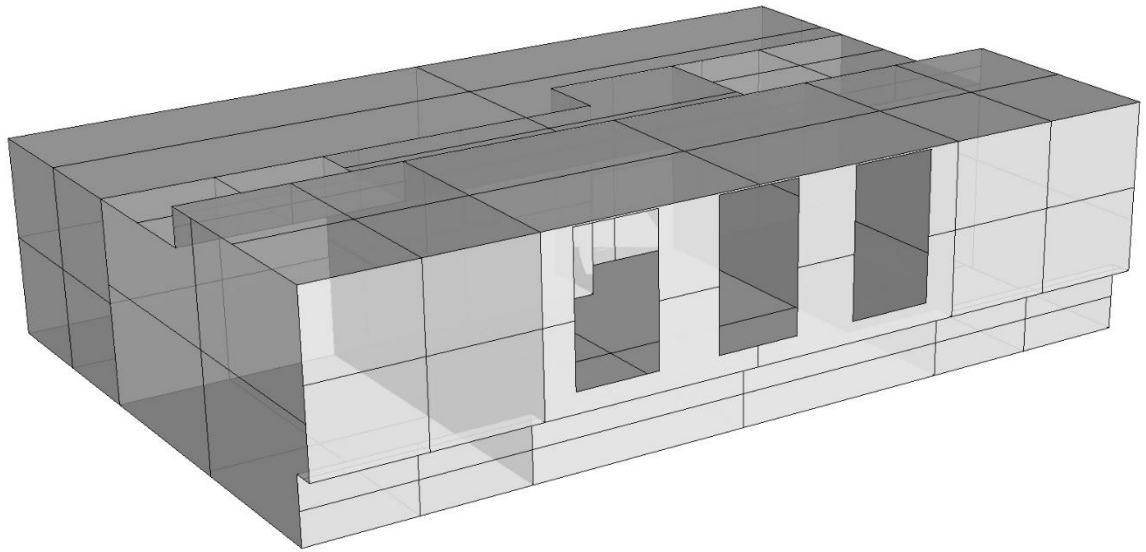
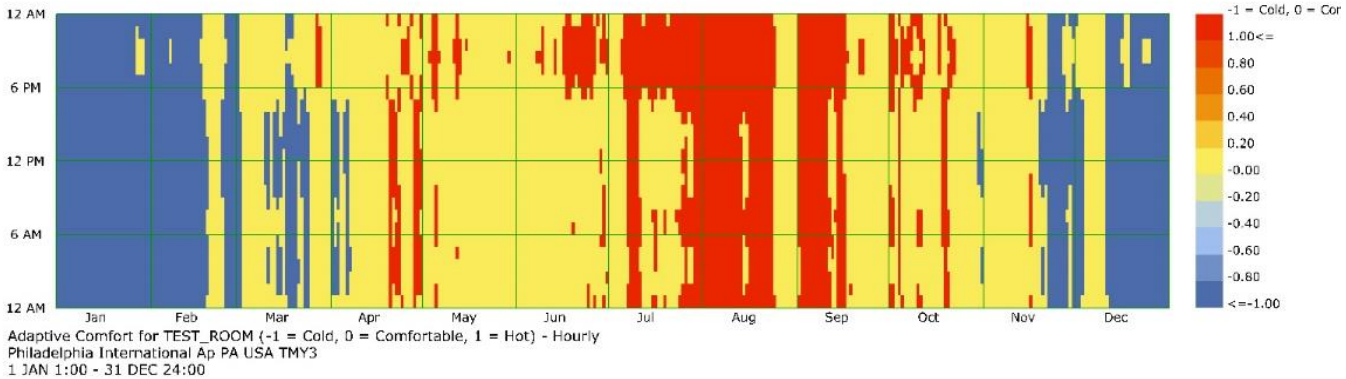
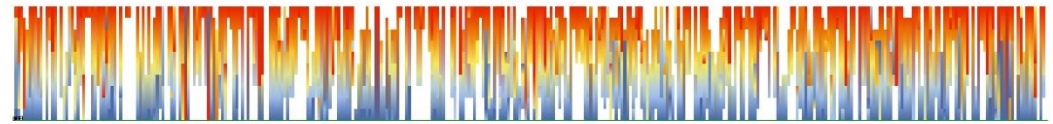
Analysis of the base case



