

HORNSEY TOWN HALL FAR EAST CONSORTIUM November 2022





FAR EAST CONSORTIUM HOME GUIDE

Hornsey Town Hall the Broadway London

N8 9JJ

Spring 2022

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ABOUT US

Head office in Mayfair, London, with a regional office in Manchester; FEC (Far East Consortium International Ltd) opened its UK operation in 2011 with the arrival of Dorsett Shepherds Bush. FEC aim to create high quality residential developments and hotels across London, the Southeast, Manchester, and ultimately other key cities across the UK.

The company's proven fifty-year track record has resulted in the development of over 200 million sq. ft. of residential and hotel space throughout the Asia Pacific region. The experienced team has brought its expertise to the UK to create vibrant places for people to live, work and play. FEC's subsidiary Dorsett Hospitality has 24 hotels and seven more in the pipeline across the globe with a portfolio valued at over £1.6 billion.

On the Hong Kong HKSE since 1972, (HKSE: 35) FEC is a leading developer, specialising in residential development, hotels and commercial ventures. The family run business operates across Mainland China, Hong Kong, Singapore, Malaysia, Australia and New Zealand and the UK, specialising in the construction of high specification homes, mid-scale and boutique hotels and is also a respected car park owner and operator.

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YOUR HOME

GETTING STARTED

This section aims to give you the information you need to get up and running in your new home as quickly as possible. It contains all the information you should need in the first few weeks of living in your new home.

You can find the address of the housing scheme on the front cover of this guide.

Your New Home

Hornsey's history as a parish and administrative area goes back to at least the 13th century. For most of that time, Hornsey was a rural backwater in the county of Middlesex but, with the coming of the railways in the 1850s, developers realised the opportunity to create a suburb.

In 1861 there were just over 11,000 people living in the parish of Hornsey. It became a Borough in 1903 and by 1921 the population was nudging 90,000. Since 1869 Hornsey had been administered from offices in Southwood Lane in Highgate – a building not much bigger than two residential villas.

In 2000, with a shrinking council workforce, the building was declared surplus to requirements and a long exercise started to find a new use.

For many years the fabric had been neglected and, by now listed as Grade II*, a large sum had to be found to remove it from Historic England's at-risk register. A plan was conceived to sell off the car park at the rear and use the funds for the restoration. Ownership would be transferred to a trust to provide arts, community and educational uses.

With the financial crash of 2008, this scheme never took off. An attempt was then made by Mountview Theatre School to take it over, but the finances proved impossible.

An attempt to take the Town Hall into Community ownership didn't succeed and in 2019, following a competitive tendering process, Haringey Council awarded the Far East Consortium a long lease to begin restoration works and redevelop the Town Hall, as well as building on the car park.

The development aims to restore the building to its former glory and to provide the community with an arts centre, cafe, restaurant, hotel and workspaces as well as with 146 apartments and a small amount of social housing.

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Home Quality Mark

Your Home has been designed, built and assessed in line with the Home Quality Mark (HQM) certification scheme.

The Home Quality Mark is a scheme that assesses the standard of new homes. Every home that receives a HQM certificate meets specific quality and sustainability standards that are higher than the minimum standards which must be achieved in a new home, such as Building Regulations. This means your home has a reduced effect on the environment, costs less to run and is designed to benefit your health and wellbeing. The HQM is seen as a symbol of quality and sustainability for housebuilders and investors, and it's a mark of assurance for you, as homeowners and tenants.

Your home has received a rating of 3 stars, out of a maximum of 5 stars. This means your home meets **high standards** when assessed across three main criteria; cost, well-being for the occupier and environmental footprint of your home during construction and when in use.

The HQM 3 star certificate can be found at the back of this manual (see Appendices)

Important Features

In this section you will find a list of important features you will need to run your home. This list includes a description of and the location of, all features, including meters.

Item	Location	Description	Image
Door-entry panel	By front door	Paxton Net 2 PoE door controller	
Door-entry video	By front door	Hornsey TH Paxton Access Control	

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Heat interface unit	Utility Cupboard	Your heating and UFH, comes from a communal (shared) heating system. This heating is provided to your home through the 'heat interface unit' (HIU), which is in the utility cupboard. There is heat meter within the HIU. This measures how much heat you use. This will form part of your heating charges. It is important that you do not interfere with the HIU or the heat meter as this could breach your tenancy agreement.	
MVHR (mechanical ventilation and heat-recovery unit)	Utility Cupboard	This is your ventilation system. It keeps fresh air in your home. It also has built-in heat recovery, so no heat is lost when fresh air is brought in.	
MVHR booster switch	Switch outside bathroom & kitchen, the right-hand switch operates the MVHR switch	Turning on the boost mode from this switch will increase the rate that air is extracted from your home.	
Intruder alarm spur	Utility cupboard	Isolation for fire alarm	

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Fuse Board (also known as an electrical consumer unit)	Utility Cupboard	Your electricity comes from a mains supply through an underground cable. The mains supply is connected to your electricity meter. Cables leading from the meter are then connected to your consumer unit. The consumer unit contains the electricity supply on/off switch, which is red. It also contains several circuit breakers which are controlled by R.C.D The circuit breakers protect individual circuits in your home. Each circuit breaker is labelled to show which circuit it protects. When one of the circuit breakers 'trips', it goes down to the OFF position and cuts off the power to that circuit. To get the power back on, lift the switch back to the ON position. If it trips again, follow the procedures set out in part F on page 22-23.	
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Mains Water valve (also known as a Stopcock)	Utility Cupboard	The outside stop valve, also known as a stopcock, controls the cold-water supply going into your home. If you think there is a water leak in your home, you should turn off the water supply using this valve. You should then immediately call 020 3370 6804 or a qualified plumber to fix the problem. This will depend on your tenure; you can call 020 3370 6804 Direct for further clarification on this.	
Satellite and aerial sockets	Lounge & Bedrooms	Multimedia Plate that provides the power, TV, and data within the plate.	
Water meter	Utility Cupboard	This is your water meter. It measures how much water you use in your home so that you only pay for what you use.	

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Electricity meter	Utility cupboard	This is your electricity meter. On the front you can see your serial number and meter reading, which you will need to set up your billing and switch suppliers.	
Data outlets	Lounge/bedrooms/utility cupboard	Subject to your home being connected to the internet, these will provide a useful means of connectivity throughout your apartment.	
Towel Rail Mat thermostats	Adjacent to bathroom doors	Enable adjustment to the temperature of the heat mat, which is located in the wall behind the towel rail.	
Data/Telephone patch units	Utility Cupboard	This is the link between the data and telephone sockets in your apartment and the BT and Virgin Master units in the utility, patch leads are installed to provide you with the connections to these points.	

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Virgin Media Unit	Utility cupboard	To provide you with a Virgin Media connection to your property.	
Multi-Gang Switch	Kitchen under Hob (in drawer)	Provides isolation/energisation of appliances in the kitchen, will also provide boost facility to ventilation.	

The Location Of Meters And Setting Up Your Billing

You will be charged for the electricity, heating and water you use. When you first move into your home you must make sure that your services are set up properly.

You will need to set up services for electricity and water.

As you are on a communal heating system, your heating bills have already been set up and you will receive a bill every month. To learn more about communal heating, turn to page 22 -23.

The following table shows you who you need to contact to set up your billing (this sentence inserted for communal heating credit billing only). You can learn more about your meters in this section.

Utility	How this is provided to your home	Current provider	Contact details for setting up you're billing or queries	Meter location
Heat	You can learn more about communal heating in the "Customer Heat Charter" which was provided to you with this guide.	Your heat supplier is Insite Energy. Your billing is managed by: Insite Energy. If you have any questions about billing, you can phone 0345 872 9600.	"To keep your bills accurate, meter readings are automatically taken from the heat interface unit (HIU) by a heat meter. These readings are sent to Insite Energy. You will be billed automatically every month. For more information on your heating bill, see page 16. "Please refer to the "Customer Heat Charter" for guidance on using and topping up your pre-payment meter."	Your heat meter can be found in the utility cupboard.
Electricity	Mains electricity	British gas	0800 072 8625. https://www.britishgas.co.uk	Your electricity meter is the in-utility cupboard.

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Water	Mains supply	Thames Water	Phone: 0800 980 8800 Website: www.thameswater.co.uk	Your water meter is in utility cupboard
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You are free to switch to whichever electricity supplier you like. We recommend shopping around to find the best rate.

You can switch electricity suppliers online. We recommend you go to www.energyhelpline.com where you may be able to find competitive tariffs. You can also call them on 0800 074 0745.

Once set up, we recommend providing regular readings to your electricity supplier which is British Gas. This will prevent you from being overcharged or undercharged, which can lead to problems in managing payments to your supplier.

Smart Meters

A Smart Meter measures how much gas and electricity you're using and automatically sends these readings to your energy supplier. This device displays current and cumulative electricity consumption, primary heating fuel consumption and internal temperature levels (over a weekly, monthly and yearly basis) and have cost factors inputted into the device so that current cost and account balance information can be displayed.

You can monitor and understand your energy use in the following way:

1. Look at the display when only the essential electrical appliances are on in your home. This is your standard energy usage.
2. You can now test how turning on other non-essential appliances affects your energy usage. For example, turn on the kettle, washing machine etc, and see their impact on your total costs.
3. Having a better understanding of how much different electrical appliances cost when they are in use, you can make better decisions about how much electricity you wish or need to use.

There is an option to set a budget marker on your Smart Meter. This is the maximum you want to spend each day. Please refer to the manual for more specific information on how to set this up, and how to use the control panel and arrows on the display to look through your consumption and usage.

A smart meter therefore offers a number of benefits to you, such as more accurate bills, access to money saving initiatives and lower energy consumption. To get the most benefits out of your Smart Meter, we recommend you monitor your energy usage regularly.

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Heating Bill

You will receive a heating bill every month an example of this heating bill is given below.

How much energy you have used since your last bill for heating your home and your hot water.

This is the cost of delivering energy into your property, including meter reading, billing, and account management.



What am I paying for?

You are paying for the energy that is needed to provide heating and hot water. You are also paying a charge for the cost of delivering the energy to your property, including meter reading, billing and account management.

What is kWh?

This stands for kilowatt hour, which is a standard measure for energy used

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Appliances

Listed below are the makes and models of the appliances we have provided in your home.

If you find a fault in an appliance or need information about the warranty, check the manufacturer's manual.

We are not responsible for repairing or maintaining appliances. For further information, you can call Far East Consortium Limited or have a look on our website at:

<https://fecil.uk/>

Washer dryer

Make: Siemens

Model: WN44G290GB

Energy-efficiency rating: E

Dishwasher

Make: Siemens

Model: SN61IX12TG

Energy-efficiency rating: 92 kwh E

Fridge freezer

Make: Siemens

Model: KI87VNSF0G

Energy-efficiency rating: 277 kWh/annum F

Oven (1)

Make: Siemens

Model: MB535A0S0B

Energy-efficiency rating: 6200 W A

Oven (2)

Make: Siemens

Model: HB535A0S0B

Energy-efficiency rating: 6200 W A

Oven (3)

Make: Siemens

Model: HB676GBS6B & CM676GBS6B

Energy-efficiency rating: 6200 W A

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Extractor fan

Make: Siemens

Model: LB53NAA30B

Energy-efficiency rating: 68 kwh / annum D

Wine cooler

Make: CDA

Model: FWC304BL/2 ; FWC604BL

Energy – efficiency rating: 150 kwh / annum G

Hob

Make: Siemens

Model: EU611BEB1E

Energy-efficiency: 175.0 Wh/kg

Extractor Recirculation

Make: Siemens

Model: LZ10INT00

DEFECTS PROCEDURE AND AFTERCARE

Within the first few weeks of living in your new home, you may find some repairs that you need to report to us. The first 12/24 months of a building's life is called the 'defects liability period'. During the defects liability period, the contractor who built your home is responsible for repairs which are part of the settling-in process of the building. These are called defects.

Defects include (but are not limited to) the following:

- Kitchen units which have dropped naturally at the hinges
- Toilet not flushing
- Loose taps
- Baths which drain slowly
- No heating

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- No hot water
- Door-entry system not working
- Ventilation system not working
- Large cracks (wider than a one-pound coin) on stairs, or where walls meet windows, door frames and skirting boards.

Some things which are not considered to be defects include (but are not limited to) the following:

- Kitchen units which have come away at the hinges due to mistreatment
- Toilets blocked because of wet wipes, nappies, sanitary towels and other items being flushed down them
- Damage caused by misuse or vandalism
- TV or set-top box not working when all other TVs are working in the building
- Small cracks which can be painted over

To report a defect, call the Building Management Company, Far East Consortium Limited on 020 3370 6804. They will ask you some simple questions about the defect. If appropriate, they will arrange for a contractor to come to your home.

The Aftercare team of the Main Contractor, Ardmore Construction, can also be reached on customercare@ardmoregroup.co.uk or 020 8344 0300.

Below are the response times you can expect during the defects liability period.

Emergency – make safe within four hours and put right within 24 hours

These defects are when there is a real danger to life or risk of major damage to property, for example:

- complete loss of power (when this is not related to the fuses in your home, which you are responsible for, or the mains power supply, which the electricity company is responsible for)
- total loss of water supply
- total loss of heating or hot water between 1 October and 30 April
- blocked or leaking drains or waste pipes
- having no working toilet in the home
- any leak which cannot be contained
- faulty locks to doors or windows on the outside of the home
- total lift failure.

Urgent – completed within five working days

These are small repairs which need to be carried out urgently to overcome a big inconvenience to you or to prevent damage to property, for example:

- total loss of heating or hot water between 1 May and 30 September
- loss of a toilet where there is another in the home
- any blockage or leak on sinks, baths, or basins
- leak in the roof (unless it cannot be contained)
- loose handrails (unless there is a risk to a person's safety)
- door-entry system not working
- ventilation system not working.

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Non-urgent – completed within 20 working days

These repairs are where there is a less urgent defect, but it is causing some inconvenience or potential damage to property, for example:

- minor repairs to doors.
- faults that haven't been put right; and
- minor repairs to electrical items.

After the end of the defects liability period

Some faults will be dealt with at the end of the defect's liability period, for example:

- cracks which are caused by settlement and are wider than the edge of a pound coin.
- flooring which has dropped.
- seals which have perished or come away
- rusting balcony fixings.

Reporting repairs out of office hours

If you call Far East Consortium Limited outside office hours, you will be put through to our out-of-hours service. If the repair is an emergency, someone will come out to you. If it is not an emergency, we will get back to you on the next working day.

Your defects liability period ends 2 years after you have legally completed. At which time, we, along with a consultant and the defects contractor, will ask to inspect your property and make sure there are no defects which need to be dealt with.

BUILDING WARRANTY

The Warranty Provider of your home is Premier Guarantee. If you have any questions or concerns that relate to the building warranty, you can find additional information and contact details on your warranty certificate.

RUNNING YOUR HOME EFFICIENTLY

We take global warming and climate change very seriously. We are responding to this challenge by building energy-efficient homes which use less energy and so are cheaper to run. An added benefit is that using less energy means your home is kinder to the environment.

Your new home has been built according to the Code for Sustainable Homes, which is a standard for controlling the effect your home has on the environment Hornsey Town Hall.

To make the most of your new home and save on bills, you will need to understand and control your heating, electricity uses and water use. You can make big savings if you use them more efficiently.

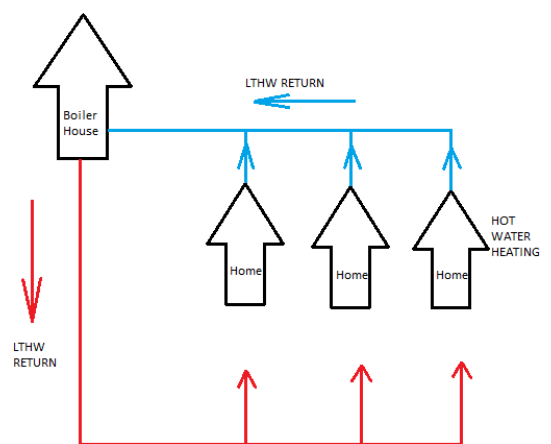
Communal heating system

Communal heating is where heat is provided to more than one home from a central heat source.

Pipes run from the central heat source, e.g. a boiler property, to every flat in the block. Heat is then delivered to your home through a heat interface unit (HIU). A heat meter inside the HIU will measure how much heat is delivered to your home.

The heat from the central heat source is provided by a/a network of: a gas boiler

Please refer to the "Community Heating Charter" for more information.



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Heating controls

Setting your heating timer and thermostats will give you control of exactly how much heat energy you use. This will help you to heat your home efficiently while managing your heating bills. The next few pages will show you how to use them. You control your heating by:

- using thermostats to set the right temperature for your rooms
- programming the timer to set when your central heating and hot water comes on
- Underfloor heating



Timer Controls

A heating timer allows you to control the following:

- When the central heating comes on and goes off
- If you're not at home or are asleep, you can turn the heating off

Setting heating controls will heat your home efficiently and help you to cut your bills.

It's up to you to decide when to turn your heating on or off. You can set your system to go on and off automatically whenever you want

The following guidelines will help you to set your central heating timers. You can set your thermostat for each room.



Setting	Instructions
Turn the heating on Continuous heating	Press the SELECT button until 'on' is shown on the display.
Turn the heating off No heating	Press the SELECT button until 'off' is shown on the display.

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Turn the heating to AUTO mode This will set the heating controls to your preferred timer settings. This is the best way to use heating timer controls. We recommend that you: • set your central heating to come on half an hour before you get up or get home	Press the SELECT button until 'AUTO' is shown on the display. Follow the instructions below to set the control to automatically turn your heating on and off when you need it. 1 Press SELECT until you see 'AUTO' in the circle on the display. 2 Press PROG to set the time. 3 Press DAY/HOL to set the day. The day is shown under the time. 4 Use the + and – buttons to set the time you want the heating to come on (for example, 7.30am). 5 Press the NEXT ON/OFF button to set the time you want the heating to go off (for example, 9am). 6 Use the + and – buttons to set the time you want the heating to go off. (You can set up to three on and off times a day – morning, afternoon and evening.) 7 Go back to step 3 and press the DAY/HOL button to set next day's times. Repeat stages 4 to 6.
Turn the heating to ALL DAY mode Heating on from the first set time through to the last set time of the day	Press the SELECT button until 'All Day' is shown on the display.

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The information in the table above is basic guidance to get you started. Please also read the full manual/s for setting your timer controls.

Heat-Saving Tips

A few simple steps could reduce your heating costs

- Turn your thermostat down by 1°C. This could cut your heating bill by more than 10% (based on an average heating bill).
- Close windows when the heating is on to stop the heat escaping.
- Wear warm clothes when indoors during winter months instead of turning the heating up.
- Set the heating controls so that your property is heated only when you are at home. If you are out for long periods of time, set your controls to turn off.

Ventilation And Heat-Recovery System

This is your new ventilation system. It brings fresh air to your home. It also has built-in heat recovery to save energy. It is referred to as a mechanical ventilation heat-recovery system, or MVHR for short. It is in your utility cupboard with extra controls in kitchen.

This is not an air conditioning unit. You do not need to do anything to it and should leave it to run in the background.



Why you need an MVHR

To keep your home warm and reduce your heating bill, your home has a high level of insulation in the walls, ceilings, and windows. Your home is fitted with the MVHR system to make sure the warm air in your rooms doesn't go stale and smells are removed. It is designed to run in the background and replace stale air with fresh air.

The fresh air entering your home passes through a heat exchanger where it is warmed by the stale air leaving. This means that you do not waste the energy that has been used to heat your home during winter. This function is not used in the summer so that heat can escape to keep your home cool.

How to control

The MVHR system will run continuously in the background without you doing anything to control it. Turning it off could lead to mold and condensation, a build-up of stale air and more expensive heating bills.

To get the most out of your MVHR unit you will need to learn about its boost mode (see below).

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To make sure the MVHR works properly, its filters will need cleaning.

Apart from the boost button and cleaning the filters, please **do not to touch your MVHR system**. It has been programmed to suit your home, so it continuously provides fresh clean air. **Do not turn it off.**

MVHR boost mode

Turning on the boost mode will increase the rate air is replaced from your home. Boost mode turns the fans up to 50% of their full power (the usual rate is 30%). Boost mode will automatically come on in your bathroom when you turn the light on. You can also turn it on in the rest of your home using the controls in your airing cupboard. This may be useful when there is a build of stale hot air in your home.

You will see a  button on your MVHR control screen. The following table gives guidance on how many times to press this button for the level of boost you want.

Number of presses	Action
1	Boosts for 5 minutes
2	Boosts for 10 minutes
3	Boosts until stopped
4	Back to normal rate
Hold for five seconds	For when you want to quickly remove air from the property. Fans will be on full speed (100%) for two hours. Hold the button for five seconds to return the fans to normal.

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Kitchen boost

You also have an extra boost switch in your kitchen. This will control the fans in your kitchen only. You may need to use this boost when air moisture levels in the kitchen are high (for example when cooking with several pans). The switch will allow you to turn the boost on and off in your kitchen when necessary.

MVHR – cleaning your filters

Dirty or clogged filters can reduce the efficiency of your system. Try to clean your filters every four to six weeks to make sure you get the most out of your ventilation system. When working properly, your ventilation system will help to keep your home clean and healthy while also keeping your heating bill down.

The filters have been designed to be easily removed for cleaning. To clean the filters, follow the steps below:

1. Open the filter flaps and remove the two filters.
2. Clean the filters by gently tapping or carefully using a vacuum cleaner.
3. Put the filters back.
4. Close the filter flaps.
5. Press and hold the  and  buttons for five seconds.



Filter flaps



Your Vent-Axia unit will also need maintenance every 12 months to replace the filters. For details, see the 'Sentinel Kinetic MVHR and Kinetic Plus MVHR operation and monitoring' on the website at www.vent-axia.com. There is also guidance on the necessary maintenance on page 43 of the Vent-Axia guide.

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Preventing Condensation

Condensation can be a problem, even in new homes. Condensation is caused when steam or water vapour meets cold surfaces (in the same way that steam in the bathroom mists up the mirror). If condensation forms in your home, it will provide ideal conditions for mold to grow. This will lead to an unhealthy environment and can spoil the appearance of your new home.

Many daily activities produce water vapour, which may cause condensation if it is allowed to spread around

Have a look at the following areas to see how you can try to reduce condensation in your home.

Cooking, and drying clothes, can produce more moisture

- Use lids to cover pans when cooking to reduce steam. This will also help to save on energy as covered pans heat quicker.
- Use the ventilation booster switch in your kitchen when cooking.

Stop moisture spreading through your home

- Keep doors closed when cooking, washing, bathing and drying clothes indoors.
- Do not switch the MVHR unit off. This is designed to stop moisture spreading throughout the home by removing it from the room it is created in.

Ventilate moisture away

- Ventilation is needed to get rid of the moisture that is naturally produced in your home. Your home will maintain a healthy environment when the MVHR system is running. You risk damage to your health and home if you turn off the system or block outlets such as vents and air bricks.

Maintain background heating

- Homes that are heated continuously are less likely to suffer condensation problems. This is particularly important in the colder months as moist air (from showers or cooking) will condense on cold walls. Over time, this condensation will lead to mold.
- Use heating timer controls and thermostats to heat your home in a controlled and regular manner.

Saving money on your electrical appliances

As well as saving on your electricity bill, the following tips will help your appliances to last longer (so you won't have to replace them).

Fridge and freezer

- Keep your door seal clean. This will stop heat getting into your fridge, which leads to your fridge using more electricity.
- Defrost the freezer compartment when the ice is 1.5cm thick – any thicker and the fridge will use more electricity.
- Vacuum the back of the fridge every six months to avoid a build-up of dust. Dusty coils mean that the fridge will have to work harder, increasing your electricity bills.

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- Place heavy items such as milk cartons close to the door hinges. This will place the doors under less stress.
- If your fridge starts to freeze, or if the food goes off quickly, adjust the thermostat.
- Clean and drain your fridge freezer every few months. This will help to prevent leaks that could damage your floor.

Dishwasher

- Keep the sprayer arm clear from any obstruction.
- Check the dishwasher's drain regularly and remove any food or objects from the filter (the manufacturer's manual will explain where the filter is and how to clean it).
- Clean the inside of your dishwasher. Grease, detergent residue, and calcium deposits can build up. You can use a couple of cups of white wine vinegar to wash them away.

Washing Machine

- Keep your door seal clean.
- Wash clothes at a low temperature to reduce costs. Washing at 40°C will use a third less electricity than washing at 60°C. Most modern washing detergents are designed to wash clothes well at 30°C, or even at 15°C.
- Run the washing machine with full loads rather than half loads. One full load uses less energy than two half loads.
- For the appliances listed above, please see the manufacturers' booklets for guidance on how to connect and use them. The makes and models of these appliances are given on

A few more tips to help you reduce your electricity bill:

- Appliances like TVs, games consoles, stereos, computers, washing machines, dishwashers and tumble dryers left on standby can use up to 85% of the energy they use when switched on. Turn them off at the wall to save money. A typical property could save between £45 and £80 a year just by remembering to turn off appliances left on standby.
- Fill the kettle with only the amount of water you need. If you are making a cup of tea, fill the cup with cold water and then pour this into the kettle. This can save £7 a year on its own.
- Charge your phone before you go to bed. Switch your charger off when your phone is charged. The average phone only needs three hours to charge and leaving it on all night will bump up your electricity bill.

Keep the oven door shut as much as possible. Every time you open it, nearly a quarter of the heat escapes, so more energy is needed to heat the oven up again.

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EU Energy-Efficiency Labels

When buying a new electrical appliance, check the energy label. Energy-efficient products use less energy and will help you save on your electricity bill.

By law, the following appliances must have an EU energy-efficiency label.

- Fridges, freezers and fridge freezers
- Washing machines
- Tumble dryers
- Dishwashers
- Lamps
- Electric ovens
- Air conditioners

The label provides clear information about how much energy the appliance uses and its performance. The energy-efficiency rating is an important part of the label. It provides a simple scale of the product's efficiency, which ranges from 'A+++' (the most efficient) to 'G' (the least efficient).



The way a product is used will also influence how much energy it uses. Fridges and freezers, for example, work harder than any other kitchen appliance and are on 24 hours a day. An energy-efficient fridge freezer uses only a third of the energy to do the same job as a 10-year-old model.

More information on energy-efficiency labelling is given in part F.

Solar PV

Uren house has solar panels. These have been installed on roof to generate electricity using daylight to reduce the amount of electricity brought from the National Grid.

The electricity generated from the solar panels is used to provide power for the communal (shared) areas. For example, the electricity is used for powering lifts, security and door entry systems and lighting in hallways. Generating free electricity from sunlight means your building's running costs are lowered. This will result in a cheaper service charge.

All maintenance and operation of this system will be taken care of by the Building Owner and there is no action that you will need to take. If you notice any issues or have questions regarding the strategy that has been implemented, contact Far East Consortium Limited 020 3370 6804 Direct.

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Lighting

In most homes, lighting accounts for around 10 to 15% of an electricity bill. Your home has been built with low-energy light fittings in all rooms. We suggest that you always use low-energy light bulbs as they last up to 10 times longer than ordinary bulbs and are just as bright. Switching from a standard bulb to an energy-saving bulb can save you around £45 over the lifetime of a bulb.

To save money on your energy bill, turn the lights off when you leave a room. This can save you £7.50 a year.

It doesn't take any more electricity for a light bulb to turn itself back on. If it's on, it's using electricity and if it's off, it isn't. Modern low-energy light bulbs do use a small amount of extra energy when you first turn them on, as do fluorescent strip lights. But with both, if you are leaving a room for more than a couple of minutes then turn the light off and you'll save money.

Using Water In Your Home

Water is often called the 'forgotten' environmental problem. Most people don't think water is a problem in our country because it rains so much.

Most of the people in our country live in southeast England, which is a 'water stressed' area. That means there isn't enough water to meet the demand. We keep having droughts and then periods of flooding. This is one of the consequences of climate change – changes to when it rains and how much it rains. The UK is trying to improve its water reserves and water bills will need to increase to achieve this.

As well as the environmental benefits, saving water in the home will help you to save on your water bills.

Both your water bill and your heating bill are affected by the amount of water you use.

- 1) Your Thames Water bill, sometimes referred to as your cold-water bill, is based on meter readings. So every litre you use adds to your bill.
- 2) Your heating bill is based on the energy used to heat your hot water. According to the Energy Saving Trust, about £140 of a typical property's total heating bill is from heating water.

There are two big reasons why reducing the amount of water you use will help you save money. The next few pages will have a look at how you can save on your water bills.

Water-Saving Tips

Some simple changes to the way you use water in your home can start to help save you money. Try introducing some of these changes and see if you notice a reduction in your water bill.

Showers

Shower instead of having a bath. Taking shorter showers saves on your water bill. The following table gives guidance on the amount of water used in a shower and a bath.

	Average volume of water used (liters)	Water cost per person per year* (£)
Bath	80	61
Eight-minute shower	62	47
Eight-minute power shower	136	104
Four-minute shower	32	24

* Based on Thames Water rate of 0.21p per liter and average water use

Dripping taps

If you have a dripping tap you should report it to us/fix it as soon as possible. A dripping tap wastes enough hot water to fill 69 baths a year, costing you £12.

Turn it off

A running tap can waste more than six liters of water a minute. Turn the tap off while brushing your teeth, shaving, or washing your face and use cold water if you don't need hot. Turning off the tap while brushing your teeth could save you around 18 liters at a time. That's around £27 a year!

BUILDING DESIGN

Consumer Unit and Fuse Ratings

The consumer unit is an important piece of electrical equipment that protects the electrical circuit in your home.

The consumer unit contains the main on/off switch (which is red) and several circuit breakers (which are black). The circuit breakers protect individual circuits. Each circuit breaker is labelled to show which circuit it protects.

When one of the circuit breakers 'trips', it will go to the OFF position and cut off the power to that circuit. To get the power back on, flick the circuit breaker back to the ON position. If it trips again, follow the procedure set out below.

- 1 Turn off all appliances and lights on that circuit.
- 2 Flick the circuit breaker back to the ON position to reset it.
- 3 Turn each light and appliance on one by one.

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- 4 If the circuit breaker trips again when you turn a particular appliance or light back on, this means that the light or appliance is faulty and is causing the circuit breaker to trip out.
- 5 If this happens, turn off the light or turn off and unplug the appliance that caused the circuit breaker to trip and then reset the circuit breaker. You will then be able to continue to use the remaining lighting and appliances on that circuit.

Within the first year of the defects liability period, you should report any faults to FEC's Customer Service Department. After the end of the defects liability period, leaseholders should call a competent electrician to investigate the cause of the problem and not keep resetting a circuit breaker that trips repeatedly.

In the consumer unit there may also be a residual current device to provide extra protection. The residual current device is labelled in the picture of a consumer unit on page 9. If the residual current device has tripped, you can reset it by flicking it back to the ON position. From time to time, you should check that the residual current device is working properly. You do this by pressing the test button.

Electrical Fuses

It is essential that you use the correct fuse for your appliances to avoid damage to these and to guard against electrical fires.

A UK plug is generally fitted with a 3amp (3A) or 13amp (13A) fuse. For appliances up to 700watts (W), you need to use a 3A fuse and for appliances over 700watts you need to use a 13A fuse. For example:

3A fuse – table lamp, floor lamp, television, DVD player, computer, food mixer, blender, fridge, freezer, power drill, jigsaw, soldering iron

13A fuse – washing machine, dishwasher, microwave, kettle, toaster, iron

Nowadays, appliances are fitted with 3A or 13A plugs. However, 5amp fuses are still used in some older equipment. Please check fuse ratings for any of your appliances.

Security

Your home has been assessed and developed in accordance with the Secure By Design (SBD) criteria relevant to your property and building type. Secured by Design (SBD) is the official police security initiative that works to improve the security of buildings and their immediate surroundings to provide safe places to live.

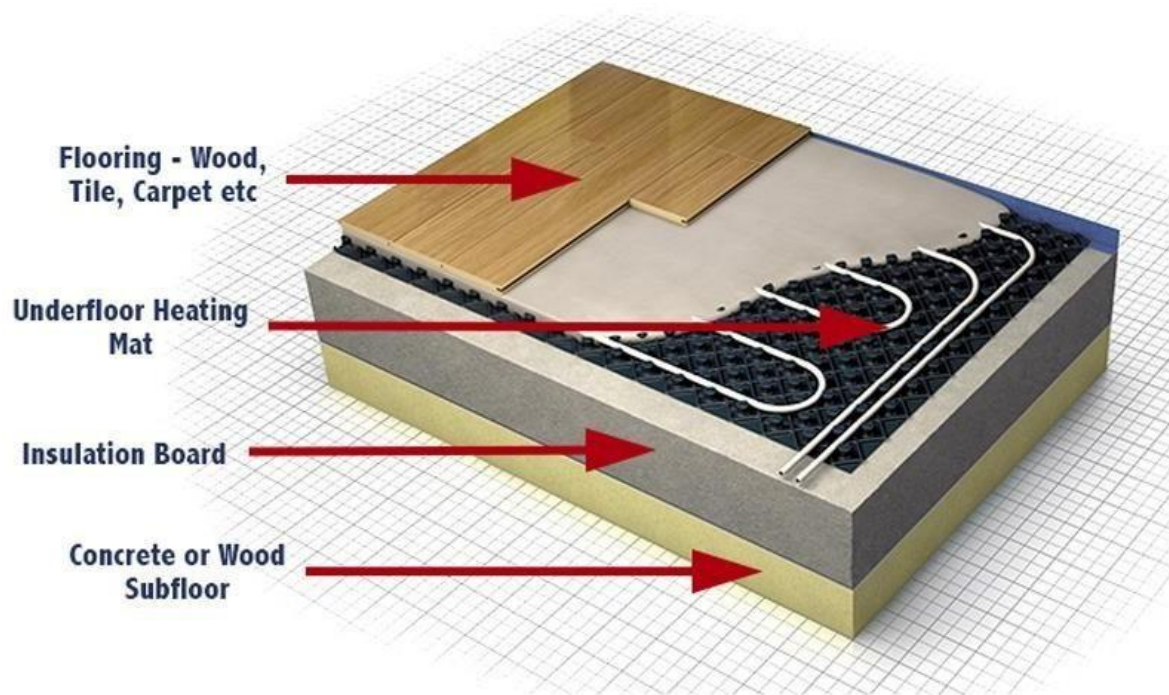
Your home has been supplied with a Paxton Net 2 access control system. The Net 2 system will control access to the residential blocks and the Town Hall. Open the doors locked by the system by holding your token within close proximity of the reader. If access is granted, the green light flashes. If access is denied, the red light flashes.

