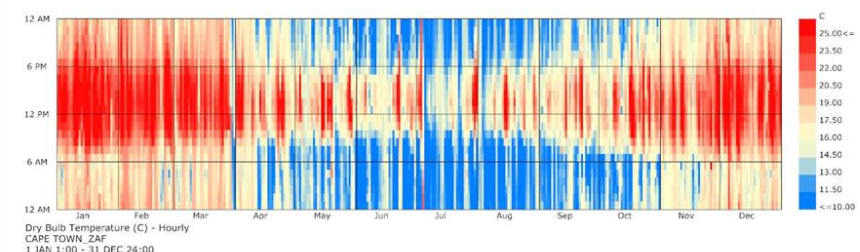
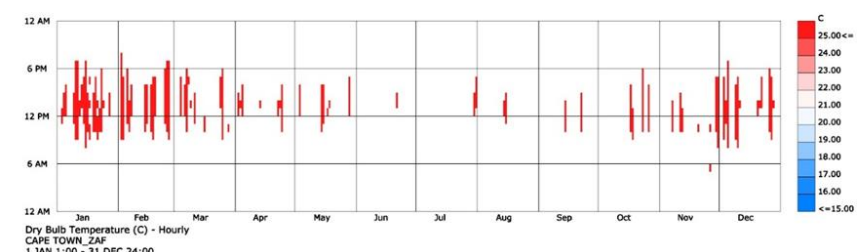


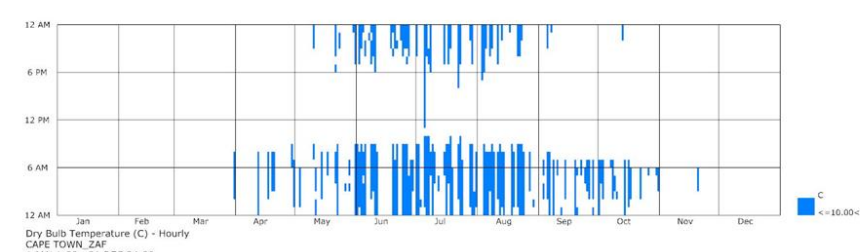
Cape Town, South Africa (33.9253° S, 18.4239° E)



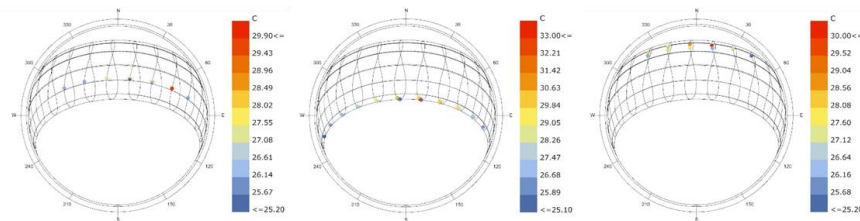
(Fig 1.1) The annual temperature graph of Cape Town indicating the average annual temperature range



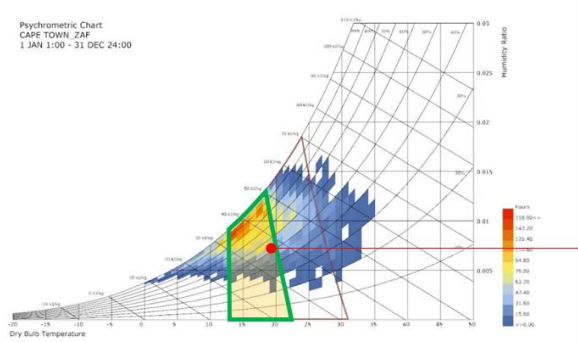
(Fig 1.2) Graph indicating the times of the year when the temperature falls higher than 25°



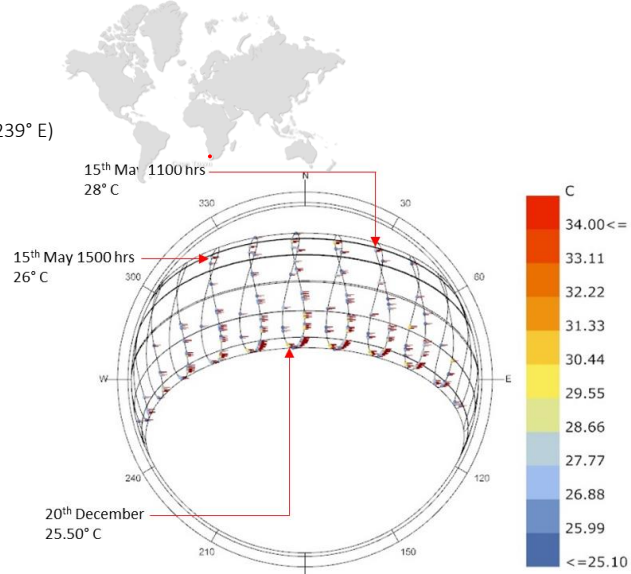
(Fig 1.3) Graph indicating the times of the year when the temperature falls lower than comfortable (15°)*



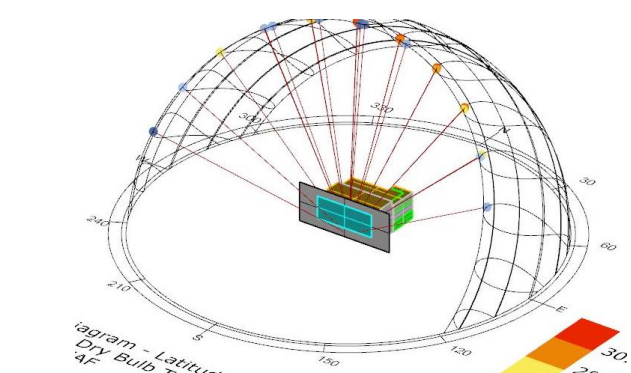
Sun-Path Diagram - Latitude: -33.98
Hourly Data: Dry Bulb Temperature (C)
CAPE TOWN_ZAF
Conditional Selection Applied:
Dry Bulb Temperature>25
10.0 hours of total 252.0 sun up hours(3.97%)
42.0 hours of total 294.0 sun up hours(14.29%)
17.0 hours of total 211.0 sun up hours(8.06%).



