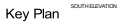


	60min FIRE BARRIER
	30min CAVITY CLOSURE
	90min FIRE BARRIER
	120min FIRE BARRIER
	SHEAR WALL EXTENT

LOCATION - BLOCK B



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1

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PROJECT / DRAWING TITLE Hornsey Town Hall									
DRAWING TITLE RESIDENTIAL BLOCK B Fire Strategy - South Elevation									
DATE / DRAWN BY 12/10/20 ZZK								SCALE 1 : 100	
PROJECT NO	ZONE	LEVEL	TYPE	ROLE	CLASS	DR. NO.	REV		
3596-KDS-BB-XX-DR-A-68-2005							C1		

	60min FIRE BARRIER
	30min CAVITY CLOSURE
	90min FIRE BARRIER
	120min FIRE BARRIER
	SHEAR WALL EXTENT

LOCATION - BLOCK B

WORK EDUCATION

Key Plan



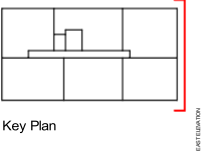
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PROJECT NO 3596-KDS	ZONE BB	LEVEL XX	TYPE DR	REV C1



1 Fire Strategy - ELEVATION - North
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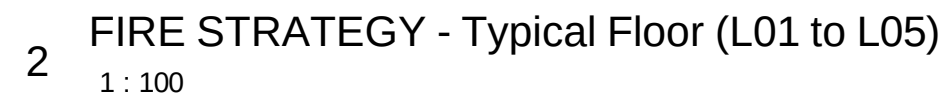
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	90min FIRE BARRIER
	120min FIRE BARRIER
	SHEAR WALL EXTENT

LOCATION - BLOCK B



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PROJECT / DRAWING TITLE Hornsey Town Hall									
DRAWING TITLE RESIDENTIAL BLOCK B Fire Strategy - East Elevation									
DATE / DRAWN BY 27/10/20 ZZK								SCALE 1 : 100	
PROJECT NO	ZONE	LEVEL	TYPE	ROLE	CLASS	DR. NO.	REV		
3596-KDS-BB-XX-DR-A-68-2003							C1		



The image displays two logos. On the left is the logo for Ardmore Group, featuring a stylized red and blue 'A' with a swoosh, and the text 'Ardmore GROUP' below it. On the right is the logo for KDS Associates Ltd, featuring the text 'KDS ASSOCIATES LTD' in large, bold, gold letters, with 'DESIGN | ARCHITECTURE | MANAGEMENT | CONSULTANTS' in smaller, dark blue letters below it. The background is a light beige with a faint grid pattern.

FOR CONSTRUCTION

PROJECT / DRAWING TITLE Hornsey Town Hall									
DRAWING TITLE RESIDENTIAL BLOCK B Fire Strategy - Typical Level									
DATE / DRAWN BY 20/12/17 MD								SCALE 1 : 100	
PROJECT NO	ZONE	LEVEL	TYPE	ROLE	CLASS	DR. NO.	REV		
3596-KDS-BB-XX-DR-A-68-2002							C2		

PROJECT / DRAWING TITLE Hornsey Town Hall									
DRAWING TITLE RESIDENTIAL BLOCK B Fire Strategy - Ground Level									
DATE / DRAWN BY 20/12/17 MD								SCALE 1 : 100	
PROJECT NO 3596-KDS		ZONE BB	LEVEL GF	TYPE DR	ROLE CLASS A	DR. NO. 68-2001	REV C3		

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TRANSPORT, TRAVEL AND COMMUNITY

CYCLING AND WALKING

CYCLING

Cycling is a great way to get around London. Cycling in Central London is becoming easier with an increasing number of hire bikes available and bike highways being developed.

Barclays Cycle Hire offers short-term hire bikes around London. There are over 700 bike docking stations. Your closest bike docking station is at Santander Cycles: Allington Street, Victoria. It has 27 bikes/docks. Registered users pay £2 for an unlimited number of journeys within any 24-hour period, as long as each journey is under 30 minutes.

Your nearest cycling shop for advice, repairs and purchases is Future Cycles Shop, 314 Park Rd, Muswell Hill, London N8 8LA

WALKING

Including some walking in your daily commute is a great way to keep active and stay healthy.

Walk it is a web-based walking-route planner which aims to increase the number of people walking around the country. Information on walking events, walking to work or school, or walking for health can be found on the website at <https://walkit.com>

Walk 4 Life is another web-based programme which helps you to find at least 10 organised walks and walking events in your area. The programme, run by Walk England, aims to promote healthy and active lifestyles. There is more information on the website at www.walkengland.org.uk

PUBLIC TRANSPORT

BUSES

Your local bus services and routes are set out below. For timetables and a route map, see the Transport for London website at www.tfl.gov.uk.

Service	Route
ROUTE W7: Metroline	Muswell Hill Broadway - Finsbury Park Station.
NIGHT BUS N91: Metroline	Cockfosters Station - Trafalgar Square.

ROUTE 41: Arriva London	Tottenham Hale Station - Archway Station.
ROUTE 91: Metroline	Crouch End, Elmfield Avenue - Trafalgar Square.
ROUTE W3: Arriva London	Northumberland Park Station - Park Station.
ROUTE W5: CT Plus	Harringay Sainsbury's, Endymion Road - Archway Station.

TRAINS AND TUBES

Your nearest train and tube stations are set out below, along with the facilities available and opening times.

Station	Contact details	Opening times	Common destinations served or tube lines	Facilities
Finsbury Park	Address: Finsbury Park Underground Station London Underground Ltd. Wells Terrace London N4 3JU Phone: 0800 138 1018	Monday - Sunday 07:00 - 22:00 The assisted helpline is not available on Christmas Day.	Piccadilly	ATM Machine Public Wi-Fi Refreshment facilities Toilets Waiting Rooms
Crouch Hill	Address: Crouch Hill station Crouch Hill Stroud Green Greater London N4 4AU Phone: 0345222123	Monday - Friday 05:50 - 00:33 Saturday 06:10 - 00:36 Sunday 08:50 - 00:21	-	-
Harringay Green Lanes station	Address: Green Lane	Monday, Tuesday, Wednesday, Thursday, Friday 05:47 -		Refreshment facilities Shops

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	Harringay Greater London N4 1DR	00:30 Saturday 06:15 - 00:33 Sunday 08:50 - 00:18		
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CAR PARKING AND SHARING

The following car parks are nearby.

Location	Opening times	Price	Number of spaces
Muswell Hill, London N10 3QN	Mon to Sat 8am – 6.30pm	1.25 £ /hour	90
3 Shepherd's Hill, London N6 5QJ	24 h	Mon- Fri 7£/day Sat – Sun 3£/day	30
Bury Road Wood Green N22 6JA	Mon to Sat 8am - 8.15pm Sunday 11am – 5.15pm	Up to 1.25£/hour	500
20 Pelham Rd, London N22 6LW	6am – 1.30am	2£/h	1200

ELECTRIC CAR CHARGING POINTS

Electric cars are becoming more popular as they offer a range of financial, performance and environmental benefits compared to petrol and diesel engines. Electric car charging points have been installed in the communal car parks of your home to provide convenient charging solutions for electric car owners, helping to reduce environmental pollution and save you money. Charging points play an important role in promoting sustainable transportation development.

Electric car charging points are available on the lower ground floor of the car park of Block A, 4 of these located in disabled car parking bays.

Five external charging points are also provided. Three of these are in the car park directly behind the Town Hall, while two are located behind Hornsey Library.

The car charging points are provided by Project EV.

Regular maintenance of the ports will be undertaken by the Building Owner. If you notice any issues or believe a charging point requires a repair, contact Far East Consortium Limited 020 3370 6804 Direct.

AMENITIES AND PLACES OF INTEREST

You can find information on your local amenities, including places of interest, below.

Your nearest...	Name	Contact details	Distance
Supermarkets	Tesco Express	Address: 25 The Broadway, London N8 8DU Phone: +443450269248	Walk- 5 min; 0.2 mile
Supermarkets	Waitrose	35-39 The Broadway, London N8 8DU	Walk – 5 min; 0,5 mile
Supermarkets	Co – op	21-23 The Broadway, London N8 8DU	Walk – 3 min ; 0,2 mile
Banks	Barclays Bank	Address: 8 The Broadway, London N8 9SX Phone: +443457345345	Walk – 4 min; 0.2 mile
Post office	Crouch End Post Office & UOE Store	Address: Crouch End Post Office, 28-29 Topsfield Rd, London N8 8QB Telephone: +442083654102	Walk – 7 min; 0.4 mile
Parks	Crouch Hill Park	Address: Crouch Hill, London N4 4AP	Walk – 12 min; 0,5 mile
Pubs	The Harringay Arms	Address: 153 Crouch Hill, London N8 9QH Phone: +442082454673	Walk – 4 min; 0,2 mile
Nurseries	Bright Horizons Crouch End Day Nursery and Preschool	Address: 113 Crouch Hill, London N8 9QN Phone: +442037807914	Walk – 7 min; 0.3 mile
Schools	Coleridge Primary School	Address: Crouch End Hill, London N8 8DN Phone: +442083403173	Walk – 10 min; 0.4 mile
Colleges	New River College	Address: 5 Elthorne Rd, Archway, London N19 4AB Phone: +442075272723	Bus W5 or Bus 41 – 20 min
Churches	Christ Church Crouch End Hill	Address: 34 Crescent Rd, London N8 8AX Phone: +442083401566	Walk – 8 min; 0.4 mile

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Dentists	Crouch Hall Dental Care	Address: Crouch End Dental Practice, 70 Crouch Hall Rd, London N8 8HA Phone: +442078703111	Walk – 7 min; 0.3 mile
Opticians	Specsavers Opticians London - Crouch End	Address: 33 The Broadway, London N8 8DU Phone: +442083425080	Walk – 5 min; 0.3 mile
Gyms	My Gym Crouch End	Address: 2-4 The Broadway, London N8 9SN Phone: +447802724941	Walk – 4 min; 0.3 mile
Pharmacies	Boots	Address: 11 The Broadway, London N8 8DU Phone: +442083403892	Walk 2 min
Museums	Islington Museum	Address: 245 St John St, London EC1V 4NB Phone: +442075272837	Victoria line – 40 min
Restaurants	Paesan Crouch End	Address: 48c The Broadway, London N8 9TP Phone: +442083470900	<i>Walk 2 min</i>
Cafes	Harris + Hoole	Address: 9 The Broadway, London N8 8DU Phone: +442083476269	Walk 1 min
Allotments	Shepherds Hill Allotments	Address: Montenotte Rd, London N8 8RL Phone:	Car 5 min