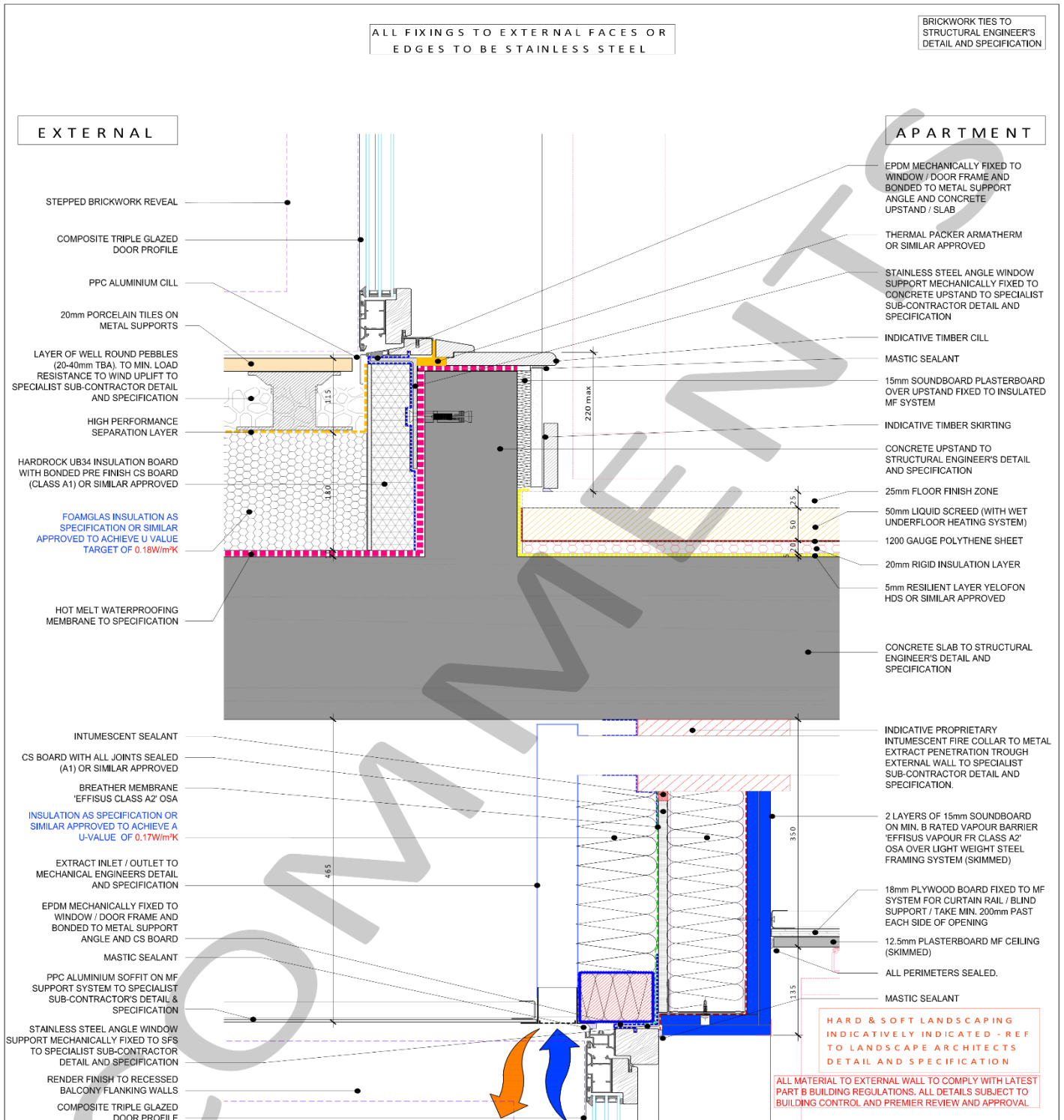
Video entry is also installed in your home which allows you to let visitors into the building. The video entry system allows you to see, hear and speak to any visitor at the door stations. This system is integrated with the Net 2 access control system which allows you to release the door locks remotely, to allow people into the building.

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Floors

Your floor has been built using:





5 BLOCK A - TYPICAL EXTERNAL DOOR CILL DETAIL AT ROOF LEVEL (INTERNAL STEP TO TERRACE)

REVISION NOTES		
C01	200316	JK CONSTRUCTION ISSUE
C02	200707	JK AMENDMENTS TO CONCRETE STRUCTURE FRAME CONNECTIONS AND BALCONY FINISH
C03	200730	JK NOTES REVISED

6 5 VVRFDWV / VJ
 No part of this drawing may be reproduced without written consent.
 All contractors must visit site and be responsible for taking and checking all dimensions relating to this work.
 Do not scale from this drawing.

CONSTRUCTION		
 ARDMORE CONSTRUCTION LTD. 6 WYNN STUDDIOS, PARKWAY ROAD, GORDON, N. H. 7 6B TEL: 0161 444 0100 www.ardmoregroup.co.uk		
PROJECT / DRAWING TITLE MAKE / FEC HORNSEY TOWN HALL		
DRAWING TITLE BLOCK A - DETAIL BA46 TYPICAL EXTERNAL DOOR CILL DETAIL AT ROOF LEVEL (INTERNAL STEP TO TERRACE)		
DATE / DRAWN BY 1712 JK	SCALE 1:5 @ A3	REV C 03
PROJECT / DRAWING NO 3596-KDS-BA-XX-DR-A-21-7046		

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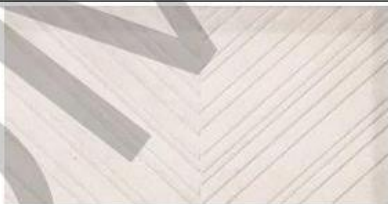
It has been finished using:

Chevron Timber Floor 14mm board thickness Warm tone chevron timber floor 350mm x 90mm Angle - 60 degrees		Living / Kitchen	FL - 801
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The color of the carpet is London Stone, FL-651

Bedroom carpet: Clarendon

Bathroom Floor Tile Gubi Floor tile Light Natural (DLGF 01) 900mm x 300mm Grout colour to match tile		Bathrooms	FL - 701
Chevron Bathroom Wall Tile Gubi Chevron Wall tile Light (DLGW 01) 900mm x 300mm Grout colour to match tile		Bathrooms	LIN - 601
Plain Bathroom Wall Tile Gubi Plain Wall tile Light Natural (DLGF 01) 900mm x 300mm Grout colour to match tile		Bathrooms	LIN - 602

Regular maintenance will protect the appearance and durability of the floor. See 5a on page 31 for tips on maintaining your floor.

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Ceilings

Your ceiling is a plaster board ceiling and you should redecorate it, when necessary, with white emulsion using a painting roller. The ceiling was built using a GTEC metal furring suspended ceiling system MF and was boarded using standard GTEC board to all areas apart from the bathrooms as these are classed as wet areas. The boarding used in bathroom are GTEC Moisture Board.

The panels can be cleaned using a damp cloth. For stubborn stains a mild non-abrasive detergent may be used. The panel can then be lightly buffed using a dry cloth.

Can be overpainted to match the surrounding areas. Prior to overpainting the surfaces should be clean and dust free also free from other contaminants.

To further improve 'keying' it may be considered beneficial to apply a light 'sanding' to the panel prior to overcoating.

Walls

Your property was built using – Masonry Cavity Construction

Masonry-cavity construction has an outer wall of bricks (finished with cladding or render) and an inner layer constructed with reinforced concrete frame to support the roof and floors.

Your internal walls are built from partition panels and are finished with plasterboard. All internal walls are dry lined partitions which can be easily adapted in the future if required.

Party walls are designed to reduce the sound passing through them and provide a fire barrier.

Kitchen Range

Chevron Timber Floor 14mm board thickness Warm tone chevron timber floor 350mm x 90mm Angle - 60 degrees		
--	--	---

Sanitary Fixtures And Fittings, Including Taps

SAN - 002 16532000 S HANSGROHE AX MONTREUX 3TH WALL MOUNTED BASIN MIXER SPOUT 165-225MM CHROME



SAN - 002 10303180 S HANSGROHE AX CONCEALED PARTS FOR WM BASIN MIXER



SAN - 400 90090600300 S KALDEWEI 3159 PURO UNDER COUNTER WASH BASIN 460x385MM EASY CLEAN WHITE



SYPHON FOR BASIN (BY OTHERS) TBC IF REQUIRED

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SYPHON FOR BASIN (BY OTHERS) TBC IF REQUIRED

SAN - 400 50100000 S HANSGROHE PUSH OPEN BASIN WASTE CHROME



SAN - 400 07002500 S HG BASIN WASTE ADAPTER



WC SETUP

SAN - 003 1VSS50R+5KI S CATALANO SFERA 50 PAN WH WHITE NEWFLUSH WC 500X350MM



SAN - 003 CA5SCSTP00 S CATALANO SOFT CLOSE SEAT WHITE (SLIM) QUICK RELEASE HINGES

SAN - 004 111.061.00.1 S GEBERIT DUOFIX FRAME FOR WALL HUNG WC WITH OMEGA CISTERN HEIGHT 112CM - HEIGHT TBC?



SAN - 004 115.080.KH.1 S GEBERIT OMEGA 30 DUAL FLUSH PLATE - CHROME



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SHOWER SETUP

SAN - 001 16572000 S HANSGRÖHE AX MONTREUX EXPOSED SHOWER PIPE - CHROME



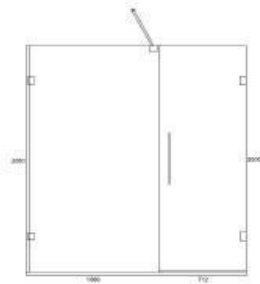
SAN - 005

S MAJESTIC RIO CASE 1 FRAMELESS DOOR HINGED FROM WALL WITH INLINE
PANEL -DP **1600X2000MM** STANDARD ADJUSTMENT SIZE: 1568 - 1586mm



SAN - 005

S MAJESTIC RIO CASE 1 FRAMELESS DOOR HINGED FROM WALL WITH INLINE
PANEL -DP **1800X2000MM** STANDARD ADJUSTMENT SIZE: 1768 - 1786mm



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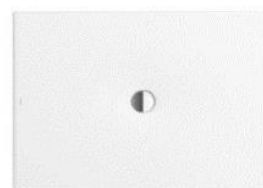
36360001272 S KALDEWEI CAYONPLAN 2276-1, HEAVY GAUGE ENAMELLED STEEL SHOWER TRAY, SIZE: 1600x800mm **ANTISLIP FINISH: SECURE PLUS**, EASY CLEAN FINISH: WITHOUT COLOUR: SEA SHELL CREAM MATT (728)



SAN - 300 53000014000 S KALDEWEI ADJUSTABLE SHOWER TRAY FOOT FRAME FR5300 150/180 (ESR II LEVEL INSTALLATION SYSTEM FRAME NOT COMPATIBLE)



49960001272 S KALDEWEI SCONA 996, HEAVY GAUGE ENAMELLED STEEL SHOWER TRAY, SIZE: 1800X800MM **ANTISLIP FINISH: SECURE PLUS** EASY CLEAN FINISH WITHOUT COLOUR: SEA SHELL CREAM MATT (728) (SIZES IN S2 (A), S2 (B) M, S2 (a) & S2 (a) m APPEAR TO BE 1800MM)



SAN - 300 64000050000 S KALDEWEI ESR II LEVEL ACCESS INSTALLATION SYSTEM FRAME WITH DRAIN OFF TO WASTE CONNECTION AND SEALING KIT SIZE: 1800x800mm



SAN - 300 68777260099 S KALDEWEI SHOWER TRAY WASTE FITTING KA90 UK (HO) INC PF 50/40 REDUCER AND HAIR CATCHER



SAN - 300 68777259271 S KALDEWEI SHOWER TRAY WASTE COVER KA90 (NEW) - SECURE PLUS FINISH



SAN - 300 68767572000 S DWADS KALDEWEI SHOWER TRAY SOUND ABSORBING PAD SET DW-ADS SET CONSISTS OF 4 NO 250x250mm SOUND- ABSORBING ADHESIVE PADS



68972049000 S KALDEWEI SEALING KIT- FLOOR LEVEL SHOWERING, 1 x sealing tape WDB 6.2m, 2 x wall corner pieces, 4 x multifunctional corner pieces



SAN - 500 42838000 S AX UNIV. ACCESSORIES SHELF 300MM CHROME



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WETROOM FOR **SOLID/CONCRETE** FLOOR BUILD UP FLOOR BUILD UP TBC?
TIMBER FLOOR IN *OPTIONS* REFER TO WETROOMS DOCUMENT FOR THESE



BATH SETUP

SAN - 103 27510001000 S KALDEWEI 751 CAYONO 180X80 NTH - NO GRIPS 170 LITRES (DRAWING TO BE SIGNED OFF FOR 170L)



SAN - 103 68972052000 S KALDEWEI SEALING KIT FLEX FOR BATHTUBS & SHOWER TRAYS



SAN - 103 58317000000 S KALDEWEI LEGSET



SAN - 105 S MAJESTIC GENOA BATH SCREEN 800X1500MM CHROME FINISH HANDING TBC & 12 WEEK LEAD TIME



SAN - 103 58143000 S HG COMPLETE SET FLEXAPLUS WASTE AND OVERFLOW SET CHROME



SAN - 103 07002501 S BATH WASTE ADAPTER



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SAN - 102 16540000 S HG AX MONTREAU WALL MOUNTED BATH MIXER CHROME



SAN - 101 27424000 S HG RAINDANCE C 240 AIR OVER HEAD SHOWER WITH ARM 383 CHROME



SAN - 106 16800000 S HG AX MONTREAU RECESSED ONE WAY VALVE AND SHUT OFF



SAN - 106 01800180 S HG IBOX CONCEALED PART



SAN - 203 PHCOFSB15(S CP HART CONISTON BATH 1500X820MM INTEGRATED OVERFLOW GLOSS WHITE

PRICE FOR LOWERED OVERFLOW X 4 @ 170 LITRES



SAN - 203 sABECBOF S BATH WASTE KIT SLOTTED CLICK CLACK CHROME

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SAN - 202 16547000 S HG AX MONTREUX FREESTANDING BATH SHOWER MIXER CHROME



SAN - 202 16549180 S HG AX MONTREUX BASIC SET FOR 16547



ACCESSORIES

SAN - 104 41713000 S HG LOGIS GRAB RAIL 300 mm **QUANTITIES TBC**



SAN - 006 41716000 S HG LOGIS TOWEL RAIL 600 mm **QUANTITIES TBC**



SAN - 501 &
SAN 502 40517000 S HG LOGIS SPARE ROLL HOLDER



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Paint Colours

Your home has been painted with Crown Trade. Your doors, internal and external are painted with Crown Trade Fast Flow Quick Dry Sating RAL-9010 and RAL-7022. The bathrooms walls and ceiling are painted with Crown Trade Clean Extreme Stain Resistant Scrubbable Matt -RAL-9001. Living room walls and ceiling are painted with Crown Trade Cover Matt – RAL 9010.

To allow the plaster in your home to dry out completely, it has been decorated with special paint that allows air and moisture to pass through it. Drying out can take up to 12 months. During this time, do not redecorate your home.

We are not liable for any faults that arise because of you redecorating during this 12-month period.

Sustainable Urban Drainage Systems

Urban drainage systems collect rainwater and direct it back to natural water sources, usually a river. In the countryside this happens naturally as rain soaks into the ground and then runs back to the rivers. However, in built-up areas such as London, rain cannot soak into the ground so it must be collected in drainage systems.

The increasing number of buildings in London, combined with increased levels of rain due to climate change, mean that rainwater needs to be carefully managed. When rainwater is diverted to rivers too quickly, the rivers can overflow and cause flooding.

Your new development has been built with a sustainable urban drainage system (SUD system). An SUD system is an alternative to conventional piped ways of managing surface water. They aim to imitate the way rainwater drains naturally on land.

The benefit of SUD systems is that they:

- reduce the risk of flooding.
- protect or improve water quality, as rainwater is not polluted as it is returned to the river
- provide an attractive habitat for wildlife.

All maintenance and operation of this system will be taken care of by the Building Owner and there is no action that you will need to take. If you notice any issues or have questions regarding the strategy that has been implemented, contact Far East Consortium Limited 020 3370 6804 Direct.

Timber

Timber is a natural product and so the colour and grain can vary. When wood, especially light varieties, is exposed to natural light, its colour will mellow and develop subtle variations

All doors are painted and should be cleaned only using a cloth when is necessary (do not use solvents). The internal and external are painted with Crown Trade Fast Flow Quick Dry Satin – RAL-7022.

LOOKING AFTER YOUR HOME

Floor Coverings

Vacuum cleaners can be used on all floor surfaces but be careful that they do not scratch the floor.

You can clean your kitchen floor with a damp cloth or mop. If you spill anything on the floor, wipe it up immediately. Be careful with spray polish and other silicone-based products as they may make your floor very slippery.

- You can protect your flooring by using felt pads or castor cups under furniture and avoiding dragging heavy objects over the floor.
- Do not allow cigarettes, matches or other hot items to meet the floor.

Kitchens

Always use a chopping board and never put hot pans directly onto the worktops.

All visible edges of worktops are sealed with a waterproof sealant however, you should wipe up all spills, especially harsh liquids, food colourings and concentrated juices, immediately.

When cleaning, it is important to use the appropriate product to avoid damage. Check the packaging of cleaning products before using them on any surface.

- Clean acrylic fittings regularly, but don't use abrasive cleaning products, such as cream cleaners, as acrylic will scratch.
- You can occasionally use abrasive cleaning products on ceramic fittings.
- Do not leave bleach to stand in stainless steel sinks.

Wall tiles

Avoid using abrasive cleaners and strong cleaning agents (for example, bleach) on wall tiles. Day-to-day cleaning with a damp cloth and warm, soapy water should be all that is needed. After the defect's liability period, redecorate when necessary to maintain an acceptable and satisfactory finish.

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Windows

Some of your windows are fixed, so you must not try to clean the outside of them. Far East Consortium Limited Direct can tell you more about how to get your windows cleaned.

Do not use abrasive cleaners on the glass or window frame as they will damage the surface and destroy the glazing seal. Instead, wash down windows and frames with warm water and a mild detergent at least every six months.

Wipe off condensation immediately to prevent mold from growing. If mold does grow, wipe the area with a suitable household cleaner.

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Loss Of Heating

If you lose the heating in your home, contact Far East Consortium Limited 020 3370 6804 Direct.

If the loss of heating is caused by misuse or damage you are responsible for, you will have to pay the cost of any necessary repair.

Loss Of Hot Water

If you have no hot water in your home, contact Far East Consortium Limited 020 3370 6804 Direct.

If the loss of hot water is caused by misuse or damage you are responsible for, you will have to pay the cost of any necessary repair.

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DIY

Please be considerate about the time of day that you carry out your DIY and tell your neighbours before you start a noisy job.

DIY causes a significant number of accidents in the home. If you have any concerns about the work you want to do, you should contact a suitably qualified tradesperson.

Wall Fixings

We strongly recommend that you do not fix anything to your wall for 12 months while your walls are drying out. We are not liable for any faults caused by you fixing anything to your wall during this 12-month period.

Beware of wiring and pipes within the wall. Never nail or drill anything into the wall directly above or below a switch or socket, or within 300mm (approximately 12 inches) of either side of a switch or socket. You can buy wiring and pipe detectors from most DIY and hardware stores and you should use these before drilling or nailing into a wall.

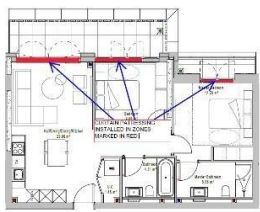
Take care when fixing anything to plasterboard walls. You can fix very light items to them using appropriate adhesives but be careful – the bond can be very strong and if you decide to remove the item in the future you may damage the paintwork or the plasterboard.

Small pictures and other light items can be hung on all types of walls using steel picture hooks or masonry nails. Heavy pictures and mirrors should not be hung on picture hooks. Instead use a special wall plug fixing specifically designed for fixing to plasterboard, timber, or masonry walls. The special wall plugs are available from hardware and DIY shops.

If you are fixing anything to wall tiles, put the wall plug in the grouting and not through the tile.

Electrical wiring could run in any position in a ceiling or under a floor. Before fixing anything to walls, floors, and ceilings, always check for buried pipes and cables using a detector available from DIY stores.

Doors or windows not opening or closing



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Window/door in closed position



Rotate the handle 90 degrees for side hung position

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Rotate the handle 90 degrees for tilt position



Rotate the handle 180 degrees for turn position



Rotate the handle 90 degrees for ventilation position.

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Rotate the handle 180 degrees for side hung position.

Operating the KISI child safety restrictor
(For non-lockable handles)



To operate the handle, press the two "buttons" on the side (as pictured above) and rotate the handle whilst pressing the buttons.

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Outward opening door (LUD)



Door in closed and secured position. The handle must be turned to the downwards position to engage the locking mechanism and hold the door securely in the closed position. If the handle is not turned downwards the door will not be secured.

To open the door, turn the handle upwards 90 degrees and then push the door outwards.



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The door has an inbuilt friction stay that will lightly hold it in the open position when activated. To activate this function, open the door to the desired position then rotate the handle down 90 degrees and leave it in this downwards position (as shown in picture 3). To disengage the friction stay raise the handle back up 90 degrees to the open position (as shown in picture 2).

The friction stay is only designed to lightly hold the door in position and will be overdriven if mild pressure is applied. Examples of mild pressure would be a person physically pushing on the door or if the door is held open during windy conditions.

exaprojects



Before closing the door, the friction stay must be released. To release the friction stay raise the handle up through 90 degrees to the open position (as shown in picture 4). The door can now be pulled into the closed position. Once closed the handle must be turned back through 90 degrees to the downwards position (as shown in picture 1). This engages the locking mechanism and holds the door securely in the closed position. If the handle is not turned downwards the door will not be secured. If you cannot open or close a door or window, do not try to force it. Contact Far East Consortium Limited Direct instead. If the problem means that your home is not secure, contact Far East Consortium Limited Direct immediately.

See page 4 for Far East Consortium Limited Direct's contact information.

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Sustainable DIY

Sustainable DIY is about:

- reducing the need to buy expensive products
- avoiding products that could harm yourself and the local environment
- choosing to buy materials that have been made or grown in a sustainable way (by not using up too many natural resources) and that help local economies (by using materials that are sourced locally).

When you need to carry out DIY work at home, have a look through the following sections to make sure you choose the right products. You may find you can save yourself a bit of money while doing so.

Re-use materials and reduce the use of new materials

Buying a new item can seem like a quick fix, but with a little bit of effort you can soon save money by re-using items. Rather than a whole replacement, perhaps only a certain part of the product needs fixing. Or maybe someone is selling (or even giving away) what you are looking for. To learn more about this, see section 7, 'Re-using items', on 52 p.

Choosing products that do not harm the environment

Try to avoid using toxic products as they will cause pollution and damage to the local environment. You should avoid using the following items.

- **PVC**, sometimes known as 'Vinyl', is used in a wide range of products, including wallpapers, waste pipes and packaging however, despite its popularity it is not degradable which means it is bad for the environment. Substances added to flexible PVC materials have also been shown to cause cancer in animals. You can look out for PVC products by looking for the following label (despite looking like a recycling sign, this means this product is not commonly recycled):



- **MDF** Medium density fiberboard is a popular DIY material. However, it contains formaldehyde, which is toxic, carcinogenic, and allergenic (can cause allergic reactions). The dust produced when cutting and sanding causes dangerous irritation to eyes and lungs. Levels of EU produced MDF contain safe levels of formaldehyde; however, caution must still be taken when cutting or working with MDF. When working with MDF; you should always wear respiratory protective equipment, which can be purchased in most DIY shops, work in a well-ventilated area and ensure all dust is cleared up with a vacuum cleaner. Use a 'no added formaldehyde' MDF board or low-emission MDF board if practicable to do so.
- **Wood preservatives** – these can be harmful to the environment and toxic to many animals and plants. You should try to minimise your use of solvent-based preservatives. Regularly review the preservatives you use and where possible use water-based alternatives
- **Paint strippers, coating removers, brush cleaners** – these products usually contain harmful solvents. Safe, water-based alternatives are available. You can seek advice about this in your local DIY shop.
- **Paints containing VOCs (volatile organic compounds)** – these are harmful to humans, wildlife, plants and even building materials. Many paints now carry VOC labels to let you know there is VOC in the

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paint. Always check the VOC rating before you buy. For paints to be used indoors, also look for the European Ecolabel, which indicates they do not contain lead, mercury, or other heavy metals and are manufactured with lower solvent emissions and fewer waste byproducts.

Dispose of leftover DIY materials responsibly. Contact your local authority for advice on disposing of oil, paint, chemicals, batteries, fiberglass resin, glue, solvents and other toxic DIY waste.

Sustainable Timber

For new furniture made from timber, try to buy products which have made using sustainable timber. Sustainable timber has come from forests that are managed by replacing trees that have been cut down. Local people and wildlife are also protected.

There are now a number of independent certification schemes than allow you to choose timber from well-managed forests. Some of the widely recognized schemes are listed below.

CSA	Canadian Standard's Association
FSC	Forest Stewardship Council Certification Scheme
MTCC	Malaysian Timber Certification Council
PEFC	Program for the Endorsement of Forestry Certification
SFI	Sustainable Forestry Initiative

WASTE AND RECYCLING

WHY WE SHOULD RECYCLE

Almost everything can be recycled these days, but how does recycling keep costs down?

Putting rubbish into landfill is very expensive. For every 1 tonne of rubbish, your council must pay around £90. A borough such as Islington will produce about 100,000 tonnes of rubbish every year. That's about £9m of council tax money that is spent throwing stuff in the ground.

Recycled rubbish has value. The rubbish you put out for recycling will be sold to be reprocessed. This dramatically reduces the council's costs. You probably won't see any of this saving directly but, with the reductions in council budgets, helping to reduce waste-disposal costs could be the difference between keeping a library or Sure Start Centre open or losing it.

HOW TO RECYCLE YOUR WASTE

This part of the guide provides details of arrangements within your home, and within the local area, to help you recycle as much of your household waste as possible.

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In one of your kitchen cupboards there is a waste bin split into sections. This allows you to separate recyclable materials from the waste to go to landfill. Once the recycling bin in your home is full, empty it into the designated recycling bins in the communal bin store.

Your local council is responsible for taking away your waste. In most blocks this means emptying the communal bins in your waste storage area. You are responsible for taking waste from your home to the bins and using the communal bins correctly. On page 69 there is a map showing where your nearest communal recycling bin is.

Do not put your recycling in a black bag. Black bags will lead to the communal recycling bins being rejected by the council. You should have been provided with clear recycling bags from your council. If not, you can buy these from most local supermarkets.

WHAT YOU SHOULD RECYCLE

Put the following materials in your kitchen recycling bin.

PLASTIC Plastic carrier bags, milk bottles, squash bottles, mineral water bottles, Washing up liquid bottles, Fabric conditioner bottles, Sun cream bottles, Shampoo bottles, Bleach bottles, Plastic trays, Fruit punnets, Plastic pots, Yoghurt pots, Plastic tubs, Margarine tubs	 cardboard plastic packaging
All tins and cans should be rinsed Food tins, Baked bean tins, Pet food tins, Drink cans, Cola cans, Beer cans, Aerosols (only when empty)	 food and drink cans
All bottles and jars should be rinsed, and the lids should be removed. Wine bottles, Juice bottles, Mineral water bottles, Jam jars, Pasta sauce jars.	 mixed glass all colours

Paper, Cardboard and Cartons

White office paper, Newspapers, Magazines, Junk mail, Envelopes (including those with plastic, windows, but not with padding), catalogues, telephone directories and Yellow Pages, shredded paper, cardboard boxes, cereal boxes, cardboard sleeves from food, packaging, greetings cards, gift wrap (non-metallic), cardboard tube from toilet rolls, drink cartons (such as 'Tetra Packs'), juice cartons, milk cartons.



FOOD AND GARDEN WASTE

The contents of each type of bin (green dry recycling, garden, food) are collected separately in different vehicles. Some of our vehicles collect more than one of these waste streams in separate compartments on the same vehicle. We recycle the contents of your recycling bin as long as it contains the correct materials. If any of it can't be recycled because it is not the right material or is spoilt by other waste, it may be taken to an energy-from-waste centre.

How to recycle food and garden waste

You can collect food waste in bin provided in your home. You will need to use biodegradable bags, which you can buy from most supermarkets.

Try to make sure you remove all packaging from your food waste, especially plastics.

You should collect the following items in your bin.

Food Waste	Bread, cakes and biscuits, cheese, coffee grounds, eggs including the shell, fish (no bones), fruit, meat (no bones), noodles, pasta, rice, tea bags, vegetables, approved compostable liners only
Garden Waste	Grass cuttings, hedge clippings, pruning's, leaves, flowers, small branches, and twigs (less than 3 inches / 8 cm thick)

LOCAL RECYCLING FACILITIES

You can also recycle electronic equipment, textiles, and batteries. You can take these items to the recycling bank at Western Road, Wood Green N22 6UG.

Many people do not know that items such as irons, toasters, mobile phones and clothes can be recycled. These items tend to sit in a cupboard or drawer and gather dust, when in fact they could be put to better use. For example, the electronic circuits in your broken iron can be recycled into new products. Recycled textiles can also be used to make new products.

However, these items are not always suitable for your kitchen recycling bin. They must be taken to specialist recycling banks. See the table below to find out which items can be recycled and where they can be taken.

Batteries		https://www.nlwa.gov.uk/places-to-recycle/haringey-western-road
Food waste and garden waste		https://www.nlwa.gov.uk/places-to-recycle/haringey-western-road
Liquids and chemicals Car oil, domestic oil, gas bottles, property hold cleaning materials, paints, varnishes, white spirit and so on		https://www.nlwa.gov.uk/places-to-recycle/haringey-western-road

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Textiles Clothes and shoes		https://www.nlwa.gov.uk/places-to-recycle/haringey-western-road
Waste electronics		https://www.nlwa.gov.uk/places-to-recycle/haringey-western-road
Tyres		https://www.nlwa.gov.uk/places-to-recycle/haringey-western-road
Printer cartridges		https://www.nlwa.gov.uk/places-to-recycle/haringey-western-road

LARGE, BULKY ITEMS

Your council has a bulky waste collection scheme for items like fridges, freezers, furniture, televisions, computers, mattresses and so on. Please contact your local council to arrange a collection. Your Estate Manager will let you know where you can leave bulky items for collection. Please do not dump them anywhere. This is considered fly-tipping, and the cost of clearing dumped bulky waste increases your service charges.

Before you arrange for your bulky items to be taken away by the council, you should consider whether they could be re-used.

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RE-USING ITEMS

The London Re-use Network is a network of charities working together to find new homes for good-quality furniture and appliances that are no longer wanted. They are willing to collect bulky waste such as the following.

- Furniture, including beds, cabinets, chairs, desks, sofas, storage units and tables
- Appliances, including cookers, dishwashers, fridges, freezers and washing machines
- Electrical items, including hi-fi equipment, lighting, microwaves and televisions
- IT equipment, including computers, laptops and monitors
- Textiles, including clothing, bedding, carpet tiles and rugs
- DIY and gardening items, including garden equipment and furniture, paint and tools
- Children's equipment, including cots, highchairs, prams and toys
- Leisure equipment, including bicycles, exercise equipment and musical instruments
- Homeware, including kitchen items, mirrors and pictures

Alternatively, someone else's old furniture may be exactly what you have been looking for. Across London there are several re-use shops where you can buy re-conditioned items at a good price. For information on how you can have re-usable waste collected, or to find re-use shops, look on the website at www.londonreuse.org.uk.

We also recommend using Freecycle. Freecycle works on a similar principle as the London Re-use Network. Items which are in good condition, but unwanted by the owners, are advertised on the website. All you have to do is collect them. Have a look on the website at www.freecycle.org.uk/groups/unitedkingdom to find your local Freecycle group.

For more information on the benefits of items being re-used, have a look on the website at www.recyclenow.com/re-use/why-re-use.

HAZARDOUS WASTE

Waste such as asbestos, chemicals, petrol and pesticides need to be handled very carefully.

To arrange a collection, call the Corporation of London on 0207 332 3433. You can also call your local council to see what your options are.

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JUNK MAIL

If you would like to stop receiving junk mail, or mail for a previous resident, you can register your address online at www.mpsonline.org.uk/mpsr/.

The Mailing Preference Service (MPS) is a free service to remove your name and home addresses in the UK from lists companies use to send you junk mail. It is supported by Royal Mail, all directly involved trade associations and the Information Commissioner's Office.

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RESPONSIBLE PURCHASING

Many of the products we buy can have a negative effect on the environment, as well as on the local economy and the working conditions of the people who have made these products.

There are many schemes to help us make informed choices and to support the local economy.

LOCAL AND SEASONAL FOOD

A good way to support your local economy, while doing your bit for the environment, is to try to buy food which is seasonal and local.

Food from around the world has travelled in many ways (air, sea, road, and rail) to get to local supermarkets. For example, strawberries, which have a relatively short season in the UK, are supplied to supermarkets all year round, meaning they have to come from places such as Holland, Spain, or the USA. They may have travelled thousands of miles by air to reach our tables, meaning large amounts of green property gases are released. Eating food which is in season and grown locally means you can avoid adding to these green property gases. Most importantly you will be supporting your local farmers and the local economy.

To find out what fruit and vegetables are in season now have a look on www.eatseasonably.co.uk

Many supermarkets will show where fruit and vegetables are grown. This will help you to pick locally grown foods.

FAIRTRADE

Another way to shop responsibly is to buy food which meets 'sustainability' standards.

We encourage buying locally grown foods, but some products will inevitably have come from around the world (for example, tea and coffee). Your choices can make sure that companies supplying products grown abroad have met standards which support local economies, avoid poor working conditions and protect the environment.

The following logos on food packaging show that suppliers have met the fair standards for farmers and their communities.



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SAFETY AND EMERGENCIES

SAFETY

We are not responsible for the security of bicycles and other equipment kept in bicycle stores. You are responsible for securing any equipment you put in them.

INSURANCE

We insure the building, but not the contents of your home. We recommend you take out contents insurance to protect your belongings.

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EMERGENCY SERVICES

Contact information for your local emergency services and medical centres is given below.

Please remember if you have an emergency dial 999.