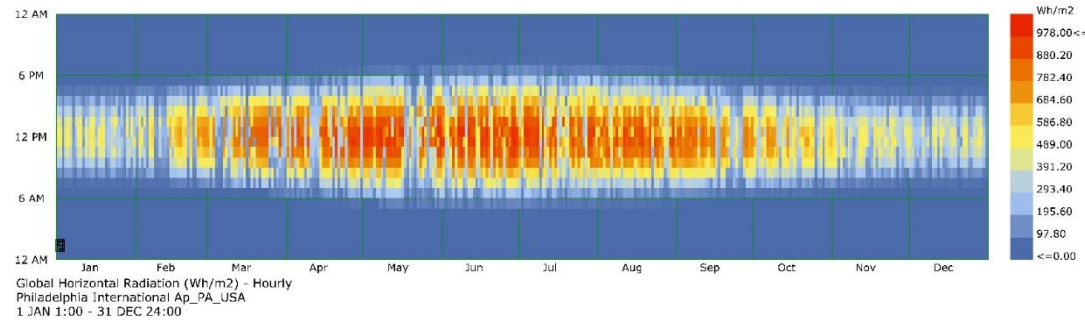


Annual Adaptive comfort – 32%

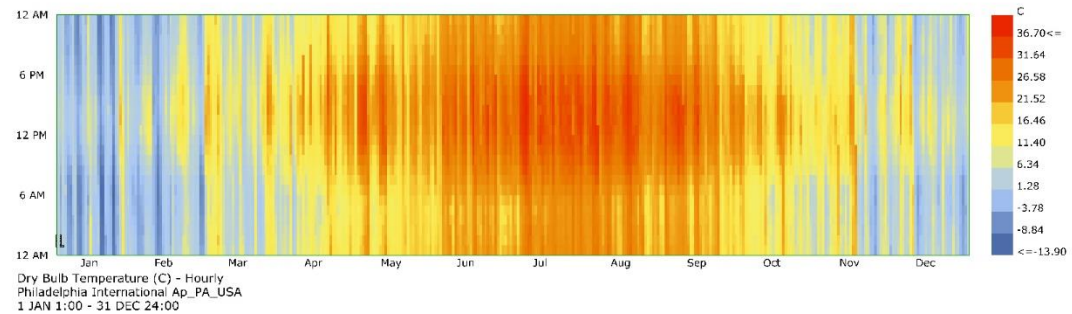
Cloud Coverage



Global Horizontal Radiation



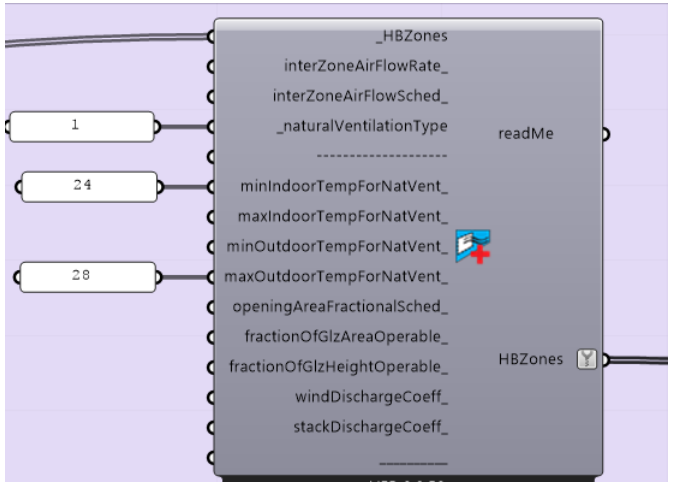
Outdoor temperature



1. “Sensitive” analysis of glazing ratio

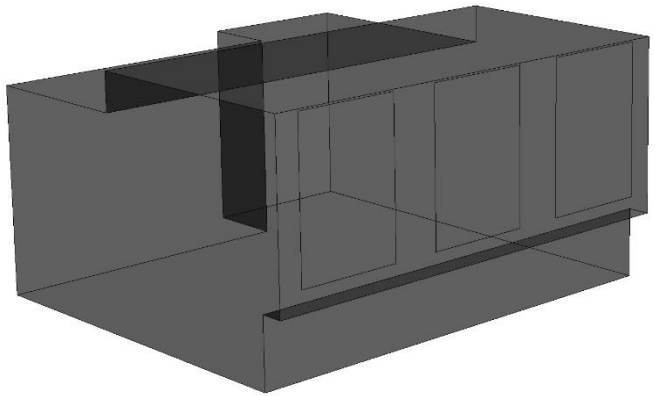
Glazing%	Adaptive Comfort %
10	49.14
30	39.18
50	32.14
70	27.67
80	25.13