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APPENDICES

CERTIFICATES

Add HQM Certificate

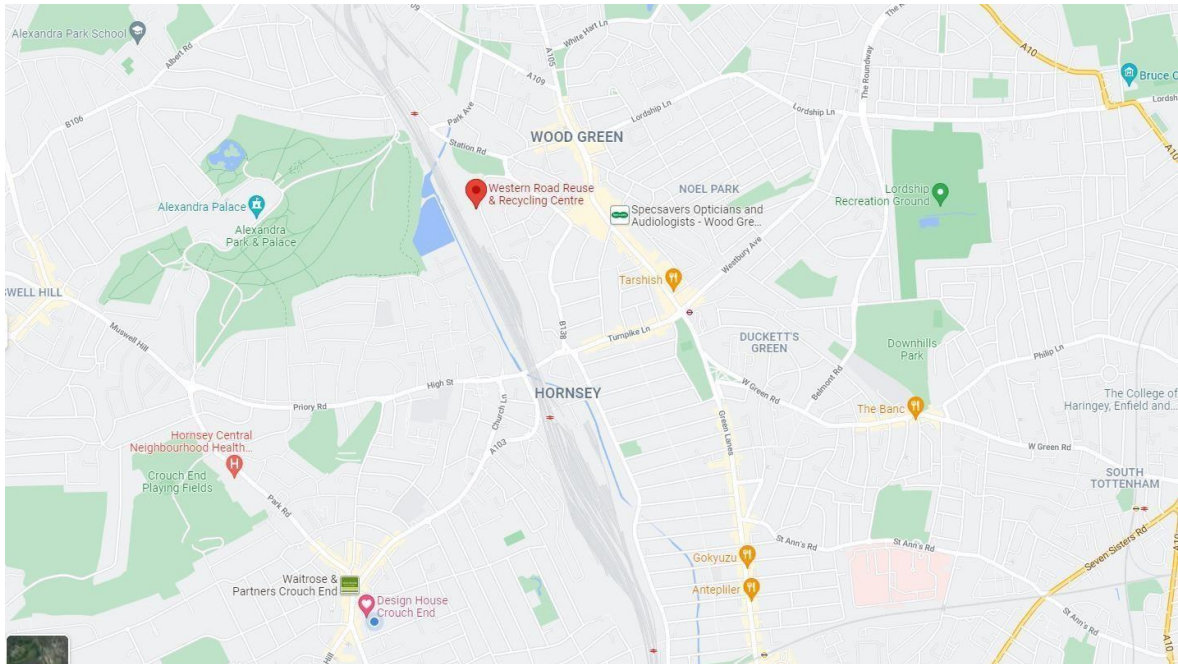
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MANUALS

Manual title	Yes	No
Washing Machine	☒	☐
Dishwasher	☒	☐
Fridge – freezer	☒	☐
Oven	☒	☐
Extractor fan	☒	☐
Wine cooler	☒	☐
Hob	☒	☐
	☐	☐

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MAP OF NEAREST RECYCLING FACILITIES



Hornsey Town Hall Block B

Summer Overheating Assessment

CIBSE TM59:2017

Prepared for Ardmore Group

10687-S-OHTG-0002

Revision AB

27.02.2020



WHITECODE
CONSULTING

Executive Summary

- The following report has been produced to assess the dwellings and common areas within Block B at Hornsey Town Hall development against the following criteria set out in CIBSE Technical Memorandum 59 – *Design methodology for the assessment of overheating risk in homes* (TM59:2017):
 - **Criterion 1** – *For living rooms, kitchens and bedrooms*: A limit is set for the number of hours that the operative temperature can exceed the maximum adaptive temperature. A temperature difference greater than or equal to 1K shall not exceed 3% of the occupied hours of a typical summer (1st May to 30th September).
 - **Criterion 2** – *For bedrooms only*: To guarantee comfort during the sleeping hours the operative temperature in the bedroom from 10pm to 7am shall not exceed 26°C for more than 1% of annual hours (1% of the annual hours between 10pm to 7am for bedrooms is 32 hours).
- For a room to be classed as not overheating, both of the above criteria must be passed. If a room within a dwelling does not meet the above criteria, then the whole dwelling fails to comply.
- The building was simulated using Integrated Environmental Solutions (IES) Virtual Environment (VE) 2023 version 2019.0.1.0, a software suite accredited under CIBSE AM11 for the dynamic simulation of building energy and thermal modelling, to assess the dwellings using the latest CIBSE Design Summer Year (DSY) weather file for London Heathrow (LHR), for the 2020s, high emissions, 50% percentile scenario.
- CIBSE TM59:2017 sets out the occupancy profiles for each room. Bedrooms are assumed to be occupied for 24 hours and living rooms and kitchens from 9am to 10pm. It can be assumed that occupants will open glazing in an occupied room when the internal temperature exceeds 22°C. Glazing can only be assumed to be open in unoccupied rooms if they can be locked for security and are weather proofed.
- The preferred glazing g-value for the proposed scheme is 0.42. This reduces solar gains but also still provides sufficient natural daylight, where a lower g-value can often be too dark causing discomfort and an increase in the demand for space heating and artificial lighting.

- Glazing in the development consists mainly full height openable side hung doors, full height fixed and half height opening glazed panels. Night-time cooling (NTC) has been applied to all bedrooms and living rooms above first floor with windows. It is worth noting that some occupants may not operate their windows in this way, and this should be stated in the home manual as a way to reduce the risk of overheating.
- Several simulations were run starting with the above specification and then introducing more enhanced passive measures to enable all rooms to pass.
- The final strategy used is as follows:
 - G value 0.42
 - Windows openable 90 degrees 100% area
 - Internal doors open 24 hours
 - NTC and No NTC profile changed to open at 22 degrees C
 - Lower Ground / Ground floor doors tilt and turn 100mm at night
 - 1-5th floor doors open all day/night in bedrooms and
 - 1-5th floor doors open all day in living rooms and 100mm at night
 - MVHR 0.3 l/s/m²
 - Blinds in selected rooms
- **With the above strategy, all rooms in Block B pass CIBSE TM59:2017**
- The risk of summer overheating was also assessed for the common area corridors and stair cores. There is no mandatory target to meet for common areas, but if an internal operative temperature of 28°C is exceeded for more than 3% of the total annual hours then this should be identified. 3% of the total annual hours is 262 hours.
- The common areas will be provided with environmental ventilation. This is achieved through an extract fan located at the top of the mechanical riser which draws the warm stale air from internal to external. The following ventilation rates are proposed:
 - 1ach-1 permanently
 - 2ach-1 when the internal temperature exceeds 23 °C



- 4ach- 1 when the internal temperature exceeds 25°C
- Simulations showed that only 2 common areas failed to comply with the CIBSE TM59:2017 recommendations. When tested to 28.5°C however, these corridors pass and do not exceed the temperature for more than 3% of the total annual hours. This indicates that the internal operative temperature should remain at an acceptable level.



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Revisions:

Rev No.:	Date:	Status/Comments:	Prepared by:	Checked by:
1	27.02.20	Preliminary Issue for Comments	KAV	EH
2	14.07.20	Amended Windows	KAV	EH
3	27.07.20	Updated Results	KAV	EH
4	22.04.22	Updated following window amendments	KAV	EH
5	21.08.2024	AS BUILT	PM	JM

1.0 Introduction

1.0.01 There are many factors that will determine indoor summer temperatures in dwellings in the UK. These factors include the following:

- The external climate (which will vary with location in the UK)
- Location
- Dwelling orientation
- Room type
- Time of day
- Building fabric characteristics
- Occupant behaviour
- Adjacent buildings and local shading

1.0.02 Current modelling based evidence suggests that the South of the UK is likely to face the largest risk of indoor overheating. It was suggested that comfort targets will not be met in naturally ventilated buildings in London by the middle of the century without some form of mechanical cooling unless some additional adaption measures are carried out (CIBSE 2005). In contrast, it was estimated that Manchester and Edinburgh buildings will only encounter minor overheating problems within the same time frame.

1.0.03 There are a variety of methods that can be used to reduce the risk of indoor overheating and are split into what can be regulated and what cannot be regulated. These are shown in **Tables 1.1** and **1.2**.

What can be regulated	
Air movement	Moving air feels a couple of degrees cooler than still air.
Insulation	Insulation is usually connected with winter warmth, but just as a thermos flask can keep drinks either hot or cold, insulated walls can help homes stay cool. However, insulation won't cool dwellings down if they overheat.
Shading	Strong sunlight through glazing can heat up dwellings. Awnings and internal or external shutters on south and west facing glazing provide shade.

What can be regulated	
Cooling devices	Evaporative coolers and air conditioners can be installed relatively cheaply. However, unlike the passive measures above, these require power, thereby increasing the carbon footprint of the dwelling and contributing to climate change. They also pump waste heat into their surroundings, making the surrounding area even hotter.
Low energy	Use low energy light bulbs and appliances.
Ventilation	Replacing the warm air in dwellings with cooler air.
Roofs	As with walls, insulation can help keep dwellings cool in summer. Improving loft insulation is one method, but green roofs are also an option. These use a base layer on which plants can grow, creating biodiversity space for plants and animals and providing a layer of roof insulation.
Outside	Water features help keep surroundings cool by evaporation, and trees provide shade in the summer. Deciduous trees are best, as the leaves drop off in the winter, allowing extra light into your home.
Glazing	Special coatings on glazing reduce the amount of sunlight that can pass through.

Table 1.1 Methods of reducing risk of overheating that can be regulated

What cannot be regulated	
Reducing heat gain	Heat doesn't just come from the sun. Home devices and appliances such as televisions, computers and light bulbs also make a significant contribution. Turning the kitchen fan on while cooking will help.
Windows	Open windows when it's cooler outside than inside, especially at night.
Curtains	Close curtains, blinds or shutters during the day, or use awnings to shade the glazing.
Fans	Use desk or ceiling fans to create a cooling breeze.

Table 1.2 Methods of reducing risk of overheating that cannot be regulated

- 1.0.04 An unintended consequence of improved building fabric of newly built dwellings may be an increased risk of overheating. Newly constructed highly insulated dwellings were found to have the potential to be at higher risk of overheating than older, less insulated dwellings.

- 1.0.05 Criterion 3 of Part L1A of the Building Regulations sets out the approach to limiting heat gains within dwellings during the summer months. Appendix P, 'Assessment of Internal Temperature in Summer' within the SAP document provides the calculation methodology to be used to assess a dwelling. Reasonable provision is achieved if the SAP assessment indicates that the dwelling does not have a high risk of high internal temperatures.
- 1.0.06 This is a self-contained simplified calculation of the whole dwelling average peak internal temperature for a proposed design. It takes into account solar gain (taking account of orientation, shading and glazing transmission); ventilation (taking account of window opening in hot weather), thermal capacity and mean summer temperature for the location of the dwelling. A dwelling is considered to have a high risk of overheating when internal temperatures reach 23.5°C. Appendix P also refers its users to an Energy Saving Trust (EST) guide, CE 129, 'Reducing overheating – a designer's guide', which is based on the use of overheating degree-hours above 27°C.
- 1.0.07 The assessment should be carried out regardless of whether or not the dwelling has mechanical cooling and if it does have mechanical cooling it should be assessed without it.
- 1.0.08 Part L1A of the Building Regulations states that designers may want to exceed the requirements in the current Building Regulations. Dynamic simulations allow more scenarios to be included within the model providing a more detailed and accurate set of results.
- 1.0.09 This report ascertains whether the dwellings will overheat within Block B. Suggestions on how to avoid overheating involving different glazing specifications, purge ventilation and external shading are provided in this report.
- 1.0.10 In the event that dwellings are still overheating following implementation of all suitable measures, mechanical cooling may be required. From the results it will be concluded whether extra measures are required to comply with the recommendations within CIBSE TM59:2017.

2.0 Thermal Design Criteria

2.0.01 There are no regulations which deal with overheating in domestic situations. CIBSE have produced Technical Memorandum 59 – *Design methodology for the assessment of overheating risk in homes* (TM59:2017) to provide guidance on how to assess the risk of overheating in homes and common areas. The document states the following:

“Overheating risk has been a growing concern amongst the domestic design, construction and provider community for at least a decade. Domestic overheating has not always been a problem in the UK but climate change, increased urbanisation, construction of high-rise apartment blocks and winter energy efficiency measures have all contributed in the amplification of high internal temperatures. Homes that overheat cause significant discomfort and stress to the occupants and can ultimately lead to litigation and costly mitigation measures for the owners/developers.” (CIBSE TM59:2017 – Section 1, page 1)

2.0.02 CIBSE have created two criteria for defining overheating in free-running buildings. These criteria are summarised below:

- **Criterion 1** – *For living rooms, kitchens and bedrooms*: A limit is set for the number of hours that the operative temperature can exceed the maximum adaptive temperature. A temperature difference greater than or equal to 1K shall not exceed 3% of the occupied hours of a typical summer (1st May to 30th September).
- **Criterion 2** – *For bedrooms only*: To guarantee comfort during the sleeping hours the operative temperature in the bedroom from 10pm to 7am shall not exceed 26°C for more than 1% of annual hours (1% of the annual hours between 10pm to 7am for bedrooms is 32 hours).

