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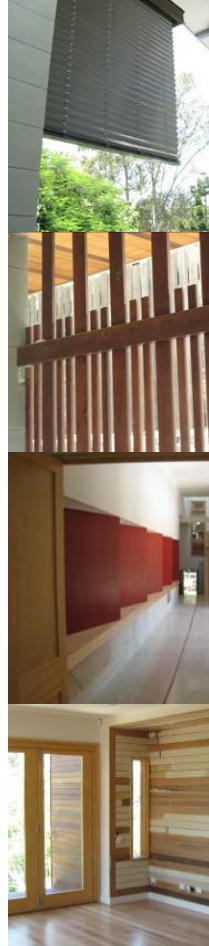
HILL END ECOHOUSE

New 6 Star Energy Rated Sustainable Home

The Hill End Ecohouse incorporates design features, materials and products which have undergone rigorous assessment of their environmental, social and economic sustainability credentials.

- New 6 star energy-rated house
- Planning for easy adaptation for changing uses & households
- Solar power & hot water
- 71,000L rainwater storage supplying whole house & garden
- Grey water treatment
- Water efficient fittings
- Energy-efficient electrical & gas fittings
- High recycled content construction
- Non-toxic finishes

www.hillendeco.blogspot.com



The Story

Two very committed clients with a brief for a sustainable house approached Riddel Architecture in 2005. The goal was to produce the greenest home possible in every aspect from dismantling the existing house on the site to the final landscaping touches.

With this in mind, and working with Robert Peagram Builders who are also dedicated to a sustainable approach, this vision has been realised with few compromises.

The Site

10m wide site runs north south

Total site area 638sqm (200 sqm is a riparian zone)

Total floor areas:

261 sqm - internal spaces

52 sqm - covered outdoor living

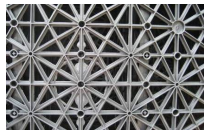
73 sqm - plant, storage and car/bike/kayak garage

Water

Appliances, tapware, fittings and hot water recirculating devices minimise water waste.

71,000L of rainwater storage supplies all of the house and garden. House rainwater is pre-filtered before the tanks then within the house system.

Grey water is treated and recirculated to toilets and washing machine and to the garden.



Energy

Natural daylight is maximised through building and window design to reduce need for artificial lighting. Light-coloured finishes maximise reflection of daylight.

Lighting uses T5, LED and compact fluorescent lamps for optimum efficiency. Appliances are selected for their energy efficiency.

Solar energy will generate 15kWh/day and produce hot water to supply the whole house's needs.



Material selection

Criteria for material selection are a balance of:

- Recycled content
- Embodied energy
- Local supply – proximity to the site
- Durability
- Low/no toxicity

Recycled content materials

- timber framing – 100% recycled
- reinforcing steel 95+%
- concrete mix (fly ash and reactive magnesium)
- plasterboard – 95% recycled
- floor tiles – 70% post-industrial waste
- masonite bracing – sawmill waste
- courtyard rainwater storage – 100% recycled polypropylene
- recycled polyester bulk insulation

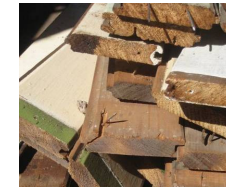
Local supplies

Materials and products were sourced as locally as possible:

- External lighting – Cleveland (35 km)
- Hot water recirculator – Toowoomba (154 km)
- Bluestone for landscaping (40 km)
- Internal feature lights (78 km)
- Paints (121 km)
- Hoop pine joinery and ply – milled 120km away and joinery 18km from site

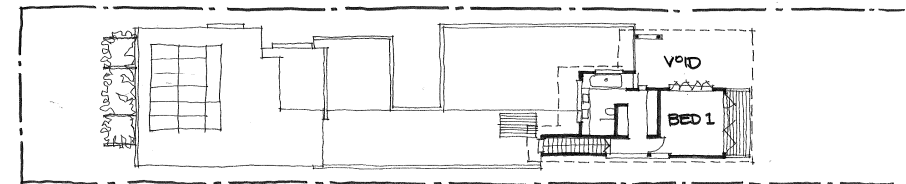
Landscape

Lush plantings provide shade, cooling of breezes, food and privacy, irrigated by treated grey water and rainwater.

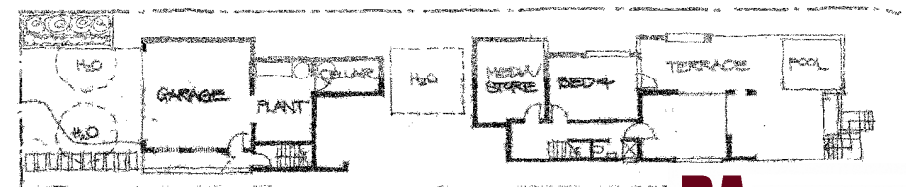


Interesting Facts

- Approx. 80% of the original house was reused in the new home. 95% of the original house was recycled or reused
- Demolition waste – only two 4 cubic metre skips and two car trailers
- Construction waste – no skips during construction. Three 3 cubic metre skips at completion
- New house has estimated total recycled content of 80%
- The house is self-sufficient in water and power



Upper Floor



Lower Floor