2. Window-based natural ventilation.

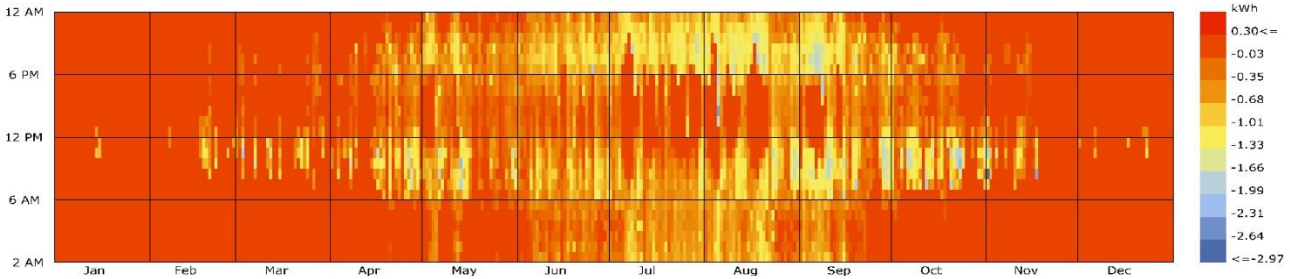


Percent of Comf.Hours 73.78 %
Overheated Hours 12.58%
Cold Hours 13.69%

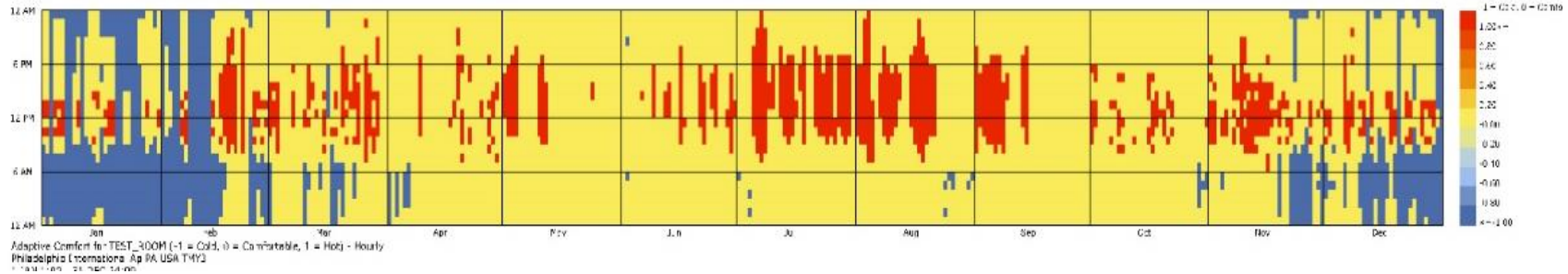
However 10% shows better comfort percentage it create more cold hours. 70% was selected because it provide more overheated hours which then could be eliminated by shading and ventilation