2.0.03 For a room to be classed as not overheating, both of the above criteria must be passed. If a room within a dwelling fails, then the whole dwelling is assumed to fail.

2.0.04 CIBSE TM59:2017 states that “*the inclusion of corridors in the overheating analysis is mandatory where community heating pipework runs through them*”. There is no mandatory target to meet for common



areas, but if an internal operative temperature of 28°C is exceeded for more than 3% of the total annual hours then this should be identified. 3% of the total annual hours is 262 hours.

3.0 The Development

- 3.0.01 The Hornsey Town Hall development is situated in the London Borough of Haringey. A layout showing the proposed development's location is shown in **Figure 3.1**.
- 3.0.02 The proposed development will comprise a newly refurbished 3-storey mixed-use Hornsey Town Hall, a mixed-use 2-storey Broadway Annexe, two 7-storey residential buildings - Block A and Block B, and a 2-storey residential mews building.

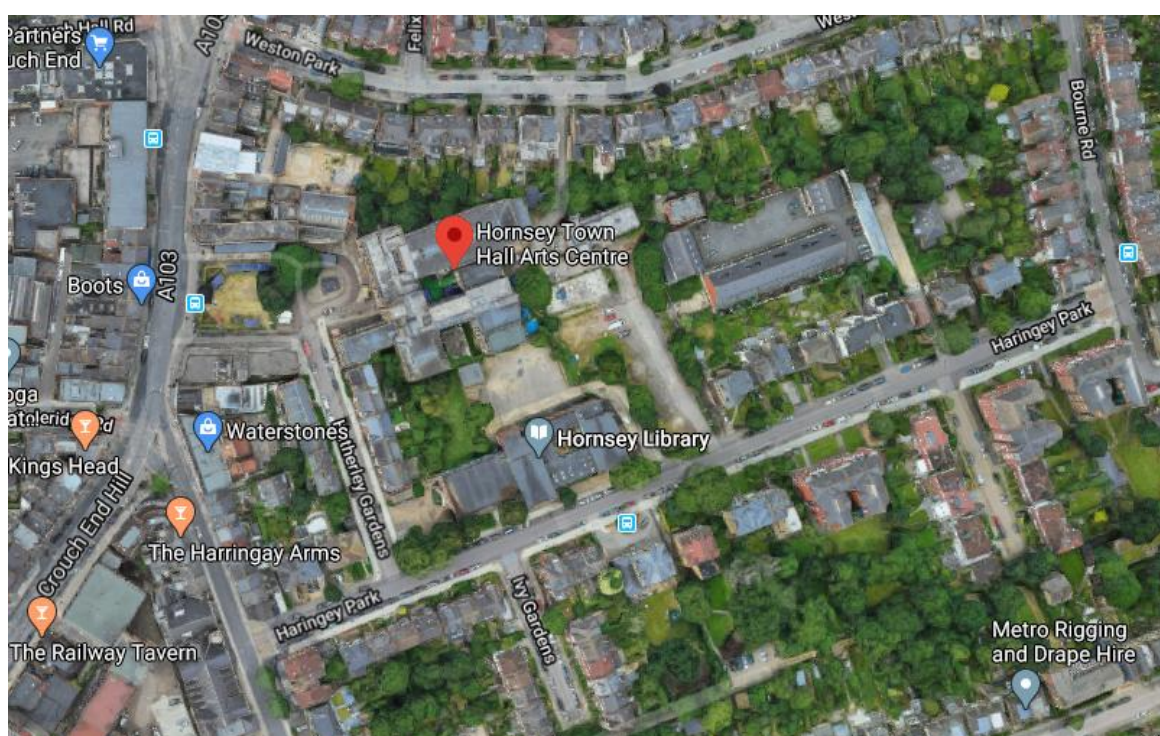


Figure 3.1 Hornsey Town Hall Development

4.0 Orientation

4.0.01 The orientation of the building can have a big effect on the solar gains within a dwelling. South facing facades are more likely to overheat in the summer months as they are subject to the sun for longer periods of the day. East and West facades also are subject to the sun, the East facing in the morning, and the West in the afternoon. This means that they are also subject to solar gain during the day. The North façade will have little exposure to the sun; therefore, will not suffer from solar gains. The sun path diagram below confirms the above:

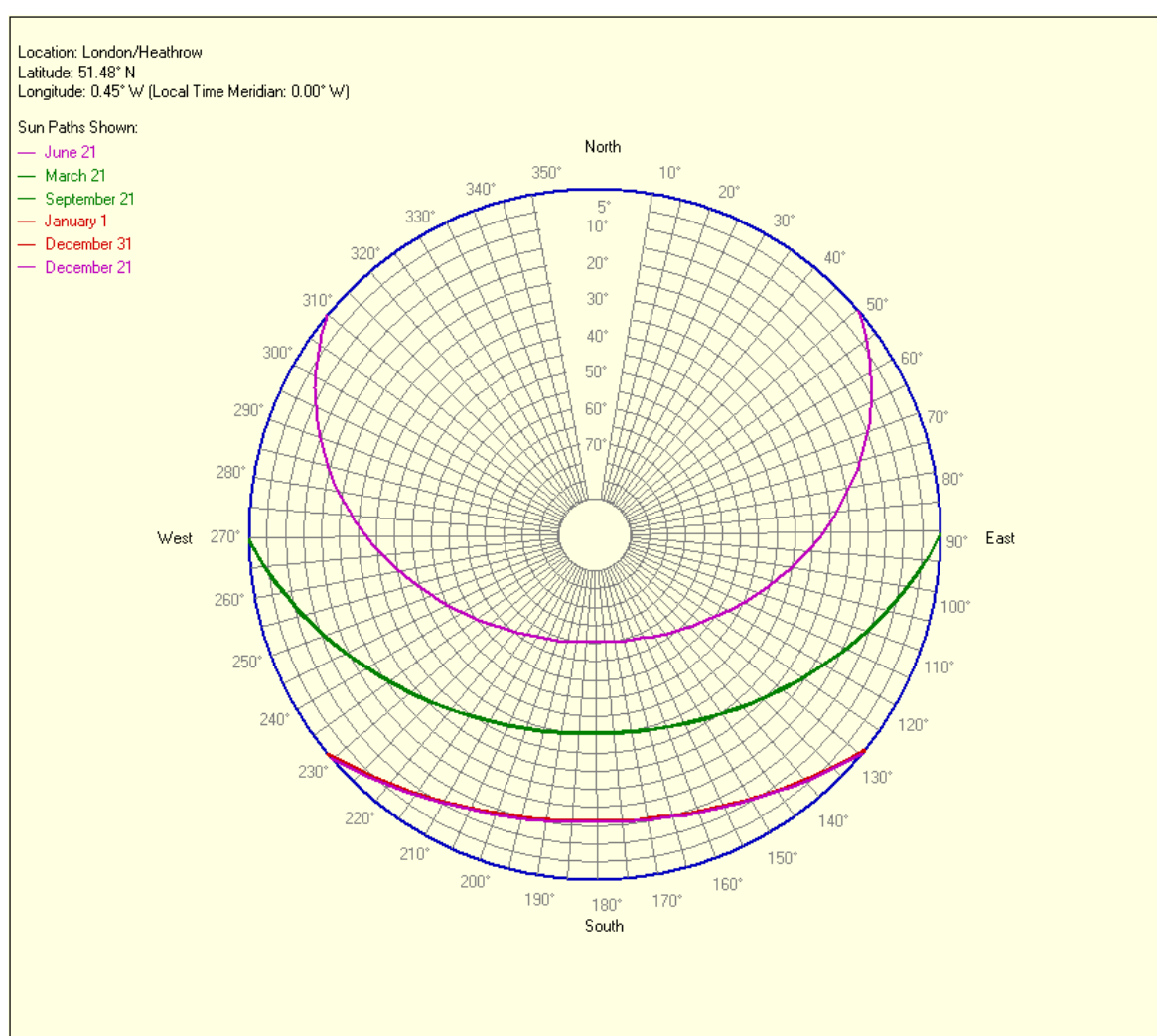


Figure 4.1 Sun path diagram for each season

5.0 The Model

- 5.0.01 A dynamic 3D model of the Block B was produced using drawings issued by KDS Associates in August 2019.
- 5.0.02 All dwellings and common areas have been modelled to provide a good representation of the overheating risk across the development.
- 5.0.03 In order to calculate the internal operative temperatures of the dwellings and common areas at different times of day, a model was built using Integrated Environmental Solutions Virtual Environment (IES VE) software, version 2019.0.1.0. This model takes into account a range of issues that could have an impact on the building's performance, including building fabric, orientation and external conditions.

5.1 Building the Model

- 5.1.01 The first stage of building the model was to produce a 2D template of each floor. The templates were created using floor plans issued by KDS Associates.

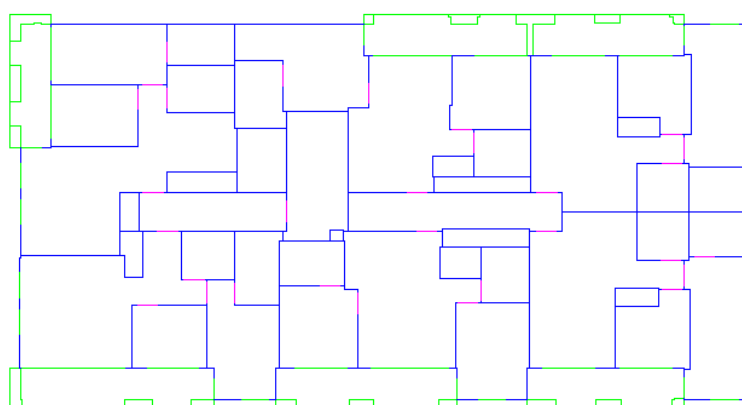


Figure 5.1 IES VE 2D template of example floor plan in Block B

5.1.02 The next stage was to use the templates in IES VE and elevations issued by KDS Associates in July 2019 to create the 3D model of each floor culminating in the complete model as shown below:

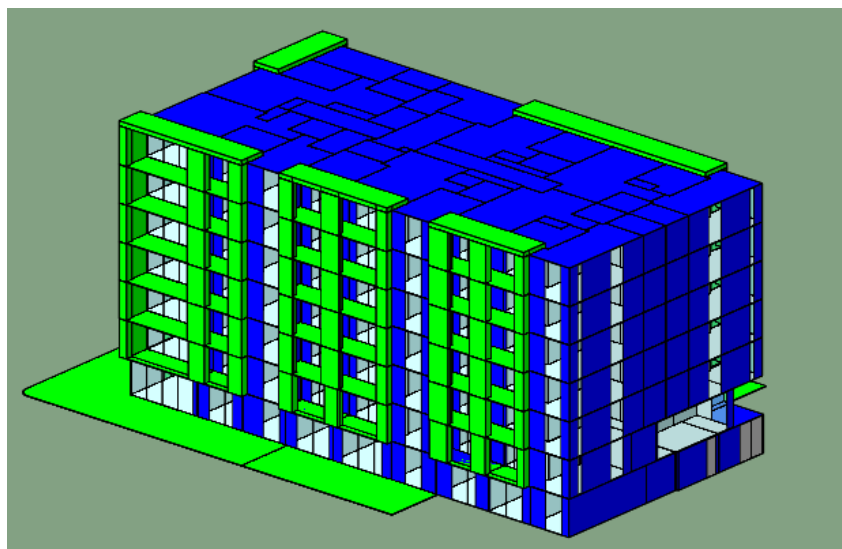


Figure 5.2 IES VE 3D model of Block B.

