

BELMONT SUSTAINABLE HOME



The home, built in 2012, employs passive solar design and achieved an energy efficiency rating of 8.5 Stars at that time. The house was constructed using recycled and sustainable materials chosen for durability and low maintenance. Designing for sustainability has provided a high level of comfort with a light interior and an efficient use of space. We have catered for the changing needs of the occupants with multi-purposed spaces and ambulatory accessibility. The polished concrete slab and reverse brick veneer provide the thermal mass. Other sustainable features include solar power, Zehnder heat exchange ventilation system for optimal indoor air quality, LED lighting, smart saver recirculating hot water system, rain water tanks, grey water system, edible garden and sustainable land use.

Awards The home won four awards in 2014. Best Sustainable Home presented by Kevin McLeod at Grand Designs Live for the National NABD awards. Best Energy Efficient Design in the Victorian BDAV award. Best Custom House \$200,000 - \$300,000 & Best Sustainable Energy Home in the MBA South West region awards.

Project team

Fleur Pitman

Eco Select – Sustainable Building Consultants
www.ecoselect.biz p. 03 5244 5649

Greg McNeil

Bios DBS – Designer and Master Planner
www.biosdb.com.au p. 0408 351 620

Stuart Wilkinson & Blake Torrance

Homes with Integrity – Passive house and Green Smart Accredited Builder
www.hwi.net.au p.03 5215-6280

Suppliers

air2energy	Heat exchange ventilation system	http://www.air2energy.com.au
CSR/Gyprock	Superchek plasterboard	http://www.gyprock.com.au
Frencham Cypress	Sustainable timber	http://www.frencham.com.au
Hunter Pacific	Energy efficient ceiling fans	http://www.hunterpacific.com.au/
Smeg	Kitchen appliances	http://www.smeg.com.au/
Caroma	Kitchen sink, taps & vanity	http://www.caroma.com.au/
Volker Haug	LED 125mm lamps	http://www.volkerhaug.com/
Surrounding Australia	Nordic tales light fitting	http://surrounding.com.au/

Sustainable features

- Passive solar design elements such as eaves, thermal mass (internal concrete and brick) and northerly orientation provides a house that is naturally warm in winter and cool in summer.
- Recycled bricks are quality pressed solid brick selected for durability and thermal mass.
- EarthWool wall and ceiling insulation made using recycled glass bottles are formaldehyde-free. EarthWool insulation also has additional sound absorbing properties.
- Recycled cast iron claw foot bath.
- Recycled 1930s "Sunrise" glass cabinet doors.
- Superchek plaster-board used on walls and ceilings has 35% recycled content with the additional benefit of reducing noise transfer between rooms.
- 1.75kw solar panels generating an average of 8kWh daily which is 80% of household use.
- Zehnder heat exchange ventilation system is critical for maintaining optimal indoor air quality and temperature, and preventing condensation. It is 90% efficient in the heat exchange from outgoing to incoming air.
- Low VOC products were used throughout including joinery, paints and polyurethane.
- Window furnishings are made from renewable low VOC materials. Linen is made from sustainably grown flax plant and timber for the venetians is plantation grown.
- Double glazed, argon-filled windows with a low-e coating have composite timber/aluminium frames for optimal thermal performance, durability and low maintenance.
- Polished concrete floor allows the thermal mass to naturally heat and cool the house.
- All exterior & interior timber are Frencham's Cypress, a selectively harvested native timber which has durability class one and has natural termite resistance. This means a natural durability of 50+ years above ground and 25 years in ground.
- Ceiling fans have low power usage. Air movement gives a perceived 5 degrees cooling effect in summer, eliminating the need for air conditioning.
- Retractable blind over the pergola allows for optimal shade and sun control in summer while allowing full sun in winter.
- 6 watt LED light bulbs provide 650 lumens of light.
- Dish washer has very low water use, and an additional eco cycles which automatically opens the door at the end to allow the steam to release, drying occurs without using additional energy.
- Hot water service has a smart start feature which lets water circulates until it reaches the desired temperate, eliminating waste water as there is hot water when you turn on the tap.
- Toilets and taps are all water saving.
- 9000l rain water tank is serviced by the rainwater catchment from the whole roof area. The tank is connected to the toilets, washing and all garden taps.
- Direct divert grey water system, with subterraneous dripper lines waters nonedible plants.
- The garden is designed for low water use with edible plants at the back garden.
- Sustainable land use as the subdivision of existing sites uses existing infrastructure for water, sewer, gas, electricity, roads, etc.
- Drive ways and paths consist of permeable crushed rock to prevent storm water runoff and the pollution of waterways.
- Prefabricate timber frame & roof trusses from plantation timber reduce timber waste by using computer controlled cutting equipment.
- Building waste was minimised on site by separating, and reusing or recycling any timber, metal, glass paper & cardboard.