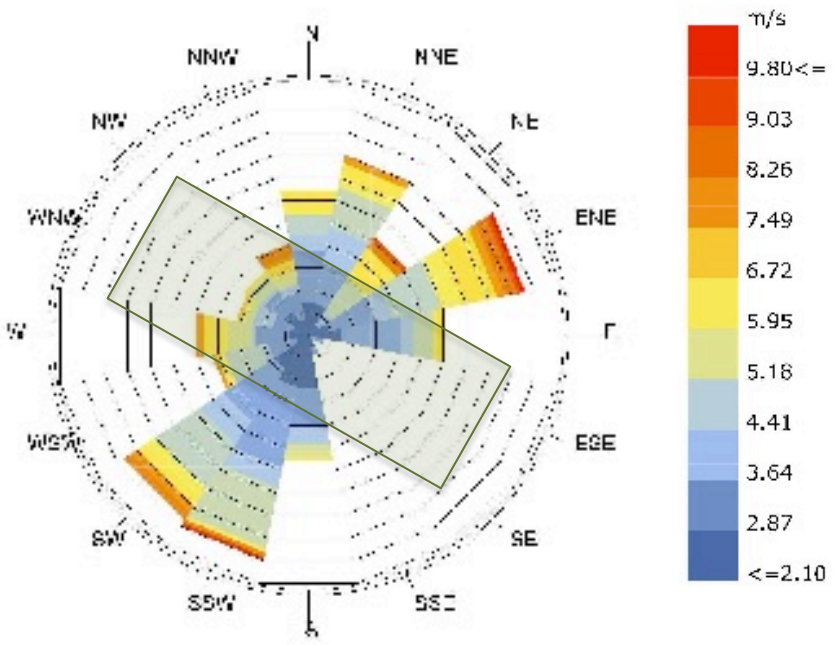
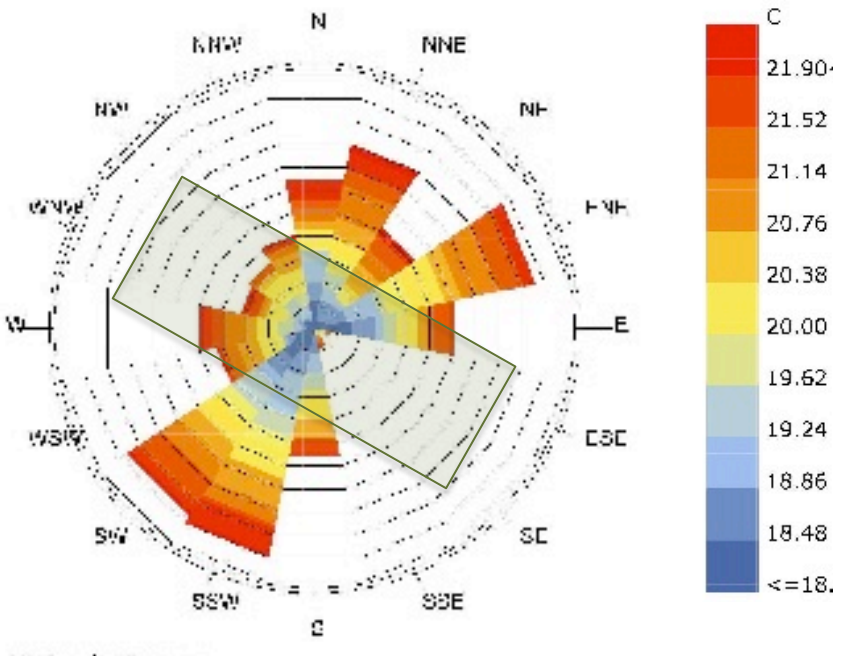
MULTI FUNCTIONAL BUILDING