5.1.03 The rooms shown in blue in Figure 5.2 were modelled to give a good indication of the thermal make-up of the building. This enables an accurate range of internal operative temperatures to be obtained allowing reasonable conclusions for this development to be given. The local shading (green) were modelled for shading purposes.

5.2 Design Criteria

5.2.1 Building Fabric

5.2.1.01 The building is constructed from brick work on steel frame with aluminium frame double glazed windows, frame and glazed facades. The following building fabric specification was used for the thermal model.

Element	Thermal Transmittance (W/m ² K)
Ground/Exposed Floor	0.12
External Wall	0.17
Common Area Wall	0.20
Roof	0.13
Glazing	1.40
Internal Front Doors	1.00

Table 5.1 Building fabric U-values

5.2.1.02 Different glazing g-values have been investigated (calculated to BS EN 410:2011), as detailed in Section 7.0 of this report.

5.2.1.03 The building's thermal mass is assessed and factored into the calculations. It has been found that although the building does absorb the heat into the structure, this offsets temperatures when the building becomes cooler at a later stage.

5.2.2 Mechanical Ventilation

5.2.2.01 Balanced heat recovery mechanical ventilation (System 4) is used throughout the building to comply with Part F of the Building Regulations. The proposed model is the Vent-Axia Sentinel Kinetic B unit. This unit has a summer bypass and allows the internal warm stale air to be extracted from the kitchen and wet rooms whilst supplying fresher external air into the habitable rooms. The flow

rates have been calculated using the manufacturer's data and each room has been assigned a relevant rate of air change.

5.2.2.02 The dwellings are to be served by underfloor heating. This will be served via a CHP system with pipework running up the building and through the ceiling voids of the common area corridors. Common areas are to be provided with environmental ventilation to all corridors. This is achieved through an extract fan located at the top of the mechanical riser which draws the warm stale air from internal to external. The following ventilation rates are proposed:

- 1ach⁻¹ permanently
- 2ach⁻¹ when the internal temperature exceeds 23°C
- 4ach⁻¹ when the internal temperature exceeds 25°C

5.2.3 Purge Ventilation (Natural)

5.2.3.01 Purge ventilation provision is required in each habitable room to comply with Part F of the Building Regulations. This should be capable of extracting a minimum of 4ach⁻¹, per room directly to outside. The 4ach⁻¹ is a minimum air change rate set out in the Building Regulations and is likely to be exceeded in reality through the opening of glazing.

5.2.3.02 The IES VE software also incorporates opening glazing into the calculations with the use of Macroflo. Although the Building Regulations give a fixed air change rate, the Macroflo software allows for all variables such as area of openable glazing, distance glazing can open and external conditions. This gives more accurate results regarding natural ventilation.

5.2.3.03 CIBSE TM59:2017 has set the following conditions for occupancy and when glazing and internal doors can be assumed to be open:

- Occupants will open glazing in an occupied room when the internal temperatures exceed 22°C. This is referred to as the threshold temperature.

- If a room is not occupied then the glazing is assumed to be closed, unless the glazing can be locked for security reasons and is weather proofed.

5.2.4 Infiltration

5.2.4.01 Infiltration is the uncontrolled exchange of air between inside a building and outside through cracks, porosity and other unintentional openings in the building, caused by the pressure difference effects of the wind and/or stack effect.

5.2.4.02 It is assumed that 0.15ach-1 will be achieved through infiltration.

5.3 Profiles

5.3.01 Profiles are assigned to the model for occupancy, weather and internal gains. This allows an accurate assessment to be carried out taking into account all particulars that could affect the internal temperature of a dwelling.

5.3.1 Occupancy Profiles and Internal Equipment Gains

5.3.1.01 CIBSE TM59:2017 sets out proposed people and internal equipment gains that should be used for dynamic simulations, when assessing the risk of overheating in homes. The proposed gains are shown in **Tables 5.2** and **5.3** below:

Dwelling Type and Room:	People Gains:		
	No. of People:	Sensible Peak Load (kW):	Latent Peak Load (kW):
Single bedroom	1	75	55
Double bedroom	2	150	110
Studio dwelling	2	150	110
1 bed – living rooms / kitchens / living and kitchens	1	75	55
2 bed – living rooms / kitchens / living and kitchens	2	150	110
3 bed – living rooms / kitchens / living and kitchens	3	225	165

Table 5.2 People gains for each room type

Description:	Room Type:						
	Single Bedroom	Double Bedroom	Studio	Living & Kitchen	Living Room	Kitchen	Common Area
Equipment gains (kW)	80	80	450	450	150	300	N/A
Lighting profile (W/m ²)	2	2	2	2	2	2	2

Table 5.3 Equipment gains and lighting profile

5.3.1.02 The following graphs show the time periods and factors that are to be applied for the people and internal gains for each room type:

