HOW MIGHT WE REDUCE CLOTHING BUILDUP IN LANDFILLS?

QUICK FACTS

From 2000 to 2015, textile production increased by 75%.

Over 4 billion denim garments are produced each year.

The average American throws out 70 lbs of clothing and textiles per year.

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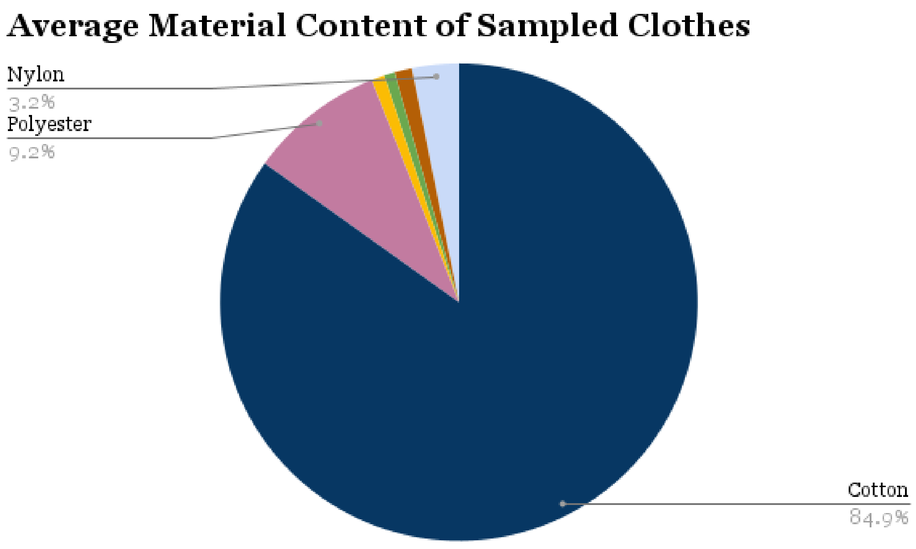
EXPERIMENTAL RESULTS



Current Options

Fiberglass

Production Process

- Sand, limestone, soda ash, and recycled glass are melted in a furnace and spun into tiny fibers. These are coated in molten glass and packaged into bales, where they are packaged and sold.

Benefits

- Traditional fiberglass is inexpensive and time-tested.
- The natural resources it uses are plentiful and easy to obtain.

Shortcomings

- Operating the furnaces and transport systems has huge energy costs.
- Environmentally unfriendly.

Efficacy

- R-Value (measurement of heat-retaining abilities): **3.2**
- NRC Value: **0.92**
- Cost (per square ft): **$0.90**

Current Denim

Production Process

- Used denim is collected and processed (buttons and zippers are removed). The clothes are shredded into their original fibers, treated with boric acid, and carded into rolls.

Benefits

- Denim has better thermal and sound insulation than fiberglass.
- Denim is environmentally friendly.
- There is an abundance of disposed clothing to be used.

Shortcomings

- More expensive than fiberglass, requires a large amount of clothing.
- Resource intensive

Efficacy

- R-Value (measurement of heat-retaining abilities): **3.5**
- NRC Value: **1.15**
- Cost (per square ft): **$1.50**

Wool

Production Process

- Sheep's wool is collected and carded into rolls; generally treated with Borax to prevent flame, and sealed together with polyester to promote bonding.

Benefits

- Has the most effective thermal insulation among the three, but the worst sound insulation.
- Wool is environmentally friendly.

Shortcomings

- Requires a tremendous amount of capital (livestock/sheep) to produce a comparable amount of wool.
- Resource intensive; most expensive option.

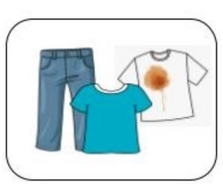
Efficacy

- R-Value (measurement of heat-retaining abilities): **3.6**
- NRC Value: **0.75**
- Cost (per square ft): **$1.75**

EARLY ADOPTERS

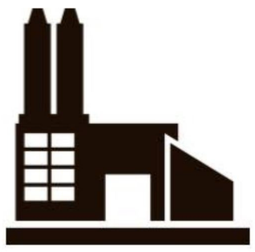
- Clients of sustainability-driven construction companies:
  - Our insulation is
    - Made from *unique* <u>cotton/denim blend</u>
    - Less-toxic
    - Keeps consistent room temperature for longer
      Requires less use of utilities

PRODUCTION PROCESS



Cotton Products: these include used denim and stained or torn garments that wouldn't be accepted by Goodwill or other donation centers.

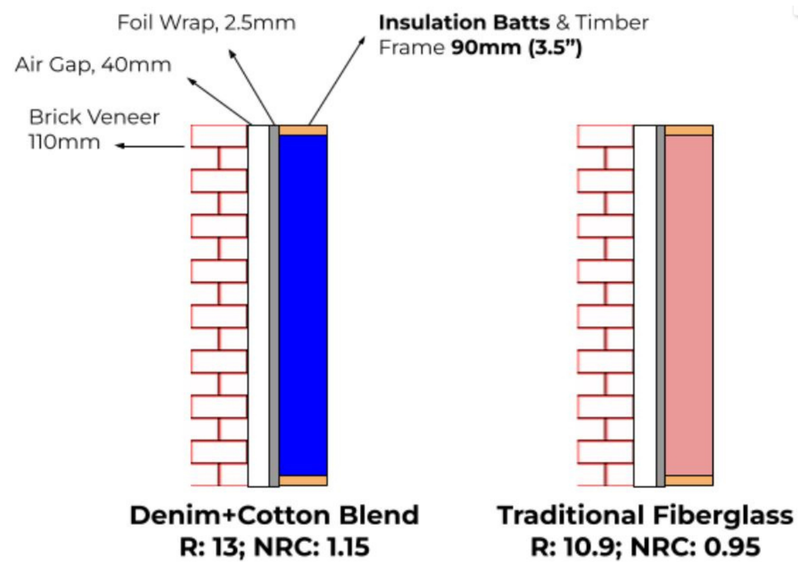
Collection Points:
These dumpsters will be placed around Metro-Atlanta to allow us to collect cotton products.



Processing:
We'll remove buttons and zippers, then shred the clothing until it resembles its original fibers; these will be treated with flame and mold retardants; the fibers will be adhered and woven into a mesh.

Final Product:
A roll of denim-cotton blend insulation ready for installation.

OUR SOLUTION: DENIM + COTTON-BLEND INSULATION



REVENUE: $1.10/SQFT WHICH CORRESPONDS TO A 36% DECREASE IN COST FROM CURRENT DENIM INSULATION COMPANIES