

Fact sheet:

# Energy Efficient Demonstration Home



The purpose of this home is to be an educational resource, which explains and shows visitors firsthand what they should look for to easily achieve a more energy efficient and sustainable home, that is more comfortable to live in and cheaper to run.

## Key Facts about the Home:

### 1. Location

- The home is located in the Ginninderry development of Strathnairn, around 20 minutes drive from the centre of Canberra.
- The climate zone is cool temperate.

### 2. Builder

- The project was self-managed by the Owner.
- A combination of local and independent trades people were used.

### 3. Size

- The total house size is 158m<sup>2</sup> and 182m<sup>2</sup> including the garage.
- The size of land is 538m<sup>2</sup>.

### 4. Energy Rating

- The home is rated 8 stars under the Nationwide House Energy Rating Scheme (NatHERS).

### 5. Thermal shell features

- North orientation of the living area and all bedrooms maximises passive solar design.
- Internal thermal mass burnished concrete floors and a reverse brick veneer wall moderate internal temperatures, by capturing the sun's heat in winter and being cool in summer.
- Well wrapped, sealed and insulated walls and ceilings minimise unintended drafts, and better hold the heat in winter or keep out the heat in summer.
- No downlights minimise ceiling holes.
- Insulated garage door reduces west sun heating the garage in summer.
- Zoning of rooms with doors minimise the size of space that uses heating and cooling appliances at any time.
- 'Big Ass' ceiling fans are installed in rooms likely to be impacted most by heat in summer.

### 6. Windows

- Thermally broken aluminum framed, double and triple glazed windows and sliding doors.
- Low-e window to the west to reduce heat.
- Openable windows on opposite sides of the house allow good cross-flow ventilation.

## 7. Appliances

- 'Stiebel Eltron' 222H heat pump hot water system. This was chosen because of its price and it has a better coefficient of performance (COP)\* – 3.94 compared to 3.58 for the larger unit. A Sanden system was also considered.

\*A COP of 3.94 means for every 1 unit of energy used to power the system, the system will produce 3.94 units of energy to heat the water. The higher the COP, the more efficient the system is.

- Daikin multi-head reverse cycle air conditioner in two rooms only. This was chosen because it is more efficient than a ducted system, it is the quietest compressor that we could find and it has R32 Refrigerant, which enables a significant reduction in 'Global Warming Potential Factor'.
- Franke induction cooktop, electric oven and rangehood.
- LED lighting throughout.
- 6.6kW of solar panels from 'Mondiaux Solar' located on the 6.3° south facing roof. The almost flat south facing panels lose around 5% efficiency, so the savings made in not propping up the panels was spent on an extra 1.6kW panels to compensate for the losses.
- Two SolaX 5.8kWh Triple Power solar lithium batteries. This gives a total of 11.6kWh of battery storage.

## 8. Sustainable materials

- Australian 'Weathertex' compressed timber boards used for cladding.
- Australian timbers used for decking (spotted gum) and for vanities and in entry area (red ironbark).
- 'Thors Hammer' recycled Australian timber (blackbutt) kitchen bench.
- Waste timbers and recycled plastic used in kitchen and bathroom doors.

- 'Livos' natural Linseed sealant used on the concrete floors. Consists of Linus priming oil #260 and KUNOS Natural Oil Sealer #244.
- 'Paperock', which is a mix of plywood and compressed paper, used for the study and laundry benchtops.
- Australian timber (blackbutt) veneer on the floating timber floor from 'Choices Flooring'.
- 'Geohex – Wholesale Sleeper Company' recycled plastic grid used under grass driveway and mulched paths at side of house.

## 9. Colours

- Light coloured roof and external cladding is used to reduce urban heat impacts.
- Neutral colours (white, grey and timber) are used internally to avoid the rooms from dating so quickly.

## 10. Cost saving items

- Kitchen, bathrooms, wardrobes and laundry used 'Ikea' products. This reduced purchase costs and allowed the Owner to put together the items, reducing labour costs.
- Neutral colours allowed cheaper tiles ranges to be used.

## 11. External features

- Green roof on studio shed with native grasses, which improves biodiversity, reduces water runoff in extreme rain events and reduces urban heat impacts.
- Grass driveway, which reduces the use of carbon intensive concrete, water runoff in extreme rain events and urban heat impacts.
- Climate wise, native and edible planting in gardens.
- 5,000 litre rainwater harvesting tank.
- Worm farm, quails and wicking beds planned to be included in Spring to improve the sustainable living elements.

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### For further information on this topic see:

- Frequently Asked Questions: [www.commonsss.com.au/frequently-asked-questions](http://www.commonsss.com.au/frequently-asked-questions)
- New Your Home Buyer's Guide: [www.commonsss.com.au/your-new-home-buyers-guide](http://www.commonsss.com.au/your-new-home-buyers-guide)