PASSIVHAUS Student Competition

ANDRES GUAMANI R.

in partnership with

TARMAC A CRH COMPANY

Carbon Neutral Residential Development

PROJECT FACTS

Residential	Nottingham	82.32m²
Building Use	Location	TFA

PASSIVHAUS STRATEGY

Nottingham City Homes company has obtained a site to develop 44 homes, surrounded by public realm, allotments and community gardens, the site is on Bestwood which is currently well known by it high range of violent acts and the feeling of insecurity of residents, the land is an old school site of 2.4 ha enclosed by a fence that promote the sense of insecurity. The objective is to remove the boundary through the integration of the surrounding green areas and providing accessibility with pedestrian paths and share surfaces. Housing blocks are distributed along the project providing in between public realm, green areas and allotments. Houses are facing south to use solar gains and have views. The project aims to be zero carbon, for these buildings integrate PV on the roofs and a communal battery is provided in the scheme to storage electricity during periods of low consumption.

DESIGN PHILOSOPHY

The given brief consists of delivering 44 carbon neutral homes, integrating PassivHaus principles, the design must be aware of the UK design heritage but also meet modernity as part of designing a sustainable community houses should be capable to allow families to growth or eventually to decay trough time. So, some spaces of the house can change from a bedroom to an office or even a winter garden. Bigger roof surface on south façade allow the installation of more PV panels. The shape of the building answer to the constraints of the site and the project, The Autor has used Sefaira and PHPP to test the building and helped to make decisions, so height or width of windows height of roofs, envelope of building, shading devices, and sky lights are designed to improve the performance of the building in terms of energy consumption, heating demand and Daylight Autonomy.

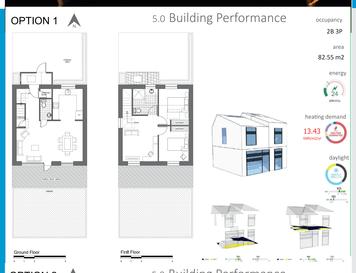
PREDICTED PERFORMANCE

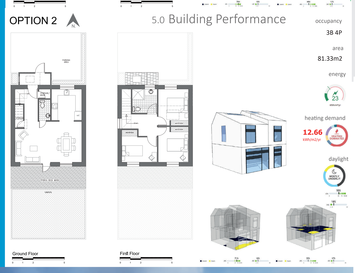
Walls	0.110
Floor	0.110
Roof	0.110
Windows	0.080

U-Values

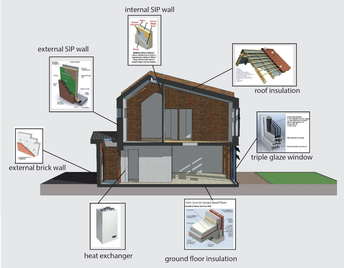
13 w/m² Heating Load

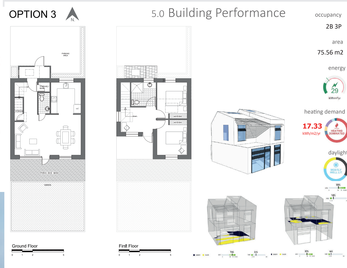
0.3 Form Factor

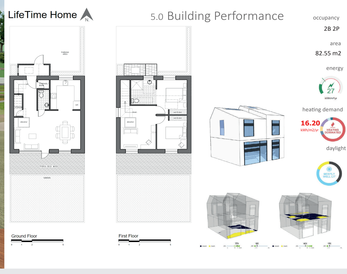




MATERIALS







Acknowledgements

MArch Desing - Environmental Design Two

Dr. Lucelia Rodrigues, Nottingham City Homes

University of Nottingham UK | CHINA | MALAYSIA

UK PASSIVHAUS STUDENT COMPETITION

designPH