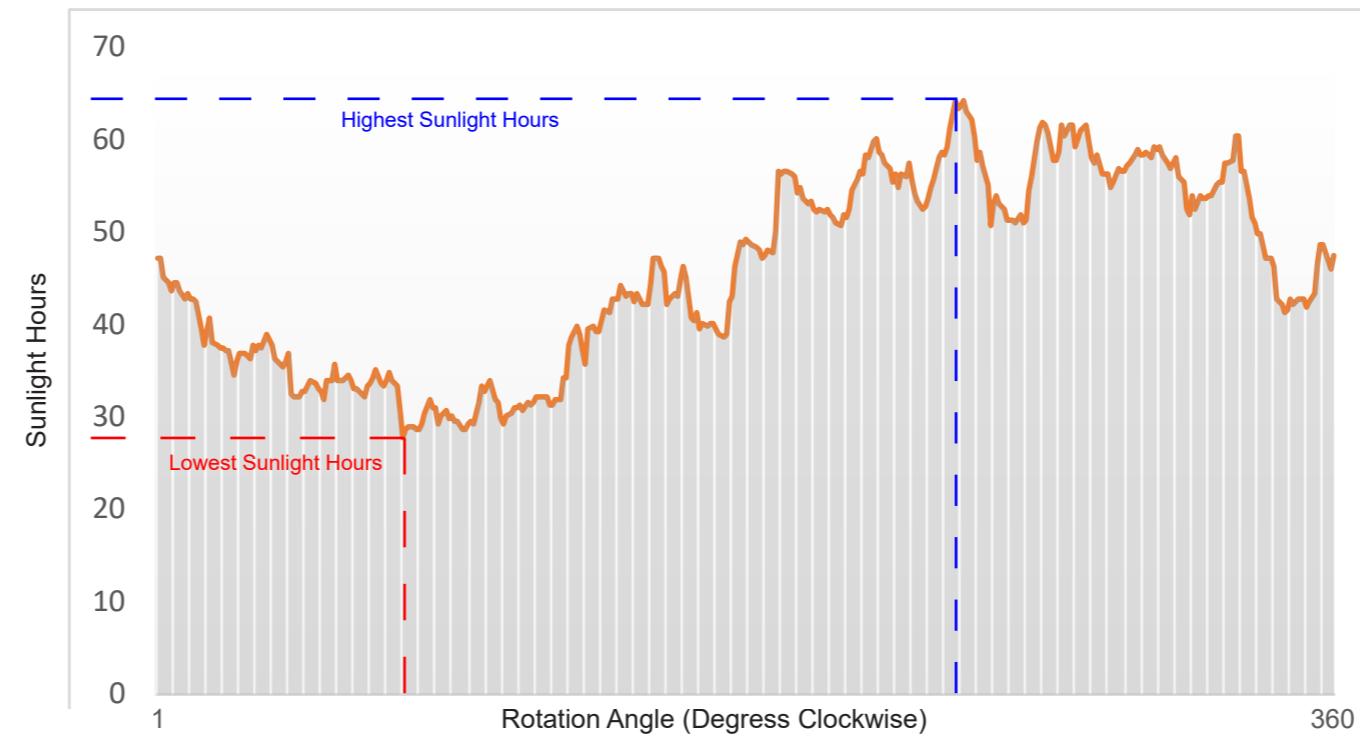




Preliminary Daylight Analysis for Preferred Option Facade Scheme 04

Analysis Strategy

The idea was to first find the **best** and the **worst** orientation for the villa from daylight point of view. In order to find that orientation the north is rotated 360 degrees and the result of sunlight hours received in the regularly occupied areas of the villa (Living, dining, and bedrooms) are recorded. The recorded observation is shown in the graph below. Based on the graph, it can be observed that the **113 degrees clockwise** rotation provided the maximum sunlight hours and **75 degrees anti-clockwise** provided the lowest sunlight hours in the regularly occupied areas of the villa. The sunlight hours are tracked for 10am, 12pm, 2pm on equinox and 10am, 12pm, 2pm on summer solstice.



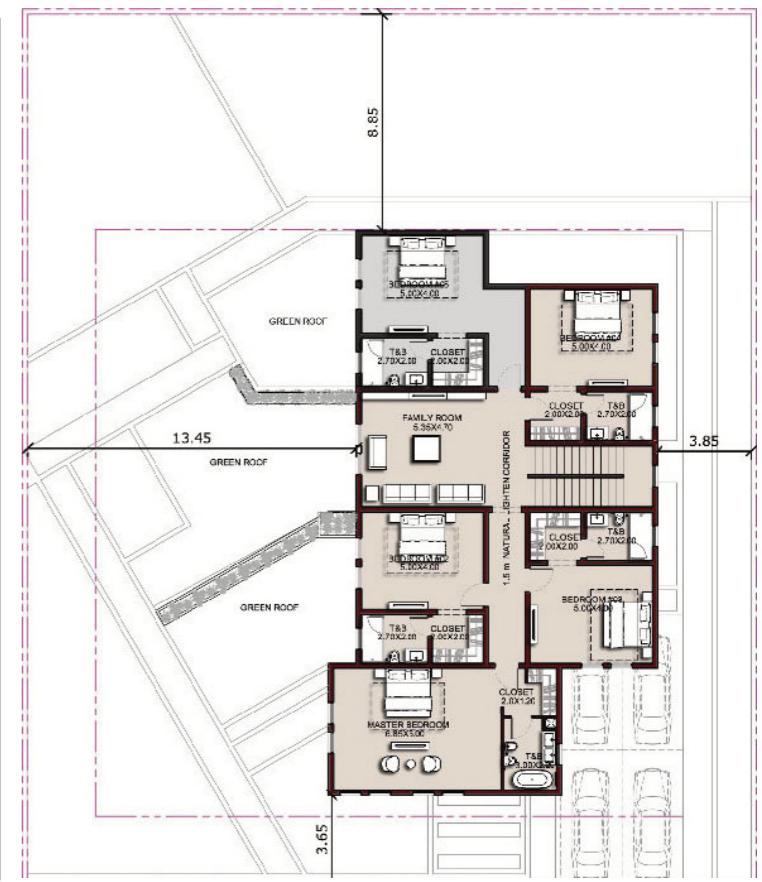
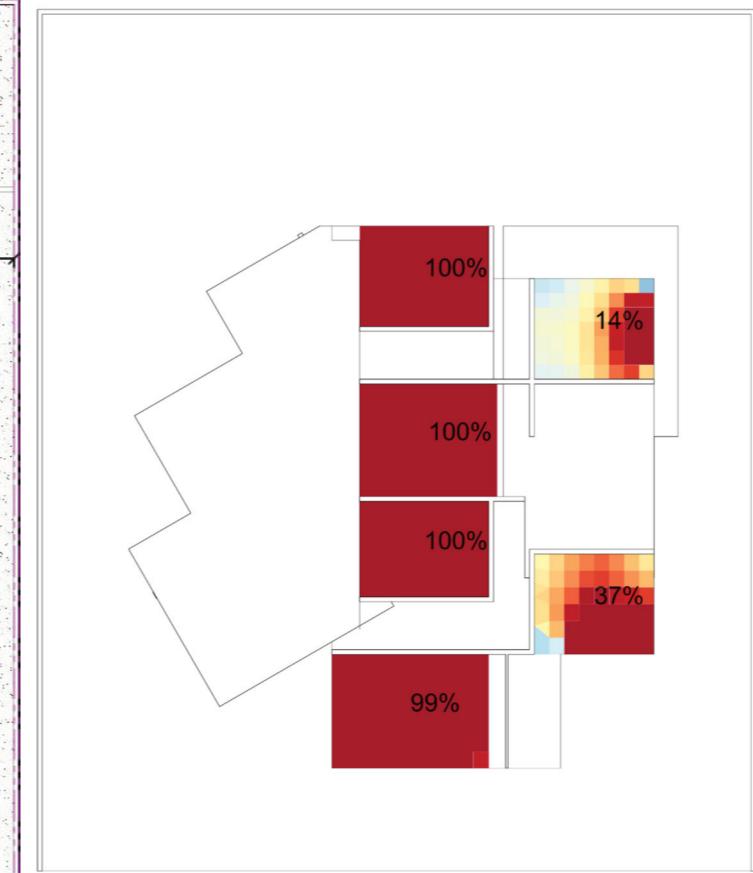
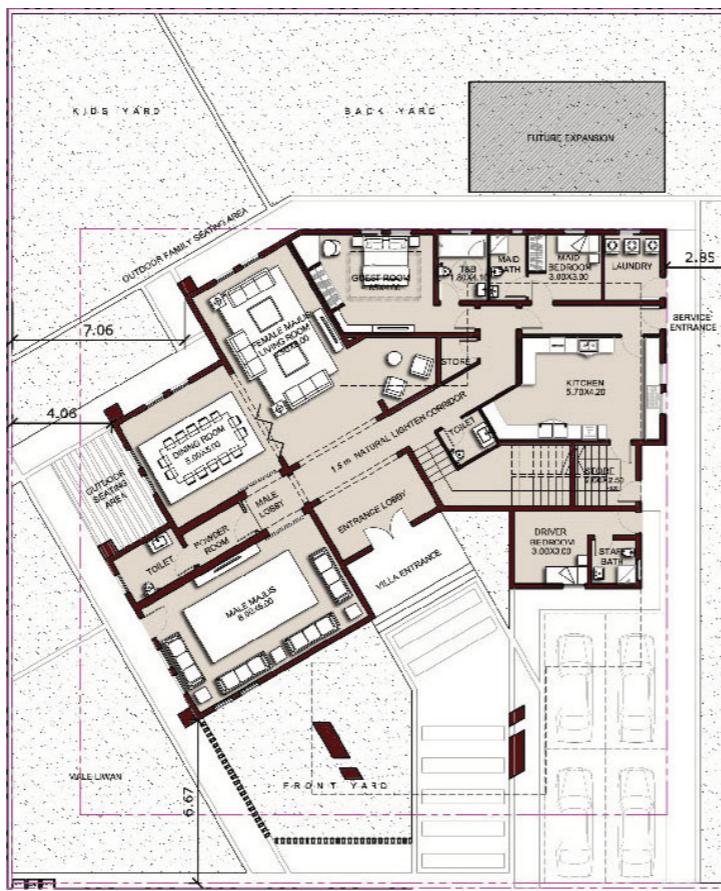
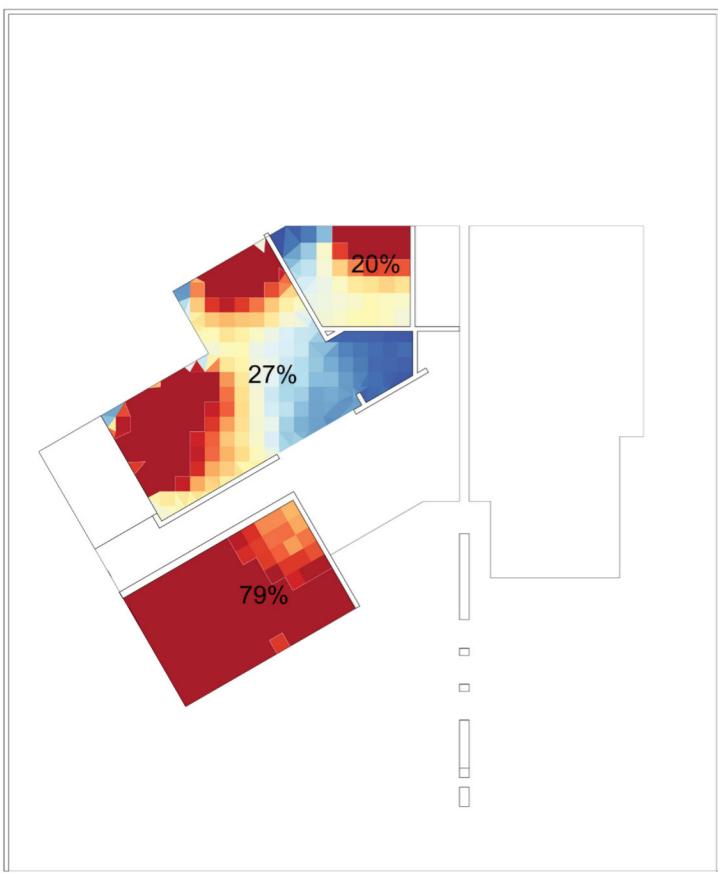
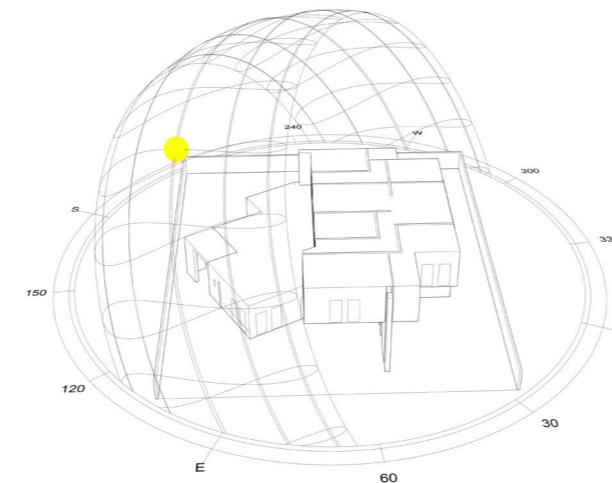
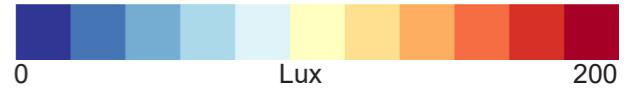
Simulation Parameters for Daylight Simulations

