

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.

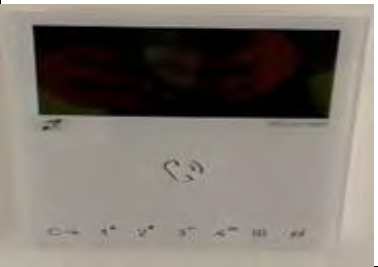
The Home Quality Mark is a scheme that assesses the standard of new homes. Every home that receives a HQM certificate meets specific quality and sustainability standards that are higher than the minimum standards which must be achieved in a new home, such as Building Regulations. This means your home 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 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.

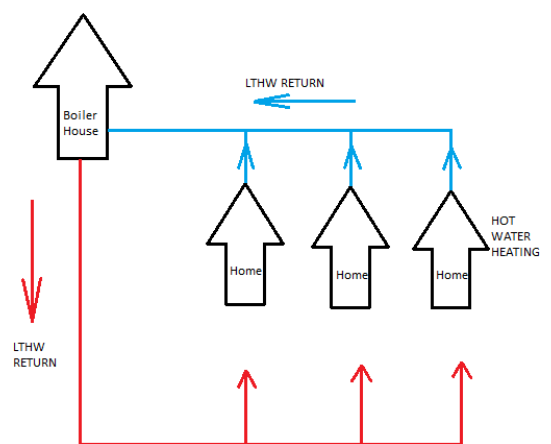
Communal heating system

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.

exaprojects

- 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.

- 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.

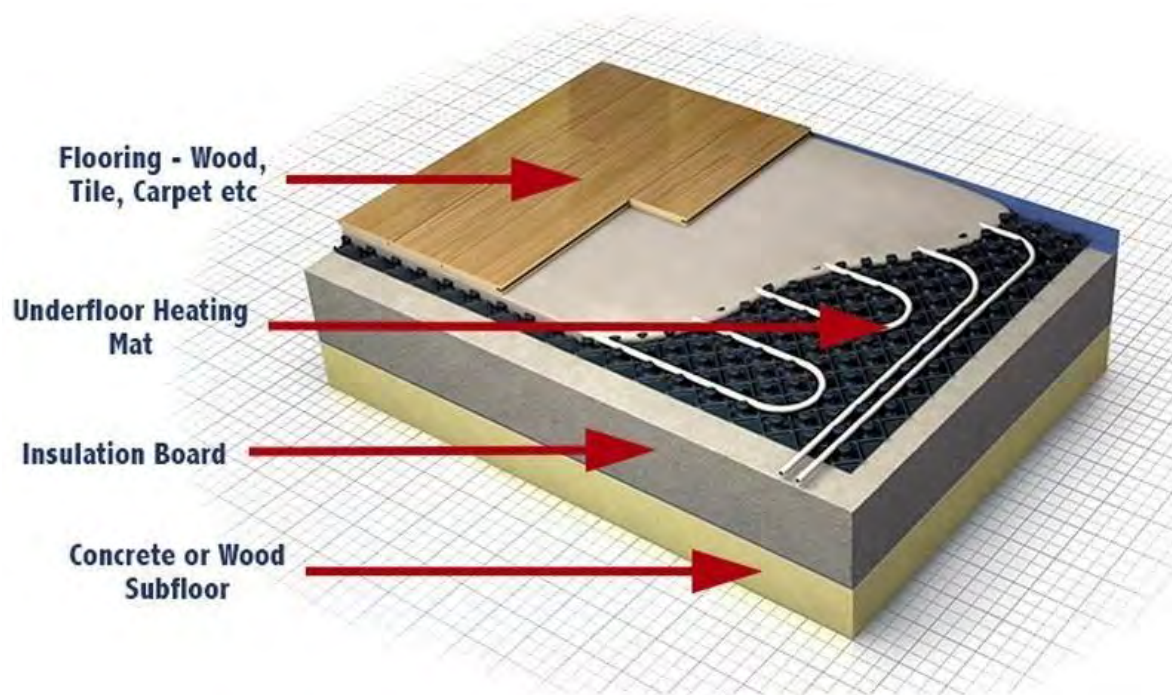
Your home has been supplied with a Paxton Net 2 access control system. The Net 2 system will control access to the residential blocks and the Town Hall. Open the doors locked by the system by holding your token within close proximity of the reader. If access is granted, the green light flashes. If access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

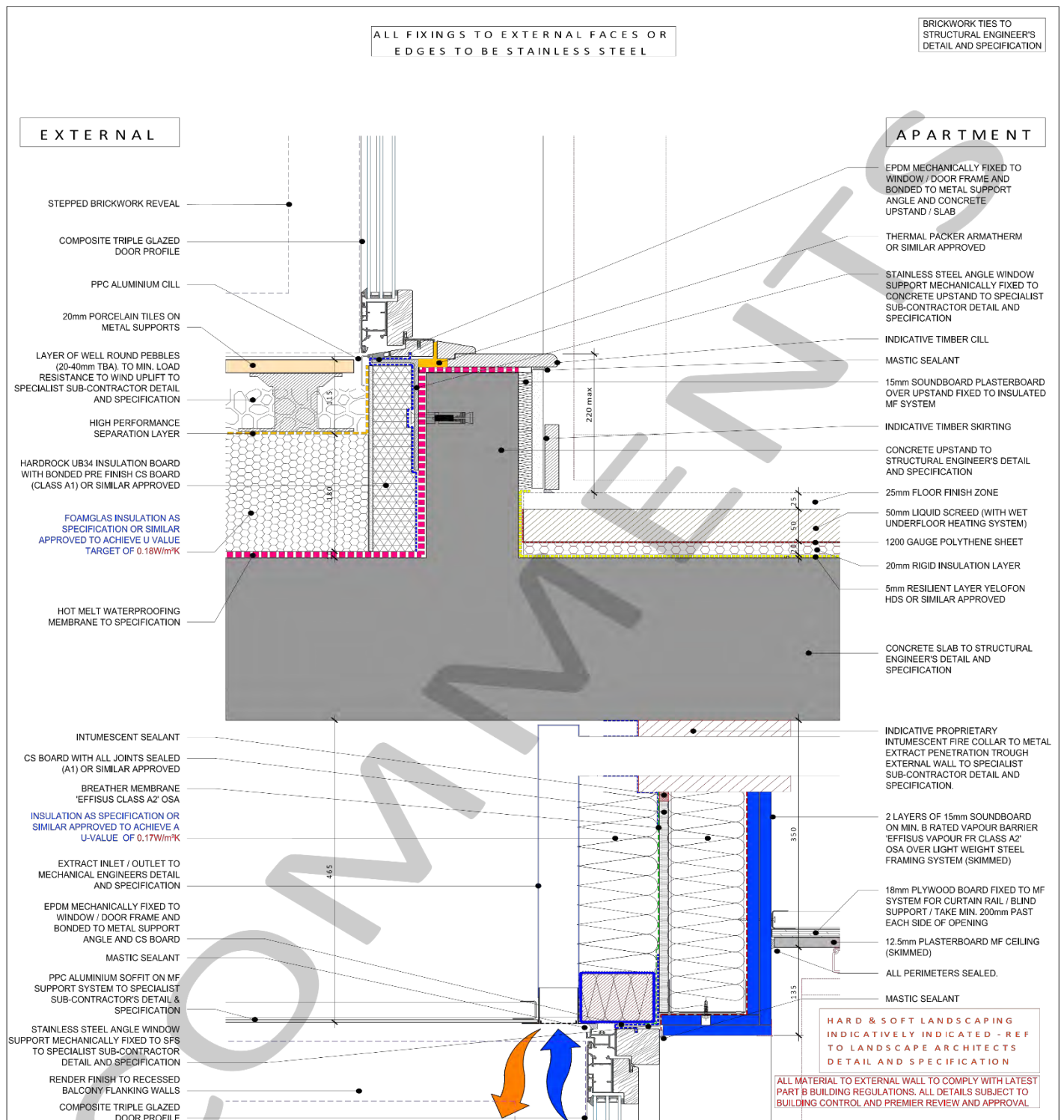
Video entry is also installed in your home which allows you to let visitors into the building. The video entry system allows you to see, hear and speak to any visitor at the door stations. This system is integrated with the Net 2 access control system which allows you to release the door locks remotely,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

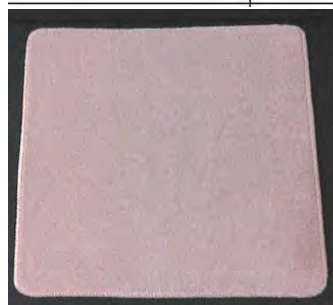
No part of this drawing may be reproduced without written consent.
All contractors must visit site and be responsible for taking and checking all dimensions relating to this work.
Do not scale from this drawing.

CONSTRUCTION		
 ARDMORE CONSTRUCTION LTD. 6 WYNNIE STUDIOS, FAIRHALL ROAD, GLASGOW, N.W. 7 2DE TEL: 0161 275 144 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 PROJECT / DRAWING NO 3596-KDS-BA-XX-DR-A-21-7046 REV C 03		

exaprojects

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.

exaprojects

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

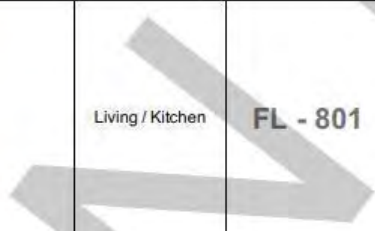
Your property was built using – Masonry Cavity Construction

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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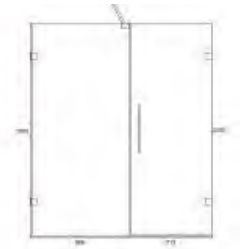
SHOWER SETUP

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



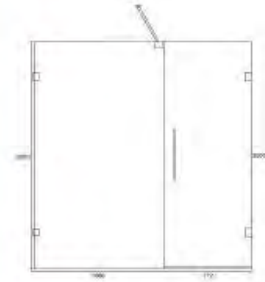
SAN - 005

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



exaprojects

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 54000050000 S KALDEWEI ESR II LEVEL ACCESS INSTALLATION SYSTEM FRAME WITH DRAIN OFF TO WASTE CONNECTION AND SEALING KIT SIZE: 1800x800mm



SAN - 300 58777260099 S KALDEWEI SHOWER TRAY WASTE FITTING KA90 UK (HO) INC PF 50/40 REDUCER AND HAIR CATCHER



SAN - 300 58777259271 S KALDEWEI SHOWER TRAY WASTE COVER KA90 (NEW) - SECURE PLUS FINISH



SAN - 300 58767572000 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



exaprojects

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.

exaprojects

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.

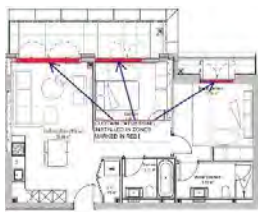
Take care when fixing anything to plasterboard walls. You can fix very light items to them using appropriate adhesives but be careful – the bond can be very strong and if you decide to remove the item in the future you may damage the paintwork or the plasterboard.

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

exaprojects



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.

exaprojects

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	
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)	
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.	

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.**

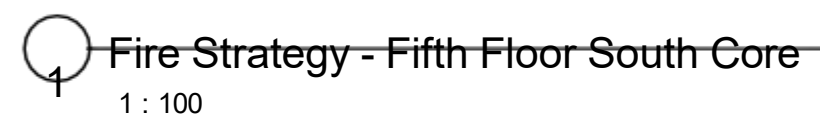
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- Never remove the batteries.
- Clean your alarms regularly to remove dust.

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.

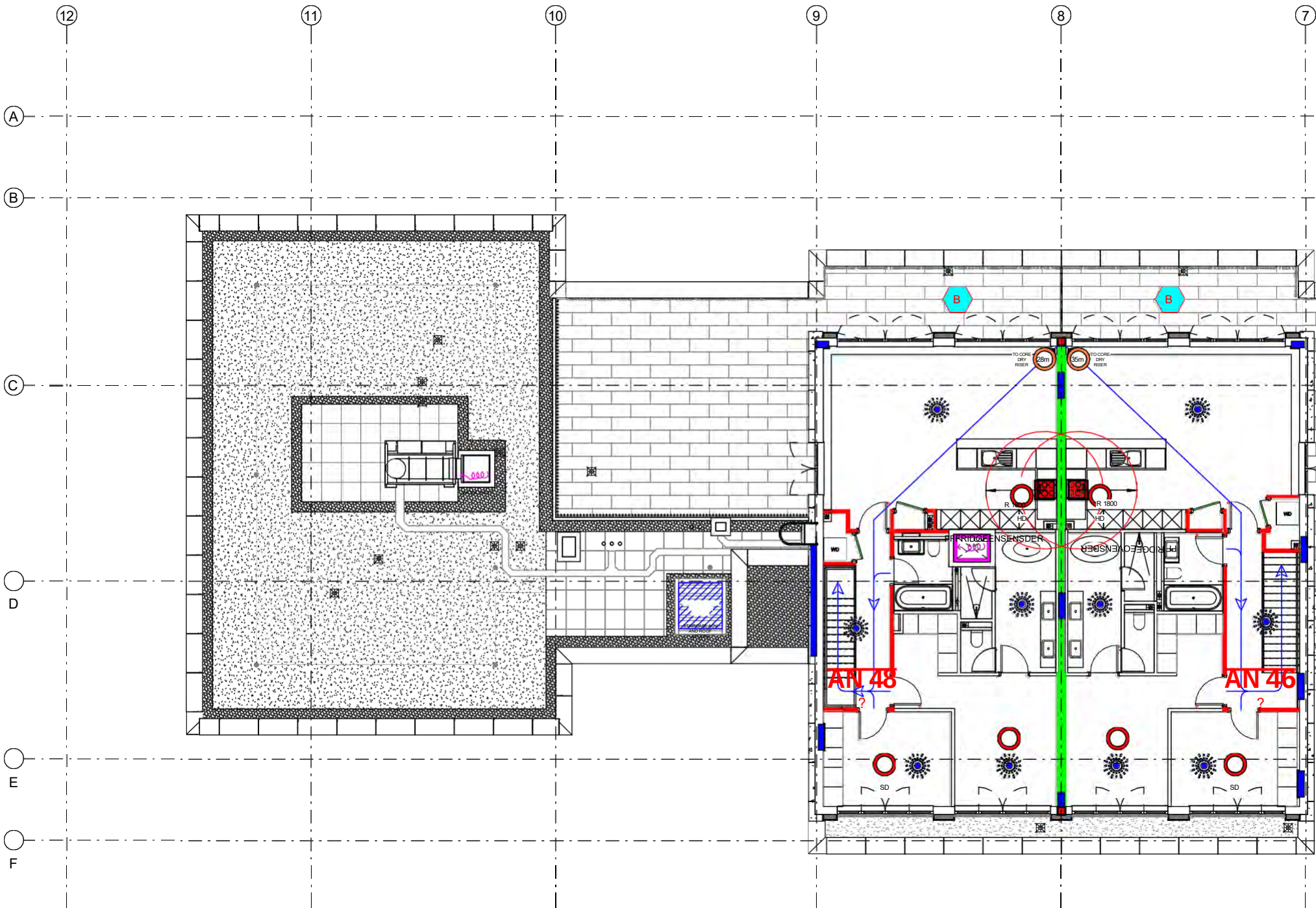
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PROJECT / DRAWING TITLE Hornsey Town Hall									
DRAWING TITLE RESIDENTIAL BLOCK A Fire Strategy - L05 South Core									
DATE / DRAWN BY						SCALE			
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PROJECT NO		ZONE	LEVEL	TYPE	ROLE	GLASS DR. NO.	3596-KDS		REV
		BA-	05-	DR-A-	68-	1013			C3



Fire Strategy - Fifth Floor North Core

	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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PROJECT NO	ZONE	LEVEL	TYPE	ROLE	CLASS	DR. NO	REV		
3596-KDS	BA-05	DR-A	68-1012				C3		



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Five strategies to be tested in

