

# Case Study

## Warri Crescent, MacMasters Beach



### Client

Private Residential Owners

### Builder

E-Con Group Pty Ltd

### Architect

Ecologie Group Architects

### Project Type

knockdown & rebuild

### Project Duration

9 months

### Building Area

286 sqm

### Building Cost

approx. \$700K

### Description

storeys (2)

bedrooms (4)

bathrooms (2) + ensuite

kids/rumpus room

Separate lounge and dining

kitchen

laundry

double garage

### About the Project

Designed as a relaxing holiday getaway with plenty of room for family and friends to visit. Open spaces with large decks for entertaining, high raked ceilings, fresh sea breezes and stunning ocean views give this home a real edge.

Built on a concrete reinforced raft slab, the external walls of the house are constructed using light weight steel frames that are double insulated with reflective foil and R3 insulation batts. Extra thermal mass was also added to the kitchen, family and living area walls using 75mm Hebel Power Panels and a flexible acrylic render. This combination keeps the building very well insulated leaving the inside of the house very cool in summer and warm in winter.

The eaves overhang were also correctly modeled to ensure the windows allowed maximum sun in winter and maximum shading in summer. The addition of deciduous trees to the landscaping provided an added shading barrier in summer. A large grid connected solar power system was installed, capable of feeding the entire home of all its energy needs. Overall the home is extremely energy efficient and truly self sustainable.

### Ecologically Sustainable Solution

Passively designed

16,000 litre underground rainwater tanks that feed the entire home for all it's water needs

Solar heated hot water units (gas boosted)

Grid connected solar power unit capable of supplying the entire home energy needs

Household Energy Efficiency rating of 6 stars

Gas powered underfloor heating to ground floor and bathrooms.

Ducted vacuum system

Tiled Floors throughout

### Project Challenges

Proximity to the ocean and breaking waves meant materials needed to be hot dip galvanized, marine grade stainless steel or colourbond ULTRA.

During excavation for the underground rainwater tanks, rock was encountered and so the entire stormwater system was redesigned and incorporated into the foundation system of the home. This redesign saved the client approx \$15-\$20K in excavation costs.

The steep 45 degree pitched roof was a challenge to build and sheet, so a permanent static safety system was installed on the roof ridge at a minimal cost.