Reflectance	Percentage
Wall	50%
Floor	20%
Ceiling	80%
Shading	30%
Ground	10%

Transmittance	Percentage
Glazing	40%

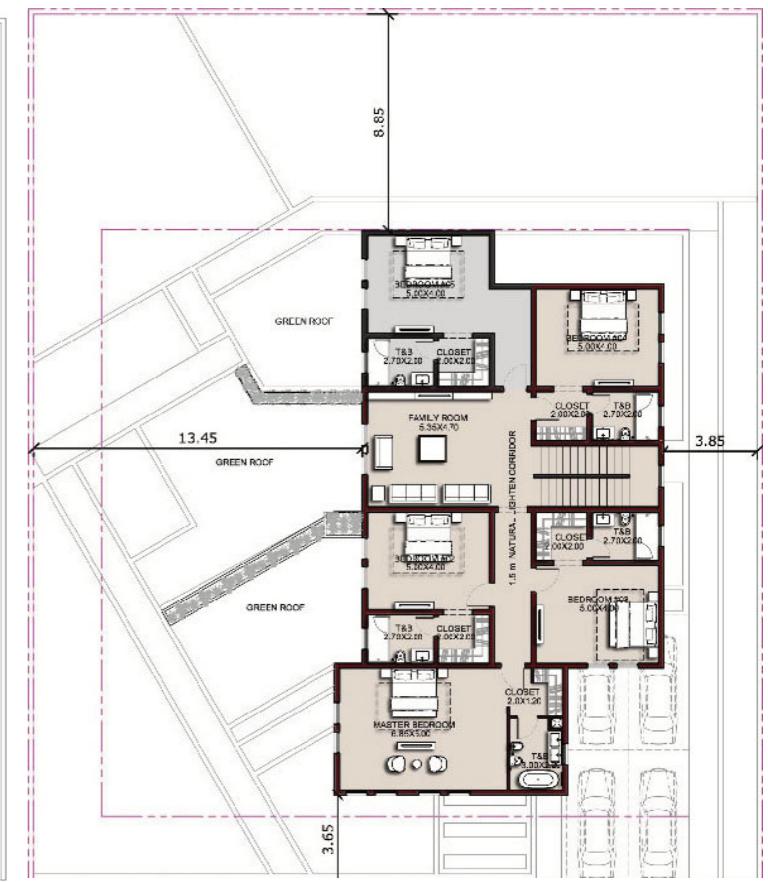
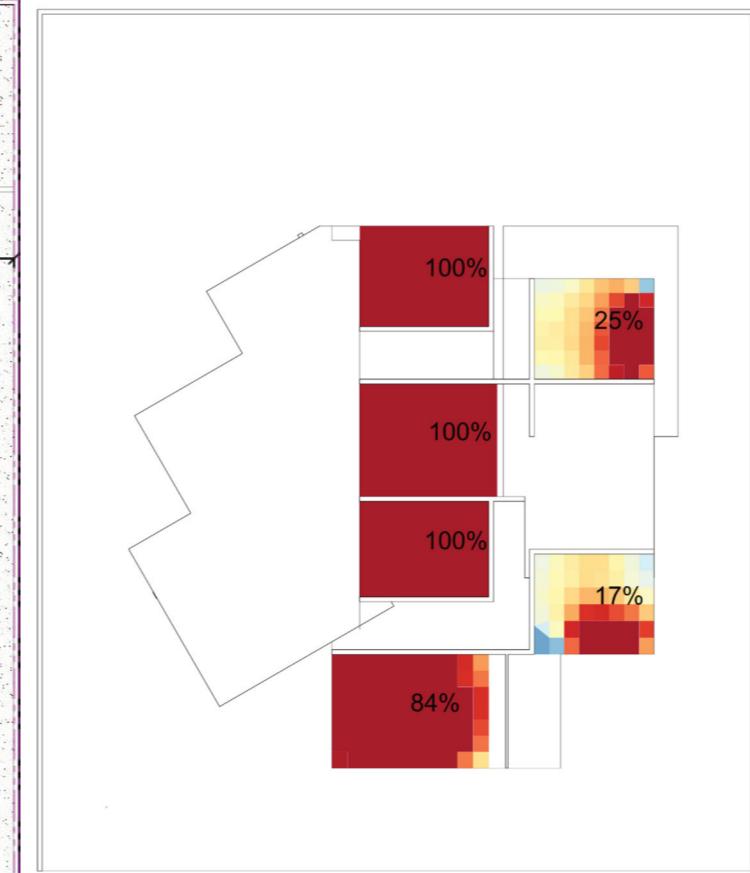
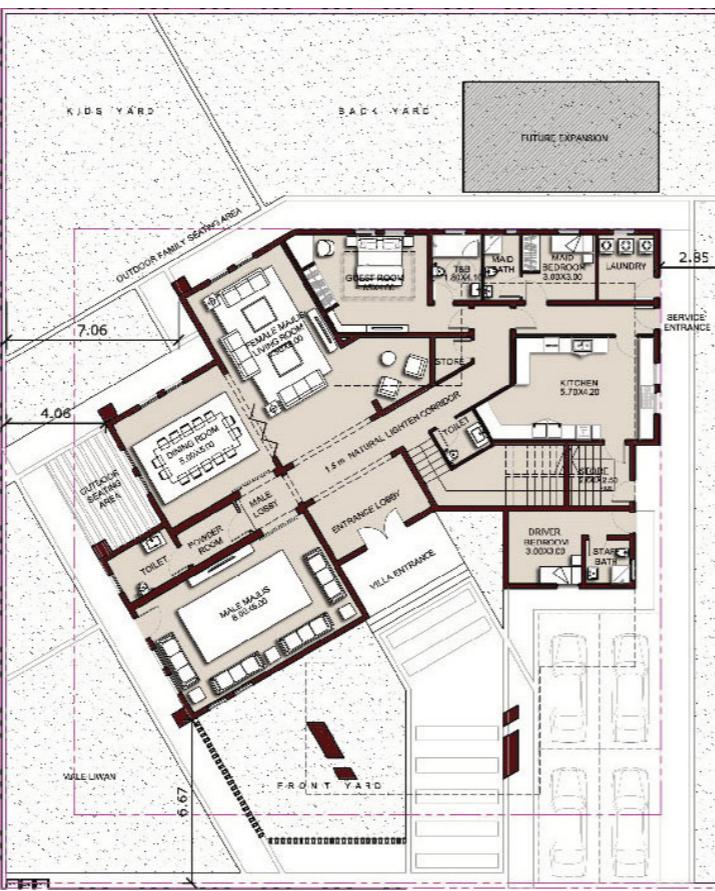
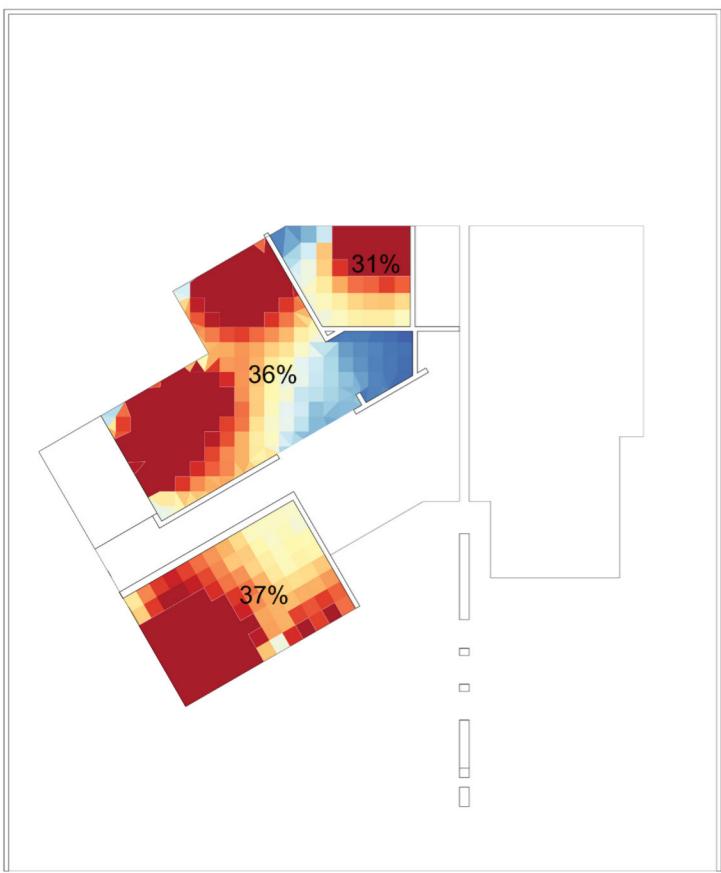
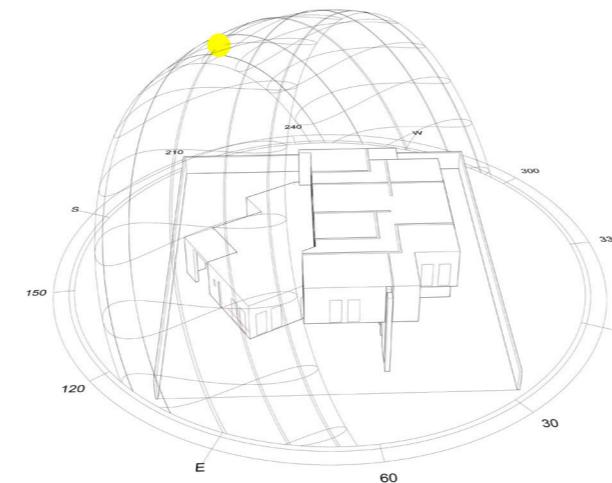
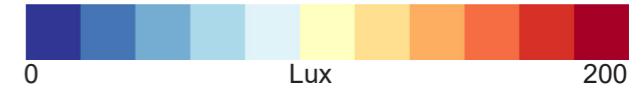
Illuminance @ 10 am on Equinox

