

# POSITIVE FOOTPRINTS

## Solar Sollew House

Where they never have troubles at least very few...

As the first of the Positive Footprints 9 star series to be constructed, this Solar Sollew was envisioned as a synthesis of our experience in practical cost effect sustainable design & construction, to produce a truly low impact liveable home.

### 1) Energy Efficiency. 9 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 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 casement windows & bi-folds to maximise ventilation
- Thermal mass provided by polished recycled glass & concrete floor, with recycled & bagged Reverse Brick Veneer walls to store the heat in winter and cool in summer
- Ventilation designed to take advantage of local sea breezes in summer
- Stairwell door to regulate thermal stratification.
- Louver vents to all exhaust fans (eliminates unwanted air leaks)
- Reversible ceiling fans & auto opening clerestory windows to provide venting & cooling
- Thermosiphon solar hot water with gas boost provides ~80% of the hot water needs over the year Highly insulated, tight building fabric
- LED and compact fluorescent lighting throughout
- Greenswitches to turn off standby loads before going to bed/leaving the house.
- 3.0 kW grid interactive Photovoltaic system (creating more power than the house uses!)

### 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
- 7000-litre Rainwater tank to run laundry, flush toilets, & drip irrigate garden.
- 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 recycled steel. Recycled glass seeded into screed and polished.
- Plantation Hoop Pine & Accoya© treated pine (a non-toxic treatment) timber windows and doors
- Plantation or Salvaged timber used throughout.
- Ekowood decking and ramps
- Recycled brickwork to bring mass to upper floor
- Low Embodied energy cladding materials. Radial sawn battens, fibre-cement sheets and Colorbond

### 4) Health

- Ecolor Zero VOC (Volatile Organic Compounds) paint throughout
- E0 (minimal formaldehyde off-gassing) cabinetry and trims throughout.
- 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 lighting until dark

### 5) Accessible Living

- Having a master bedroom and accessible ensuite on the ground floor, combined with larger circulation spaces, the design caters for various stages of life.
- Achieving Gold Level by the Liveable House Guidelines

### 6) Cutting Edge Technologies-

- Earth tube cooling
- Phase change thermal mass
- Electrical Building Control Management System (BCMS) to automate and make "active" passive systems. (Auto opens windows for purging, runs earth tube cooling, controls hot water booster, controls awning shade, controls fans, runs water system.)
- Recycled glass polished eco concrete slab

### 7) Edible food forest reduces food miles

- Espaliered fruit trees along the boundary fences (over 30 fruit trees on site)
- Citrus trees irrigated by sub-surfaced grey water
- Raised vegetable gardens accessible from garden