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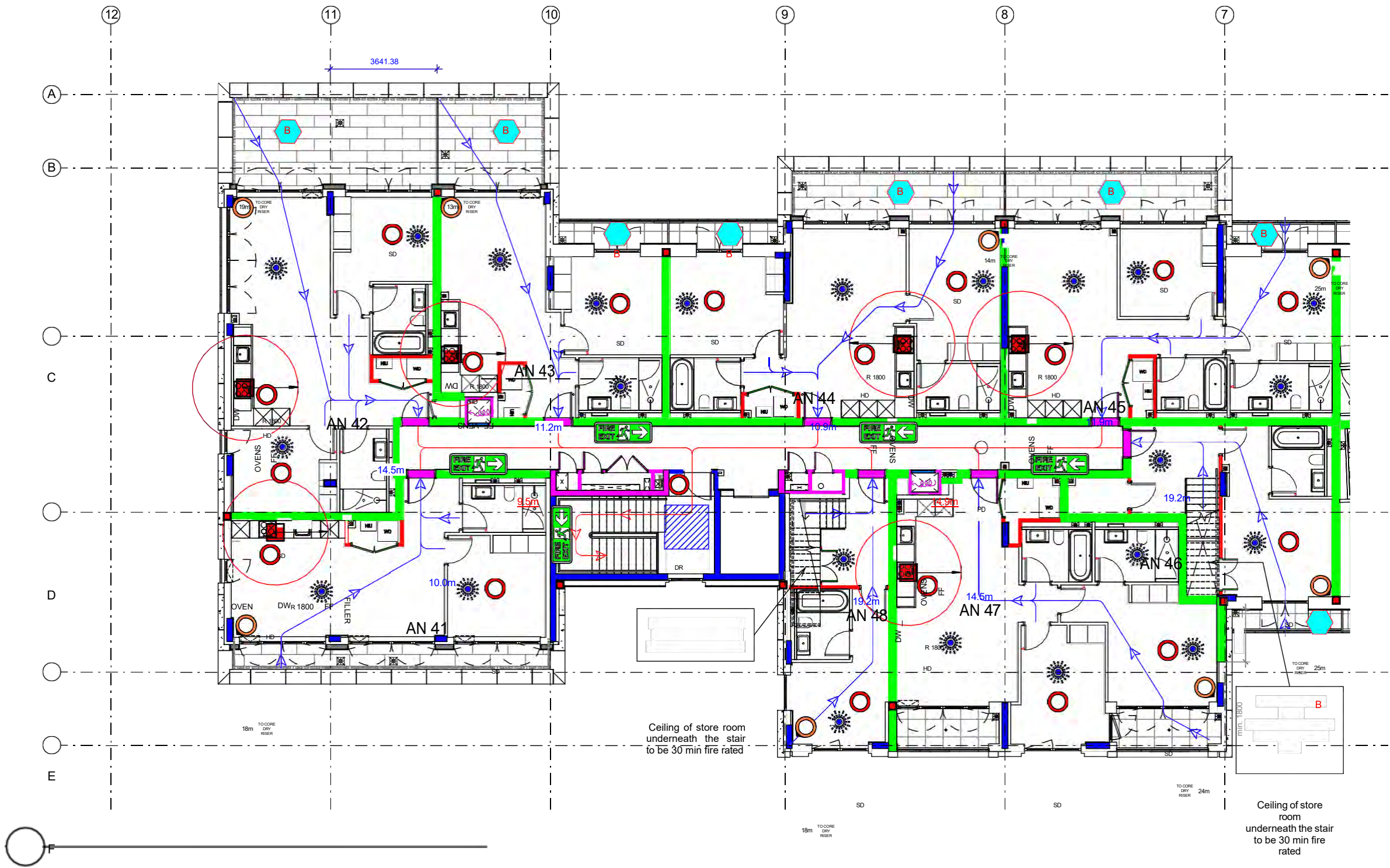
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DRAWING TITLE RESIDENTIAL BLOCK A Fire Strategy - L04 South Core									
DATE / DRAWN BY 20/12/17 MD								SCALE 1 : 100	
PROJECT NO	ZONE	LEVEL	TYPE	ROLE	CLASS	DR. NO.	REV		
3596-KDS	BA-04-	DR-A-	68-	1011				C4	

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1 Fire Strategy - Fourth Floor North Core
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
	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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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

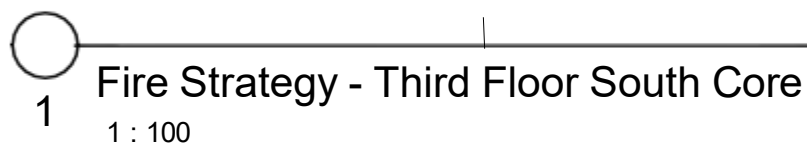
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PROJECT NO	ZONE	LEVEL	TYPE	ROLE	CLASS	DR. NO.	REV		
3596-KDS	BA-04-	DR-A-	68-1010				C4		



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Report: Hornsey Town Hall Fire

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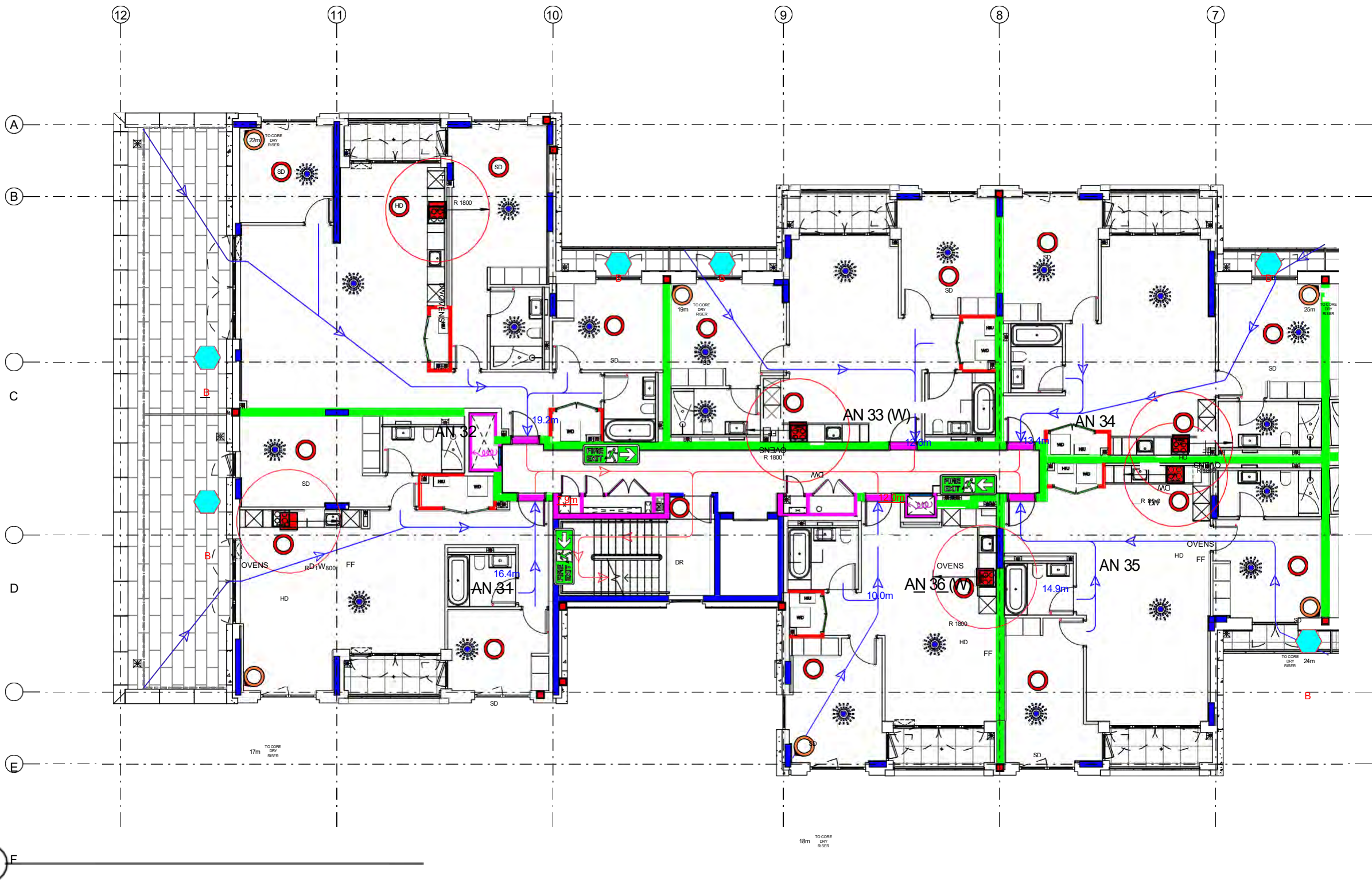
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DATE / DRAWN BY 20/12/17 MD						SCALE 1 : 100			
PROJECT NO	ZONE	LEVEL	TYPE	ROLE	CLASS	DR. NO.	REV		
3596-KDS	BA-03-	DR- A-		68-	1009		C4		



1 Fire Strategy - Third Floor North Core
1 : 100

■	PARTY WALL FIRE BREAK
DR	DRY RISER INLET POSITION
OR	DRY RISER OUTLET POSITION
STAIRCASE AOV (1.0m2)	
SD	POSITION AND NUMBER OF SMOKE DETECTORS TO M+E DRAWINGS AND SPECIFICATIONS
HD	POSITION AND NUMBER OF HEAT DETECTORS TO M+E DRAWINGS AND SPECIFICATIONS
FF	FIRE FIGHTING DOOR / GATE OVERRIDING KEY (GERDA LOCK OSA)
COOKER	COOKER LOCATION INDICATING (1800 ZONE)
B	BALCONY BEACON/ FLASHING - IN ACCORDANCE WITH BS 5839-6
FD 30	FD 30 FIRE DOOR
FD 30S	FD 30S FIRE DOOR
FD 60	FD 60 FIRE DOOR
FD 60S	FD 60S FIRE DOOR
FD 120S	FD 120S FIRE DOOR
FD 20	FD 20 (20MIN FIRE DOOR WITH INTUMESCENT STRIP TO LEADING EDGE)
30 MINS	30 MINS FIRE RATED WALL
60 MINS	60 MINS FIRE RATED WALL
90 MINS	90 MINS FIRE RATED WALL
120 MINS	120 MINS FIRE RATED WALL
20.0m	ESCAPE LENGTH TO FRONT DOOR (20m MAX)
→	PRIMARY DIRECTION OF ESCAPE
→	OPEN PLAN BEDROOM ESCAPE LENGTH
EXIT	FIRE ESCAPE SIGNAGE
HOSE	FIRE HOSE FROM DRY RISER OUTLET MAX LENGTH OF HOSE IN METERS (45m MAX)
SPRINKLER	FIRE SPRINKLER (POSITION INDICATIVE OF SPRINKLER SYSTEM TO BE INSTALLED IN THE ROOM)
FAN	IMPULSE FAN
MECH	MECHANICAL SMOKE EXTRACT

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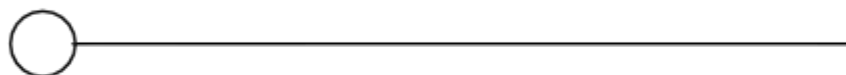
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DATE / DRAWN BY 20/12/17 MD							SCALE 1 : 100		
PROJECT NO	ZONE	LEVEL	TYPE	ROLE	CLASS	DR. NO.	REV		
3596-KDS	BA-03-	DR-A-	68-	1008			C4		



1

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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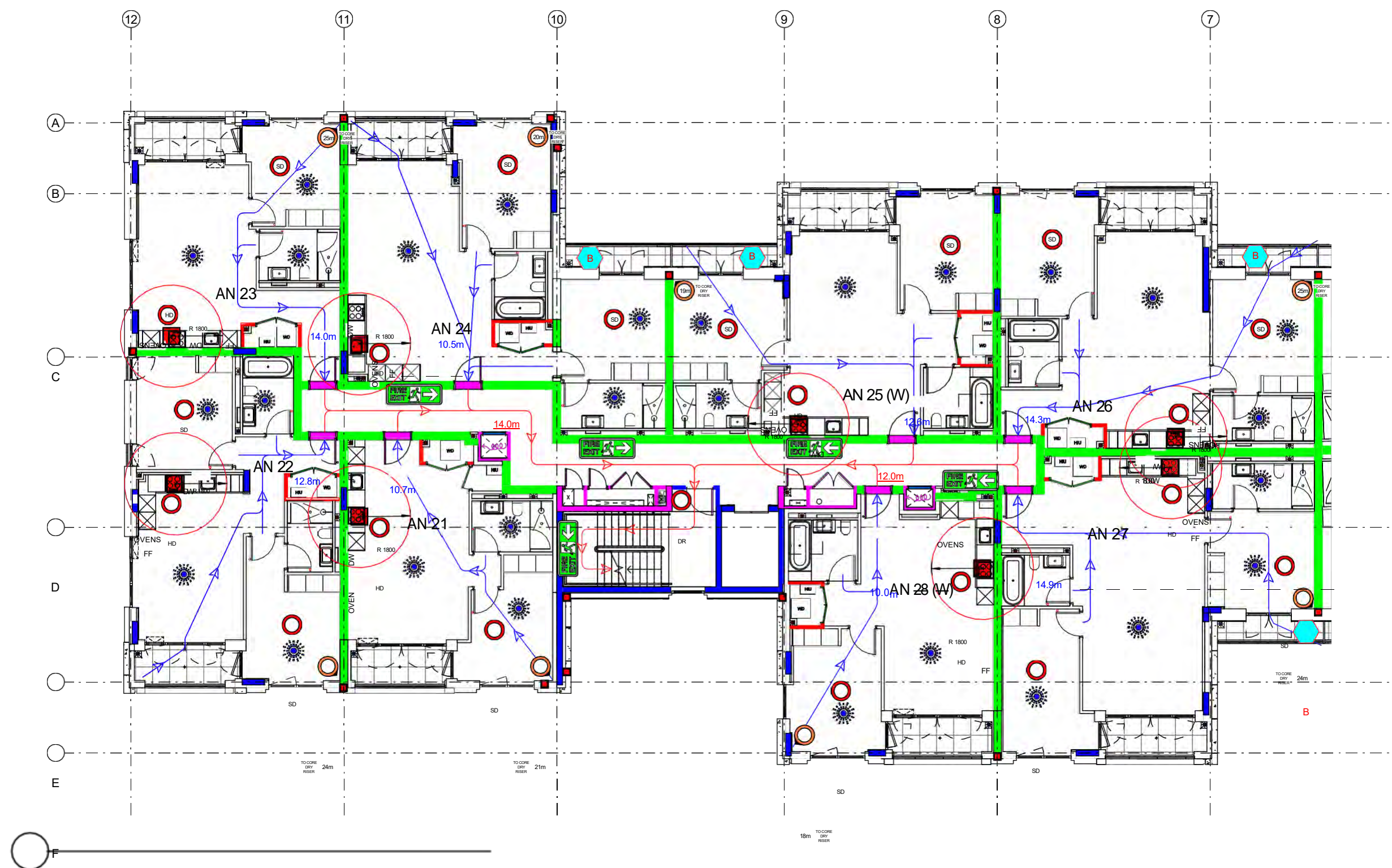
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DATE / DRAWN BY 20/12/17 MD							SCALE 1 : 100		
PROJECT NO	ZONE	LEVEL	TYPE	ROLE	CLASS	DR. NO.	REV		
3596-KDS	BA-02-	DR-	A-	68-	1007		C4		



1 Fire Strategy - Second Floor North Core
1 : 100

	PARTY WALL FIRE BREAK
	DRY RISER INLET POSITION
	DRY RISER OUTLET POSITION
	STAIRCASE AOV (1.0m2)
	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
	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