Your nearest....	Location	Telephone
Police station	Hornsey Police Station 71-91 A103, London N8 9BE	General enquiries: Emergency: 999
Fire station	Hornsey Fire Station, 108 Park Ave S, London N8 8LS	General enquiries: Emergency: 999
Ambulance service	Edmonton Ambulance Station H3, Windmill Rd, London N18	General enquiries: Emergency: 999
Hospital	Whittington Health, Magdala Ave, London N19 5NF	General enquiries: Emergency: 999
Medical centre	Crouch End Health Centre, 45 Middle Ln, London N8 8PH	General enquiries: Emergency: 999
GP practice	The Vale Practice, 50 Park Rd, London N8 8SU	General enquiries: Emergency: 999
Dentist	The Middle Lane Dental Practice, 34 Middle Ln, London N8 8PL	General enquiries: Emergency: contact your local practice
Vet	Hill's Veterinary Practice Ltd, 178 Park Rd, London N8 8JT	General enquiries: Emergency: contact your local practice

FIRE SAFETY

Follow the guidance below to reduce the risks associated with a fire in your home.

Smoke and heat alarm

Heat and smoke detectors have been installed in your home.

- Where your detectors are battery powered, test the batteries every week.
- Change the batteries once a year.

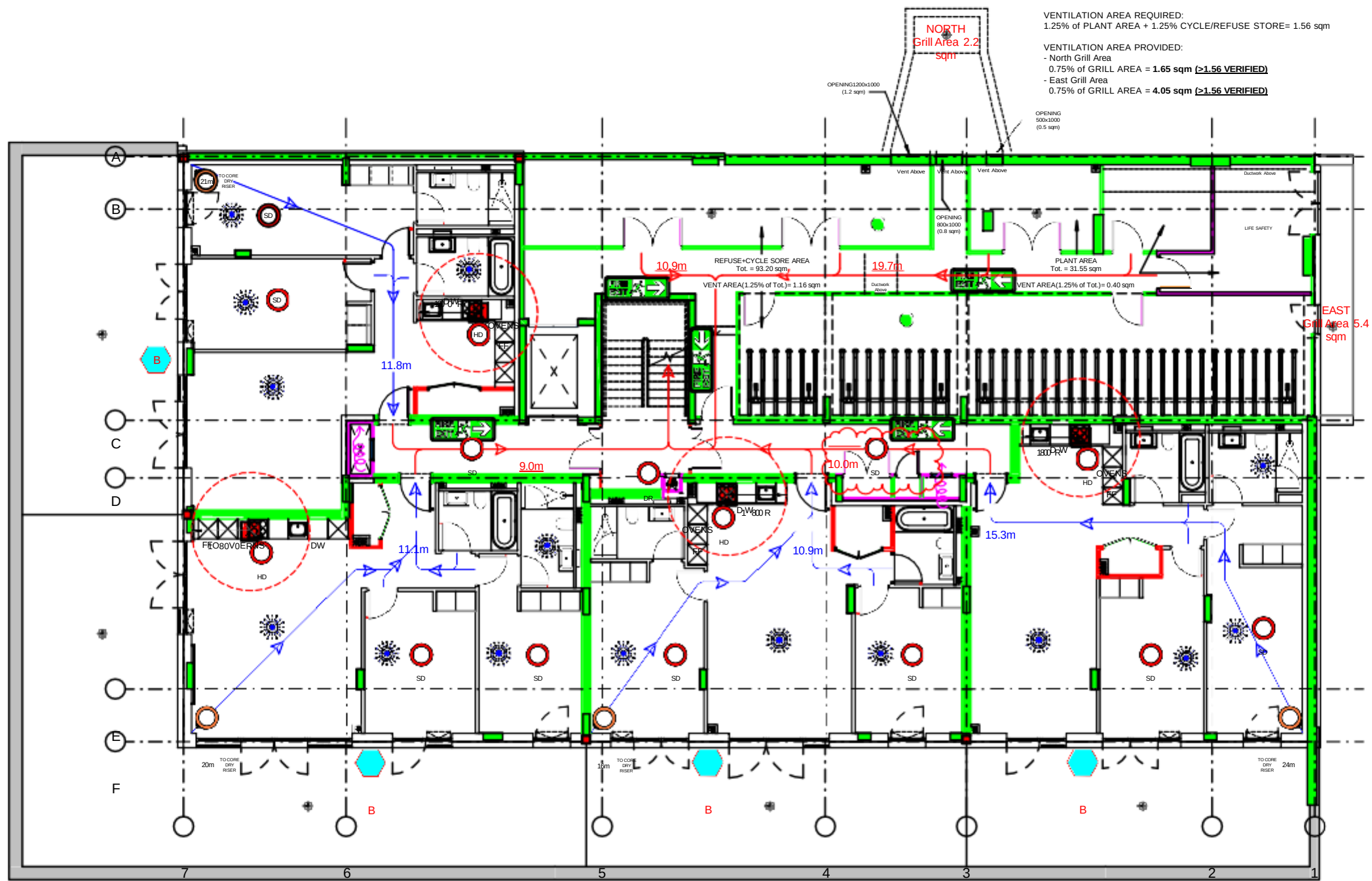
**If there is a fire, don't
tackle it yourself, call
999.**

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- Never remove the batteries.
- Clean your alarms regularly to remove dust.

Escape route

- Don't tackle the fire yourself.
- If there is a fire, call 999.
- Plan a route to escape from your home if there is a fire.



1 FIRE STRATEGY - Lower Ground
1 : 100

	PARTY WALL FIRE BREAK
	DRY RISER INLET POSITION
	DRY RISER OUTLET POSITION
	STAIRCASE AOV (1.0m2)
	POSITION AND NUMBER OF SMOKE DETECTORS TO M+E DRAWINGS AND SPECIFICATIONS
	POSITION AND NUMBER OF HEAT DETECTORS TO M+E DRAWINGS AND SPECIFICATIONS
	FIRE FIGHTING DOOR / GATE OVERRIDING KEY (GERDA LOCK OSA)
	COOKER LOCATION INDICATING (1800 ZONE)
	BALCONY BEACON/ FLASHING – IN ACCORDANCE WITH BS 5839-6
	FD 30 FIRE DOOR
	FD 30S FIRE DOOR
	FD 60 FIRE DOOR
	FD 60S FIRE DOOR
	FD 120S FIRE DOOR
	FD 20 (20MIN FIRE DOOR WITH INTUMESCENT STRIP TO LEADING EDGE)
	30 MINS FIRE RATED WALL
	60 MINS FIRE RATED WALL
	120 MINS FIRE RATED WALL
	ESCAPE LENGTH TO FRONT DOOR (20m MAX)
	PRIMARY DIRECTION OF ESCAPE
	OPEN PLAN BEDROOM ESCAPE LENGTH
	FIRE ESCAPE SIGNAGE
	FIRE HOSE FROM DRY RISER OUTLET MAX LENGTH OF HOSE IN METERS (45m MAX)
	FIRE SPRINKLER (POSITION INDICATIVE OF SPRINKLER SYSTEM TO BE INSTALLED IN THE ROOM)
	IMPULSE FAN
	MECHANICAL SMOKE EXTRACT

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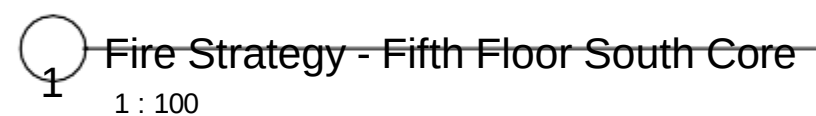
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FOR CONSTRUCTION

PROJECT / DRAWING TITLE	Hornsey Town Hall
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DRAWING TITLE
RESIDENTIAL BLOCK B
Fire Strategy - Lower Ground

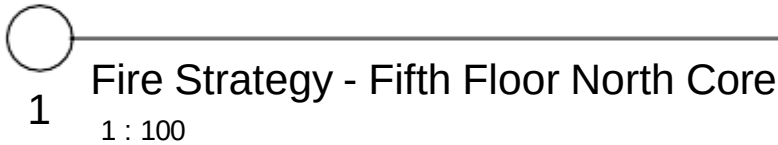
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PROJECT NO 3596-KDS	ZONE -BB-	LEVEL B1-	TYPE DR-	ROLE CLASS DR. NO. A- 68-2000	REV C2	



Fire strategy to be read in conjunction with latest version of: 622399-MLM-ZZ-XX-RP-YF-001-Hornsey Town Hall Fire Strategy Report_Hornsey Town Hall Fire Strategy Report

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AS BUILT					
PROJECT / DRAWING TITLE Hornsey Town Hall					
DRAWING TITLE RESIDENTIAL BLOCK A Fire Strategy - L05 South Core					
DATE / DRAWN BY 20/12/17 MD				SCALE 1 : 100	
PROJECT NO 3596-KDS	ZONE BA- 05-	LEVEL DR- A-	TYPE 68-1013	ROLE CLASS DR. NO. REV C3	



Fire strategy to be read in conjunction with latest version of: 622399-MLM-ZZ-XX-RP-YF-001-Hornsey Town Hall Fire Strategy Report, Hornsey Town Hall Fire Strategy Report

The image displays two logos. On the left is the logo for Ardmore Group, featuring a stylized red and blue 'A' above the text 'Ardmore GROUP'. On the right is the logo for KDS Associates Ltd, featuring the text 'KDS ASSOCIATES LTD' in large, bold, serif capital letters, with 'DESIGN • ARCHITECTURE • MANAGEMENT • CONSULTANTS' in smaller, sans-serif capital letters below it.

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PROJECT / DRAWING TITLE Hornsey Town Hall									
DRAWING TITLE RESIDENTIAL BLOCK A Fire Strategy - L05 North Core									
DATE / DRAWN BY 20/12/17 MD								SCALE 1 : 100	
PROJECT NO		ZONE	LEVEL	TYPE	ROLE	CLASS	DR NO	REV	
3596-KDS		BA	05	DR	A	68	1012	C3	



1

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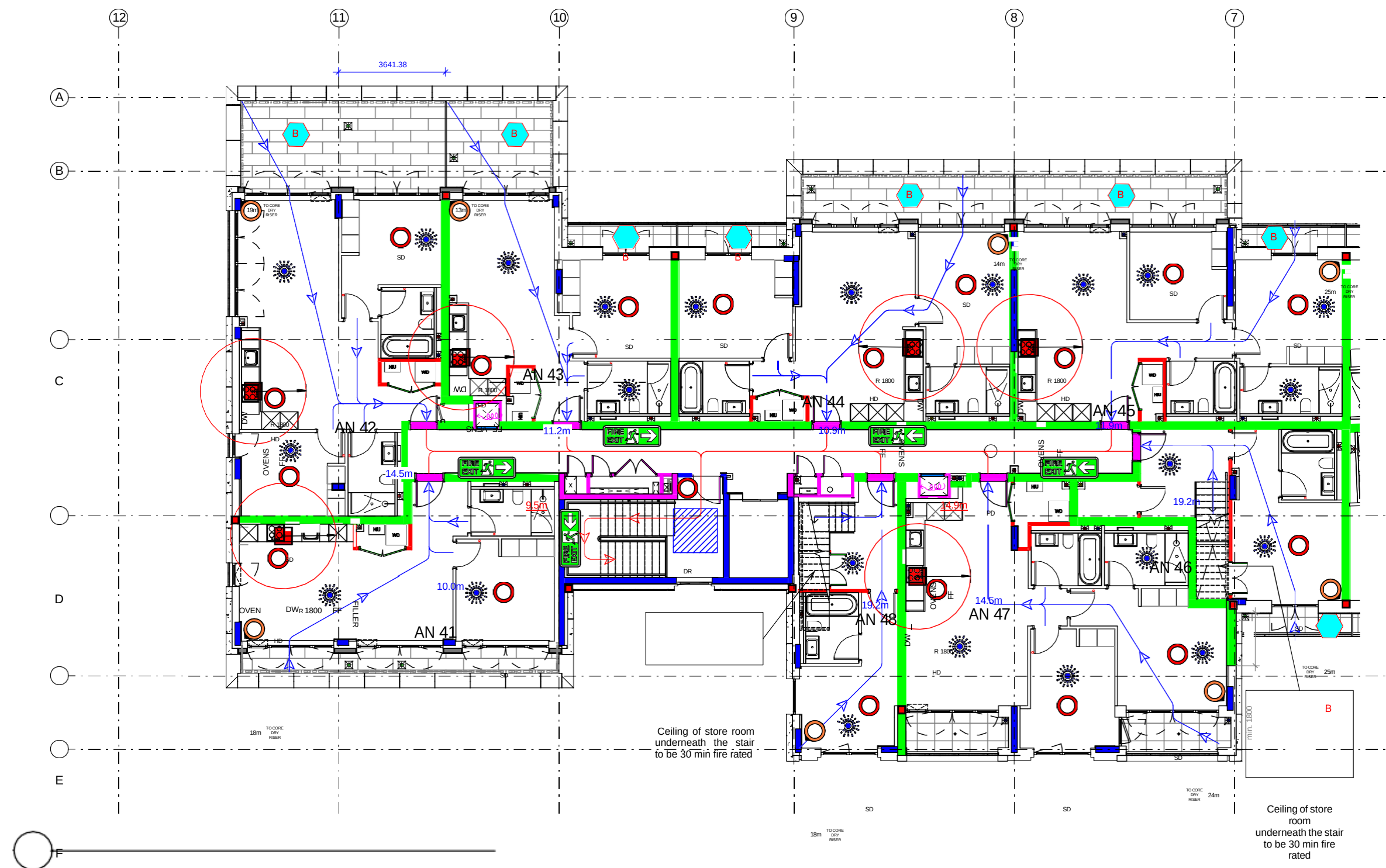
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DRAWING TITLE RESIDENTIAL BLOCK A Fire Strategy - L04 South Core									
DATE / DRAWN BY 20/12/17 MD							SCALE 1 : 100		
PROJECT NO	ZONE	LEVEL	TYPE	ROLE	CLASS	DR. NO.	REV		
3596-KDS	BA	04	DR	A	68	1011	C4		



1 Fire Strategy - Fourth Floor North Core
1 : 100

	PARTY WALL FIRE BREAK
	DRY RISER INLET POSITION
	DRY RISER OUTLET POSITION
	STAIRCASE AOV (1.0m ²)
	POSITION AND NUMBER OF SMOKE DETECTORS TO M+E DRAWINGS AND SPECIFICATIONS
	POSITION AND NUMBER OF HEAT DETECTORS TO M+E DRAWINGS AND SPECIFICATIONS
	FIRE FIGHTING DOOR / GATE OVERRIDING KEY (GERDA LOCK OSA)
	COOKER LOCATION INDICATING (1800 ZONE)
	BALCONY BEACON/ FLASHING – IN ACCORDANCE WITH BS 5839-6
	FD 30 FIRE DOOR
	FD 30S FIRE DOOR
	FD 60 FIRE DOOR
	FD 60S FIRE DOOR
	FD 120S FIRE DOOR
	FD 20 (20MIN FIRE DOOR WITH INTUMESCENT STRIP TO LEADING EDGE)
	30 MINS FIRE RATED WALL
	60 MINS FIRE RATED WALL
	90 MINS FIRE RATED WALL
	120 MINS FIRE RATED WALL
	ESCAPE LENGTH TO FRONT DOOR (20m MAX)
	PRIMARY DIRECTION OF ESCAPE
	OPEN PLAN BEDROOM ESCAPE LENGTH
	FIRE ESCAPE SIGNAGE
	FIRE HOSE FROM DRY RISER OUTLET MAX LENGTH OF HOSE IN METERS (45m MAX)
	FIRE SPRINKLER (POSITION INDICATIVE OF SPRINKLER SYSTEM TO BE INSTALLED IN THE ROOM)
	IMPULSE FAN
	MECHANICAL SMOKE EXTRACT

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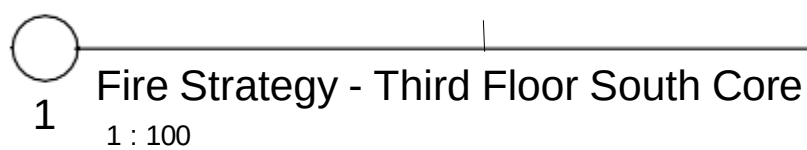


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PROJECT / DRAWING TITLE Hornsey Town Hall									
DRAWING TITLE RESIDENTIAL BLOCK A Fire Strategy - L04 North Core									
DATE / DRAWN BY 20/12/17 MD							SCALE 1 : 100		
PROJECT NO	ZONE	LEVEL	TYPE	ROLE	CLASS	DR. NO	REV		
3596-KDS-	BA-	04-	DR-	A-	68-	1010	C4		



Fire strategy to be read in conjunction with latest version of: 622399-MLM-ZZ-XX-RP-YF-001-Hornsey Town Hall Fire Strategy Report
Hornsey Town Hall Fire Strategy Report

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PROJECT / DRAWING TITLE Hornsey Town Hall									
DRAWING TITLE RESIDENTIAL BLOCK A Fire Strategy - L03 South Core									
DATE / DRAWN BY 20/12/17 MD							SCALE 1 : 100		
PROJECT NO	ZONE	LEVEL	TYPE	ROLE	CLASS	DR. NO.	REV		
3596-KDS-	BA-	03-	DR-	A-	68-	1009	C4		



1 : 100

Fire strategy to be read in conjunction with latest version of: 622399-MLM-ZZ-XX-RP-YF-001-Hornsey Town Hall Fire Strategy Report_Hornsey Town Hall Fire Strategy Report

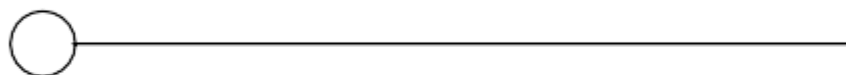
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DRAWING TITLE RESIDENTIAL BLOCK A Fire Strategy - L03 North Core									
DATE / DRAWN BY 20/12/17 MD							SCALE 1 : 100		
PROJECT NO	ZONE	LEVEL	TYPE	ROLE	CLASS	DR. NO.	REV		
3596-KDS-	BA-	03-	DR-	A-	68-	1008	C4		



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Fire strategy to be read in conjunction with latest version of: 622399 MLM ZZ XX RP YF 001

Hornsey Town Hall Fire Strategy
Report_Hornsey Town Hall Fire
Strategy Report

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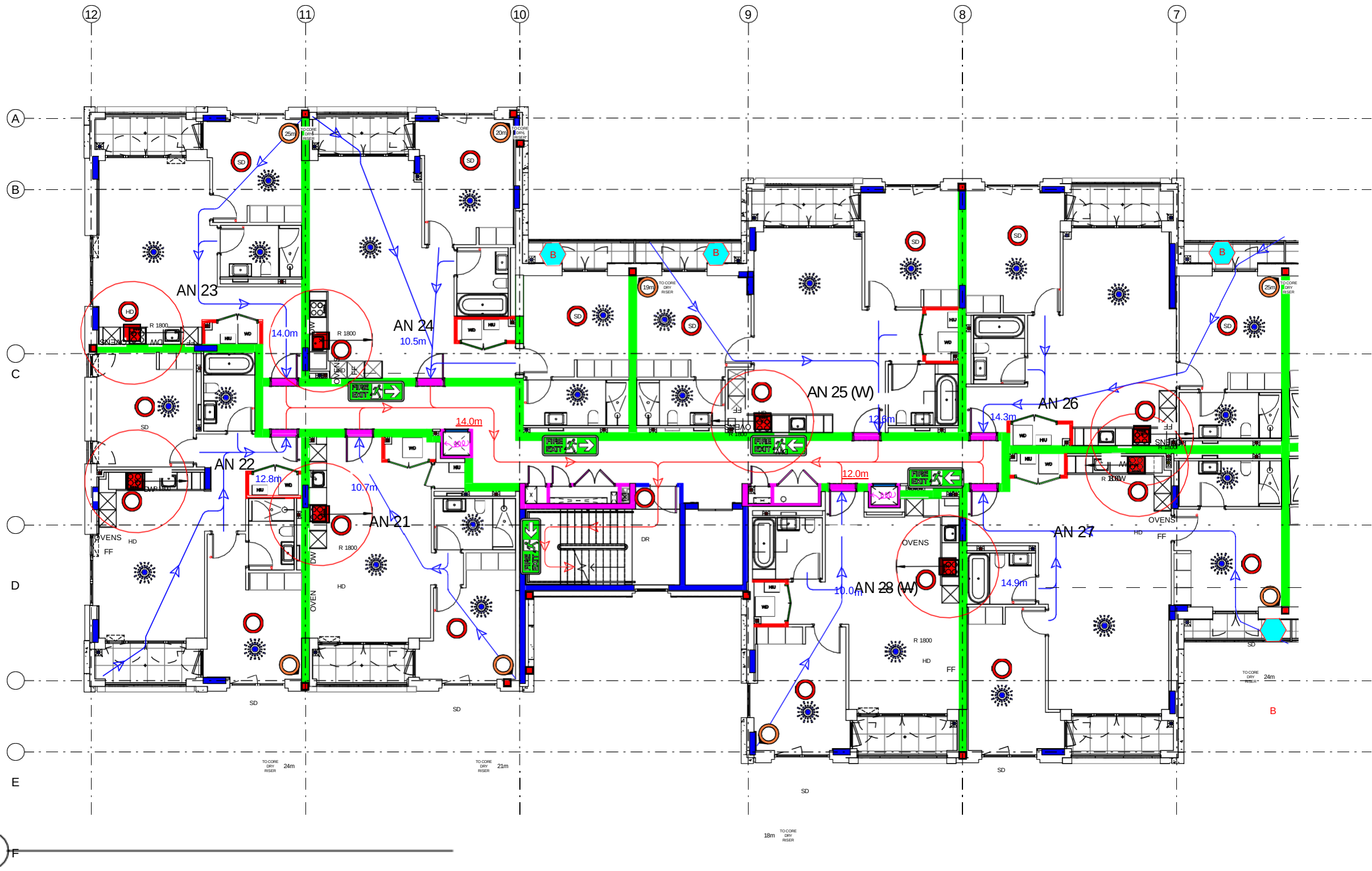
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PROJECT / DRAWING TITLE					Hornsey Town Hall	
DRAWING TITLE						
RESIDENTIAL BLOCK A						
Fire Strategy - L02 South Core						
DATE / DRAWN BY				SCALE		
20/12/17 MD				1 : 100		
PROJECT NO.		ZONE	LEVEL	TYPE	ROLE CLASS	REV
3596-KDS		BA-02	DR-A	68-1007		C4



1 Fire Strategy - Second Floor North Core
1 : 100

	PARTY WALL FIRE BREAK
	DRY RISER INLET POSITION
	DRY RISER OUTLET POSITION
	STAIRCASE AOV (1.0m ²)
	POSITION AND NUMBER OF SMOKE DETECTORS TO M+E DRAWINGS AND SPECIFICATIONS
	POSITION AND NUMBER OF HEAT DETECTORS TO M+E DRAWINGS AND SPECIFICATIONS
	FIRE FIGHTING DOOR / GATE OVERRIDING KEY (GERDA LOCK OSA)
	COOKER LOCATION INDICATING (1800 ZONE)
	BALCONY BEACON/ FLASHING - IN ACCORDANCE WITH BS 5839-6
	FD 30 FIRE DOOR
	FD 30S FIRE DOOR
	FD 60 FIRE DOOR
	FD 60S FIRE DOOR
	FD 120S FIRE DOOR
	FD 20 (20MIN FIRE DOOR WITH INTUMESCENT STRIP TO LEADING EDGE)
	30 MINS FIRE RATED WALL
	60 MINS FIRE RATED WALL
	90 MINS FIRE RATED WALL
	120 MINS FIRE RATED WALL
	ESCAPE LENGTH TO FRONT DOOR (20m MAX)
	PRIMARY DIRECTION OF ESCAPE
	OPEN PLAN BEDROOM ESCAPE LENGTH
	FIRE ESCAPE SIGNAGE
	FIRE HOSE FROM DRY RISER OUTLET MAX LENGTH OF HOSE IN METERS (45m MAX)
	FIRE SPRINKLER (POSITION INDICATIVE OF SPRINKLER SYSTEM TO BE INSTALLED IN THE ROOM)
	IMPULSE FAN
	MECHANICAL SMOKE EXTRACT

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REVISION NOTES			
NO.	DESCRIPTION	DATE	NAME
P1	Preliminary Issue	18/10/19	FF
C1	First construction issue	10/12/19	FF
C2	Issued for Construction	05/03/20	CM
C3	All riser doors changed from FD60 to FD60s fire rating	27/04/21	ZZK
C4	LAST CONSTRUCTION ISSUE FOR AS BUILT PURPOSES	09/05/22	FF

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AS BUILT

PROJECT / DRAWING TITLE Hornsey Town Hall									
DRAWING TITLE RESIDENTIAL BLOCK A Fire Strategy - L02 North Core									
DATE / DRAWN BY 20/12/17 MD							SCALE 1 : 100		
PROJECT NO	ZONE	LEVEL	TYPE	ROLE	CLASS	DR. NO.	REV		
3596-KDS	BA	02	DR	A	68	1006	C4		



1

Fire strategy to be read in conjunction with latest version of: 602209-M/M-ZZ-XX-RP-XE-0014

Fire strategy to be read in conjunction with latest version of: 602399-MFM-77-XX-RP-XE-001-A

Hornsey Town Hall Fire Strategy
Report_Hornsey Town Hall Fire
Strategy Report

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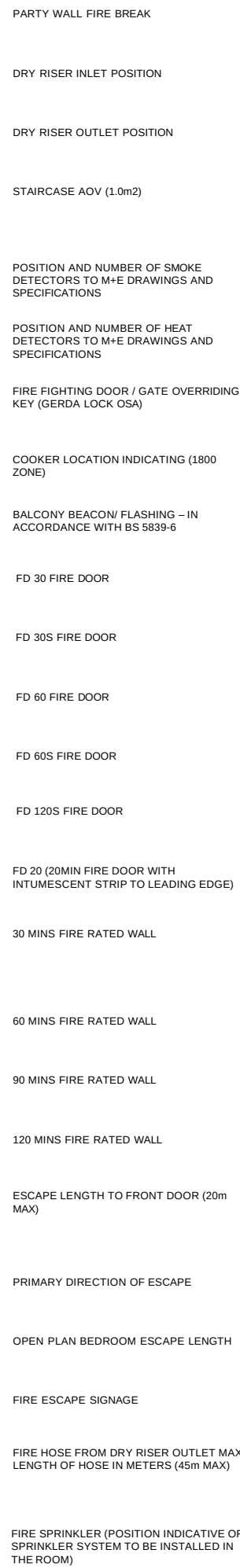
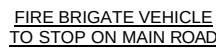
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PROJECT NO	ZONE	LEVEL	TYPE	ROLE	CLASS	DR. NO.	REV		
3596-KDS	BA	01	DR	A	68	1005	C4		

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PROJECT / DRAWING TITLE
Hornsey Town Hall
New Residential buildings

DRAWING TITLE
RESIDENTIAL MEWS
Fire Strategy

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

LOCATION - BLOCK B



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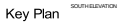


1

PROJECT / DRAWING TITLE Hornsey Town Hall									
DRAWING TITLE RESIDENTIAL BLOCK B Fire Strategy - West 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-68-2006							C1		

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

LOCATION - BLOCK B



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1 Fire Strategy - ELEVATION - South
1 : 100

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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

Key Plan

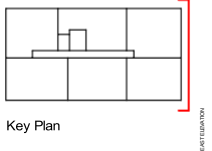


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DRAWING TITLE RESIDENTIAL BLOCK B Fire Strategy - North Elevation				
DATE / DRAWN BY 10/10/20 ZZK			SCALE 1 : 100	
PROJECT NO 3596-KDS	ZONE BB	LEVEL XX	TYPE DR	REV C1



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

LOCATION - BLOCK B

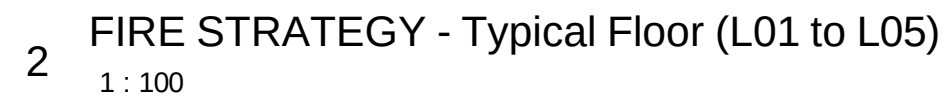


FOR CONSTRUCTION



1 Fire Strategy - ELEVATION - East
1 : 100

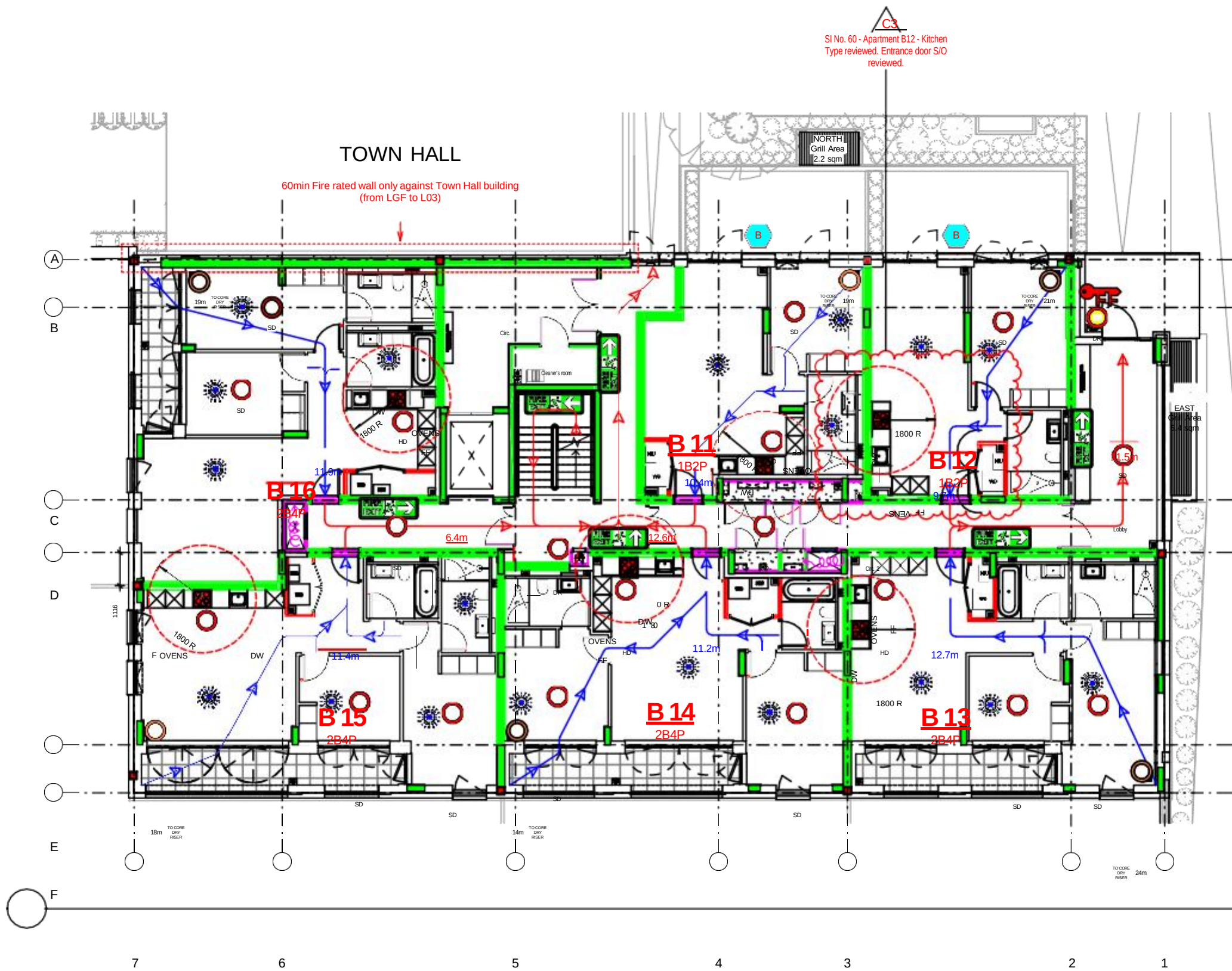
PROJECT / DRAWING TITLE Hornsey Town Hall									
DRAWING TITLE RESIDENTIAL BLOCK B Fire Strategy - East Elevation									
DATE / DRAWN BY 27/10/20 ZZK								SCALE 1 : 100	
PROJECT NO	ZONE	LEVEL	TYPE	ROLE	CLASS	DR. NO.	REV		
3596-KDS-BB-XX-DR-A-68-2003							C1		



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PROJECT NO	ZONE	LEVEL	TYPE	ROLE	CLASS	DR. NO.	REV		
3596-KDS-BB-XX-DR-A-68-2002							C2		



1 FIRE STRATEGY - Ground Floor
1 : 100

	PARTY WALL FIRE BREAK
	DRY RISER INLET POSITION
	DRY RISER OUTLET POSITION
	STAIRCASE AOV (1.0m2)
	POSITION AND NUMBER OF SMOKE DETECTORS TO M+E DRAWINGS AND SPECIFICATIONS
	POSITION AND NUMBER OF HEAT DETECTORS TO M+E DRAWINGS AND SPECIFICATIONS
	FIRE FIGHTING DOOR / GATE OVERRIDING KEY (GERDA LOCK OSA)
	COOKER LOCATION INDICATING (1800 ZONE)
	BALCONY BEACON/ FLASHING - IN ACCORDANCE WITH BS 5839-6
	FD 30 FIRE DOOR
	FD 30S FIRE DOOR
	FD 60 FIRE DOOR
	FD 60S FIRE DOOR
	FD 120S FIRE DOOR
	FD 20 (20MIN FIRE DOOR WITH INTUMESCENT STRIP TO LEADING EDGE)
	30 MINS FIRE RATED WALL
	60 MINS FIRE RATED WALL
	120 MINS FIRE RATED WALL
	ESCAPE LENGTH TO FRONT DOOR (20m MAX)
	PRIMARY DIRECTION OF ESCAPE
	OPEN PLAN BEDROOM ESCAPE LENGTH
	FIRE ESCAPE SIGNAGE
	FIRE HOSE FROM DRY RISER OUTLET MAX LENGTH OF HOSE IN METERS (45m MAX)
	FIRE SPRINKLER (POSITION INDICATIVE OF SPRINKLER SYSTEM TO BE INSTALLED IN THE ROOM)
	IMPULSE FAN
	MECHANICAL SMOKE EXTRACT

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REVISION NOTES			
NO.	DESCRIPTION	DATE	NAME
P1	PRELIMINARY ISSUE	18/10/19	FF
C1	ISSUED FOR CONSTRUCTION	06/03/20	CM
C2	All riser doors changed from FD60 to FD60s fire rating	27/04/21	ZZK
C3	Updated as per ACL site instruction n.60	19/04/22	FF

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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

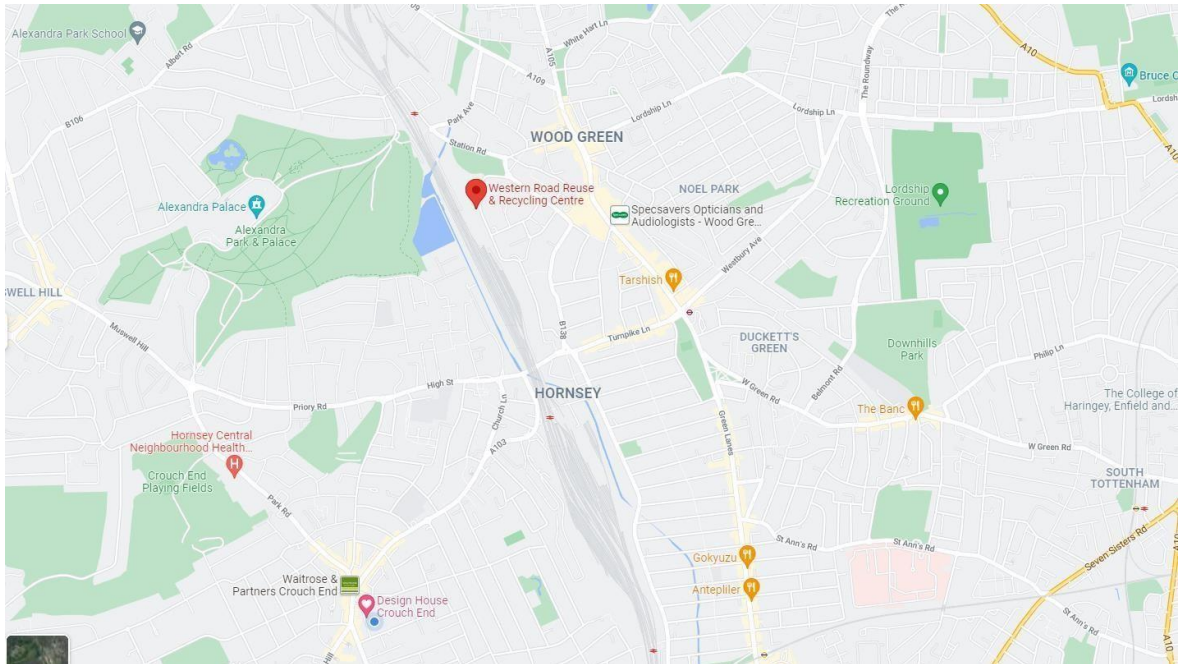
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MANUALS

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



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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.

