

Prototype Testing:

Engineering Metric Being Tested: Percent of Materials Imported

Purpose:

The purpose of this protocol is to ensure that original customer requirements of utilizing local materials is being addressed.

Goals:

The goal is to ideally have 100% of the materials needed to produce a toilet in Haiti, to come from sources in Haiti only (a.k.a 0% of materials imported). Due to limited budget for this project, some materials will be bought in the US for prototyping. Local availability of materials bought in the US will be taken into consideration in final calculations. Marginal is 10% of materials needing to be imported to Haiti (subject to change).

Conclusions:

By implementing the design decisions from our team at RIT, the percent of imported materials would be reduced by 50%, one component. We are providing a new manufacturing technique and design for the urine diverter that could be implemented in Haiti. Urine diverters from the Dominican Republic would no longer have to be imported.

Materials:

- Complete Bill of Materials
- Invoices for all orders, with product description and source included

Procedure:

1. Compile complete bill of materials for toilet prototype.
2. For each material ordered, keep record of invoice with purchasing information, including specs, source, and product description.
3. In a chart, break down the product, source of material (Haiti or other country), and quantity ordered.
4. For items not purchased from Haiti for prototyping, confer with SOIL or companies in Haiti if the material is available in country.
5. Sum up all remaining items that have been bought in countries other than Haiti and are not available in Haiti for future purchasing. Divide this number by the total amount of materials ordered, then multiply by 100 to obtain the final percent of materials imported.

Results:

Material	RIT Constructed	Haiti Constructed
CEMENT		
SAND		
DRYING AGENT		
SPACKLING FOR CRACKS		
WIRE - 45 CM		
CHICKEN WIRE NET - 110 x 42 CM		
DOOR HINGE		
WOODEN SLAB		
TOILET SEAT	1	1
URINE DIVERTER		1
5 GAL BUCKET		
1 GAL URINE JUG		
NAILS - 1 IN		
DRYWALL SCREWS - 5 CM		
SANDING PAPER		
PAINT (OIL-BASED)		
PAINT (WATER-BASED)		
PAINT - GREEN		
PAINT - WHITE		
PAINT - YELLOW		
SPRAYPAINT		
SHEET METAL		
Tota (%)l:	0.04552	0.091

Analysis:

When considering the percent of materials imported, both construction at RIT and construction in Haiti requires an external toilet seat. The current model in Haiti utilizes a urine diverter imported from the Dominican Republic. Our new design would reduce the amount of imported

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materials by 50%, one component, because we would provide a new method for producing urine diverters.