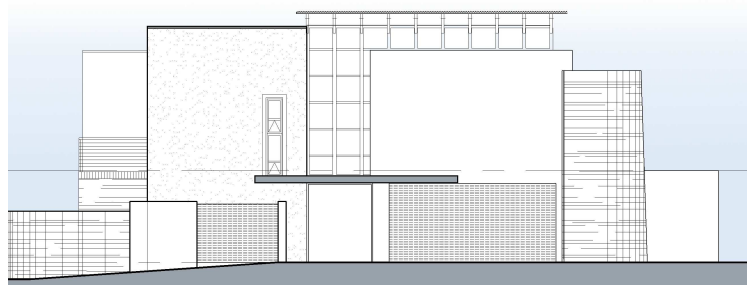


EAST ELEVATION



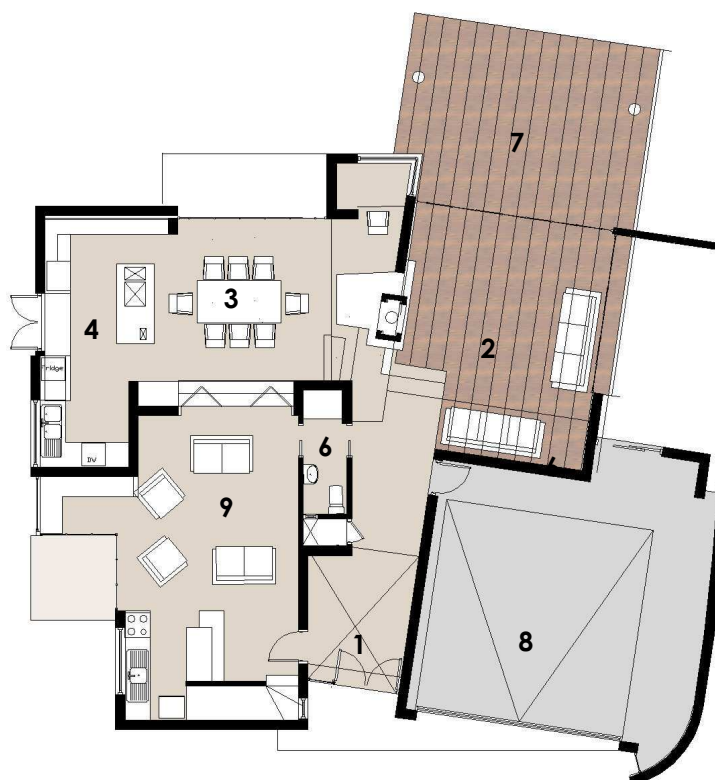
SOUTH ELEVATION

**LEGEND:**

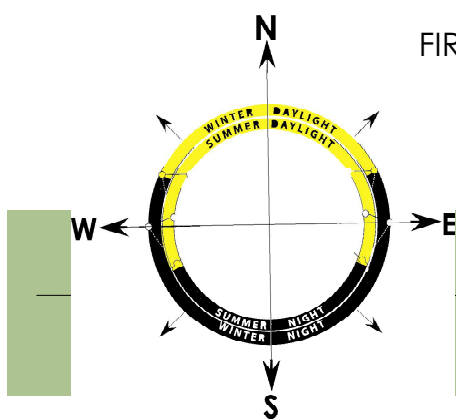
- 1-ENTRANCE
- 2-LIVING ROOM
- 3-DINING ROOM
- 4-KITCHEN
- 5-BEDROOM
- 6-BATHROOM
- 7-COVERED VERANDAH
- 8-GARAGE
- 9-INTEGRATED COTTAGE/ STUDY



FIRST FLOOR PLAN



GROUND FLOOR PLAN



## CLIMATIC ZONE 1: COLD INTERIOR

Johannesburg; Bloemfontein

Data referenced

HOLM Highveld

NAPIER Temperate Eastern Plateau

VAN LENGEN Temperate

### CLIMATE = DESIGN PRINCIPLES

•**HUMIDITY** : Moderate with low humidity in winter

•**RAIN**: Summer rainfall - thunderstorms = entrances require rain protection

•**EQ window** = 19.2% of floor area

•**TEMPERATURES**: Summers warm to hot temperatures and cold winters = thermal mass effective for cooling and heating

