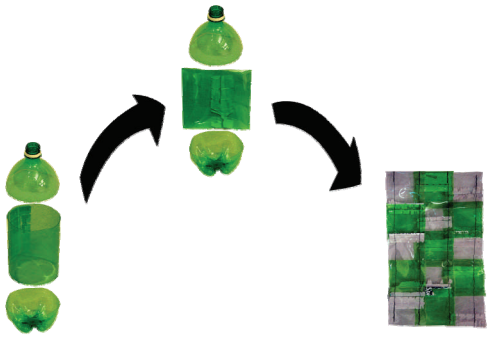


Un-insulated home **R-value = 0.4**
Bottleated home **R-value = 1.1**

Additional Features:

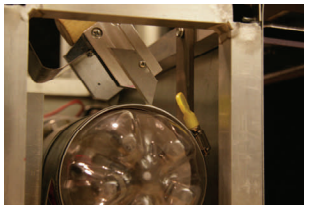
- Compatible with existing construction techniques
- Easily transportable
- Lightweight

Process



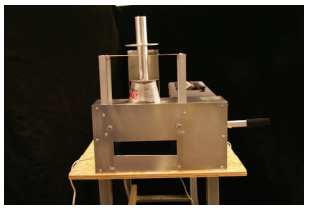
Step 1: Cutting

Bottles are cut into three separate pieces, of which only the middle section is used.



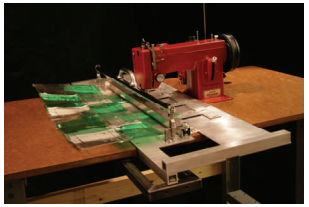
Step 2: Crushing

The middle section of each bottle is flattened a set of rollers.



Step 2: Crushing

The crushed sections are clamped in rows of five and sewn together row by row.



Economic Model

- Providing knowledge base and proposed process plan to local NGOs.
- Process will be situated in cities where bottles are plentiful and insulation panels will be transported to small rural villages.
- Process: $2000 capital investment with $0.50 per square meter production cost
- Insulation: $80-120 to install for an average home allowing families to save ~$90 per year on fuel

Social Impact

Environment: Cleans streets

Economic: Creates jobs

Energy: Reduces fuel consumption

Education: Lengthens school year

Health: Improves indoor air quality