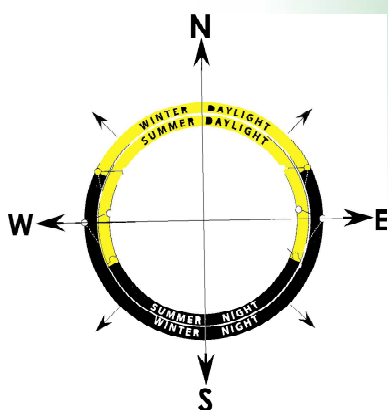
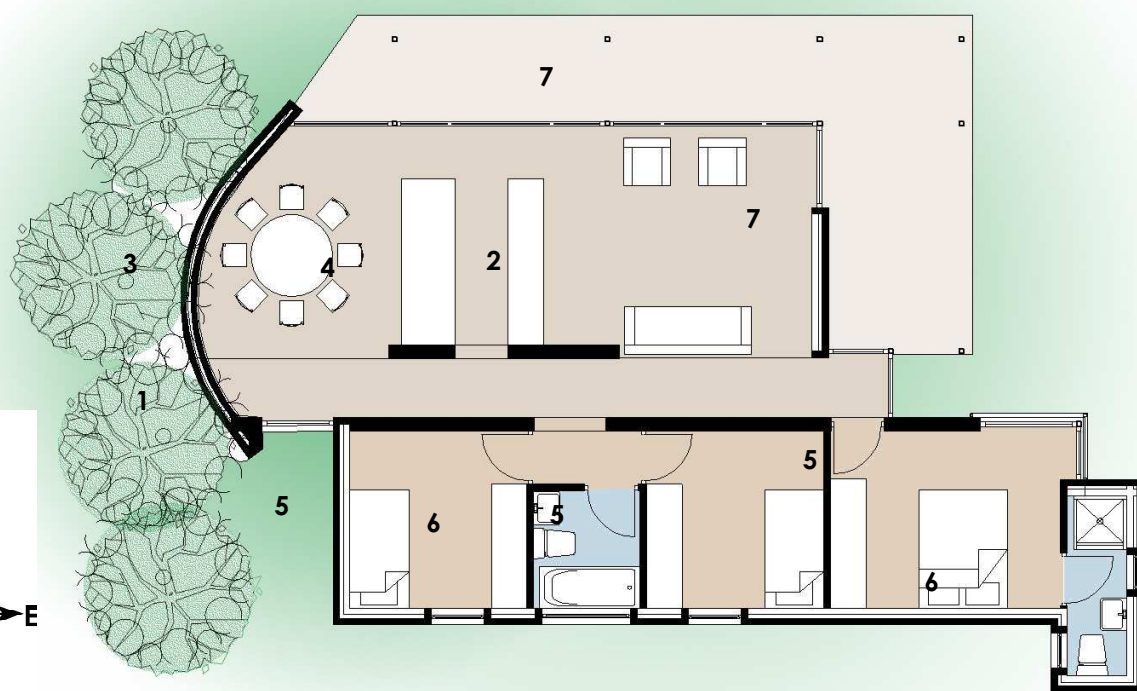


PERSPECTIVE

**LEGEND:**  
 1-ENTRANCE  
 2-LIVING ROOM  
 3-DINING ROOM  
 4-KITCHEN  
 5-BEDROOM  
 6-BATHROOM  
 7-COVERED VERANDAH