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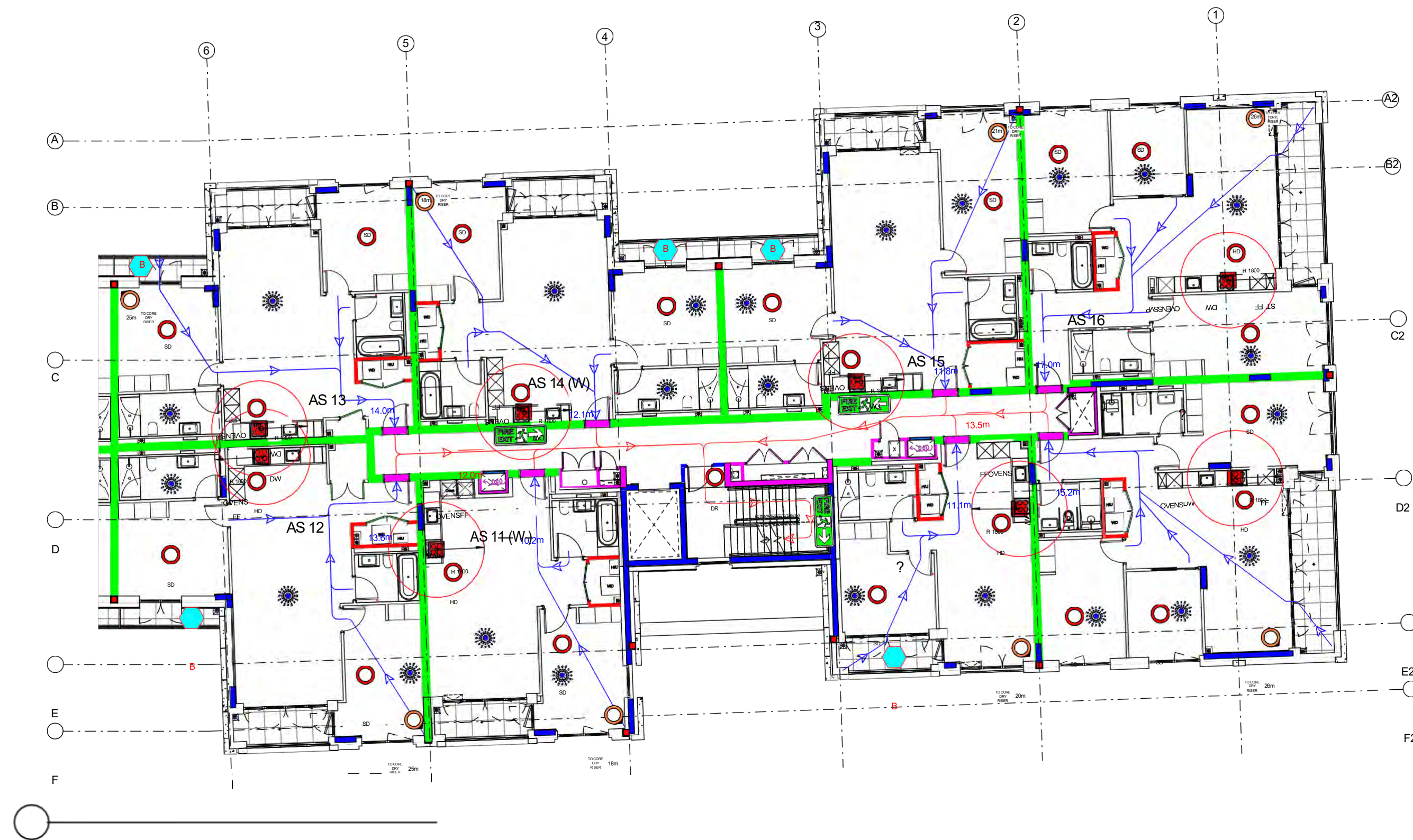
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DRAWING TITLE RESIDENTIAL BLOCK A Fire Strategy - L02 North Core									
DATE / DRAWN BY 20/12/17 MD							SCALE 1 : 100		
PROJECT NO	ZONE	LEVEL	TYPE	ROLE	CLASS	DR. NO.	REV		
3596-KDS	BA-02-	DR-	A-	68-	1006		C4		



1 Fire Strategy - First Floor South 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

Fire strategy to be read in conjunction with latest version of: 622309-MLM-ZZ-XX-PP-YE-001
Hornsey Town Hall Fire Strategy Report_Hornsey Town Hall Fire Strategy Report

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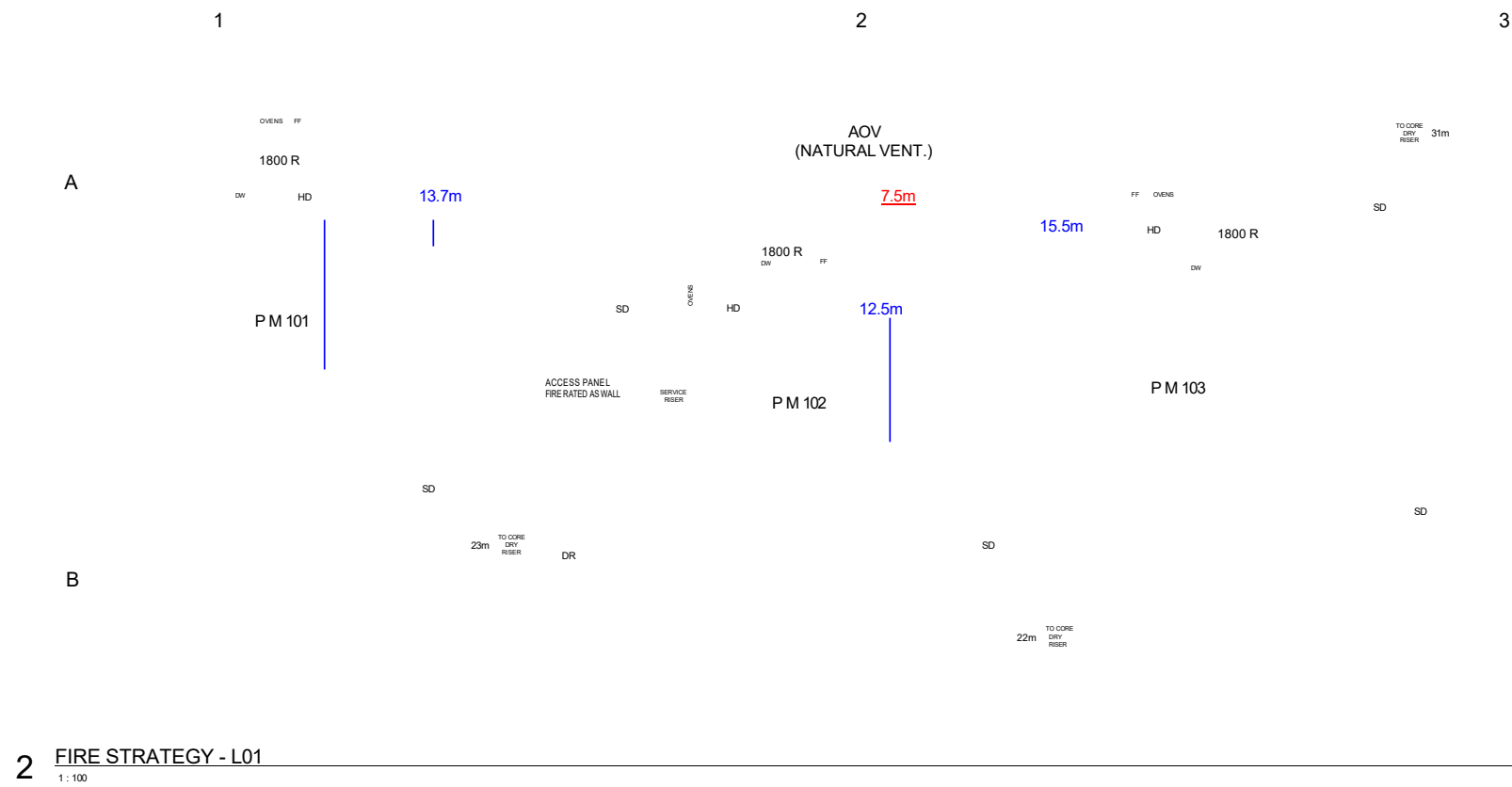
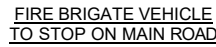
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DRAWING TITLE RESIDENTIAL BLOCK A Fire Strategy - L01 South Core									
DATE / DRAWN BY 20/12/17 MD							SCALE 1 : 100		
PROJECT NO	ZONE	LEVEL	TYPE	ROLE	CLASS	DR.NO	REV		
3596-KDS	BA-01-	DR-A-	68-1005				C4		

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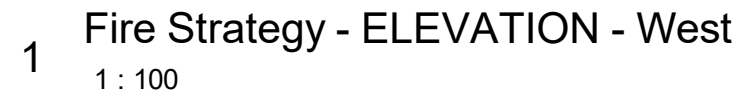
PROJECT / DRAWING TITLE
Hornsey Town Hall
New Residential buildings

DRAWING TITLE
RESIDENTIAL MEWS
Fire Strategy

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

LOCATION - BLOCK B

Key Plan

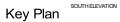


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DRAWING TITLE RESIDENTIAL BLOCK B Fire Strategy - West Elevation									
DATE / DRAWN BY 27/10/20 ZZK								SCALE 1 : 100	
PROJECT NO	ZONE	LEVEL	TYPE	ROLE	CLASS	DR. NO.	REV		
3596-KDS-BB-XX-DR-A-68-2006							C1		

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

LOCATION - BLOCK B



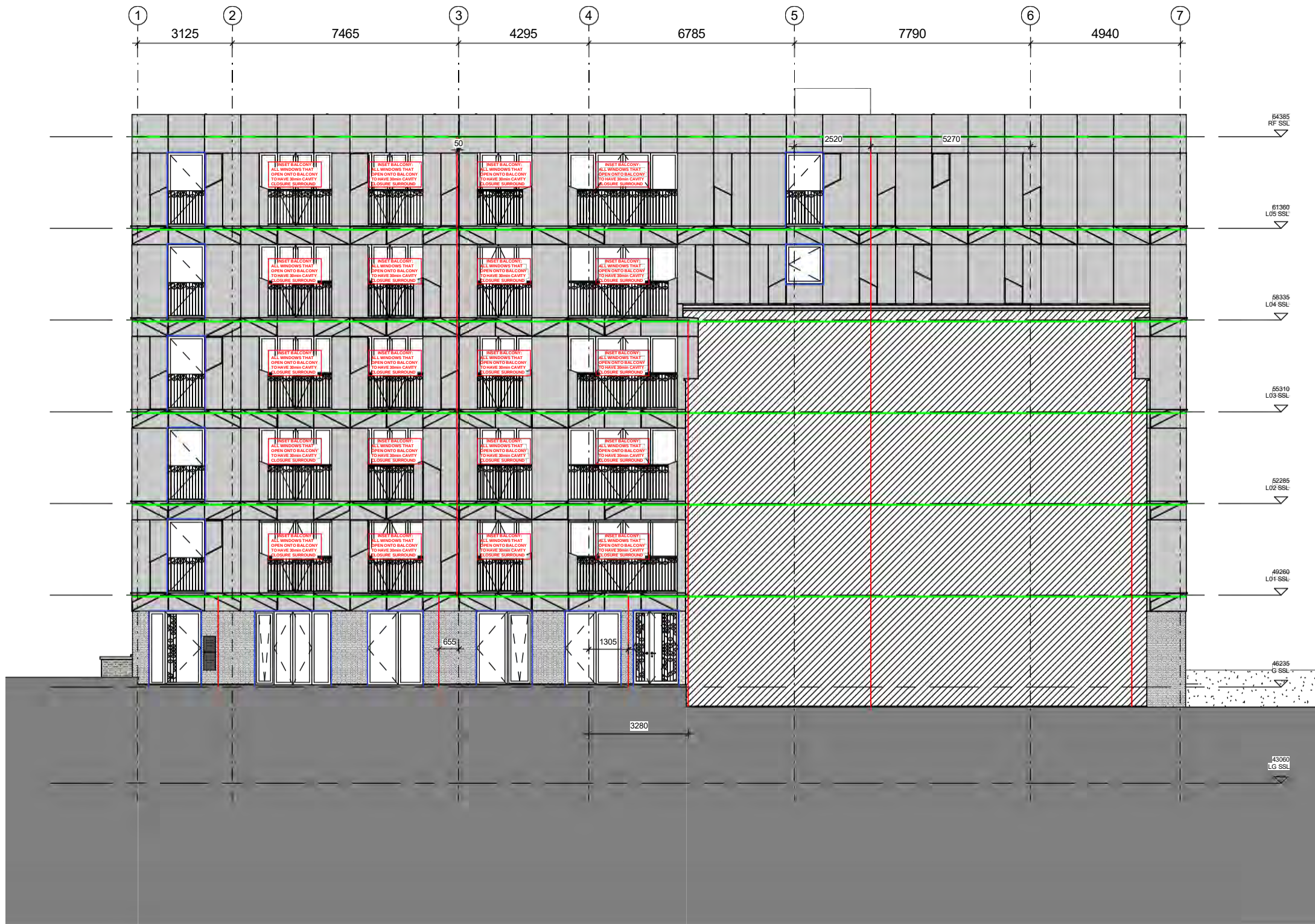
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Fire Strategy - ELEVATION - South
1 : 100

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



1 Fire Strategy - ELEVATION - North
1 : 100

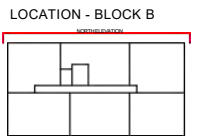
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KEY	
	60min FIRE BARRIER
	30min CAVITY CLOSURE
	90min FIRE BARRIER
	120min FIRE BARRIER
	SHEAR WALL EXTENT

NOTE:

- Elevations to be read in conjunction with dr. n. 3596-KDS-ZZ-XX-DR-A-68-7000 (BLOCK A, B & MEWS FIRE STOPPING STRATEGY);
- Elevations to be read in conjunction with strip sections (Series 21-2000) and details (series 21-7000).



Key Plan



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PROJECT / DRAWING TITLE
Hornsey Town Hall

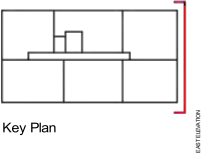
DRAWING TITLE
RESIDENTIAL BLOCK B
Fire Strategy - North Elevation

DATE / DRAWN BY 12/10/20 ZZK	SCALE 1 : 100
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PROJECT NO	ZONE	LEVEL	TYPE	ROLE	CLASS	DR. NO.	REV
3596-KDS	BB	XX	DR	A	68	2004	C1

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

LOCATION - BLOCK B



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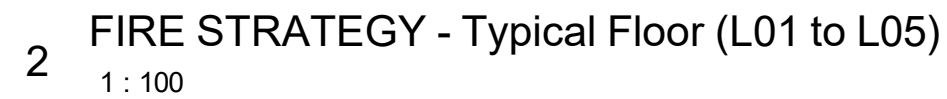
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1 Fire Strategy - ELEVATION - East
1 : 100

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

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DRAWING TITLE RESIDENTIAL BLOCK B Fire Strategy - Ground Level									
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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.