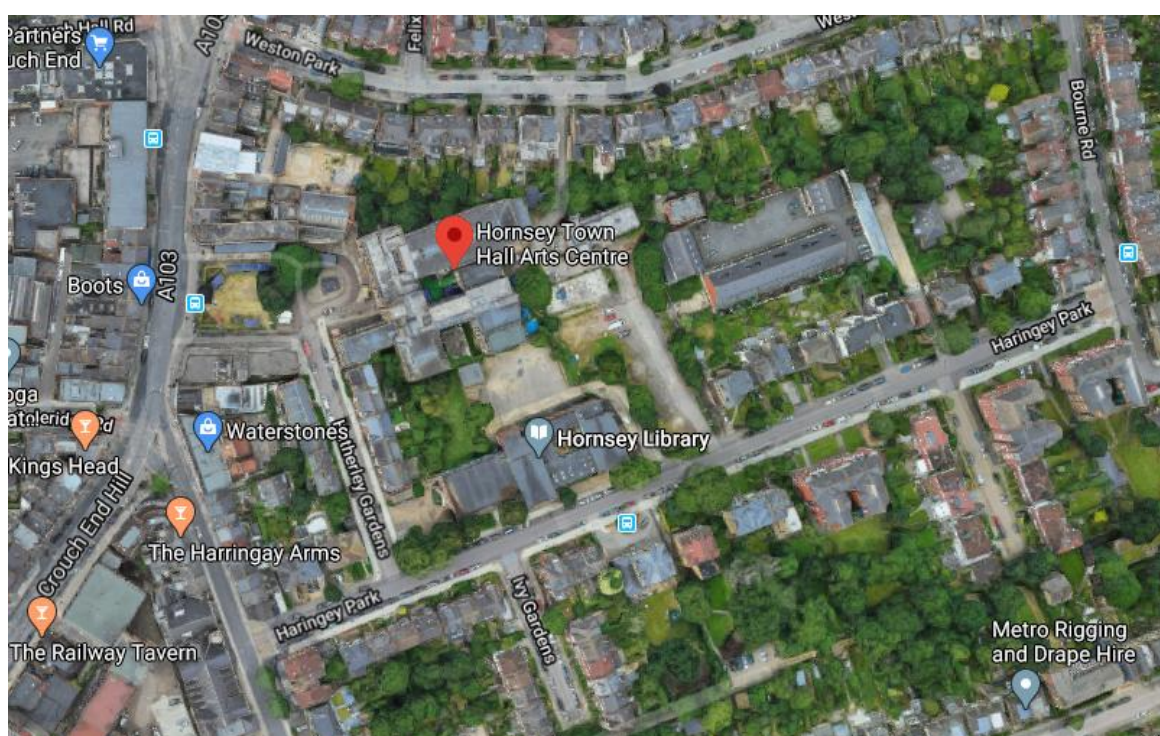


Figure 3.1 Hornsey Town Hall Development

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:

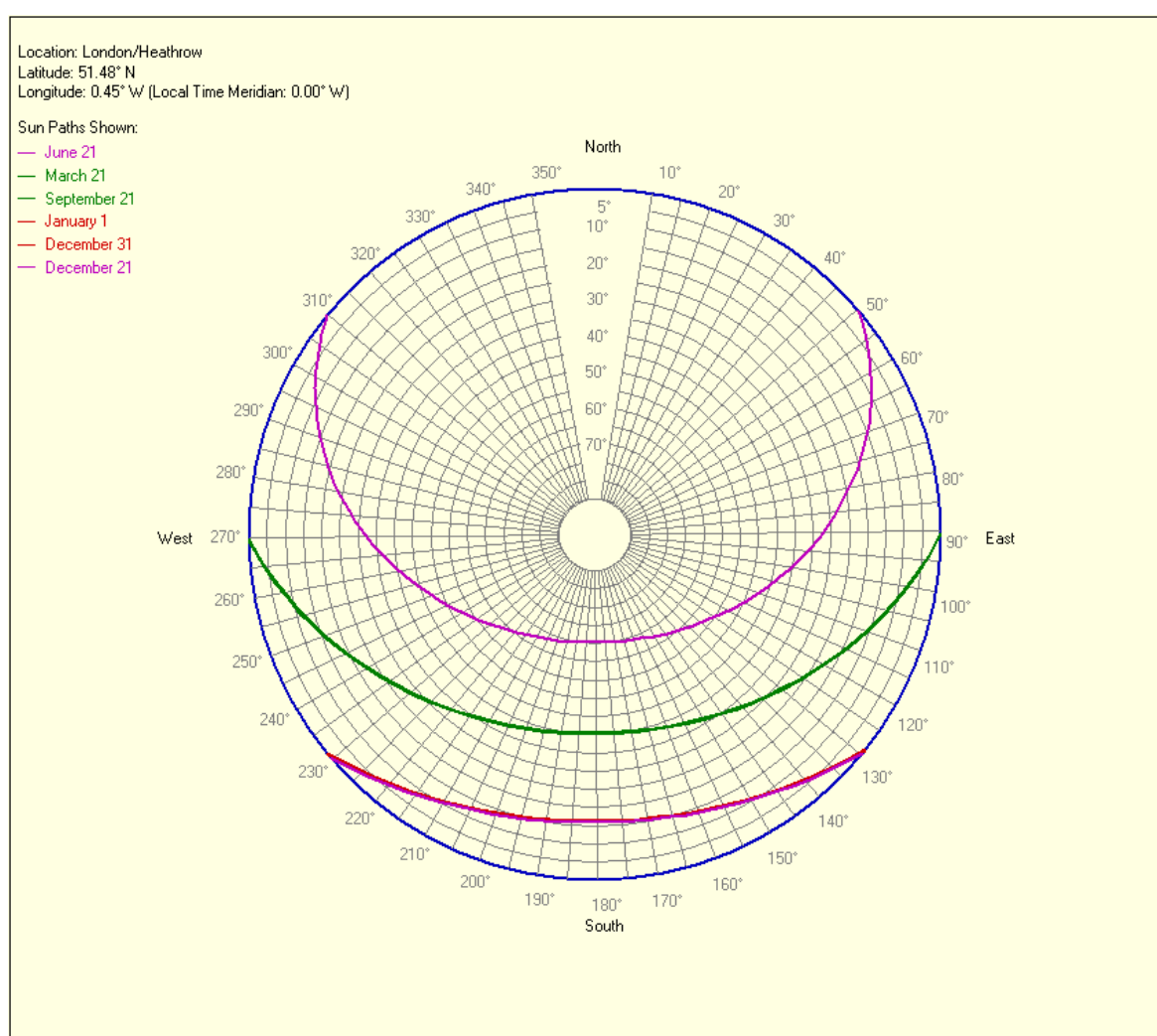


Figure 4.1 Sun path diagram for each season

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.

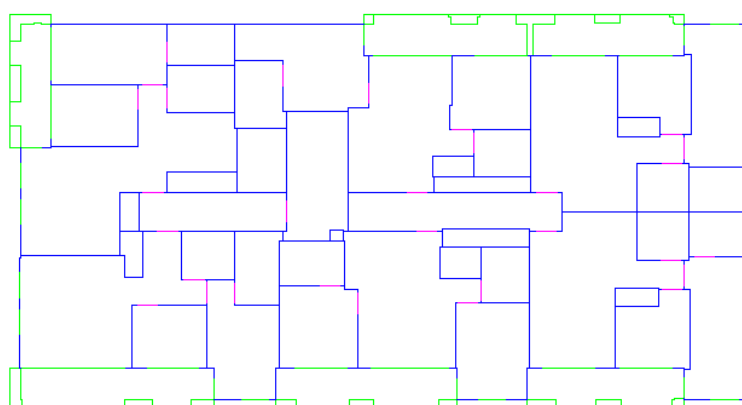


Figure 5.1 IES VE 2D template of example floor plan in Block B

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:

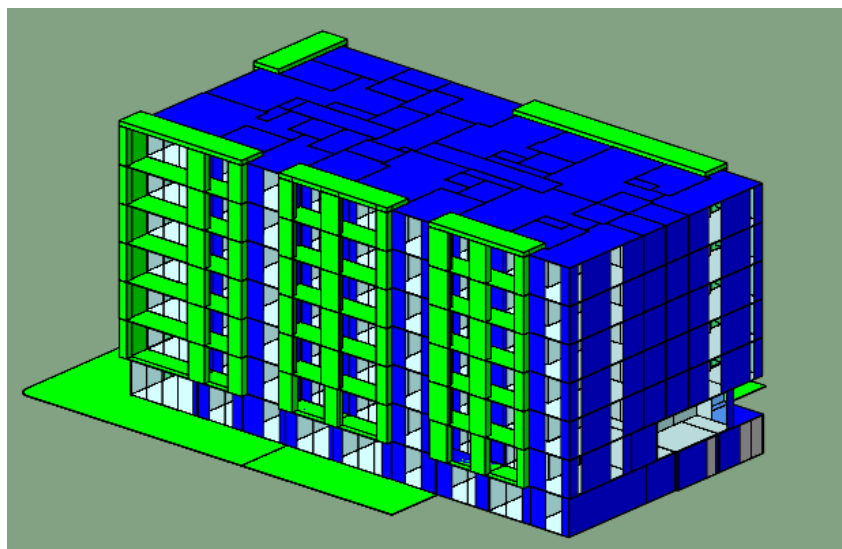


Figure 5.2 IES VE 3D model of Block B.

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:

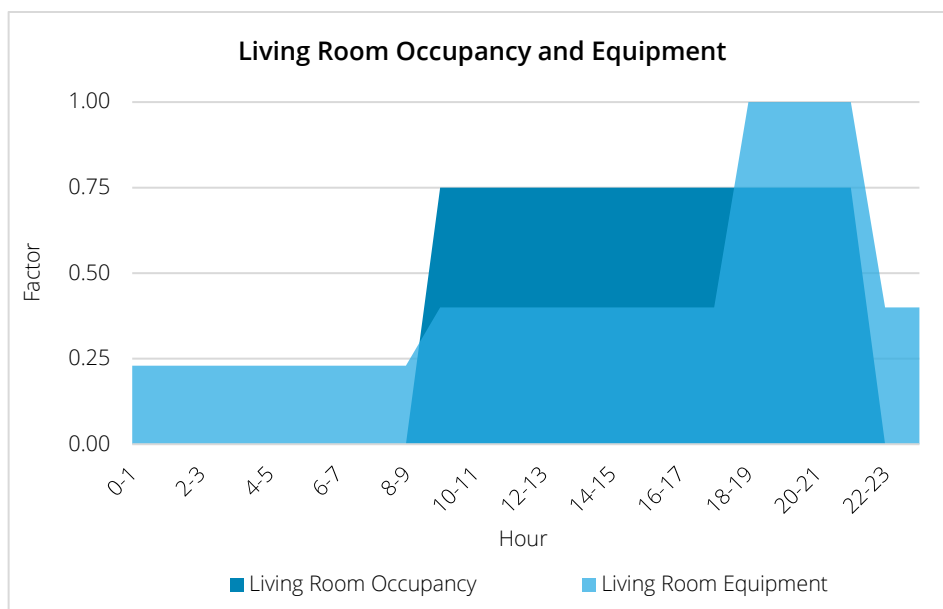


Figure 5.3 Living room occupancy and internal gains profile

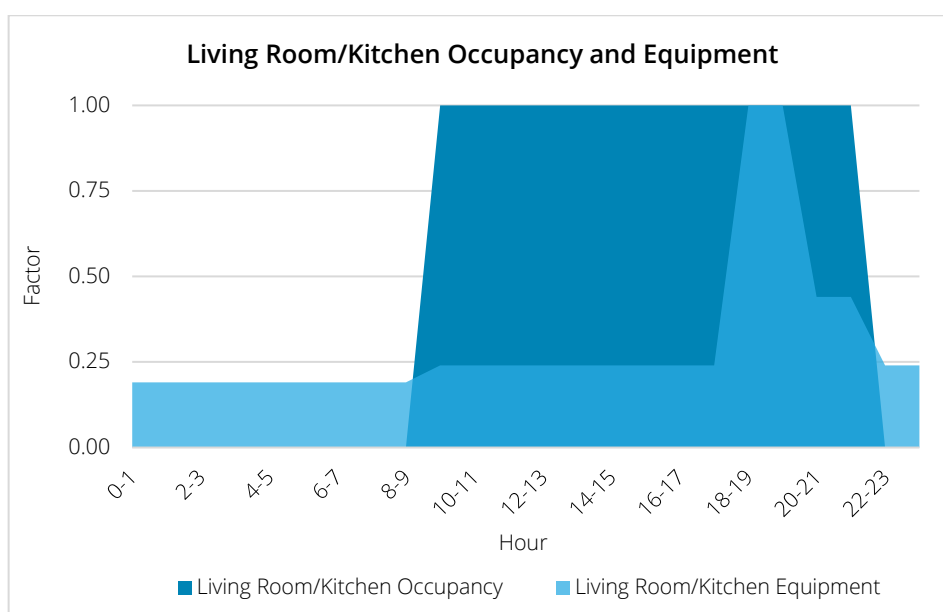


Figure 5.5 Living room/kitchen occupancy and internal gains profile

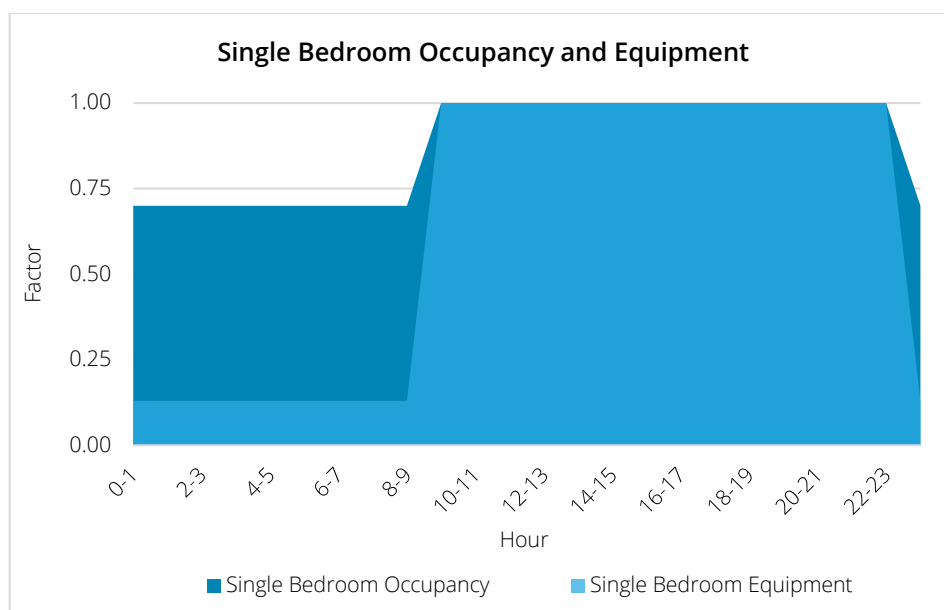


Figure 5.6 Single bedroom occupancy and internal gains profile

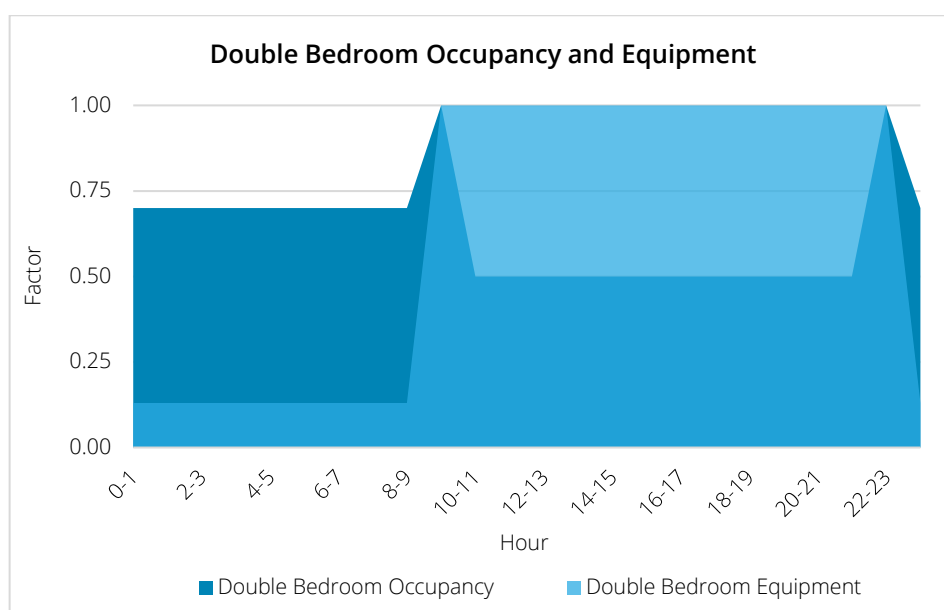


Figure 5.7 Double bedroom occupancy and internal gains profile

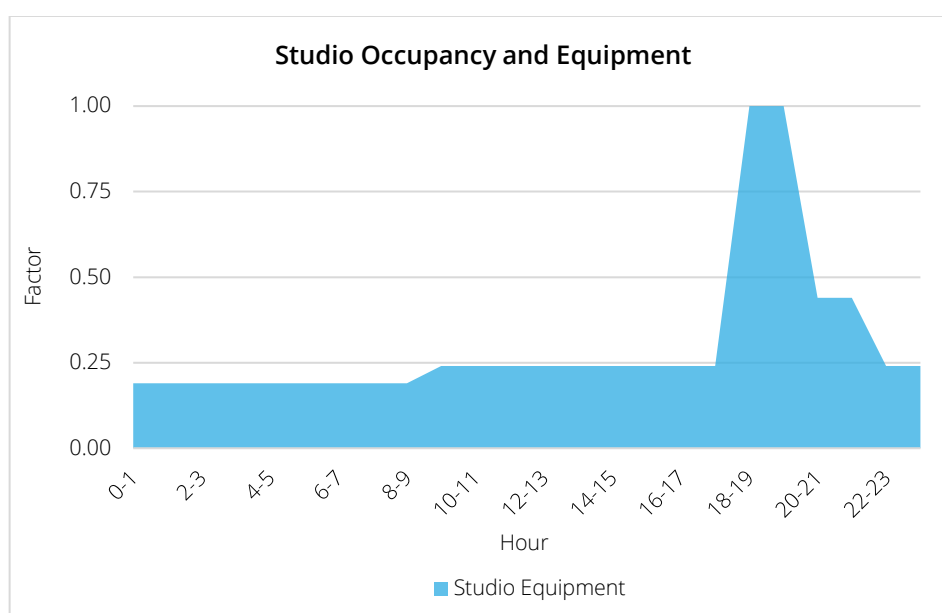


Figure 5.8 Studio occupancy and internal gains profile

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.

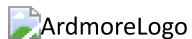
Kind regards

Paul

Paul Botten

Senior Design Coordinator

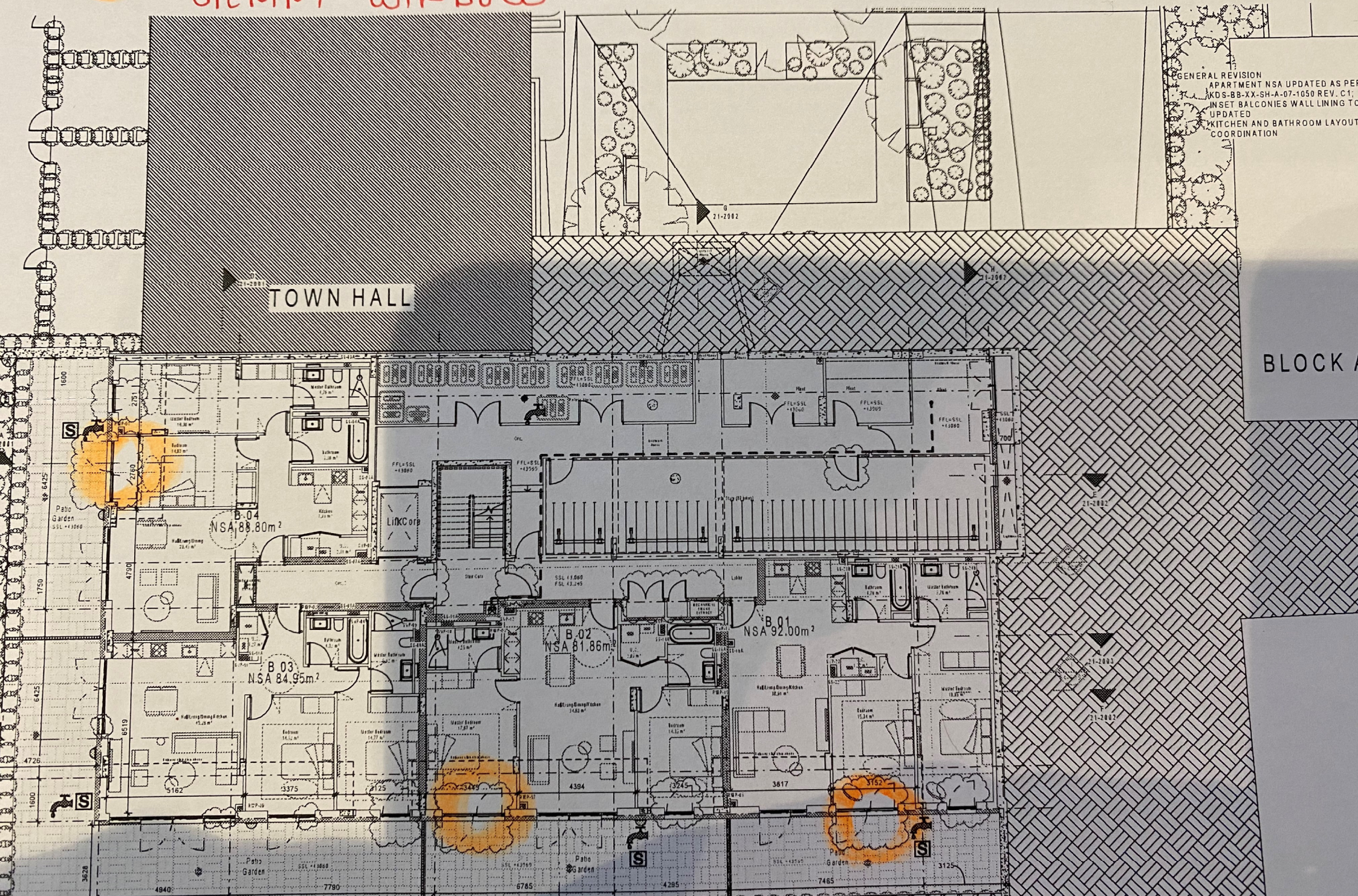
T: 0208 344 0300 EXT: 40108

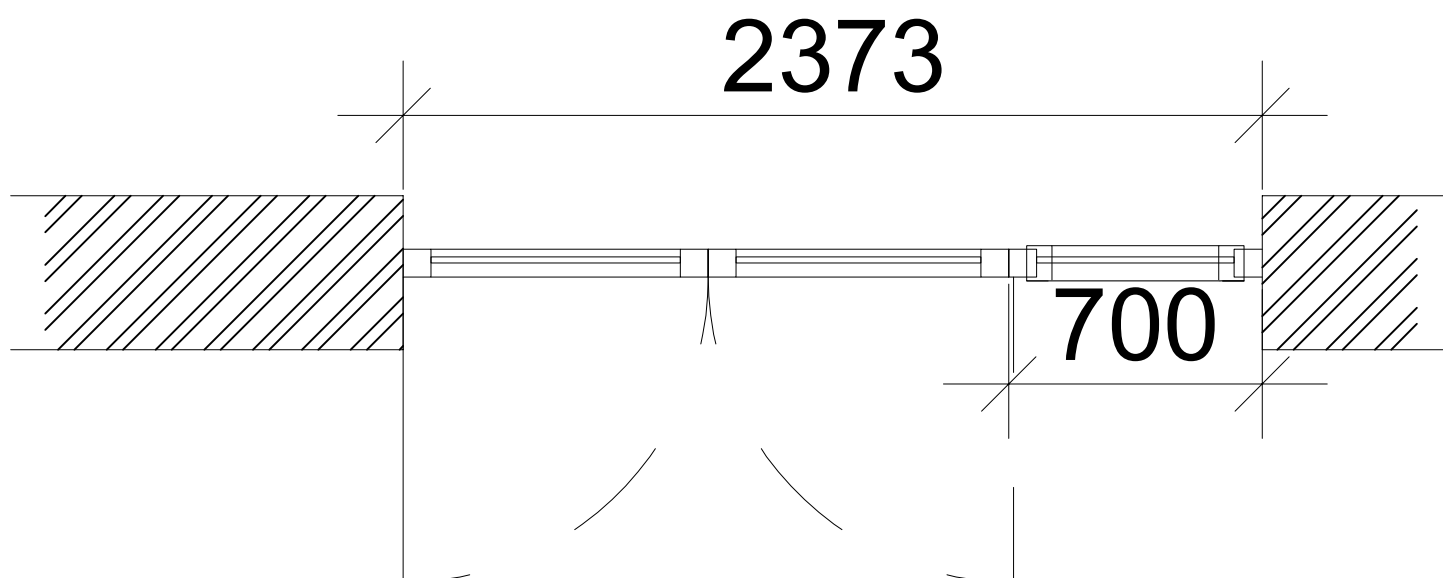
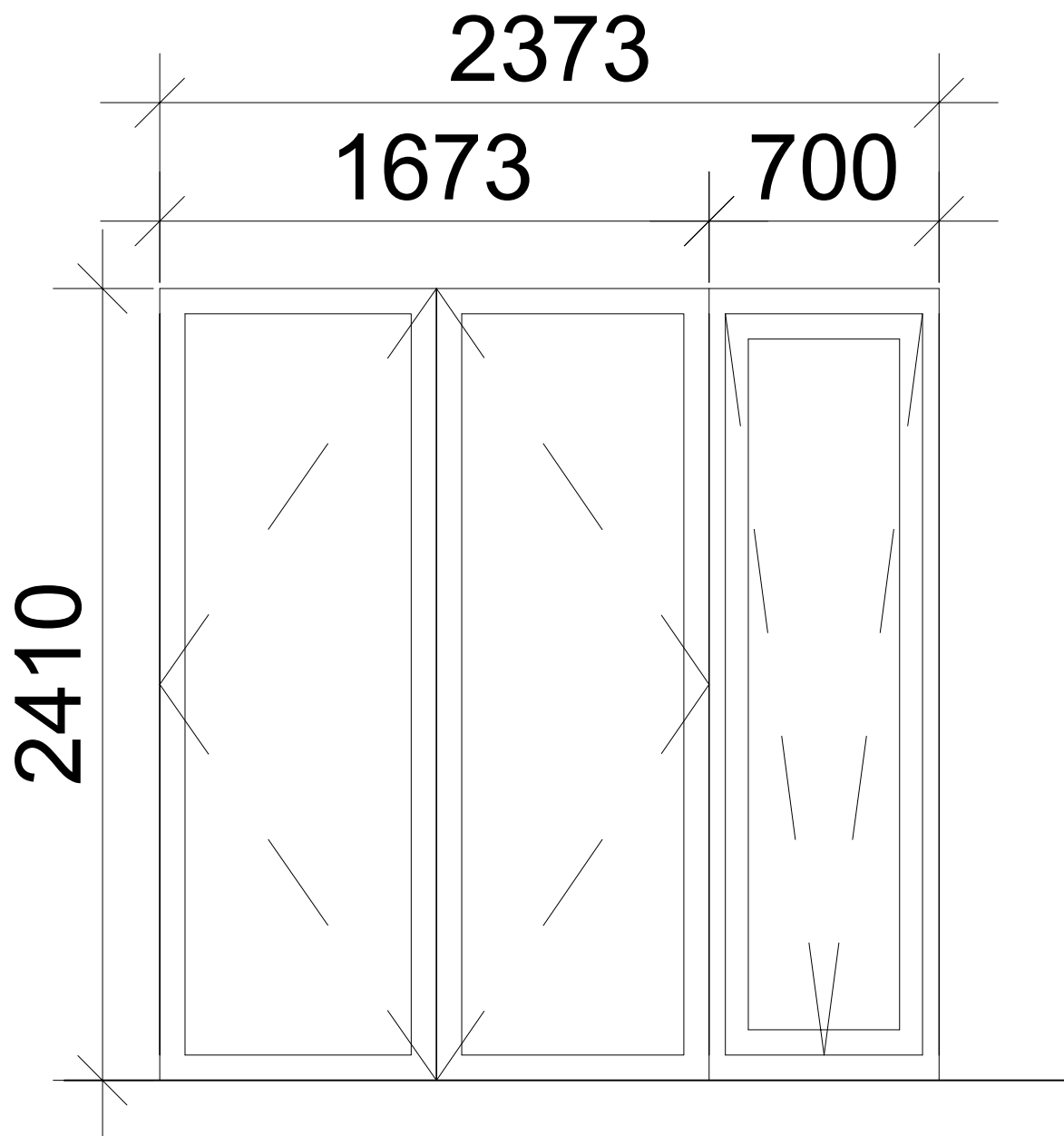


Head Office | 6 Wharf Studios | 28 Wharf Road | London | N1 7GR
www.ardmoregroup.co.uk

Hornsey Town Hall | The Broadway | N8 9 JJ

BC COMPLIANT OUTWARD OPENING DOOR WITH SIDE LIGHT (INWARD OPENING WINDOW)





HTH - Block B doors

Paul Botten <PBotten@ardmoregroup.co.uk>
15/01/2021 at 09:25:10

From: Paul Botten <PBotten@ardmoregroup.co.uk>
Sent: 15/01/2021 at 09:25:10
To: Katy Venables <katy.venables@whitecode.co.uk>
Cc: Ellen Huelin <ellen.huelin@whitecode.co.uk>, Joe Pitt <JPitt@ardmoregroup.co.uk>, Simon Redfern <SRedfern@ardmoregroup.co.uk>

 3 Attachment(s) Total 8.4 MB View ^

 3596-KDS-BB-XX-DR-A-05-2001_C3.pdf (3.0 MB)  3596-KDS-BB-XX-DR-A-05-2002_C5.pdf (2.9 MB)
 3596-KDS-BB-XX-DR-A-05-2003_C6.pdf (2.5 MB)

Good morning Katy,

We are having problems with the window sizes of block B due to the weight of glass.

Can you please indicate if we made the doors within the attached mark up into half height windows with top section opening, what does this do to the overheating calculations. The opening transom would be in line with the current balcony height.

Even if you just change the worst rooms on the model to make it quicker for you that would be good enough for a high level overview.

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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From: Paul Botten

Sent: 08 January 2021 17:26

To: Steven Skratulja <steven.skratulja@fulkers.co.uk>

Cc: Joe Pitt <JPitt@ardmoregroup.co.uk>; Baykal Mustafa <BMustafa@ardmoregroup.co.uk>; Catherina Molloy <CMolloy@ardmoregroup.co.uk>; Denzil Cookhorn <denzil.cookhorn@fulkers.co.uk>; Nick Jackson <nick.jackson@fulkers.co.uk>; Simon Redfern <SRedfern@ardmoregroup.co.uk>; Nick Poon <nick.poon@fecil.uk>; Kiah Khing Tan <kiahkhing.tan@fecil.uk>; Philip Yeung <philip.yeung@fecil.uk>; Colin Morton <colin.morton@fulkers.co.uk>; 1360HTH <1360HTH@makearchitects.com>; James Morgan <JMorgan@hts.uk.com>; Peter Crowhurst <peterc@longandpartners.co.uk>; scott.lau@fecil.uk; Valerie Molloy <valerie.molloy@fulkers.co.uk>; shiromeb@longandpartners.co.uk; documentcontrol@makearchitects.com; Nerius Rimkevicius <NRimkevicius@ardmoregroup.co.uk>; Jarek Matuszak <JMatuszak@ardmoregroup.co.uk>; Rosalind Carroll <RCarroll@hts.uk.com>; Luke Hill <luke.hill@fecil.uk>; Hugh Gillespie <hugh.gillespie@fulkers.co.uk>; Abdul Sattar Hassam <AHassam@ardmoregroup.co.uk>; Katy Ghahremani <KatyGhahremani@makearchitects.com>

Subject: HTH - Notice of Discrepancy N 054 - Block B window alterations

Good evening Steven,

Please find attached 'Notice of Discrepancy N 054 - Block B window alterations', for your attention.

