

REDUCE BURDEN ON MOTHER EARTH

**GO GREEN
WITH
AFFORDABLE HOUSING
BY**

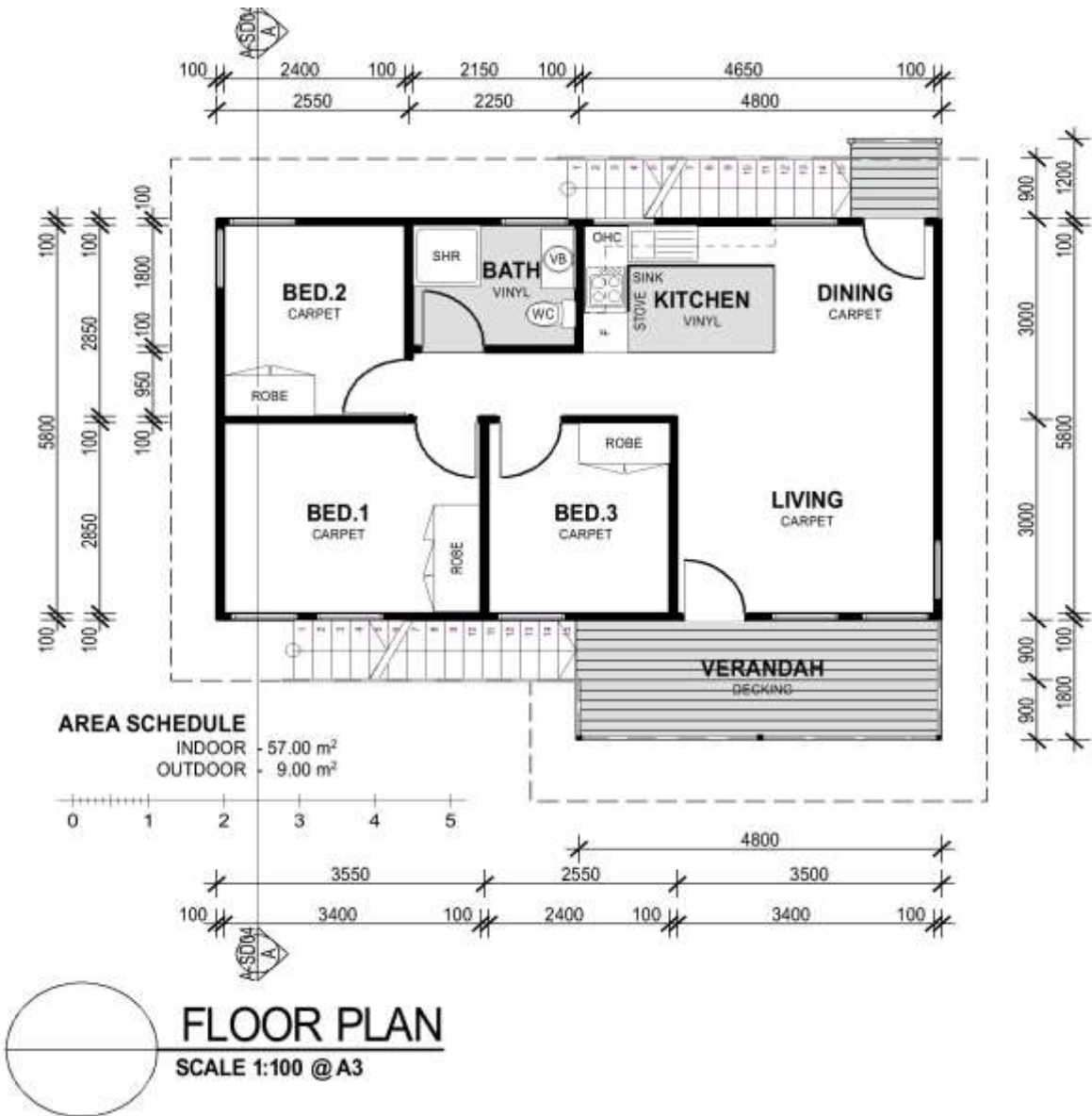


MAAK ECO HOMES



ABSTRACT

The main objective this paper is to highlight the various aspects of prefabricated building methodologies and adoption of alternate building materials for low cost housing. In a building the foundation, walls, doors and windows, floors and roofs are the most important components, which can be analyzed individually based on the needs thus, improving the speed of construction and reducing the construction cost. The major methods of construction systems considered here are namely, prefabricated roofing components like precast RC