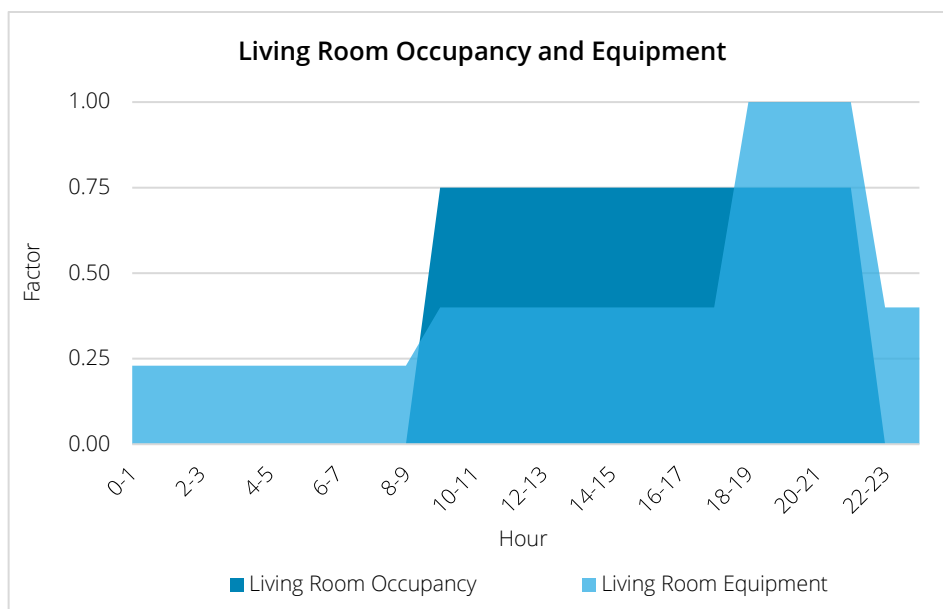


Figure 5.3 Living room occupancy and internal gains profile

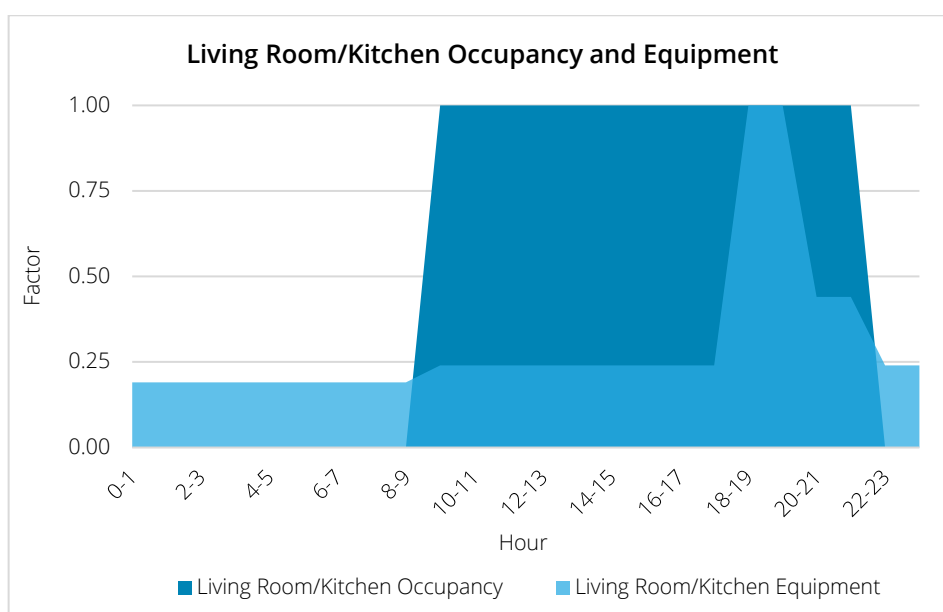


Figure 5.5 Living room/kitchen occupancy and internal gains profile

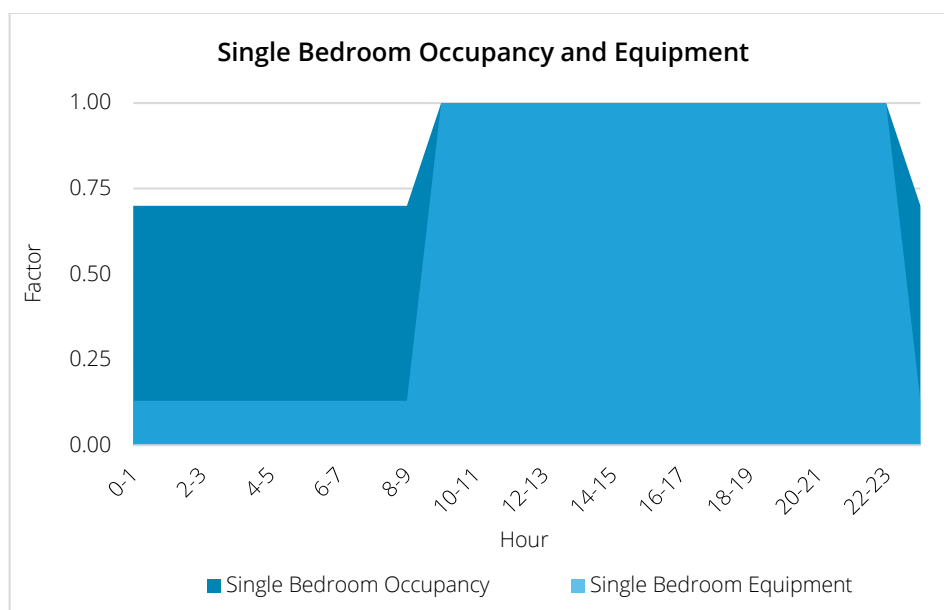


Figure 5.6 Single bedroom occupancy and internal gains profile

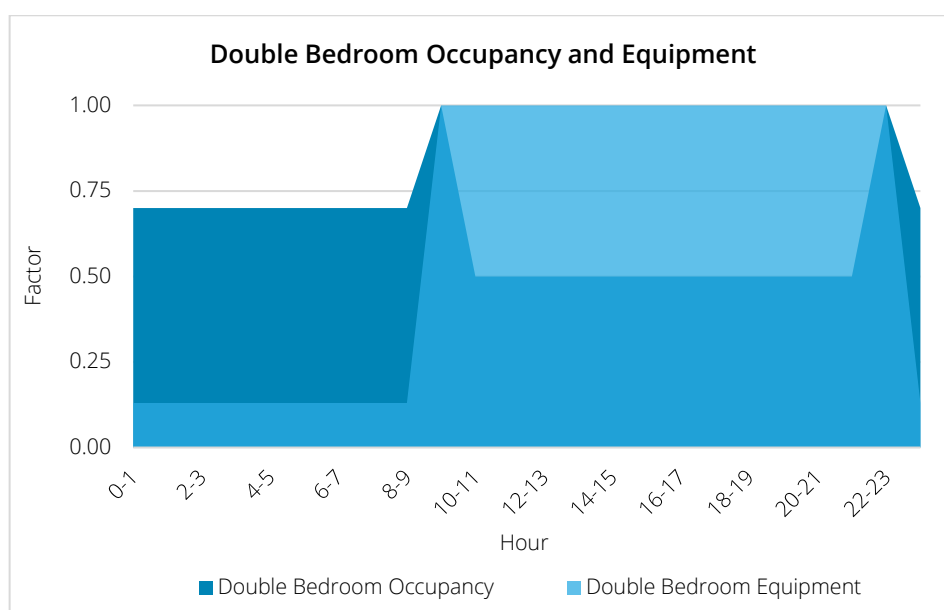


Figure 5.7 Double bedroom occupancy and internal gains profile

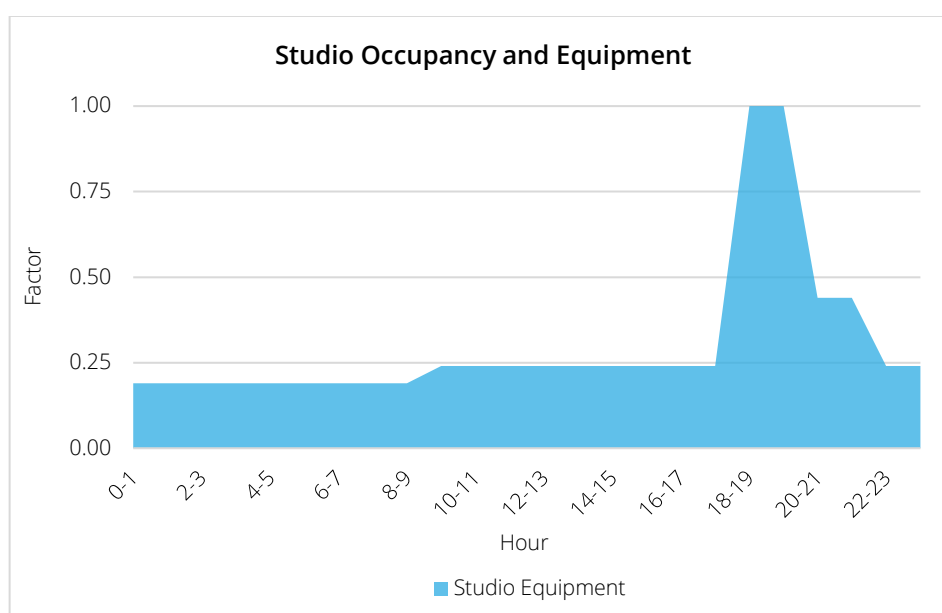


Figure 5.8 Studio occupancy and internal gains profile

5.3.1.03 The above graphs indicate that the living rooms are assumed to be occupied between 9am to 10pm and the bedrooms are constantly occupied for 24 hours.

5.3.1.04 Study areas are assumed to have similar profiles to living rooms, and therefore have been assigned with the 1 or 2 Bed Living Room profile.

5.3.1.05 Twin bedrooms have been assessed as double bedrooms.

5.3.2 Weather Files

5.3.2.01 CIBSE released a new set of weather files for London in the middle of 2016. This included weather sets for three Design Summer Years (DSY) – 1976, 1989 and 2003. The current DSY is 1989 which represents a moderately warm summer. 1976 is a more extreme year with a long period of persistent warmth and 2003 is another extreme year which has a more intense single warm spell.

5.3.2.02 CIBSE Technical Memorandum 49, 2014 – Design Summer Years for London, provides guidance for which weather files are to be used. The current DSY (1989) is suitable for assessing buildings under the current climate; however, as it is impossible to prejudge the impact of warm weather conditions, CIBSE

TM49:2014 recommends that all three weather files be used to investigate the sensitivity of the design to different weather conditions.

- 5.3.2.03 Data from three weather stations have been examined and are available for use in simulation. London Heathrow Airport (LHR) is a representative of intermediate urban and suburban locations. London Gatwick Airport (GTW) and London Weather Centre (LWC) provide representative sites for rural and inner urban locations, respectively. As the proposed development is located in the Crouch End area of Hornsey, North London, the LHR weather profile will be applied.
- 5.3.2.04 CIBSE TM59:2017 requires the DSY most appropriate to the location of the development to be used, for the 2020s with high emissions and 50% percentile scenario. The 2020s period is of particular interest as this relates to the period 2011-2040, which is the period we are now in. The 50% percentile changes are viewed as the 'best guess' level of change.
- 5.3.2.05 In this report, all habitable rooms will be assessed using the current DSY (1989) weather file, for the 2020s, with high emissions and 50% percentile scenario.

6.0 Shading and Obstructions

6.1 Shading

- 6.1.01 Radiant heat from the sun passes through glass and is absorbed by building elements and furnishings which re-radiate heat back into the space. Re-radiated heat has a longer wavelength and cannot pass back through the glass as easily, thus trapping the radiant heat causing heat gains in the dwelling.
- 6.1.02 Unprotected glass is often the greatest source of unwanted heat gain in a building. Therefore, it is important to add shading to the model to give a more accurate value for heat gains in the dwellings as the shading will reduce these temperatures.

6.2 Building Shading

- 6.2.01 The first type of shading the glazing will get is from local sources such as overhangs and balconies from the floors above. This is shown on **Figure 5.2** and gives an idea of how the shading from the balconies and protruding walls limit the direct sunlight onto the glazing.

6.3 Obstructions

- 6.3.01 The second type of shading to consider is that which is cast from other buildings or obstructions in the surrounding area. These obstructions can reduce the solar gains by blocking the sun lights path to the modelled building.

7.0 Results

7.0.01 For ease of reference, the CIBSE TM59:2017 criteria are summarised below:

- **Criterion 1** – *For living rooms, kitchens and bedrooms*: A limit is set for the number of hours that the operative temperature can exceed the maximum adaptive temperature. A temperature difference greater than or equal to 1K shall not exceed 3% of the occupied hours of a typical summer (1st May to 30th September).
- **Criterion 2** – *For bedrooms only*: To guarantee comfort during the sleeping hours the operative temperature in the bedroom from 10pm to 7am shall not exceed 26°C for more than 1% of annual hours (1% of the annual hours between 10pm to 7am for bedrooms is 32 hours).

7.0.02 For a room to be classed as not overheating, both of the above criteria must be passed. If a room within a dwelling fails, then the whole dwelling is assumed to fail.

7.0.03 The current DSY CIBSE weather file (1989) for LHR was used to assess the proposed development as it is in an inner urban location. The 2020s, with high emissions and 50% percentile scenario was applied as required in CIBSE TM59:2017.

7.0.04 The following scenarios were modelled:

- Scenario 1 – A g-value of 0.42 was applied to all glazing. Windows were assumed to be open to 90 degrees and only when the internal room temperature reached 22°C and external temperature was lower. Lower ground and ground floor windows and doors tilt and turn at night in accordance with new elevations received 27.07.20. The results indicated that 7 of the 118 rooms failed to comply with the CIBSE TM59:2017 criteria.
- Scenario 2 – For the next simulation, selected doors were amended to half height opening due to manufacturing issues relating to the weight of the glass. This positively impacted the failing rooms on floors 1-5 and only 2 plots fail – B03 and B15.
- Scenario 3 – Issues with manufacturing required further amendments to the simulation and opening lights were removed from B03 and B15. The results did not change.

- Scenario 4 – For the final simulation, blinds were added to the failing rooms. The results indicate that all rooms now pass CIBSE TM59:2017 criteria.

- 7.0.05 The risk of summer overheating was also assessed for the common area corridors and stair cores as they have heating pipework running within the ceiling voids. There is no mandatory target to meet for common areas, but if an internal operative temperature of 28°C is exceeded for more than 3% of the total annual hours then this should be identified. 3% of the total annual hours is 262 hours.
- 7.0.06 Only 2 out of 26 common areas failed to comply with CIBSE TM59:2017 recommendations at 28°C. When simulations were run at 28.5°C however, all common areas passed. This indicates that the internal operative temperature should remain at an acceptable level.
- 7.0.07 The tables in **Appendix A** show the detailed results for all rooms in the dwellings, and **Appendix B** for all rooms in the common areas.

8.0 Conclusion

- 8.0.01 The Hornsey Town Hall development is situated in an urban area. Therefore, the CIBSE LHR weather file has been used for the 2020s, high emissions and 50% percentile scenario. This is in line with the criteria in CIBSE TM59:2017.
- 8.0.02 Results from the final simulation indicate that with the following strategy, all rooms comply with CIBSE TM59:2017 criteria:
- G value 0.42
 - Windows openable 90 degrees 100% area
 - Internal doors open 24 hours
 - NTC and No NTC profile changed to open at 22 degrees C
 - Lower Ground / Ground floor doors tilt and turn 100mm at night
 - 1-5th floor doors open all day/night in bedrooms and
 - 1-5th floor doors open all day in living rooms and 100mm at night
 - MVHR 0.3 l/s/m²
 - Blinds in selected rooms
- 8.0.03 In order to prevent occupants becoming uncomfortable during hot weather, a manual on how to keep cool in the summer should be provided, highlighting the importance of keeping glazing open when possible, to provide purge ventilation, especially during the night when external temperatures are cooler, and the use of internal blinds during daylight hours, to reduce solar gains entering a room.
- 8.0.04 The risk of summer overheating was also assessed for the common area corridors and stair cores. There is no mandatory target to meet for common areas, but if an internal operative temperature of 28°C is exceeded for more than 3% of the total annual hours then this should be identified. 3% of the total annual hours is 262 hours.
- 8.0.05 The common areas will be provided with environmental ventilation to all corridors. This is achieved through an extract fan located at the top of the mechanical riser which draws the warm stale air from internal to external. The following ventilation rates are proposed:

- 1ach⁻¹ permanently
- 2ach⁻¹ when the internal temperature exceeds 23°C
- 4ach⁻¹ when the internal temperature exceeds 25°C

8.0.06 With the above specification applied, only 2 common areas fail to comply with CIBSE TM59:2017 recommendations. However, these common areas passed at 28.5 °C. This indicates that the internal operative temperature should remain at an acceptable level.



A.1 Appendix A – Detailed Results for Scenarios 1-4

Attached to this Appendix are the detailed results for Scenarios 1-4 for dwellings.

