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# WATSON HOUSE

67 Roma Mitchell Crescent WATSON ACT

## Architect:

Tricia Helyar Architect

## Project summary

The house is sited within a new suburban sub-division in an old inner north suburb of Canberra. A conventional block, the site is made remarkable being across the road from Mt Madura Reserve.

The street address is to the South East of the boundary, with neighbours planned to all three remaining boundaries. The suburban feel of the block is subverted by the provision of a house that responds responsibly to the optimal environmental orientation.

The client, an active, recently retired couple worked with Tricia Helyar Architects and had a strong desire to fulfill environmental and social ideals as part of the provision of a new house on their suburban block of land.

The building was developed through strong principals of passive solar design, the integration of active systems to limit dependence on grid and with an emphasis on adaptable housing.

The building focus is to provide a comfortable house whilst maintaining ethical and environmental standards within a tight budget. This is reflected in the planning and design of the house, and through the use of materials and craftsmanship of the construction.

In summary, the following principals are employed:

### Passive solar design:

The climate of Canberra encompasses the extremes of Australian weather – very hot in summer, very cold in winter. The building has accommodated these extremes through:

- An insulated slab on ground acting as thermal mass.
- Dark floor tiles are used to maximize the thermal gain to the slab.
- Construction of the internal stud dividing wall of brick infill and gyprock sheeting in order to add thermal mass to supplement the slab mass.
- Use of polystyrene panels to South and West elevations. This gives high levels of insulation with no thermal mass. The aim is to provide a wall in a basic barrier sense rather than an element that can be modified by the environment – in this instance, the wall will not absorb and store the coolness in winter from the south. The treatment of these facades is in contrast to the custom orb panels to the North and East.

- The masonry wall to the northern boundary collects and retains the winter heat to radiate and make comfortable the external living area.
- External pavers are Timbercrete – the specification of which allows for comfortable barefoot use in summer, and reduces potential for heat gain with external materials.
- The coupling of the large windows to the north with a carefully considered eaves overhang. The high level windows are included to highlight the high level profile of Mt Madura across the road and also allow for heat and solar admittance in winter. The angle of the roof and the eaves overhang give intrinsic protection from the high angled hot summer sun.
- External shading frames are provided to allow for additional temporary/removable shading to the North and East elevations.
- All glazing is double glazed.

Heat loads on the building due to it's siting, location, occupants and the appliances have all been considered in the response of the building to it's environment.

### **Ventilation:**

The main North South corridor of the building both catches the expansive views offered by the site and importantly, the North Eastern late evening. The orientation of the building allows it to breath.

High level hopper windows aid the airflow, as do the inclusion of ceiling fans.

### **Active systems**

Active environmental systems have been employed in the building as follows:

- Grey water is retained for re-use on site through subsurface dispersal (avoiding the vegetable garden)
- Rain water is collected and stored on site for re-use to toilets washing machine external sink and garden taps
- A vacuum tube hot water is employed to heat water
- 2.8 kW Photovoltaic system supply power to the house and feed the grid
- In-slab heating on the Southern side of the building.

### **Adaptable Housing**

The building has been designed not only as outlined above with it's environmental responsibility and future in mind, but also its physical future and adaptivity. The following elements have been considered:

- future planning for division of the existing single dwelling into two separate dwellings for either later rental potential, or accommodation for a live in carer. These rooms are currently used as guest accommodation but could also in the interim be converted into two bedrooms due to the thoughtful planning and generous sizing of the rooms.
- 1100mm wide corridors and circulation spaces
- 900mm wide doors
- 600mm high power points
- the floor plate is all one level – no steps
- open generous showers and freestanding hand basins
- kitchen benches set at two heights – for standing and wheelchair access
- future planning for items such as grabrails in shower areas. These are allowed for with the placement of wall structure in appropriate positions