



Lid is removed from the tank.

Average yearly rain fall for Adelaide

J	F	M	A	M	J	J	A	S	O	N	D
17	19	22	38	59	52	65	50	43	38	24	23

Annual average rain fall for Adelaide is 450mm.

VOLUME OF WATER

$m^3 = \text{Area of roof (m}^2\text{)} \times 0.45$

E-house roof has an area of 171 m²

$m^3 = 171 \times 0.45$
 = 77kL per year

Concrete tank holds 22730L.

Tank will be filled up 3.3 times per year.

\$1.50 / kL for excess water.
Saves \$115.5 / year



Tank is removed from the truck and lowered into the ground.



Lid is sealed and placed back onto the tank.



Tank is back filled with soil ready for the slab.

Consumption data

AAA rated taps & shower head delivering 7L / min.

Shower consumption for two people is 70L / day
 = 26kL / year

Average toilet & washing clothes = 46kL / year

Kitchen & drinking consumption = 4kL / year.

Total consumption = 76kL / year

Garden will be watered using grey water.



Trenches are excavated.
Under slab plumbing is laid.



DPM , steel mesh, and
form work are all put in
place ready for the
concrete.



Two separate plumbing runs are installed.
Shower, bath, hand basin, laundry trough
are connected to a grey water run. Kitchen
sink and toilet are separately plumbed. The
grey water outlet will be connected to a grey
water reuse system which can be diverted to
the main sewer. The grey water disposal
will entirely gravity fed and sub-terranean to
landscaped areas in the rear of the yard.



Concrete is poured. Is it dry yet?

.....walls walls walls we have walls



first frame goes up March 2006



S/W corner walls increasing in height from 2.4m to an eventual 4.5 m



end wall tilted up



steel outriggers in place



now for the roof



The roof framing is completed on the house.

Laminated 'E-Beams' made from renewable plantation timber were used.



Cross bracing for the roof is completed.



Steel outriggers are bolted in place ready for the roofing.



'Eco-Pink' Bio-soluble, R1.5, insulation blanket is laid over the roof structure before the roofing is laid.



Corrugated zincalume roof sheeting is laid. The roof consists of two single pitched skillion roofs into a single box gutter and single downpipe. This allows easy control over leaf debris and primary filtration of rain water before entering the tank.



Polycarbonate roofing is used for the front edge of the main roof. This is to provide shade to the upper windows while still allowing diffused light to enter the building.



Window boxes and windows are put into place. Due to the orientation of the site, the windows are angled to the north to trap low angle winter sun, to enhance passive solar heat gains.



Are these windows straight or is the world crooked?



Western red cedar window frames in hoop pine marine ply window reveals. These also provide great opportunities for seating or to display your Aalto vase!!



Galvanised columns are welded in place for the carport and pergola ready for the timber work.

Timber beams and rafters are cut and bolted into place.



Steel outriggers are bolted to the front edge of the carport.



The LVL timber is painted with a timber preservative treatment.



Clear finished cedar slats are applied to the sides and front of the carport.



Polycarbonate roofing is laid over the whole carport.

Mean while on the northern end...



The pergola beam is cut and bolted to the galvanised posts. The rafters are cut and nailed to the beam and wall ready for mounting the solar panels.



Sarking is nailed to the outside of the entire building. 'Silver Sark'TM, 97% reflective R1.3 heavy duty wall wrap used.



Eastern Elevation showing colour scheme



The galvanised flashings are fixed to the building corners and where the walls meet the slab.

Aluminium flashings are used around the windows, edges of the mini orb and around the roof beams.



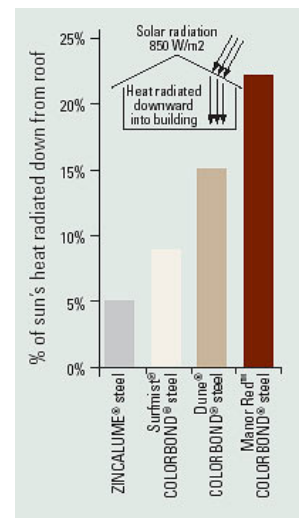
Southern wall and pump room

Mini orb is used for the northern wall, southern wall and pump room, bathroom/laundry wall and above the eastern door.



The Colorbond walling has been started on the north/eastern corner of the building.

Surf Mist is being used for the unshaded sections of the vertical planes to reduce heat radiated into the building during summer.



Heat radiated through different roofing colours. Assumptions used in steady state calculations: solar radiation of 850 W/m², zero wind speed and 30°C ambient air temperature.

This helps by reducing energy costs to cool the home.

Jasper with a dark 'BASIX' colour classification and absorption ≥ 0.70 , was selected for wall areas shaded during summer but exposed to direct sun during winter.

Zincalume has been used for the roofing as this has the highest reflectance for reducing heat radiated into the building from the sun.