Please could ACL ask that this proposal is assessed against the VE saving taken on the window/door package and the limitations of a composite window system.

Kind regards

Paul

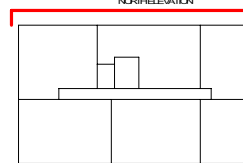
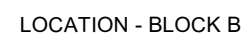


	1 Insitu build brickwork. Brick: TERRA, ISIKLARK WHITE WIRECUT FACING BRICK in Flemish bond pattern (herringbone look relief pattern) as per agreed sample.
	2 Insitu build brickwork. Brick: Iststock, Bexhill dark brick in Flemish bond pattern as per agreed sample.
	3 Insitu build brickwork. Brick: TERRA, ISIKLARK WHITE WIRECUT FACING BRICK in Flemish bond pattern as per agreed sample.
	GRC FACADE as per agreed sample.
	POWER COATED STEEL BALUSTRADE
	ALUMINIUM CLAD WINDOWS AND DOORS

- L - SHAPE LINTEL
($<150\text{mm}$ end bearing at each end)
- BRICK SLIP LINTEL SYSTEM
- BSA: BRICK SUPPORT ANGLE LEVEL
- MJ: MOVEMENT JOINT

NOTE:

- FOR PRIVACY SCREEN AND METAL WORK DETAILS REFER TO METAL WORK (34) SERIES
- FOR RELIEF PATTERN BRICK DIMENSION REFER TO EXTERNAL WALLS (21) SERIES
- FOR PRIVACY WALL OF GARDEN REFER TO LANDSCAPE ARCHITECT DRAWINGS
- FOR LANDSCAPE LEVELS REFER TO LANDSCAPE ARCHITECTS DRAWINGS



Key Pla



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PROJECT / DRAWING TITLE Harney Town Hall				
DRAWING TITLE RESIDENTIAL BLOCK B North Elevation				
DATE / DRAWN BY 05/07/17 FF			SCALE 1 : 100	
PROJECT NO 3666-KDS-BB-XX-DR-A	ZONE 05-2001	LEVEL 05-2001	ROLE 05-2001	REV C3



C5
Type review, ACL instruction via email 04/09/20

C5
Type review, ACL instruction via email 04/09/20

Windows / door to have a max frame width 890mm. The window / door will be produced with a factory fitted packer to achieve the ER required S/O widths.

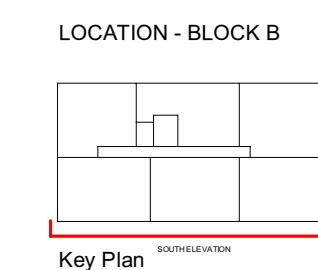
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REVISION NOTES			
NO.	DESCRIPTION	DATE	NAME
P1	PRELIMINARY ISSUE	25/11/19	FF
C1	ISSUED FOR CONSTRUCTION	11/03/20	FF
C2	ELEVATION UPDATE: Window tilt panels added, balustrade design updated	17/04/20	FF
C3	Lower ground floor window config. amended. GA plans updated as clouded. MVHR intake/exhaust location added	28/07/20	FF
C4	Balcony Ground floor Slab reviewed as per ACL instruction SC009739/200748 n.18 of 01/07/20	21/08/20	FF
C5	Windows review. ACL instruction email of 04/09/20	24/09/20	FF

	In situ build brickwork. Brick: TERRA, ISIKLAR WHITE WIRECUT FACING BRICK in Flemish bond pattern (herringbone look relief pattern) as per agreed sample.
	In situ build brickwork. Brick: Ibslock, Bedhill dark brick in Flemish bond pattern as per agreed sample.
	In situ build brickwork. Brick: TERRA, ISIKLAR WHITE WIRECUT FACING BRICK in Flemish bond pattern as per agreed sample.
	GRC FACADE as per agreed sample.
	POWER COATED STEEL BALUSTRADE
	ALUMINIUM CLAD WINDOWS AND DOORS

- L - SHAPE LINTEL (<150mm end bearing at each end)
- BRICK SLIP LINTEL SYSTEM
- BSA: BRICK SUPPORT ANGLE LEVEL
- MJ: MOVEMENT JOINT

- NOTE:
- FOR PRIVACY SCREEN AND METAL WORK DETAILS REFER TO METAL WORK (M4) SERIES
 - FOR RELIEF PATTERN BRICK DIMENSION REFER TO EXTERNAL WALLS (21) SERIES
 - FOR PRIVACY WALL OF GARDEN REFER TO LANDSCAPE ARCHITECT DRAWINGS
 - FOR LANDSCAPE LEVELS REFER TO LANDSCAPE ARCHITECTS DRAWINGS



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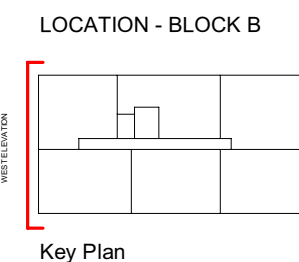
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FOR CONSTRUCTION			
PROJECT / DRAWING TITLE Hornsey Town Hall			
DRAWING TITLE RESIDENTIAL BLOCK B South Elevation			
DATE / DRAWN BY 05/07/17 FF		SCALE 1 : 100	
PROJECT NO 3596-KDS	ZONE -BB-	LEVEL -XX-	TYPE -DR-
ROLE CLASS	DR. NO. A-05-2002	REV C5	

	1. Insitu build brickwork, Brick: TERRA, ISIKLAR WHITE WIRECUT FACING BRICK in Flemish bond pattern (herringbone lock relief pattern) as per agreed sample.
	2. Insitu build brickwork, Brick: Istock, Bexhill dark brick in Flemish bond pattern as per agreed sample.
	3. Insitu build brickwork, Brick: TERRA, ISIKLAR WHITE WIRECUT FACING BRICK in Flemish bond pattern as per agreed sample.
	GRC FACADE as per agreed sample.
	POWER COATED STEEL BALUSTRADE
	ALUMINIUM CLAD WINDOWS AND DOORS

- L - SHAPE LINTEL
($<150\text{mm}$ end bearing at each end)
- BRICK SLIP LINTEL SYSTEM
- BSA: BRICK SUPPORT ANGLE LEVEL
- MJ: MOVEMENT JOINT

- FOR PRIVACY SCREEN AND METAL WORK DETAILS REFER TO METAL WORK (34) SERIES
- FOR RELIEF PATTERN BRICK DIMENSION REFER TO EXTERNAL WALLS (21) SERIES
- FOR PRIVACY WALL OF GARDEN REFER TO LANDSCAPE ARCHITECT DRAWINGS
- FOR LANDSCAPE LEVELS REFER TO LANDSCAPE ARCHITECTS DRAWINGS



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PROJECT / DRAWING TITLE
Hornsey Town Hall

DATE / DRAWN BY 05/07/17 FF	SCALE 1 : 100
--------------------------------	------------------

PROJECT NO	ZONE	LEVEL	TYPE	ROLE	CLASS	DR. NO.	REV
596-KDS	-BB-	XX-	DR-	A-	05-	2003	C6



Type review. ACL instruction via email 04/09/20

Windows / door to have a max frame width 890mm. The window / door will be produced with a factory fitted packer to achieve the ER required S/O widths.

HTH: Block B- ,W01D - W05A.2 - solution to be verified

Paul Botten <PBotten@ardmoregroup.co.uk>
11/02/2021 at 09:05:25

From: Paul Botten <PBotten@ardmoregroup.co.uk>
Sent: 11/02/2021 at 09:05:25
To: Katy Venables <katy.venables@whitecode.co.uk>
Cc: Simon Redfern <SRedfern@ardmoregroup.co.uk>, Francesco Fanara <francesco.fanara@kdsassociates.co.uk>, Nikhil Raj <nikhilraj@kdsassociates.co.uk>, Ellen Huelin <ellen.huelin@whitecode.co.uk>

Good morning Katy,

Further to the email below we are again having trouble with the window sizes within block B.

Can you please confirm if the opening lights are removed as indicated in flats B03 & B15 if the rooms still pass. The room has an opening lights on the other elevation so hopefully this can supply the required ventilation.

I look forward to hearing from you.

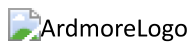
Kind regards

Paul

Paul Botten

Senior Design Coordinator

T: 0208 344 0300 EXT: 40108



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From: Francesco Fanara <francesco.fanara@kdsassociates.co.uk>
Sent: 10 February 2021 13:40
To: Paul Botten <PBotten@ardmoregroup.co.uk>
Subject: Type W01D - W05A.2 - solution to be verified

Paul,

As discussed on the phone see an alternative solution to solve the Type W01D - W05A.2.

This is to be verified with M&E if the ventilation of apartment B03 and B15 is verified omitting the tilt panels in those two types.



Kind regards,

Francesco Fanara
Project Runner/ Architectural Engineer

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e: design@whitecode.co.uk



WHITECODE
CONSULTING

Hornsey Town Hall Mews

Summer Overheating Assessment

CIBSE TM59:2017

Prepared for Ardmore Group

10687-S-OHTG-0003

Revision AB

26.02.2020



WHITECODE
CONSULTING

Executive Summary

The following report has been produced to assess the dwellings and common areas within the Mews 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 and 0.4329 to lower ground, ground and 1st floor external doors. 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
- G value 0.4329 to selected doors
- Windows & Doors openable 20 degrees
- Internal doors open 24hrs
- Amended windows as per markup 07.12.20
- NTC to all bedrooms 1st and 2nd floors
- NTC to living rooms tilted windows 1st & 2nd floors
- NTC to rooms with tilted windows and half height bedroom window only on ground floor
- Blinds
- Comfort colling where required

With the above strategy, all rooms in the Mews 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 25°C



- 3ach-1 when the internal temperature exceeds 28°C

With the above specification applied, all common area rooms assessed comply with the CIBSE TM59:2017 recommendations. 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	26.02.20	Preliminary Issue for Comments	KAV	EH
2	14.07.20	Revised windows	KAV	EH
3	27.04.22	G value and window opening adjustment	KAV	EH
4	21.08.2024	AS BUILT	PM	JM

1.0 Introduction

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

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.

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.
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

What can be regulated	
	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

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.

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.

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.

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.

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.

This report ascertains whether the dwellings will overheat within the Mews. Suggestions on how to avoid overheating involving different glazing specifications, purge ventilation and external shading are provided in this report.

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.

1.0 Thermal Design Criteria

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 highrise 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)

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).

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.

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.

2.0 The Development

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**.

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.

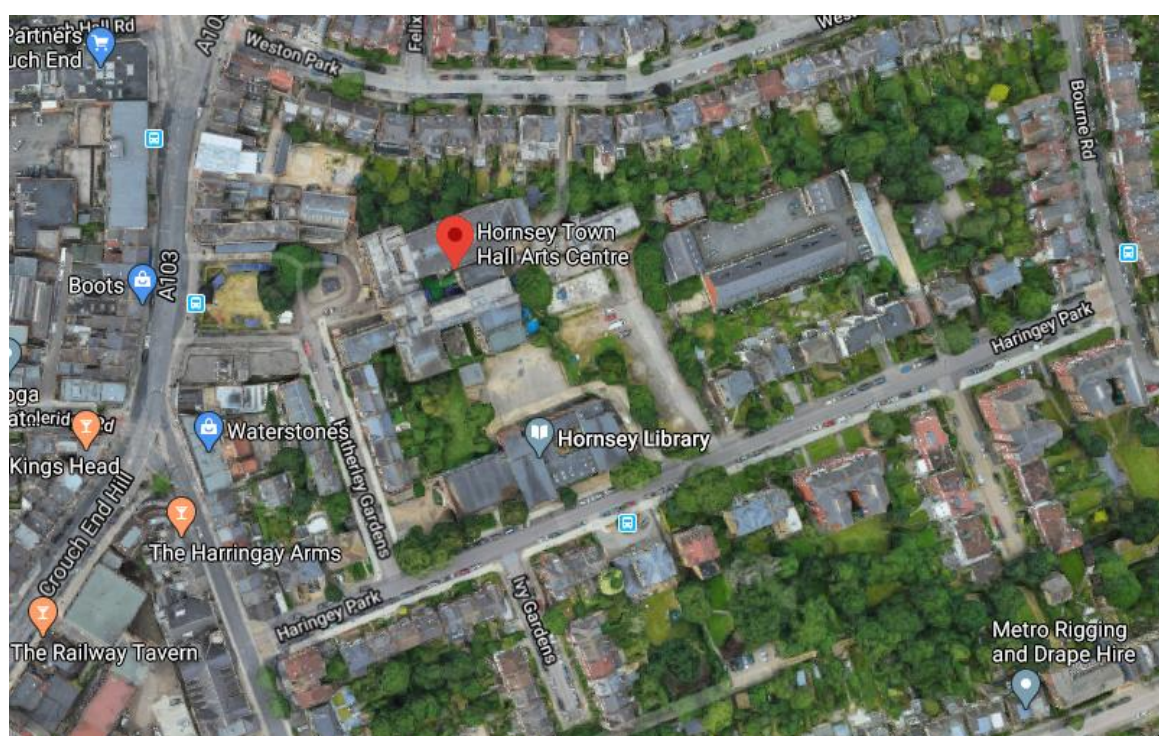


Figure 3.1 Hornsey Town Hall Development

3.0 Orientation

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:

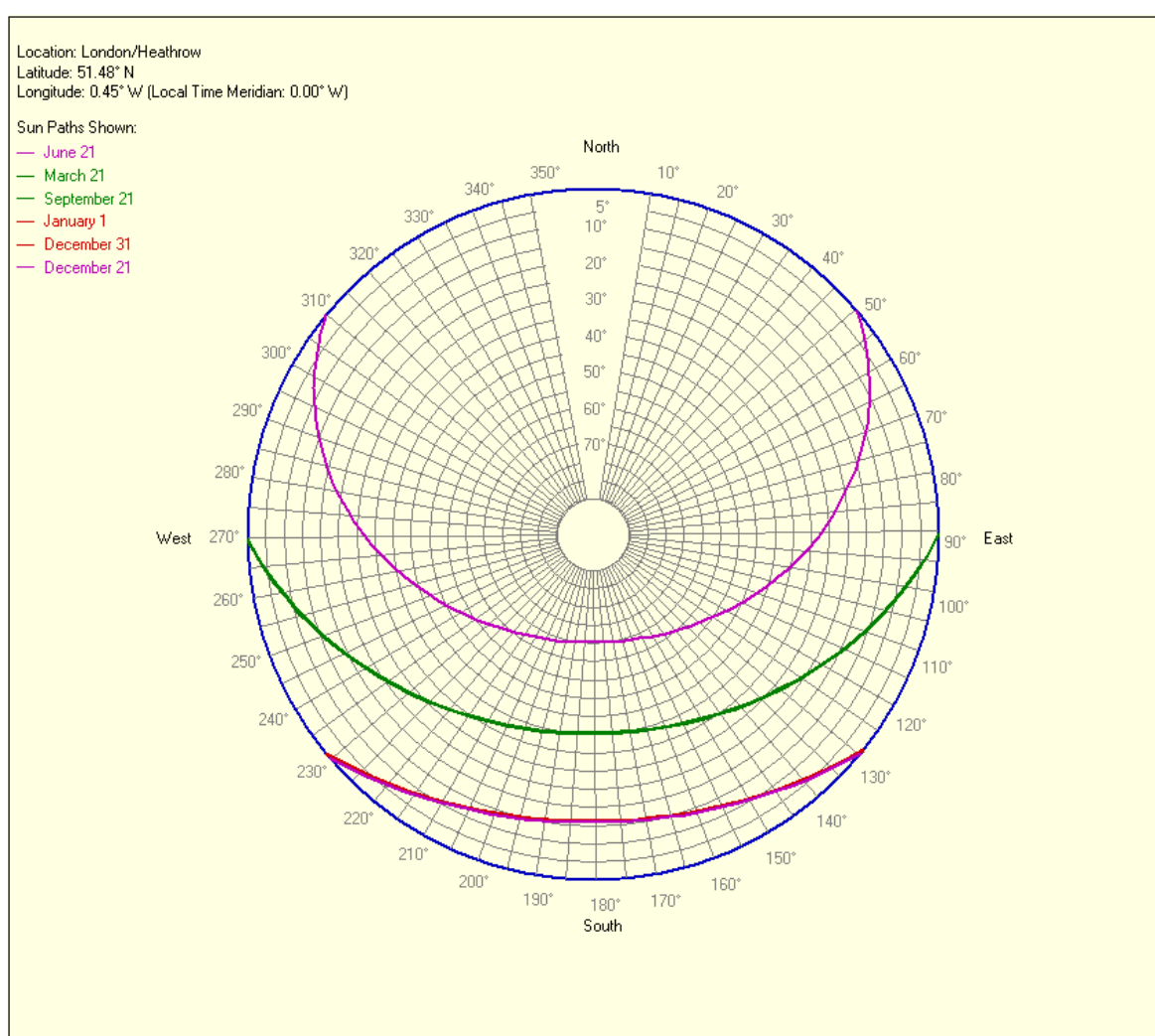


Figure 4.1 Sun path diagram for each season

4.0 The Model

A dynamic 3D model of the the Mews was produced using drawings issued by KDS Associates in August 2019.

All dwellings and common areas have been modelled to provide a good representation of the overheating risk across the development.

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.

Building the Model

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.

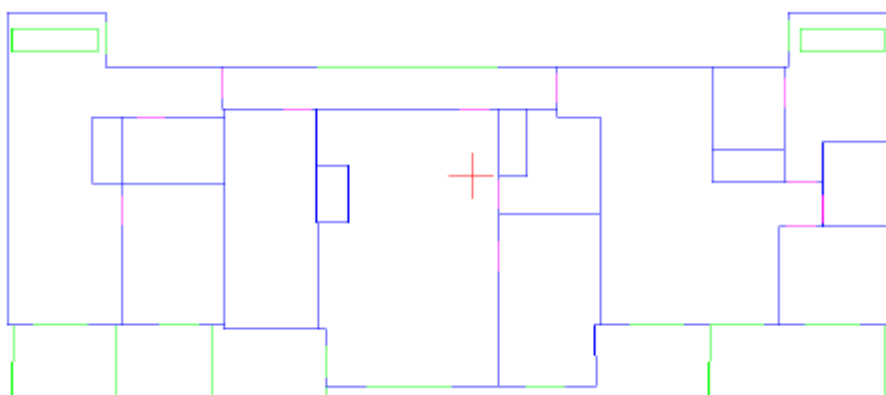


Figure 5.1 IES VE 2D template of example floor plan in the Mews

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:

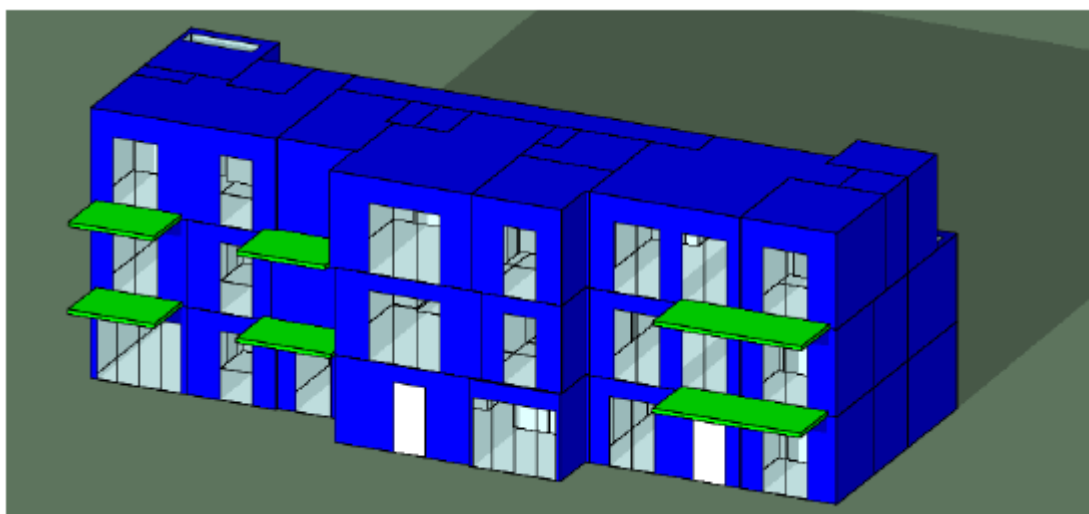


Figure 5.2 IES VE 3D model of the Mews.

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) was modelled for shading purposes.

Building Fabric

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	0.22
External Wall	0.15
Common Area Wall	0.20
Roof	0.14
Glazing	1.50
Internal Front Doors	1.50

Table 5.1 Building fabric U-values

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

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.

Mechanical Ventilation

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.

The dwellings are to be served by underfloor heating. This will be served via an 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 25°C
- 3ach⁻¹ when the internal temperature exceeds 28°C

Purge Ventilation (Natural)

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.

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.

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.

Infiltration

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

Profiles

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.

Occupancy Profiles and Internal Equipment Gains

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

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

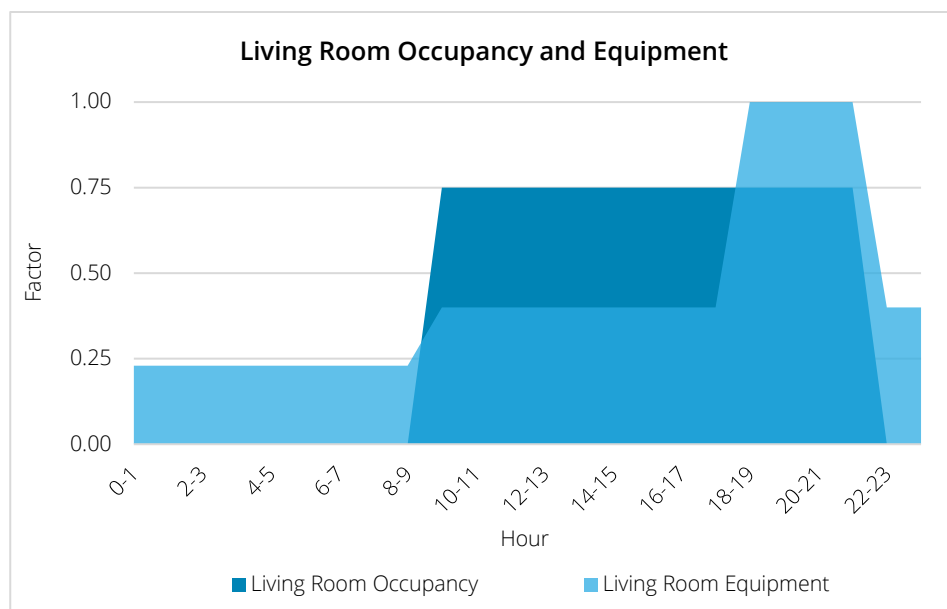


Figure 5.3 Living room occupancy and internal gains profile

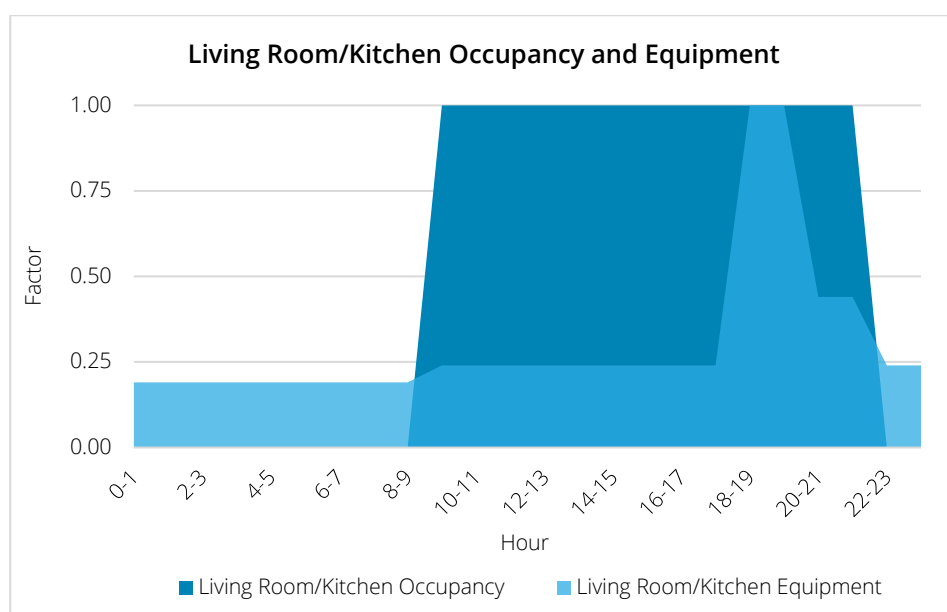


Figure 5.5 Living room/kitchen occupancy and internal gains profile

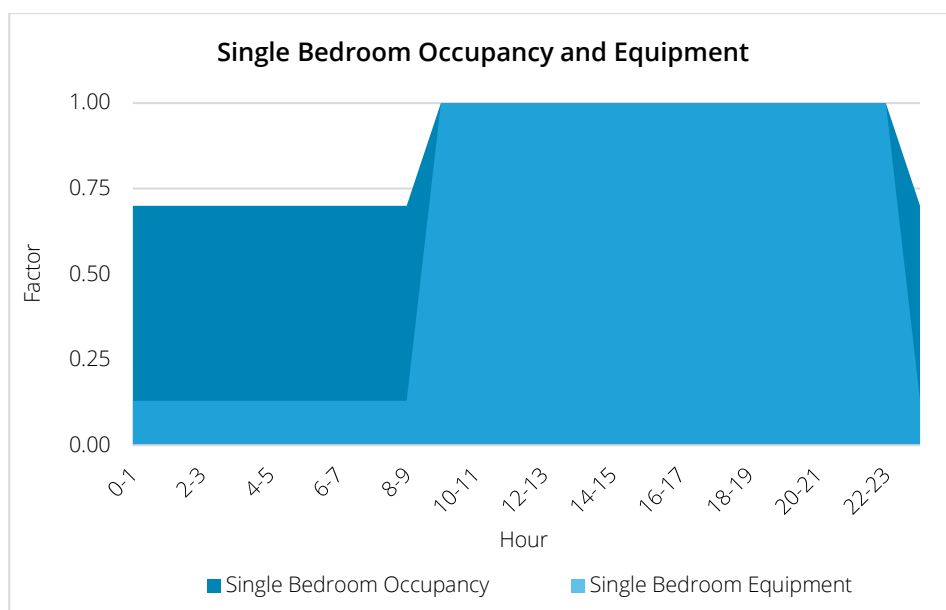


Figure 5.6 Single bedroom occupancy and internal gains profile

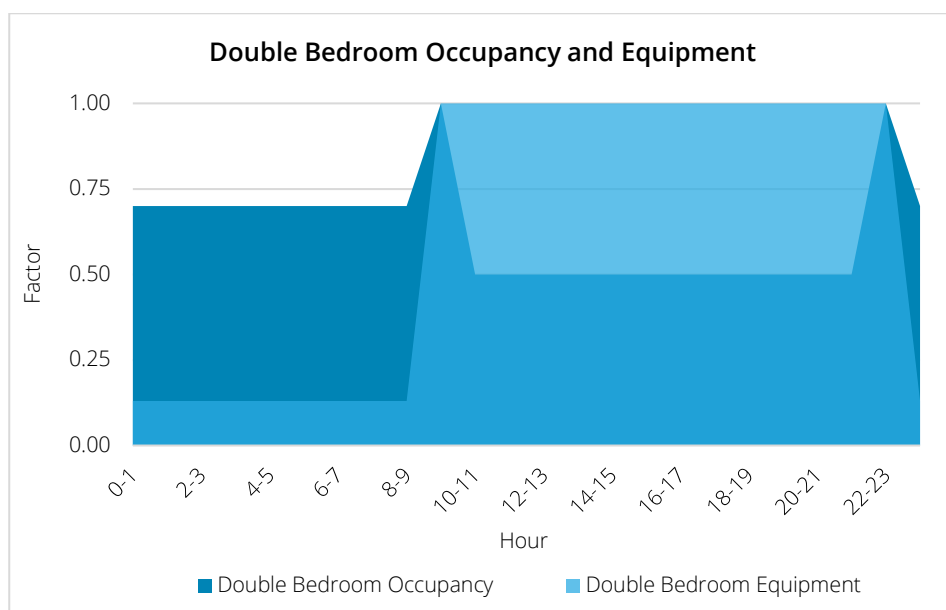


Figure 5.7 Double bedroom occupancy and internal gains profile

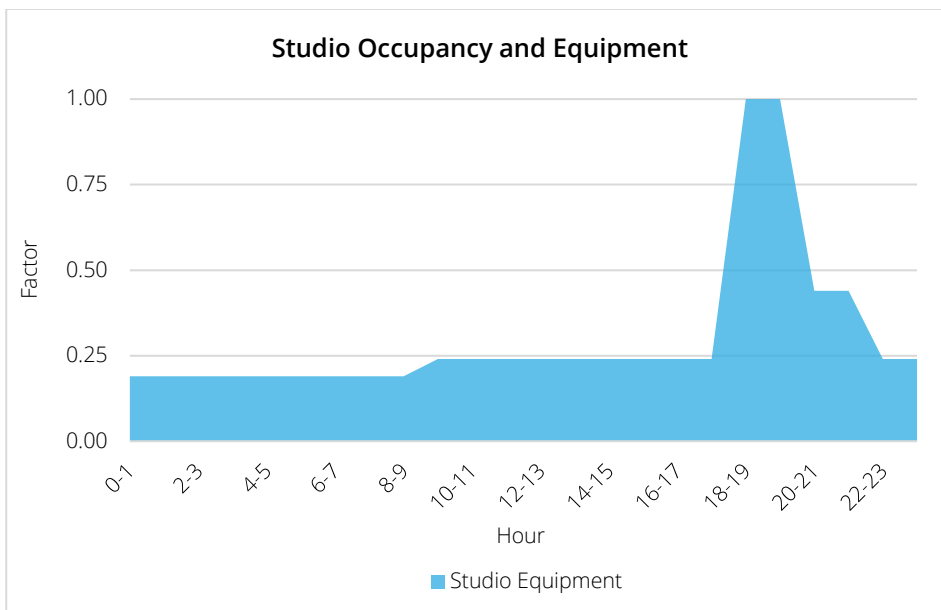


Figure 5.8 Studio occupancy and internal gains profile

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.

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.

Twin bedrooms have been assessed as double bedrooms.

Weather Files

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.

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.



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.

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.

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.

5.0 Shading and Obstructions

Shading

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.

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.

Building Shading

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.

Obstructions

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.

6.0 Results

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).

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.

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.

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 20 degrees and only when the internal room temperature reached 22°C and external temperature was lower. The results indicated that 6 of the 21 rooms failed to comply with the CIBSE TM59:2017 criteria.
- Scenario 2 – For the next simulation, a g-value of 0.4329 was applied to selected doors due to manufacturers constraints. This did not have a significant impact on the results as the number of rooms failing remained at 6.
- Scenario 3 – For the final simulation, blinds were applied to windows in failing rooms. This reduced the total number of failing room to 4 out of 21.
- Comfort cooling required in these rooms.

With the above scenario applied, all rooms comply with CIBSE TM59 criteria.

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.

Running the simulation with the glazing having a g-value of 0.42, indicated that all all spaces complied.

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.

7.0 Discussion

Why Are Rooms Failing?

All failing rooms fail Criterion 2, which indicates that air flow is the main issue. Due to security reasons, windows are only allowed to open 20 degrees. These rooms cannot open fully open windows at night to allow for sufficient night time cooling.

Possible Improvements

Increasing the openable area of the window in this room will improve the results by enabling more air flow.

8.0 Conclusion

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.

Results from the final simulation indicate that with the following strategy, only 1414 rooms still fail to comply with CIBSE TM59:2017 criteria:

- G value 0.42
- G value 0.4329 to selected doors
- Windows & Doors openable 20 degrees
- Internal doors open 24hrs
- Amended windows as per markup 07.12.20
- NTC to all bedrooms 1st and 2nd floors
- NTC to living rooms tilted windows 1st & 2nd floors
- NTC to rooms with tilted windows and half height bedroom window only on ground floor
- Blinds

Comfort cooling will be required where the above improvements cannot be applied.

With the above scenario applied, all rooms comply with CIBSE TM59 criteria.

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.

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 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 25°C
- 3ach⁻¹ when the internal temperature exceeds 28°C

With the above specification applied, all common area rooms assessed comply with the CIBSE TM59:2017 recommendations. This indicates that the internal operative temperature should remain at an acceptable level.



A.1 Appendix A – Detailed Results for Scenario 1-3

Attached to this Appendix are the detailed results for Scenarios 1-3 for dwellings.

