" How to build a House with a single bag of cement

And other macabre fairy tales...

We begin in a corner under the Neem tree.

Earthbags snake from one tree to another

Sigh...

For the sake of pleasurable viewing of on-site progress, one must shift base to a spot more conducive to activities of such nature...

The earthbag box is filled with debris

The cobbing begins!

Watching out for roots, we etch shapes on the ground

Swirls of cement sacks, mud and some rusty barbed wire

It takes a lot to quell its hunger

Mud, straw, water and love...

A dash of debris, a sprinkling of stones,

We move ahead one tamp at a time

A final levelling layer,

Laid on strips of billboard to prevent damp later

And some nice compaction for the layer on top

Hey! You're blocking my *@%$*ing view!

Ah... much better. Let the work begin. Chop-chop I say.

And we're good to go!

But it keeps raining anyway!

Sukalatti

Cobbing is hard work...

A couple of windows to keep him company...

some scanty sunshine amidst rain showers

Three double bamboo beams recline across

Du-uh-uhn!

The first few members of the reciprocal roof appear

And takes some sweet time!

And they all drown slowly in cob...

But rain or shine, ze cob must go on...

And the split bamboo machan takes shape

So while the rain keeps at the structural testing...

Tied with wet coir ropes. Sore hands alert!

The walls have risen, I swear!

Sometimes we worked late...

And so it does...

some bamboo lintels to go with the flow

We apply the first coat of plaster

A spiral reinforces

Restrained with strings, the door is embedded in cob

Sometimes we didn't... Predictable eh?

The entry is levelled to take the bamboo platform

We are nearly there with the cob walls

Lime slag, ash and mud

And a slight stretch to accommodate the rest

Diagonal braces of split bamboo for the core

Nice and shaggy!

Which branch into secondary members elsewhere

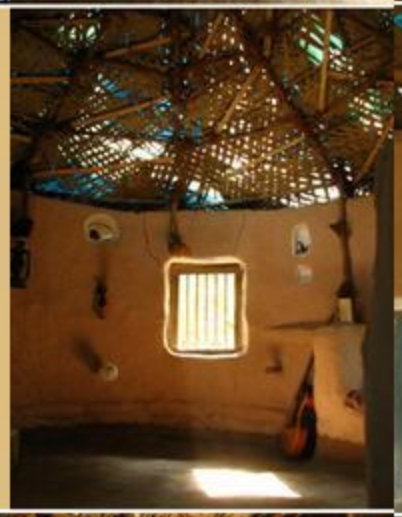
A couple of hoardings shall make life waterproof

The roofing skeleton's all done

A final coat of cowpoo and mud

We can tie the woven coconut fronds now

and some railings and curtains for the bedroom



Sukalatti is a composition of materials either found **naturally**, or **discarded** as '**junk**'.

It is intended to be an off-the-grid core residence and workplace, and consists of a living space, kitchen, workspace, bath, compost loo and a bedroom loft.

Foundation: Stones, Construction Debris

Plinth: Discarded cement sacks, rusted barbed wire, local mud, water

Damp Proofing: Discarded plastic bags, flex banners

Walls: Local mud, local wild grass, straw discarded by sanitary ware stores, rice husk, bamboo leftovers, water

Plaster & Floor: Lime slag, fly ash, local mud, cowdung

Roof & Machan: bamboo, coir ropes, coconut fronds, flex hoarding, shade net

Doors & Windows: sourced from Scrap timber shops, discarded glass pieces

Built-in furniture: Discarded cement sacks, local mud, bamboo leftovers

Hey Waitaminute!

I didn't see even a spoonful of cement anywhere! And the only reason I even agreed to read this crap is because I want to build a house with a single bag of cement!

Sigh...

P.T.O

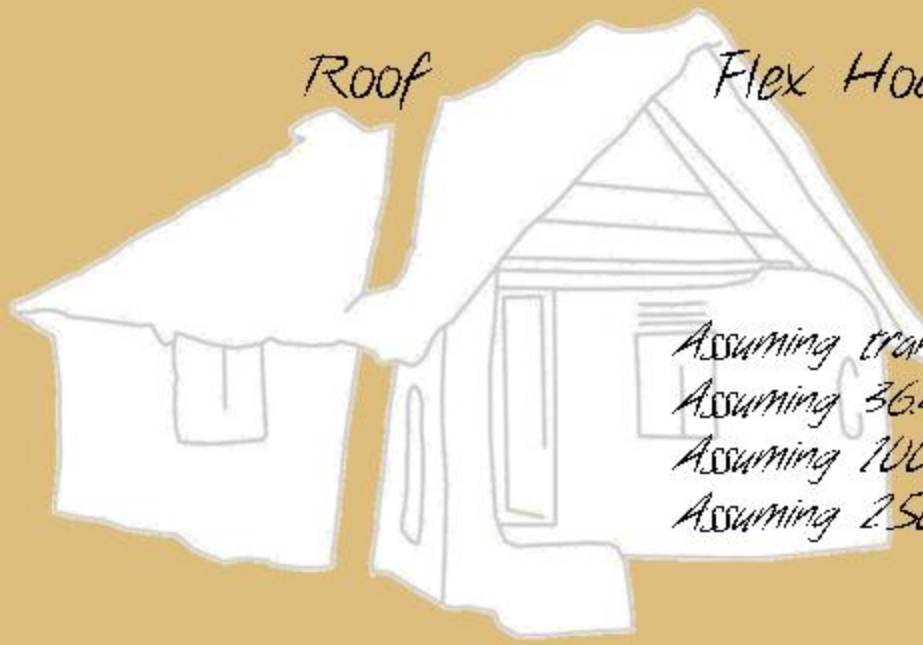
Ze Energy Calculations (with several assumptions!)

