


An aerial photograph of a city, likely London, showing a dense urban landscape. A large, green park area is visible in the center-left, surrounded by various buildings and streets. The image is in black and white, with a semi-transparent white box in the top right corner containing the title.

BRUNSWICK CENTRE

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Daniela Park,
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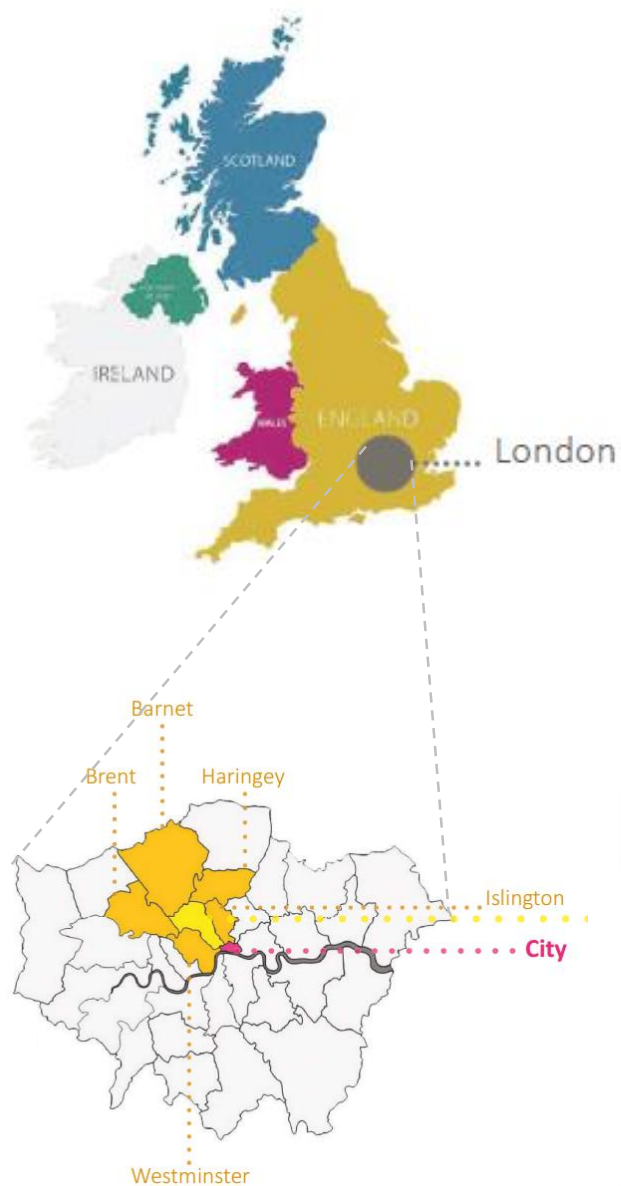
A photograph of a modern urban plaza. In the background, a multi-story building with a light-colored facade and many windows is visible. The ground floor of the building features large glass storefronts, likely for retail or dining. People are walking along the sidewalk in front of the building. In the foreground, there are several black trash bins with domed lids, a young tree, and a planter bed with red flowers. The sky is blue with some clouds. The overall scene is bright and sunny.

Current shape X typical vertical shape?

Original design X current design?

Influence on the access corridor into the building performance?

Ventilation performance?