Orientation 113 Degrees Clockwise from North



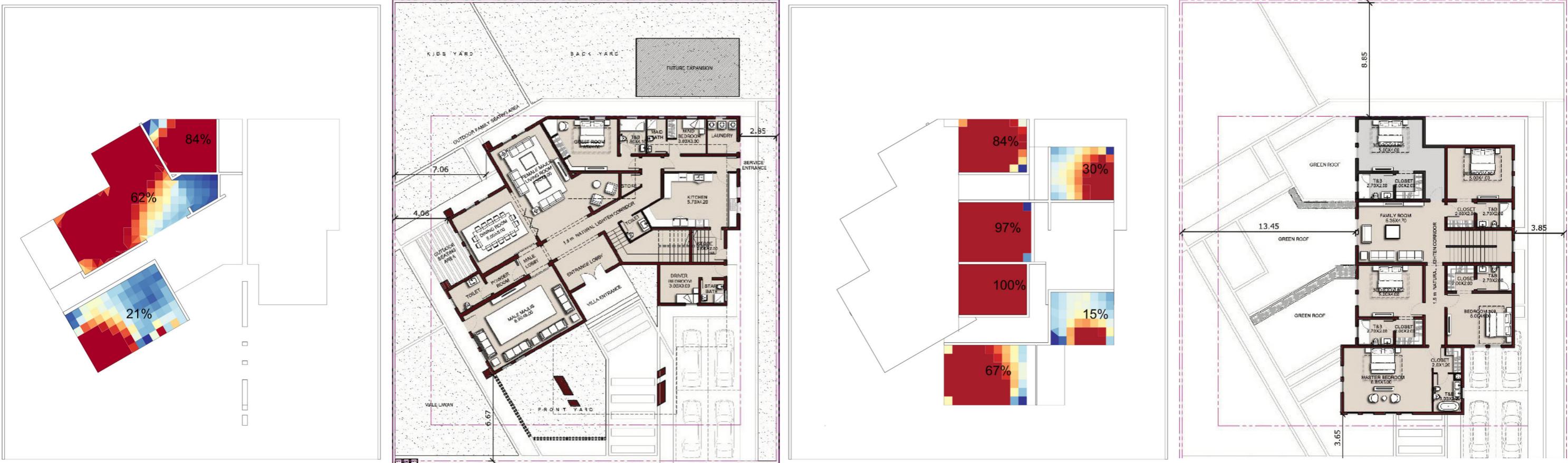
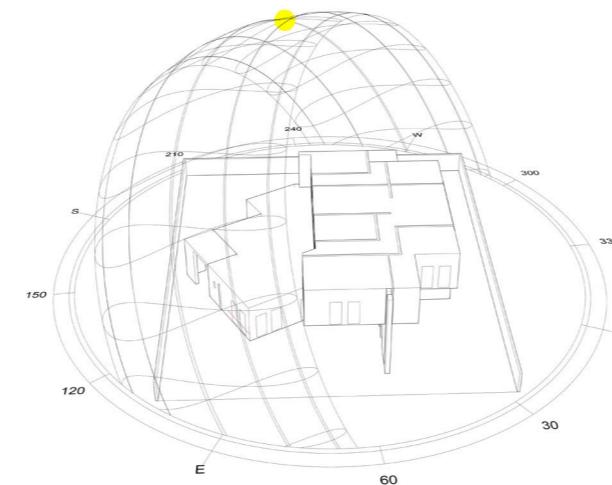
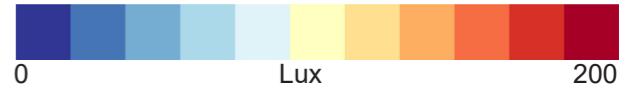
Illuminance @ 12 pm on Equinox

Orientation 113 Degrees Clockwise from North



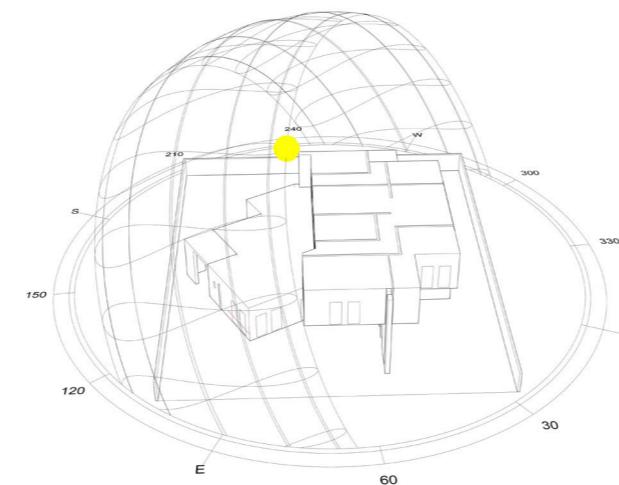
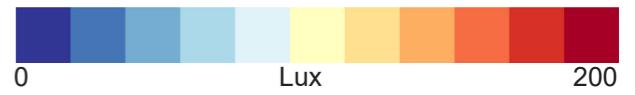
Illuminance @ 2 pm on Equinox

Orientation 113 Degrees Clockwise from North



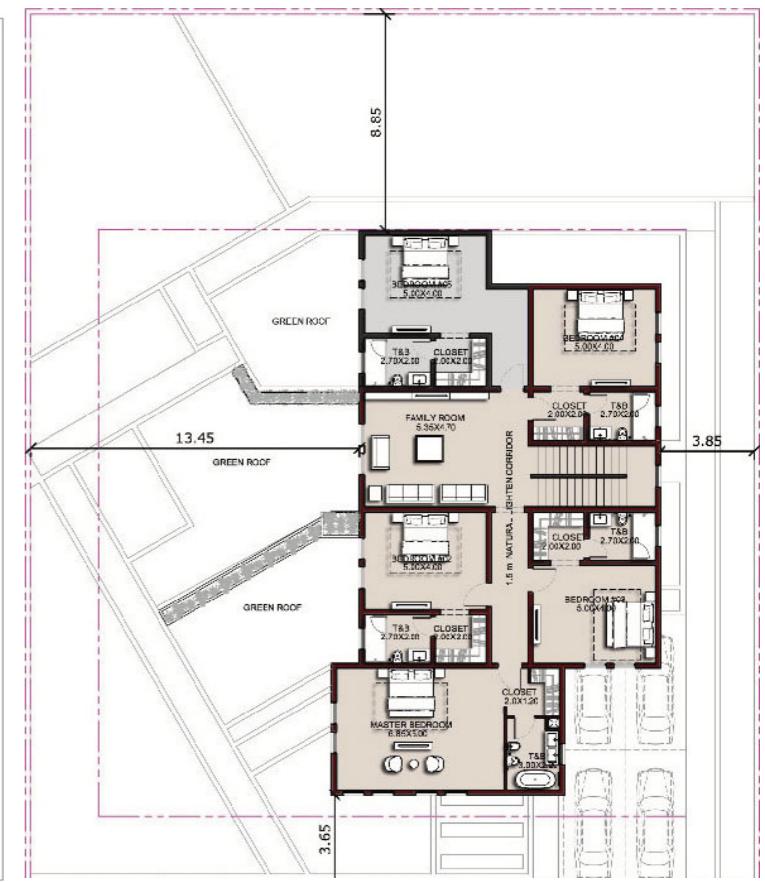
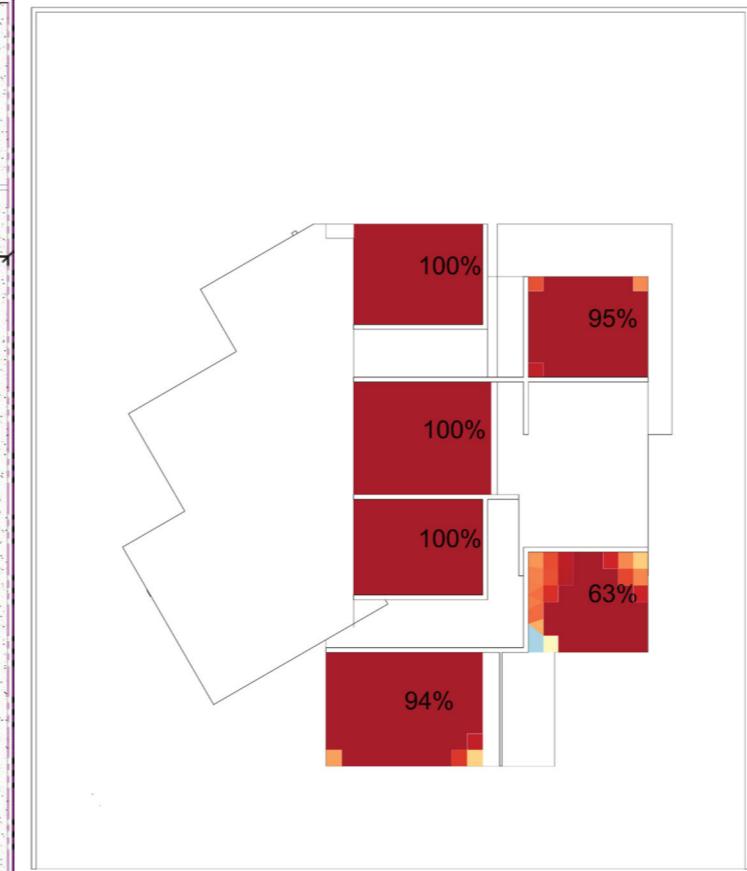
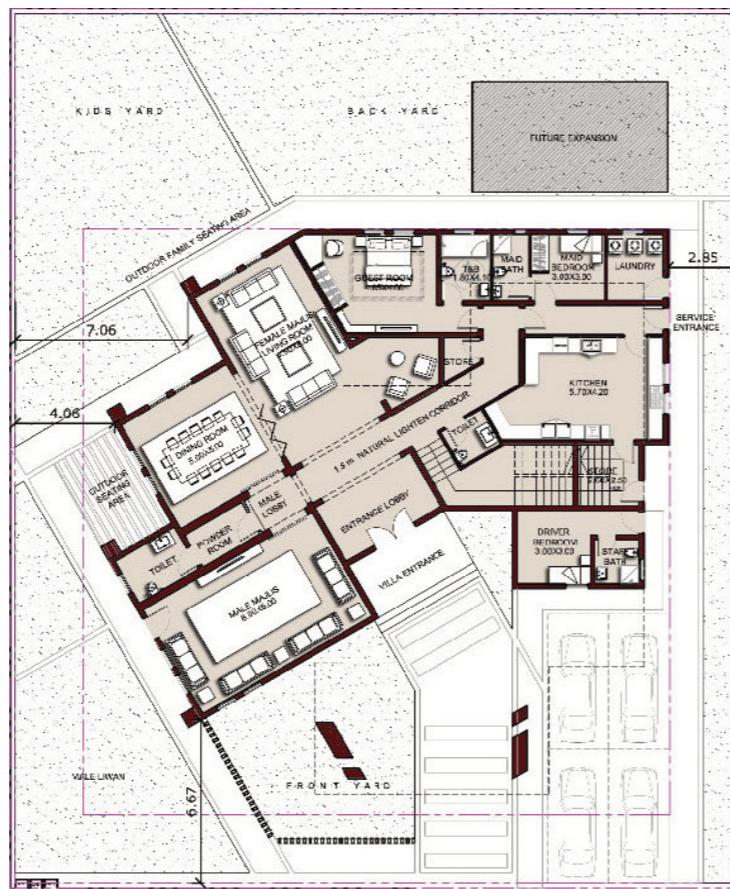
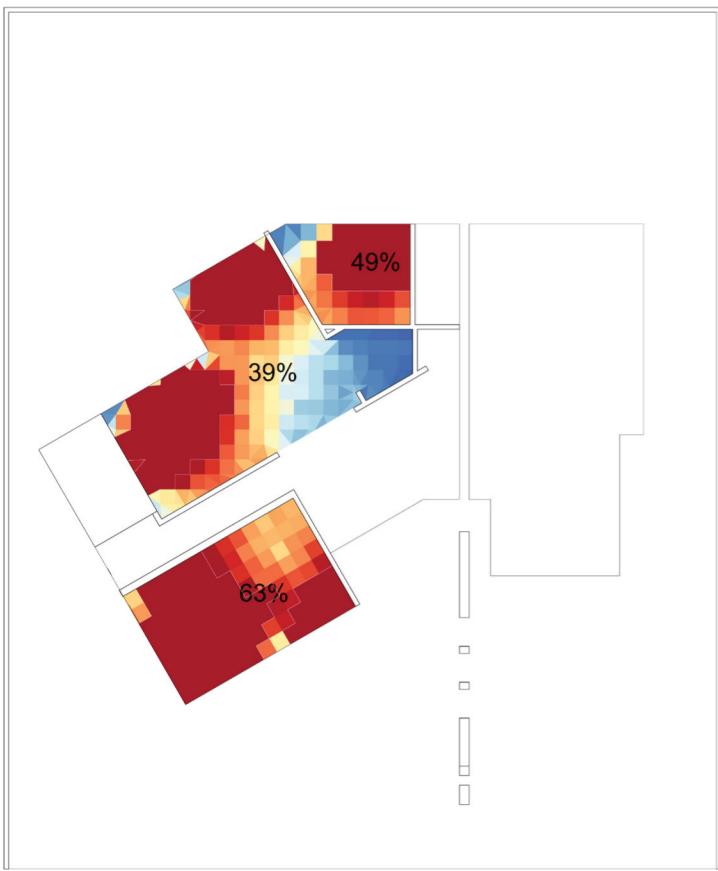
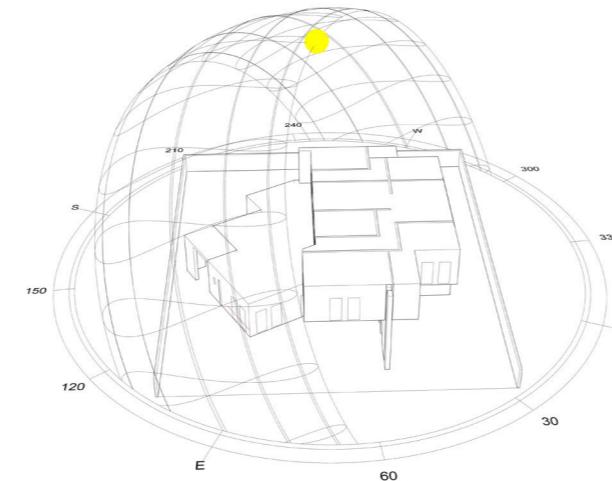
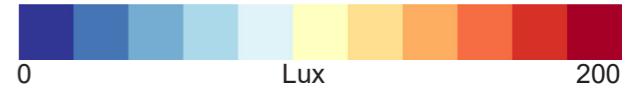
Illuminance @ 10 am on Summer Solstice