For more information on the classification of solar absorbance of colours go to,

<http://www.bluescopesteel.com.au/go/brands/colorbond-steel/energy-efficiency>
<http://www.basix.nsw.gov.au/basixhome.jsp>



The trenches are excavated and the grey water Diverta™ is set in place. The grey water Diverta™ allows the water from the shower, bath, hand basin and laundry to be redirected toward garden area at the rear of the building.

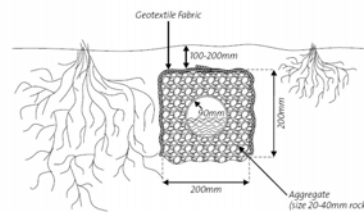
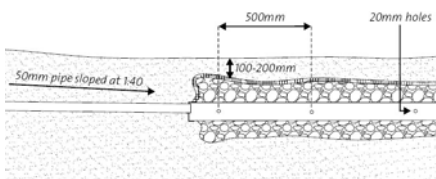


Piping spreads out into six trenches

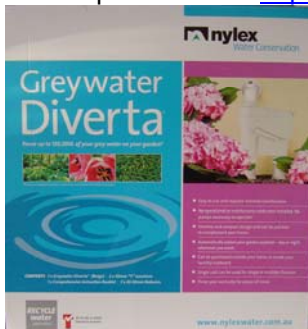


Pipes are laid into the gravel filled trenches

When the water is diverted from the grey water saver, it is directed into pipe work which spreads out into six gravel filled trenches. Geotextile fabric is placed around the top of the gravel trench to stop plant roots effecting the drainage. The total length of trenches is dependant on the amount of fixtures discharging into the system and soil type.



Trench pictures from <http://www.neco.com.au/diverta%20installation.pdf>



Please note that the instillation of this system requires local government approval, refer to the manufacturers information on the following website.

For more information on the Grey water Diverta™ visit, <http://www.nylexwater.com.au>



Mini orb wall cladding is completed on the northern elevation. The highly reflective surface will help reduce heat loads during summer.



The Colorbond wall cladding is completed on the eastern elevation.



The Colorbond wall cladding is completed on the western elevation.



Glass goes into the window frames and louvres.



The sliding doors and windows are placed into their frames.

LIGHTING, POWER & COMMUNICATIONS



Lighting

All lights are low energy use, either super bright LEDs or compact fluorescent. Programmable control is via localized wall switching.



HPM Light timer and switch

Power

Power circuits in the house are divided into essential and non essential circuits. Non essential power is monitored via motion sensors to shut down power outlets if the area of the home is not occupied.



HPM Superdimmer with remote



Import/export power meter allows the solar panels to feed power into the grid when the production of electricity is higher than consumption.



HPM Automatic Light Switch.

Detects movement in the room and switches on automatically. Will switch off automatically after a time limit when no movement is detected.

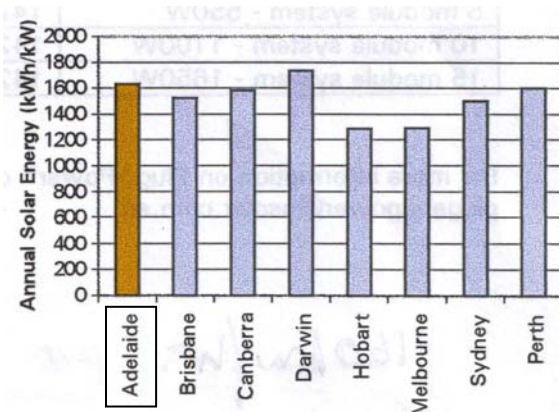


Chart showing annual solar energy available in each Australian capital city.



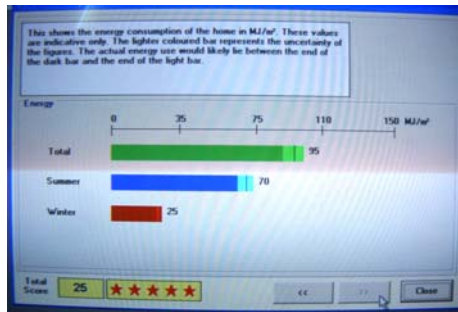
Solar array

The solar panel system used on the Salt E-house is rated at 1.1kW.

Energy produced annually from this system in Adelaide is $1610 \times 1.1 = 1771\text{kWh}$

We expect the array will provide all the energy requirements for the home.

An energy rating using the 'First rate' assessment program gives the house a five star rating. Thermal mass, glazing, shading & orientation, insulation of building elements & air movement control are rated to achieve this assessment.



'First rate' energy consumption assessment indicates a predicted annual power consumption of 2361 kWh per annum.

Due to active power consumption controls and low energy lighting and appliances the expected usage will be improved by approximately 20%.



R2.0 'Rockwool' insulation is used in all internal and external walls. With linings, sarking and insulation an R value of 2.5 is achieved.

R3.5 is used in the ceilings throughout the



38mm 'Rondo' furring channels are installed for the plasterboard ceiling.



13mm plasterboard is used to line all walls and ceiling.