Scenario 1:

- LG and UG floor windows changed to tilt and turn
- G value 0.4200
- Windows openable 90 degrees 100% area
- Internal doors open 24 hours
- NTC and No NTC profile changed to open at 22 degrees C
- Ground floor doors amended to tilt and turn at night
- 1-5th floor doors open all day/night in bedrooms and
- 1-5th floor doors open all day in living rooms and 100mm at night
- MVHR 0.3 l/s/m²
- Windows amended as per elevations received 27.07.20

Room Name:	Criteria 1	Criteria 2	Pass/Fail
B 01 - 2 Living/Kitchen/Hallway	0.9		PASS
B 01 - Bedroom 1	0.8	20	PASS
B 01 - Bedroom 2	1.1	16	PASS
B 02 - 2 Living/Kitchen/Hallway	1		PASS
B 02 - Bedroom 1	0.8	13	PASS
B 02 - Bedroom 2	1	17	PASS
B 03 - 2 Living/Kitchen/Hallway	3.3		FAIL
B 03 - Bedroom 1	0.9	18	PASS
B 03 - Bedroom 2	0.8	15	PASS
B 04 - 2 Living/Kitchen/Hallway	2.4		PASS
B 04 - Bedroom 1	1.2	17	PASS
B 04 - Bedroom 2	2	18	PASS
B 11 - 1 Living/Kitchen/Hallway	0.3		PASS
B 11 - Bedroom	0.4	19	PASS
B 12 - 1 Living/Kitchen/Hallway	0.4		PASS
B 12 - Bedroom	0.5	21	PASS
B 13 - 2 Living/Kitchen/Hallway	1.2		PASS
B 13 - Bedroom 1	0.6	14	PASS
B 13 - Bedroom 2	0.7	16	PASS
B 14 - 2 Living/Kitchen/Hallway	1.3		PASS
B 14 - Bedroom 1	0.4	17	PASS
B 14 - Bedroom 2	0.8	13	PASS
B 15 - 2 Living/Kitchen/Hallway	3.1		FAIL
B 15 - Bedroom 1	0.5	13	PASS
B 15 - Bedroom 2	0.9	17	PASS
B 16 - 2 Living/Kitchen/Hallway	2		PASS
B 16 - Bedroom 1	0.5	17	PASS
B 16 - Bedroom 2	0.9	17	PASS
B 21 - 2 Living/Kitchen/Hallway	1.3		PASS



B 21 - Bedroom 1	0.1	12	PASS
B 21 - Bedroom 2	0.5	16	PASS
B 22 - 2 Living/Kitchen/Hallway	1		PASS
B 22 - Bedroom 1	0.6	15	PASS
B 22 - Bedroom 2	0.7	16	PASS
B 23 - 2 Living/Kitchen/Hallway	1		PASS
B 23 - Bedroom 1	0.7	15	PASS
B 23 - Bedroom 2	0.7	18	PASS
B 24 - 2 Living/Kitchen/Hallway	1.3		PASS
B 24 - Bedroom 1	0.5	15	PASS
B 24 - Bedroom 2	0.8	13	PASS
B 25 - 2 Living/Kitchen/Hallway	3.2		FAIL
B 25 - Bedroom 1	0.5	13	PASS
B 25 - Bedroom 2	0.9	17	PASS
B 26 - 2 Living/Kitchen/Hallway	2.3		PASS
B 26 - Bedroom 1	0.5	17	PASS
B 26 - Bedroom 2	1	18	PASS
B 31 - 2 Living/Kitchen/Hallway	1.3		PASS
B 31 - Bedroom 1	0.2	12	PASS
B 31 - Bedroom 2	0.5	16	PASS
B 32 - 2 Living/Kitchen/Hallway	1		PASS
B 32 - Bedroom 1	0.5	13	PASS
B 32 - Bedroom 2	0.7	16	PASS
B 33 - 2 Living/Kitchen/Hallway	1		PASS
B 33 - Bedroom 1	0.8	15	PASS
B 33 - Bedroom 2	0.7	18	PASS
B 34 - 2 Living/Kitchen/Hallway	1.3		PASS
B 34 - Bedroom 1	0.4	17	PASS
B 34 - Bedroom 2	0.8	13	PASS
B 35 - 2 Living/Kitchen/Hallway	3.2		FAIL
B 35 - Bedroom 1	0.5	13	PASS
B 35 - Bedroom 2	0.9	17	PASS
B 36 - 2 Living/Kitchen/Hallway	2.3		PASS
B 36 - Bedroom 1	0.5	17	PASS
B 36 - Bedroom 2	1	18	PASS
B 41 - 2 Living/Kitchen/Hallway	1.3		PASS
B 41 - Bedroom 1	0.2	12	PASS
B 41 - Bedroom 2	0.5	16	PASS
B 42 - 2 Living/Kitchen/Hallway	1		PASS
B 42 - Bedroom 1	0.5	14	PASS
B 42 - Bedroom 2	0.7	16	PASS
B 43 - 2 Living/Kitchen/Hallway	1		PASS



B 43 - Bedroom 1	0.8	15	PASS
B 43 - Bedroom 2	0.7	18	PASS
B 44 - 2 Living/Kitchen/Hallway	1.3		PASS
B 44 - Bedroom 1	0.4	16	PASS
B 44 - Bedroom 2	0.8	13	PASS
B 45 - 2 Living/Kitchen/Hallway	3.2		FAIL
B 45 - Bedroom 1	0.6	13	PASS
B 45 - Bedroom 2	0.9	17	PASS
B 46 - 2 Living/Kitchen/Hallway	2.3		PASS
B 46 - Bedroom 1	0.5	17	PASS
B 46 - Bedroom 2	1.1	18	PASS
B 51 - 2 Living/Kitchen/Hallway	1.3		PASS
B 51 - Bedroom 1	0.2	12	PASS
B 51 - Bedroom 2	0.5	16	PASS
B 52 - 2 Living/Kitchen/Hallway	1		PASS
B 52 - Bedroom 1	0.6	15	PASS
B 52 - Bedroom 2	0.8	16	PASS
B 53 - 2 Living/Kitchen/Hallway	1.1		PASS
B 53 - Bedroom 1	0.9	15	PASS
B 53 - Bedroom 2	0.8	18	PASS
B 54 - 2 Living/Kitchen/Hallway	1.3		PASS
B 54 - Bedroom 1	0.4	16	PASS
B 54 - Bedroom 2	0.8	13	PASS
B 55 - 2 Living/Kitchen/Hallway	3.2		FAIL
B 55 - Bedroom 1	0.6	13	PASS
B 55 - Bedroom 2	1	17	PASS
B 56 - 2 Living/Kitchen/Hallway	2.5		PASS
B 56 - Bedroom 1	0.5	17	PASS
B 56 - Bedroom 2	1.2	18	PASS
B 61 - 2 Living/Kitchen/Hallway	1.3		PASS
B 61 - Bedroom 1	0.2	13	PASS
B 61 - Bedroom 2	0.5	16	PASS
B 62 - 2 Living/Kitchen/Hallway	1.1		PASS
B 62 - Bedroom 1	0.6	15	PASS
B 62 - Bedroom 2	0.8	16	PASS
B 63 - 2 Living/Kitchen/Hallway	1.1		PASS
B 63 - Bedroom 1	1	15	PASS
B 63 - Bedroom 2	1	17	PASS
B 64 - 2 Living/Kitchen/Hallway	1.4		PASS
B 64 - Bedroom 1	0.4	17	PASS
B 64 - Bedroom 2	1	13	PASS
B 65 - 2 Living/Kitchen/Hallway	3.2		FAIL



B 65 - Bedroom 1	0.6	13	PASS
B 65 - Bedroom 2	1	18	PASS
B 66 - 2 Living/Kitchen/Hallway	2.4		PASS
B 66 - Bedroom 1	0.6	17	PASS
B 66 - Bedroom 2	1.3	18	PASS
Rooms failing out of 118 :			7

Scenario 2:

- G value 0.4200
- Windows openable 90 degrees 100% area
- Internal doors open 24 hours
- NTC and No NTC profile changed to open at 22 degrees C
- Ground floor doors amended to tilt and turn at night
- 1-5th floor doors open all day/night in bedrooms and
- 1-5th floor doors open all day in living rooms and 100mm at night
- MVHR 0.3 l/s/m²
- Doors amended to half height as per elevations received 15.01.21

Room Name:	Criteria 1	Criteria 2	Pass/Fail
B 01 - 2 Living/Kitchen/Hallway	0.8		PASS
B 01 - Bedroom 1	0.7	21	PASS
B 01 - Bedroom 2	0.9	15	PASS
B 02 - 2 Living/Kitchen/Hallway	1		PASS
B 02 - Bedroom 1	0.8	13	PASS
B 02 - Bedroom 2	0.9	21	PASS
B 03 - 2 Living/Kitchen/Hallway	3.3		FAIL
B 03 - Bedroom 1	0.7	19	PASS
B 03 - Bedroom 2	0.8	15	PASS
B 04 - 2 Living/Kitchen/Hallway	2.4		PASS
B 04 - Bedroom 1	1	21	PASS
B 04 - Bedroom 2	2	16	PASS
B 11 - 1 Living/Kitchen/Hallway	0.4		PASS
B 11 - Bedroom	0.4	19	PASS
B 12 - 1 Living/Kitchen/Hallway	0.4		PASS
B 12 - Bedroom	0.5	21	PASS
B 13 - 2 Living/Kitchen/Hallway	1.2		PASS
B 13 - Bedroom 1	0.9	15	PASS
B 13 - Bedroom 2	0.7	16	PASS
B 14 - 2 Living/Kitchen/Hallway	1.3		PASS
B 14 - Bedroom 1	0.4	16	PASS
B 14 - Bedroom 2	1.2	15	PASS
B 15 - 2 Living/Kitchen/Hallway	3.2		FAIL
B 15 - Bedroom 1	1.1	15	PASS
B 15 - Bedroom 2	0.9	17	PASS
B 16 - 2 Living/Kitchen/Hallway	1.6		PASS
B 16 - Bedroom 1	0.5	17	PASS
B 16 - Bedroom 2	0.9	17	PASS
B 21 - 2 Living/Kitchen/Hallway	1.3		PASS
B 21 - Bedroom 1	0.1	12	PASS



B 21 - Bedroom 2	0.5	16	PASS
B 22 - 2 Living/Kitchen/Hallway	1		PASS
B 22 - Bedroom 1	0.6	15	PASS
B 22 - Bedroom 2	0.7	15	PASS
B 23 - 2 Living/Kitchen/Hallway	1		PASS
B 23 - Bedroom 1	0.7	15	PASS
B 23 - Bedroom 2	0.6	17	PASS
B 24 - 2 Living/Kitchen/Hallway	1.3		PASS
B 24 - Bedroom 1	0.5	15	PASS
B 24 - Bedroom 2	0.8	15	PASS
B 25 - 2 Living/Kitchen/Hallway	2.7		PASS
B 25 - Bedroom 1	0.5	15	PASS
B 25 - Bedroom 2	0.8	17	PASS
B 26 - 2 Living/Kitchen/Hallway	1.4		PASS
B 26 - Bedroom 1	0.4	17	PASS
B 26 - Bedroom 2	0.8	18	PASS
B 31 - 2 Living/Kitchen/Hallway	1.3		PASS
B 31 - Bedroom 1	0.2	12	PASS
B 31 - Bedroom 2	0.5	16	PASS
B 32 - 2 Living/Kitchen/Hallway	1		PASS
B 32 - Bedroom 1	0.5	15	PASS
B 32 - Bedroom 2	0.7	16	PASS
B 33 - 2 Living/Kitchen/Hallway	1		PASS
B 33 - Bedroom 1	0.8	15	PASS
B 33 - Bedroom 2	0.7	17	PASS
B 34 - 2 Living/Kitchen/Hallway	1.3		PASS
B 34 - Bedroom 1	0.4	16	PASS
B 34 - Bedroom 2	0.8	15	PASS
B 35 - 2 Living/Kitchen/Hallway	2.7		PASS
B 35 - Bedroom 1	0.5	15	PASS
B 35 - Bedroom 2	0.8	17	PASS
B 36 - 2 Living/Kitchen/Hallway	1.4		PASS
B 36 - Bedroom 1	0.4	17	PASS
B 36 - Bedroom 2	0.9	18	PASS
B 41 - 2 Living/Kitchen/Hallway	1.3		PASS
B 41 - Bedroom 1	0.2	12	PASS
B 41 - Bedroom 2	0.5	16	PASS
B 42 - 2 Living/Kitchen/Hallway	1		PASS
B 42 - Bedroom 1	0.5	15	PASS
B 42 - Bedroom 2	0.7	16	PASS
B 43 - 2 Living/Kitchen/Hallway	1		PASS
B 43 - Bedroom 1	0.8	15	PASS