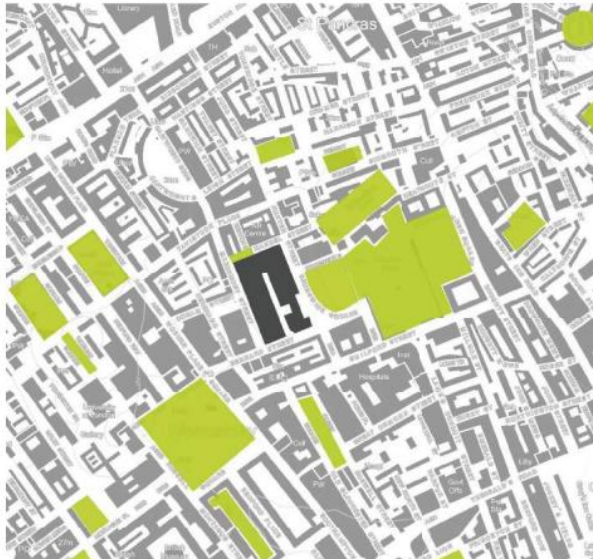
Residential



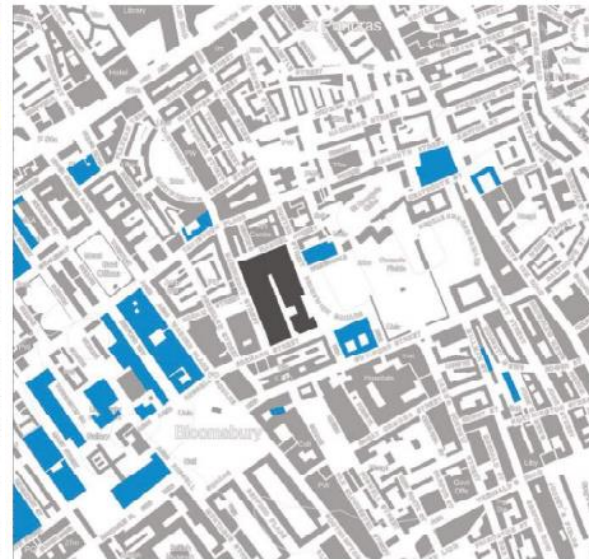
Commercial + Residential

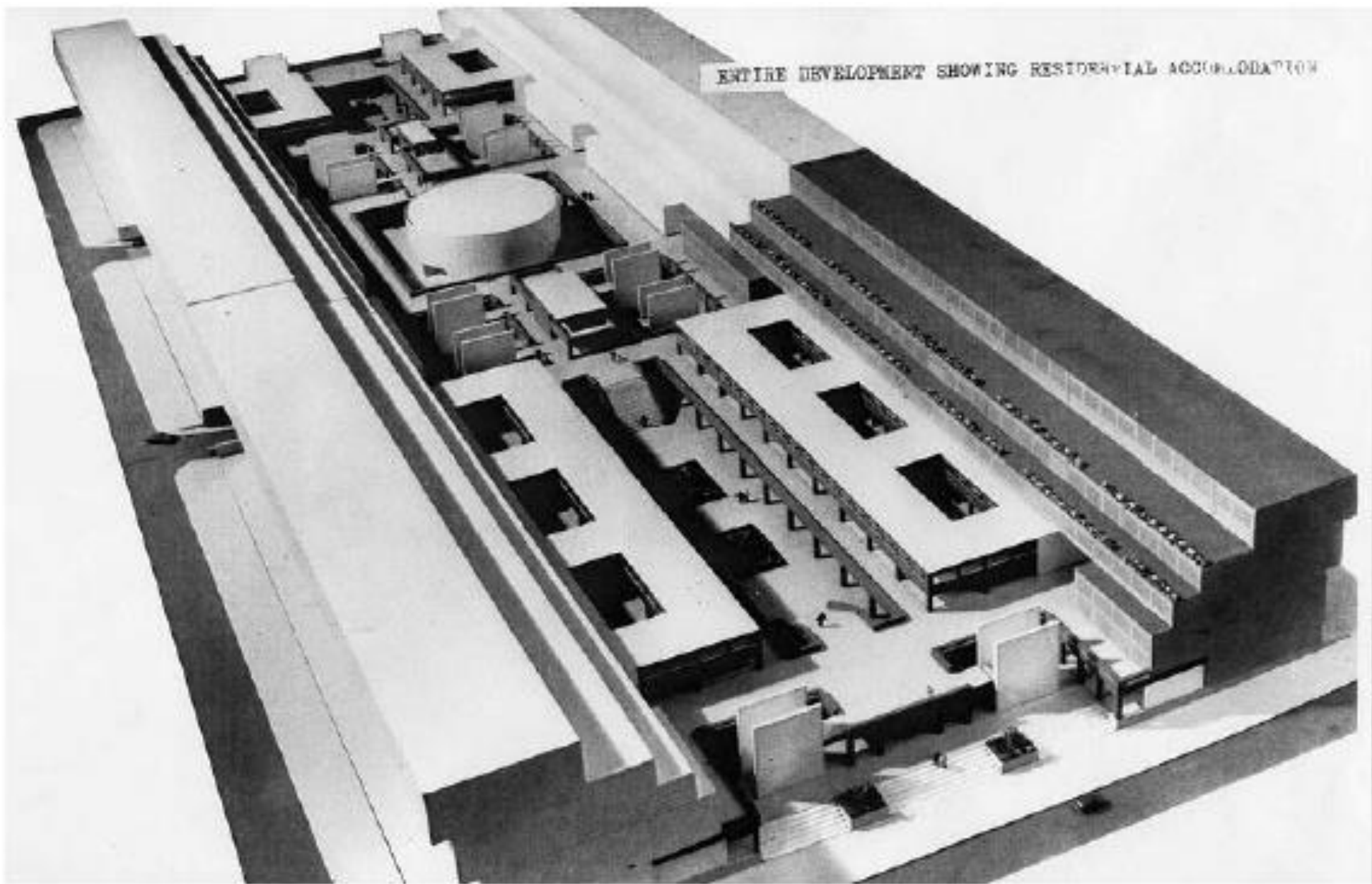


Green spaces



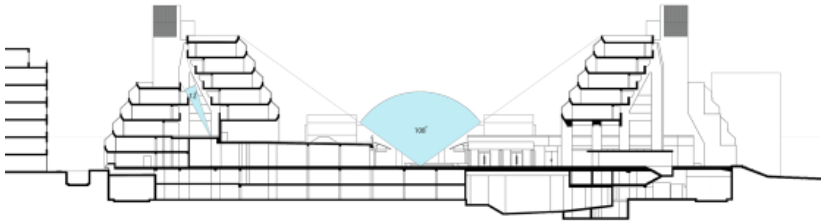
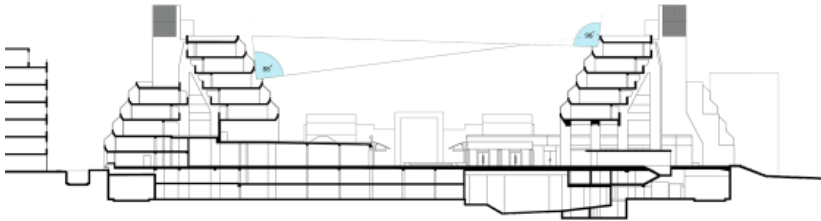
Educational



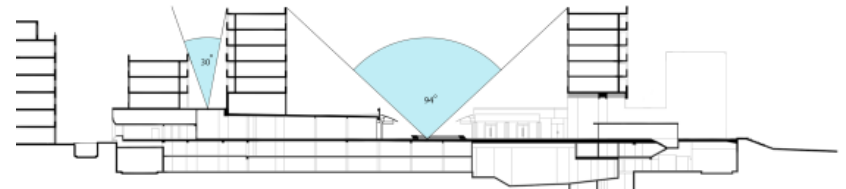
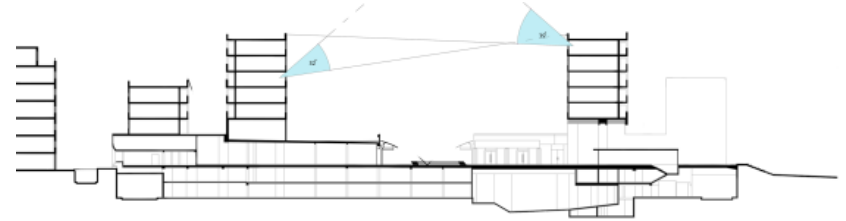


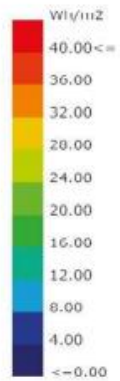
Current shape X typical vertical shape?

Current shape

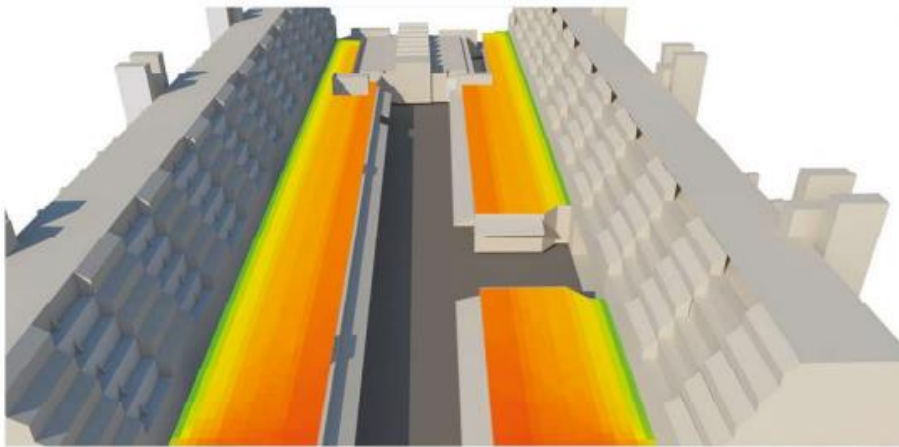


Vertical shape

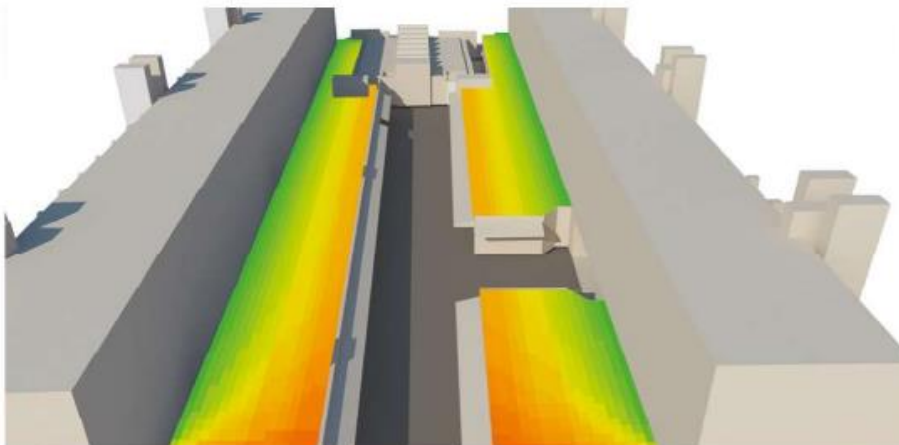




15, January
9:00 - 15:00



Case 1. Current situation
(stepped back shape)



Case 2. Hypothetical situation
(not stepped back shape)



Flat 133

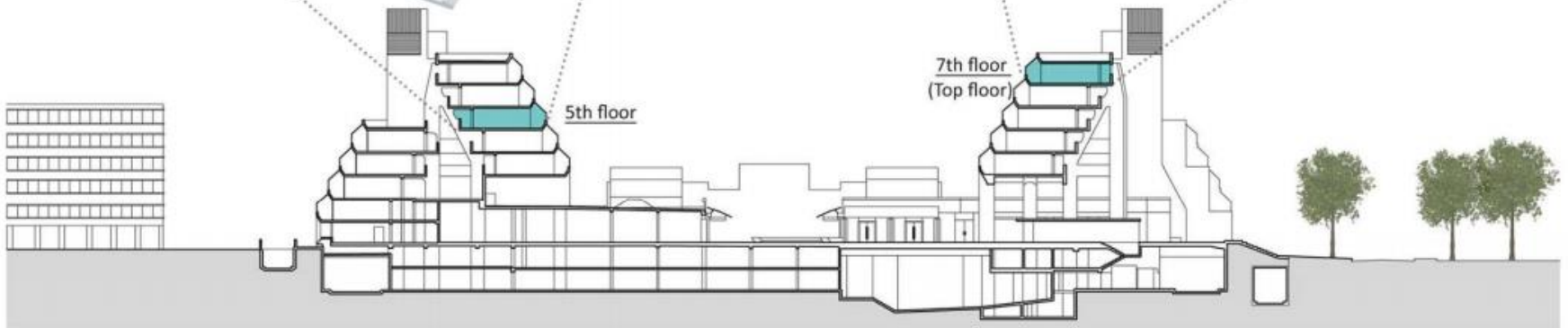


Flat 61



Legend

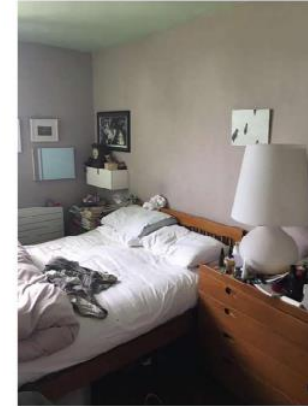
- 1. bed room-1
- 2. bed room-2
- 3. living room
- 4. kitchen
- 5. entrance
- 6. bathroom
- 7. balcony
- 8. corridor