Scenario 1:

- G value 0.42
- Windows & Doors openable 20 degrees
- Internal doors open 24hrs
- Amended windows as per markup 03.12.20
- NTC to all bedrooms 1st and 2nd floors
- NTC to living rooms tilted windows 1st & 2nd floors
- NTC to rooms with tilted windows and half height bedroom window only on ground floor

Room Name	Criteria 1	Criteria 2	Pass/Fail
PM 001 Bedroom	0.4	16	PASS
PM001 Living/ kitchen	0.2		PASS
PM002 Bedroom 1	0	15	PASS
PM002 Bedroom 2	0.3	16	PASS
PM002 Living/ Kitchen	0.1		PASS
PM003 Bedroom 1	0	18	PASS
PM003 Bedroom 2	0.4	41	FAIL
PM003 Living/ Kitchen	0.2		PASS
PM101 Bedroom	0.5	44	FAIL
PM101 Living/ Kitchen	0.4		PASS
PM102 Bedroom	0	35	FAIL
PM102 Living/ Kitchen	0		PASS
PM103 Bedroom 1	0.3	23	PASS
PM103 Bedroom 2	0.2	26	PASS
PM103 Living/ Kitchen	0.1		PASS
PM201 Bedroom	1.8	24	PASS
PM201 Living/ Kitchen	2.2		PASS
PM202 Bedroom	2.2	59	FAIL
PM202 Living/ Kitchen	3.3		FAIL
PM203 Bedroom	2.6	37	FAIL
PM203 Living/ Kitchen	2.9		PASS
			6

Scenario 2:

- G value 0.42
- G value 0.4329 to selected doors
- Windows & Doors openable 20 degrees
- Internal doors open 24hrs
- Amended windows as per markup 03.12.20 and 17.12.20
- NTC to all bedrooms 1st and 2nd floors
- NTC to living rooms tilted windows 1st & 2nd floors
- NTC to rooms with tilted windows and half height bedroom window only on ground floor

Room Name	Criteria 1	Criteria 2	Pass/Fail
PM 001 Bedroom	0.4	16	PASS
PM001 Living/ kitchen	0.3		PASS
PM002 Bedroom 1	0	15	PASS
PM002 Bedroom 2	0.3	16	PASS
PM002 Living/ Kitchen	0.1		PASS
PM003 Bedroom 1	0.1	18	PASS
PM003 Bedroom 2	0.4	42	FAIL
PM003 Living/ Kitchen	0.2		PASS
PM101 Bedroom	0.5	43	FAIL
PM101 Living/ Kitchen	0.4		PASS
PM102 Bedroom	0	35	FAIL
PM102 Living/ Kitchen	0		PASS
PM103 Bedroom 1	0.3	23	PASS
PM103 Bedroom 2	0.2	26	PASS
PM103 Living/ Kitchen	0.1		PASS
PM201 Bedroom	1.8	24	PASS
PM201 Living/ Kitchen	2.2		PASS
PM202 Bedroom	2.2	59	FAIL
PM202 Living/ Kitchen	3.3		FAIL
PM203 Bedroom	2.6	37	FAIL
PM203 Living/ Kitchen	2.9		PASS
			6

Scenario 3:

- G value 0.42
- G value 0.4329 to selected doors
- Windows & Doors openable 20 degrees
- Internal doors open 24hrs
- Amended windows as per markup 03.12.20 and 17.12.20
- NTC to all bedrooms 1st and 2nd floors
- NTC to living rooms tilted windows 1st & 2nd floors
- NTC to rooms with tilted windows and half height bedroom window only on ground floor
- Blinds

Room Name	Criteria 1	Criteria 2	Pass/Fail
PM 001 Bedroom	0.4	16	PASS
PM001 Living/ kitchen	0.3		PASS
PM002 Bedroom 1	0	15	PASS
PM002 Bedroom 2	0.3	16	PASS
PM002 Living/ Kitchen	0.1		PASS
PM003 Bedroom 1	0	18	PASS
PM003 Bedroom 2	0.2	41	FAIL
PM003 Living/ Kitchen	0.1		PASS
PM101 Bedroom	0.2	39	FAIL
PM101 Living/ Kitchen	0.4		PASS
PM102 Bedroom	0	30	PASS
PM102 Living/ Kitchen	0		PASS
PM103 Bedroom 1	0.5	24	PASS
PM103 Bedroom 2	0.2	26	PASS
PM103 Living/ Kitchen	0.1		PASS
PM201 Bedroom	2.7	29	PASS
PM201 Living/ Kitchen	3		PASS
PM202 Bedroom	0.7	48	FAIL
PM202 Living/ Kitchen	1.3		PASS
PM203 Bedroom	1.4	33	FAIL
PM203 Living/ Kitchen	2.3		PASS
			4

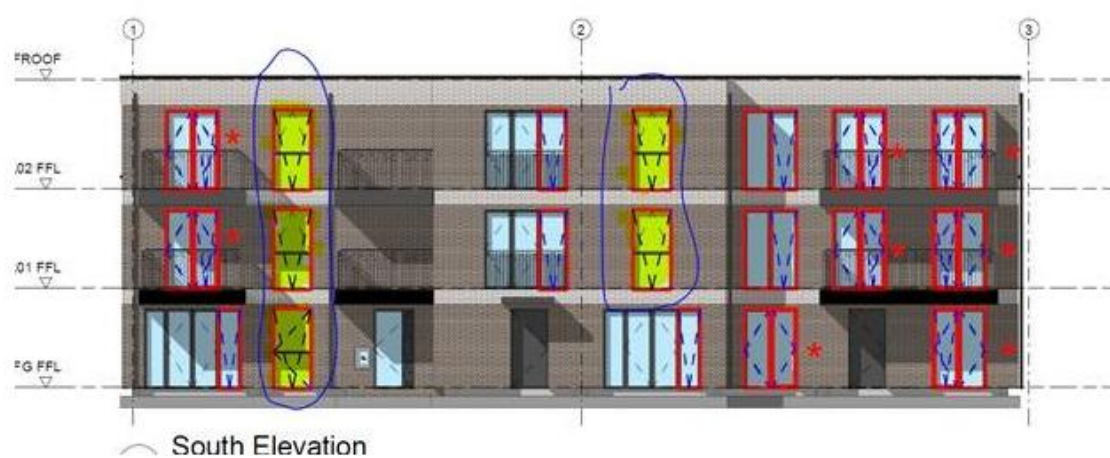
A.2 Appendix B – Detailed Results for Common Areas

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

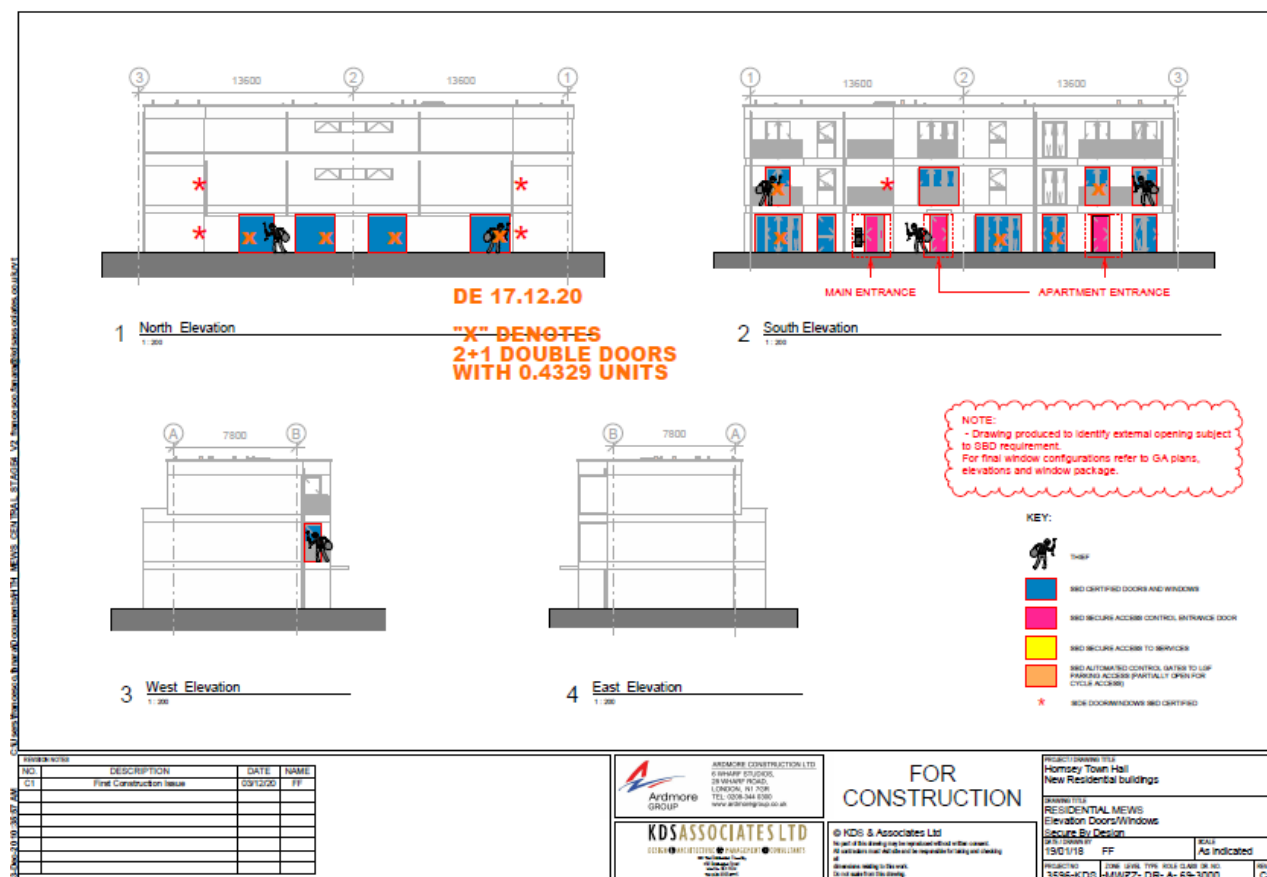
Level/Room Name:	Internal Temperatures >28°C				
	No. of hours >28°C	>1% of annual hours	>2% of annual hours	>3% of annual hours	Pass/Fail to CIBSE TM59:2017
Common Area Stairs (GF)	54	No	No	No	PASS
Common Area (GF)	0	No	No	No	PASS
Common Area Stairs (1st)	9	No	No	No	PASS
Common Area (1st)	22	No	No	No	PASS
Common Area Stairs (2nd)	41	No	No	No	PASS
Common Area (2nd)	17	No	No	No	PASS
Number of Common Areas Failing:					0

A.3 Appendix C – Window Changes

Mark up of window opening changes received 03.12.20



Drawings showing location of windows with g value of 0.4329 received 17.12.20



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WHITECODE
CONSULTING

Hornsey Town Hall Block A

Summer Overheating Assessment

CIBSE TM59:2017

Prepared for Ardmore Group

10687-S-OHTG-0001

Revision AB

26.02.2020



WHITECODE
CONSULTING

Executive Summary

The following report has been produced to assess the dwellings and common areas within Block A 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 and 0.4329 to lower ground, ground and 1st floor external doors. 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 and 0.4329 to selected windows
- Windows openable 90 degrees 100% area
- Internal doors open 24 hours
- NTC and No NTC profile changed to open at 22 degrees C
- 2-5th floor windows and external doors open all day/night in bedrooms
- 2-5th floor external doors open all day in living rooms and 100mm at night
- Tilt and turn external doors introduced in selected lower ground, ground and first floor to enable NTC.
- MVHR 0.3 l/s/m²
- Blinds in selected rooms
- Comfort cooling where required

With the above strategy, all rooms in Block A 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 25°C



- 3ach-1 when the internal temperature exceeds 28°C

With the above specification applied, all common area rooms assessed comply with the CIBSE TM59:2017 recommendations. 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	26.02.20	Preliminary Issue for Comments	KAV	EH
2	14.07.20	Updated results	KAV	EH
3	27.07.20	G value adjustment	KAV	EH
4	21.04.22	Amendments to windows due to manufacturer and security constraints	KAV	EH
5	15.08.24	As Built	PM	JM

1.0 Introduction

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

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.

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.
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

What can be regulated	
	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

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.

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.

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.

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.

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.

This report ascertains whether the dwellings will overheat within Block A. Suggestions on how to avoid overheating involving different glazing specifications, purge ventilation and external shading are provided in this report.

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.

1.0 Thermal Design Criteria

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 highrise 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)

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).

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.

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.

2.0 The Development

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**.

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.

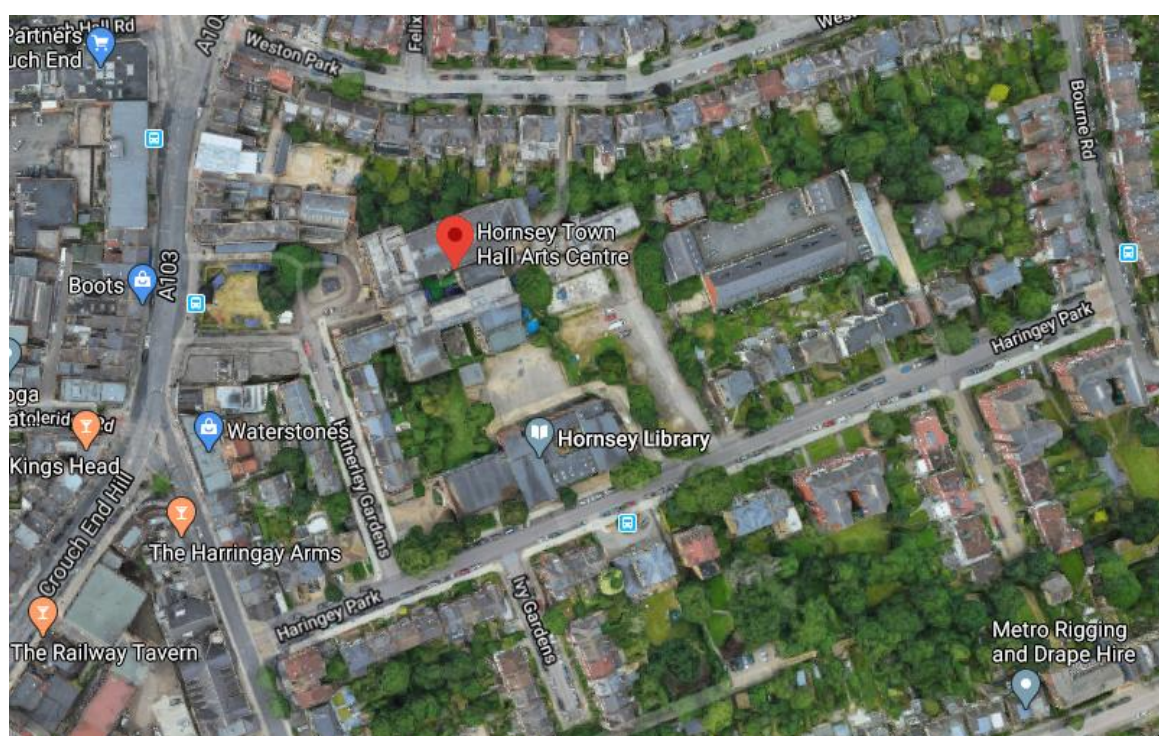


Figure 3.1 Hornsey Town Hall Development

3.0 Orientation

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:

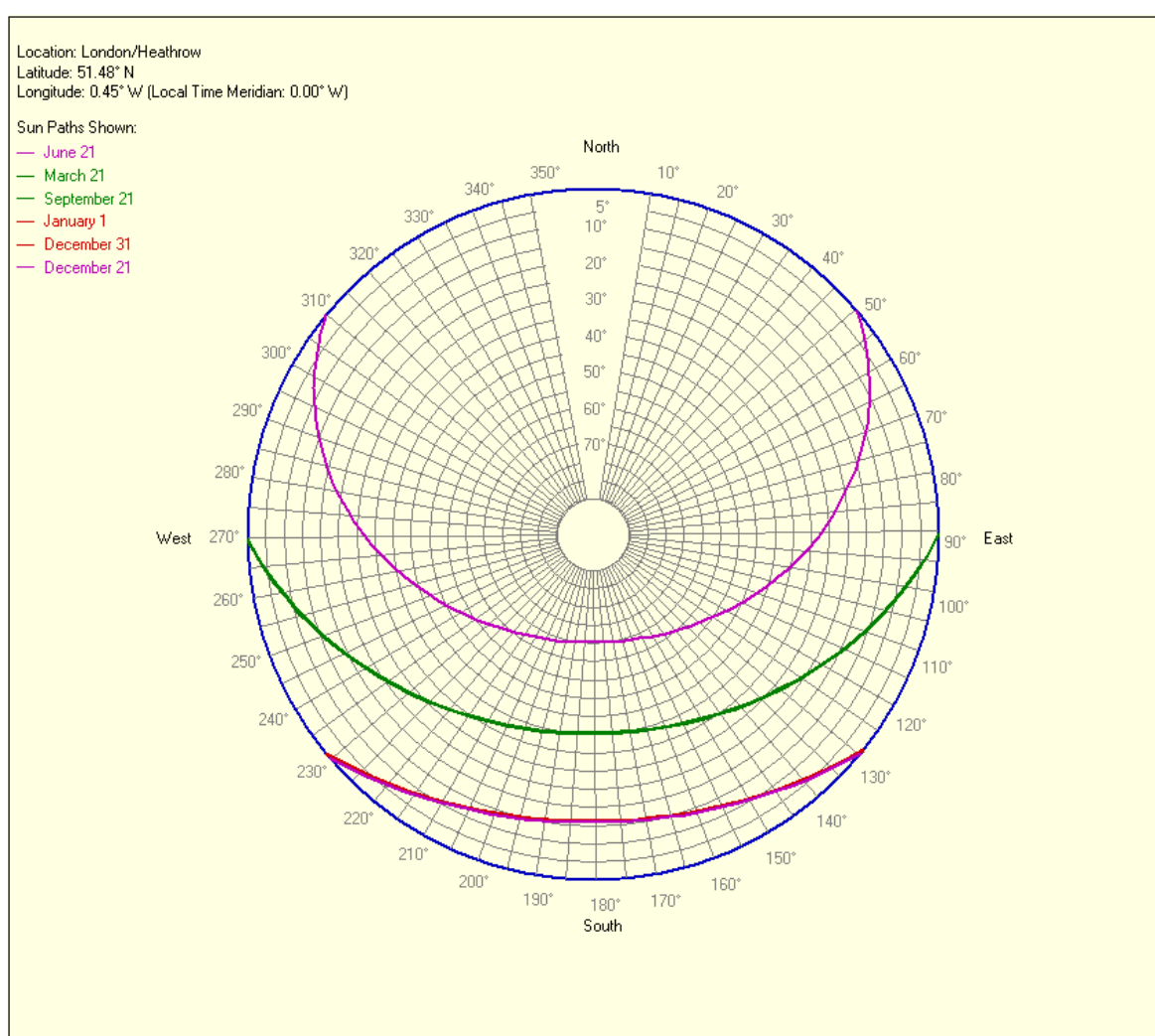


Figure 4.1 Sun path diagram for each season

4.0 The Model

A dynamic 3D model of the Block A was produced using drawings issued by KDS Associates in August 2019.

All dwellings and common areas have been modelled to provide a good representation of the overheating risk across the development.

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.

Building the Model

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.

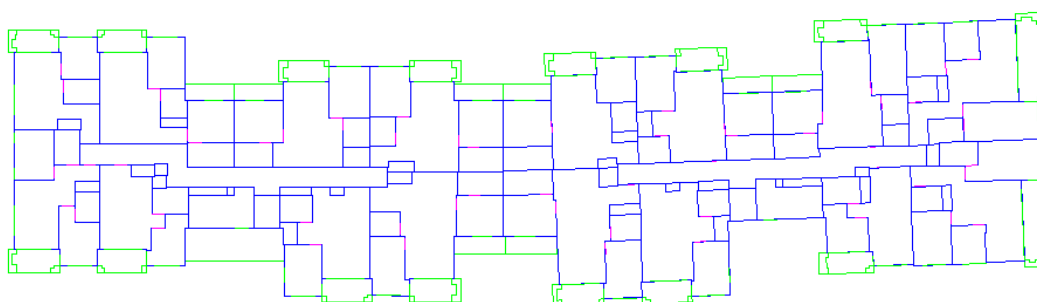


Figure 5.1 IES VE 2D template of example floor plan in Block A

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:

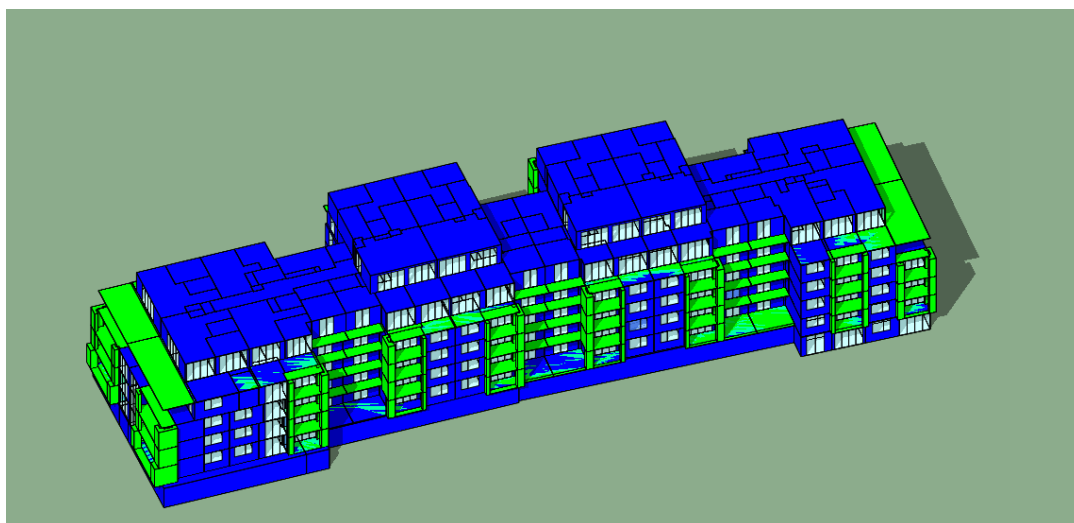


Figure 5.2 IES VE 3D model of Block A.

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.

Building Fabric

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

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

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.

Mechanical Ventilation

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.

The dwellings are to be served by underfloor heating. This will be served via an 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 25°C
- 3ach⁻¹ when the internal temperature exceeds 28°C

Purge Ventilation (Natural)

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.

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.

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.

Infiltration

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

Profiles

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.

Occupancy Profiles and Internal Equipment Gains

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

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

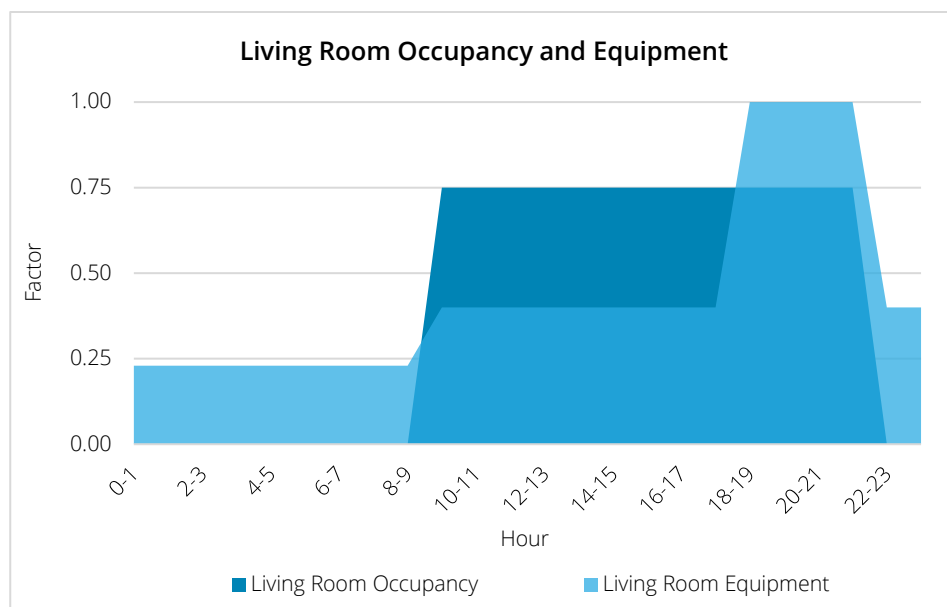


Figure 5.3 Living room occupancy and internal gains profile

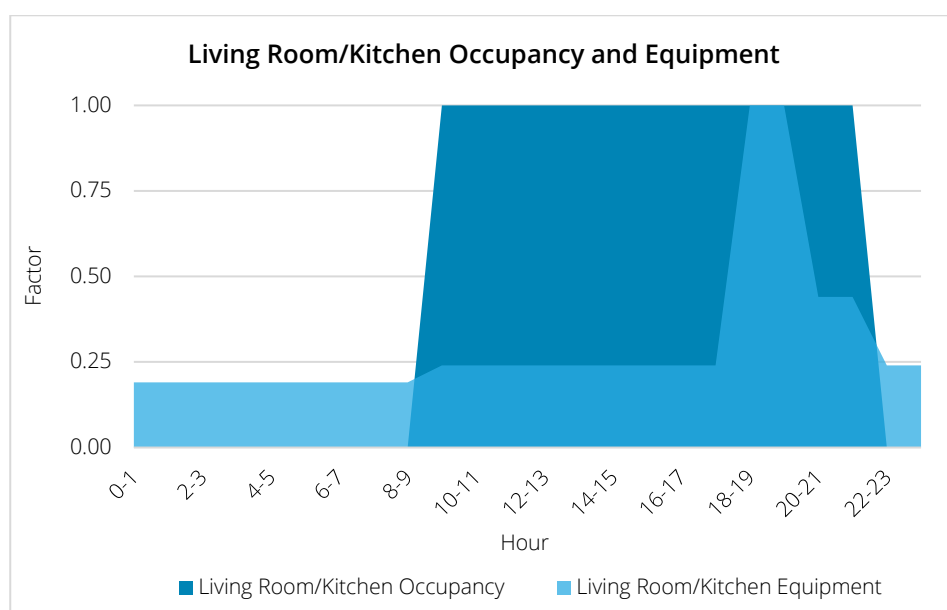


Figure 5.5 Living room/kitchen occupancy and internal gains profile

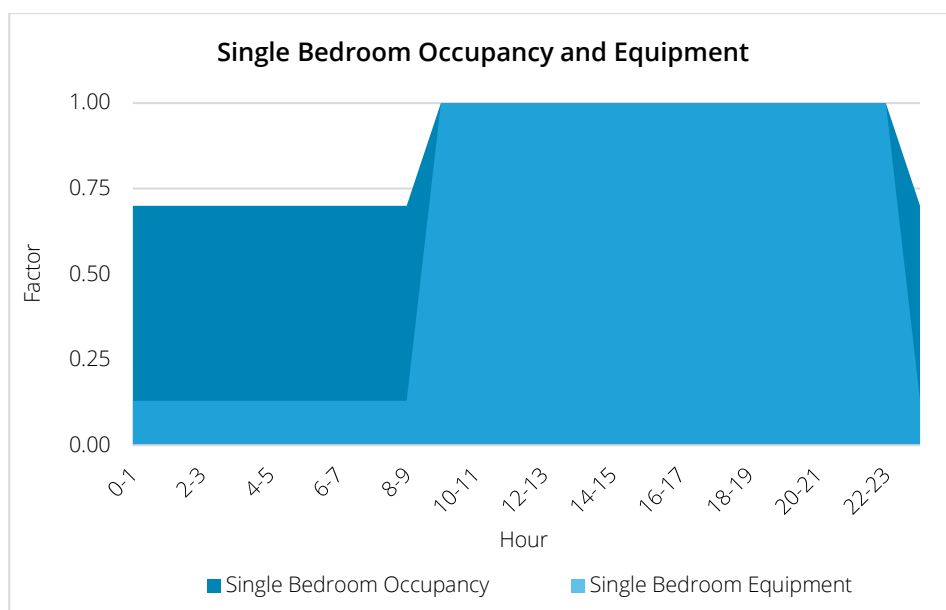


Figure 5.6 Single bedroom occupancy and internal gains profile

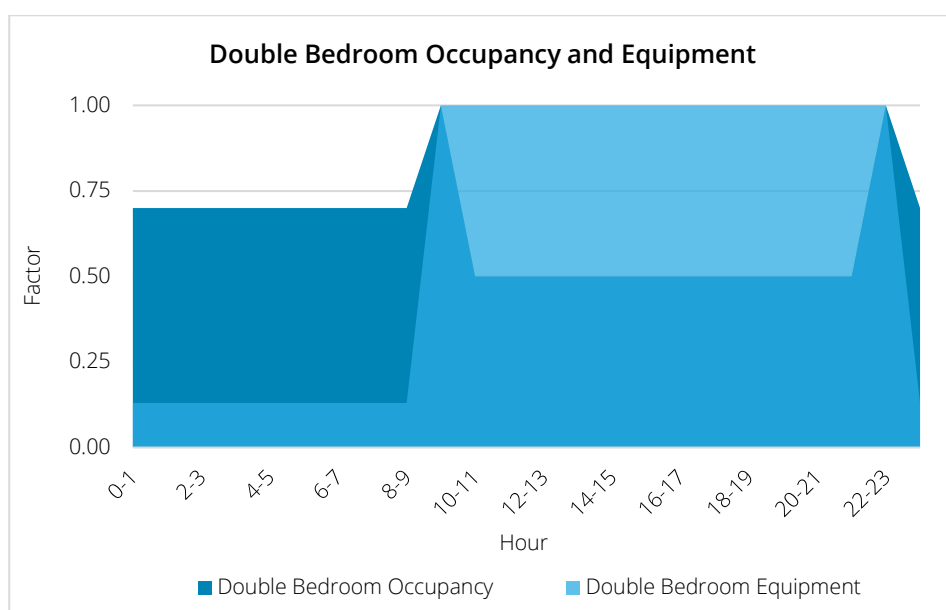


Figure 5.7 Double bedroom occupancy and internal gains profile

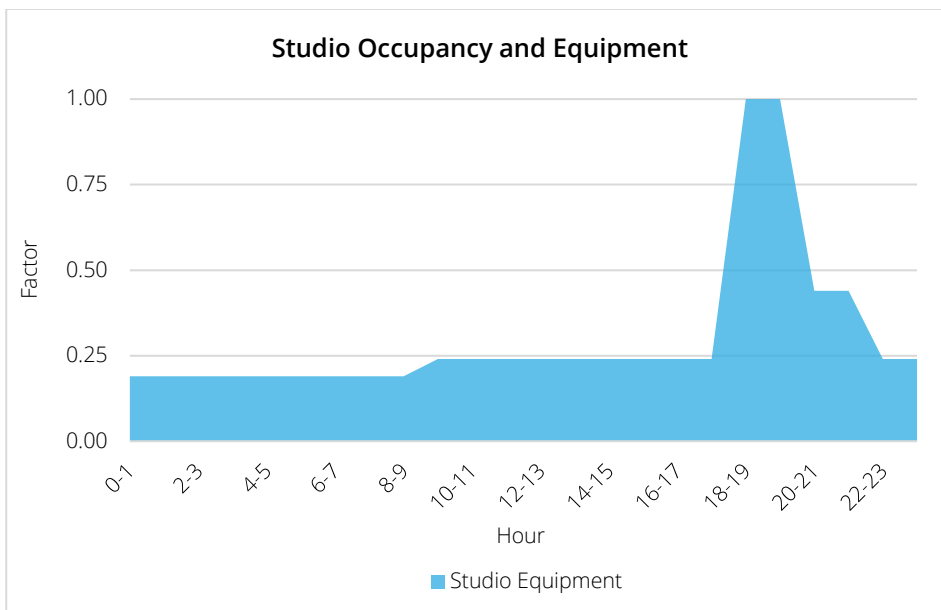


Figure 5.8 Studio occupancy and internal gains profile

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.

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.

Twin bedrooms have been assessed as double bedrooms.

Weather Files

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.

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.

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.

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.

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.

5.0 Shading and Obstructions

Shading

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.

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.

Building Shading

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.

Obstructions

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.

6.0 Results

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).

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.

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.

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. No windows open at night on lower ground, ground and first floor due to security risks. The results indicated that 38 of the 214 rooms failed to comply with the CIBSE TM59:2017 criteria.
- Scenario 2 – For the next simulation, some windows were amended to tilt inwards allowing night time cooling in failing rooms on the lower ground and ground floor bedrooms and failing living rooms. The results indicated that 34 of the 214 rooms failed to comply with the CIBSE TM59:2017 criteria.
- Scenario 3 – For the next simulation, it was discovered during detailed design that some of the windows could only achieve a g-value of 0.4329. The number of rooms failing increased to 35.

- Scenario 4 – The final simulation introduced cream Holland linen blinds with a shading coefficient of 0.40 to the failing rooms. This resulted in only 13 rooms still failing to comply with CIBSE TM59:2017.
- Comfort cooling to this 13 rooms will ensure all rooms comply with CIBE TM59 criteria.

A mark up of the windows with amended g-values is provided in **Appendix C**.

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.

Running the simulation with the glazing having a g-value of 0.42, indicated that all 31 spaces complied.

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.

7.0 Discussion

Why Are Rooms Failing?

9 failing rooms fail Criterion 1, which indicates solar gains is the main issue. The rooms are all located on either the West and East facades, some with dual aspect on the South façade and the majority are located on the top floors with little local shading. The East and West facades attract solar gains early morning and late afternoon respectively, especially during summer months when the sun is in the sky for longer.

The remaining 4 failing rooms are bedrooms located on the lower and ground floors and fail criteria 2 which is associated with air flow. These rooms cannot open fully at night to allow for sufficient night time cooling.

Possible Improvements

To further improve the results there must be changes to other factors. Continuing to decrease the g-value will eventually mean the glazing becomes too dark, which will reduce natural daylight levels. Results from previous simulations already indicated that reducing the g-value has little impact on the results.

Removing the amount of glazing would reduce the amount of solar gains entering the room. Alternatively, introducing more tilt or side hung windows in the living rooms will improve the results in these rooms by enabling night time cooling.

8.0 Conclusion

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.

Results from the final simulation indicate that with the following strategy, only 13 rooms still fail to comply with CIBSE TM59:2017 criteria:

- G value 0.4200 and 0.4329 in selected rooms
- 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

Comfort cooling will be required where the above improvements cannot be applied.

With the above scenario and comfort cooling where required, all rooms comply with TM59 criteria.

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.

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 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 25°C
- 3ach⁻¹ when the internal temperature exceeds 28°C

With the above specification applied, all common area rooms assessed comply with the CIBSE TM59:2017 recommendations. This indicates that the internal operative temperature should remain at an acceptable level.