B 43 - Bedroom 2	0.7	17	PASS
B 44 - 2 Living/Kitchen/Hallway	1.3		PASS
B 44 - Bedroom 1	0.4	16	PASS
B 44 - Bedroom 2	0.8	15	PASS
B 45 - 2 Living/Kitchen/Hallway	2.7		PASS
B 45 - Bedroom 1	0.5	15	PASS
B 45 - Bedroom 2	0.8	17	PASS
B 46 - 2 Living/Kitchen/Hallway	1.4		PASS
B 46 - Bedroom 1	0.4	17	PASS
B 46 - Bedroom 2	1.1	18	PASS
B 51 - 2 Living/Kitchen/Hallway	1.3		PASS
B 51 - Bedroom 1	0.2	12	PASS
B 51 - Bedroom 2	0.5	16	PASS
B 52 - 2 Living/Kitchen/Hallway	1		PASS
B 52 - Bedroom 1	0.6	15	PASS
B 52 - Bedroom 2	0.8	16	PASS
B 53 - 2 Living/Kitchen/Hallway	1.1		PASS
B 53 - Bedroom 1	0.9	15	PASS
B 53 - Bedroom 2	0.8	18	PASS
B 54 - 2 Living/Kitchen/Hallway	1.3		PASS
B 54 - Bedroom 1	0.4	16	PASS
B 54 - Bedroom 2	0.9	15	PASS
B 55 - 2 Living/Kitchen/Hallway	2.7		PASS
B 55 - Bedroom 1	0.5	15	PASS
B 55 - Bedroom 2	0.8	17	PASS
B 56 - 2 Living/Kitchen/Hallway	1.5		PASS
B 56 - Bedroom 1	0.4	17	PASS
B 56 - Bedroom 2	1.1	18	PASS
B 61 - 2 Living/Kitchen/Hallway	1.3		PASS
B 61 - Bedroom 1	0.2	13	PASS
B 61 - Bedroom 2	0.5	16	PASS
B 62 - 2 Living/Kitchen/Hallway	1.1		PASS
B 62 - Bedroom 1	0.6	15	PASS
B 62 - Bedroom 2	0.8	16	PASS
B 63 - 2 Living/Kitchen/Hallway	1.1		PASS
B 63 - Bedroom 1	1	15	PASS
B 63 - Bedroom 2	1	17	PASS
B 64 - 2 Living/Kitchen/Hallway	1.4		PASS
B 64 - Bedroom 1	0.4	16	PASS
B 64 - Bedroom 2	1	15	PASS
B 65 - 2 Living/Kitchen/Hallway	2.9		PASS
B 65 - Bedroom 1	0.6	15	PASS



B 65 - Bedroom 2	0.9	17	PASS
B 66 - 2 Living/Kitchen/Hallway	1.7		PASS
B 66 - Bedroom 1	0.4	17	PASS
B 66 - Bedroom 2	1.1	18	PASS
Rooms failing out of 118 :			2

Scenario 3:

- G value 0.4200
- Windows openable 90 degrees 100% area
- Internal doors open 24 hours
- NTC and No NTC profile changed to open at 22 degrees C
- Ground floor doors amended to tilt and turn at night
- 1-5th floor doors open all day/night in bedrooms and
- 1-5th floor doors open all day in living rooms and 100mm at night
- MVHR 0.3 l/s/m2
- Window removed from B03 and B05 living rooms 15.01.21 only

Room Name:	Criteria 1	Criteria 2	Pass/Fail
B 01 - 2 Living/Kitchen/Hallway	0.8		PASS
B 01 - Bedroom 1	0.7	21	PASS
B 01 - Bedroom 2	0.9	15	PASS
B 02 - 2 Living/Kitchen/Hallway	1		PASS
B 02 - Bedroom 1	0.8	13	PASS
B 02 - Bedroom 2	0.9	21	PASS
B 03 - 2 Living/Kitchen/Hallway	3.2		FAIL
B 03 - Bedroom 1	0.7	19	PASS
B 03 - Bedroom 2	0.8	15	PASS
B 04 - 2 Living/Kitchen/Hallway	2.4		PASS
B 04 - Bedroom 1	1	21	PASS
B 04 - Bedroom 2	2	16	PASS
B 11 - 1 Living/Kitchen/Hallway	0.4		PASS
B 11 - Bedroom	0.4	19	PASS
B 12 - 1 Living/Kitchen/Hallway	0.4		PASS
B 12 - Bedroom	0.5	21	PASS
B 13 - 2 Living/Kitchen/Hallway	1.2		PASS
B 13 - Bedroom 1	0.9	15	PASS
B 13 - Bedroom 2	0.7	16	PASS
B 14 - 2 Living/Kitchen/Hallway	1.3		PASS
B 14 - Bedroom 1	0.4	16	PASS
B 14 - Bedroom 2	1.2	15	PASS
B 15 - 2 Living/Kitchen/Hallway	3.1		FAIL
B 15 - Bedroom 1	1.1	15	PASS
B 15 - Bedroom 2	0.9	17	PASS
B 16 - 2 Living/Kitchen/Hallway	1.6		PASS
B 16 - Bedroom 1	0.5	17	PASS
B 16 - Bedroom 2	0.9	17	PASS
B 21 - 2 Living/Kitchen/Hallway	1.3		PASS
B 21 - Bedroom 1	0.1	12	PASS



B 21 - Bedroom 2	0.5	16	PASS
B 22 - 2 Living/Kitchen/Hallway	1		PASS
B 22 - Bedroom 1	0.6	15	PASS
B 22 - Bedroom 2	0.7	15	PASS
B 23 - 2 Living/Kitchen/Hallway	1		PASS
B 23 - Bedroom 1	0.7	15	PASS
B 23 - Bedroom 2	0.6	17	PASS
B 24 - 2 Living/Kitchen/Hallway	1.3		PASS
B 24 - Bedroom 1	0.5	15	PASS
B 24 - Bedroom 2	0.8	15	PASS
B 25 - 2 Living/Kitchen/Hallway	2.7		PASS
B 25 - Bedroom 1	0.5	15	PASS
B 25 - Bedroom 2	0.8	17	PASS
B 26 - 2 Living/Kitchen/Hallway	1.4		PASS
B 26 - Bedroom 1	0.4	17	PASS
B 26 - Bedroom 2	0.8	18	PASS
B 31 - 2 Living/Kitchen/Hallway	1.3		PASS
B 31 - Bedroom 1	0.2	12	PASS
B 31 - Bedroom 2	0.5	16	PASS
B 32 - 2 Living/Kitchen/Hallway	1		PASS
B 32 - Bedroom 1	0.5	15	PASS
B 32 - Bedroom 2	0.7	16	PASS
B 33 - 2 Living/Kitchen/Hallway	1		PASS
B 33 - Bedroom 1	0.8	15	PASS
B 33 - Bedroom 2	0.7	17	PASS
B 34 - 2 Living/Kitchen/Hallway	1.3		PASS
B 34 - Bedroom 1	0.4	16	PASS
B 34 - Bedroom 2	0.8	15	PASS
B 35 - 2 Living/Kitchen/Hallway	2.7		PASS
B 35 - Bedroom 1	0.5	15	PASS
B 35 - Bedroom 2	0.8	17	PASS
B 36 - 2 Living/Kitchen/Hallway	1.4		PASS
B 36 - Bedroom 1	0.4	17	PASS
B 36 - Bedroom 2	0.9	18	PASS
B 41 - 2 Living/Kitchen/Hallway	1.3		PASS
B 41 - Bedroom 1	0.2	12	PASS
B 41 - Bedroom 2	0.5	16	PASS
B 42 - 2 Living/Kitchen/Hallway	1		PASS
B 42 - Bedroom 1	0.5	15	PASS
B 42 - Bedroom 2	0.7	16	PASS
B 43 - 2 Living/Kitchen/Hallway	1		PASS
B 43 - Bedroom 1	0.8	15	PASS



B 43 - Bedroom 2	0.7	17	PASS
B 44 - 2 Living/Kitchen/Hallway	1.3		PASS
B 44 - Bedroom 1	0.4	16	PASS
B 44 - Bedroom 2	0.8	15	PASS
B 45 - 2 Living/Kitchen/Hallway	2.7		PASS
B 45 - Bedroom 1	0.5	15	PASS
B 45 - Bedroom 2	0.8	17	PASS
B 46 - 2 Living/Kitchen/Hallway	1.4		PASS
B 46 - Bedroom 1	0.4	17	PASS
B 46 - Bedroom 2	1.1	18	PASS
B 51 - 2 Living/Kitchen/Hallway	1.3		PASS
B 51 - Bedroom 1	0.2	12	PASS
B 51 - Bedroom 2	0.5	16	PASS
B 52 - 2 Living/Kitchen/Hallway	1		PASS
B 52 - Bedroom 1	0.6	15	PASS
B 52 - Bedroom 2	0.8	16	PASS
B 53 - 2 Living/Kitchen/Hallway	1.1		PASS
B 53 - Bedroom 1	0.9	15	PASS
B 53 - Bedroom 2	0.8	18	PASS
B 54 - 2 Living/Kitchen/Hallway	1.3		PASS
B 54 - Bedroom 1	0.4	16	PASS
B 54 - Bedroom 2	0.9	15	PASS
B 55 - 2 Living/Kitchen/Hallway	2.7		PASS
B 55 - Bedroom 1	0.5	15	PASS
B 55 - Bedroom 2	0.8	17	PASS
B 56 - 2 Living/Kitchen/Hallway	1.5		PASS
B 56 - Bedroom 1	0.4	17	PASS
B 56 - Bedroom 2	1.1	18	PASS
B 61 - 2 Living/Kitchen/Hallway	1.3		PASS
B 61 - Bedroom 1	0.2	13	PASS
B 61 - Bedroom 2	0.5	16	PASS
B 62 - 2 Living/Kitchen/Hallway	1.1		PASS
B 62 - Bedroom 1	0.6	15	PASS
B 62 - Bedroom 2	0.8	16	PASS
B 63 - 2 Living/Kitchen/Hallway	1.1		PASS
B 63 - Bedroom 1	1	15	PASS
B 63 - Bedroom 2	1	17	PASS
B 64 - 2 Living/Kitchen/Hallway	1.4		PASS
B 64 - Bedroom 1	0.4	16	PASS
B 64 - Bedroom 2	1	15	PASS
B 65 - 2 Living/Kitchen/Hallway	2.9		PASS
B 65 - Bedroom 1	0.6	15	PASS



B 65 - Bedroom 2	0.9	17	PASS
B 66 - 2 Living/Kitchen/Hallway	1.7		PASS
B 66 - Bedroom 1	0.4	17	PASS
B 66 - Bedroom 2	1.1	18	PASS
Rooms failing out of 118 :			2

Scenario 4:

- G value 0.4200
- Windows openable 90 degrees 100% area
- Internal doors open 24 hours
- NTC and No NTC profile changed to open at 22 degrees C
- Ground floor doors amended to tilt and turn at night
- 1-5th floor doors open all day/night in bedrooms and
- 1-5th floor doors open all day in living rooms and 100mm at night
- MVHR 0.3 l/s/m²
- Window removed from B03 and B05 living rooms 15.01.21 only
- Blinds in selected rooms

Room Name:	Criteria 1	Criteria 2	Pass/Fail
B 01 - 2 Living/Kitchen/Hallway	0.8		PASS
B 01 - Bedroom 1	0.7	21	PASS
B 01 - Bedroom 2	0.9	15	PASS
B 02 - 2 Living/Kitchen/Hallway	1		PASS
B 02 - Bedroom 1	0.8	13	PASS
B 02 - Bedroom 2	0.9	21	PASS
B 03 - 2 Living/Kitchen/Hallway	1.8		PASS
B 03 - Bedroom 1	0.7	19	PASS
B 03 - Bedroom 2	0.8	15	PASS
B 04 - 2 Living/Kitchen/Hallway	2.4		PASS
B 04 - Bedroom 1	1	21	PASS
B 04 - Bedroom 2	2	16	PASS
B 11 - 1 Living/Kitchen/Hallway	0.4		PASS
B 11 - Bedroom	0.4	19	PASS
B 12 - 1 Living/Kitchen/Hallway	0.4		PASS
B 12 - Bedroom	0.5	21	PASS
B 13 - 2 Living/Kitchen/Hallway	1.2		PASS
B 13 - Bedroom 1	0.9	15	PASS
B 13 - Bedroom 2	0.7	16	PASS
B 14 - 2 Living/Kitchen/Hallway	1.3		PASS
B 14 - Bedroom 1	0.4	16	PASS
B 14 - Bedroom 2	1.2	15	PASS
B 15 - 2 Living/Kitchen/Hallway	3		PASS
B 15 - Bedroom 1	1.1	15	PASS
B 15 - Bedroom 2	0.9	17	PASS
B 16 - 2 Living/Kitchen/Hallway	1.6		PASS
B 16 - Bedroom 1	0.5	17	PASS
B 16 - Bedroom 2	0.9	17	PASS
B 21 - 2 Living/Kitchen/Hallway	1.3		PASS