Orientation 113 Degrees Clockwise from North



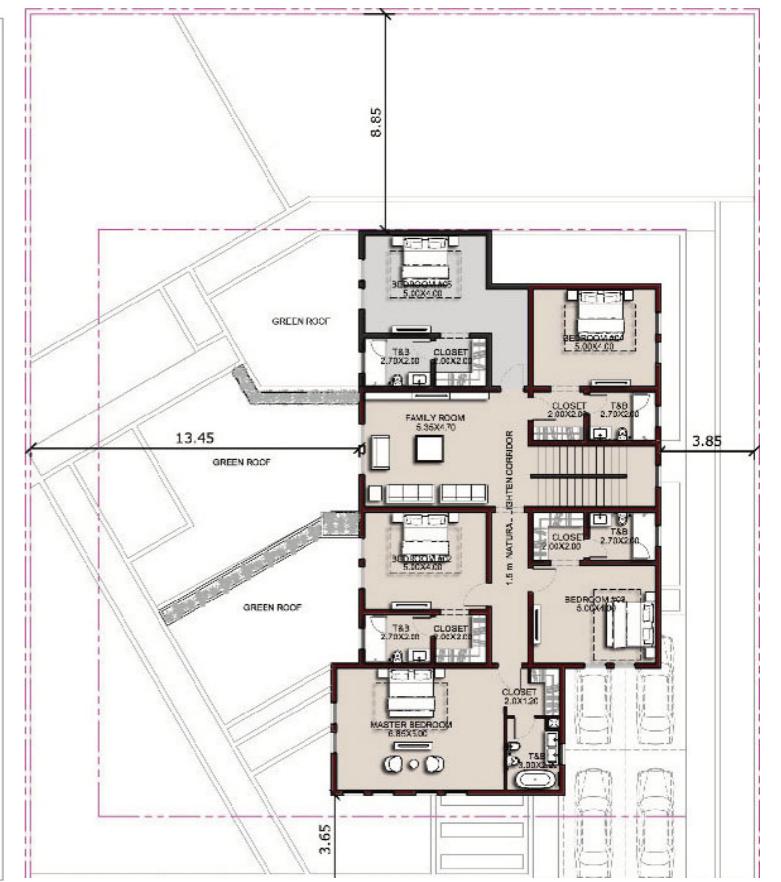
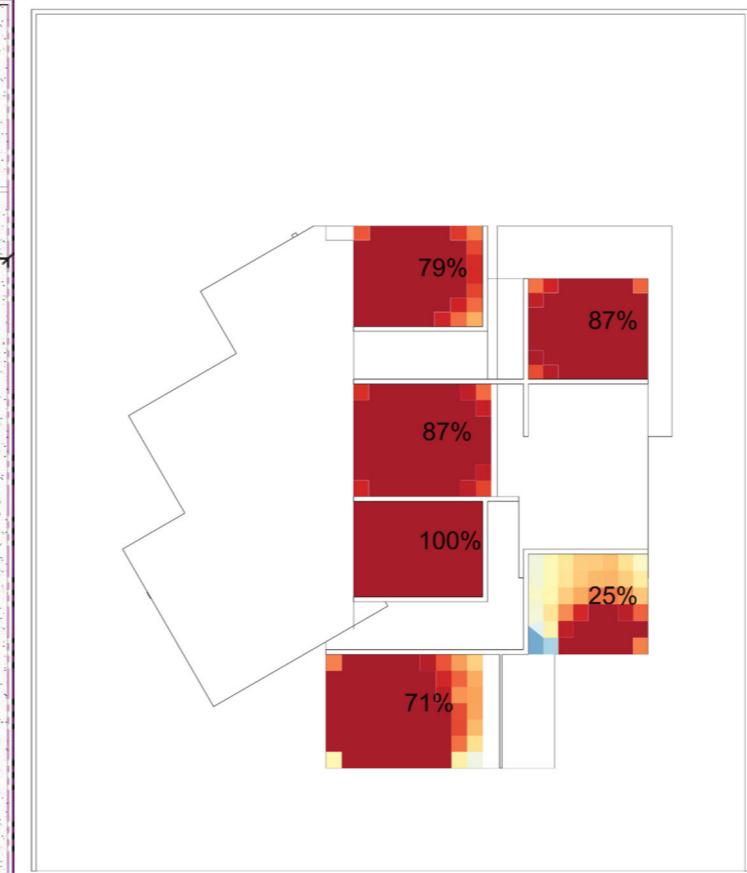
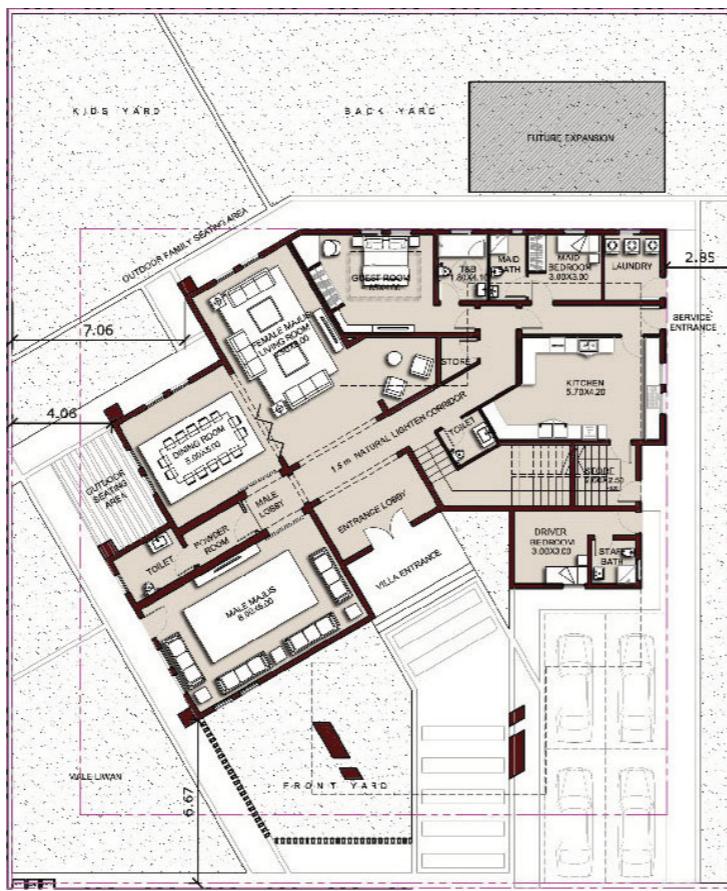
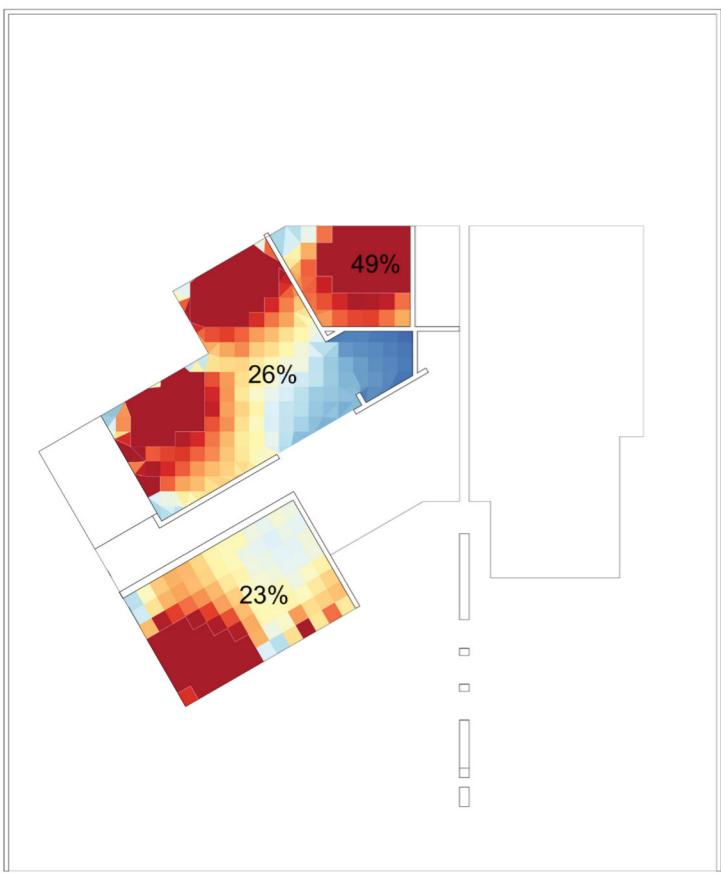
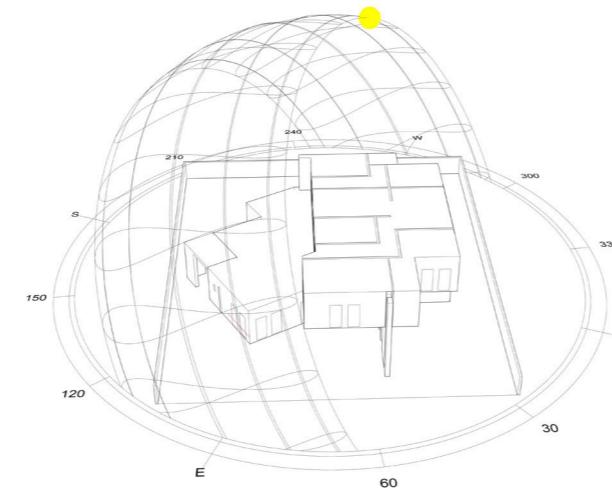
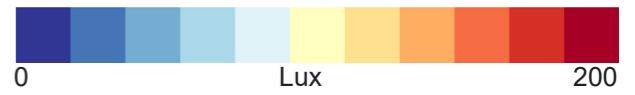
Illuminance @ 12 pm on Summer Solstice

