Trafalgar House – 2006

The Trafalgar House is space, light and warmth on a small footprint that captures all the benefits of Solar Passive Design.

1) **Energy Efficiency**
   - Passive Solar design - FirstRate 7 Star. (Uses ~1/3 of the energy of a standard house for heating/cooling)
   - Greenheat hydronic heating and hot water system with instantaneous gas boost
   - Double glazed plantation timber windows throughout
   - Highly insulated, tight building fabric
   - Mechanical clerestory window to purge hot air
   - North facing windows to bring the sun deep into the house
   - Ventilation designed to take advantage of sea breeze and natural energy flows
   - Airlock entry to buffer unwanted heat loss
   - Louver vents to all exhaust fans (eliminates unwanted air leaks)
   - Reversible ceiling fans to counter temperature stratification over vaulted 4m ceiling and provide summer cooling
   - Low energy lighting throughout
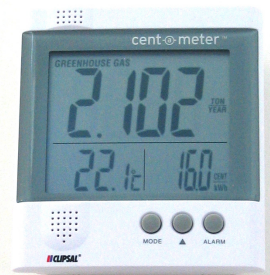   - Electrical northern awning, fully adjustable out to 4 metres to give ultimate solar control

2) **Efficient use of water (~1/3 normal house use)**
   - 9000-litre Rainwater tank to run laundry, flush toilets, and water garden. Automatic mains backup
   - Enviro Save Water valves to direct 'cold' hot water to the watertank.
   - Australian native garden leading to a backyard food forest with espaliered fruit trees and raised garden beds. No lawn on site.
   - Water efficient tank supplied zoned drip irrigation throughout

3) **Material Selection**
   - Recycled, Plantation or Salvaged timber used throughout. No virgin forest timbers used.
   - Bamboo floors (renewable, fast-growing resource) to bedrooms
   - Tile floors to the rest of the house (maximises ability of the slab to act as a thermal regulator and heat store/sink)

4) **Health**
   - Easy to clean surfaces throughout – no carpeting.
   - Bright, natural light filled house.
   - Ducted vacuum system
   - Ramps access, grab handles and no strain garden.
   - Automatic extraction fans to control moisture build-up and associated mould spores
   - Radiant hydronic heating (minimises circulation of dust & dry air)