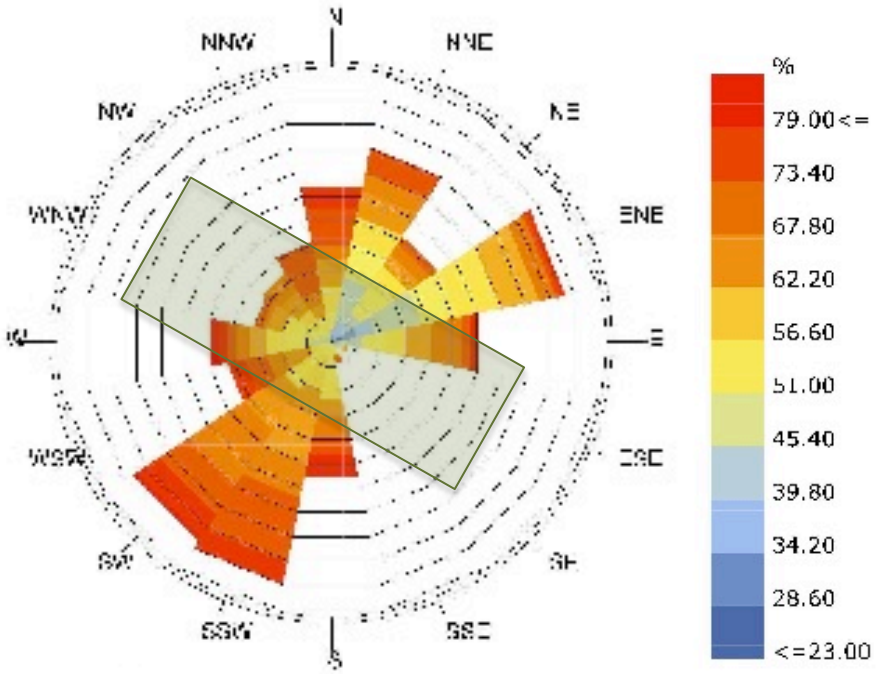
LONDON

BUILDING PERFORMANCE SIMULATION

KSENIA KNYAZKINA

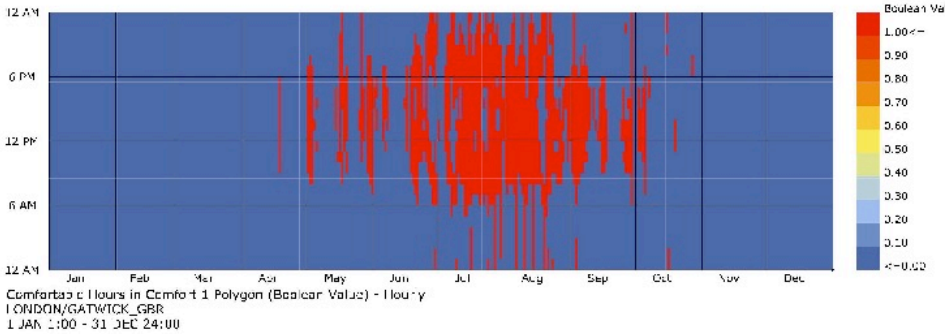




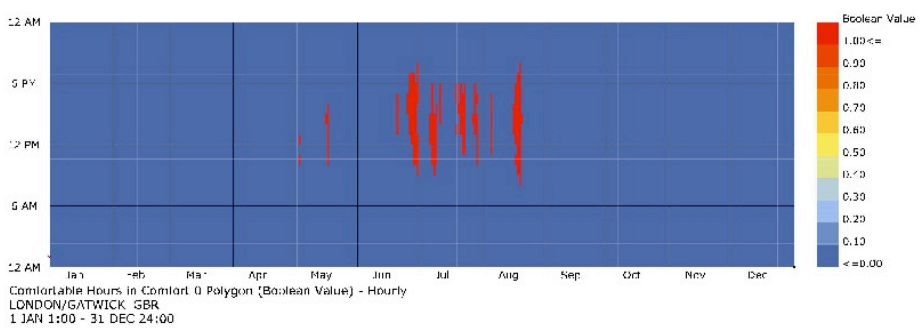


Orientation and shape of the building

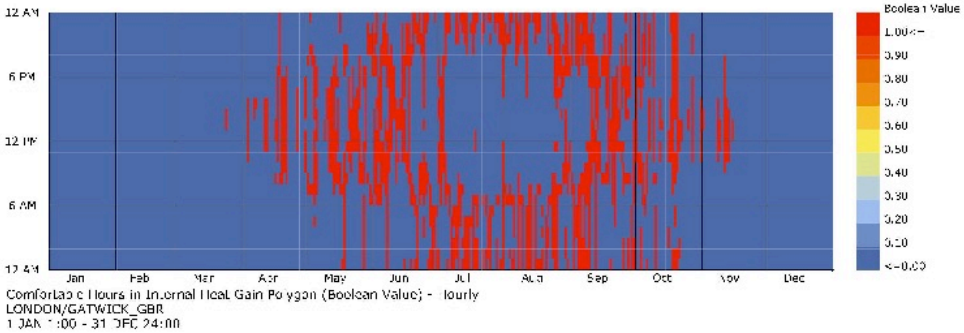
Recommended orientation according to the comfortable temperature (18-22 C) and humidity (30<80%) and wind speed for natural ventilation (>2m/s) is **SW**.



Warm clothing (1.3)



Normal clothing (0.7)