Orientation 113 Degrees Clockwise from North



Illuminance @ 2 pm on Summer Solstice

Orientation 113 Degrees Clockwise from North

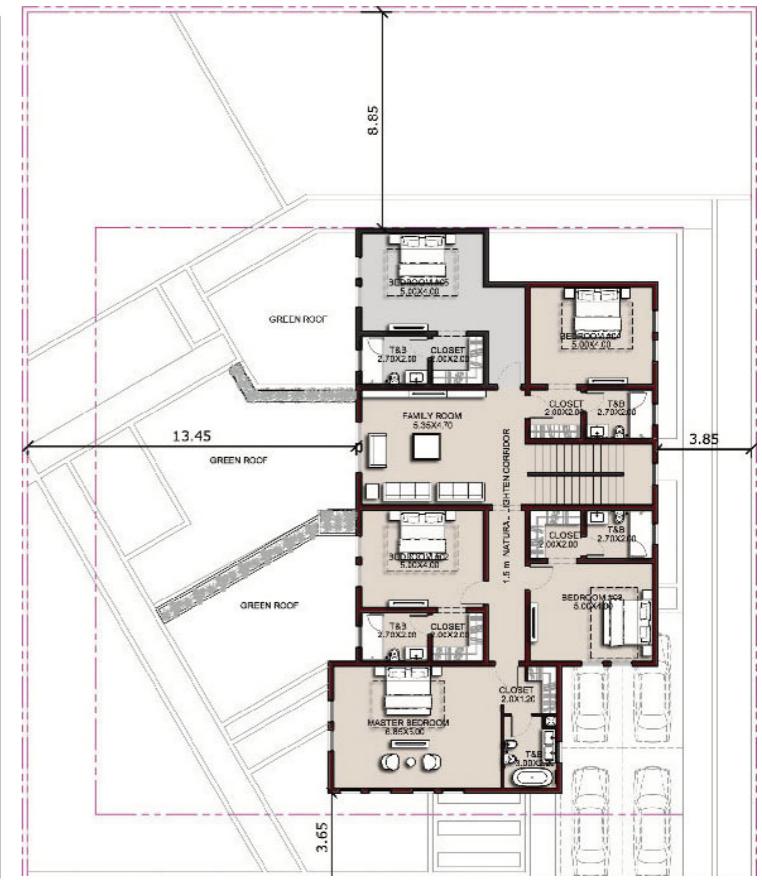
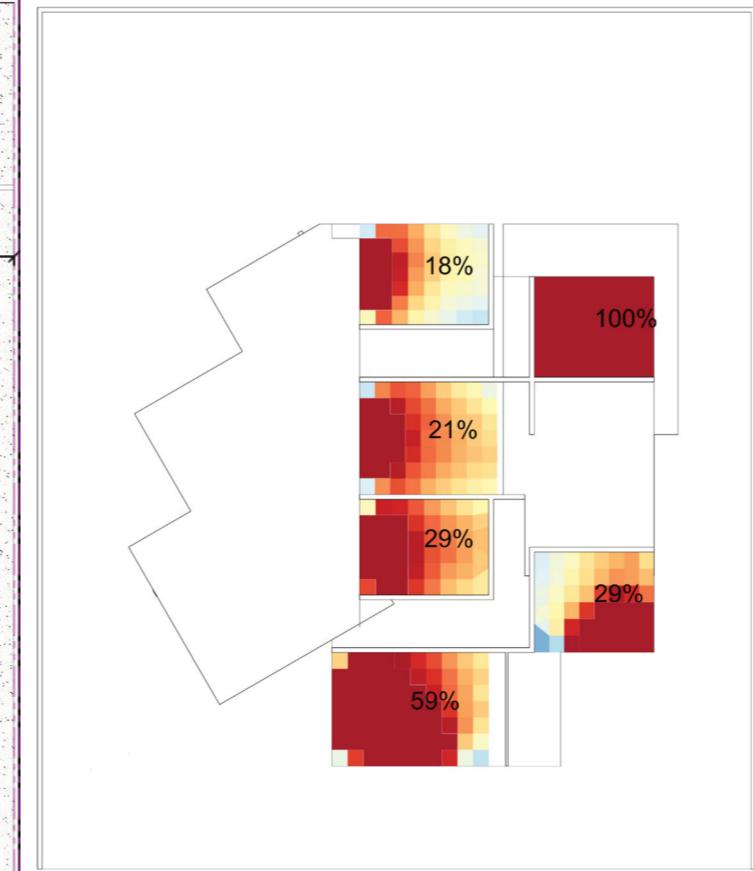
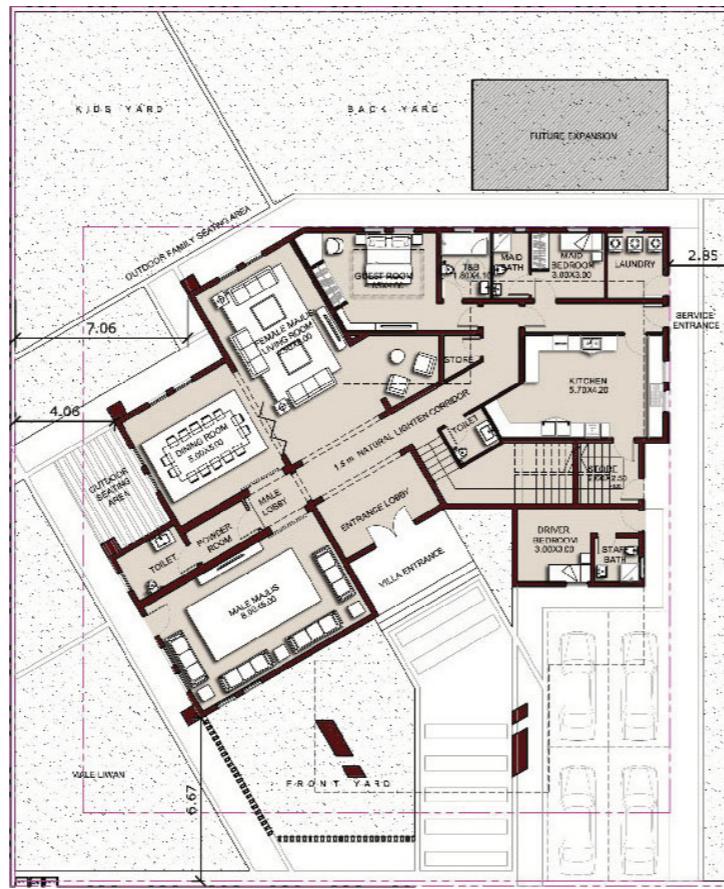
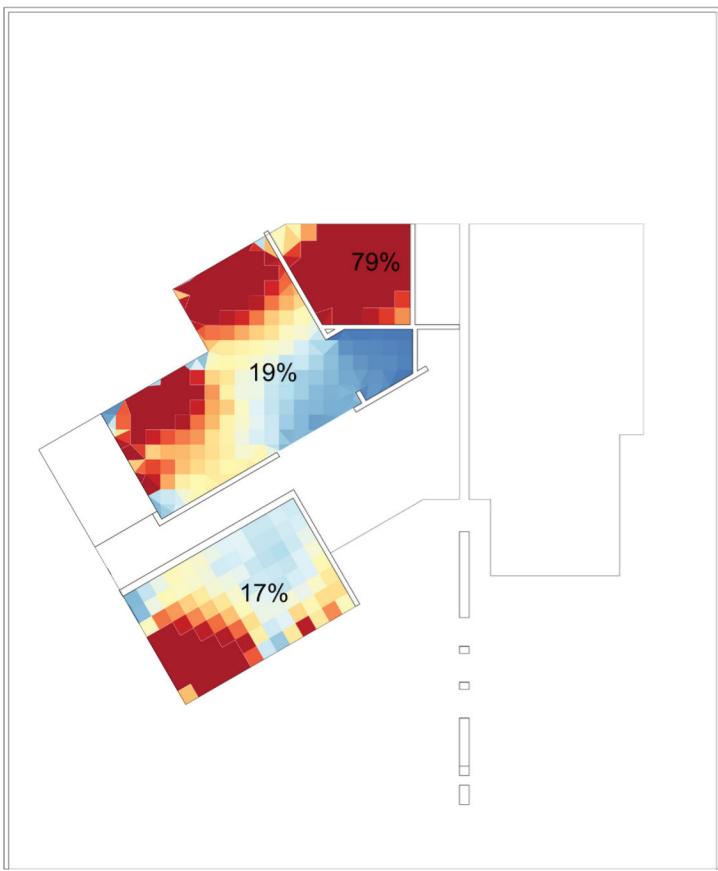
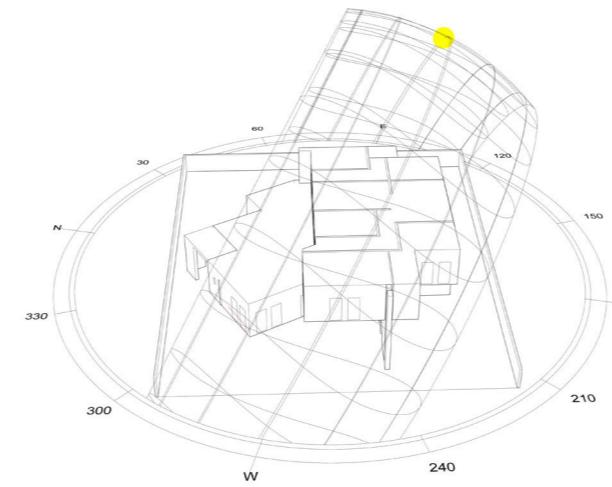
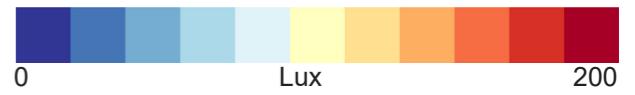


Result for the best Orientation 113 Degree Clockwise from North

Overall, **60%** of the regularly occupied area achieves minimum 200 lux on equinox and summer solstice days.

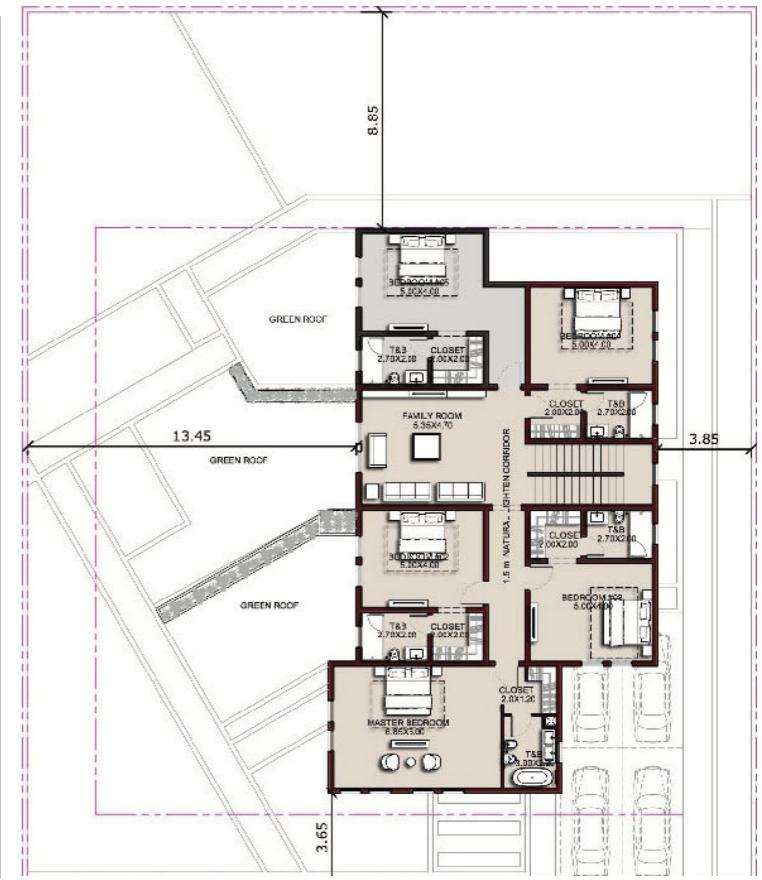
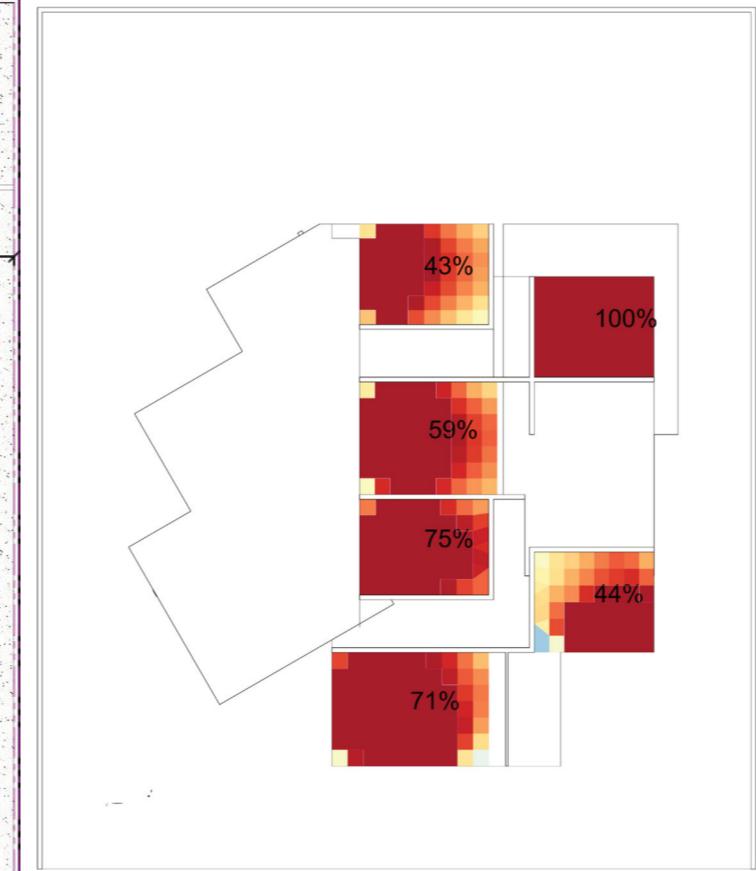
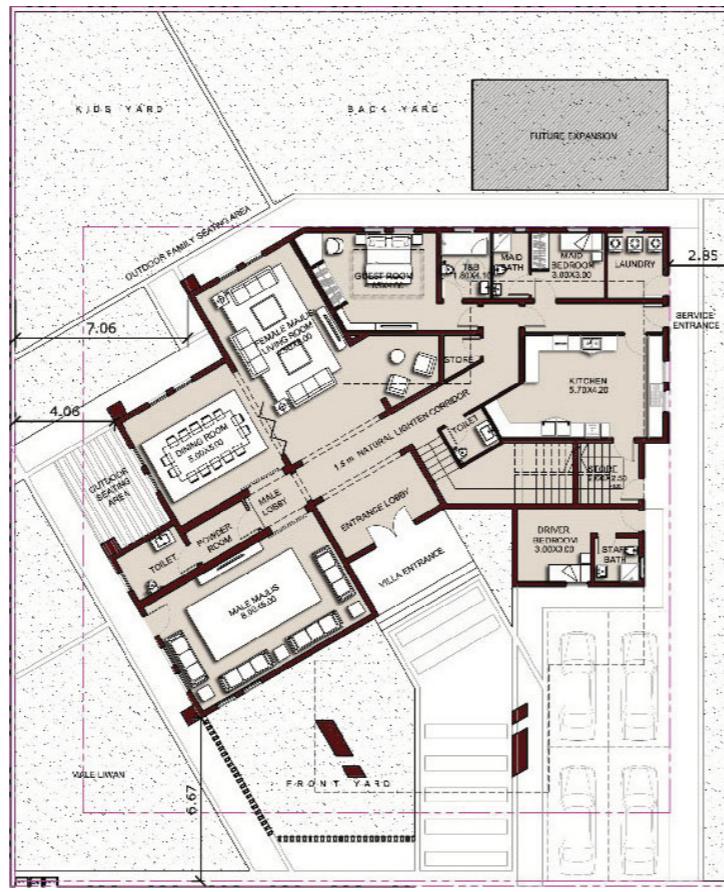
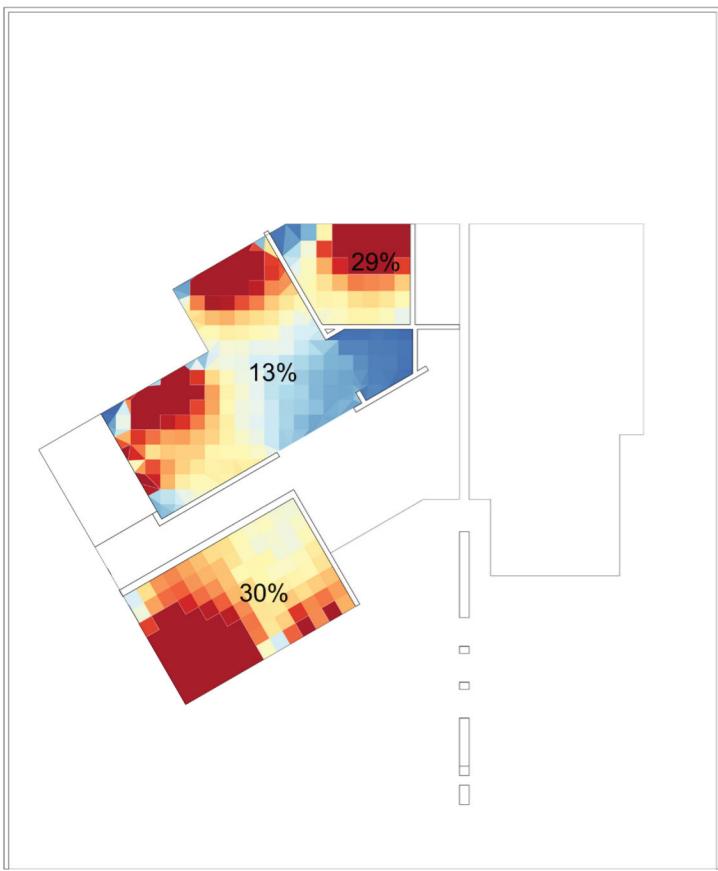
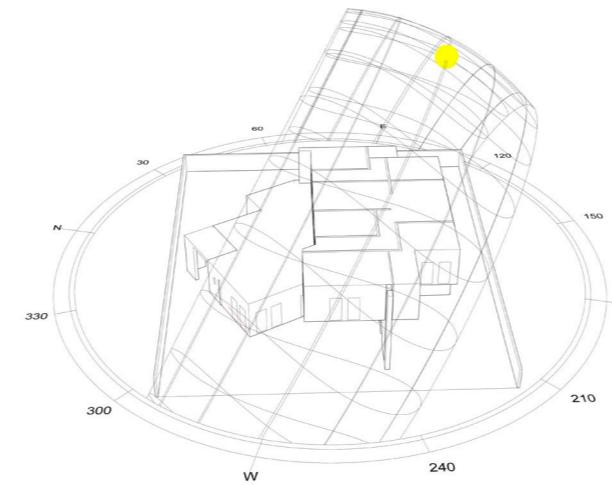
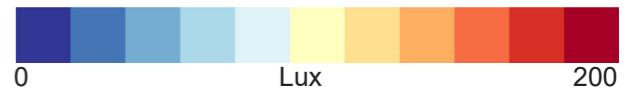
Illuminance @ 10 am on Equinox