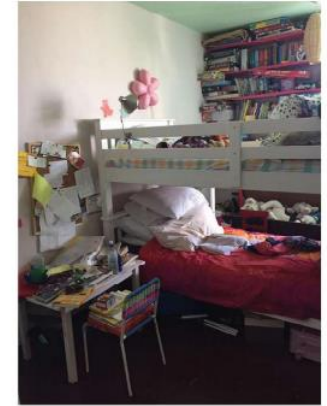


Legend

-  Lighting
-  Heater
-  Data Loggers



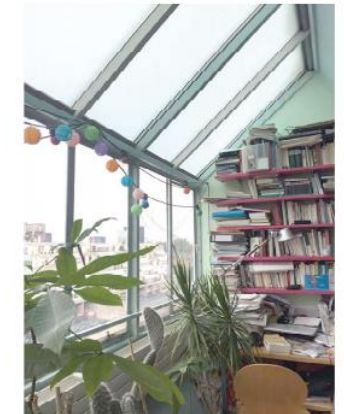
BEDROOM



KIDS BEDROOM



LIVING ROOM



CONSERVATORY AREA



Legend

-  Lighting
-  Heater
-  Data Loggers



BEDROOM



READING ROOM

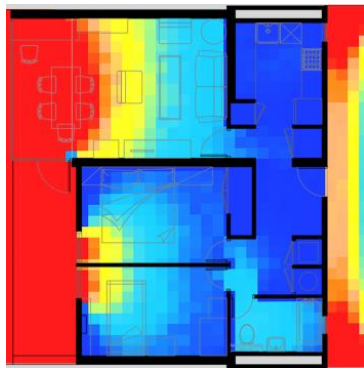


KITCHEN

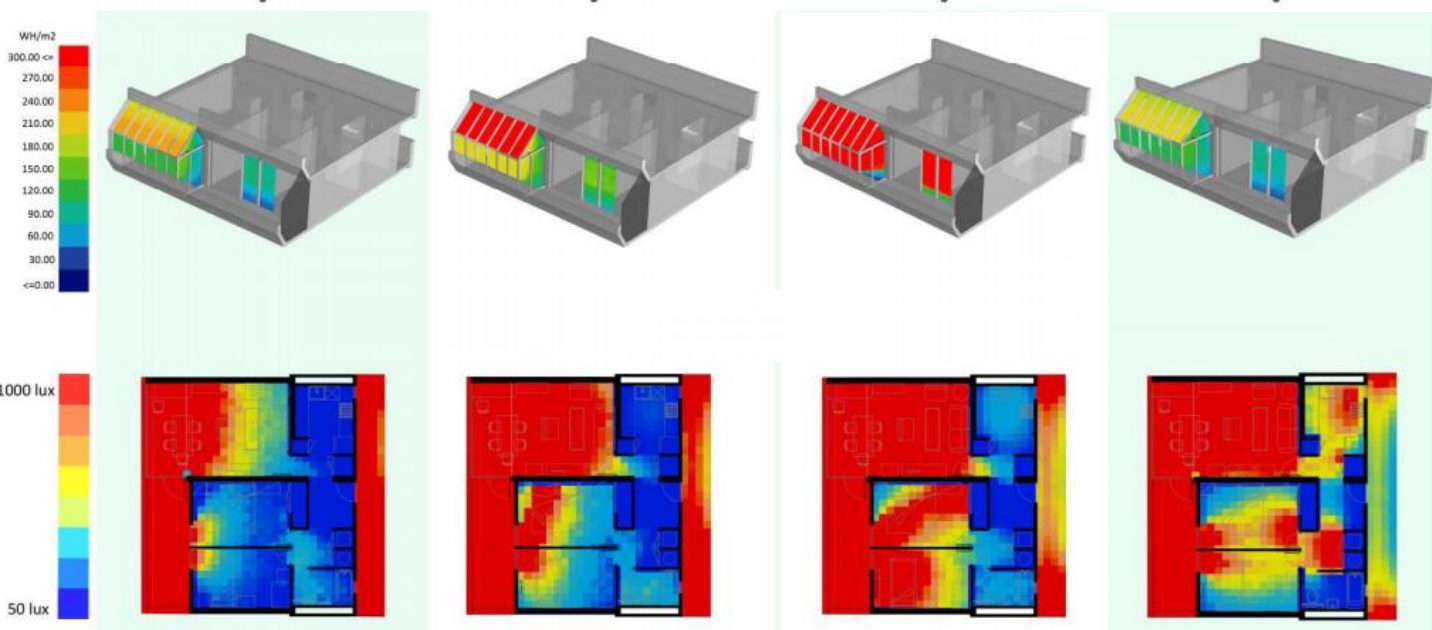
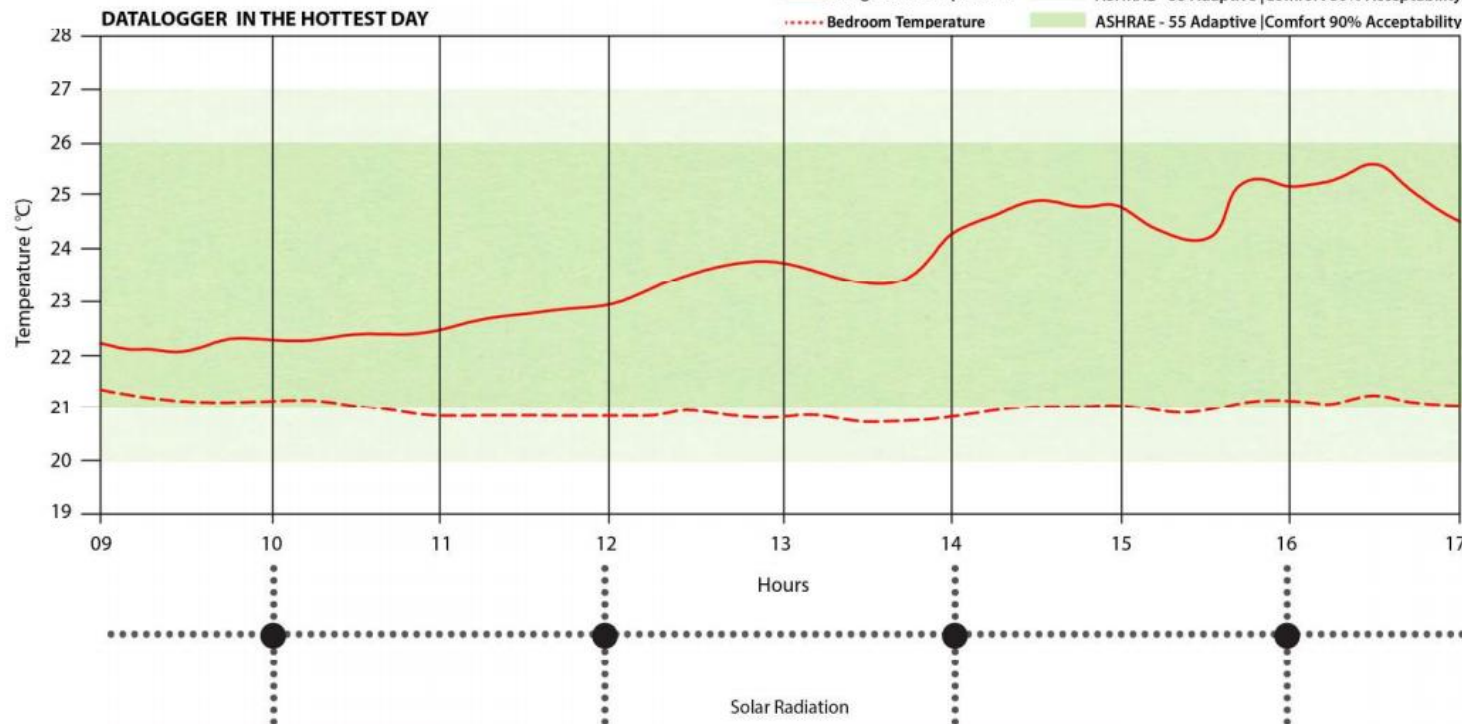