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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

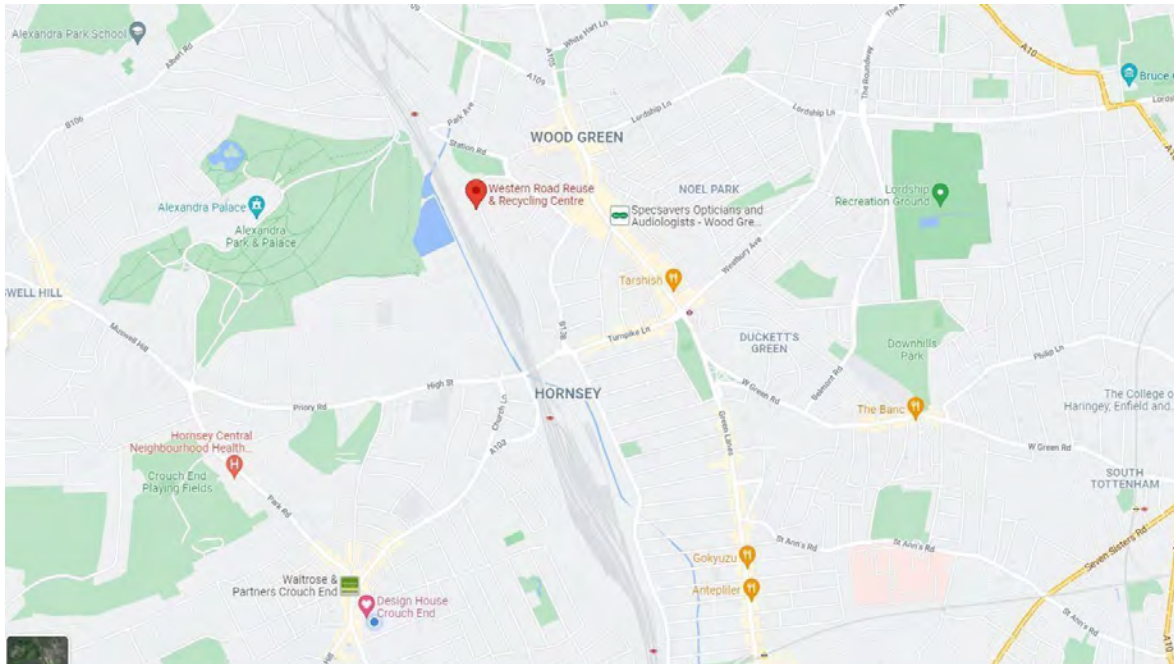
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MANUALS

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

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MAP OF NEAREST RECYCLING FACILITIES



Energy Strategy and Sustainability Statement - Mixed Use Development Hornsey Town Hall

118766/LP/180214
Revision 07

Report Prepared For: Crouch End (FEC) Limited

Issue	Date	Reason for Issue	Prepared		Checked		Approved	
00	July 2017	For Design Team Comment	LP	10/07/17	KA	10/07/17	PDH	10/07/17
01	July 2017	For Planning submission	LP	17/07/17	KA	18/07/17	PDH	18/07/17
02	July 2017	For Planning submission Appendix Included	LP	18/07/17	KA	19/07/17	PDH	19/07/17
03	August 2017	For Planning submission	LP	21/08/17	KA	21/08/17	PDH	21/08/17
04	September 2017	For Planning submission	LP	29/09/17	KA	29/09/17	PDH	29/09/17
05	October 2017	For Planning submission	LP	25/10/17	KA	25/10/17	PDH	25/10/17
06	January 2018	For Revision	LP	15/01/18	KA	15/01/18	PDH	15/01/18
07	February 2018	For Planning submission	LP	14/02/18	KA	14/02/18	PDH	14/02/18

Energy Strategy and Sustainability Statement - Mixed Use Development
118766/LP/180214
Revision 07

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+44 (0)1628 623 423
building.services@sweco.co.uk
www.sweco.co.uk

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Appendix F Photovoltaic Panel Notional Layout

Appendix G Low and Zero Carbon Payback Calculations

Appendix H Haringey Sustainability Checklist

Appendix I Overheating Assessment Residential Spaces

1. Executive Summary

This report was prepared on behalf of Crouch End (FEC) Limited for the planning application of Hornsey Town Hall at The Broadway N8 in the London Borough of Haringey.

Following the energy evaluation, building fabric upgrade, where applicable, will be incorporated into the existing Grade II* and Grade II listed buildings known as Hornsey Town Hall and Broadway Annexe respectively, as well as including extensive energy efficiency measures where practically for the refurbishments and for the new residential buildings named as Block A, Block B and Mews.

The Energy and Carbon Calculations have confirmed that the proposed energy efficient and sustainable design will achieve:

- **Regulated carbon dioxide savings of 49.6% relative to a New-Build Part L1A 2013 for the residential building Block A; and carbon offset payment towards a Zero Carbon compliant development;**
- **Regulated carbon dioxide savings of 50.5% relative to a New-Build Part L1A 2013 for the residential building Block B; and carbon offset payment towards a Zero Carbon compliant development;**
- **Regulated carbon dioxide savings of 51.1% relative to a New-Build Part L1A 2013 for the residential building Mews; and carbon offset payment towards a Zero Carbon compliant development;**
- **Improvement on the energy performance of the listed buildings Grade II* for the proposed refurbishment works on the Hornsey Town Hall, built in 1935, wherever practically possible in accordance to Part L2B 2013.**
- **Improvement on the energy performance of the listed buildings Grade II for the proposed refurbishment works on the Broadway Annexe, built in 1939, wherever practically possible in accordance to Part L2B 2013.**

The energy assessment has been carried out using the methodology outlined in the “Energy Planning: Greater London Authority (GLA) guidance on preparing energy assessments”, March 2016 and “The London Plan”, Chapter 5, March 2016 consolidated with alterations since 2011. The London Plan energy hierarchy in Policy 5.2 is as follows:

1. Be lean: Use less energy
2. Be clean: Supply energy efficiently
3. Be green: Use renewable energy

The concept of applying the energy hierarchy in relation to Part L 2013 of the Building Regulations is illustrated in Figures 1.1. Where the blue bars drop below the black dotted

line, this demonstrates savings in regulated CO₂ emissions compared to a development that complies with Part L 2013 of the Building Regulations.

The refurbishment works for the Hornsey Town Hall and Broadway Annexe should be compliant with the energy efficiency measures specified within Part L2B 2013 and Part L1A of the UK Building Regulations. However, as being both Listed Buildings, there will be significant limitations in building fabric upgrade and all practical measures will be applied.

The energy assessment has been carried out following the statutory requirements subjected to the Approved Document (AD) L1A 2013 of the UK Building Regulations for new dwellings.

The National Planning Policy Framework (NPPF) – March 2012, London Plan – March 2016 and Haringey’s Local Plan – January 2016, have been followed to maximise the positive effect on the end users, stakeholders and local environment and reduce or remove negative environmental impacts. The following pages outline in detail the approach to sustainability as a whole with details of energy efficiency measures.

The development includes an energy centre with potential for communal heating and cooling provision. It is shown in Section 6.1 of this report that there are currently no existing district heating networks available for connection to Hornsey Town Hall, although there is a high proximity to a future decentralised energy network in the surrounding area.

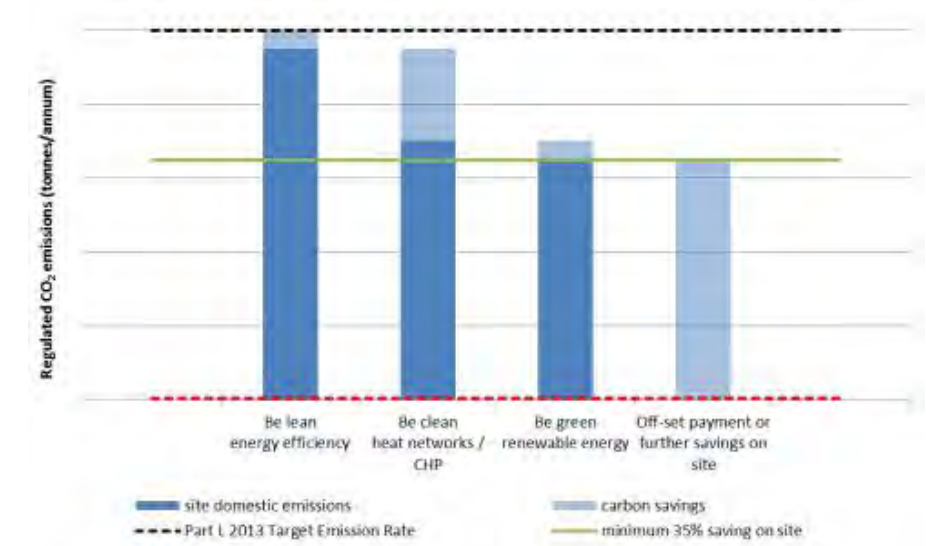


Figure 1-1 GLA's Domestic Energy Hierarchy

The development has also been designed to achieve a high standard of sustainability. The various part of the building will be assessed with suitable Building Research Establishment (BRE) Schemes.

- BREEAM 2014 Refurbishment (Non-Domestic): Hotel & Community Hall (Part 1: Fabric & Structure & 2: Core Services) - ***Subject to Appointment-***.
- Home Quality Mark (HQM) for Residential Apartments - ***Subject to Appointment-***.

The client and project teams are targeting a minimum of **Good** under BREEAM 2014 Fit-Out & Refurbishment schemes for both of the major part of the buildings and for HQM target of 3 stars rating – both assessments ***Subject to Appointment-***.

Table 1.1 Hornsey Town Hall development, compliance with Part L Regulations

Building Name	Use Class	Proposed works	UK Building Regulations
Hornsey Town Hall	D1/D2/A3/A4/C1/B1	Refurbishment	Part L2B 2013 - Exempt from the energy efficiency provisions, Grade II* listed
Broadway Annexe	C3 – Residential/ A1 - Retail	Refurbishment	Part L1B/L2B 2013- Exempt from the energy efficiency provisions, Grade II listed
Block A	C3 – Residential	New Build	Part L1A 2013 GLA – Zero Carbon Policy
Block B	C3 – Residential	New Build	Part L1A 2013 GLA – Zero Carbon Policy
Mews	C3 – Residential	New Build	Part L1A 2013 GLA – Zero Carbon Policy

The following tables demonstrate compliance with the energy hierarchy and the carbon targets proposed by GLA and London Borough of Haringey for the residential buildings of Hornsey Town Hall development:

Table 1.2 Block A, CO₂ emissions after each stage of the energy hierarchy for domestic areas

Residential Block A	Carbon Dioxide Emissions for domestic buildings (Tonnes CO ₂ per Annum)	
	Regulated Energy	Unregulated Energy
Base line: Part L 2013 of the Building Regulations Compliant Development	85.8	118
After energy demand reduction	79.8	88
After heat network / CHP	55.6	88
After renewable energy	43.2	88

Table 1.3 Block A, regulated carbon dioxide savings from each stage of the energy hierarchy for domestic areas

Residential Block A	Regulated domestic carbon dioxide savings	
	(Tonnes CO ₂ per Annum)	(%)
Savings from reduced energy demand	5.91	6.9%
Saving from heat network / CHP	24.29	30.4%
Savings from renewable energy	12.32	22.2%
Cumulative on-site savings	42.52	49.6%
Total Target Savings - GLA's Target	85.75	100%
Regulated Annual Surplus	-43.23	

Table 1.4 Block A, annual shortfall

Residential Block A	Annual Shortfall Tonnes CO ₂ (Regulated)	Annual Shortfall Tonnes CO ₂ (Un-Regulated)	Cumulative Shortfall Tonnes CO ₂
Shortfall	43.23	88.31	131.54

Table 1.5 Block B, CO₂ emissions after each stage of the energy hierarchy for domestic areas

Residential Block B	Carbon Dioxide Emissions for domestic buildings (Tonnes CO ₂ per Annum)	
	Regulated Energy	Unregulated Energy
Base line: Part L 2013 of the Building Regulations Compliant Development	44.6	56.09
After energy demand reduction	41.0	42.1
After heat network / CHP	28.7	42.1
After renewable energy	22.1	42.1

Table 1.6 Block B, regulated carbon dioxide savings from each stage of the energy hierarchy for domestic areas

Residential Block B	Regulated domestic carbon dioxide savings	
	(Tonnes CO ₂ per Annum)	(%)
Savings from reduced energy demand	3.67	8.2%
Saving from heat network / CHP	12.28	30%
Savings from renewable energy	6.56	22.9%
Cumulative on site savings	22.52	50.5%
Total Target Savings - GLA's Target	44.63	100%
Regulated Annual Surplus	-22.11	

Table 1.7 Block B, annual shortfall

Residential Block B	Annual Shortfall Tonnes CO ₂ (Regulated)	Annual Shortfall Tonnes CO ₂ (Un-Regulated)	Cumulative Shortfall Tonnes CO ₂
Shortfall	22.11	42.07	64.18

Table 1.8 Mews, CO₂ emissions after each stage of the energy hierarchy for domestic areas

Residential Mews	Carbon Dioxide Emissions for domestic buildings (Tonnes CO ₂ per Annum)	
	Regulated Energy	Unregulated Energy
Base line: Part L 2013 of the Building Regulations Compliant Development	13.5	16.89
After energy demand reduction	7.9	12.7
After heat network / CHP	7.9	12.7
After renewable energy	6.6	12.7

Table 1.9 Mews, regulated carbon dioxide savings from each stage of the energy hierarchy for domestic areas

Residential Mews	Regulated domestic carbon dioxide savings	
	(Tonnes CO ₂ per Annum)	(%)
Savings from reduced energy demand	5.67	41.9%
Saving from heat network / CHP	0	0%
Savings from renewable energy	1.25	15.9%
Cumulative on-site savings	6.92	51.1%
Total Target Savings - GLA's Target	13.54	100%
Regulated Annual Surplus	-6.62	

Table 1.10 Mews, annual shortfall

Residential Mews	Annual Shortfall Tonnes CO ₂ (Regulated)	Annual Shortfall Tonnes CO ₂ (Un-Regulated)	Cumulative Shortfall Tonnes CO ₂
Shortfall	6.62	12.66	19.28

1.1 Carbon Offset Payment

The carbon offset payment of the shortfall in **regulated** carbon emissions are outlined in this section for the domestic buildings at Hornsey Town Hall development to achieve **zero carbon**.

Following pre-application meeting on 28th June 2017. The carbon offset payment rate was confirmed by LBH to be £90 per tonne of CO₂ per year, over 30 years i.e. £2,700 per tonne.

With various energy efficiency measures & application of onsite reviewable, overall **45%** reduction in emission has been achieved in compared to PartL2A. The offset payment has been calculated as follows:

Table 1.15 Carbon Offset Payment based on GLA’s Viability Assessment £2,700 charge over 30 years

Carbon Offset Payment	Annual Shortfall Tonnes CO ₂ (Regulated)	Off-set Payment per Tonnes for 30 years CO ₂ Emissions (GLA)	Cumulative Shortfall Tonnes for 30 years CO ₂ Emissions
Residential Block A	43.23	£2,700	£116,721
Residential Block B	22.11	£2,700	£59,697
Mews	6.62	£2,700	£17,874
Site-wide Carbon Offset Payment			£194,292

Please refer to section 8 for details of Carbon Offset Payment.

2. Introduction

2.1 Purpose of this Report

This report was prepared on behalf of Crouch End (FEC) Limited for full planning permission and listed building consent application for Hornsey Town Hall at The Broadway N8 in the London Borough of Haringey.

It describes the various options for energy and carbon reduction as well as the sustainability strategy for Hornsey Town Hall development.

The figures presented in this report are calculated for the purposes of initial estimates, using the preliminary information currently available. Whilst they can be used to gain an understanding of the benefits of each technology, they must not be taken out of context; establishing the best economic and energy efficient operation will require more complex analysis of the buildings’ projected load profiles when these are developed.

2.2 Development Description

The site is located within the Crouch End Conservation area in the London, and comprises five buildings: a 3-storey mixed-use Hornsey Town Hall Building, a mixed-use 2-storey Broadway Annexe, a 7-storey Residential Building Block A, a 7-storey Residential Building Block B, a 2-storey Residential Mews Building, each of which are arranged around private and public realms available to the users.

Table 2.1: Proposed area schedule

Uses	Levels	GIA (m²)	No. of units
Town Hall Hotel (Grade II*)	4	2,689	67
Town Hall F&B –including Broadway Annexe) (Grade II*)	2	702	-
Town Hall Community (Grade II*)	4	3,162	-
Town Hall Co-Working (Grade II*)	3	443	-
Broadway Annexe (Grade II)	3	1,251	15
Block A – Residential Units	7	8,879	82
Block B – Residential Units	7	3,722	40
Mews – Residential Units	3	665	9



Figure 2-1 Hornsey Town Hall Site Plan indicating the consented scheme

The vast majority of the development area is assigned to residential apartments to positively contribute to London Plan housing target with a total of circa 146 dwellings.

The buildings, which will be fully or substantially retained and refurbished, are highlighted above and these buildings Grade II listed.

3. Policy Context

3.1 National Planning Policy Framework

In March 2012, the Department for Local Communities and Local Government issued the National Planning Policy Framework (NPPF) which sets out the Government’s planning policies for England and how development should happen in the country.

The aim of this framework is to achieve sustainable development according to the three pillars: economic, social and environmental for both plan-making and decision making. Local planning authorities must incorporate the visions of this framework within their local development plans. Therefore, by complying with the requirements of the Local Plan and Core Strategies a development is also compliant with the NPPF.

The term sustainable development is defined as “meeting the needs of the present without compromising the ability of future generations to meet their own needs”.

Chapter 10: “Meeting the challenge of climate change, flooding and coastal change” is NPPF’s relevant section to this energy and sustainability statement. That chapter provides a framework for local authorities to address the following issues as regards planning applications:

- Secure radical reductions in greenhouse gas emissions;
- Provide resilience and minimise vulnerability to the impacts of climate change;
- Support the delivery of renewable and low carbon energy sources and associated infrastructure;
- Support energy efficiency improvements to existing buildings.