Orientation 75 Degrees Anti-Clockwise from North



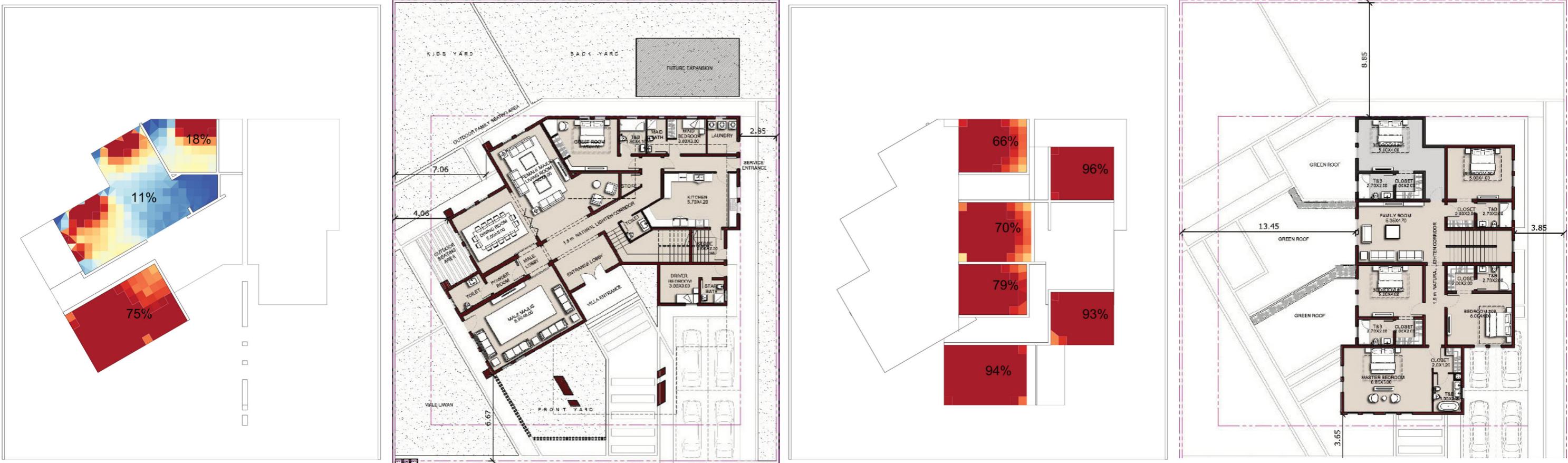
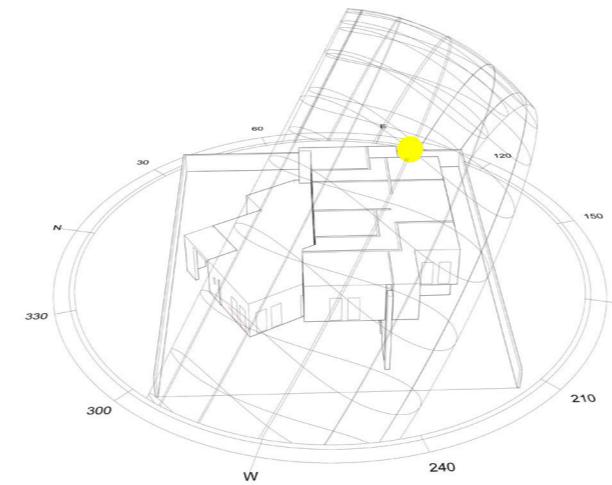
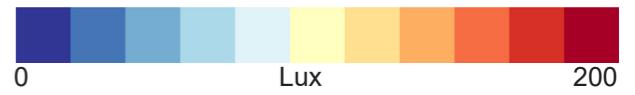
Illuminance @ 12 pm on Equinox