planks, precast hollow concrete panels, precast concrete/Ferro cement panels and usage of new alternative building materials like Fly –Ash sand lime bricks, Solid concrete and stone blocks, Cellular Concrete, Laterite Blocks, Dry-Hydrated Lime, Rice-husk Ash Pozzolana and Hollow Concrete Blocks

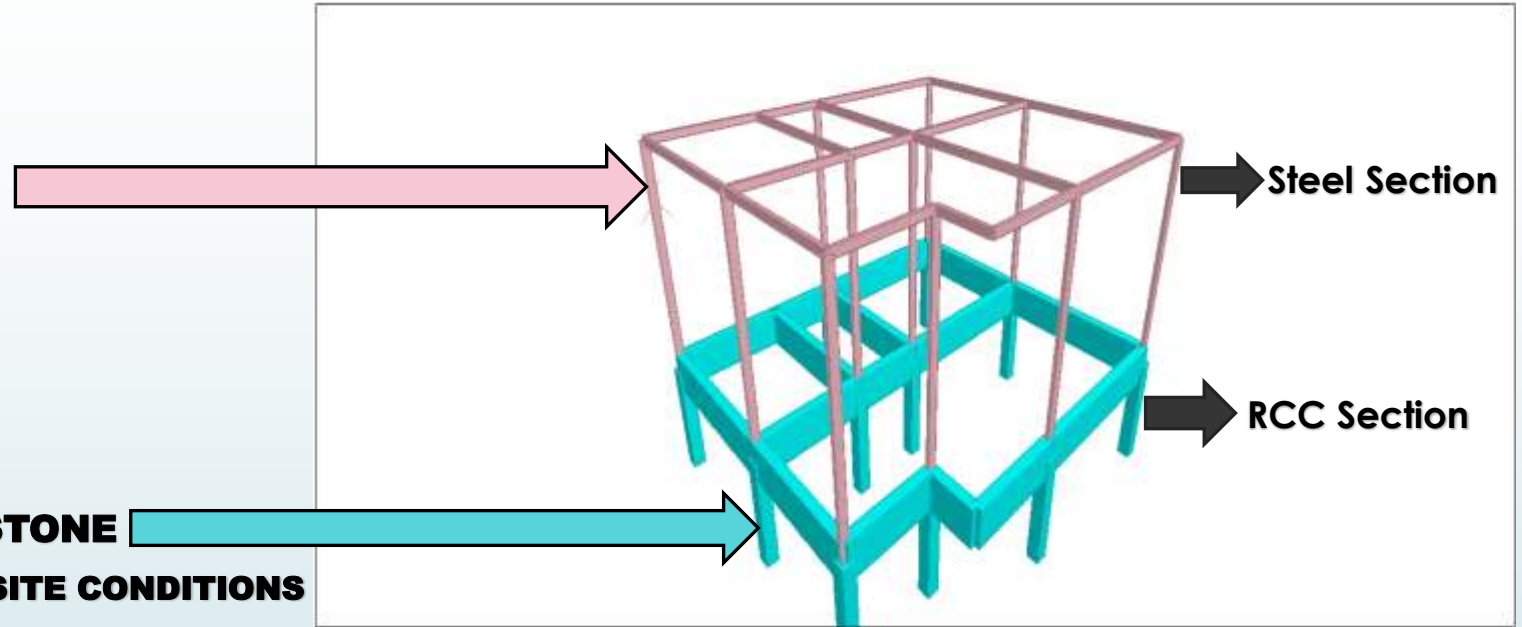


DEPENDING ON SITE CONDITIONS STEEL SECTION USES
SQUARE HOLLOW SECTIONS TO MAX SIZE 250 x 250 MM
RECTANGULAR HOLLOW SECTION TO MAX SIZE 300X200 MM
CIRCULAR HOLLOW SECTIONS TO MAX SIZE OF 300 MM
THICKNESS OF STEEL CAN VARY FROM 2 MM TO 10 MM
HIGH STRENGTH TO WEIGHT RATIO
CORROSION RESISTANT
EASY BENDABLE
CONFIRMS TO IS: 4923 : IS 1161

