



Pancha Mahabhuta

*A truly ecological two story home
with underground parking and basement*

Lote: 472m2 (5080 sq feet)

Construccion: 425m2 (4574 sq feet)

<https://plus.google.com/+TeresaBeckett/photos>

Online MAP: <https://goo.gl/maps/zFx1k>

The fresh, integrated concept combines ancient building techniques with modern technology, renewable and recycled materials that are appropriate for the environment and resources available. As the Bay of Banderas presents a warm, tropical climate, the house is oriented to the north to avoid overheating associated with sunrise and sunset.

Multiple ecological benefits are offered in this home. Water management is an essential element of the project: rainwater is harvested and stored while grey water is recycled

and later used to flush toilets and water the grounds and produce food on site. Materials that would otherwise have been buried in the landfill were salvaged from local air conditioning business, restaurants, hotels and tourist attractions all within the Bahia de Banderas municipality. For example, tires rammed with earth, 2 and 3 liter plastic PET bottles, glass wine bottles, styrofoam packing material and fiber glass insulation were used in the non living areas. Sand that was excavated to build the underground garage was used to form 75% the stabilized adobe walls in the house.

The integrated project consists of:

- 1 model home (first story)
- 2 apartments (second story)
- 3 car underground parking and basement

Main Ecological Characteristics:

- ☐ Construction with natural materials in living areas-- stabilized adobe walls that keep the house cool
- ☐ Construction with recycled material in non-living areas such as underground parking, warehouse and exterior walls using PET bottles, earth rammed tires, 20 liter buckets and styrofoam packaging
- ☐ Solar hot water heaters
- ☐ Illumination through LED fixtures that blend seamlessly with the modern architectural style assure low watt usage
- ☐ Proper solar orientation assures natural lighting during the day without overheating the house
- ☐ Optimum window placement for maximum energy savings take advantage of predominant winds and sunlight
- ☐ Rain catchment and storage
- ☐ Grey water filtration and reuse for flushing toilets and water grass
- ☐ Biodigestor for black water
- ☐ No VOC paints used

CLOSER LOOK AT THE ESSENTIAL ELEMENTS:

The rooftop “harvests” rain and stores it in a 208,000 liter underground cistern. Grey water from bathroom sinks, showers, laundry room and kitchen are routed through a “biocell”. The used water is filtered through a mixture of gravel and plant roots. The live botanical cell removes soap, grease and other impurities enough to take advantage of this recycled water to flush toilets and water the grounds. (Toilet flushing consumes over 40% of the daily water use in a conventional home.)

Water for bathing and cleaning is heated on the roof by an evacuated tube collector system. No additional gas water heater is required.

The house has been created from the earth it stands on. The soil removed to dig the basement out was compressed into nearly 1000 tires placed there. In the living areas of the home, stabilized adobe was used as the primary construction material for the walls. The mix contains 70% sand, 18% clay, a handful of rice straw, and 12% cement. Finished walls are 30 cm thick. This formula is ideal as it allows the adobe to “breathe” thereby self-regulated humidity (perfect for asthma sufferers). Adobe is naturally resistant to termites, non-toxic, fire-proof, noise-proof and biodegradable. The thermal mass of the adobe walls helps maintain comfortable, stable temperatures indoor. The acoustic value is incredible.