CONSERVATORY AREA

flat 61

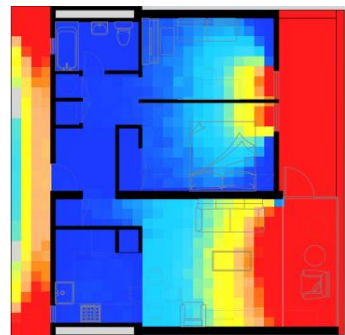


Daylight Factor



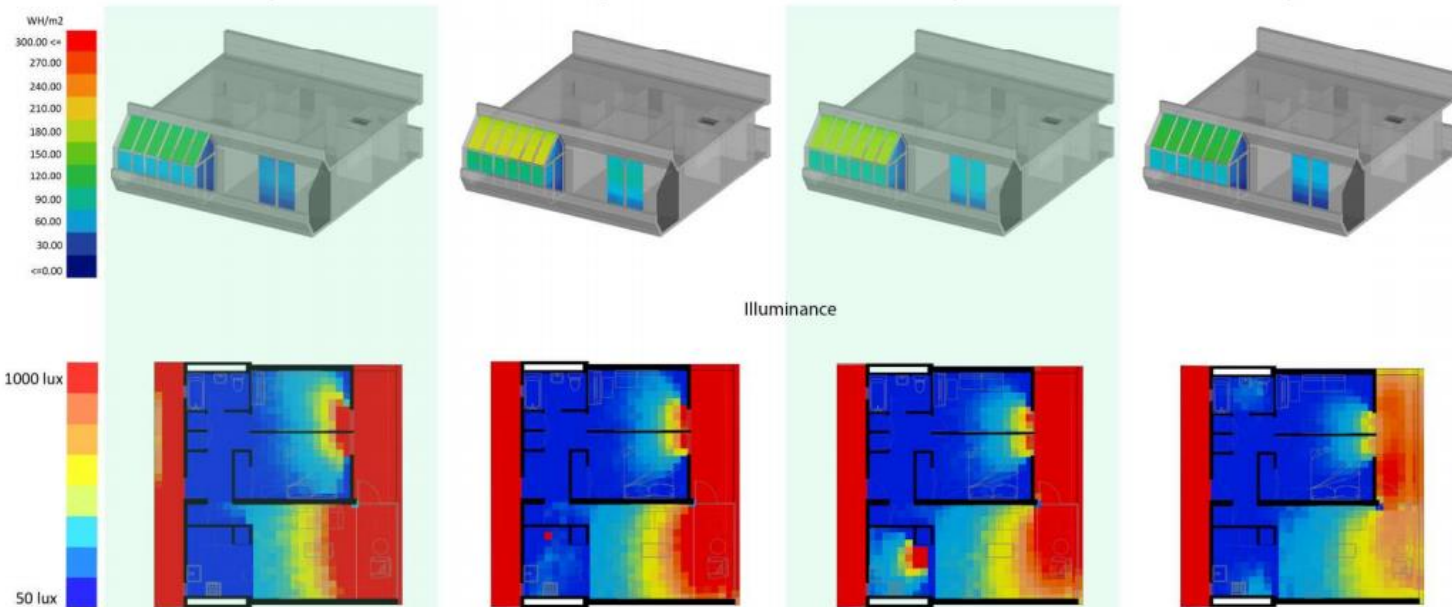
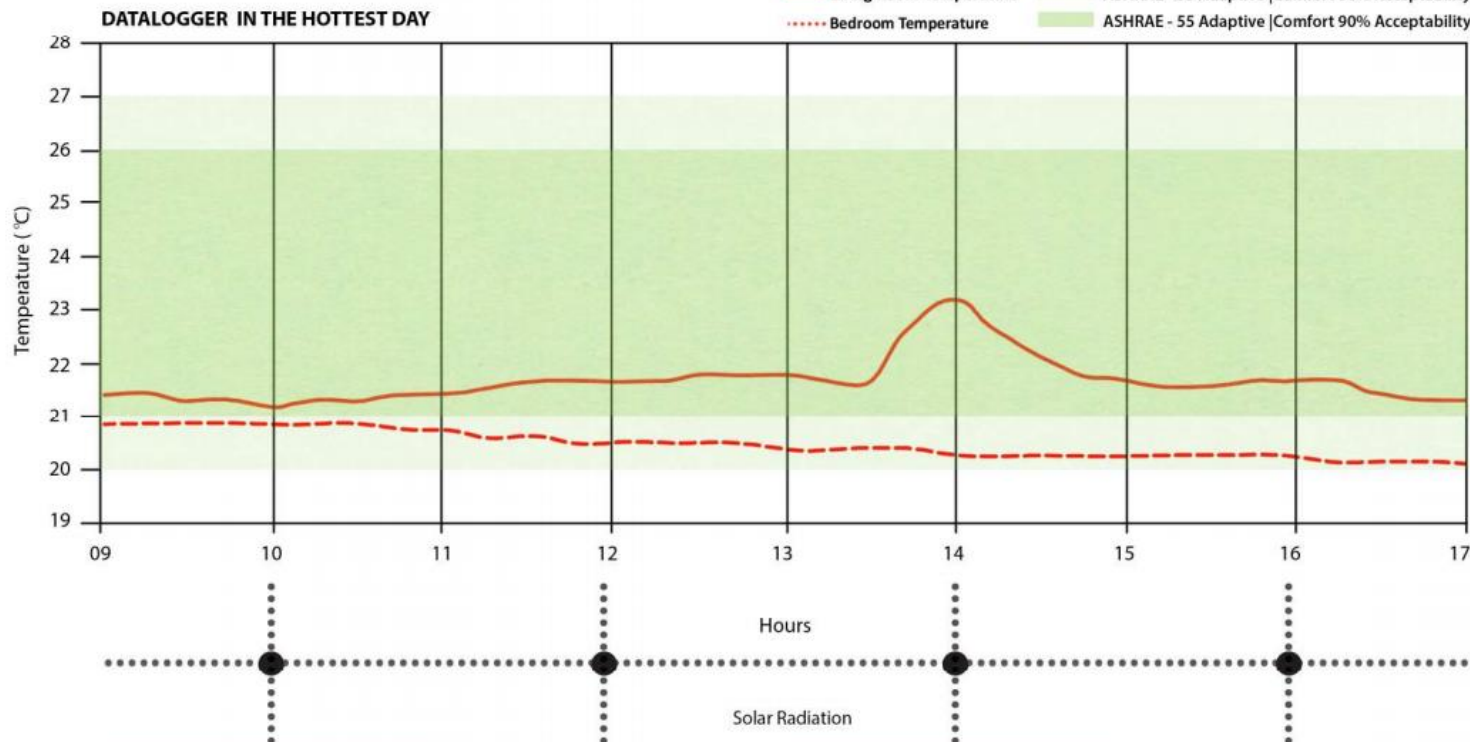
DAYLIGHT FACTOR	ORIGINAL DESIGN	CIBSE
Bedroom	2%	1%
Kitchen	1%	2%
Living Room	25%	25%
Illuminance (lux)		
Bedroom	100	100 lux
Kitchen	125	150 lux
Living Room	> 1000	100 lux
Illuminance (lux)		
Bedroom	100	100 lux
Kitchen	125	150 lux
Living Room	> 700	100 lux