•High solar radiation in summer = shade external spaces

•**WIND**: Summer= NE and Winter = NW & SW predominantly; ventilation effective , also summer night ventilation

•**LANDSCAPING**: Shading of western facades imperative. Shady deciduous trees effective in preventing overheating in summer and allowing sun radiation in winter

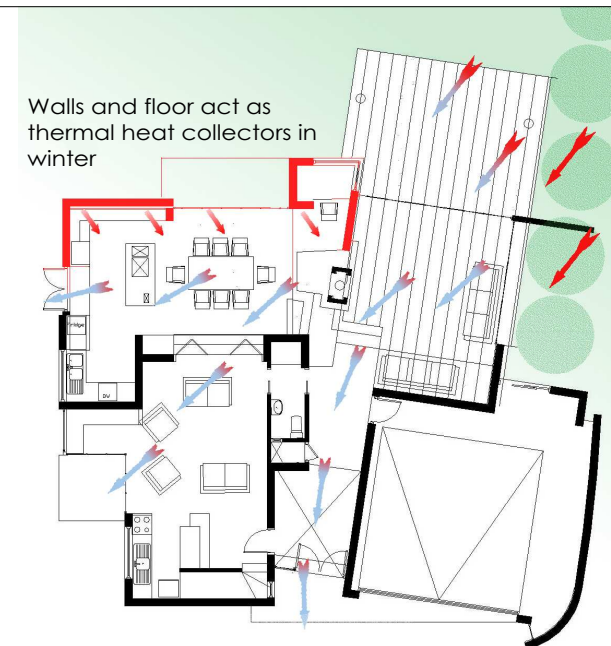
### DESIGN APPLICATION

This house is designed with very different summer and winter requirements in mind. In summer the entire lounge opens up to NE summer winds which ventilate the house and increase the stack effect of the roof shape. This NE lounge is shaded by the more solid west block from low west summer sun.

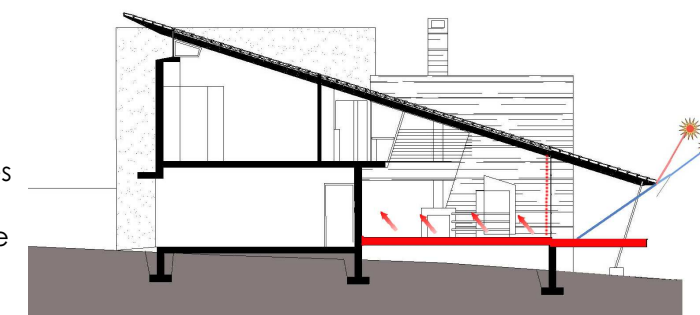
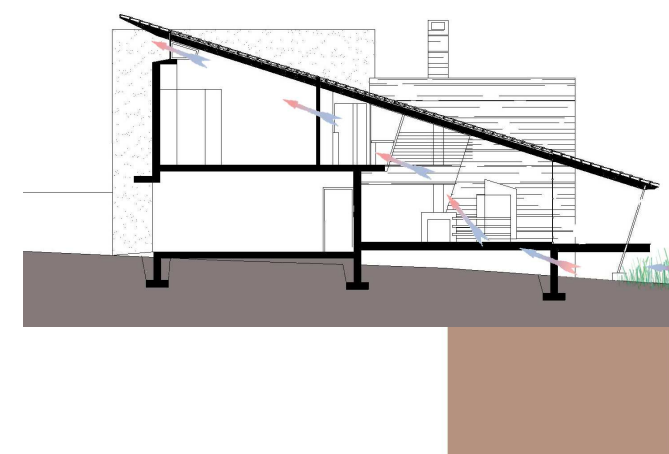
Night ventilation in summer is aided by the open plan double volume hall and living area which acts as a heat sink cooling the adjacent bedrooms.

In winter, the glazed façade of this lounge is closed up and forms a thermal heat collection area, which radiates the heat collected into the rest of the house. Insulating blinds or curtains prevent heat loss at night.

Note that house is designed as potentially 2x residences within one - with an integrated cottage( with own stair to upstairs bedroom) that can be closed off from house for extended family or used as a study/ office.



VENTILATION & THERMAL PLAN



CLIMATE ZONE 1: COLD INTERIOR

greenbrick

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