



Thermal modeling and overheating analysis

Definition

Thermal modeling is used to analyse building energy consumption, carbon emissions, comfort levels and lighting performance. The methodology varies according to the project that it is been analyse. The model it is based on the technical information about the building or product, and the climate that is located.

The goal of this kind of analysis is to study the performance of a building or any of its components. This analysis should be conducted on the design process to improve the efficiency of the final product. Comparing different solutions, components and materials to analyse which one is more efficient for one type of building in a specific climate. It can also show the improvement in energy consumption, comfort levels or production of CO2 emissions of a specific product located in a type of building. By comparing this product with other of its kind, so we can conclude which is more efficient and more sustainable and why.

Results from energy simulation modelling can provide a compressive view of the product performance and the amount of energy and CO2 emissions savings and the improvement in the comfort level.

Analysis

Dynamic Thermal and Simulation Modeling allows us to analysis:

- Building geometry
- Building fabrics performance
- Façade design
- Thermal comfort
- Overheating and solar shading
- Natural ventilation, airflow and temperature
- HVCA services installations
- Artificial and daylighting design
- Passive design strategies
- Renewable energy systems
- Energy consumption and carbon emissions
- Occupancy profiles and building use

Objective

- Through thermal modeling we can assist Clients, Architects and the design team in understanding how design decisions influence energy consumption, carbon emissions, thermal comfort, daylight and other building performance metrics.
- Planning applications often require Clients to demonstrate to Local Authorities how the proposed building addresses their Sustainability and Low Carbon Agenda and meet Building Regulations, this can be achieved through thermal modeling
- There are some sustainable certificates that validate having a thermal assessment use as a tool for improving the design of the building.