Flat 133



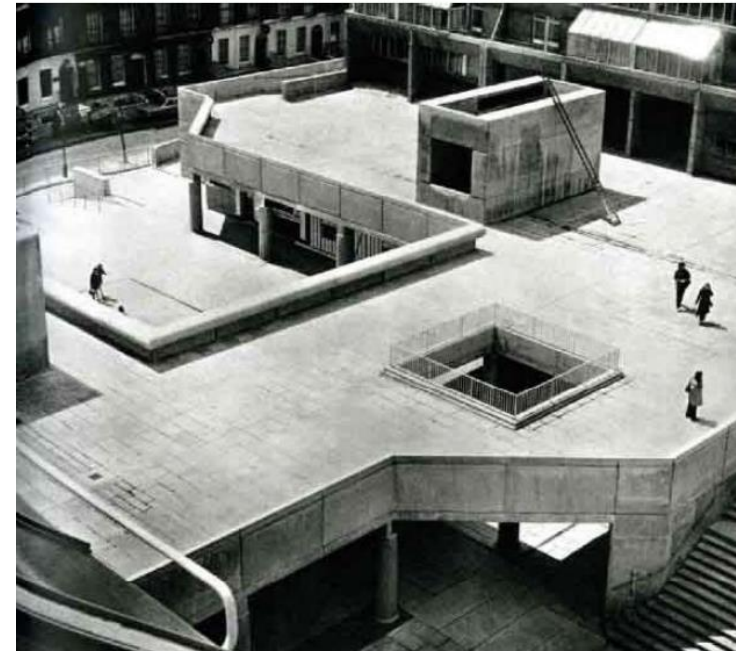
Daylight Factor

DAYLIGHT FACTOR	CURRENT DESIGN	CIBSE
Bedroom	6%	1%
Kitchen	1%	2%
Living Room	25%	25%
Illuminance (lux)	SUMMER	
Bedroom	200	100 lux
Kitchen	150	150 lux
Living Room	> 500	100 lux
Illuminance (lux)	WINTER	
Bedroom	150	100 lux
Kitchen	125	150 lux
Living Room	> 300	100 lux



Original X current design?

Original
Design



Current
Design

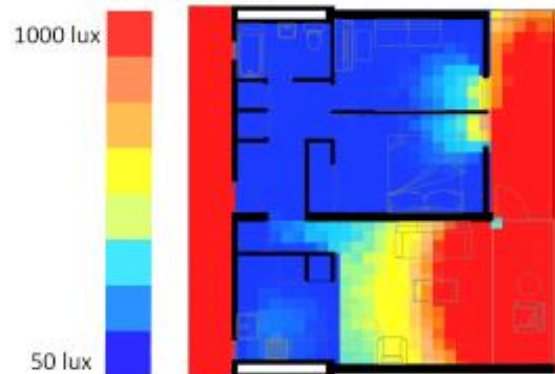


Retractable glazed roof simulation

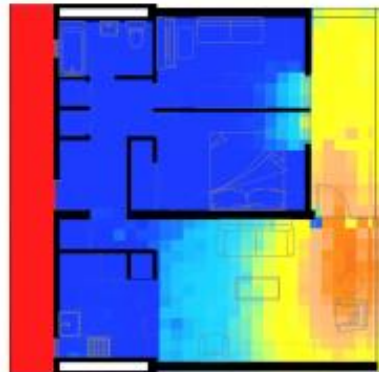


ORIGINAL DESIGN

ILLUMINANCE

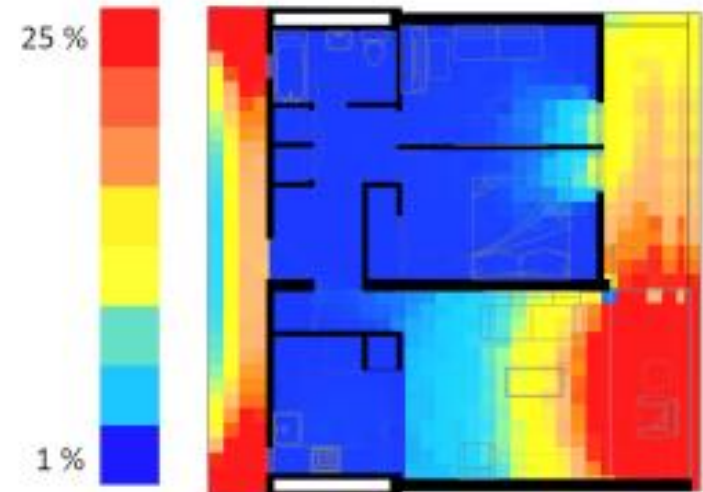


SUMMER - 12PM (SUN ANGLE 61.9°)



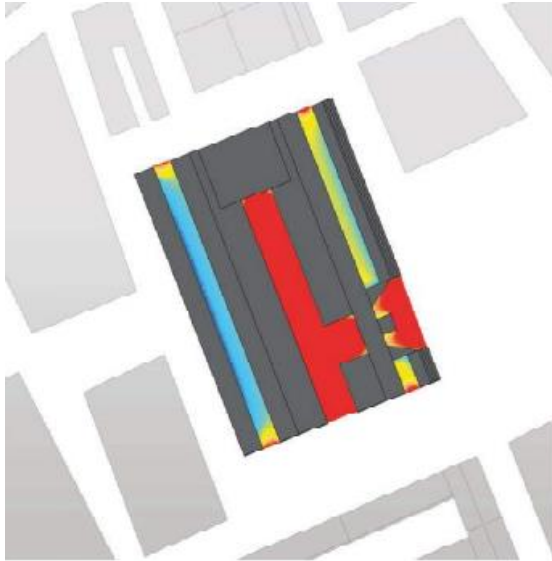
WINTER - 12PM (SUN ANGLE 15°)

DAYLIGHT FACTOR



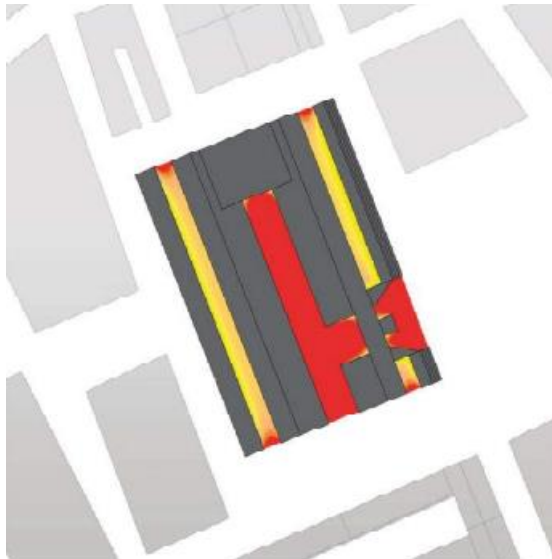
DAYLIGHT FACTOR	ORIGINAL DESIGN	CIBSE
Bedroom	1%	1%
Kitchen	1%	2%
Living Room	25%	25%
Illuminance (lux)		
Bedroom	125	100 lux
Kitchen	125	150 lux
Living Room	> 750	100 lux
Illuminance (lux)		
Bedroom	100	100 lux
Kitchen	100	150 lux
Living Room	> 300	100 lux

Influence on the access corridor into the building performance?



