

## Sustainable House Day:

180 Gulnare Home, Bees Creek

*“We’ve recycled the steel frame from an old shed that was on the property, have raised its height & utilised a vented roof to make sure hot air can escape. We grow our own fruit & veggies, recycle grey & waste water, harvest storm water & have Photovoltaic solar panels on our roof. We are constantly building on our garden & have plans to expand on our solar system & storm water harvesting so we can be more sufficient for power & water”*

### Waste Water & Composting –

-Biolytix water system to convert household sewerage into garden irrigation water. Water from this is used on the lawn, veggie patch and fruit trees. It currently uses electricity to pump & has been fitted with an energy efficient pump. According to Biolytix, it uses 90% less energy than most aerated sewerage systems, as it uses organisms (e.g. worms) to convert household waste to usable water.

- It is a smart & water-wise irrigation system, where less water is used from mains water, & is a natural fertilizer for the garden (waste is broken down by worms, similar to a worm farm). Food waste can also be composted with the system, but the Kilgour’s give all food waste to the chickens instead

- Laundry water is diverted straight to the banana tree (the banana tree isn’t watered from the Biolytix system)

- The Kilgour’s direct all compostable food waste to the chickens. Weed free hay or grass clippings are added to the chicken pen, and the chickens mixed the compost and mulch with their manure. Every few months this compost, manure, mulch mix is spread on the veggie patch or at the base of the fruit trees.



### In The Garden –

-Citrus trees have been planted (6 varieties in total) on a swale with a dam on the other side (currently not filled, but will attempt to seal with clay this wet or failing that, concrete next dry). The swale will manage water run-off when it rains (by spreading it horizontally across the area and slowing the velocity) & also retain water in the soil for the citrus to access

- Most of the fruit trees are still developing on the property, but these will be harvested seasonally.

- There is a large veggie garden fertilised and mulched with rakings from the chook house, and currently planted with snake and dwarf beans, sweet leaf, pumpkin, paw paw, lemongrass, parsley, tomato and Ceylon Spinach, among other things.



### Energy & Water –

-Photo voltaic solar panels on the roof provide almost all their daytime energy needs (Type 2, 1 KW system). There are plans in place to utilise the north facing roof on the new shed for further PV panels.

- There is solar hot water heating

- Storm water is harvested in a 10,000 L tank. Water is pumped with a gravity fed pump. There are plans to install a second tank as well and plumb the tank water to an outdoor kitchen.

- Water from the washing machine in the shed goes to a developing banana circle



## Tropical Design –

- The steel frame for the house was recycled from the rough shack that was on the property when it was purchased. The ceiling height was raised to 3m by adding 1m to every column. A vented roof also assists hot air to escape
- The house is open to the north and south, and the smaller windows face east/west, thus awnings over exposed windows allow for cool cross flow ventilation



- The house is small (2 bedroom) and square, with large outside living areas. The surface area exposed to the afternoon sun is very small
- Eaves all over the sides of the house and front and back outside living areas provide plenty of shade to all walls and windows, preventing the sun heating up the walls. Walls and roof are insulated with high R rating
- There are 2 large verandas, one at the southern side of the house (at the entrance to the house) and one at the back (the north). There is a ridge vent running through the house, and 2 large openings at either end of the house. This draws hot air out of the ridge, and cool air in
- The verandas are used for outside living & eating. The roof of the main outside living area (out the back) is also vented and multilayered, designed to allow hot air to escape. There are several large shutter windows which further 'open up' the house.
- There is an outside bathroom, which works well despite initial concerns that it would get very mouldy
- The internal floors are sustainably sought Tasmanian Oak that has a cooling effect
- The roof and walls are light weight corrugated iron construction. These materials cool down quickly at night



## Temperature Control & Lighting

- The house is passively cooled & has good cross ventilation. Windows and doors are kept open and breezes are caught under the shade roofs and directed into the house
- Efficient 4-bladed ceiling fans have been installed throughout the house
- There are 2 inverter air conditioners, but these have been used only once since they were installed dry season last year.
- Lighting throughout the house is dimmable downlights, with hopes to get rid of the transformers and change to energy efficient globes when finances permit.