Orientation 75 Degrees Anti-Clockwise from North



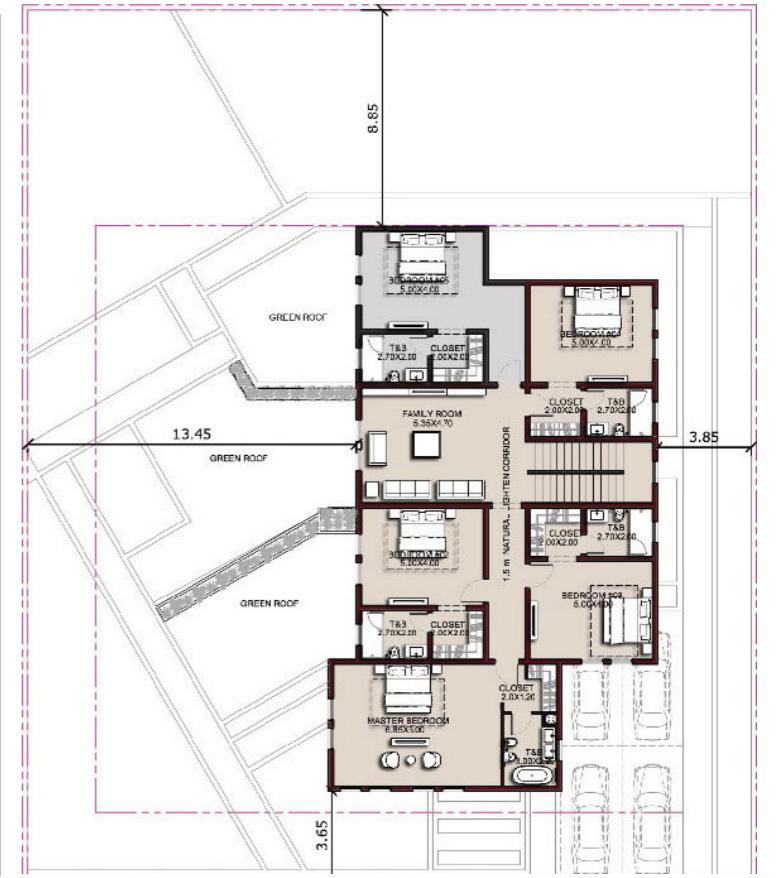
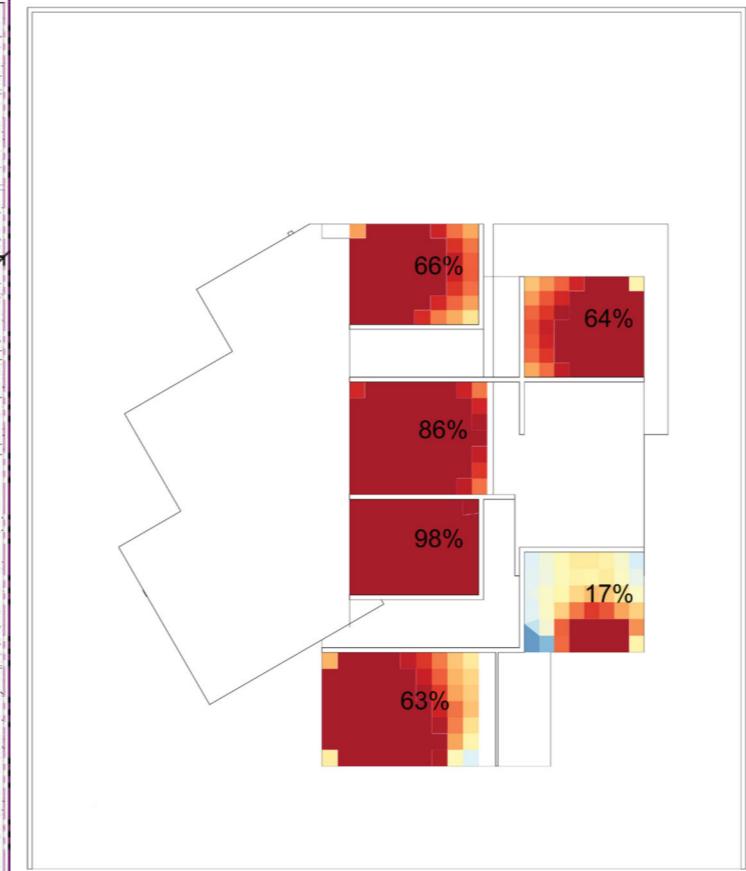
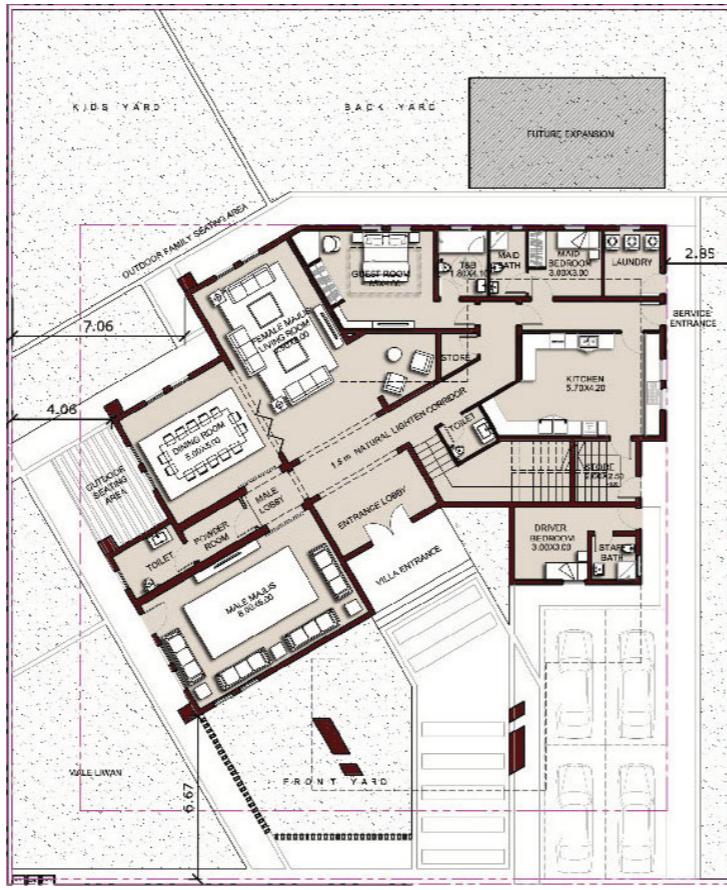
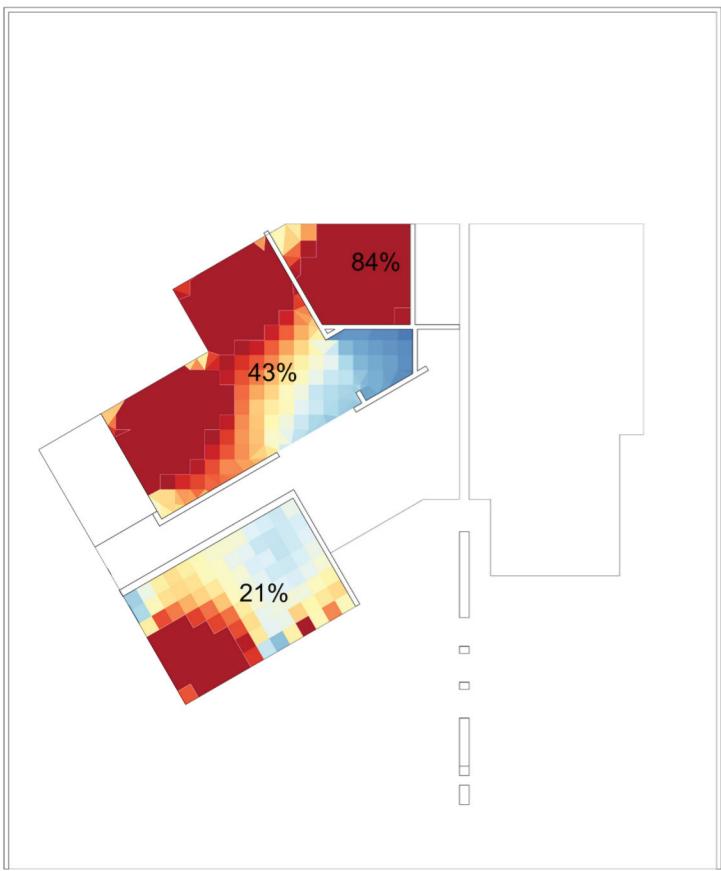
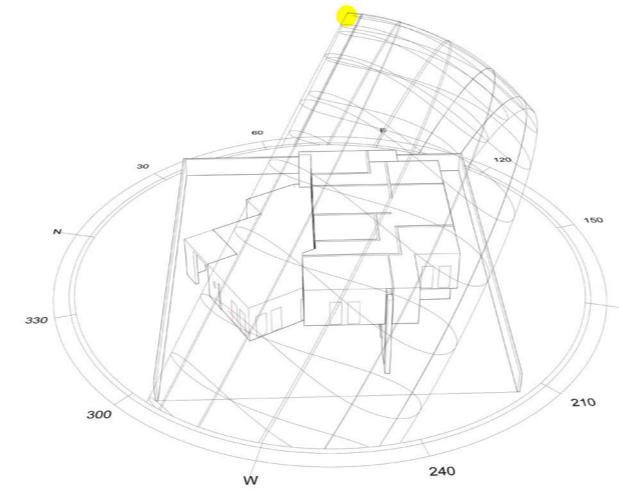
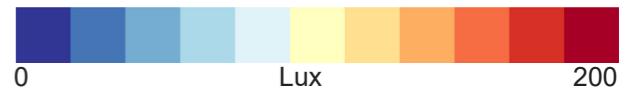
Illuminance @ 2 pm on Equinox

Orientation 75 Degrees Anti-Clockwise from North



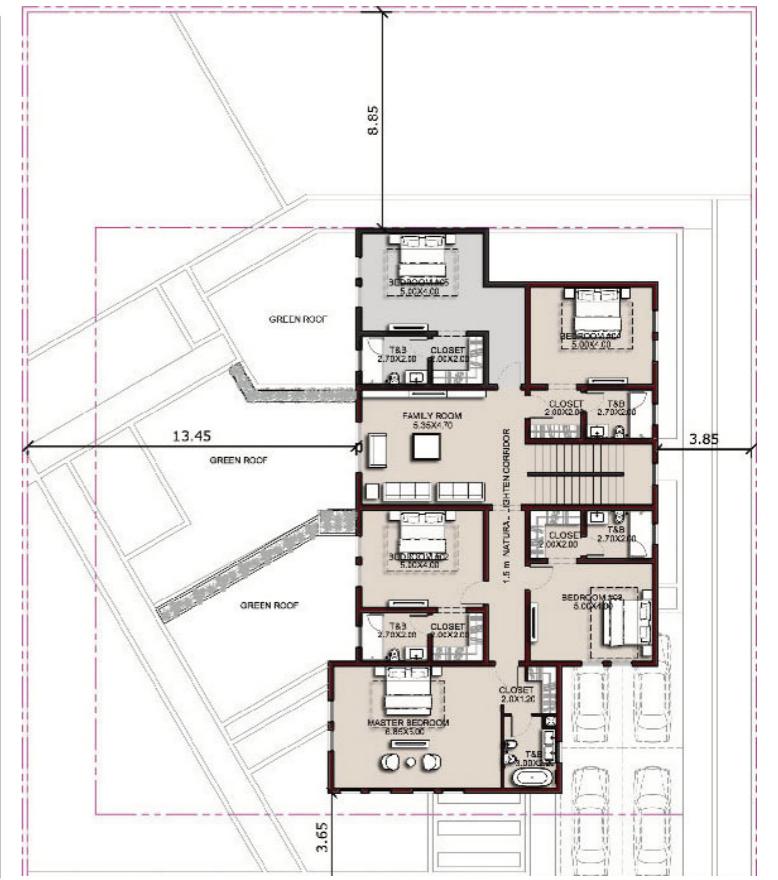
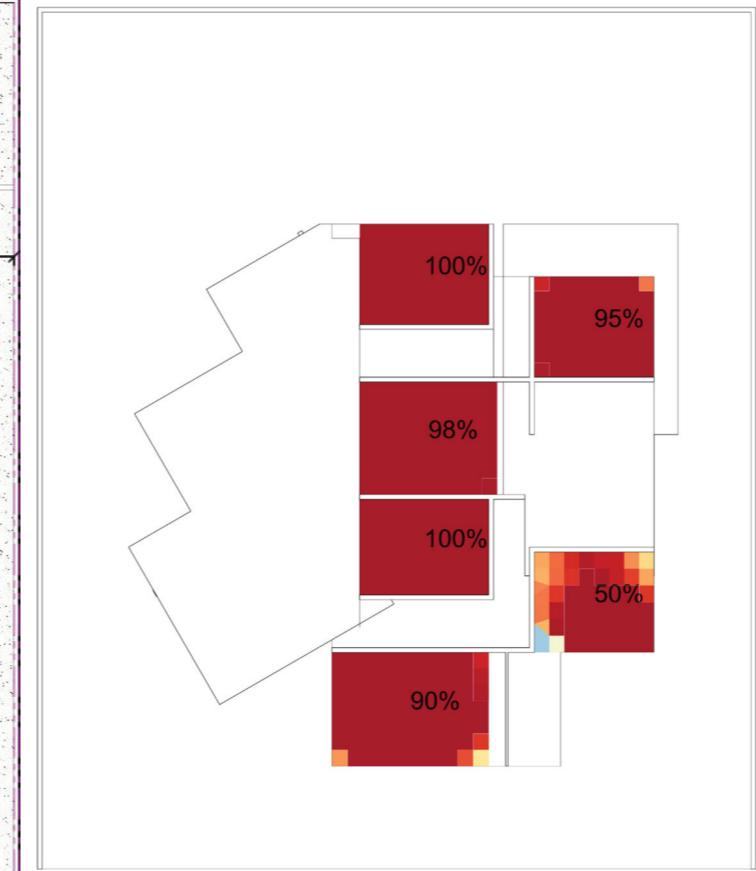
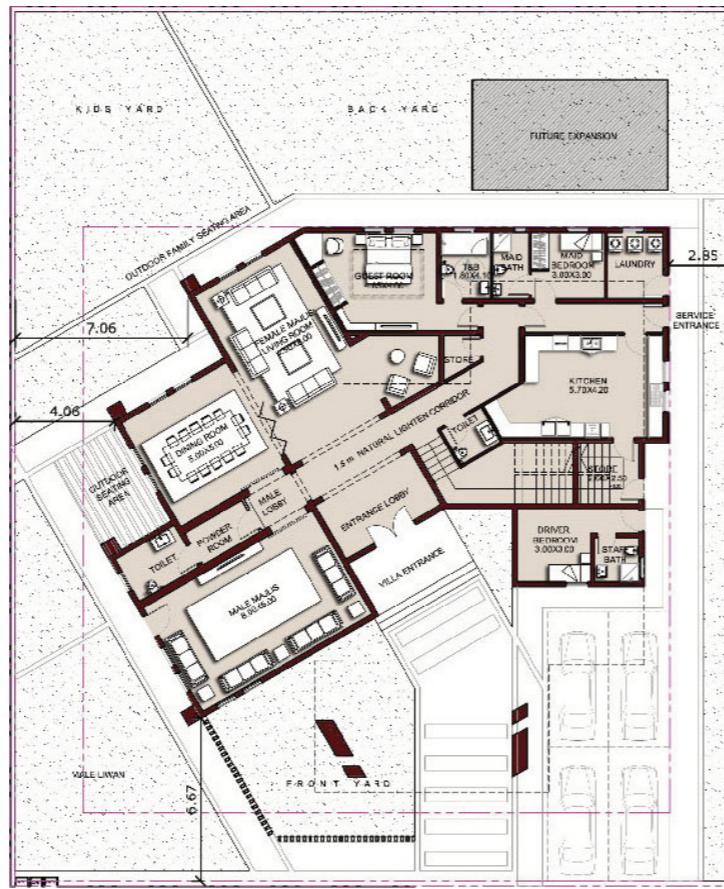
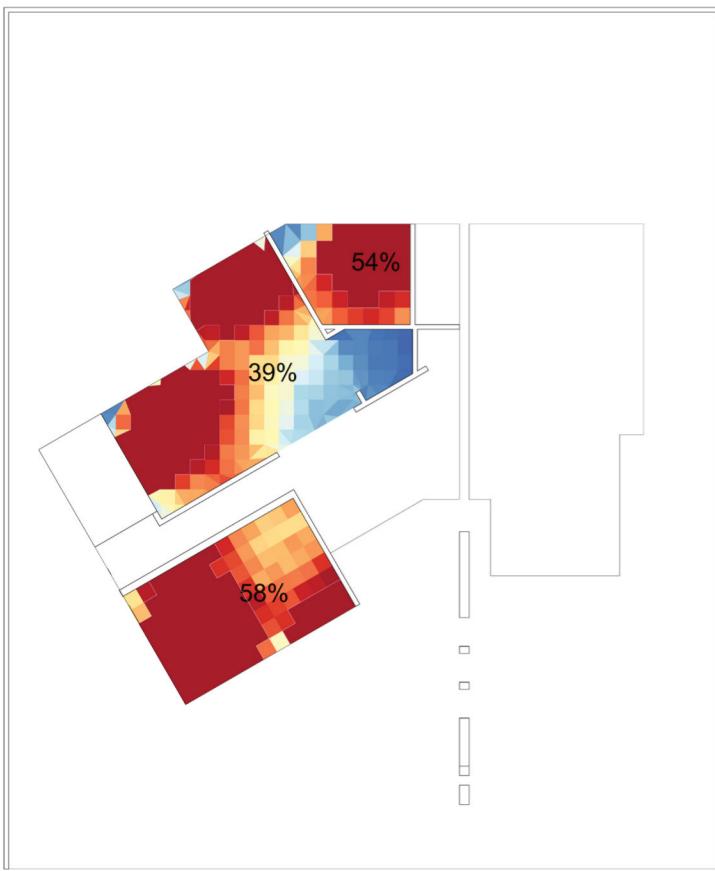
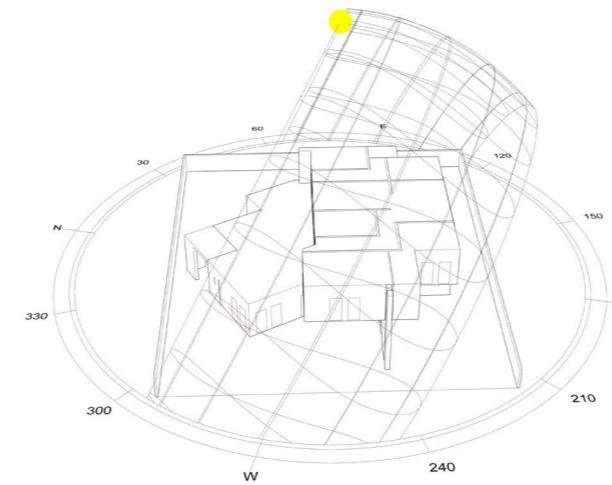
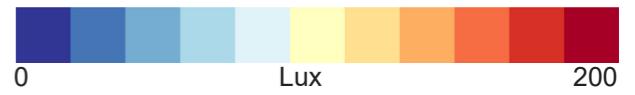
Illuminance @ 10 am on Summer Solstice