Local Planning Policies are based on this framework and adapted to account for regionally specific requirements.

3.2 Building Regulations Part L 2013

Hornsey Town Hall development will need to conform to the requirements set out in Approved Documents Part L (Conservation of Fuel and Power) of the Building Regulations 2013.

The Approved Documents are approved and issued by the Secretary of State to provide guidance on compliance with specific aspects of building regulations in some of the more common building situations. They set out what, in ordinary circumstances, may be accepted as a reasonable provision for compliance with the relevant requirement(s) of the Building Regulations to which they refer.

Approved Document Part L of the Building Regulations covers the carbon emissions that are attributable to buildings in use, resulting from lighting, heating, cooling and ventilation excluding small power.

- Domestic developments come under Part L1A of the Building Regulations 2013 for **new buildings**.
- Domestic developments come under Part L1B of the Building Regulations 2013 for **existing buildings**.
- Non-domestic developments come under Part L2A of the Building Regulations 2013 for **new buildings**.
- Non-domestic developments come under Part L2B of the Building Regulations 2013 for **existing buildings**.

A rigid calculation methodology is set out to show compliance. This is the government’s Standard Assessment Procedure (SAP) for domestic buildings, and the National Calculation Method (NCM) for non-domestic buildings.

The required maximum carbon emissions can be achieved by any mixture of passive design features (i.e. reducing energy demand) and energy efficiency measures, but minimum standards of thermal performance apply.

In all cases, the carbon emissions achieved are calculated by comparing the proposed design against a target which complies with Building Regulations values. Small power is excluded from the calculations.

3.2.1 Part L Definitions and Guidance

As defined in regulation 2(2A) of the Building Regulations:

“(2A) In these Regulations ‘thermal element’ means a wall, floor or roof (but does not include windows, doors, roof windows or roof-lights) which separates a thermally conditioned part of the building (‘the conditioned space’) from:

- a. the external environment (including the ground); or
- b. in the case of floors and walls, another part of the building which is:
 - i. unconditioned;
 - ii. an extension falling within class VII in Schedule 2 or;
 - iii. where this paragraph applies, conditioned to a different temperature, and includes all parts of the element between the surface bounding the conditioned space and the external environment or other part of the building as the case may be.

(2B) Paragraph (2A) (b) (iii) applies to a building which is not a dwelling, where the other part of the building is used for a purpose which is not similar or identical to the purpose for which the conditioned space is used.”

As stated in Part L1B of the Building Regulations:

“3.6 There are two exemptions from the **energy efficiency requirements** that may apply to building work to existing **dwellings** or extensions to existing **dwellings**:

a. Buildings which are:

- listed in accordance with section 1 of the Planning (Listed Buildings and Conservation Areas) Act 1990;
- in a conservation area designated in accordance with section 69 of that Act; or
- included in the schedule of monuments maintained under section 1 of the Ancient Monuments and Archaeological Areas Act 1979.”

As stated in Part L2B of the Building Regulations:

“3.5 Building work in most existing buildings other than **dwellings** will need to comply with the **energy efficiency requirements** of the Building Regulations where the buildings are roofed constructions having walls and use energy to condition the indoor climate. Regulation 21 of the Regulations, however, grants an exemption from compliance with the **energy efficiency requirements** to certain classes of buildings:

b. Buildings which are:

- listed in accordance with section 1 of the Planning (Listed Buildings and Conservation Areas) Act 1990;
- in a conservation area designated in accordance with section 69 of that Act; or
- included in the schedule of monuments maintained under section 1 of the Ancient Monuments and Archaeological Areas Act 1979.”

Consequential improvements are defined by “those energy efficiency improvements required by regulation 28”:

Consequential improvements to energy performance – Regulation 28

(1) Paragraph (2) applies to an existing building with a total useful floor area over 1000 m² where the proposed building work consists of or includes–

- (a) an extension;
- (b) the initial provision of any fixed building services; or
- (c) an increase to the installed capacity of any fixed building services.

(2) Subject to paragraph (3), where this paragraph applies, such work, if any, shall be carried out as is necessary to ensure that the building complies with the requirements of Part L of Schedule 1.

(3) Nothing in paragraph (2) requires work to be carried out if it is not technically, functionally or economically feasible.

Regulation 35 defines ‘building’ in regulation 28 as follows:

Regulation 35 Interpretation

In this Part–

‘building’ means the building as a whole or parts of it that have been designed or altered to be used separately.

Figure 3-1 Extract from Part L 2013 Approved Document 2B

The development proposes significant refurbishment works for **Hornsey Town Hall** building and **Broadway Annexe**. The former is considered as Listed Grade II* and the latter as Listed Grade II, then both are exempted from the statutory energy efficiency measures stated in Part L.

However, the works will do include improvements focus on measures with greater cost benefits targeting energy intensive items: ventilation, general lighting with LED, energy metering and partial window replacement as listed in the Adapted Table 6 below. Those improvements are applicable to the **Hornsey Town Hall** building and **Broadway Annexe**.

Table 3-1 Improvements measures at the Hornsey Town Hall building and Broadway Annexe.

Adapted from Part L2B – Table 6: Practical and economically feasible improvements to be incorporated in the Hornsey Town Hall Building and Broadway Annexe		
No.	Improvement measure	Incorporation into the design
1	Upgrading heating systems more than 15 years old by the provision of new plant or improved controls	Yes
2	Upgrading cooling systems more than 15 years old by the provision of new plant or improved controls	Yes
3	Upgrading air-handling systems more than 15 years old by the provision of new plant or improved controls	Yes
4	Upgrading general lighting systems that have an average energy lamp efficacy of less than 40 lamp-lumens per circuit-watt and that serve areas greater than 100m ² by the provision of luminaires or improved controls	All lighting in the refurbished building shall be replaced by LED luminaires.
5	Installing energy metering following the guidance given in CIBSE TM 39	Will be provided in line with Part L and CIBSE TM 39 and heat network (metering and billing) regulations 2014 requirements.
6	Upgrading thermal elements which have U-values worse than those set out in column (a) of Table 5 following the guidance in paragraphs 5.12 and 5.13	Some thermal elements will be upgraded without affecting the appearance of the buildings.

Adapted from Part L2B – Table 6: Practical and economically feasible improvements to be incorporated in the Hornsey Town Hall Building and Broadway Annexe		
No.	Improvement measure	Incorporation into the design
7	Replacing existing windows, roof windows or roof lights (excluding display windows) or doors (excluding high-usage entrance doors) which have a U-value worse than 3.3 W/m ² K following the guidance in paragraphs 4.23 to 4.28	Replacing some of the single glazing with double glazing within the existing frames, wherever possible and following consultation with heritage consultants.
8	Increasing the on-site low and zero carbon (LZC) energy-generating systems if the existing on-site systems provide less than 10% of on-site energy demand, provided the increase would achieve a simple payback or 7 years or less	Yes
9	Measures specified in the Recommendations Report produced in parallel with a valid Energy Performance Certificate	No

3.2.1.1

Renovating and Retained Thermal Elements

Renovated thermal elements within refurbished buildings would preferably have to comply with the requirements of paragraphs 5.8 to 5.11 in ADL2B 2013.

Where a thermal element is subject to a renovation through undertaking an activity listed in paragraph 5.8a or 5.8b, the performance of the whole element should be improved to achieve or better the relevant U-value set out in column (b) of Table 5, provided the area to be renovated is greater than 50 per cent of the surface of the individual element or 25 per cent of the total building envelope.

Paragraph 5.8 (ADL2B): “For the purposes of this Approved Document renovation of a thermal element through:

- a. The provision of a new layer means either of the following activities:
 - i. Cladding or rendering the external surface of a thermal element; or
 - ii. Dry-lining the internal surface of a thermal element.
- b. The replacement of an existing layer means either of the following activities:

- i. Stripping down the element to expose the basic structural components (brick/block work, timber/metal frame, joists, rafters, etc.) and then rebuilding to achieve all the necessary performance requirements. As discussed in paragraph 3.9, particular considerations apply to renovating elements of traditional construction; or
- ii. Replacing the water proof membrane on a flat roof.”

Retained thermal elements within refurbished buildings would have to comply with the requirements of paragraphs 5.12 to 5.14 in ADL2B 2013.

Paragraph 5.12 (ADL2B): “(retained thermal elements) ... *applies to thermal elements in the following circumstances:*

- a. Where an existing thermal element is part of a building subject to a material change of use;
- b. Where an existing element is to become part of the thermal envelope, where it previously was not;
- c. Where an existing element in being upgraded as a consequential improvement (regulation 28) ...”

Reasonable provision would be to upgrade those thermal elements whose U-value is worse than the threshold value in column (a) of **Table 5** to achieve the U-value given in column (b) of Table 5, provided this is technically, functionally and economically feasible (with a payback period of 15 years or less).

Table 5 Upgrading retained thermal elements		
Element ¹	U-value W/m².K	
	(a) Threshold	(b) Threshold
Wall - cavity insulation	0.70	0.55 ²
Wall - external or internal insulation	0.70	0.30 ³
Floors ^{4,5}	0.70	0.25
Pitched roof - insulation at ceiling level	0.35	0.16
Pitched roof - insulation at rafter level ⁶	0.35	0.18
Flat roof or roof with integral insulation ⁷	0.35	0.18

Notes:

- 1. 'Roof' includes the roof parts of dormer windows, and 'wall' includes the wall parts (cheeks) of dormer windows.
- 2. This applies only in the case of a cavity wall capable of accepting insulation. Where this is not the case it should be treated as for 'wall - external or internal insulation'.
- 3. A lesser provision may be appropriate where meeting such a standard would result in a reduction of more than 5% in the internal floor area of the room bounded by the wall.
- 4. The U-value of the floor of an extension can be calculated using the exposed perimeter and floor area of the whole enlarged building.
- 5. A lesser provision may be appropriate where meeting such a standard would create significant problems in relation to adjoining floor levels.
- 6. A lesser provision may be appropriate where meeting such a standard would create limitations on head room. In such cases, the depth of the insulation plus any required air gap should be at least to the depth of the rafters, and the thermal performance of the chosen insulant should be such as to achieve the best practicable U-value.
- 7. A lesser provision may be appropriate if there are particular problems associated with the load-bearing capacity of the frame or the up-stand height.

This guidance applies to the existing fabric at the refurbished areas of the Hornsey Town Building and Broadway Annexe buildings. It is recommended that the design team use the values of Table 5 column (b) to improve the energy efficiency of the refurbished floors.

3.2.2 Part L 2013 Regulations Applicable to Hornsey Town Hall development

3.2.2.1 Hornsey Town Hall Building

The 3-storey building is Listed Grade II* completed in 1935.

The refurbishment works include the change of use of what it is known as The East Wing and the Link Building, from office and community accommodation to a Hotel. The Town Hall will maintain community spaces, and will also incorporate additional office areas, plant rooms, shared kitchen and servicing.

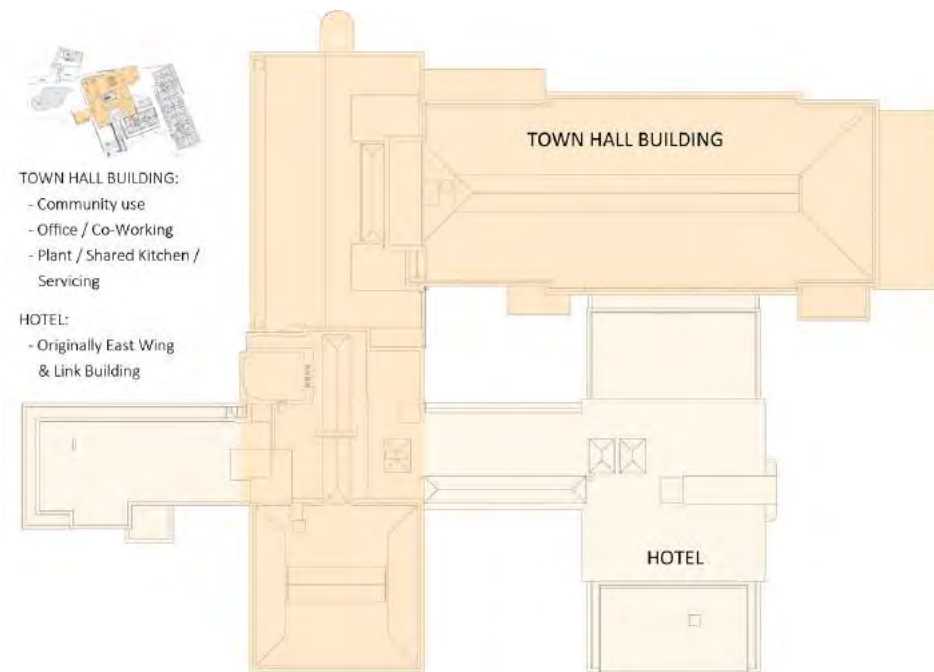


Figure 3-2 Hornsey Town Hall Building, Mixed-use scheme.

The key characteristics of the refurbishment within Hornsey Town Hall building are of:

- Internal alterations and reconfiguration of the building.
- Provision of additional office/servicing spaces.
- Minor extensions in the height of the Hotel building, accounting then for a new roof.
- Hard and soft landscaping works to the Town Square and public realm around the Town Hall building.

Since the building includes refurbishment works and non-domestic use, should be compliant with Part L2B – Conservation of fuel and power in existing buildings other than dwellings. However, it is exempt from the energy efficiency provisions for being Listed as Grade II*, of high level of significant to the Historic England. Improvements over the thermal fabric are within the scope of work maintaining the historical character of the building.

3.2.2.2 Broadway Annex

Located at the north side of the Town Square, the 2-storey Broadway Annexe will comprise of commercial and residential refurbishment works: retail areas at ground floor and residential units at first and second floor. The Broadway Annexe should be compliant with Part L2B & L1B 2013, but it is Listed Grade II so it is also exempt from

following these energy efficiency measures. As the Hornsey Town Hall building, improvements over the thermal fabric are also within the scope of work maintaining the historical character of the building.

3.2.2.3 Block A

Block A is a new 7-storey residential building located adjacent to the East Wing of the Hornsey Town Hall building. It proposes 82 apartments required to be compliant with Part L1A 2013 of the Building Regulations. The common areas will be subjected to Part L2A 2013 of the Building Regulations.

3.2.2.4 Block B

Block B is a new 7-storey residential building located at North East of the Hornsey Library. It proposes 40 apartments required to be compliant with Part L1A 2013 of the Building Regulations. The common areas will be subjected to Part L2A 2013 of the Building Regulations.

3.2.2.5 Mews

Mews is a new 3-storey residential building –including ground- located at the plot of the demolished Mews Studio. Along with Block A and B, the 9 units within Mews will follow the energy efficiency provisions of Part L1A.

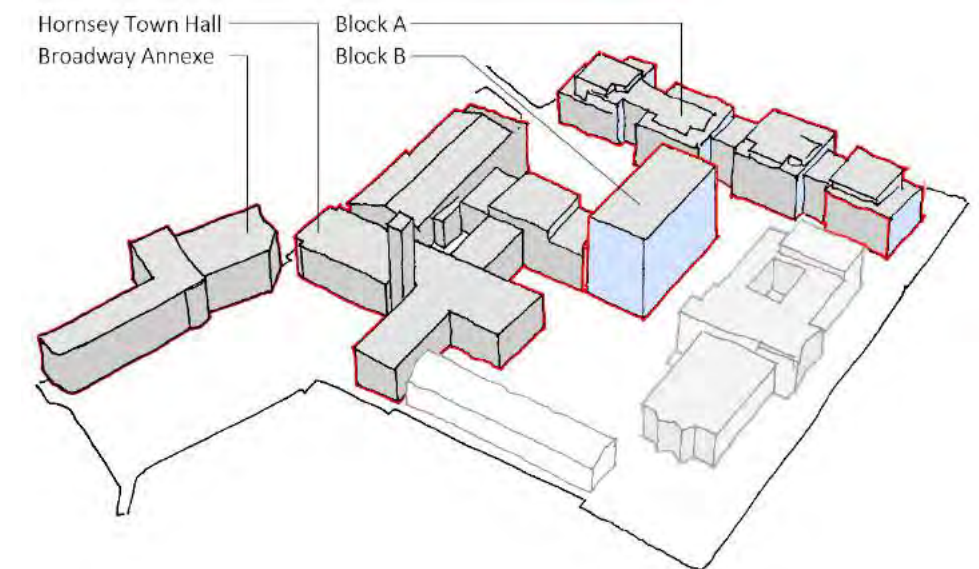


Figure 3-3 Hornsey Town Hall development.