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

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

Scenario 1:

- 'G value 0.4200
- Windows openable 90 degrees 100% area
- Internal doors open 24 hours
- No windows open at night on LG, G and 1st floor as per SBD mark up
- MVHR 0.3 l/s/m²

Room Name:	Criteria 1	Criteria 2	Pass/Fail
AN 01 - 1 Living/Kitchen/Hallway	1.5		PASS
AN 01 - Bedroom	1.6	18	PASS
AN 02 - 2 Living/Kitchen/Hallway	3.1		FAIL
AN 02 - Bedroom 1	1.5	23	PASS
AN 02 - Bedroom 2	0.9	33	FAIL
AN 03 - 1 Living/Kitchen/Hallway	3.3		FAIL
AN 03 - Bedroom	1.4	18	PASS
AN 04 - 2 Living/Kitchen/Hallway	0		PASS
AN 04 - Bedroom 1	0.9	15	PASS
AN 04 - Bedroom 2	1.4	16	PASS
AN 05 - 2 Living/Kitchen/Hallway	1.1		PASS
AN 05 - Bedroom 1	0.5	15	PASS
AN 05 - Bedroom 2	0.5	20	PASS
AN 06 - 2 Living/Kitchen/Hallway	1		PASS
AN 06 - Bedroom 1	0.7	16	PASS
AN 06 - Bedroom 2	0.4	19	PASS
AN 07 - 2 Living/Kitchen/Hallway	0.9		PASS
AN 07 - Bedroom 1	0.6	16	PASS
AN 07 - Bedroom 2	0.7	20	PASS
AN 08 - 1 Living/Kitchen/Hallway	1.2		PASS
AN 08 - Bedroom	2.2	24	PASS
AN 09 - 2 Living/Kitchen/Hallway	3.1		FAIL
AN 09 - Bedroom 1	0.9	44	FAIL
AN 09 - Bedroom 2	1.4	47	FAIL
AN 10 - 2 Living/Kitchen/Hallway	1.3		PASS
AN 10 - Bedroom 1	1.8	18	PASS
AN 10 - Bedroom 2	1.1	29	PASS
AN 11 - 1 Living/Kitchen/Hallway	3.1		FAIL
AN 11 - Bedroom	2.1	16	PASS
AN 12 - 2 Living/Kitchen/Hallway	3.4		FAIL
AN 12 - Bedroom 1	1.7	13	PASS
AN 12 - Bedroom 2	1.6	14	PASS
AN 13 - 1 Living/Kitchen/Hallway	3.4		FAIL
AN 13 - Bedroom	1	15	PASS



AN 14 - 2 Living/Kitchen/Hallway	2.6		PASS
AN 14 - Bedroom 1	1.5	16	PASS
AN 14 - Bedroom 2	0.7	15	PASS
AN 15 - 2 Living/Kitchen/Hallway	2.6		PASS
AN 15 - Bedroom 1	1.7	18	PASS
AN 15 - Bedroom 2	0.8	23	PASS
AN 16 - 2 Living/Kitchen/Hallway	1.4		PASS
AN 16 - Bedroom 1	0.8	17	PASS
AN 16 - Bedroom 2	1.8	23	PASS
AN 17 - 2 Living/Kitchen/Hallway	2.5		PASS
AN 17 - Bedroom 1	1.4	16	PASS
AN 17 - Bedroom 2	1.3	15	PASS
AN 18 - 1 Living/Kitchen/Hallway	2.8		PASS
AN 18 - Bedroom	2.3	16	PASS
AN 21 - 1 Living/Kitchen/Hallway	3.1		FAIL
AN 21 - Bedroom	2.2	16	PASS
AN 22 - 2 Living/Kitchen/Hallway	3.4		FAIL
AN 22 - Bedroom 1	1.7	13	PASS
AN 22 - Bedroom 2	1	13	PASS
AN 23 - 1 Living/Kitchen/Hallway	3.3		FAIL
AN 23 - Bedroom	1.1	15	PASS
AN 24 - 2 Living/Kitchen/Hallway	2.6		PASS
AN 24 - Bedroom 1	1.6	13	PASS
AN 24 - Bedroom 2	0.9	15	PASS
AN 25 - 2 Living/Kitchen/Hallway	2.7		PASS
AN 25 - Bedroom 1	1.6	13	PASS
AN 25 - Bedroom 2	1.2	14	PASS
AN 26 - 2 Living/Kitchen/Hallway	2.8		PASS
AN 26 - Bedroom 1	1.5	13	PASS
AN 26 - Bedroom 2	0.9	15	PASS
AN 27 - 2 Living/Kitchen/Hallway	2.6		PASS
AN 27 - Bedroom 1	1.4	13	PASS
AN 27 - Bedroom 2	1.4	16	PASS
AN 28 - 1 Living/Kitchen/Hallway	2.9		PASS
AN 28 - Bedroom	2.4	16	PASS
AN 31 - 2 Living/Kitchen/Hallway	3.7		FAIL
AN 31 - Bedroom 1	1.4	13	PASS
AN 31 - Bedroom 2	2.6	16	PASS
AN 32 - 3 Living/Kitchen/Hallway	2.7		PASS
AN 32 - Bedroom 1	0.6	15	PASS
AN 32 - Bedroom 2	1.3	19	PASS
AN 32 - Bedroom 3	1.2	15	PASS



AN 33 - 2 Living/Kitchen/Hallway	2.9		PASS
AN 33 - Bedroom 1	1.6	13	PASS
AN 33 - Bedroom 2	0.8	15	PASS
AN 34 - 2 Living/Kitchen/Hallway	2.8		PASS
AN 34 - Bedroom 1	1.6	13	PASS
AN 34 - Bedroom 2	1.2	15	PASS
AN 35 - 2 Living/Kitchen/Hallway	2.8		PASS
AN 35 - Bedroom 1	1.4	13	PASS
AN 35 - Bedroom 2	1.4	17	PASS
AN 36 - 1 Living/Kitchen/Hallway	3.1		FAIL
AN 36 - Bedroom	2.6	16	PASS
AN 41 - 1 Living/Kitchen/Hallway	6		FAIL
AN 41 - Bedroom	4.8	20	FAIL
AN 42 - 2 Living/Kitchen/Hallway	3.5		FAIL
AN 42 - Bedroom 1	2.1	13	PASS
AN 42 - Bedroom 2	1.2	15	PASS
AN 43 - 1 Living/Kitchen/Hallway	3.3		FAIL
AN 43 - Bedroom	1.3	15	PASS
AN 44 - 2 Living/Kitchen/Hallway	3.3		FAIL
AN 44 - Bedroom 1	2	13	PASS
AN 44 - Bedroom 2	1.2	15	PASS
AN 45 - 2 Living/Kitchen/Hallway	3.4		FAIL
AN 45 - Bedroom 1	1.7	13	PASS
AN 45 - Bedroom 2	2.3	15	PASS
AN 47 - 2 Living/Kitchen/Hallway	3.4		FAIL
AN 47 - Bedroom 1	1.9	13	PASS
AN 47 - Bedroom 2	2.1	14	PASS
AS 01 - 1 Living/Kitchen/Hallway	0.9		PASS
AS 01 - Bedroom	1.7	23	PASS
AS 02 - 2 Living/Kitchen/Hallway	0.8		PASS
AS 02 - Bedroom 1	0.5	15	PASS
AS 02 - Bedroom 2	0.7	21	PASS
AS 03 - 2 Living/Kitchen/Hallway	0.9		PASS
AS 03 - Bedroom 1	0.6	16	PASS
AS 03 - Bedroom 2	1	22	PASS
AS 04 - 2 Living/Kitchen/Hallway	1.3		PASS
AS 04 - Bedroom 1	1	16	PASS
AS 04 - Bedroom 2	0.5	21	PASS
AS 05 - 2 Living/Kitchen/Hallway	1.3		PASS
AS 05 - Bedroom 1	1	16	PASS
AS 05 - Bedroom 2	1	29	PASS
AS 06 - 3 Living/Kitchen/Hallway	1.7		PASS



AS 06 - Bedroom 1	1.2	16	PASS
AS 06 - Bedroom 2	0.4	25	PASS
AS 06 - Bedroom 3	1.8	30	PASS
AS 07 - 3 Living/Kitchen/Hallway	2		PASS
AS 07 - Bedroom 1	1.2	15	PASS
AS 07 - Bedroom 2	0.7	27	PASS
AS 07 - Bedroom 3	2.5	31	PASS
AS 08 - 1 Living/Kitchen/Hallway	3.1		FAIL
AS 08 - Bedroom	1.6	40	FAIL
AS 11 - 1 Living/Kitchen/Hallway	2		PASS
AS 11 - Bedroom	2.2	16	PASS
AS 12 - 2 Living/Kitchen/Hallway	0.9		PASS
AS 12 - Bedroom 1	0.5	17	PASS
AS 12 - Bedroom 2	1.2	23	PASS
AS 13 - 2 Living/Kitchen/Hallway	1		PASS
AS 13 - Bedroom 1	0.7	17	PASS
AS 13 - Bedroom 2	1.4	24	PASS
AS 14 - 2 Living/Kitchen/Hallway	1.1		PASS
AS 14 - Bedroom 1	0.8	16	PASS
AS 14 - Bedroom 2	0.7	18	PASS
AS 15 - 2 Living/Kitchen/Hallway	1.3		PASS
AS 15 - Bedroom 1	1.3	20	PASS
AS 15 - Bedroom 2	0.8	36	FAIL
AS 16 - 3 Living/Kitchen/Hallway	1.9		PASS
AS 16 - Bedroom 1	1.2	15	PASS
AS 16 - Bedroom 2	0.6	18	PASS
AS 16 - Bedroom 3	1.4	18	PASS
AS 17 - 3 Living/Kitchen/Hallway	2.4		PASS
AS 17 - Bedroom 1	1.5	16	PASS
AS 17 - Bedroom 2	1.5	21	PASS
AS 17 - Bedroom 3	2.1	22	PASS
AS 18 - 1 Living/Kitchen/Hallway	3.2		FAIL
AS 18 - Bedroom	2	46	FAIL
AS 21 - 1 Living/Kitchen/Hallway	2.6		PASS
AS 21 - Bedroom	2.3	16	PASS
AS 22 - 2 Living/Kitchen/Hallway	2.2		PASS
AS 22 - Bedroom 1	1.3	13	PASS
AS 22 - Bedroom 2	1.2	15	PASS
AS 23 - 2 Living/Kitchen/Hallway	2.6		PASS
AS 23 - Bedroom 1	1.5	13	PASS
AS 23 - Bedroom 2	1.4	15	PASS
AS 24 - 2 Living/Kitchen/Hallway	2.8		PASS



AS 24 - Bedroom 1	1.6	13	PASS
AS 24 - Bedroom 2	1.3	15	PASS
AS 25 - 2 Living/Kitchen/Hallway	2.8		PASS
AS 25 - Bedroom 1	0.9	13	PASS
AS 25 - Bedroom 2	2	13	PASS
AS 26 - 2 Living/Kitchen/Hallway	2.9		PASS
AS 26 - Bedroom 1	1	18	PASS
AS 26 - Bedroom 2	1.5	18	PASS
AS 27 - 1 Living/Kitchen/Hallway	2.2		PASS
AS 27 - Bedroom	1.5	14	PASS
AS 28 - 2 Living/Kitchen/Hallway	3		PASS
AS 28 - Bedroom 1	2	22	PASS
AS 28 - Bedroom 2	2	22	PASS
AS 29 - 1 Living/Kitchen/Hallway	3.6		FAIL
AS 29 - Bedroom	2.1	17	PASS
AS 31 - 1 Living/Kitchen/Hallway	2.6		PASS
AS 31 - Bedroom	2.4	16	PASS
AS 32 - 2 Living/Kitchen/Hallway	2.5		PASS
AS 32 - Bedroom 1	0.7	13	PASS
AS 32 - Bedroom 2	1.1	15	PASS
AS 33 - 2 Living/Kitchen/Hallway	2.9		PASS
AS 33 - Bedroom 1	1.5	13	PASS
AS 33 - Bedroom 2	1.3	15	PASS
AS 34 - 2 Living/Kitchen/Hallway	2.9		PASS
AS 34 - Bedroom 1	1.6	13	PASS
AS 34 - Bedroom 2	1.2	15	PASS
AS 35 - 2 Living/Kitchen/Hallway	2.7		PASS
AS 35 - Bedroom 1	1.6	13	PASS
AS 35 - Bedroom 2	1.8	15	PASS
AS 36 - 2 Living/Kitchen/Hallway	2.8		PASS
AS 36 - Bedroom 1	0.8	13	PASS
AS 36 - Bedroom 2	0.4	21	PASS
AS 37 - 1 Living/Kitchen/Hallway	3.1		FAIL
AS 37 - Bedroom 1	1.8	23	PASS
AS 38 - 1 Living/Kitchen/Hallway	3.8		FAIL
AS 38 - Bedroom	2.8	17	PASS
AS 42 - 2 Living/Kitchen/Hallway	3.1		FAIL
AS 42 - Bedroom 1	1.6	13	PASS
AS 42 - Bedroom 2	1.9	13	PASS
AS 44 - 2 Living/Kitchen/Hallway	3.3		FAIL
AS 44 - Bedroom 1	1.7	13	PASS
AS 44 - Bedroom 2	2	15	PASS



AS 45 - 2 Living/Kitchen/Hallway	3.3		FAIL
AS 45 - Bedroom 1	1.7	13	PASS
AS 45 - Bedroom 2	1.9	16	PASS
AS 46 - 2 Living/Kitchen/Hallway	3.3		FAIL
AS 46 - Bedroom 1	1.8	13	PASS
AS 46 - Bedroom 2	2.2	17	PASS
AS 47 - 1 Living/Kitchen/Hallway	3.7		FAIL
AS 47 - Bedroom	2	14	PASS
AS 48 - 1 Living/Kitchen/Hallway	4.6		FAIL
AS 48 - Bedroom	3.8	17	FAIL
AS 49 - 1 Living/Kitchen/Hallway	4.3		FAIL
AS 49 - Bedroom	4.6	20	FAIL
Number of Rooms Failing (out of 214):			38

Scenario 2:

- 'G value 0.4200
- Windows openable 90 degrees 100% area
- Internal doors open 24 hours
- Tilt and turn at night on LG, G and 1st floor to failing rooms
- MVHR 0.3 l/s/m2

Room Name:	Criteria 1	Criteria 2	Pass/Fail
AN 01 - 1 Living/Kitchen/Hallway	1.5		PASS
AN 01 - Bedroom	1.6	18	PASS
AN 02 - 2 Living/Kitchen/Hallway	3.4		FAIL
AN 02 - Bedroom 1	1.4	21	PASS
AN 02 - Bedroom 2	1.6	19	PASS
AN 03 - 1 Living/Kitchen/Hallway	3.3		FAIL
AN 03 - Bedroom	1.4	18	PASS
AN 04 - 2 Living/Kitchen/Hallway	0		PASS
AN 04 - Bedroom 1	0.9	15	PASS
AN 04 - Bedroom 2	1.4	16	PASS
AN 05 - 2 Living/Kitchen/Hallway	1.1		PASS
AN 05 - Bedroom 1	0.5	15	PASS
AN 05 - Bedroom 2	0.5	20	PASS
AN 06 - 2 Living/Kitchen/Hallway	1		PASS
AN 06 - Bedroom 1	0.7	16	PASS
AN 06 - Bedroom 2	0.4	19	PASS
AN 07 - 2 Living/Kitchen/Hallway	0.9		PASS
AN 07 - Bedroom 1	0.6	16	PASS
AN 07 - Bedroom 2	0.7	20	PASS
AN 08 - 1 Living/Kitchen/Hallway	1.2		PASS
AN 08 - Bedroom	2.2	24	PASS
AN 09 - 2 Living/Kitchen/Hallway	3.3		FAIL
AN 09 - Bedroom 1	1.4	23	PASS
AN 09 - Bedroom 2	1.7	23	PASS
AN 10 - 2 Living/Kitchen/Hallway	1.3		PASS
AN 10 - Bedroom 1	1.8	18	PASS
AN 10 - Bedroom 2	1.1	29	PASS
AN 11 - 1 Living/Kitchen/Hallway	3.1		FAIL
AN 11 - Bedroom	2.1	16	PASS
AN 12 - 2 Living/Kitchen/Hallway	3.4		FAIL
AN 12 - Bedroom 1	1.7	13	PASS
AN 12 - Bedroom 2	1.6	14	PASS
AN 13 - 1 Living/Kitchen/Hallway	3.4		FAIL
AN 13 - Bedroom	1	15	PASS



AN 14 - 2 Living/Kitchen/Hallway	2.6		PASS
AN 14 - Bedroom 1	1.5	16	PASS
AN 14 - Bedroom 2	0.7	15	PASS
AN 15 - 2 Living/Kitchen/Hallway	2.6		PASS
AN 15 - Bedroom 1	1.7	18	PASS
AN 15 - Bedroom 2	0.8	23	PASS
AN 16 - 2 Living/Kitchen/Hallway	1.4		PASS
AN 16 - Bedroom 1	0.8	17	PASS
AN 16 - Bedroom 2	1.8	23	PASS
AN 17 - 2 Living/Kitchen/Hallway	2.5		PASS
AN 17 - Bedroom 1	1.4	16	PASS
AN 17 - Bedroom 2	1.3	15	PASS
AN 18 - 1 Living/Kitchen/Hallway	2.8		PASS
AN 18 - Bedroom	2.3	16	PASS
AN 21 - 1 Living/Kitchen/Hallway	3.1		FAIL
AN 21 - Bedroom	2.2	16	PASS
AN 22 - 2 Living/Kitchen/Hallway	3.4		FAIL
AN 22 - Bedroom 1	1.7	13	PASS
AN 22 - Bedroom 2	1	13	PASS
AN 23 - 1 Living/Kitchen/Hallway	3.3		FAIL
AN 23 - Bedroom	1.1	15	PASS
AN 24 - 2 Living/Kitchen/Hallway	2.6		PASS
AN 24 - Bedroom 1	1.6	13	PASS
AN 24 - Bedroom 2	0.9	15	PASS
AN 25 - 2 Living/Kitchen/Hallway	2.7		PASS
AN 25 - Bedroom 1	1.6	13	PASS
AN 25 - Bedroom 2	1.2	14	PASS
AN 26 - 2 Living/Kitchen/Hallway	2.8		PASS
AN 26 - Bedroom 1	1.5	13	PASS
AN 26 - Bedroom 2	0.9	15	PASS
AN 27 - 2 Living/Kitchen/Hallway	2.6		PASS
AN 27 - Bedroom 1	1.4	13	PASS
AN 27 - Bedroom 2	1.4	16	PASS
AN 28 - 1 Living/Kitchen/Hallway	2.9		PASS
AN 28 - Bedroom	2.4	16	PASS
AN 31 - 2 Living/Kitchen/Hallway	3.7		FAIL
AN 31 - Bedroom 1	1.4	13	PASS
AN 31 - Bedroom 2	2.6	16	PASS
AN 32 - 3 Living/Kitchen/Hallway	2.7		PASS
AN 32 - Bedroom 1	0.6	15	PASS
AN 32 - Bedroom 2	1.3	19	PASS
AN 32 - Bedroom 3	1.2	15	PASS



AN 33 - 2 Living/Kitchen/Hallway	2.9		PASS
AN 33 - Bedroom 1	1.6	13	PASS
AN 33 - Bedroom 2	0.8	15	PASS
AN 34 - 2 Living/Kitchen/Hallway	2.8		PASS
AN 34 - Bedroom 1	1.6	13	PASS
AN 34 - Bedroom 2	1.2	15	PASS
AN 35 - 2 Living/Kitchen/Hallway	2.8		PASS
AN 35 - Bedroom 1	1.4	13	PASS
AN 35 - Bedroom 2	1.4	17	PASS
AN 36 - 1 Living/Kitchen/Hallway	3.1		FAIL
AN 36 - Bedroom	2.6	16	PASS
AN 41 - 1 Living/Kitchen/Hallway	6		FAIL
AN 41 - Bedroom	4.8	20	FAIL
AN 42 - 2 Living/Kitchen/Hallway	3.5		FAIL
AN 42 - Bedroom 1	2.1	13	PASS
AN 42 - Bedroom 2	1.2	15	PASS
AN 43 - 1 Living/Kitchen/Hallway	3.3		FAIL
AN 43 - Bedroom	1.3	15	PASS
AN 44 - 2 Living/Kitchen/Hallway	3.3		FAIL
AN 44 - Bedroom 1	2	13	PASS
AN 44 - Bedroom 2	1.2	15	PASS
AN 45 - 2 Living/Kitchen/Hallway	3.4		FAIL
AN 45 - Bedroom 1	1.7	13	PASS
AN 45 - Bedroom 2	2.3	15	PASS
AN 47 - 2 Living/Kitchen/Hallway	3.4		FAIL
AN 47 - Bedroom 1	1.9	13	PASS
AN 47 - Bedroom 2	2.1	14	PASS
AS 01 - 1 Living/Kitchen/Hallway	0.9		PASS
AS 01 - Bedroom	1.7	23	PASS
AS 02 - 2 Living/Kitchen/Hallway	0.8		PASS
AS 02 - Bedroom 1	0.5	15	PASS
AS 02 - Bedroom 2	0.7	21	PASS
AS 03 - 2 Living/Kitchen/Hallway	0.9		PASS
AS 03 - Bedroom 1	0.6	16	PASS
AS 03 - Bedroom 2	1	22	PASS
AS 04 - 2 Living/Kitchen/Hallway	1.3		PASS
AS 04 - Bedroom 1	1	16	PASS
AS 04 - Bedroom 2	0.5	21	PASS
AS 05 - 2 Living/Kitchen/Hallway	1.3		PASS
AS 05 - Bedroom 1	1	16	PASS
AS 05 - Bedroom 2	1	29	PASS
AS 06 - 3 Living/Kitchen/Hallway	1.7		PASS



AS 06 - Bedroom 1	1.2	16	PASS
AS 06 - Bedroom 2	0.4	25	PASS
AS 06 - Bedroom 3	1.8	30	PASS
AS 07 - 3 Living/Kitchen/Hallway	2		PASS
AS 07 - Bedroom 1	1.2	15	PASS
AS 07 - Bedroom 2	0.7	27	PASS
AS 07 - Bedroom 3	2.5	31	PASS
AS 08 - 1 Living/Kitchen/Hallway	3.1		FAIL
AS 08 - Bedroom	1.5	22	PASS
AS 11 - 1 Living/Kitchen/Hallway	2		PASS
AS 11 - Bedroom	2.2	16	PASS
AS 12 - 2 Living/Kitchen/Hallway	0.9		PASS
AS 12 - Bedroom 1	0.5	17	PASS
AS 12 - Bedroom 2	1.2	23	PASS
AS 13 - 2 Living/Kitchen/Hallway	1		PASS
AS 13 - Bedroom 1	0.7	17	PASS
AS 13 - Bedroom 2	1.4	24	PASS
AS 14 - 2 Living/Kitchen/Hallway	1.1		PASS
AS 14 - Bedroom 1	0.8	16	PASS
AS 14 - Bedroom 2	0.7	18	PASS
AS 15 - 2 Living/Kitchen/Hallway	1.3		PASS
AS 15 - Bedroom 1	1.3	20	PASS
AS 15 - Bedroom 2	0.8	36	FAIL
AS 16 - 3 Living/Kitchen/Hallway	1.9		PASS
AS 16 - Bedroom 1	1.2	15	PASS
AS 16 - Bedroom 2	0.6	18	PASS
AS 16 - Bedroom 3	1.4	18	PASS
AS 17 - 3 Living/Kitchen/Hallway	2.4		PASS
AS 17 - Bedroom 1	1.5	16	PASS
AS 17 - Bedroom 2	1.5	21	PASS
AS 17 - Bedroom 3	2.1	22	PASS
AS 18 - 1 Living/Kitchen/Hallway	3.2		FAIL
AS 18 - Bedroom	2	46	FAIL
AS 21 - 1 Living/Kitchen/Hallway	2.6		PASS
AS 21 - Bedroom	2.3	16	PASS
AS 22 - 2 Living/Kitchen/Hallway	2.2		PASS
AS 22 - Bedroom 1	1.3	13	PASS
AS 22 - Bedroom 2	1.2	15	PASS
AS 23 - 2 Living/Kitchen/Hallway	2.6		PASS
AS 23 - Bedroom 1	1.5	13	PASS
AS 23 - Bedroom 2	1.4	15	PASS
AS 24 - 2 Living/Kitchen/Hallway	2.8		PASS



AS 24 - Bedroom 1	1.6	13	PASS
AS 24 - Bedroom 2	1.3	15	PASS
AS 25 - 2 Living/Kitchen/Hallway	2.8		PASS
AS 25 - Bedroom 1	0.9	13	PASS
AS 25 - Bedroom 2	2	13	PASS
AS 26 - 2 Living/Kitchen/Hallway	2.9		PASS
AS 26 - Bedroom 1	1	18	PASS
AS 26 - Bedroom 2	1.5	18	PASS
AS 27 - 1 Living/Kitchen/Hallway	2.2		PASS
AS 27 - Bedroom	1.5	14	PASS
AS 28 - 2 Living/Kitchen/Hallway	3		PASS
AS 28 - Bedroom 1	2	22	PASS
AS 28 - Bedroom 2	2	22	PASS
AS 29 - 1 Living/Kitchen/Hallway	3.6		FAIL
AS 29 - Bedroom	2.1	16	PASS
AS 31 - 1 Living/Kitchen/Hallway	2.6		PASS
AS 31 - Bedroom	2.4	16	PASS
AS 32 - 2 Living/Kitchen/Hallway	2.5		PASS
AS 32 - Bedroom 1	0.7	13	PASS
AS 32 - Bedroom 2	1.1	15	PASS
AS 33 - 2 Living/Kitchen/Hallway	2.9		PASS
AS 33 - Bedroom 1	1.5	13	PASS
AS 33 - Bedroom 2	1.3	15	PASS
AS 34 - 2 Living/Kitchen/Hallway	2.9		PASS
AS 34 - Bedroom 1	1.6	13	PASS
AS 34 - Bedroom 2	1.2	15	PASS
AS 35 - 2 Living/Kitchen/Hallway	2.7		PASS
AS 35 - Bedroom 1	1.6	13	PASS
AS 35 - Bedroom 2	1.8	15	PASS
AS 36 - 2 Living/Kitchen/Hallway	2.8		PASS
AS 36 - Bedroom 1	0.8	13	PASS
AS 36 - Bedroom 2	0.4	21	PASS
AS 37 - 1 Living/Kitchen/Hallway	3.1		FAIL
AS 37 - Bedroom 1	1.8	23	PASS
AS 38 - 1 Living/Kitchen/Hallway	3.8		FAIL
AS 38 - Bedroom	2.8	17	PASS
AS 42 - 2 Living/Kitchen/Hallway	3.1		FAIL
AS 42 - Bedroom 1	1.6	13	PASS
AS 42 - Bedroom 2	1.9	13	PASS
AS 44 - 2 Living/Kitchen/Hallway	3.3		FAIL
AS 44 - Bedroom 1	1.7	13	PASS
AS 44 - Bedroom 2	2	15	PASS



AS 45 - 2 Living/Kitchen/Hallway	3.3		FAIL
AS 45 - Bedroom 1	1.7	13	PASS
AS 45 - Bedroom 2	1.9	16	PASS
AS 46 - 2 Living/Kitchen/Hallway	3.3		FAIL
AS 46 - Bedroom 1	1.8	13	PASS
AS 46 - Bedroom 2	2.2	17	PASS
AS 47 - 1 Living/Kitchen/Hallway	3.7		FAIL
AS 47 - Bedroom	2	14	PASS
AS 48 - 1 Living/Kitchen/Hallway	4.6		FAIL
AS 48 - Bedroom	3.8	17	FAIL
AS 49 - 1 Living/Kitchen/Hallway	4.3		FAIL
AS 49 - Bedroom	4.6	20	FAIL
Number of Rooms Failing (out of 214):			34

Scenario 3:

- 'G value 0.42
- G value 0.4329 to selected LG, GF and 1st floor doors
- Windows openable 90 degrees 100% area
- Internal doors open 24 hours
- Tilt and turn at night on LG, G and 1st floor to failing rooms
- MVHR 0.3 l/s/m2

Room Name:	Criteria 1	Criteria 2	Pass/Fail
AN 01 - 1 Living/Kitchen/Hallway	1.6		PASS
AN 01 - Bedroom	1.6	18	PASS
AN 02 - 2 Living/Kitchen/Hallway	3.4		FAIL
AN 02 - Bedroom 1	1.6	21	PASS
AN 02 - Bedroom 2	1.6	20	PASS
AN 03 - 1 Living/Kitchen/Hallway	3.3		FAIL
AN 03 - Bedroom	1.4	18	PASS
AN 04 - 2 Living/Kitchen/Hallway	0		PASS
AN 04 - Bedroom 1	0.9	15	PASS
AN 04 - Bedroom 2	1.5	16	PASS
AN 05 - 2 Living/Kitchen/Hallway	1.1		PASS
AN 05 - Bedroom 1	0.6	15	PASS
AN 05 - Bedroom 2	0.5	20	PASS
AN 06 - 2 Living/Kitchen/Hallway	1		PASS
AN 06 - Bedroom 1	0.7	16	PASS
AN 06 - Bedroom 2	0.4	19	PASS
AN 07 - 2 Living/Kitchen/Hallway	0.9		PASS
AN 07 - Bedroom 1	0.6	16	PASS
AN 07 - Bedroom 2	0.7	20	PASS
AN 08 - 1 Living/Kitchen/Hallway	1.2		PASS
AN 08 - Bedroom	2.2	24	PASS
AN 09 - 2 Living/Kitchen/Hallway	3.1		FAIL
AN 09 - Bedroom 1	0.9	44	FAIL
AN 09 - Bedroom 2	1.4	46	FAIL
AN 10 - 2 Living/Kitchen/Hallway	1.3		PASS
AN 10 - Bedroom 1	1.8	18	PASS
AN 10 - Bedroom 2	1.1	29	PASS
AN 11 - 1 Living/Kitchen/Hallway	3.1		FAIL
AN 11 - Bedroom	2.1	16	PASS
AN 12 - 2 Living/Kitchen/Hallway	3.4		FAIL
AN 12 - Bedroom 1	1.7	13	PASS
AN 12 - Bedroom 2	1.6	14	PASS
AN 13 - 1 Living/Kitchen/Hallway	3.4		FAIL



AN 13 - Bedroom	1	15	PASS
AN 14 - 2 Living/Kitchen/Hallway	2.6		PASS
AN 14 - Bedroom 1	1.5	16	PASS
AN 14 - Bedroom 2	0.7	15	PASS
AN 15 - 2 Living/Kitchen/Hallway	1.4		PASS
AN 15 - Bedroom 1	1.2	19	PASS
AN 15 - Bedroom 2	0.7	23	PASS
AN 16 - 2 Living/Kitchen/Hallway	1.4		PASS
AN 16 - Bedroom 1	0.8	17	PASS
AN 16 - Bedroom 2	1.8	23	PASS
AN 17 - 2 Living/Kitchen/Hallway	2.5		PASS
AN 17 - Bedroom 1	1.4	16	PASS
AN 17 - Bedroom 2	1.3	15	PASS
AN 18 - 1 Living/Kitchen/Hallway	2.8		PASS
AN 18 - Bedroom	2.3	16	PASS
AN 21 - 1 Living/Kitchen/Hallway	3.1		FAIL
AN 21 - Bedroom	2.2	16	PASS
AN 22 - 2 Living/Kitchen/Hallway	3.4		FAIL
AN 22 - Bedroom 1	1.7	13	PASS
AN 22 - Bedroom 2	1	13	PASS
AN 23 - 1 Living/Kitchen/Hallway	3.3		FAIL
AN 23 - Bedroom	1.1	15	PASS
AN 24 - 2 Living/Kitchen/Hallway	2.6		PASS
AN 24 - Bedroom 1	1.6	13	PASS
AN 24 - Bedroom 2	0.9	15	PASS
AN 25 - 2 Living/Kitchen/Hallway	2.8		PASS
AN 25 - Bedroom 1	1.6	13	PASS
AN 25 - Bedroom 2	1.2	14	PASS
AN 26 - 2 Living/Kitchen/Hallway	2.8		PASS
AN 26 - Bedroom 1	1.5	13	PASS
AN 26 - Bedroom 2	0.9	15	PASS
AN 27 - 2 Living/Kitchen/Hallway	2.6		PASS
AN 27 - Bedroom 1	1.4	13	PASS
AN 27 - Bedroom 2	1.4	16	PASS
AN 28 - 1 Living/Kitchen/Hallway	2.9		PASS
AN 28 - Bedroom	2.4	16	PASS
AN 31 - 2 Living/Kitchen/Hallway	3.7		FAIL
AN 31 - Bedroom 1	1.4	13	PASS
AN 31 - Bedroom 2	2.6	16	PASS
AN 32 - 3 Living/Kitchen/Hallway	2.7		PASS
AN 32 - Bedroom 1	0.6	15	PASS
AN 32 - Bedroom 2	1.3	19	PASS



AN 32 - Bedroom 3	1.2	15	PASS
AN 33 - 2 Living/Kitchen/Hallway	2.9		PASS
AN 33 - Bedroom 1	1.6	13	PASS
AN 33 - Bedroom 2	0.8	15	PASS
AN 34 - 2 Living/Kitchen/Hallway	2.8		PASS
AN 34 - Bedroom 1	1.6	13	PASS
AN 34 - Bedroom 2	1.2	15	PASS
AN 35 - 2 Living/Kitchen/Hallway	2.8		PASS
AN 35 - Bedroom 1	1.4	13	PASS
AN 35 - Bedroom 2	1.4	17	PASS
AN 36 - 1 Living/Kitchen/Hallway	3.1		FAIL
AN 36 - Bedroom	2.6	16	PASS
AN 41 - 1 Living/Kitchen/Hallway	6		FAIL
AN 41 - Bedroom	4.8	20	FAIL
AN 42 - 2 Living/Kitchen/Hallway	3.5		FAIL
AN 42 - Bedroom 1	2.1	13	PASS
AN 42 - Bedroom 2	1.2	15	PASS
AN 43 - 1 Living/Kitchen/Hallway	3.3		FAIL
AN 43 - Bedroom	1.3	15	PASS
AN 44 - 2 Living/Kitchen/Hallway	3.3		FAIL
AN 44 - Bedroom 1	2	13	PASS
AN 44 - Bedroom 2	1.2	15	PASS
AN 45 - 2 Living/Kitchen/Hallway	3.4		FAIL
AN 45 - Bedroom 1	1.7	13	PASS
AN 45 - Bedroom 2	2.3	15	PASS
AN 47 - 2 Living/Kitchen/Hallway	3.4		FAIL
AN 47 - Bedroom 1	1.9	13	PASS
AN 47 - Bedroom 2	2.1	14	PASS
AS 01 - 1 Living/Kitchen/Hallway	0.9		PASS
AS 01 - Bedroom	1.7	24	PASS
AS 02 - 2 Living/Kitchen/Hallway	0.8		PASS
AS 02 - Bedroom 1	0.5	15	PASS
AS 02 - Bedroom 2	0.7	21	PASS
AS 03 - 2 Living/Kitchen/Hallway	0.9		PASS
AS 03 - Bedroom 1	0.6	16	PASS
AS 03 - Bedroom 2	1	22	PASS
AS 04 - 2 Living/Kitchen/Hallway	1.3		PASS
AS 04 - Bedroom 1	1.1	16	PASS
AS 04 - Bedroom 2	0.5	21	PASS
AS 05 - 2 Living/Kitchen/Hallway	1.3		PASS
AS 05 - Bedroom 1	1	16	PASS
AS 05 - Bedroom 2	1	29	PASS



