

What makes our home efficient:

Orientation to the sun - The Sun's different angles from Winter to Summer.

This allows the Winter sun to enter the living areas for free heating and the eaves to stop the summer sun entering the home and hitting the windows and walls causing superheating of the building and eventually transferring to the inside.

A good tool to see how your house or block of land is affected is <https://www.suncalc.org>
Set the date to 21 of June for the max angles of winter and 21 December for summer.

Insulation -

R6 Rockwool in the ceilings, (difference in cost was \$1000 more from R5)

Foil and rockwool blanket under tin roof,

R2.7 super high density rockwool on all external walls

R2.4 internal walls

Sisalation around timber frame and sealed with tape

Expanding foam around all window frames and doors to stop drafts into the cavity wall.

uPVC double glazed windows with I-plus coatings to increase the efficiency of holding the warmth in, and on the west window a coating to prevent summer heat coming into the home.

Double door entry points to create airlock, and increases R rating to the doors.

Draft seals around and under all doors. Drafts can reduce efficiency by 15% - 25%

Brick thermal bank that collects heat from winter sun and releases slowly throughout the day and evening. Windows closeby can cool the thermal mass overnight in summer to then help hold a cooler temperature throughout the hot day.

5.4kw Solar panels and 5kw inverter electric system with smart meter for monitoring. This system generated 7609kw/h for the year, our total consumption was 4275kw/h giving us a positive impact on the environment. Giving us a total bill of \$600 for the year, \$1.64/day compared to our 20yr old home of \$7.84/day, \$2,861.60/yr

Own produced power consumption 1779kw/h,

Power bought from the grid at .42cents 2497kw/h

Power sold to the grid at .18 cents 5830kw/h

Plus service charge.

Vacuum tube solar hot water system, only using \$300 worth of off peak power for 1yr. The heating element only being used 3-4 months of the year.

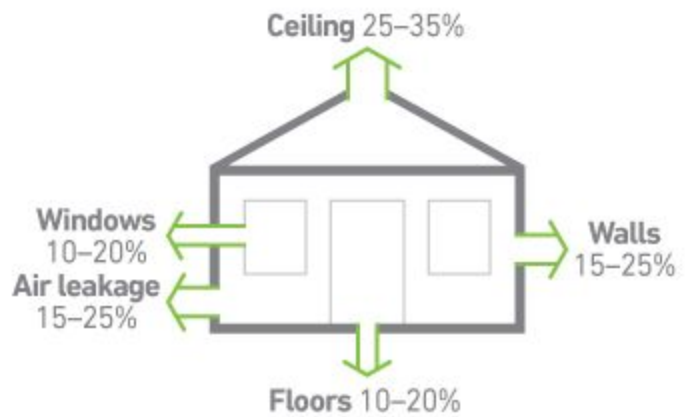
45000lt rainwater collection used for the garden and full house including drinking through a 3 filter system, sediment, activated carbon and UV light.

Good reference sites are

<http://www.yourhome.gov.au/> (especially the passive home section)

<https://renewalsa.sa.gov.au/wp-content/uploads/2016/12/2.4-environmental-sustainability.pdf>

<https://www.sustainability.vic.gov.au/You-and-your-home/Save-energy/Heating/Retain-heat-in-your-home>



HEAT LOSS WITHOUT INSULATION