

Australian Ethical's 'green' office building

Trevor Pearcey House (Block E), Bruce ACT

An office refurbishment and fitout undertaken within the ethos of the Australian Ethical Charter, and designed to achieve environmental benefits and resource efficiency as well as increased staff comfort and productivity.



The building

- 34 Thynne Street, Block E, Traeger Court, Bruce ACT 2617
- part of the Fern Hill Technology Park, about 5km from the Canberra CBD
- one block in a complex of 5 near identical, square two storey blocks. Prior to refurbishment it was a standard 20-year-old commercial office building
- purchased strata title 2006, occupied March 2007
- net lettable area: about 1000m²
- we envisage it will be sufficient for about 65 staff
- designated parking spaces for small cars and motorbikes
- bicycle racks for staff and visitors

Project cost

- about \$4 million in total including fit-out
- \$2.3 million for purchase of base building

Staff health, comfort and control

Four dimensions of the refurbishment reflect this aim:

- better access to natural light
 - four internal 'stacks' with glass brick sides to allow natural light into (and to allow hot air to exit from) the middle of the first floor
 - opened barrel vault roof, installed louvered windows and a cathedral ceiling
 - limited internal office partitioning
- better access to natural ventilation
 - openable windows - over 90% of the floor space is naturally ventilated

Environmental savings

Studies into green buildings have clearly shown their environmental benefits. These include a reduction in waste going to landfill through the reuse and recycling of materials, a reduction in energy and water consumption and lower greenhouse gas emissions. Occupants of green buildings benefit from improved air quality and a more natural office environment, translating into greater productivity, and less staff turnover.

Ratings

6 star green rating - Office Design

The Green Star rating system, an initiative of the Green Building Council of Australia, evaluates the environmental design and performance of Australian buildings based on a number of criteria, including energy and water efficiency, quality of indoor environments and resource conservation.

- more comfortable feeling of warmth / 'coolth'
 - building is now heated by hydronic radiators
 - downstairs the slab has been exposed and insulated to avoid the need for mechanical cooling
- improved indoor air quality
 - low VOC emissions paint and sealants
 - low VOC emissions reconditioned (post-consumer) carpet
 - very low formaldehyde (E0) composite wood products

Refurbishment features

Energy usage

Features intended to save energy and reduce ongoing green house gas emissions:

- passive cooling and ventilation combined with a wider thermal comfort band (19° – 26°C) reducing demand on mechanical systems
- double glazing
- external walls are 'reverse brick veneer' – thermal mass on the inside is insulated (75mm) from the outside air temperature
- R5 insulation under the metal deck roof
- improvements to the shading panels
- exposing the ground floor slab
- evacuated tube solar hot water heating

The building is designed to be passively cooled in summer by a 'night purge' which works as follows: When the night temperature drops well below the internal temperature the windows open automatically to draw cool air into the building. Hot air is exhausted via the stacks and the louvered windows in the barrel vault.

*Estimated 75% reduction in CO² emissions **

Water usage

Water efficient features incorporated into the building:

- taps upgraded to 4L per minute, showerheads to 5A fittings - 6L per minute
- upgrade of the existing single flush toilets to dual flush with a 9/4.5L system.
- urinals upgraded with a Sani-Sleeve low water use system reducing water use by 95%
- rainwater tanks collecting from the roof and plumbed for use in flushing the toilets
- garden drip irrigation with moisture sensor

Estimated total draw on mains water:

9.24L per person per day

*Estimated 75% reduction in water use **

Waste

Some of the uses of recycled material:

- glass blocks used in the original structure were reused for the stacks and wall partition;
- 250m² of carpet tiles were reused
- all ceiling tiles used were already on the site
- noise insulation in the ceiling from the old fit out was reused in partition walls
- metal shade structures were re-modelled and re-painted, in some cases had new mesh installed
- floor tiles in the old computer room were painted and reused for wall decoration
- reused large quantities of v-jointed plasterboard, doors and some air conditioning ducting from original fitout
- materials which could not be reused were, in general, sent to recycling

Recycling rate for the project of >80% by weight

Building management

- C-Bus lighting control
- sub-metering
- basic BMS (Building Management System)
- Water Guard leak detection
- complete building commissioning

** Comparisons with our estimates for our previous premises and for average Canberra office buildings.*



Contractors and personnel

Owner

Australian Ethical Investment Ltd
Contact: Howard Pender, executive director

Architect

Architect: Kevin Miller
Interior designer: Katy Mutton
Collard Clark Jackson

Green Star Assessor

Warren Overton

Engineering services

Bassetts
Mechanical – Chris Kornek
Lighting – Andrew Linnard
Power/communications and fire – Andrew Todd
Security – David Eddleston

Hydraulics and structural engineers

Hughes Truman
Structural – Alan Schmierer
Hydraulic – Tony Valeri/Brad Dobson

Landscape design

Red Box

Construction manager

Cobul Construction
Vince Cosetto
Keith Holden

Commissioning agent

Jonathan Dalton – Sustainable FX

Cost planner

Phil Cleaver – Wilde and Woollard