AS 06 - 3 Living/Kitchen/Hallway	1.8		PASS
AS 06 - Bedroom 1	1.2	16	PASS
AS 06 - Bedroom 2	0.4	25	PASS
AS 06 - Bedroom 3	1.8	30	PASS
AS 07 - 3 Living/Kitchen/Hallway	2		PASS
AS 07 - Bedroom 1	1.2	15	PASS
AS 07 - Bedroom 2	0.7	27	PASS
AS 07 - Bedroom 3	2.5	31	PASS
AS 08 - 1 Living/Kitchen/Hallway	2.4		PASS
AS 08 - Bedroom	1.5	22	PASS
AS 11 - 1 Living/Kitchen/Hallway	2		PASS
AS 11 - Bedroom	2.2	16	PASS
AS 12 - 2 Living/Kitchen/Hallway	0.9		PASS
AS 12 - Bedroom 1	0.5	17	PASS
AS 12 - Bedroom 2	1.2	23	PASS
AS 13 - 2 Living/Kitchen/Hallway	1		PASS
AS 13 - Bedroom 1	0.7	17	PASS
AS 13 - Bedroom 2	1.4	24	PASS
AS 14 - 2 Living/Kitchen/Hallway	1.1		PASS
AS 14 - Bedroom 1	0.8	16	PASS
AS 14 - Bedroom 2	0.7	18	PASS
AS 15 - 2 Living/Kitchen/Hallway	1.3		PASS
AS 15 - Bedroom 1	1.3	20	PASS
AS 15 - Bedroom 2	0.8	36	FAIL
AS 16 - 3 Living/Kitchen/Hallway	1.9		PASS
AS 16 - Bedroom 1	1.2	15	PASS
AS 16 - Bedroom 2	0.6	18	PASS
AS 16 - Bedroom 3	1.4	18	PASS
AS 17 - 3 Living/Kitchen/Hallway	2.4		PASS
AS 17 - Bedroom 1	1.5	16	PASS
AS 17 - Bedroom 2	1.5	21	PASS
AS 17 - Bedroom 3	2.2	22	PASS
AS 18 - 1 Living/Kitchen/Hallway	3.2		FAIL
AS 18 - Bedroom	2	46	FAIL
AS 21 - 1 Living/Kitchen/Hallway	2.6		PASS
AS 21 - Bedroom	2.3	16	PASS
AS 22 - 2 Living/Kitchen/Hallway	2.2		PASS
AS 22 - Bedroom 1	1.3	13	PASS
AS 22 - Bedroom 2	1.2	15	PASS
AS 23 - 2 Living/Kitchen/Hallway	2.6		PASS
AS 23 - Bedroom 1	1.5	13	PASS
AS 23 - Bedroom 2	1.4	15	PASS



AS 24 - 2 Living/Kitchen/Hallway	2.8		PASS
AS 24 - Bedroom 1	1.6	13	PASS
AS 24 - Bedroom 2	1.3	15	PASS
AS 25 - 2 Living/Kitchen/Hallway	2.8		PASS
AS 25 - Bedroom 1	0.9	13	PASS
AS 25 - Bedroom 2	2	13	PASS
AS 26 - 2 Living/Kitchen/Hallway	2.9		PASS
AS 26 - Bedroom 1	1	18	PASS
AS 26 - Bedroom 2	1.5	18	PASS
AS 27 - 1 Living/Kitchen/Hallway	2.2		PASS
AS 27 - Bedroom	1.5	14	PASS
AS 28 - 2 Living/Kitchen/Hallway	3		PASS
AS 28 - Bedroom 1	2	22	PASS
AS 28 - Bedroom 2	2	22	PASS
AS 29 - 1 Living/Kitchen/Hallway	3.6		FAIL
AS 29 - Bedroom	2.1	16	PASS
AS 31 - 1 Living/Kitchen/Hallway	2.6		PASS
AS 31 - Bedroom	2.4	16	PASS
AS 32 - 2 Living/Kitchen/Hallway	2.5		PASS
AS 32 - Bedroom 1	0.7	13	PASS
AS 32 - Bedroom 2	1.1	15	PASS
AS 33 - 2 Living/Kitchen/Hallway	2.9		PASS
AS 33 - Bedroom 1	1.5	13	PASS
AS 33 - Bedroom 2	1.3	15	PASS
AS 34 - 2 Living/Kitchen/Hallway	2.9		PASS
AS 34 - Bedroom 1	1.6	13	PASS
AS 34 - Bedroom 2	1.2	15	PASS
AS 35 - 2 Living/Kitchen/Hallway	2.7		PASS
AS 35 - Bedroom 1	1.6	13	PASS
AS 35 - Bedroom 2	1.8	15	PASS
AS 36 - 2 Living/Kitchen/Hallway	2.8		PASS
AS 36 - Bedroom 1	0.8	13	PASS
AS 36 - Bedroom 2	0.4	21	PASS
AS 37 - 1 Living/Kitchen/Hallway	3.1		FAIL
AS 37 - Bedroom 1	1.8	23	PASS
AS 38 - 1 Living/Kitchen/Hallway	3.8		FAIL
AS 38 - Bedroom	2.8	17	PASS
AS 42 - 2 Living/Kitchen/Hallway	3.1		FAIL
AS 42 - Bedroom 1	1.6	13	PASS
AS 42 - Bedroom 2	1.9	13	PASS
AS 44 - 2 Living/Kitchen/Hallway	3.3		FAIL
AS 44 - Bedroom 1	1.7	13	PASS



AS 44 - Bedroom 2	2	15	PASS
AS 45 - 2 Living/Kitchen/Hallway	3.3		FAIL
AS 45 - Bedroom 1	1.7	13	PASS
AS 45 - Bedroom 2	1.9	16	PASS
AS 46 - 2 Living/Kitchen/Hallway	3.3		FAIL
AS 46 - Bedroom 1	1.8	13	PASS
AS 46 - Bedroom 2	2.2	17	PASS
AS 47 - 1 Living/Kitchen/Hallway	3.7		FAIL
AS 47 - Bedroom	2	14	PASS
AS 48 - 1 Living/Kitchen/Hallway	4.6		FAIL
AS 48 - Bedroom	3.8	17	FAIL
AS 49 - 1 Living/Kitchen/Hallway	4.3		FAIL
AS 49 - Bedroom	4.6	20	FAIL
Number of Rooms Failing (out of 214):			35

Scenario 4:

- 'G value 0.42
- G value 0.4329 to selected LG, GF and 1st floor doors
- Windows openable 90 degrees 100% area
- Internal doors open 24 hours
- Tilt and turn at night on LG, G and 1st floor to failing rooms
- MVHR 0.3 l/s/m²
- Blinds

Room Name:	Criteria 1	Criteria 2	Pass/Fail
AN 01 - 1 Living/Kitchen/Hallway	1.6		PASS
AN 01 - Bedroom	1.6	18	PASS
AN 02 - 2 Living/Kitchen/Hallway	3		PASS
AN 02 - Bedroom 1	1.6	21	PASS
AN 02 - Bedroom 2	1.6	20	PASS
AN 03 - 1 Living/Kitchen/Hallway	2.2		PASS
AN 03 - Bedroom	1.4	18	PASS
AN 04 - 2 Living/Kitchen/Hallway	0		PASS
AN 04 - Bedroom 1	0.9	15	PASS
AN 04 - Bedroom 2	1.5	16	PASS
AN 05 - 2 Living/Kitchen/Hallway	1.1		PASS
AN 05 - Bedroom 1	0.6	15	PASS
AN 05 - Bedroom 2	0.5	20	PASS
AN 06 - 2 Living/Kitchen/Hallway	1		PASS
AN 06 - Bedroom 1	0.7	16	PASS
AN 06 - Bedroom 2	0.4	19	PASS
AN 07 - 2 Living/Kitchen/Hallway	0.9		PASS
AN 07 - Bedroom 1	0.6	16	PASS
AN 07 - Bedroom 2	0.7	20	PASS
AN 08 - 1 Living/Kitchen/Hallway	1.2		PASS
AN 08 - Bedroom	2.2	24	PASS
AN 09 - 2 Living/Kitchen/Hallway	2.6		PASS
AN 09 - Bedroom 1	0.9	44	FAIL
AN 09 - Bedroom 2	1.4	46	FAIL
AN 10 - 2 Living/Kitchen/Hallway	1.3		PASS
AN 10 - Bedroom 1	1.8	18	PASS
AN 10 - Bedroom 2	1.1	29	PASS
AN 11 - 1 Living/Kitchen/Hallway	2.8		PASS
AN 11 - Bedroom	2.1	16	PASS
AN 12 - 2 Living/Kitchen/Hallway	3		PASS
AN 12 - Bedroom 1	1.7	13	PASS
AN 12 - Bedroom 2	1.6	14	PASS



AN 13 - 1 Living/Kitchen/Hallway	2.9		PASS
AN 13 - Bedroom	1	15	PASS
AN 14 - 2 Living/Kitchen/Hallway	2.6		PASS
AN 14 - Bedroom 1	1.5	16	PASS
AN 14 - Bedroom 2	0.7	15	PASS
AN 15 - 2 Living/Kitchen/Hallway	1.4		PASS
AN 15 - Bedroom 1	1.2	19	PASS
AN 15 - Bedroom 2	0.7	23	PASS
AN 16 - 2 Living/Kitchen/Hallway	1.4		PASS
AN 16 - Bedroom 1	0.8	17	PASS
AN 16 - Bedroom 2	1.8	23	PASS
AN 17 - 2 Living/Kitchen/Hallway	2.5		PASS
AN 17 - Bedroom 1	1.4	16	PASS
AN 17 - Bedroom 2	1.3	15	PASS
AN 18 - 1 Living/Kitchen/Hallway	2.8		PASS
AN 18 - Bedroom	2.3	16	PASS
AN 21 - 1 Living/Kitchen/Hallway	2.8		PASS
AN 21 - Bedroom	2.2	16	PASS
AN 22 - 2 Living/Kitchen/Hallway	3		PASS
AN 22 - Bedroom 1	1.7	13	PASS
AN 22 - Bedroom 2	1	13	PASS
AN 23 - 1 Living/Kitchen/Hallway	2.8		PASS
AN 23 - Bedroom	1.1	15	PASS
AN 24 - 2 Living/Kitchen/Hallway	2.6		PASS
AN 24 - Bedroom 1	1.6	13	PASS
AN 24 - Bedroom 2	0.9	15	PASS
AN 25 - 2 Living/Kitchen/Hallway	2.8		PASS
AN 25 - Bedroom 1	1.6	13	PASS
AN 25 - Bedroom 2	1.2	14	PASS
AN 26 - 2 Living/Kitchen/Hallway	2.8		PASS
AN 26 - Bedroom 1	1.5	13	PASS
AN 26 - Bedroom 2	0.9	15	PASS
AN 27 - 2 Living/Kitchen/Hallway	2.6		PASS
AN 27 - Bedroom 1	1.4	13	PASS
AN 27 - Bedroom 2	1.4	16	PASS
AN 28 - 1 Living/Kitchen/Hallway	2.9		PASS
AN 28 - Bedroom	2.4	16	PASS
AN 31 - 2 Living/Kitchen/Hallway	3.3		FAIL
AN 31 - Bedroom 1	1.4	13	PASS
AN 31 - Bedroom 2	2.6	16	PASS
AN 32 - 3 Living/Kitchen/Hallway	2.7		PASS
AN 32 - Bedroom 1	0.6	15	PASS



AN 32 - Bedroom 2	1.3	19	PASS
AN 32 - Bedroom 3	1.2	15	PASS
AN 33 - 2 Living/Kitchen/Hallway	2.9		PASS
AN 33 - Bedroom 1	1.6	13	PASS
AN 33 - Bedroom 2	0.8	15	PASS
AN 34 - 2 Living/Kitchen/Hallway	2.8		PASS
AN 34 - Bedroom 1	1.6	13	PASS
AN 34 - Bedroom 2	1.2	15	PASS
AN 35 - 2 Living/Kitchen/Hallway	2.8		PASS
AN 35 - Bedroom 1	1.4	13	PASS
AN 35 - Bedroom 2	1.4	17	PASS
AN 36 - 1 Living/Kitchen/Hallway	2.8		PASS
AN 36 - Bedroom	2.1	16	PASS
AN 41 - 1 Living/Kitchen/Hallway	4.5		FAIL
AN 41 - Bedroom	3.1	20	FAIL
AN 42 - 2 Living/Kitchen/Hallway	3.3		FAIL
AN 42 - Bedroom 1	2.1	13	PASS
AN 42 - Bedroom 2	1.2	15	PASS
AN 43 - 1 Living/Kitchen/Hallway	2.7		PASS
AN 43 - Bedroom	1.3	15	PASS
AN 44 - 2 Living/Kitchen/Hallway	2.9		PASS
AN 44 - Bedroom 1	2	13	PASS
AN 44 - Bedroom 2	1.2	15	PASS
AN 45 - 2 Living/Kitchen/Hallway	2.9		PASS
AN 45 - Bedroom 1	1.7	13	PASS
AN 45 - Bedroom 2	2.3	15	PASS
AN 47 - 2 Living/Kitchen/Hallway	3		PASS
AN 47 - Bedroom 1	1.9	13	PASS
AN 47 - Bedroom 2	2.1	14	PASS
AS 01 - 1 Living/Kitchen/Hallway	0.9		PASS
AS 01 - Bedroom	1.7	24	PASS
AS 02 - 2 Living/Kitchen/Hallway	0.8		PASS
AS 02 - Bedroom 1	0.5	15	PASS
AS 02 - Bedroom 2	0.7	21	PASS
AS 03 - 2 Living/Kitchen/Hallway	0.9		PASS
AS 03 - Bedroom 1	0.6	16	PASS
AS 03 - Bedroom 2	1	22	PASS
AS 04 - 2 Living/Kitchen/Hallway	1.3		PASS
AS 04 - Bedroom 1	1.1	16	PASS
AS 04 - Bedroom 2	0.5	21	PASS
AS 05 - 2 Living/Kitchen/Hallway	1.3		PASS
AS 05 - Bedroom 1	1	16	PASS



AS 05 - Bedroom 2	1	29	PASS
AS 06 - 3 Living/Kitchen/Hallway	1.8		PASS
AS 06 - Bedroom 1	1.2	16	PASS
AS 06 - Bedroom 2	0.4	25	PASS
AS 06 - Bedroom 3	1.8	30	PASS
AS 07 - 3 Living/Kitchen/Hallway	2		PASS
AS 07 - Bedroom 1	1.2	15	PASS
AS 07 - Bedroom 2	0.7	27	PASS
AS 07 - Bedroom 3	2.5	31	PASS
AS 08 - 1 Living/Kitchen/Hallway	2.4		PASS
AS 08 - Bedroom	1.5	22	PASS
AS 11 - 1 Living/Kitchen/Hallway	2		PASS
AS 11 - Bedroom	2.2	16	PASS
AS 12 - 2 Living/Kitchen/Hallway	0.9		PASS
AS 12 - Bedroom 1	0.5	17	PASS
AS 12 - Bedroom 2	1.2	23	PASS
AS 13 - 2 Living/Kitchen/Hallway	1		PASS
AS 13 - Bedroom 1	0.7	17	PASS
AS 13 - Bedroom 2	1.4	24	PASS
AS 14 - 2 Living/Kitchen/Hallway	1.1		PASS
AS 14 - Bedroom 1	0.8	16	PASS
AS 14 - Bedroom 2	0.7	18	PASS
AS 15 - 2 Living/Kitchen/Hallway	1.3		PASS
AS 15 - Bedroom 1	1.3	20	PASS
AS 15 - Bedroom 2	0.8	36	FAIL
AS 16 - 3 Living/Kitchen/Hallway	1.9		PASS
AS 16 - Bedroom 1	1.2	15	PASS
AS 16 - Bedroom 2	0.6	18	PASS
AS 16 - Bedroom 3	1.4	18	PASS
AS 17 - 3 Living/Kitchen/Hallway	2.4		PASS
AS 17 - Bedroom 1	1.5	16	PASS
AS 17 - Bedroom 2	1.5	21	PASS
AS 17 - Bedroom 3	2.2	22	PASS
AS 18 - 1 Living/Kitchen/Hallway	2.1		PASS
AS 18 - Bedroom	1.2	38	FAIL
AS 21 - 1 Living/Kitchen/Hallway	2.6		PASS
AS 21 - Bedroom	2.3	16	PASS
AS 22 - 2 Living/Kitchen/Hallway	2.2		PASS
AS 22 - Bedroom 1	1.3	13	PASS
AS 22 - Bedroom 2	1.2	15	PASS
AS 23 - 2 Living/Kitchen/Hallway	2.6		PASS
AS 23 - Bedroom 1	1.5	13	PASS



AS 23 - Bedroom 2	1.4	15	PASS
AS 24 - 2 Living/Kitchen/Hallway	2.8		PASS
AS 24 - Bedroom 1	1.6	13	PASS
AS 24 - Bedroom 2	1.3	15	PASS
AS 25 - 2 Living/Kitchen/Hallway	2.8		PASS
AS 25 - Bedroom 1	0.9	13	PASS
AS 25 - Bedroom 2	2	13	PASS
AS 26 - 2 Living/Kitchen/Hallway	2.9		PASS
AS 26 - Bedroom 1	1	18	PASS
AS 26 - Bedroom 2	1.5	18	PASS
AS 27 - 1 Living/Kitchen/Hallway	2.2		PASS
AS 27 - Bedroom	1.5	14	PASS
AS 28 - 2 Living/Kitchen/Hallway	3		PASS
AS 28 - Bedroom 1	2	22	PASS
AS 28 - Bedroom 2	2	22	PASS
AS 29 - 1 Living/Kitchen/Hallway	3		PASS
AS 29 - Bedroom	2.1	16	PASS
AS 31 - 1 Living/Kitchen/Hallway	2.6		PASS
AS 31 - Bedroom	2.4	16	PASS
AS 32 - 2 Living/Kitchen/Hallway	2.5		PASS
AS 32 - Bedroom 1	0.7	13	PASS
AS 32 - Bedroom 2	1.1	15	PASS
AS 33 - 2 Living/Kitchen/Hallway	2.9		PASS
AS 33 - Bedroom 1	1.5	13	PASS
AS 33 - Bedroom 2	1.3	15	PASS
AS 34 - 2 Living/Kitchen/Hallway	2.9		PASS
AS 34 - Bedroom 1	1.6	13	PASS
AS 34 - Bedroom 2	1.2	15	PASS
AS 35 - 2 Living/Kitchen/Hallway	2.7		PASS
AS 35 - Bedroom 1	1.6	13	PASS
AS 35 - Bedroom 2	1.8	15	PASS
AS 36 - 2 Living/Kitchen/Hallway	2.8		PASS
AS 36 - Bedroom 1	0.8	13	PASS
AS 36 - Bedroom 2	0.4	21	PASS
AS 37 - 1 Living/Kitchen/Hallway	2.7		PASS
AS 37 - Bedroom 1	1.8	23	PASS
AS 38 - 1 Living/Kitchen/Hallway	3.2		FAIL
AS 38 - Bedroom	2.8	17	PASS
AS 42 - 2 Living/Kitchen/Hallway	2.6		PASS
AS 42 - Bedroom 1	1.6	13	PASS
AS 42 - Bedroom 2	1.9	13	PASS
AS 44 - 2 Living/Kitchen/Hallway	2.7		PASS



AS 44 - Bedroom 1	1.7	13	PASS
AS 44 - Bedroom 2	2	15	PASS
AS 45 - 2 Living/Kitchen/Hallway	3.3		FAIL
AS 45 - Bedroom 1	1.7	13	PASS
AS 45 - Bedroom 2	1.9	16	PASS
AS 46 - 2 Living/Kitchen/Hallway	2.7		PASS
AS 46 - Bedroom 1	1.8	13	PASS
AS 46 - Bedroom 2	2.2	17	PASS
AS 47 - 1 Living/Kitchen/Hallway	3.3		FAIL
AS 47 - Bedroom	2	14	PASS
AS 48 - 1 Living/Kitchen/Hallway	3.7		FAIL
AS 48 - Bedroom	2.6	17	PASS
AS 49 - 1 Living/Kitchen/Hallway	3.6		FAIL
AS 49 - Bedroom	2.8	20	PASS
Number of Rooms Failing (out of 214):			13



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 >30°C				Internal Temperatures >32°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 >30°C	>1% of annual hours	>2% of annual hours	>3% of annual hours	No. of hours >32°C	>1% of annual hours	>2% of annual hours	>3% of annual hours
Block AN - 00 - Common Area Corridors	0	No	No	No	PASS	0	No	No	No	0	No	No	No
Block AN - 00 - Common Area Corridors	64	No	No	No	PASS	19	No	No	No	3	No	No	No
Block AN - 00 - North Core Entrance	4	No	No	No	PASS	0	No	No	No	0	No	No	No
Block AN - 00 - North Core Stairs	0	No	No	No	PASS	0	No	No	No	0	No	No	No
Block AN - 00 - Common Area Corridors	0	No	No	No	PASS	0	No	No	No	0	No	No	No
Block AS - 00 - South Core Stairs	0	No	No	No	PASS	0	No	No	No	0	No	No	No
Block AS - 00 - Common Area Corridors	0	No	No	No	PASS	0	No	No	No	0	No	No	No
Block AS - 00 - Common Area Corridors	0	No	No	No	PASS	0	No	No	No	0	No	No	No
Block A - 00 - Common Area Corridors	0	No	No	No	PASS	0	No	No	No	0	No	No	No
Block AN - 0 - North Core Stairs	3	No	No	No	PASS	0	No	No	No	0	No	No	No
Block AN - 0 - Common Area Corridors	70	No	No	No	PASS	16	No	No	No	0	No	No	No
Block AS - 0 - South Core Entrance	23	No	No	No	PASS	0	No	No	No	0	No	No	No
Block AS - 0 - South Core Stairs	9	No	No	No	PASS	0	No	No	No	0	No	No	No
Block AS - 0 - Common Area Corridors	21	No	No	No	PASS	0	No	No	No	0	No	No	No
Block AS - 0 - Common Area Corridors	78	No	No	No	PASS	20	No	No	No	0	No	No	No
Block AN - 1 - North Core Stairs	82	No	No	No	PASS	27	No	No	No	4	No	No	No
Block AN - 1 - Common Area Corridors	131	Yes	No	No	PASS	38	No	No	No	3	No	No	No
Block AS - 1 - Common Area Corridors	122	Yes	No	No	PASS	38	No	No	No	2	No	No	No
Block AS - 1 - South Core Stairs	83	No	No	No	PASS	25	No	No	No	4	No	No	No
Block AN - 2 - North Core Stairs	93	Yes	No	No	PASS	27	No	No	No	4	No	No	No
Block AN - 2 - Common Area Corridors	134	Yes	No	No	PASS	39	No	No	No	3	No	No	No
Block AS - 2 - South Core Stairs	82	No	No	No	PASS	25	No	No	No	4	No	No	No
Block AS - 2 - Common Area Corridors	129	Yes	No	No	PASS	38	No	No	No	2	No	No	No
Block AN - 3 - North Core Stairs	57	No	No	No	PASS	18	No	No	No	0	No	No	No
Block AS - 3 - South Core Stairs	39	No	No	No	PASS	9	No	No	No	0	No	No	No
Block AN - 3 - Common Area Corridors	164	Yes	No	No	PASS	45	No	No	No	4	No	No	No
Block AS - 3 - Common Area Corridors	141	Yes	No	No	PASS	39	No	No	No	3	No	No	No
Block AN - 4 - Common Area Corridors	154	Yes	No	No	PASS	41	No	No	No	3	No	No	No
Block AN - 4 - North Core Stairs	97	Yes	No	No	PASS	28	No	No	No	4	No	No	No
Block AS - 4 - Common Area Corridors	148	Yes	No	No	PASS	39	No	No	No	2	No	No	No
Block AS - 4 - South Core Stairs	84	No	No	No	PASS	25	No	No	No	4	No	No	No

Number of Rooms Failing:

0



A.3 Appendix C – Mark Up of Window Changes

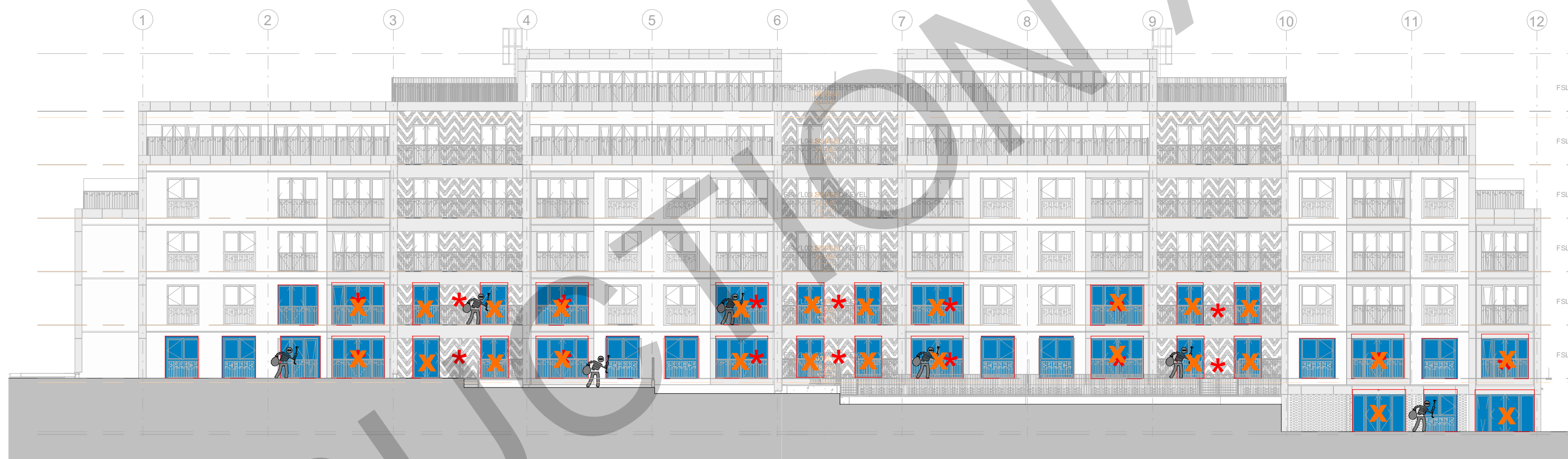
C:\Users\francesco.farina\Documents\H1\H1_Block_A_CENTRAL_STAGE1_V5_francesco.farina@kdsassociates.co.uk.rvt 12-Nov-20 9:42:57 AM



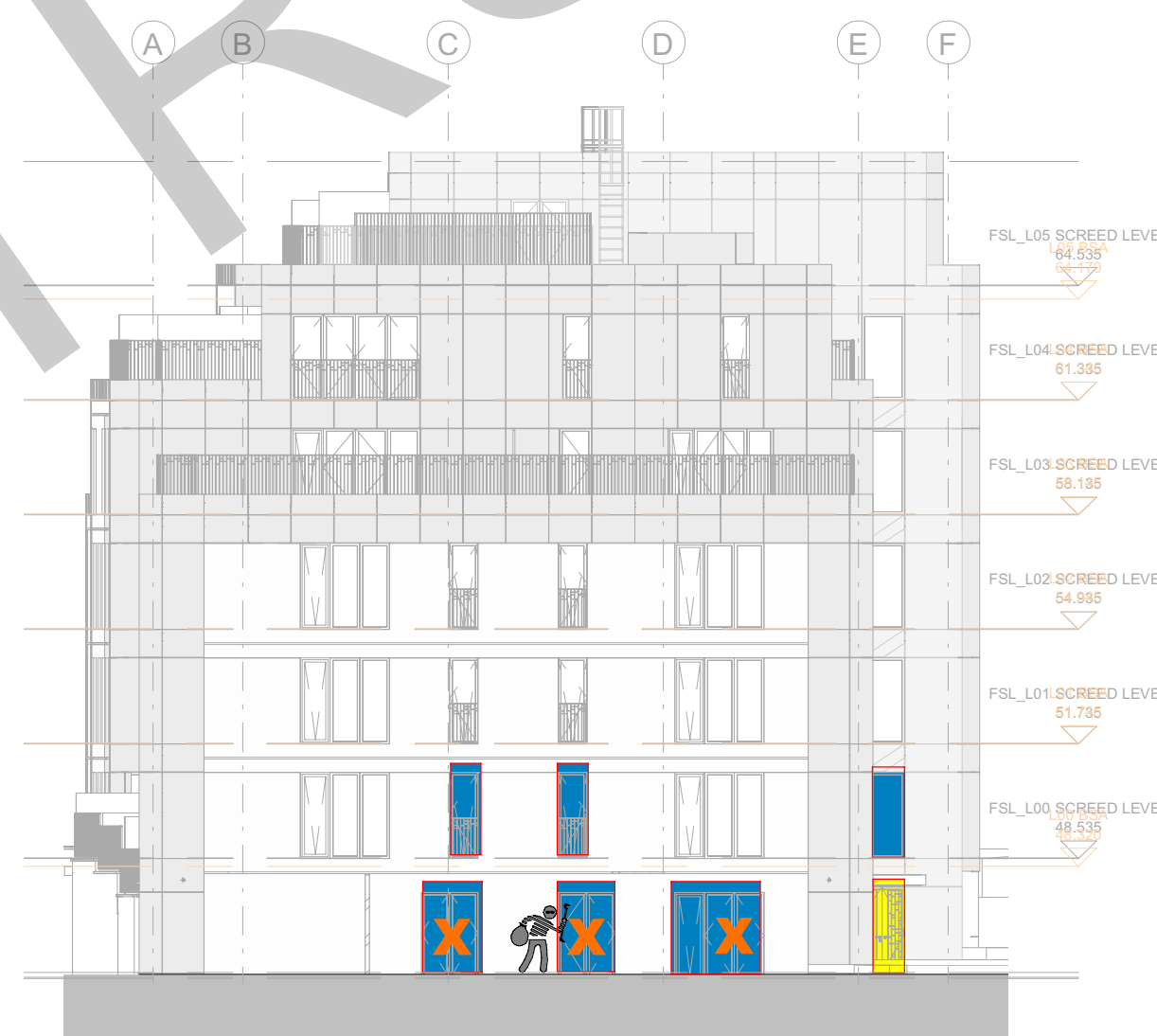
01 West Elevation
1 : 200

DE 16.12.20

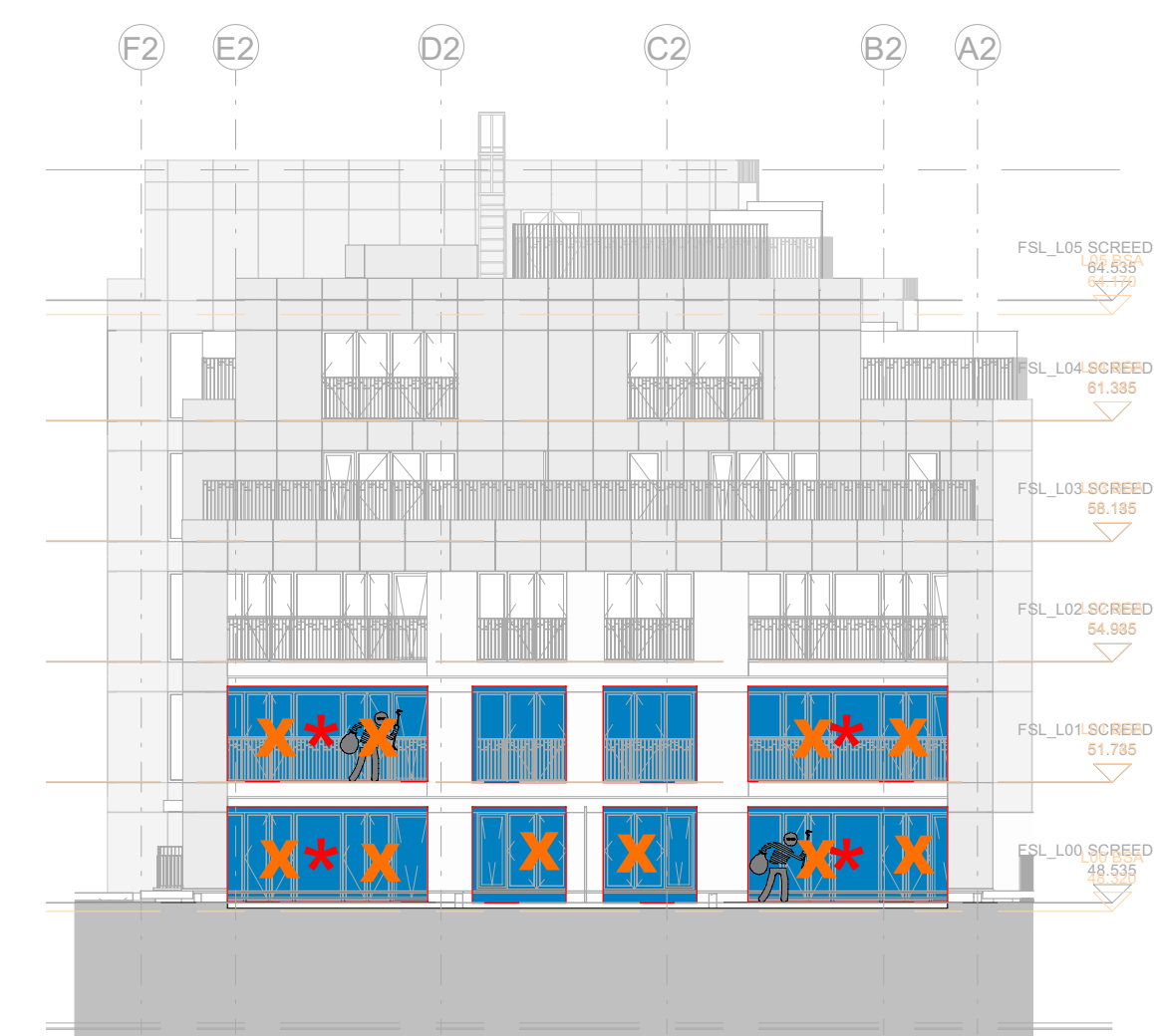
"X" DENOTES
2+1 DOUBLE DOORS
WITH 0.4329 UNITS



02 East Elevation
1 : 200



03 North Elevation
1 : 200



04 South Elevation
1 : 200

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checking all
dimensions relating to this work.
Do not scale from this drawing.

REVISION NOTES			
NO.	DESCRIPTION	DATE	NAME
C1	Issued for construction	12/11/20	FF

- KEY:
- THIEF
 - SBD CERTIFIED DOORS AND WINDOWS
 - SBD SECURE ACCESS CONTROL ENTRANCE DOOR
 - SBD SECURE ACCESS TO SERVICES
 - SBD AUTOMATED CONTROL GATES TO LGF PARKING ACCESS (PARTIALLY OPEN FOR CYCLE ACCESS)
 - INSET BALCONY OR TERRACE DOOR/WINDOWS SBD CERTIFIED

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PROJECT / DRAWING TITLE Homsey Town Hall			
DRAWING TITLE RESIDENTIAL BLOCK A Elevation Door/Window Secure By Design			
DATE / DRAWN BY 18/01/18 FF		SCALE As indicated	
PROJECT NO 3596-KDS	ZONE -BA-	LEVEL ZZ-	REV C1

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