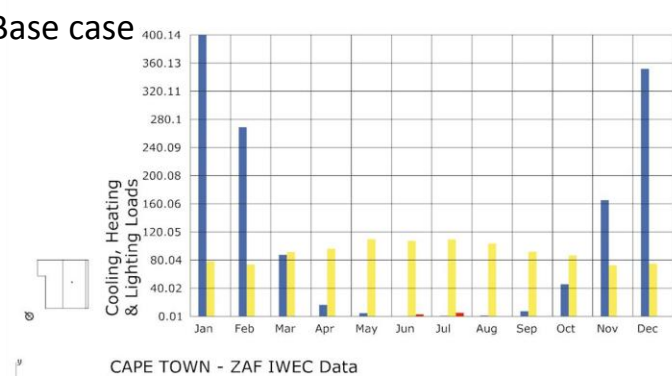
Internal Heat gain – 77%



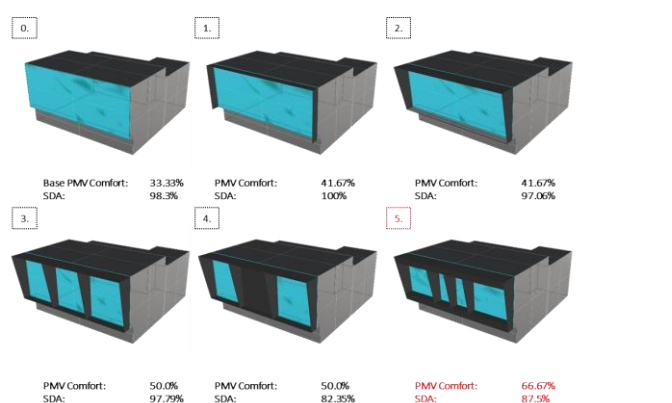
Sun-Path Diagram - Latitude: -33.98
Hourly Data: Dry Bulb Temperature (C)
CAPE TOWN_ZAF
Conditional Selection Applied:
Dry Bulb Temperature>25
272.0 hours of total 3012.0 sun up hours(9.03%).



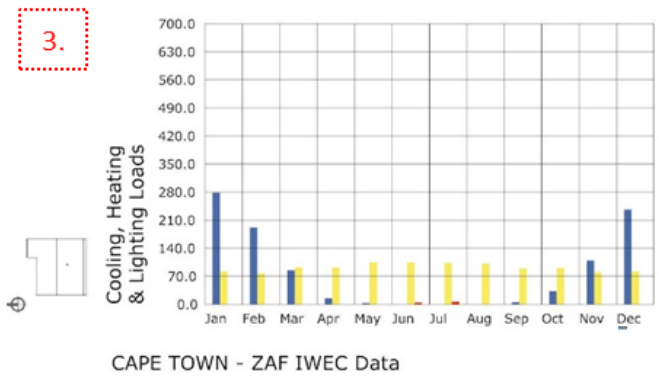
(Fig 4.2) December sun of radiant temp>25°C. Based on this, vertical fins on either side of glazing will be required.



Options tried



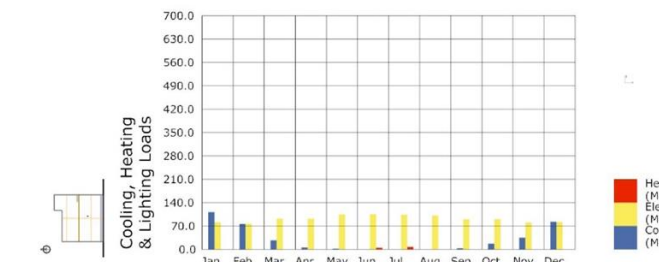
After Optimizing Orientation



Total Cooling load: 961.74
Total Heating load: 12.33
Total Lighting load: 1102.47
Total load: 2076.54

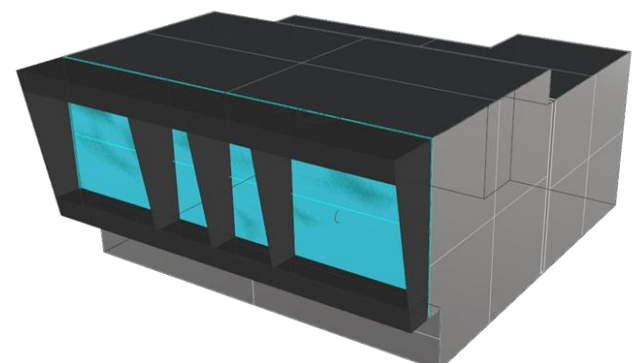
PMV Comfort: 50%

After Optimizing for Ventilation



Total Cooling load: 362.95
Total Heating load: 14.13
Total Lighting load: 1102.47
Total load: 1479.55
PMV Comfort: 58.33%

Options finalized



Default material
PMV Comfort: 66.67%
SDA: 87.5%

Predicted Mean Vote with natural ventilation	
Jan	6.483681
Feb	5.783032
Mar	5.005769
Apr	7.036377
May	10.6163
Jun	15.59338
Jul	15.37391
Aug	12.51079
Sep	9.042309
Oct	6.719571
Nov	5.067242
Dec	5.760595