RCC SPECIFICATIONS

CEMENT : COARSE SAND : GRADED STONE

CAN VARY FROM 1:1:2 UPTO 1:6:12 DEPENDING ON SITE CONDITIONS

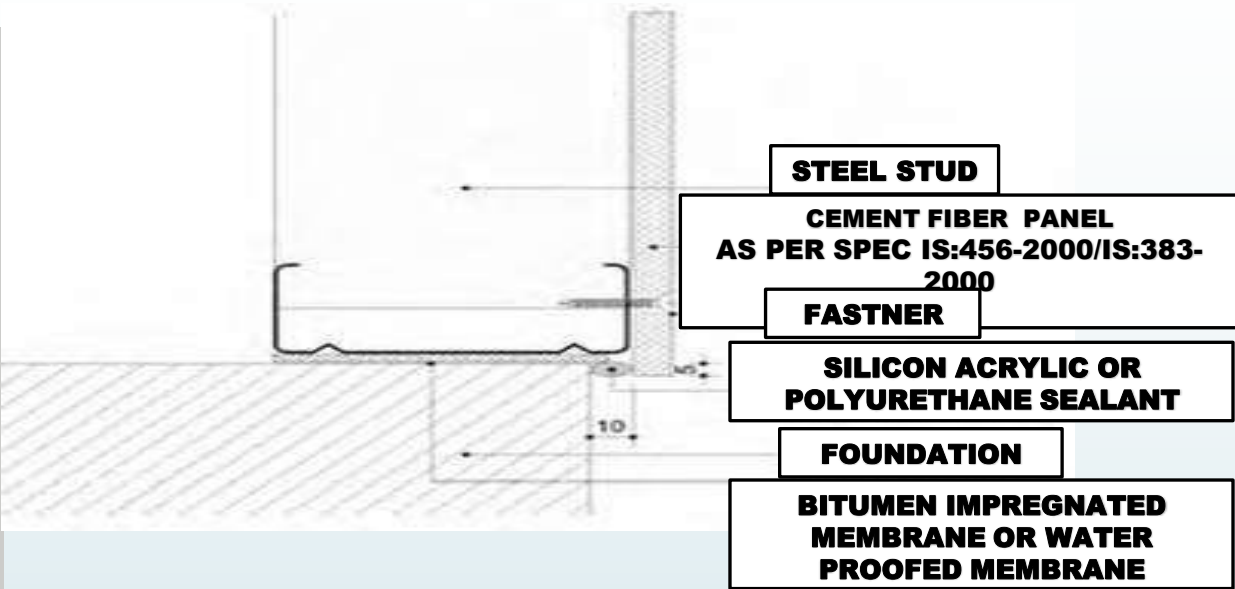
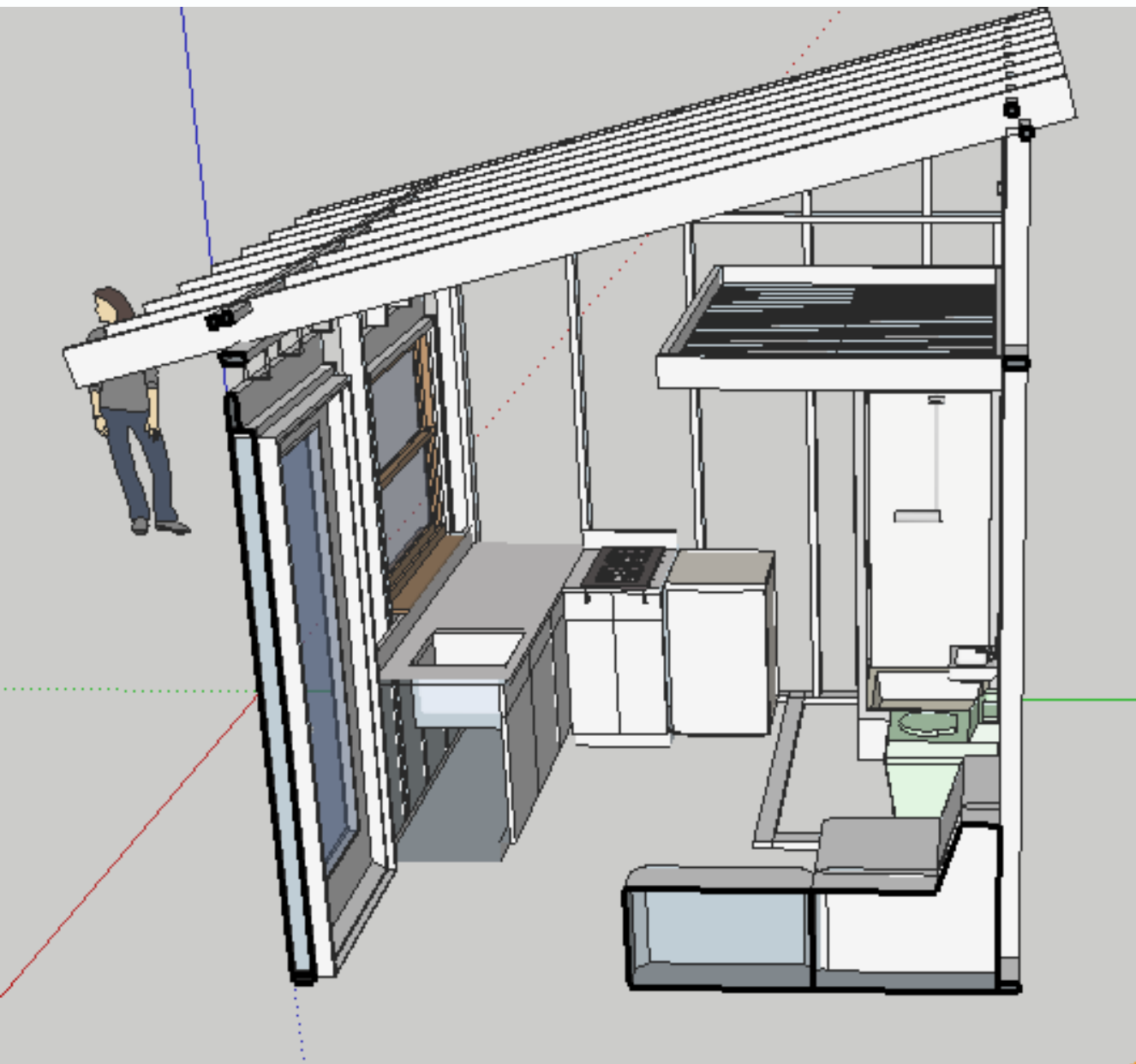


