

POSITIVE FOOTPRINTS

- Penola House 2011



Organic roof shape and round windows adds fun and character to this high performing 9 star home, showing what is possible when a holistic approach is taken.



1) Energy Efficiency. 9.1 stars out of possible 10! A 9 star house uses 80% less energy to heat and cool than a 6 star house (the current standard), and 1/10 of the energy of average existing housing stock

- Passive Solar design. House orientation & layout to bring sunlight deep into all living spaces
- Eaves designed to let in the winter sun, and keep out the summer rays
- Double glazed low emissivity coated casement windows & bi-folds to maximise ventilation
- Thermal mass provided by polished concrete floor and recycled & bagged Reverse Brick Veneer walls to store the heat in winter and cool in summer
- Solar Lord Evacuated Tube Solar hot water system with instantaneous gas boost
- Highly insulated, tight building fabric
- Stairwell door and internal louvre windows to regulate thermal stratification.
- Louver vents to all exhaust fans (eliminates unwanted air leaks)
- Reversible ceiling fans to provide summer cooling
- Ventilation designed to take advantage of sea breeze
- LED and compact fluorescent lighting throughout
- Greenswitch to turn off standby loads before going to bed/leaving the house.
- 2.3kW grid interactive Photovoltaic system
- Curved roof to help maximise neighbours northern solar access

2) Efficient use of water (~1/3 normal house use)

- Rainwater collected from entire roof via a charged filtered system
- Rounded gutters to enhance self cleaning
- 2x3000-litre Rainwater tank to run laundry, flush toilets, & water garden. Mains backup
- Redwater valves to direct 'cold' hot water, normally wasted, to the watertank
- Nylex greywater gravity diversion system to underground garden distribution
- Water efficient tapware throughout; 7.5 litre per minute shower roses; & 3/4.5 litre flush toilets

3) Material Selection

- Low Embodied Energy Polished Concrete floor made from Ecoblend concrete (60% cement replacement) with recycled aggregate and steel
- Plantation hoop pine timber windows, with recycled Karri door frames
- Plantation or Salvaged timber used throughout.
- Modwood decking and ramps
- Recycled content Ecotech tiles to upper bathroom
- Low VOC GECA certified Marmoleum to stair treads and upper floor
- Recycled brickwork to bring mass to upper floor
- Low Embodied energy cladding materials. Rough sawn battens, Ecoply and Zinalume

4) Health

- Zero VOC (Volatile Organic Compounds) paint throughout
- E0 (minimal formaldehyde off-gassing) cabinetry and trims throughout.
- Undyed, Low VOC Willaura carpet and underlay to bedrooms
- Easy to clean surfaces to living spaces throughout
- Bright, natural light filled rooms throughout
- Light colours throughout keep light levels high postponing the need for any lighting until dark