Natural Ventilation Energy

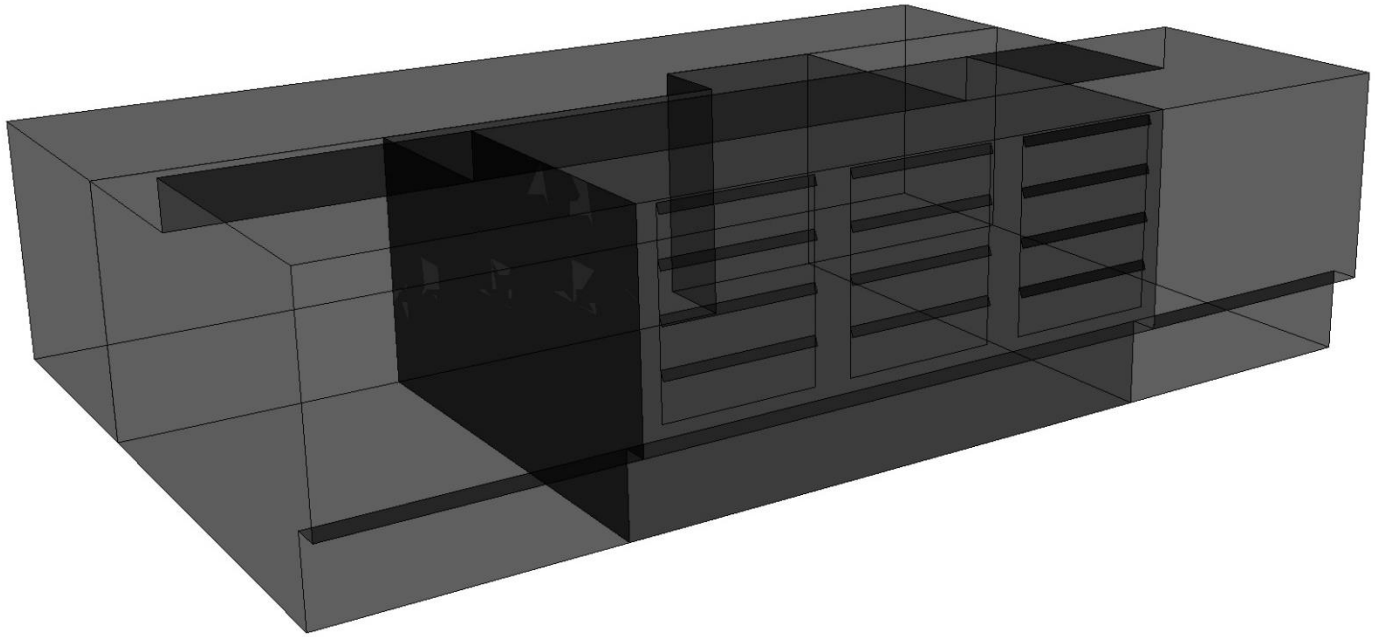


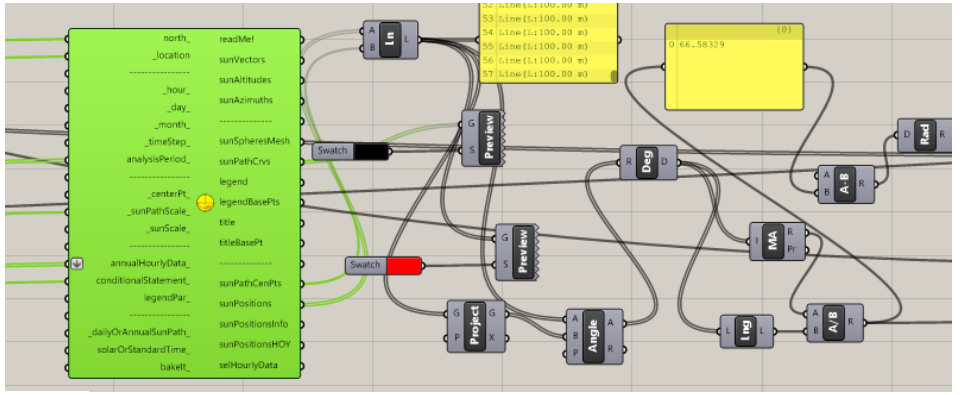
Adaptive Comfort

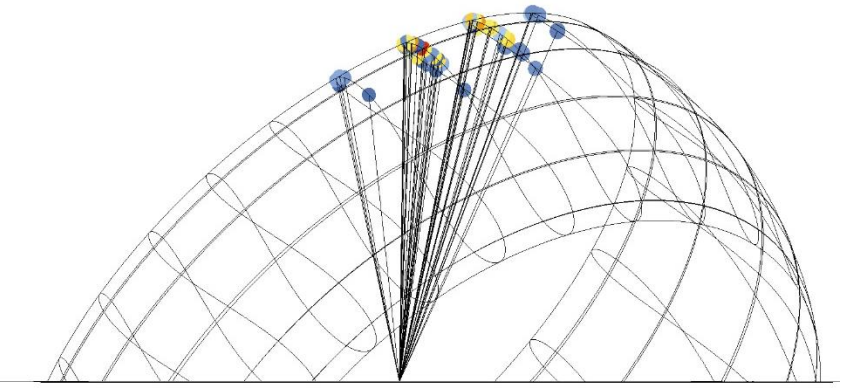


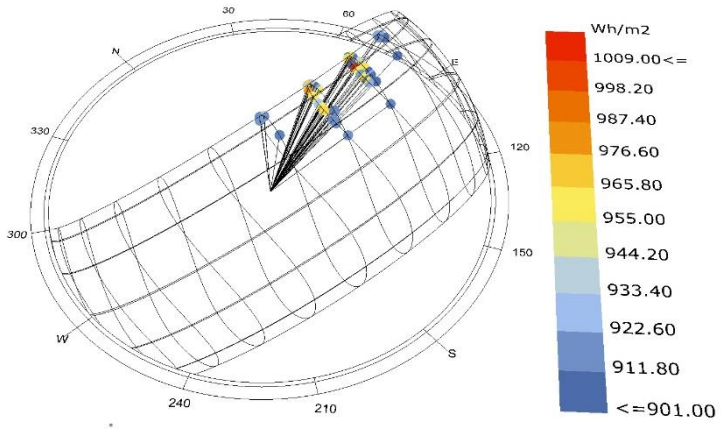
3. Adding horizontal shading

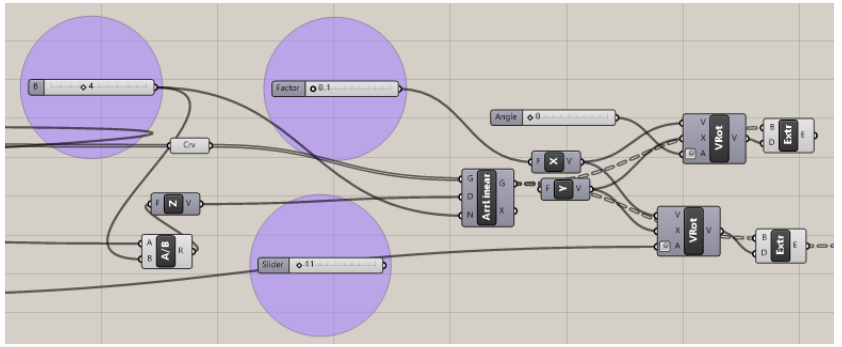
4 horizontal bars, tilted to reflect sunrays when the global horizontal radiation is bigger than 900 kW/h