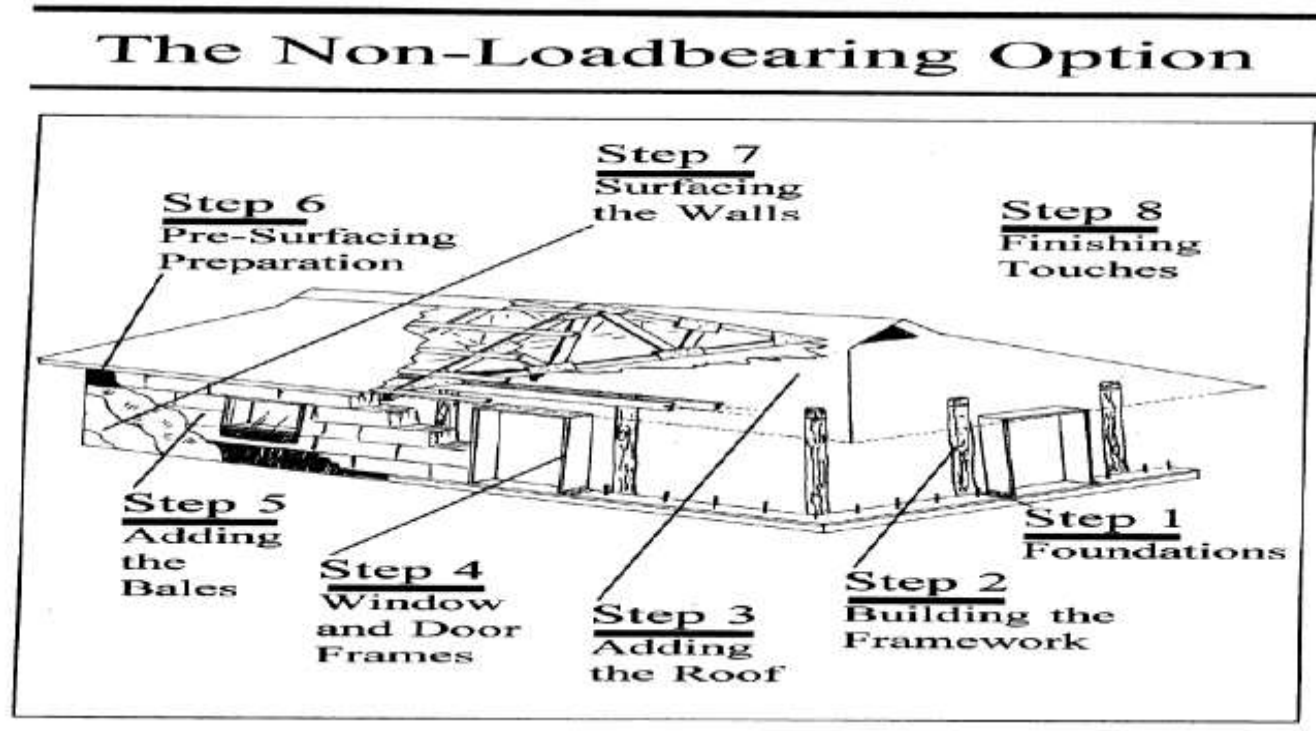
3D Rendered View

STRUCTURE CAN WITHSTAND ZONE 4 EARTHQUAKE FORCES (7.5 RICHTER)

STRUCTURE CAN WITHSTAND 50 MPH WIND SPEEDS.

BEING VERY LIGHT (64 %) IN THE EVENT OF GREATER THAN ZONE 4 EARTHQUAKE LEVEL...THE FALLING DEBRIS WILL CAUSE LEAST DAMAGE TO LIFE COMPARED TO CIVIL STRUCTURE.





INSTALLATION

1. Simple foundation to be casted at site for installation of steel structure.
2. Panels will be shipped to site and installed.
3. Light frame structure and roof shall be fabricated at site as per design.
4. Fit window and door frames.
5. Joints will be filled with special epoxy for long life.
6. Painting And finishing executed as per client requirement.
7. Any number of openings can be provided for doors and windows.

1) Savings			
Cost	:	65% Lighter Weight therefore results in structural savings up to 20%	
Time	:	10-20 times faster to construct as all material is pre fab and light.	
Labour	:	Pre cured and pre fab ready to use ,therefore eliminates on site curing	
Water	:	Aerocon panel needs 71 % less water than civil	
2) Strength			
Long Lasting	:	Pre fab steel and Aerocon panels guarantee long life 15 years Minimum	
High axial compression and bending strength	:	Can build higher floors.	
3) Space			
Thinner walls	:	Provides additional carpet area, up to 5%	
4) Sustainable			
Save Resources	:	Cement and Sand and hence precious water are not required	
Reusable	:	The unique tongue & groove joint makes it Easy to uninstall and reuse.	
Eco Friendly	:	Aerocon panels made from fly ash and Foam cement saves on natural material.	
5) Safety			
Fire	:	Steel and Aerocon panels are Highly fire Resistant	
Weather	:	can withstand adverse conditions of wind speeds of 50 miles per hour.	
Termite and Water-resistant	:	Doesn't permit the growth of bacteria and fungus	
Toxic emissions	:	None	
Earth quake proof	:	steel and Aerocon structure designed as per (IS 1893 : 2002) for earth quake zone 4.	
		(Richter 7.5)	