B 21 - Bedroom 1	0.1	12	PASS
B 21 - Bedroom 2	0.5	16	PASS
B 22 - 2 Living/Kitchen/Hallway	1		PASS
B 22 - Bedroom 1	0.6	15	PASS
B 22 - Bedroom 2	0.7	15	PASS
B 23 - 2 Living/Kitchen/Hallway	1		PASS
B 23 - Bedroom 1	0.7	15	PASS
B 23 - Bedroom 2	0.6	17	PASS
B 24 - 2 Living/Kitchen/Hallway	1.3		PASS
B 24 - Bedroom 1	0.5	15	PASS
B 24 - Bedroom 2	0.8	15	PASS
B 25 - 2 Living/Kitchen/Hallway	2.7		PASS
B 25 - Bedroom 1	0.5	15	PASS
B 25 - Bedroom 2	0.8	17	PASS
B 26 - 2 Living/Kitchen/Hallway	1.4		PASS
B 26 - Bedroom 1	0.4	17	PASS
B 26 - Bedroom 2	0.8	18	PASS
B 31 - 2 Living/Kitchen/Hallway	1.3		PASS
B 31 - Bedroom 1	0.2	12	PASS
B 31 - Bedroom 2	0.5	16	PASS
B 32 - 2 Living/Kitchen/Hallway	1		PASS
B 32 - Bedroom 1	0.5	15	PASS
B 32 - Bedroom 2	0.7	16	PASS
B 33 - 2 Living/Kitchen/Hallway	1		PASS
B 33 - Bedroom 1	0.8	15	PASS
B 33 - Bedroom 2	0.7	17	PASS
B 34 - 2 Living/Kitchen/Hallway	1.3		PASS
B 34 - Bedroom 1	0.4	16	PASS
B 34 - Bedroom 2	0.8	15	PASS
B 35 - 2 Living/Kitchen/Hallway	2.7		PASS
B 35 - Bedroom 1	0.5	15	PASS
B 35 - Bedroom 2	0.8	17	PASS
B 36 - 2 Living/Kitchen/Hallway	1.4		PASS
B 36 - Bedroom 1	0.4	17	PASS
B 36 - Bedroom 2	0.9	18	PASS
B 41 - 2 Living/Kitchen/Hallway	1.3		PASS
B 41 - Bedroom 1	0.2	12	PASS
B 41 - Bedroom 2	0.5	16	PASS
B 42 - 2 Living/Kitchen/Hallway	1		PASS
B 42 - Bedroom 1	0.5	15	PASS
B 42 - Bedroom 2	0.7	16	PASS
B 43 - 2 Living/Kitchen/Hallway	1		PASS



B 43 - Bedroom 1	0.8	15	PASS
B 43 - Bedroom 2	0.7	17	PASS
B 44 - 2 Living/Kitchen/Hallway	1.3		PASS
B 44 - Bedroom 1	0.4	16	PASS
B 44 - Bedroom 2	0.8	15	PASS
B 45 - 2 Living/Kitchen/Hallway	2.7		PASS
B 45 - Bedroom 1	0.5	15	PASS
B 45 - Bedroom 2	0.8	17	PASS
B 46 - 2 Living/Kitchen/Hallway	1.4		PASS
B 46 - Bedroom 1	0.4	17	PASS
B 46 - Bedroom 2	1.1	18	PASS
B 51 - 2 Living/Kitchen/Hallway	1.3		PASS
B 51 - Bedroom 1	0.2	12	PASS
B 51 - Bedroom 2	0.5	16	PASS
B 52 - 2 Living/Kitchen/Hallway	1		PASS
B 52 - Bedroom 1	0.6	15	PASS
B 52 - Bedroom 2	0.8	16	PASS
B 53 - 2 Living/Kitchen/Hallway	1.1		PASS
B 53 - Bedroom 1	0.9	15	PASS
B 53 - Bedroom 2	0.8	18	PASS
B 54 - 2 Living/Kitchen/Hallway	1.3		PASS
B 54 - Bedroom 1	0.4	16	PASS
B 54 - Bedroom 2	0.9	15	PASS
B 55 - 2 Living/Kitchen/Hallway	2.7		PASS
B 55 - Bedroom 1	0.5	15	PASS
B 55 - Bedroom 2	0.8	17	PASS
B 56 - 2 Living/Kitchen/Hallway	1.5		PASS
B 56 - Bedroom 1	0.4	17	PASS
B 56 - Bedroom 2	1.1	18	PASS
B 61 - 2 Living/Kitchen/Hallway	1.3		PASS
B 61 - Bedroom 1	0.2	13	PASS
B 61 - Bedroom 2	0.5	16	PASS
B 62 - 2 Living/Kitchen/Hallway	1.1		PASS
B 62 - Bedroom 1	0.6	15	PASS
B 62 - Bedroom 2	0.8	16	PASS
B 63 - 2 Living/Kitchen/Hallway	1.1		PASS
B 63 - Bedroom 1	1	15	PASS
B 63 - Bedroom 2	1	17	PASS
B 64 - 2 Living/Kitchen/Hallway	1.4		PASS
B 64 - Bedroom 1	0.4	16	PASS
B 64 - Bedroom 2	1	15	PASS
B 65 - 2 Living/Kitchen/Hallway	2.9		PASS



B 65 - Bedroom 1	0.6	15	PASS
B 65 - Bedroom 2	0.9	17	PASS
B 66 - 2 Living/Kitchen/Hallway	1.7		PASS
B 66 - Bedroom 1	0.4	17	PASS
B 66 - Bedroom 2	1.1	18	PASS
Rooms failing out of 118 :			0



A.2 Appendix B – Detailed Results for Common Areas

Attached to this Appendix are the detailed results for the common areas when a g-value of 0.42 is applied.

Level/Room Name:	Internal Temperatures >28°C					Internal Temperatures >28.5°C					Internal Temperatures >29°C				
	No. of hours >28°C	>1% of annual hours	>2% of annual hours	>3% of annual hours	Pass/Fail to CIBSE TM59:2017	No. of hours >28.5°C	>1% of annual hours	>2% of annual hours	>3% of annual hours	Pass/Fail to CIBSE TM59:2017	No. of hours >29°C	>1% of annual hours	>2% of annual hours	>3% of annual hours	Pass/Fail to CIBSE TM59:2017
Block B - 00 - Stair Core	0	No	No	No	PASS	0	No	No	No	PASS	0	No	No	No	PASS
Block B - 00 - Common Area Circ 2	142	Yes	No	No	PASS	87	No	No	No	PASS	59	No	No	No	PASS
Block B - 00 - Common Area Corridors	0	No	No	No	PASS	0	No	No	No	PASS	0	No	No	No	PASS
Block B - 00 - Common Area Corridors	0	No	No	No	PASS	0	No	No	No	PASS	0	No	No	No	PASS
Block B - 00 - Common Area Lobby	124	Yes	No	No	PASS	83	No	No	No	PASS	57	No	No	No	PASS
Block B - 0 - Stair Core	24	No	No	No	PASS	16	No	No	No	PASS	8	No	No	No	PASS
Block B - 0 - Common Area Circ 2	170	Yes	No	No	PASS	109	Yes	No	No	PASS	77	No	No	No	PASS
Block B - 0 - Common Area Corridors	0	No	No	No	PASS	0	No	No	No	PASS	0	No	No	No	PASS
Block B - 0 - Common Area Corridors	0	No	No	No	PASS	0	No	No	No	PASS	0	No	No	No	PASS
Block B - 0 - Common Area Lobby	132	Yes	No	No	PASS	87	No	No	No	PASS	58	No	No	No	PASS
Block B - 0 - Common Area Corridors	34	No	No	No	PASS	24	No	No	No	PASS	14	No	No	No	PASS
Block B - 1 - Stair Core	0	No	No	No	PASS	0	No	No	No	PASS	0	No	No	No	PASS
Block B - 1 - Common Area Circ 1	157	Yes	No	No	PASS	98	Yes	No	No	PASS	70	No	No	No	PASS
Block B - 1 - Common Area Circ 2	206	Yes	Yes	No	PASS	131	Yes	No	No	PASS	88	Yes	No	No	PASS
Block B - 2 - Stair Core	0	No	No	No	PASS	0	No	No	No	PASS	0	No	No	No	PASS
Block B - 2 - Common Area Circ 1	158	Yes	No	No	PASS	99	Yes	No	No	PASS	70	No	No	No	PASS
Block B - 2 - Common Area Circ 2	261	Yes	Yes	No	PASS	162	Yes	No	No	PASS	107	Yes	No	No	PASS
Block B - 3 - Stair Core	0	No	No	No	PASS	0	No	No	No	PASS	0	No	No	No	PASS
Block B - 3 - Common Area Circ 1	162	Yes	No	No	PASS	101	Yes	No	No	PASS	72	No	No	No	PASS
Block B - 3 - Common Area Circ 2	256	Yes	Yes	No	PASS	156	Yes	No	No	PASS	102	Yes	No	No	PASS
Block B - 4 - Stair Core	0	No	No	No	PASS	0	No	No	No	PASS	0	No	No	No	PASS
Block B - 4 - Common Area Circ 1	167	Yes	No	No	PASS	109	Yes	No	No	PASS	72	No	No	No	PASS
Block B - 4 - Common Area Circ 2	306	Yes	Yes	Yes	FAIL	192	Yes	Yes	No	PASS	132	Yes	No	No	PASS
Block B - 5 - Stair Core	0	No	No	No	PASS	0	No	No	No	PASS	0	No	No	No	PASS
Block B - 5 - Common Area Circ 1	191	Yes	Yes	No	PASS	122	Yes	No	No	PASS	78	No	No	No	PASS
Block B - 5 - Common Area Circ 2	270	Yes	Yes	Yes	FAIL	168	Yes	No	No	PASS	104	Yes	No	No	PASS
Number of Common Areas Failing:															
	2					0					0				



A.3 Mark ups of window amendments

HTH - Block B overheating

Paul Botten <PBotten@ardmoregroup.co.uk>
29/07/2020 at 17:21:49

From: Paul Botten <PBotten@ardmoregroup.co.uk>
Sent: 29/07/2020 at 17:21:49
To: Katy Venables <katy.venables@whitecode.co.uk>, Ellen Huelin <ellen.huelin@whitecode.co.uk>
Cc: Simon Redfern <SRedfern@ardmoregroup.co.uk>, Joe Pitt <JPitt@ardmoregroup.co.uk>, Baykal Mustafa <BMustafa@ardmoregroup.co.uk>, Jamie Mitchell <jamie.mitchell@whitecode.co.uk>, Jarek Matuszak <JMatuszak@ardmoregroup.co.uk>

 2 Attachment(s) Total 4.6 MB View ^

 Block B lower ground.jpg (4.5 MB)  Revised window.pdf (76.2 KB)

Good afternoon Katy / Ellen,

The client wishes to change the configuration of the block B lower ground floor doors.

Can you please indicate if we change the highlighted doors to my revised window sketch that the rooms will still achieve the required airflow to pass the assessment.

I look forward to hearing from you.

Kind regards

Paul

Paul Botten

Senior Design Coordinator

T: 0208 344 0300 EXT: 40108

 ArdmoreLogo

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