0 1m 5m 10m



SKETCH PLAN

## CLIMATIC ZONE 5: SUB-TROPICAL COASTAL

East London; Durban; Richards Bay

Data referenced

HOLM Subtropical

NAPIER Subtropical Coast

VAN LINGEN Humid Tropics

### CLIMATE = DESIGN PRINCIPLES

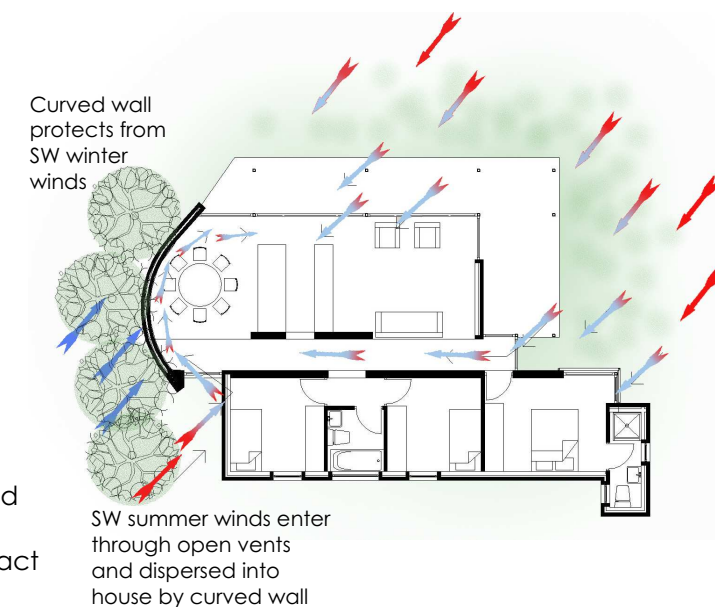
- HUMIDITY** : High humidity problematic= cross ventilation required
- RAIN**: Eaves protection from rain and sun to entrance and outdoor social areas required -
- EQ window** = 16% of floor area
- TEMPERATURES**: High = COOLING imperative ; lightweight building envelope that can cool down rapidly at night
- High solar radiation = west façade shaded and buffer zones
- High soil temperatures = minimal ground contact
- WIND**: Summer = SW & NE and Winter= SW predominantly
- LANDSCAPING**: planted surfaces cool air for ventilation

### DESIGN APPLICATION

This house was designed primarily for efficient ventilation, with a passage that runs the length of the house and draws in both NE and SW winds through the house to cool down the interior and the structure. The removal of hot air is further aided by vents at high level in the passage which draw out hot air. This stack effect is increased by adding a dark coloured roof on the passage which heats the air under it and increases the removal of air out.

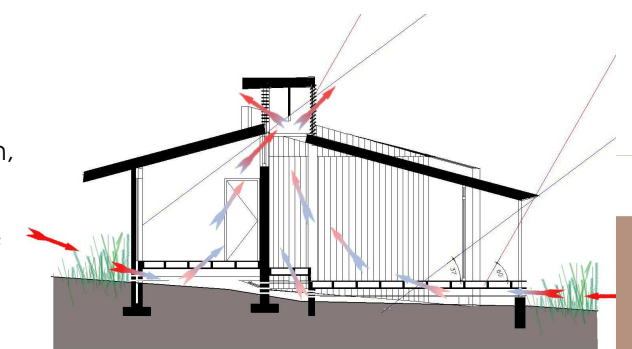
In terms of structure the house is designed with a lightweight structure which can cool rapidly at night, and the floor is further removed off the ground to both further cool the floor and prevent heat from the soil radiating into the house.

All rooms either have North facing EQ windows sized as per the data above or in the case of the south facing back bedrooms high level clerestory windows under the roof are sized to act as EQ windows. Note that the depth of the veranda that wraps around the living area is such that it allows winter sun to penetrate the living area whilst blocking the summer sun. Similarly the overhangs over both the clerestory windows are designed to exclude direct summer sun. The main bedroom window has been designed with shutters that have the same effect.

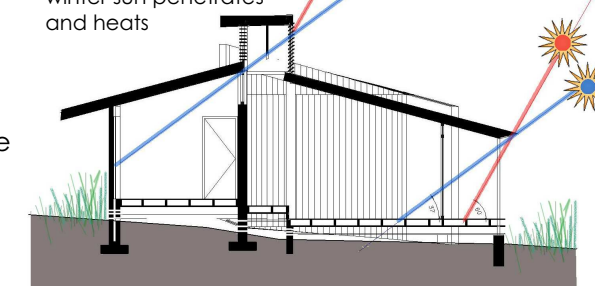


Curved wall protects from SW winter winds

SW summer winds enter through open vents and dispersed into house by curved wall



Summer excluded from entering house by verandah overhang and angled louvres but low winter sun penetrates and heats



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CLIMATE ZONE 5: SUB-TROPICAL COASTAL

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