PUF insulated roofing and composite cement fiber walls give the following functional advantages

- **Thermal insulation.**
The interiors are approx. 3 degrees delta from the external temperatures without any need for conditioning
- **Sound insulation**
The interiors is silent by approx. 20 dB compared to external noise
- **Since materials used are very light, the fatigue factor for installation is minimal.**
- **There is no termite attack as no organic material is used.**
- **Water consumption is reduced by 71%.**
- **Weight on mother earth reduced by 65 %.**





CORPORATE ROOM

MAAK ECO HOMES







Structure using Cement fiber panel 65% lighter than civil

[illegible]

LOW COST EFFECTIVE HOUSING

- **Aims to reduce the cost of construction and at the same time not sacrifice any element of safety or serviceability of the house over the life cycle.**
- **strong,**
- **durable,**
- **functional,**
- **aesthetic,**
- **environment friendly,**
- **ecologically appropriate,**
- **energy efficient**
- **affordable and adaptable**
- **cost-effective materials**
- **appropriate technologies in construction**

Affordable ECO Friendly Housing

- What is the market size for ECO-Friendly Housing in INDIA??
- The total market for this affordable housing is approx. rs 35000 cr. Considering a conservative 10% can afford our quality product ..thats a whopping rs 3500 cr !!!

- What is ECO Friendly Housing Mean??

This product uses 66% less water , 66% less weight of material,less manpower to build (12 men can bring up a dwelling in 7 days) and 90% of the product can be dissembled and reused in case of relocation

- What is the composite panel of the wall made from ??

this product encapsulates fly ash which is an environmentally disastrous material in a composite block providing fire and sound proof and thermal insulative properties.

- How does the Eco Space handle wind/ Rain/Earthquake??

The design is guaranteed to withstand wind speeds of 100 km per hr and earthquakes of richter 6.5 .in the event of collapse over and above these limits ...the materials used being light it only injures the occupants but does not take lives.

- Why do you say affordable housing??

A dwelling of 500 sq ft will cost 8 Lakhs against 12.5 lakhs of the conventional product .

This product is ideal for CORPORATE SOCIAL RESPONSIBILITY programs as it is fast and cheap to build

- What is life of this Product??

Minimum guarantee is 30 years but considering the inert materials used in the construction it can be much more.

AAA AS REPLACEMENT FOR WOOD/PLYWOOD

- Focus on car on Box

- What do you mean by AAA Board??

AAA means three walls of corrugation in A flute giving a 15 mm thick board that is as strong as 18 mm plywood in functional conditions of packing/warehousing and transport.

- How does the strength build into the AAA

This product is made from virgin spruce paper pulp where the mesh formed from the long fibres give super strength to the paper . Besides the board uses wet strength glue making it a truly weather resistant for outdoor applications.

- AAA is made from wood, so how does it save trees??

If you make a 100 boxes in wood of size 1 mtr cube you will need to fell 10 trees .

If you make the same 100 boxes in AAAwe need to fell only 1 tree.!!!

- How is this Eco Friendly in use and in Disposal??

It is very strong and light . a plywood box weighs 43 kilos compared to a AAA box weighing only 10 kgs .

Reduces fuel burn in transportation by air/sea/land

Being virgin material fetches good value in the recycle process.

- What is the usage in packaging??

Wooden Box and pallet market is 6000 Cr growing to 10,000 Cr by 2024. Approximately 60% of this market can be replaced by AAA.