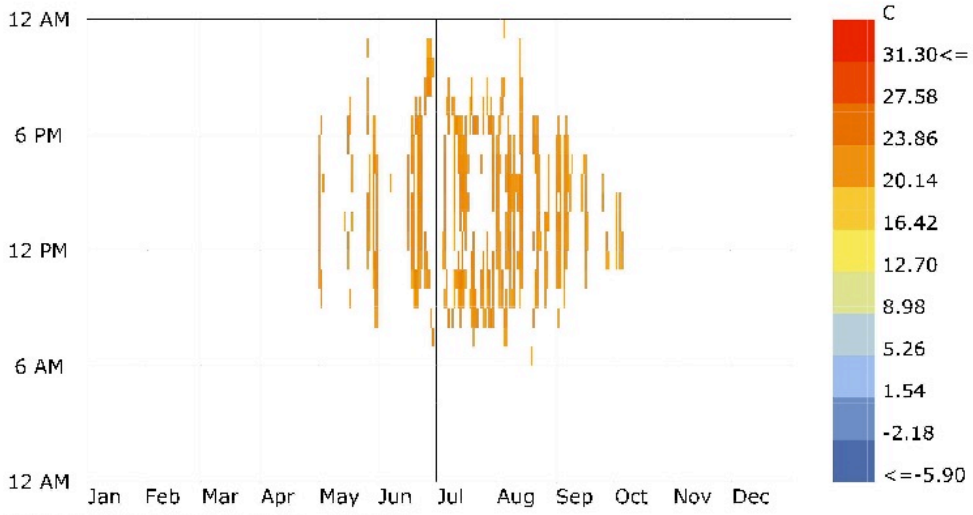


Internal Heat Gain

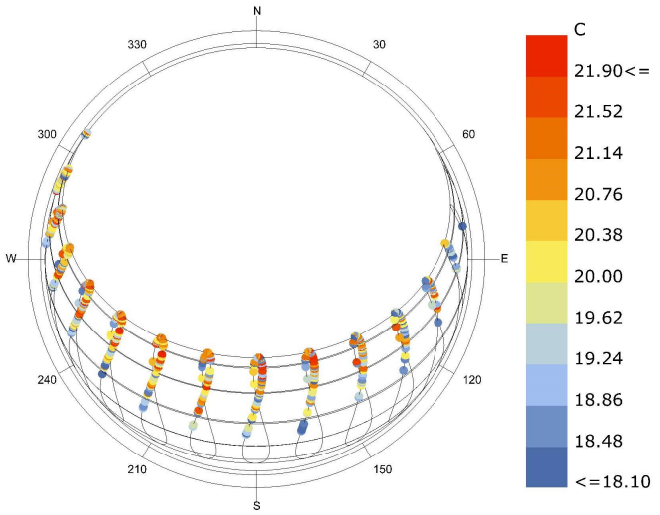
Prevailing outdoor temperature is lower than 15 C. However, the indoor comfort may change according to clothes and activities of tenants, collecting internal heat gains can significantly increase the number of comfortable hours.

It is recommended to make building **compact with big thermal mass** to keep heat inside.

Indoor comfort

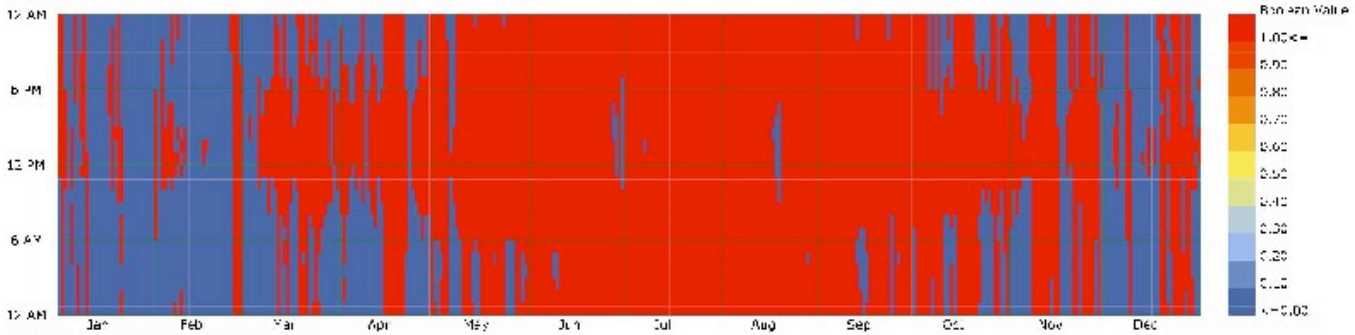


Dry Bulb Temperature (C) - Hourly
LONDON/GATWICK GBR
1 JAN 1:00 - 31 DEC 24:00



Sun-Path Diagram - Latitude: 51.15
Hourly Data: Dry Bulb Temperature (C)
LONDON/GATWICK_GBR
... ...
Conditional Selection Applied:
18<Dry Bulb Temperature<22
and Relative Humidity<80
520.0 hours of total 4403.0 sun up hours(11.81%).

During all year temperature is in the comfortable zone only in the afternoon. It will be problematic to heat the building in the morning using just solar radiation from the east. Instead**, Tromb wall or Sunspaces on the west** may collect heat in the evening and than heat the building In the night. Thus the demand of energy for heating In the morning will be less .



Comfort or Not (Boolean Value) - Hourly
LONDON/GATWICK_GBR
1 JAN 1:00 - 31 DEC 24:00

Adaptive Comfort

Required information for further analysis:

Height (wind speed will vary)
Area of building
Functions
Work hours (if office or services)
Surrounding (water, high buildings, terrain)