Orientation 75 Degrees Anti-Clockwise from North



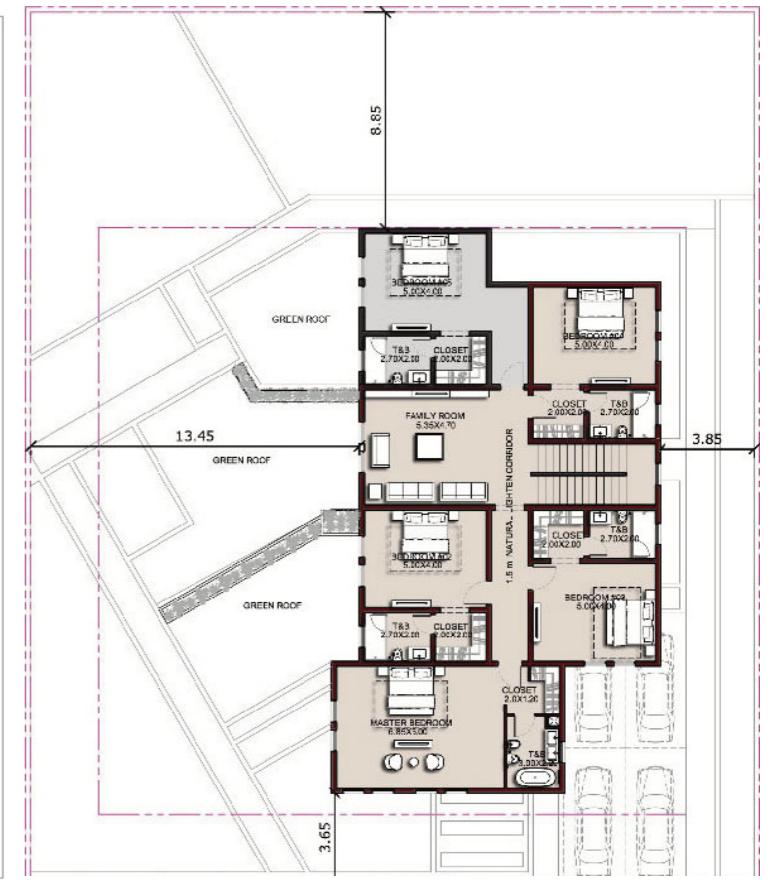
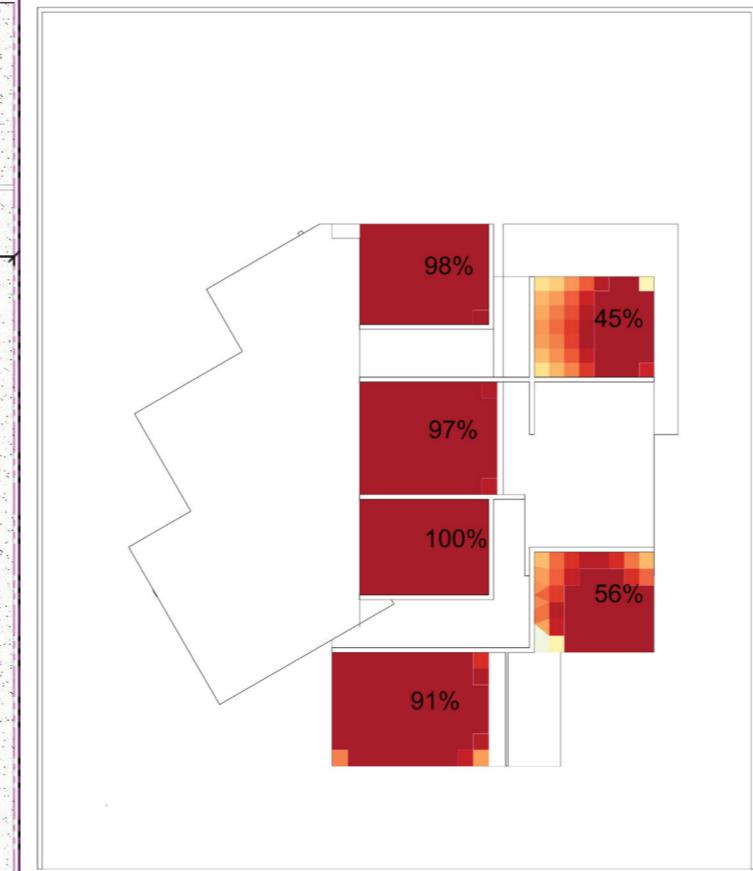
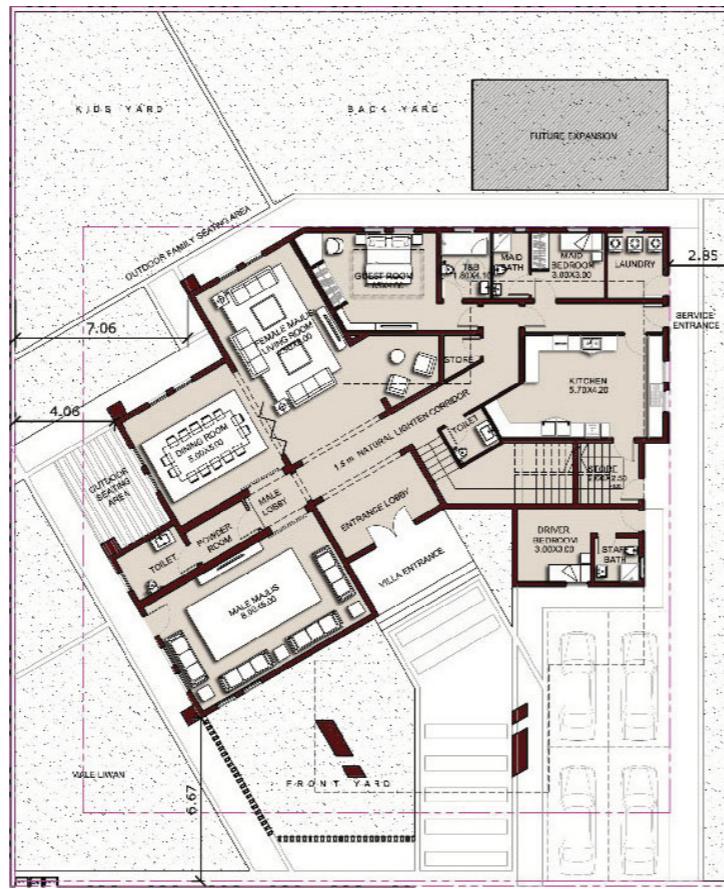
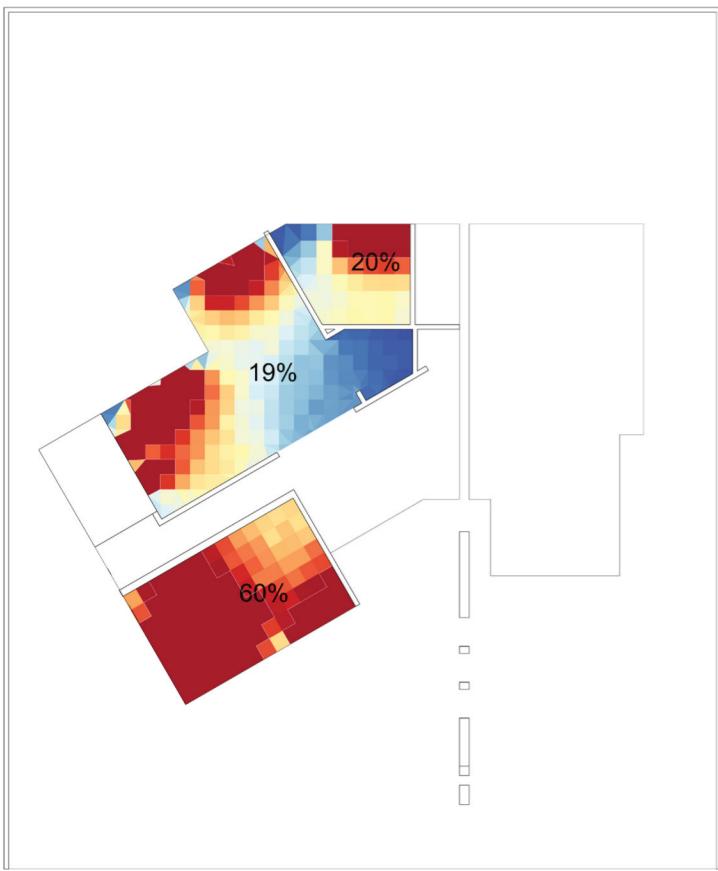
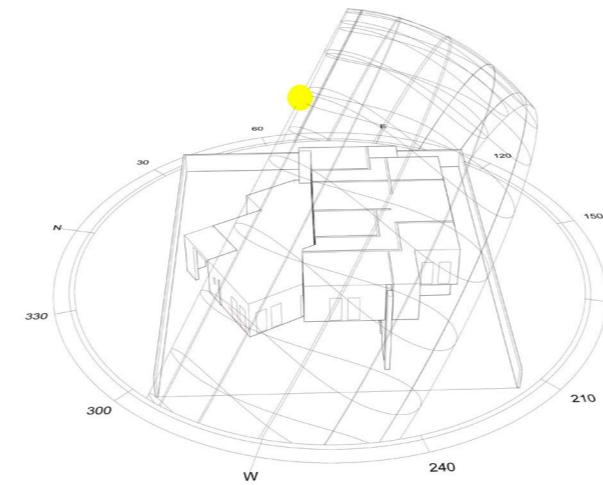
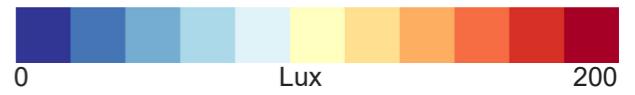
Illuminance @ 12 pm on Summer Solstice

Orientation 75 Degrees Anti-Clockwise from North



Illuminance @ 2 pm on Summer Solstice

Orientation 75 Degrees Anti-Clockwise from North



Result for the Worst Orientation 75 Degree Anti-Clockwise from North

Overall, **53.45%** of the regularly occupied area achieves minimum 200 lux on equinox and summer solstice days. Therefore any orientation other than this orientation is expected to perform better in compliance with the estidama daylight criteria.