The human labour component will be accounted for separately.

Component	Materials	Material Type	Energy
Foundation	On-site stones, debris	Natural / junk	Nil
Plinth	Discarded cement sacks, barbed wire, mud	Natural / junk	Nil
Walls	Mud, straw, husk	Natural / junk	Nil
Doors / windows	Timber	Junk	12 MJ (Transport)
Plaster	Lime slag, fly ash, mud, cowdung	Natural / junk	36.5 MJ (Transport)
Roof	Coconut fronds	Natural	Nil

Ze Energy Calculations Continue...

Component	Materials	Material Type	Energy
Roof	Bamboo	Natural	3 MJ
Roof	Coir	Natural	546 MJ
Roof	Shade net	Synthetic	2864 MJ
Roof	Flex Hoarding	Junk	364 MJ



Assuming transportation by a diesel truck with an average of 6km per liter
Assuming 36.4MJ per liter of diesel
Assuming 1000 nos of bamboo and a ton of coir per truck
Assuming 250 MJ / kg for Nylon

Can we start conversing in equitable energy units instead of fickle fiscal ones such as Rupees, Dollars, Pesos or wotchamacallits?

Can we talk in MJ / sqft (if we have to that is!) and then drool about energy efficient-sustainable-'green' architecture?

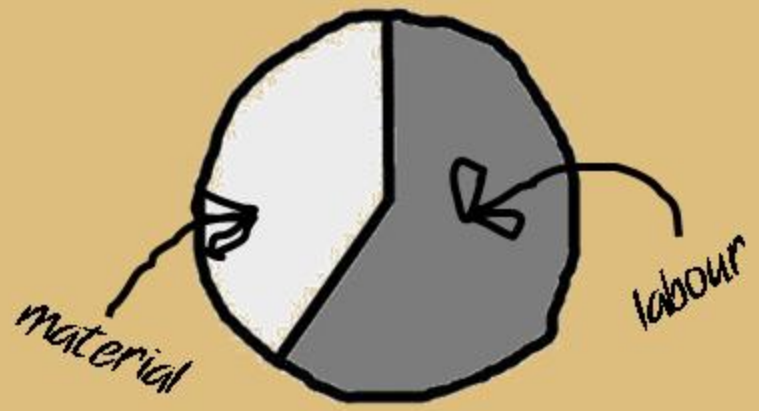
Hence the total amount of **energy** embodied through the **materials** is **30065MJ**

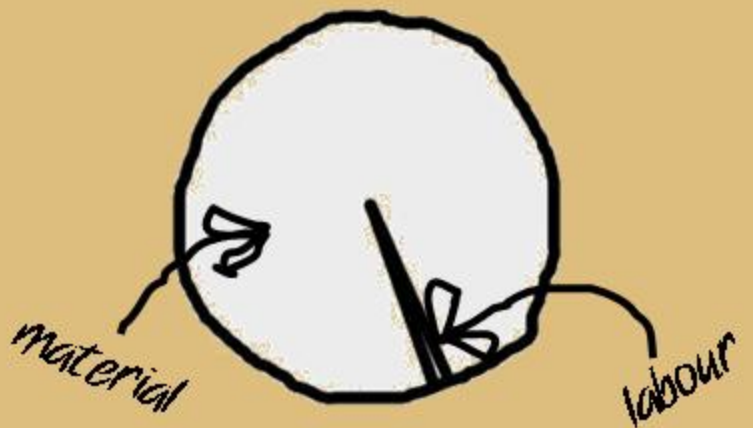
Assuming a 25 year old male, slightly less than six feet tall, and weighing about 70 Kilograms, one can calculate the requirement of energy as **00096 MJ(Megajoules) per day.** With nearly 138 person-days, the human energy required for Sukalatti was **132 MJ**

Hence the total amount of **energy** embodied in Sukalatti is **300782MJ**

Let's round it off and settle at **3010MJ**

(Yay!)





In monetary units (virtual!), the labour share is a whopping **60%** of the total amount.

* Nearly 50,000 Rupees were invested in Sukalatti

In energy units (real!), the labour share is an un-whopping **0.05%** of the total amount.

*more than 95% of the material energy is routed to the nylon shade net!

SO WHAT ??

It means that in order to have a **balanced** equation** we must **reduce** on the **matter** and **energy** involved and **increase** the amount of **intelligence** applied!

We must apply a healthy dose of **natural-material-based-labour-intensive-**technologies

** Check the Green Equation

Sigh...

It simply means that Sukalatti was built using the **same** amount of **energy** required to produce **fifty** bags of **cement** at the factory. And **without** the stupid **nylon** shade net, producing a **single** bag of **cement** would consume **more** energy than the **entire** house!

So basically cover the roof with something else and ta-daaaa!

You have your very own house built in a single virtual bag of cement.

With somewhat sincere apologies,

soar . hub @ gmail . com