3.3 Regional Policies – The London Plan

The Mayor of London published the current revision of the “London Plan” in March 2016. This is the Spatial Development Strategy for Greater London. The Development Plans of all London Boroughs must eventually comply with the general requirements of the London Plan.

To support borough planners, the Mayor has published a guidance document through London Renewables: “Integrating Renewable Energy into New Developments: A Toolkit for Planners, Developers and Consultants”, and more recently the Supplementary Planning Guidance “Sustainable Design and Construction”.

The London Plan includes planning policies both for reducing energy consumption within buildings and, significantly, promoting the use of decentralised electricity generation and renewable energy. These policies cover the role of boroughs in supporting the Mayor’s Energy strategy and the requirements of planning applications.

Energy Planning document by GLA (March 2016) states the requirement to minimise carbon dioxide emissions. The document indicates that carbon dioxide emissions for non-residential developments should be reduced by at least **35%** below those emissions targeted by the Building Regulations Part L 2013. These emissions should include those covered by the Building Regulations and those that are not covered by the Building Regulations.

The revised energy assessment guidance explains that the carbon reduction target for **new developments** will change from 1 October 2016 as follows:

- o **Stage 1 schemes received by the Mayor up until 30 September 2016** – 35% below Part L 2013 for both residential and commercial/non-domestic development.
- o **Stage 1 schemes received by the Mayor on or after the 1st October 2016** – Zero carbon (as defined in section 5.2 of the Housing SPG) for residential development and 35% below Part L 2013 for commercial /non-domestic development

The London Plan recognises that energy efficiency should come before energy supply considerations and has suggested a simple strategy known as the Mayor’s Energy Hierarchy. The process follows good practice in the design of low carbon buildings and comprises three distinct stages and order of application:

- 1) Use Less Energy (Be Lean)
- 2) Supply Energy Efficiently (Be Clean)
- 3) Use Renewable Energy (Be Green)

This strategy puts energy efficiency/conservation measures first in order to reduce the demand for energy, ‘Be Lean’. Following this, consideration must be given to supplying the resultant reduced energy demand as efficiently as possible, including the use of

combined heat and power (CHP), ‘Be Clean’. Finally, sources of renewable energy should be examined, ‘Be Green’.

As stated in Policy 5.6, the mayor will expect all major developments to demonstrate that the proposed heating and cooling systems have been selected in accordance with the following order of preference:

- Connection to an existing C/CHP scheme
- Site-wide C/CHP
- Communal heating and cooling

Where C/CHP is to be installed in a new development, the feasibility of extending the system beyond the site should be investigated. In addition, provision will be made for the heating and cooling network for future connections to district heating networks.

As stated in Policy 5.7, the current London Plan includes a notional target for on-site renewable energy, unless it can be demonstrated that such provision is not feasible. This target is for renewable energy to achieve a 20% reduction in carbon dioxide emissions after any energy efficiency measures and (non-renewable) C/CHP schemes have been applied.

The Plan also states that provision must be made in some form for the future Hydrogen Economy. However, take up of these technologies is recognised to be unrealistic in the current Planning environment.

3.4 Local Policies – Haringey Council

Haringey Council adopted their Strategic Policies in March 2013 and further alterations in January 2016. This document superseded the ‘saved’ Unitary Development Plan (UDP). The Council has also adopted the Development Management Plan Document (DPD), as part of the Local Plan.

Haringey’s Local Plan encourages all developments to be at the highest environmental standard as feasible. High energy efficiency and low operating costs are the goals. For this purpose, and in line with the London Plan, Hornsey Town Hall development should:

- Be Lean: Use less energy through sustainable design;
- Be Clean: Supply energy efficiently, promoting decentralised energy networks where possible.
- Be Green: Use renewable energy.

The Strategic Policies for Haringey Council relevant to **Energy and Sustainability**, and **applicable** to Hornsey Town Hall development, are:

- Policy SP4 Working towards a Low Carbon Haringey:
 - Sustainable and inclusive urban design aiming to reduce the energy use and carbon emissions over the life cycle of the development;
 - The new residential buildings should achieve CO₂ reductions in line with the London Plan. Since the 1st of October 2016, new residential developments must be zero carbon through at least 35% improvement over Part L 2013 plus carbon offset payment;
 - Energy efficiency measures are advised and also the use of site renewable sources to reduce the predicted CO₂ emissions by 20%, where viable, through the potential to decentralised energy, heating and cooling networks wherever possible.
- Policy SP5 Water Management and Flooding:
 - Water efficiency to adapt to climate change;
 - Implementing sustainability measures in buildings against flood risk.
- Policy SP6 Waste and Recycling:
 - To ensure the sustainable waste management – by reducing, reusing and recycling waste and supporting the use of sustainable materials and construction methods.
- Policy SP7 Transport
 - To manage air quality within the borough by prioritising pedestrian movement;

- Providing cyclist facilities as a way of promoting the use of more sustainable modes of transport.

In addition to this, the DPD states the following:

- Policy DM21: Sustainable Design, Layout and Construction:
 - Apply the energy hierarchy to meet the minimum carbon dioxide reduction requirements;
 - Apply the cooling hierarchy to reduce overheating risk and limit the reliance on mechanical cooling;
 - Maximise opportunities to enhance biodiversity on-site;
 - Use building materials with high environmental performance ratings wherever feasible;
 - Maximise opportunities for including locally sourced labour.

The council will seek that contributions regarding the carbon offset payment are in line with Planning Obligation SPD.

Following the consultation with the London Borough of Haringey (LBH) the carbon charge is shown for two scenarios:

- £90 per tonne of CO₂ per year, over 30 years will be £2,700 per tonne, in line with LBH’s Local Plan.

In general, the objectives are more in line to new-built developments and reasonable attempts are made to meet the above policies which are described in the following sections.

4. ‘Baseline’ Carbon Emissions (TER)

The 'baseline' building represents a development which just meets the minimum standards of CO₂ emissions reduction (i.e. the Building Emissions Rate (BER) is equal to the Target Emissions Rate (TER), as defined by Part L of the Building Regulations 2013).

Allowances for energy consumption not included under Part L have been made by reference to published material or by calculation. These include small power (energy use for electrical appliances). The energy breakdown and carbon dioxide emissions by end use and area are shown in the table below.

As part of the study for the common areas of the building, a thermal model of the building was developed and analysed using the approved IES Virtual Environment (VE) Software (Version 7.0.6). This software models the carbon dioxide emission rates produced by a building in accordance with Part L2A of the Building Regulations (2013). The software is approved for use by the Department for Communities and Local Government (DGLG) as a Dynamic Building Simulation Modelling Package (DSM).

For the residential units, SAP calculations were carried out using an approved NHER tool, by an accredited energy assessor.

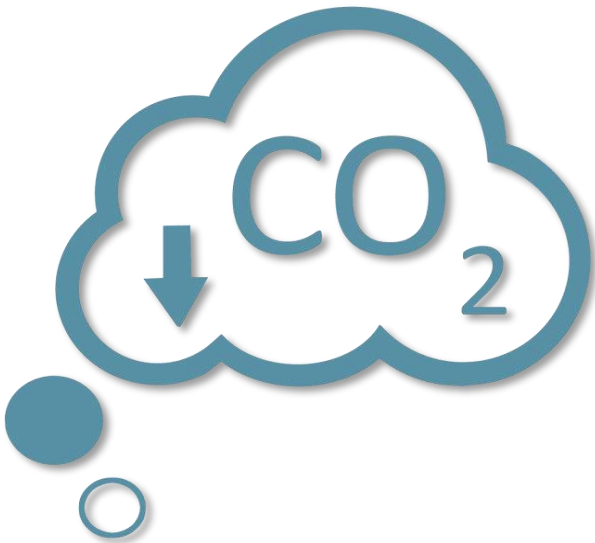
Unregulated energy use and the associated carbon dioxide emissions for the common areas of the residential buildings has been calculated using the BRUKL document and CIBSE publications for guidance, as well as evidence established through previous development work. Both sets of results, regulated and unregulated energy have been combined to form the tables below.

Unregulated energy use and the associated carbon dioxide emissions for the domestic buildings have been based on a typical apartment energy use for cooking and domestic appliances for a whole year.

Table 4-1 Target Emissions Part L 2013

Building Regulations 2013, Part L Compliant Development	Carbon Dioxide Emissions (Tonnes CO ₂ per Annum)	
	Regulated Energy	Unregulated Energy
Residential Building Block A (Part L1A)	85.8	118
Residential Building Block B (Part L1A)	44.6	56.09
Residential Building Mews (Part L1A)	13.5	16.89

TER ≥ BER



5. Be Lean – Reducing Energy Demand

Energy efficient servicing strategies and equipment will be used throughout the development to *reduce energy demand*. Technologies employed include:

5.1 Passive Design Features: Regulated Energy Use

5.1.1 Building Envelope – Residential Areas

The external envelope of a building can act as an important climatic modifier, with a well-designed façade significantly reducing the buildings energy demand. The residential façade system will be designed to minimise energy requirements and improve thermal comfort. The ‘Fabric Energy Efficiency’ (FEE) of dwellings is assessed using SAP 2012. The FEE is a measure of the primary energy associated to heating and cooling within dwellings.

The proposed characteristics for U-values and air permeability for new buildings should be significantly better than the minimum standards as set out by Part L1A 2013.

Table 5-1 Proposed Building Thermal Envelope U-values for Residential Areas

Parameter		Part L1A Limiting Values	% Improvement over PartL1A	Target Values ^{Note 4}
Building Air Tightness		10m³/h/m² @ 50pa	70%	3 m³/h/m² @ 50pa ^{Note 1}
Thermal Bridging (γ-value)		0.15 W/m².K	30%	0.15 W/m².K ^{Note 5}
Thermal Mass (Medium)		250 kJ/m².K	N/A	250 kJ/m².K
U-values	Wall/Solid	0.30 W/m².K	43%	0.17 W/m².K
	Roof	0.20 W/m².K	35%	0.13 W/m².K
	Exposed/ Ground Floor ^{Note 2}	0.25 W/m².K	52%	0.12 W/m².K
	Party Walls ^{Note 3}	0.50 W/m².K	N/A	0.0 W/m².K
Glazing g-value (BS EN 410) ^{Note 6}				0.55
Glazing g-value (BS EN 410) ^{Note 6}		Roof lights		0.65
Windows U-value (overall)		2.00 W/m².K	30%	1.40 W/m².K
Doors U-value (overall)		2.00 W/m².K	35%	1.30 W/m².K
Roof lights U-value (overall)		2.00 W/m².K	45%	1.10 W/m².K
Glazing Lighting Transmittance		N/A	N/A	≥70%

Notes:

1. The design air permeability of 3 m³/h/m² @50Pa will be subject to an increase of 2.0 m³/h/m² @50Pa as described in section 2.9 of AD Part L1A for all apartments which are not pressure tested. The energy model assumes that **100% of apartments will be air pressure tested**.
2. Relates to floor construction at ground floor and any exposed heated floor area; subject to floor detailing of the floating slab.
3. For the purposes of SAP, party walls are considered to be those that are adjacent to other spaces that are assumed to be heated to the same level as the dwelling; this includes foyers, corridors, risers, stairwells and common areas.
4. The “Target Values” are the construction parameters applied to the Actual Building simulation model and are representative of **average** of various areas.
5. The U-values include for repeating thermal cold bridges. For non-repeating thermal bridging, it will be necessary to calculate the γ-value for each apartment. The use of the default γ-value of 0.15W/m²K **may not** achieve the Design Fabric Energy Efficiency necessary to meet Criterion 1 of Part L1A. The use of default psi values (Ψ) may not achieve the required γ-value therefore junctions between elements and opening details may require to either be Approved Design Details **OR** calculated in accordance with BR497.
6. Glazing g-value to vary based upon exposure to sunlight in order to balance day lighting against the cooling loads.

The thermal performance of the residential elements has to be cross analysed with FEE calculations, which will take into consideration the performance of the building fabric.

5.1.2 Building Envelope – Non-Domestic Areas

Table 5-2 outlines the target U-values in order to improve fabric efficiency to reduce heating loads and also increase comfort level within the spaces by even heat and cooling distribution within the occupancy space.

The outlined U-values are critical step in reducing carbon emissions and early design consideration of practically achieving these U-values at early design stages is recommended.

Table 5-2 Proposed Building Thermal Envelope U-values for Non-Domestic Areas

Parameter		Part L2A Limiting Values	% Improvement over Part L2A	Target Values ^{Note 1}
Building Air-tightness		10 m³/h/m² @ 50Pa	70%	3 m³/h/m² @ 50Pa
U-values	Solid Wall	0.35 W/m²K	37%	0.22 W/m²K
	Curtain walling	2.20 W/m²K	36%	Glazing – 1.40W/m²K Solid – 0.60W/m²K
	Roof	0.25 W/m²K	40%	0.15 W/m²K
	Exposed Floor	0.25 W/m²K	40%	0.15 W/m²K
Window U-value (overall)		2.0	30%	1.40 W/m²K
Glazing g-value ^{Note 2} (BS EN 410)		Shop front glazing (Retail)		0.40-0.50
		Solar control glazing (Offices)		0.30-0.35
Glazing Lighting Transmittance		Shop front glazing (Retail)		> 70%
		Solar control glazing (Offices)		> 65%
Thermal Bridging		To be calculated		< 0.10 W/m²K

Notes:

1.

The “Target Values” are the construction parameters applied to the Actual Building simulation model and are representative of **average** of various areas.
2.

Glazing g-value to vary based upon exposure to sunlight in order to balance day lighting against the cooling loads.

5.1.3 Building Form / Massing

The new buildings will be designed such that their form and massing will provide passive control of solar gains. This will ensure that solar gains are maximised in winter months (when they are beneficial in reducing heating loads), while in summer months they are minimised (to reduce the effective cooling loads).

5.1.4 Facade Optimisation

Detailed thermal modelling analysis (using industry-recognised and DCLG Certified dynamic simulation software) has been used during the design process to optimise solar heat gains through glazing with day lighting and thus ensure good levels of natural daylight penetration whilst limiting unwanted solar gain and heat loss.

5.1.5

Daylight Optimisation

As stated previously the external façades have been optimised to minimise direct solar gains whilst maximising daylight provision into the occupied areas.

As well as improving occupant comfort by increasing natural daylight provision and visual stimulus, this will reduce the dependency on artificial lighting, thus resulting in energy consumption savings.

Daylighting levels should be assessed and compared against HQM and BREEAM criteria and BS 8206 Part 2: ‘*Code of practice for daylighting*’ recommendations of average daylight factor for:

Area	Recommended average daylight factor (ADF), %
Bedrooms	At least 1%
Living Rooms	At least 1.5%
Open plan living rooms with kitchen	At least 2%
Kitchens	At least 2%
Offices/Retail	At least 2%

5.1.6

Low Water Consumption

Reduced water usage though use of low flow water outlets and appliances can also lead to a reduction in the energy required to heat domestic hot water. SAP 2012 methodology recognises a 5% reduction in domestic hot water heating energy if the dwelling is designed to achieve a water use target of not more than 125 litres per person per day total water consumption.

The residential units will be designed to achieve water consumption of 105 litres per person per day, in line with Approved Document Part G 2015 with 2016 amendments, by the appropriate distribution system design and provision of low water use fixtures and fittings.