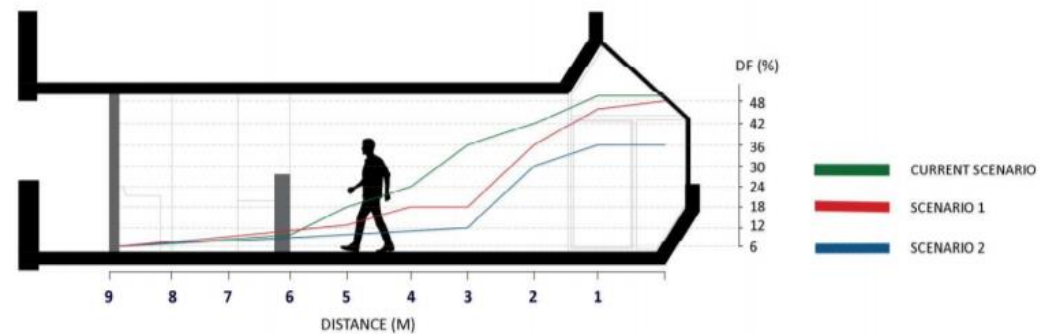
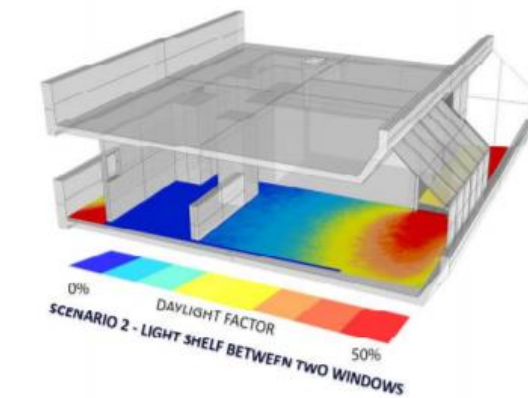
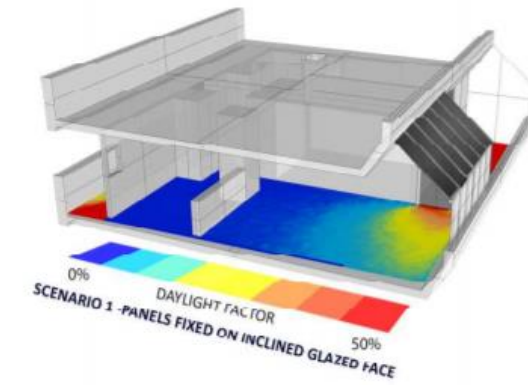
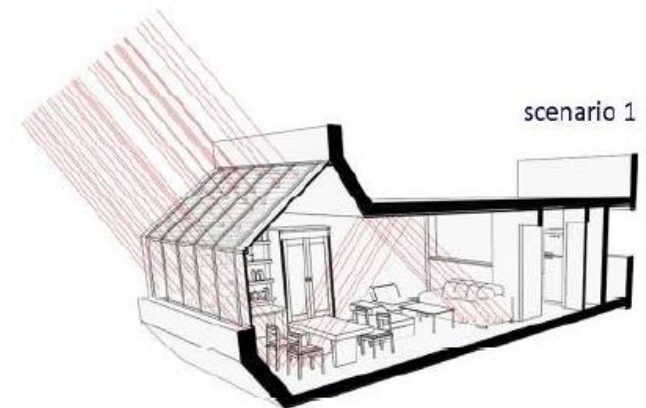
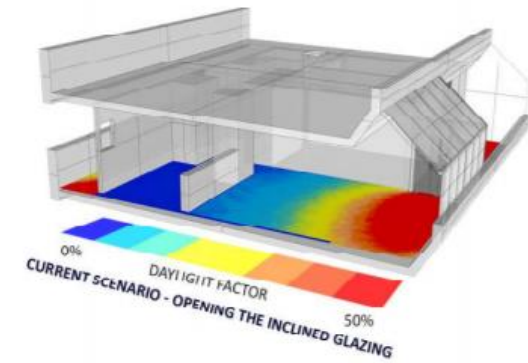
0%