HEAVY DUTY CORRUGATED PALLET

- What is the goodness of your corrugated pallet??

its light, strong, durable and Eco friendly in use and disposal

- How does it contribute to a clean environment?

Prevents cutting of trees in India and the World.

being lighter saves fuel in transportation

clean disposal

wooden pallet is 21 kgs while corrugated pallet is 8 kgs

- How does this product benefit your customer??

Customer saves in lower price, lower logistics cost , better recycle valuewhile contributing to a clean environment.

- What loads can your product handle??

1 Ton for normal pallet

2-3 Tons for a Jumbo Pallet.

- This product seems very unique??

YES – We have patented this product in India as we have spent a lot of time and money to make this pallet to be as close to a wooden pallet in performance.

HONEYCOMB

- Where does Honeycomb get its name from??

From the cell structure of the inner core.

its similar to the dwelling of the honey bee.!!

- What is the goodness of Honeycomb??

This honeycomb structure is naturally strong, light, durable and has a very good load to paper weight ratio.

- How can Honeycomb contribute to a cleaner environment??

Honey comb products can be made to be strong like plywood and soft as foam.

Ideally suitable to replace thermocoules and foam widely used in white goods packing.

These products remain in the environment for 1000 years

- What are the other uses of Honeycomb besides packaging??

Can be used as core fillers material in making interior panels used in cabinets for kitchens and partitions .

It has become a very popular material in manufacture of shutters where the weight of shutter comes down from 70 kgs to 35 kgs but strength and durability remains the same.

BIODEGRADABLE PLASTICS/STRETCH FILM

- What do you mean by Biodegradable??

Any material that can decompose greater than 90% of its mass over time is termed as BIODEGRADEABLE.

- How is this Different from regular plastics??

Regular polymer plastics does not decompose even after 1000 years. It chokes the environment.

Our biodegradable plastics decompose in land fills over a period of 1 year . it turns into carbon dioxide and water the main ingredients for sustaining life on earth .

- Does Bio degradable plastics support the process of garbage disposal??

YES – our biodegradable bags can be put into the garbage shredder along with garbage unlike the regular plastic garbage bags which cannot even be recycled once in contact with garbage.

- Is your Biodegradable stretch film one of a kind??

YES – Probably the first in the world .

it can go back into the recycle process directly or decompose over a year in landfills.

- Is Biodegradable plastic expensive??

• YES- just as you pay more for organic vegetables and fruits. You will have to pay more for biodegradable plastics initially till volume picks up but it's a small price to pay to clean up the environment.

RETURNABLE PACKAGING SOLUTIONS

IS RETURNABLE SOLUTIONS GOOD FOR THE ENVIRONMENT??

YES.....it hugely reduces consumption of wood, paper , plastics used in one way packing .

It eliminates the need for disposal

It is truly the best representation of the 3 R'S.....REDUCE/REUSE/RECYCLE !!!

HOW IS IT GOOD FOR INDIA IN SPECIFIC??

India is growing as the global component sourcing hub for automotive and engineering products. Hence the need for good eco friendly packing solutions . our returnable solutions ensures that India will use less of wood/paper and plastic while offering the benefits of its component manufacturers to the world.

So imagine how much good INDIA will be doing in contributing to the reduction in carbon footprint ??

HOS WILL **MAAK IMPEX** MAKE THE DIFFERENCE TO CHANGE THE WAY IN WHICH INDIA WILL USE AND BENEFIT FROM YOUR RETURNABLE SOLUTIONS??

MAAK IMPEX has a pan India presence across 12 major industrial hubs in the country. This makes us unique to offer our "PAY PER USE" returnable solutions as the customer will only pay for the number of days he uses our solution .

The customer will not have the headache of figuring out how to return our product as one of our locations in India will be close to the final destination of the customers product and MAAK will pick up the returnable and deploy it back into the POOL .!!

This uniqueness we believe will make this eco solution popular with customers in India.



DESIGN AND CONSTRUCTION
BY

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**GO GREEN
GO WITH IMPEX**