5.2	Active Design Features: Regulated Energy Use		
5.2.1	Building Energy Management System and Metering A comprehensive Building Energy Management System (BMS) will be installed to monitor and report on the overall energy consumption of the building. The system will highlight any out of range consumption figures and readings, allowing a preventative approach through interrogation and resolution of potential problems. The BMS will also provide intelligent control of the building services systems to ensure that occupant comfort is maintained throughout and that the systems are running to their peak ‘as designed’ efficiencies. Metering of energy usage on all floors, per tenancy and per dwelling will allow building owners / occupiers to view and interrogate where potential energy savings can be made throughout their buildings. All residential units will be provided with independent apartment energy management systems that will provide intelligent control of the apartment services systems. This will include the provision of smart real-time metering of energy usage that will heighten user awareness of energy use and assist in making choices that effect energy usage		
5.2.2	AC/DC Motors for Fan Coil Units The current Part L Building Regulations set stringent efficiencies for the fans used in all air conditioning / mechanical ventilation systems. Recent advances in fan motor technology have resulted in substantial reductions in energy consumption, an otherwise significant proportion of building energy use. AC/DC (electronically commutated direct current) motors will be used in place of conventional AC motors. These will be of the variable air volume 'VAV' type whereby the flow rate, and hence energy consumption, are reduced to a minimum set back rate when possible. Mechanical cooling will be provided to the office, retail and residential areas for thermal comfort.		
5.2.3	Air Handling Heat Recovery The energy required to heat or cool the incoming fresh air supply to the buildings will be significantly reduced by using an efficient heat recovery system. The heat recovery systems will utilise the thermal properties of the return air to transfer ‘free’ heat/cooling to the incoming fresh air supply. These will be controlled so as to minimise the demand for any heating and cooling of the fresh air supply. Heat recovery between the return/exhaust air and outside air shall be provided on all supply and extract units via thermal wheel or plate heat exchangers with efficiencies of at least 78%. A run-around coil will be used for the basement ventilation as the supply and extract units are in different places with efficiencies of at least 68%. The efficiencies will		
			conform to the European Directive 2009/125/EC, which requires increased efficiencies from 1 st January 2018.
		5.2.4	Low Energy Lighting
		5.2.4.1	Energy Efficiency Lighting – Residential In dwellings, the Part L1A 2013 Building Regulations require that 75% of all fixed internal light fittings must be capable of accepting only low energy lamps. For this development, it will be targeted for 100% of the fixed light fittings in the residences will be capable of accepting only low energy lamps. Throughout the residential dwellings only low energy LED lighting products will be specified.
		5.2.4.2	Low Energy Lighting – Non-Domestic Areas Lighting is typically responsible for about one quarter of the carbon emissions from commercial buildings. High frequency ballasts and high efficacy lamps and luminaries will be utilised. Lighting throughout the occupied areas of the building will be intelligently controlled according to the building / area usage. For instance, the WC areas will be controlled via PIR movement detectors which will monitor occupancy and switch off the lights when the area is vacant for a sustained length of time. The use of high efficiency LED lighting products within the interior lighting design where appropriate will be targeted. Lighting in communal/lobby areas, stairwells and the basement will include timed control to ensure switching off to reduce energy consumption. All lighting within the development will be LED only.
		5.2.4.3	Efficient Lighting Control – Non-Domestic Areas Introducing presence detection and daylight dimming within spaces which have access to day light will reduce the lighting levels for times when the lux levels are available via natural day light. Furthermore, LED lighting will be required to achieve lighting levels listed in the opposite table.

Table 5-3 Applied Lighting Specifications

System	Parameter	Applied Value
Lighting Efficiency*: Non-domestic Areas	Office Areas	6 W/m ²
	Retail Areas	95 lm/W (In lease agreement)
	Reception Areas	85 lm/W
	Storage Areas	85 lm/W
	Toilet Areas	85 lm/W
	Circulation Areas	85 lm/W
	Car Park	85 lm/W
	Plant Areas	85 lm/W
Lighting Controls	Retail Areas & Circulation Spaces	Presence Detection on/off
	Office Areas	Presence Detection on/off AND Day light Dimming Control

Note:
*All installed Lighting will be LED & all-day lighting areas to have daylight dimming controls with local sensors with presence detectors. All transient areas will have on/off presence detectors.

5.2.5 High Efficiency DX Cooling

Mechanical cooling will be minimised through the use of passive design features as discussed earlier within this report. Due to having limited cooling loads the intention is to provide local DX cooling to only the Penthouse apartments in Block A.

The DX system shall comprise of an external air source heat pump connected to concealed ducted fan coil units. Living rooms and bedrooms are to be cooled by this system.

Hornsey Town Hall residential development will be mainly naturally ventilated and have fresh air supply by MVHR.

5.2.6 High Efficiency Variable Speed Drives

By varying the fan and pump speeds for the water and air distribution systems to match the building load profiles, fan and pump energy consumption will be considerably reduced. This will be maintained and controlled through constant monitoring via the intelligent Building Management System (BMS).

5.2.7 Automatic Monitoring and Targeting

The Building Regulations Approved Document L2A identifies that the provision of automatic monitoring and targeting with alarms for out of range values, can provide significant savings in energy consumption of the building services systems. A saving in energy consumption of 5% is awarded for complete installations that measures, records, transmits, analyses, reports and communicates meaningful energy management information to enable the operator to interrogate and manage the energy it uses.

5.2.8 Efficient HVAC Parameters

Air handling plant shall be provided within dedicated plantroom within the block A basement to provide general ventilation.

The design and arrangement of the air handling system are based on the following design principles:

- Energy efficient constant volume distribution systems.
- Heat recovery between outside air and exhaust air streams shall be utilised on all units to conform to European Directive 2009/125/EC.

Air handling unit shall comprise attenuators, supply and exhaust air fan units, filters, heat recovery and heating coil.

Heat recovery between the return/exhaust air and outside air shall be provided via thermal wheel or plate heat exchangers with efficiencies of at least 78%. The efficiencies will conform to the European Directive 2009/125/EC, which requires increased efficiencies from 1st January 2018.

Air distribution systems shall be designed to include access for cleaning. Direct ductwork routes shall ensure maximum energy efficiency and flexibility for future requirements; whilst appropriate ductwork acoustic treatments shall minimise noise transmission and breakout. Where acoustic lining is not provided, supply air ductwork shall be thermally insulated, complete with vapour barrier, as required to prevent condensation.

Ductwork shall be insulated to comply with British Standards to prevent heat loss/ gain within the reticulation network.

Ductwork shall be constructed and installed to comply with DW/144.

The following design parameters were assigned to the base building in order to establish its CO₂ emission rate over a year.

Table 5-4 Applied HVAC parameters for Main Central Plant & Non-Domestic Areas

System	Parameter	Applied Value
Condensing Boiler & CHP* (Refer to CHP Section 6.2)	Seasonal Efficiency	80.90%*
Centralised Fresh Air Unit (AHU)	SFP	1.9 W/l/sec
WC Extract Fans	SFP	0.40 W/l/sec
Pumps*	Pump Type	Variable speed multiple pressure sensors*
Centralised Fresh Air Unit With Speed Control	Office Areas	Yes (Some areas)
	Retail Areas	Yes (Tenant to Specify)
Ductwork & AHU Leakage	Ductwork Leakage Testing	Class B
	AHU CEN Standards	Class L1
Domestic Hot Water	Storage Losses	0.004 (kWh/(l.day)
	Circulation Losses	5 W/m
	DHW Controls	Timed Control
Electrical /Metering	Power Factor	Greater Than 0.95
	Lighting system have provision for metering	Yes
	Automatic Monitoring of energy Data?	Yes
	Controls	Central Start & Stop Optimum Start & Stop Local time & temperature Control Weather Compensation Control

*Central plant supplying domestic & non-domestic areas of the building

Table 5-5 Applied HVAC parameters for Residential areas

System	Parameter	Applied Value
Mechanical Ventilation	MVHR SFP:	0.61W/l/sec
	Heat recovery efficiency:	89%
Domestic Hot Water	Fuel Type	Gas
	Storage Volume	HIU, instantaneous 125 L

5.2.9

Power Factor Correction

The Building Regulations Approved Document L identifies that the provision of power factor correction to the building electrical supply can provide significant savings in electrical consumption. A saving in electrical energy consumption of 1% is awarded for power factor correction to 0.9 and a saving of 2.5% awarded for power factor correction to 0.95 power factor. This development intends to have a power factor correction of 0.95 as a minimum

5.3

Active Design Features: Unregulated Energy Use

5.3.1

Low Energy White Goods – Residential Buildings

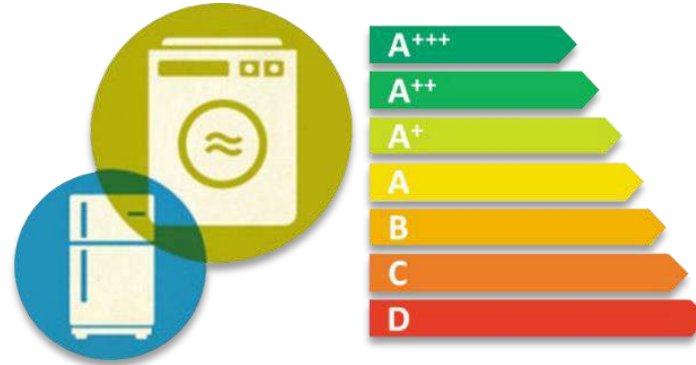
White goods are responsible for about two thirds of electrical consumption in dwellings. Electrical consumption is responsible for roughly half the carbon emissions from a dwelling.

White goods are to be provided with a certified energy label. These are rated from A+++, to D with D being the least efficient. Data supplied by the Energy Advice Centre suggests that using A++ rather than C rated white goods would reduce electrical energy consumption in each dwelling by approximately 800kWh/year.

White goods will be provided for the market apartments, including washing machines, dryers, dishwashers and fridge/freezers.

Information on the EU Energy Efficiency Labelling Scheme of efficient white goods will be provided to each dwelling for the following appliances:

- Fridge
- Freezer
- Wine storage appliance
- Washer/dryer
- Washing machine
- Tumble drier
- Dishwasher
- Oven.



actively encourage a low energy culture as part of its commercial and residential leasing strategy.

5.3.2 High Efficiency Vertical Transportation

Vertical transportation can be fitted with a number of energy saving measures to reduce their energy use both whilst moving and when in standby mode. These include:

- Controls that ensure that no more lifts are in use than required and that as few stops as possible are made
- Energy efficient lighting
- Control that switches off the lighting when the car is not occupied

5.3.3 Low Energy Culture

Providing building users and operators with practical guidance on the importance and methods of energy efficiency can lead to effective, cost-free reductions in energy usage and carbon emissions. Savings can be expected in, for example:

- Operating comfort cooling systems efficiently
- Lighting Energy: a culture of 'Turn-It-Off'
- Small Power: avoiding monitors and PCs etc in stand-by mode
- Cooling/Heating Energy: widening 'acceptable' temperature range.

Training of operators and facility managers is particularly important to provide them with the skills and knowledge to implement and continue to improve an energy management programme.

The amount of energy that can be saved will be dependent upon the motivation of the occupants and the effectiveness of the awareness programmes. The development will

5.4

Be Lean – Reduction on Carbon Emissions

The tables below outline the carbon emissions after the energy efficient design, 'Lean' version for the residential buildings. Block A passes Fabric Energy Efficiency (FEE) by **2.2%** and reduces carbon emissions by **6.9%** compared to Part L 2013, whereas Block B passes FEE by **4.9%** and reduces CO₂ emissions by **8.2%**, and Mew passes FEE by **0.1%**.

Table 5-6 Detailed Regulated Emissions for the Lean Building – Residential Block A

HORNSEY TOWN HALL DEVELOPMENT – BLOCK A		
Baseline TER	85.75	Tonnes CO ₂ /annum
Lean DER	79.84	Tonnes CO ₂ /annum
% Savings	6.9%	Pass
FEE ANALYSIS		
TFEE	38.96	kWh/m ² /year
DFEE	38.12	kWh/m ² /year
% Improvement TFEE-DFEE	2.2%	Pass

Table 5-7 Detailed Regulated Emissions for the Lean Building – Residential Block B

HORNSEY TOWN HALL DEVELOPMENT – BLOCK B		
Baseline TER	44.63	Tonnes CO ₂ /annum
Lean DER	40.95	Tonnes CO ₂ /annum
% Savings	8.2%	Pass
FEE ANALYSIS		
TFEE	37.78	kWh/m ² /year
DFEE	35.94	kWh/m ² /year
% Improvement TFEE-DFEE	4.9%	Pass

Table 5-8 Detailed Regulated Emissions for the Lean Building – Residential Mews

HORNSEY TOWN HALL DEVELOPMENT – MEWS		
Baseline TER	13.54	Tonnes CO ₂ /annum
Lean DER	7.87	Tonnes CO ₂ /annum
% Savings	41.9%	Pass
FEE ANALYSIS		
TFEE	41.85	kWh/m ² /year
DFEE	41.82	kWh/m ² /year
% Improvement TFEE-DFEE	0.1%	Pass

6. Be Clean – Heating Infrastructure

After careful selection of appropriate servicing strategies and plant selection, the emphasis is shifted to meeting the energy demand of the development using a low-carbon supply.

6.1 Connection to Existing District Heating Network

Policy SP4: ‘Working towards a low carbon Haringey’ encourages that all major developments are designed to link to and extend existing heat and energy networks in the vicinity.

The feasibility of connecting the proposed development to a district heating (DH) network has been assessed, making reference to the London Heat Map displayed within the Haringey’s Local Plan: Strategic Policies 2013-2026. As shown in the following image, the development is located within the opportunities area of ‘Decentralised Energy Potential’ in the Crouch End Area (peach colour), **but without any existing DH network** ready for connection.

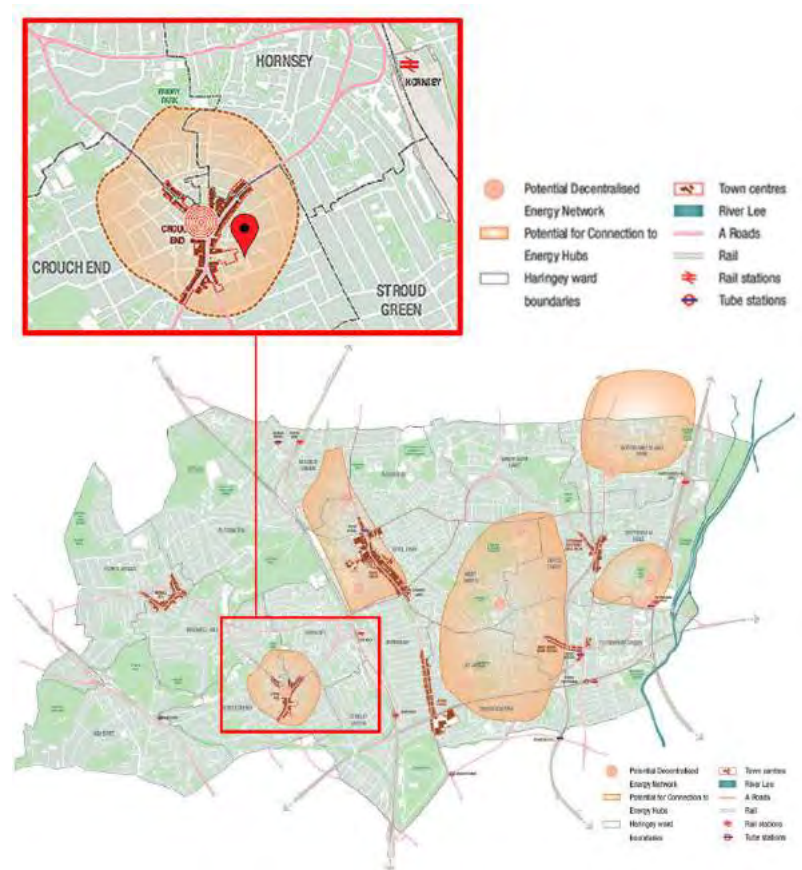


Figure 6-1 London Heat Map showing existing DH networks and potential areas of Decentralised Energy around Hornsey Town Hall

6.2 Combined Heat and Power (CHP)

In the absence of any ability to connect to an existing district heating network it is proposed that a central community heating system with an onsite with high efficiency CHP units with low NOx emissions to be installed on the site to serve the base space heating and domestic water demand.

CHP units consume gas in an internal combustion engine or other prime movers (e.g. fuel cell or sterling engine) to provide heat and electricity. A total of 45% to 55% of the energy value of gas is converted into heat, mainly in the form of hot water for space and hot water heating. Between 30 to 35% of the energy value is converted to electricity, with the remaining 10 to 25% lost as flue gases.

The environmental and economic benefits of cogeneration are evident when its performance is compared with a conventional gas central heating boiler (representing around 95% of boilers in the UK), where 90% of the gas energy is converted into heat and the remaining 10% lost as flue gases. Electricity generated on site can be either used on site or exported when unused.