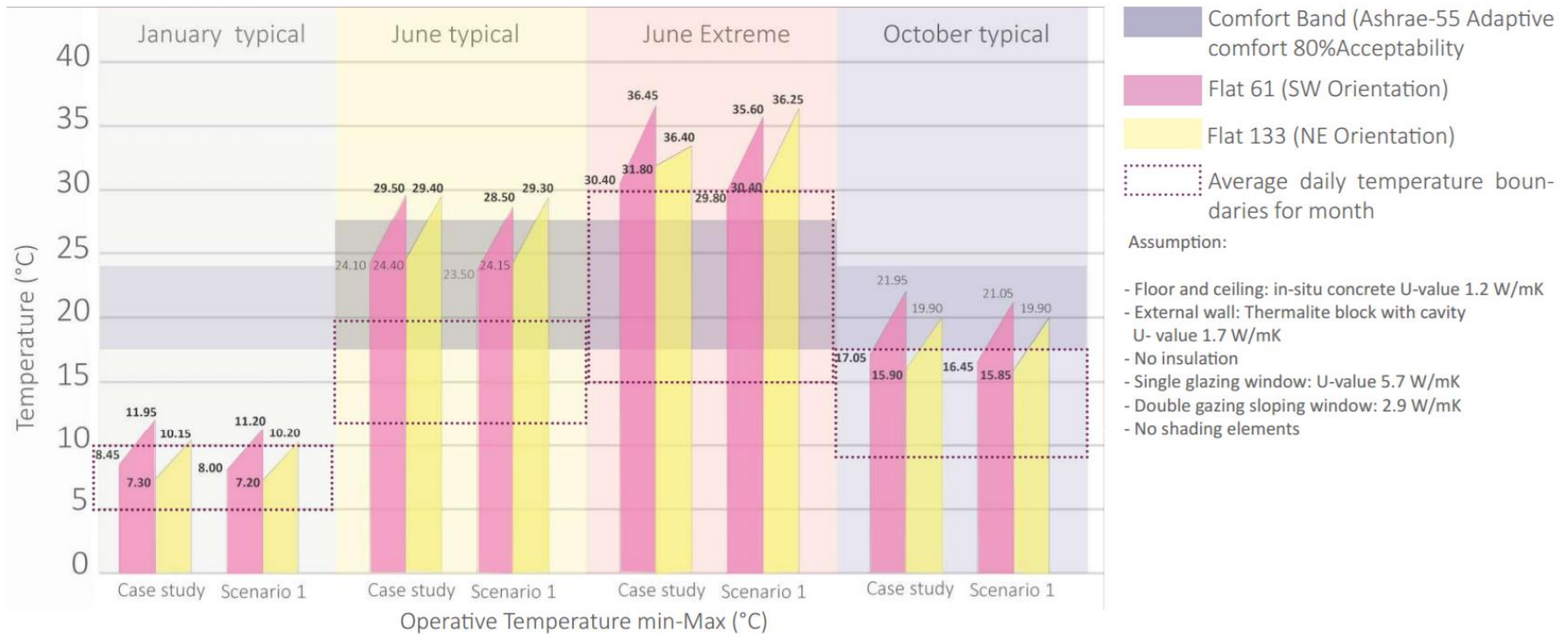
50%



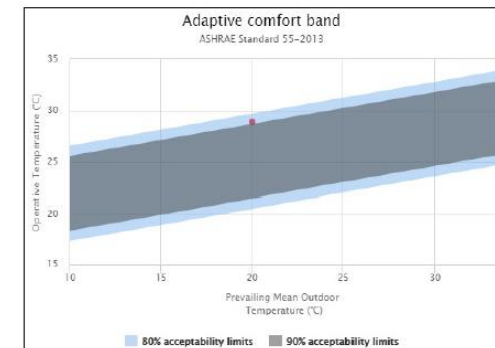
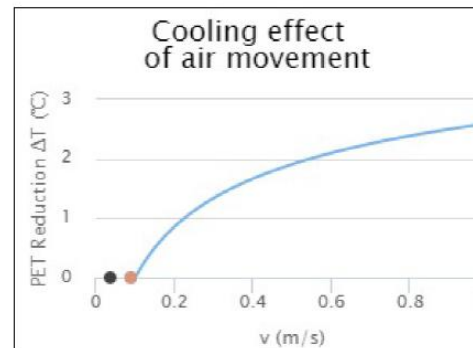
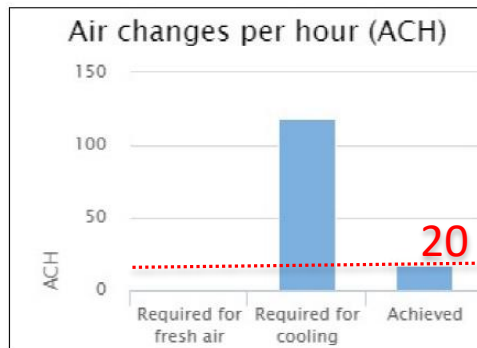
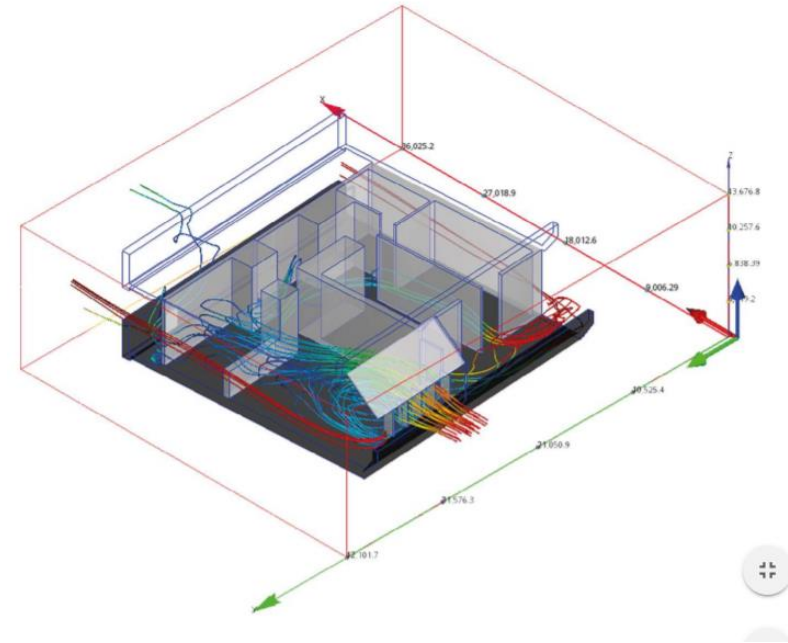
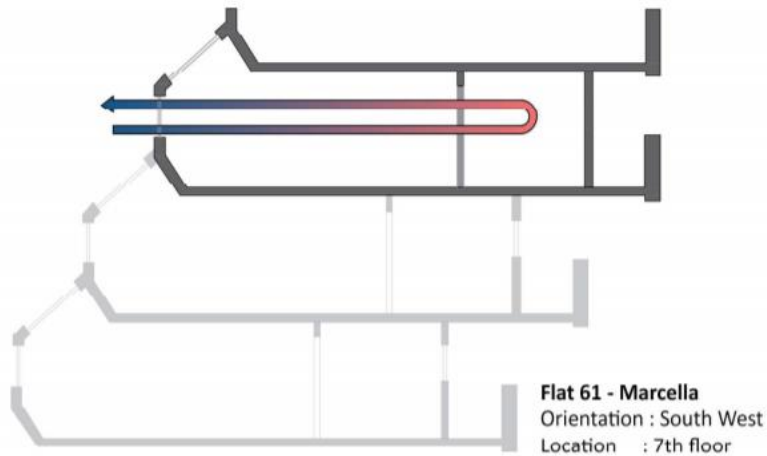
Shading means performance?

Ventilation performance?

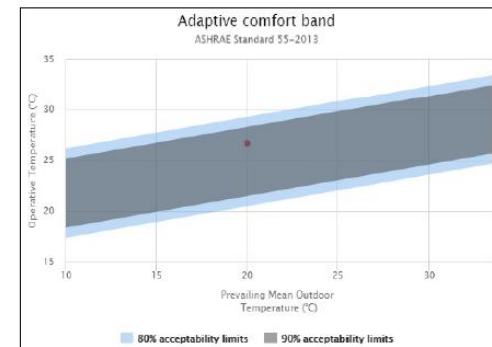
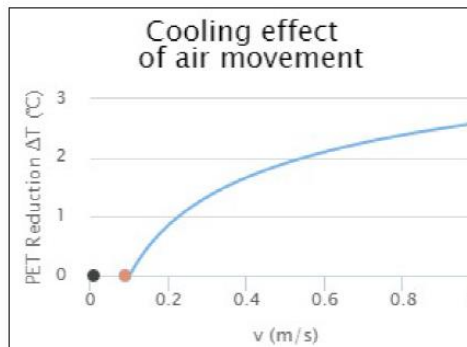
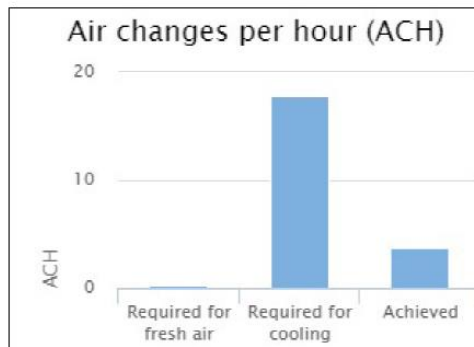
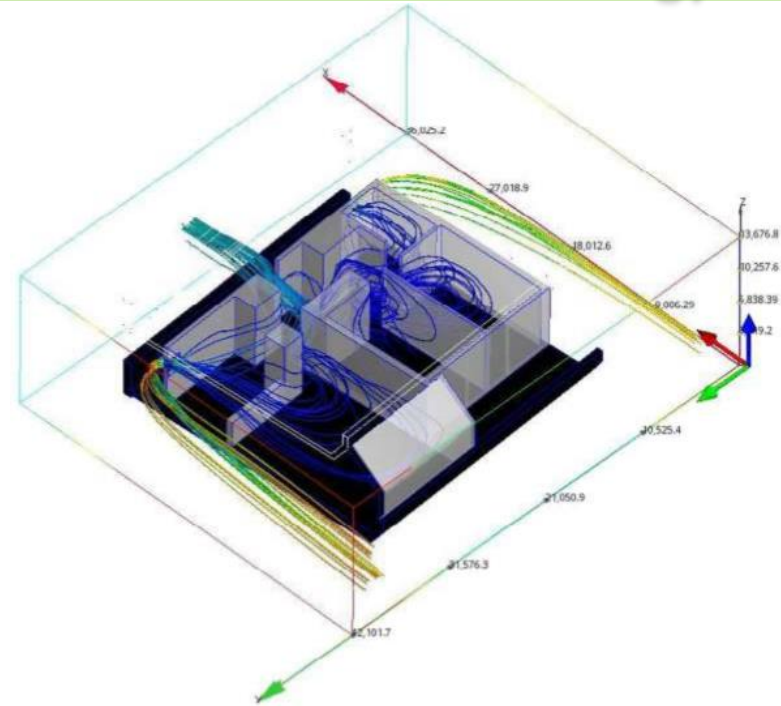
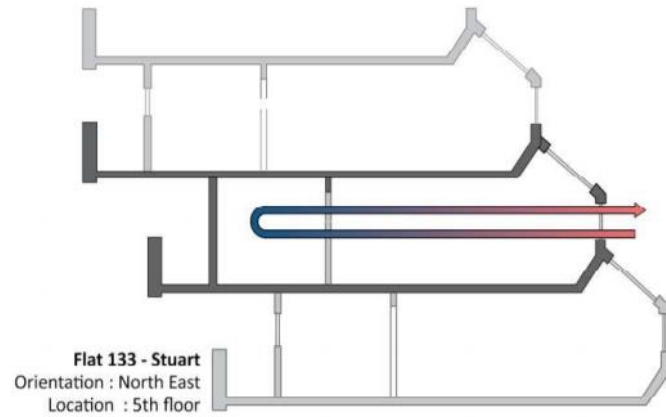