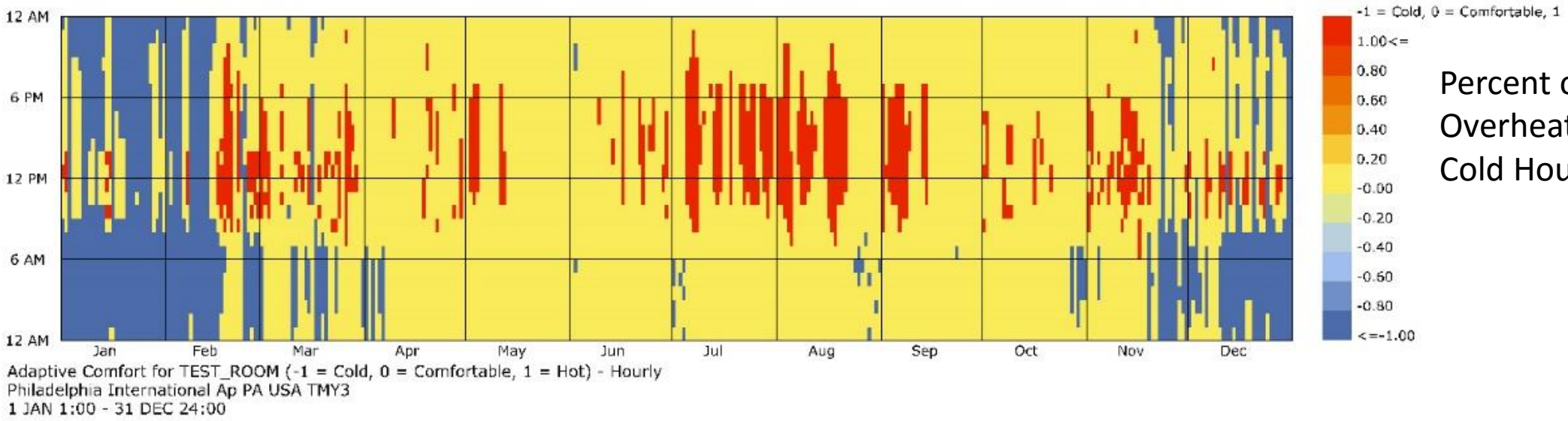






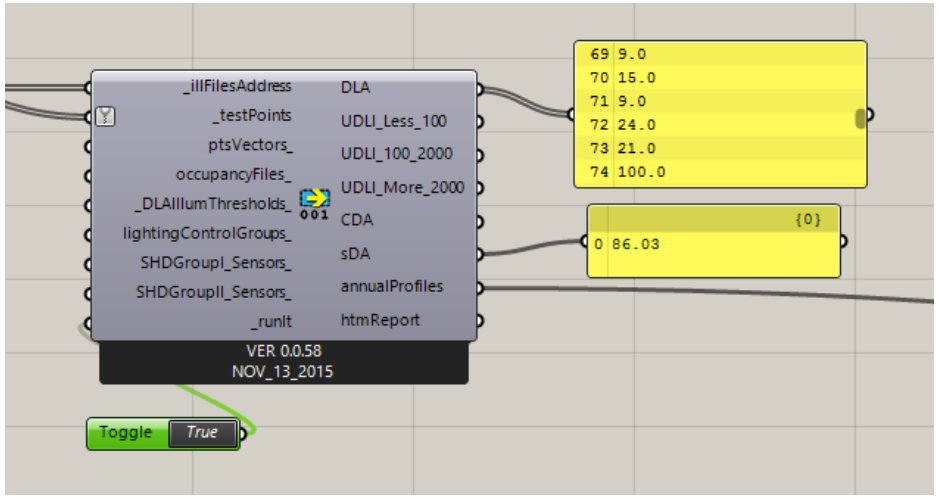


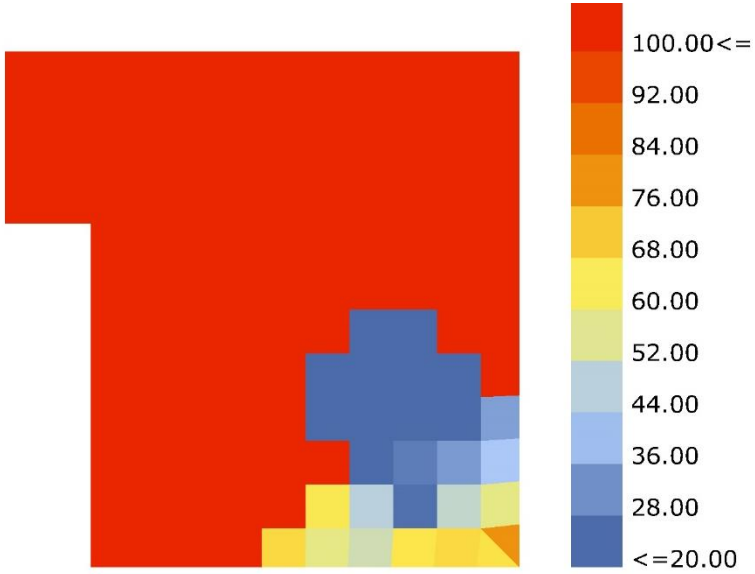
4. Adaptive Comfort for final design (Shading + Natural ventilation)



Percent of Comf.Hours 74.94 %
Overheated Hours 11.67%
Cold Hours 13.37%

5. Daylight





Daylight autonomy [%]
sDL 82%