Ventilation strategy flat 61

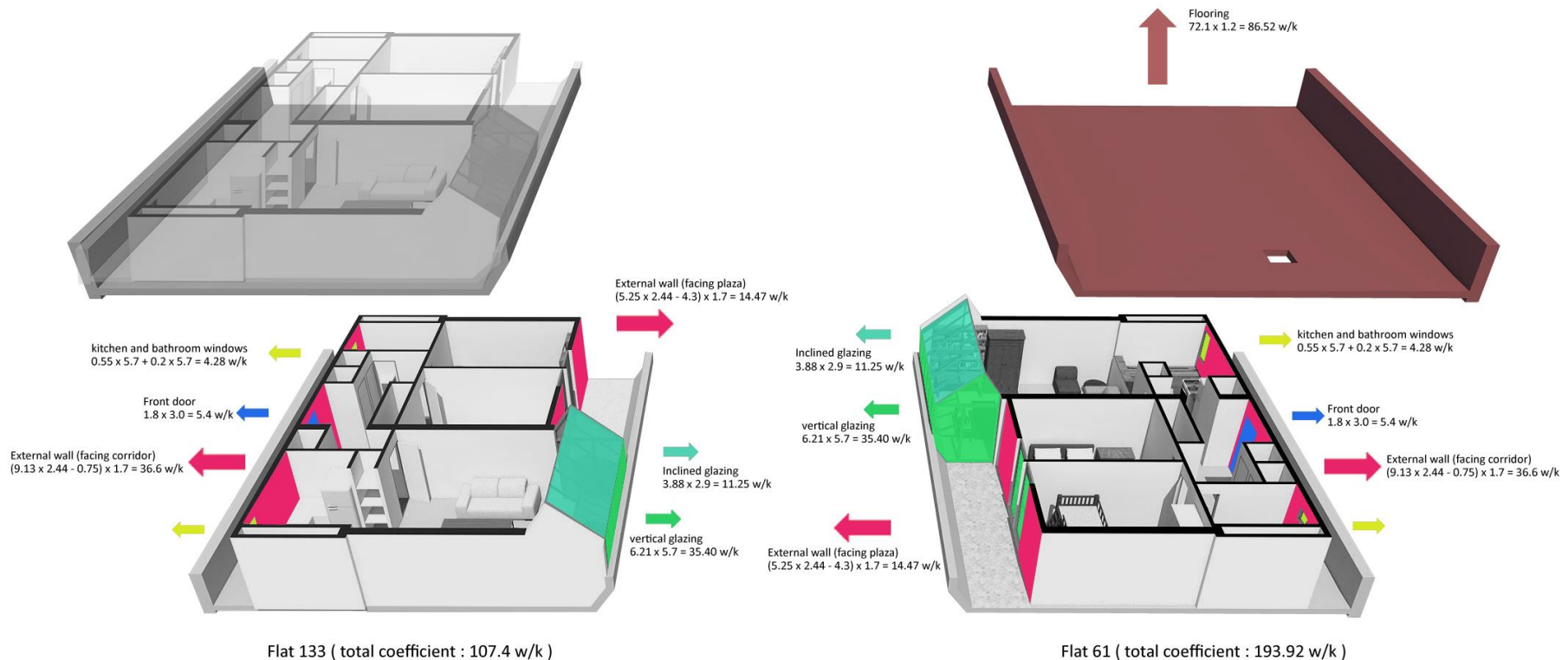


Ventilation strategy flat 133



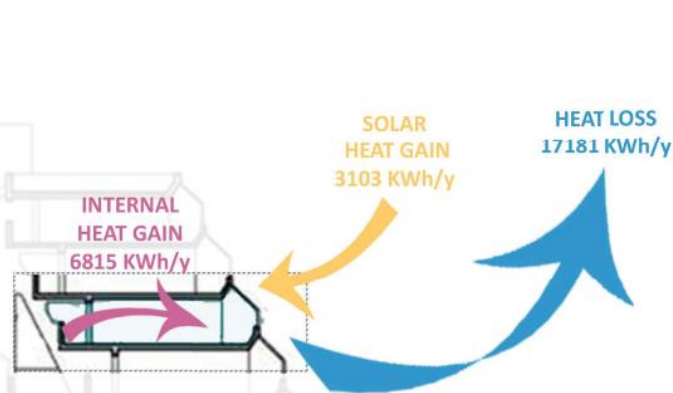
Elements	Description	Location	Thickness(mm)	U Value (w/mk)
Vertical glazing	Single-glazing with metal frame	winter garden, balcony door	6	5.7
Inclined glazing	Double-glazing with metal frame, argon filled(low-E, 0.2, hard coat)	winter garden rooflight	15	2.9
Ceiling, flooring	In situ concrete	whole area of floor and ceiling	200	1.2
External walls	Themalite blocks with cavity	external front and back	250	1.7
Front door	Wood	front door	40	3.0
Windows facing corridor	Single-glazing with metal frame	kitchen and bathroom	6	5.7

The U-value of the building fabric is very poor because there are no insulation on the wall and ceiling. Regarding fabric heat loss coefficient, flat 61 is almost double compared with flat 133. This is because flat 61 is located on the top floor, and the roof is totally exposed to outdoor conditions, then it has more heat loss.



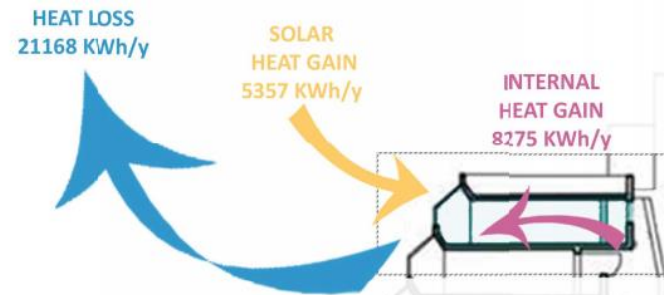
flat 133

flat 61



CALCULATION RESULTS

	Total
Overall building heat loss coefficient [W/K]	217,45
Gains-to-loss ratio (GLR)	0,577
Auxiliary heating fraction (AHF)	0,492
Continuous heating [kWh]	8462
Intermittent heating [kWh]	7192
Excess gains [kWh]	899
Peak temperature [°C]	0,0
Number of hours above 27°C [h]	0



CALCULATION RESULTS

	Total
Overall building heat loss coefficient [W/K]	267,89
Gains-to-loss ratio (GLR)	0,644
Auxiliary heating fraction (AHF)	0,459
Continuous heating [kWh]	9707
Intermittent heating [kWh]	8251
Excess gains [kWh]	1628
Peak temperature [°C]	0,0
Number of hours above 27°C [h]	0

CALCULATION RESULTS

	Total
Overall building heat loss coefficient [W/K]	149,48
Annual heat loss [kWh]	11811
Total internal gains [kWh]	6815
Total net solar gains [kWh]	3167
Total annual heat gains [kWh]	9982
Gains-to-loss ratio (GLR)	0,845
Auxiliary heating fraction (AHF)	0,370
Continuous heating [kWh]	4368
Intermittent heating [kWh]	3713
Excess gains [kWh]	19
Peak temperature [°C]	2,1
Number of hours above 27°C [h]	0



CALCULATION RESULTS

	Total
Overall building heat loss coefficient [W/K]	146,63
Annual heat loss [kWh]	11586
Total internal gains [kWh]	8275
Total net solar gains [kWh]	5396
Total annual heat gains [kWh]	13671
Gains-to-loss ratio (GLR)	1,180
Auxiliary heating fraction (AHF)	0,259
Continuous heating [kWh]	2995
Intermittent heating [kWh]	2546
Excess gains [kWh]	3810
Peak temperature [°C]	29,8
Number of hours above 27°C [h]	170