Natural gas is the most suitable fuel for the location of the proposed building, which will make CHP the most suited low carbon source, along with the benefit of not requiring any fuel storage or, most importantly, delivery of fuel to the development.

Table 6-1 Required CHP Specification

Application of CHP	CHP Parameters	
CHP to serve Domestic and Non-Domestic Buildings Providing more than 75% of the Heating demand.	Natural Gas Consumption (GCV) (GCV)	224 kW
	CHP Heat Output	109 kW
	CHP Electrical Output	70 kW
Data based upon Bosch Thermotechnology CE70-2 NA unit	Overall Efficiency (GCV)	79.8%
	Heat Efficiency (GCV)	48.6%
	Power Efficiency (GCV)	31.2%
	Power Ratio	1.56
	Number of unit	1

The specification set out in the table above is based upon the current design of the building. The CHP size will alter for the final design based upon flowing:

- All fuel is purchased on the bases of its Gross calorific value and site energy consumption is also expressed in terms of (GCV) therefore GCV based fuel consumption figures have been used to analysis CHP feasibility;
- The final size of the CHP may be altered based upon selection of manufacturer and supplier at the time of final design. Also the size may be altered via a trade-off with efficiency measures specified within this report, e.g. further improvement to the lighting or SFP of central AHU system could allow for a smaller CHP to be specified;
- The number of CHP units may vary to modulate as per energy demand. This will be coupled with reduction in individual size of units.
- The thermal stores are critical components for meeting the heating demand and they will be sized for final design in order to optimise the use of CHP which will be the lead heating system for the design.

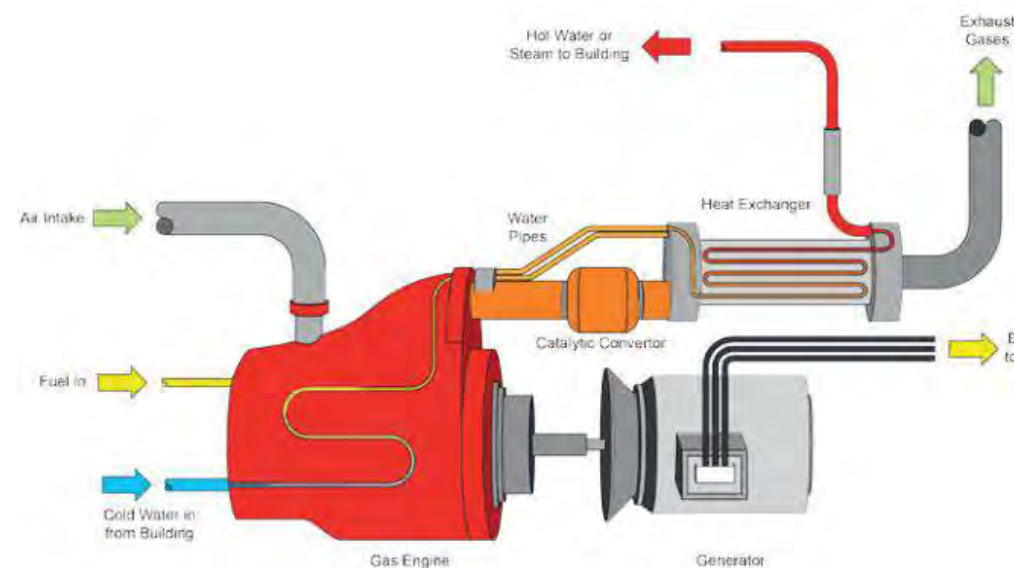


Image: Hoval – Manual for CHP Process

6.3 Air Source Heat Pump System (Mews)

LTHW for the Mews shall be provided from an air source heat pump system located on the roof of Broadway Annex. Distribution LTHW pipework shall be provided from Broadway Annex below ground and enter the Mew building at ground level within the services riser. LTHW shall be distributed up and down the building via dedicated risers.

The provision and specification for the Air source heat pump system and associated plant will be included within the existing build stage 3 design report and specification

All LTHW pipework shall be insulated to comply with British Standards to prevent heat loss within the network.

The LTHW circuit shall operate with temperatures at 60 °C flow and 40 °C return.

6.4

Export of Energy

Sweco Building service team are in contract with Haringey council on potential of export of energy from energy centre located within the new development. At the time of planning application there seem to be viability of export to the adjacent public library. For further details on progress please refer to contact below:

Hugh Gravelle BSc MSc (Arch) MCIEH MRICS
Commissioning and Client Manager Corporate Contracts
Haringey Council, Alexandra House, 10 Station Road, London, N22 7TR
T. 020 8489 2900: E. hugh.gravelle@haringey.gov.uk

6.5

Be Clean – Reduction on Carbon Emissions

The table below outlines the carbon emissions after the clean energy supply from CHP, 'Clean' version for the residential buildings in Hornsey Town Hall development. All common corridors were assumed to be heated.

Table 6-2 Detailed Regulated Emissions for the Clean Building – Residential Block A

HORNSEY TOWN HALL DEVELOPMENT – BLOCK A		
Baseline TER	85.75	Tonnes CO ₂ /annum
Lean DER	79.84	Tonnes CO ₂ /annum
% Savings	6.9%	Pass
Clean DER	55.55	Tonnes CO ₂ /annum
% Savings	35.2%	35% required to meet GLA requirement

Table 6-3 Detailed Regulated Emissions for the Clean Building – Residential Block B

HORNSEY TOWN HALL DEVELOPMENT – BLOCK B		
Baseline TER	44.63	Tonnes CO ₂ /annum
Lean DER	40.95	Tonnes CO ₂ /annum
% Savings	8.2%	Pass
Clean DER	28.67	Tonnes CO ₂ /annum
% Savings	35.8%	35% required to meet GLA requirement

Table 6-4 Detailed Regulated Emissions for the Clean Building – Residential Mews

HORNSEY TOWN HALL DEVELOPMENT – MEWS		
Baseline TER	13.54	Tonnes CO ₂ /annum
Lean DER	7.87	Tonnes CO ₂ /annum
% Savings	41.9%	Pass
Clean DER	7.87	Tonnes CO ₂ /annum
% Savings	41.9%	35% required to meet GLA requirement

7. Be Green – Renewable Energy

Further energy and carbon dioxide emissions savings could in principle be made through the adoption of renewable technologies.

The suitability of available technologies is sensitive to a number of factors, including site constraints, development footprint, surrounding environment, access limitations and development type.

To this end, the following renewable energy technologies have been investigated to establish their suitability and feasibility.

7.1 Consideration of Low and Zero Carbon Technologies

7.1.1 Biomass Boilers

The types of biomass boilers that would potentially be suitable for this development would burn wood in the form of small chips which originate from forestry works. The boilers are equipped with high efficiency filters on the exhaust so that very low particulate emissions are achieved. Emissions from biomass boilers are designed to meet stringent regulations.

Although carbon dioxide is emitted in the exhaust gas, this originated from the atmosphere only in recent years, and it is stored within the tree by photosynthesis. This short carbon cycle means therefore that this can be considered a carbon neutral fuel. However, some fossil fuel will be expended in producing and transporting biomass so that it has some associated carbon emissions. It is usual to assume a carbon intensity equivalent to 15% of natural gas (0.025 kgCO₂/kWh).

Key issues with Biomass that could be of detriment to its feasibility are:

- Fuel handling and storage
- Fuel availability and reliability in sourcing
- Particulate emissions
- Ash disposal

Unlike natural gas, biomass has to be stored on-site in fuel silos. Typically, 2 to 3 weeks supply is stored. The fuel is delivered using large lorries and tipped into the silo, requiring adequate vehicular access. The fuel is automatically fed into the boiler using a screw-drive, meaning the silo must be adjacent to the boiler. Therefore additional plant room space, when compared to a traditional gas-fired boiler, is required.

There is limited information available on fuel availability in the surrounding area, though this is believed to be an expanding market. The government is encouraging the use and development of biomass through the creation of the Biomass Task Force. The biomass boiler is normally sized to meet only part of the peak heating demand with top-up provided by gas-fired boilers. As peak load is rarely required, the biomass boiler can still

produce a large percentage of the annual heating energy. This analysis is based on the installation of a boiler sized at about 50% of the peak heating and hot water demand. This would ensure that it operates for most of the year, meeting the base load in summer.

Biomass boilers are often incorporated into developments requiring CO₂ reductions because they have a relatively low capital cost compared to other renewable technologies. However, an installed biomass boiler has ongoing maintenance, running and fuel delivery costs that are not required with other forms of renewable energy. These systems do require substantial and safe access for large delivery vehicles.

Note: *We have excluded CHP or CCHP running on biofuel from this study, due to the high particulate matter (PM) and nitrogen oxide (NOx) emissions. The potential nitrous oxide (NOx) biomass and other biofuel installations may not meet the air quality requirements.*

Biomass boilers are therefore not recommended for this development.

7.1.2 Photovoltaic

Photovoltaic (PV) panels must be located in a generally southern facing orientation at ideally, 35° to the horizontal; if located vertically, the output is reduced by about 15%. PV panels provide a visible green label for the building.

To achieve the necessary carbon reductions, it will be necessary to incorporate an element of photovoltaic panels at roof level of Block A building:

- 1.60m² area per panel and a total of **262** roof mounted panels for the main building (excluding maintenance areas and walkways);
- To provide more than **62,525 kWh** per year of electricity output;
- Based upon high efficiency PV panels with efficiency in excess of **19%**;

The areas above are based on the maximum available roof area of the current design. Where there are any changes to this area, the carbon offset payment will be recalculated. The final required area of the PV will be set in accordance with the procurement of PV based upon high efficiency criteria and the total output may be reduced in favour of further lean measures, although the area of PV will be maintained to meet the ‘Be Green’ commitment as per London Plan.

7.1.3 Wind Turbines

Wind turbines produce electricity directly from the energy in wind. This is then fed into the buildings electrical system via a control gear. Two types of wind turbines are available; horizontal axis and vertical axis. The former tends to be noisy and produce vibration. The latter are quieter in operation and more suited to installation on buildings but are generally less efficient and more expensive.

Although wind turbines are a highly visible form of renewable energy, they can normally provide only a very small contribution to the total electrical consumption of buildings in city and urban locations. Probably visually unacceptable in planning terms there are also,

concerns that such a turbine would create unacceptable noise levels during day and night. As a consequence, wind turbines are not considered to be viable for this project.

7.1.4 Solar Hot Water

Solar hot water panels must be located in a generally south facing position, ideally at about 30° to the horizontal. If located vertically, output is reduced by about 15%.

The scheme investigated is based on installing a nominal active area of high efficiency (evacuated tube) solar hot water panels, accommodated on the roof of the building. Such systems are relatively low maintenance, are a proven technology and are a visible indication of the development's green aspirations.

Although efficient and cost effective in implementation, solar hot water systems can only offset a fraction of the domestic hot water demand for the site, which is quite small compared to other energy demands. Solar thermal panels target the same heating loads as CHP and would therefore be in conflict with CHP system proposed as the 'clean' technology in the energy hierarchy. Solar hot water panels are therefore not recommended for this development.

7.1.5 Ground Source Pumps

The community heating system proposed provides a significant amount of 'waste' heat which will be used for domestic hot water requirements. A ground source heat pump system would be in direct conflict with this both CHP and the future district community scheme, where the two technologies would compete for the same heating load. Hence, because the benefits of both cannot be additive, ground source heat pumps have not been proposed for this development.

7.1.6 Aquifer Heat Pumps

The use of the London aquifer to reject heat to (in cooling mode) and to draw heat from (in heating mode) can reduce emissions from a development, depending on the number of boreholes and the potential yield.

In an open loop aquifer based heat pump system, boreholes are sunk into the chalk strata. Aquifer water is pumped up to the surface and stored temporarily in a tank. This water is usually at 12-14°C year-round. The water is passed through a heat exchanger where it heats or cools the condenser water circuit serving the heat pumps. The water is then pumped back into the aquifer. Boreholes are normally sunk in pairs, one abstraction and one discharge. A licence from the Environment Agency is required to extract aquifer water.

The limitations imposed by the existing basements and difficulties of achieving acceptable separation on site would severely restrict the effectiveness of any aquifer system.

Therefore, it is proposed that CHP in combination with roof mounted photovoltaics be integrated to Hornsey Town Hall development in order to contribute to an energy efficient and sustainable development.

7.2

Be Green – Reduction on Carbon Emissions

The table below outlines the carbon emissions after renewable energy, 'Green' version for the residential buildings of the development.

Table 7-1 Detailed Regulated Emissions for the Green Building – Residential Block A

HORNSEY TOWN HALL DEVELOPMENT – BLOCK A		
Baseline TER	85.75	Tonnes CO ₂ /annum
Lean DER	79.84	Tonnes CO ₂ /annum
% Savings	6.9%	Pass
Clean DER	55.55	Tonnes CO ₂ /annum
% Savings	35.2%	35% required to meet GLA requirement
Green DER	43.23	Tonnes CO ₂ /annum
% Savings	49.6%	35% required to meet GLA requirement

Table 7-2 Detailed Regulated Emissions for the Green Building – Residential Block B

HORNSEY TOWN HALL DEVELOPMENT – BLOCK B		
Baseline TER	44.63	Tonnes CO ₂ /annum
Lean DER	40.95	Tonnes CO ₂ /annum
% Savings	8.2%	Pass
Clean DER	28.67	Tonnes CO ₂ /annum
% Savings	35.8%	35% required to meet GLA requirement
Green DER	22.11	Tonnes CO ₂ /annum
% Savings	50.5%	35% required to meet GLA requirement

Table 7-3 Detailed Regulated Emissions for the Green Building – Residential Mews

HORNSEY TOWN HALL DEVELOPMENT – MEWS		
Baseline TER	13.54	Tonnes CO ₂ /annum
Lean DER	7.87	Tonnes CO ₂ /annum
% Savings	41.9%	Pass
Clean DER	7.87	Tonnes CO ₂ /annum
% Savings	41.9%	35% required to meet GLA requirement
Green DER	6.62	Tonnes CO ₂ /annum
% Savings	51.1%	35% required to meet GLA requirement

8. Carbon Offset Payment

The carbon offset payment of the shortfall in regulated carbon emissions are outlined in this section for the domestic buildings at Hornsey Town Hall development to achieve **zero carbon** for regulated carbon emissions.

As outlined within section 1.1 of the executive summary, the offset payment based on GLA’s rate will be of £90 per tonne of CO₂ per year, over 30 years, i.e. £2,700. In order to drive investments to reduce emissions from the proposed development.

Table 8.1 Shortfall in regulated carbon dioxide savings for Residential Buildings Block A

Carbon Offset Payment	Annual Shortfall Tonnes CO ₂ (Regulated)	Off-set Payment per Tonnes for 30 years CO ₂ Emissions	Cumulative Shortfall Tonnes for 30 years CO ₂ Emissions
GLA's carbon charge	43.23	£2,700	£116,721

Table 8.2 Shortfall in regulated carbon dioxide savings for Residential Buildings Block B

Carbon Offset Payment	Annual Shortfall Tonnes CO ₂ (Regulated)	Off-set Payment per Tonnes for 30 years CO ₂ Emissions	Cumulative Shortfall Tonnes for 30 years CO ₂ Emissions
GLA's carbon charge	22.11	£2,700	£59,697

Table 8.3 Shortfall in regulated carbon dioxide savings for Residential Buildings Mews

Carbon Offset Payment	Annual Shortfall Tonnes CO ₂ (Regulated)	Off-set Payment per Tonnes for 30 years CO ₂ Emissions	Cumulative Shortfall Tonnes for 30 years CO ₂ Emissions
GLA's carbon charge	6.62	£2,700	£17,874

Table 8.4 Total Offset Payment

Carbon Offset Payment	Annual Shortfall Tonnes CO ₂ (Regulated)	Off-set Payment per Tonnes for 30 years CO ₂ Emissions (GLA)	Cumulative Shortfall Tonnes for 30 years CO ₂ Emissions
Residential Block A	43.23	£2,700	£116,721
Residential Block B	22.11	£2,700	£59,697
Mews	6.62	£2,700	£17,874
Site-wide Carbon Offset Payment			£194,292

The total carbon offset payment of £90 per tonne of CO₂ per year, over 30 years is resulted after the following measures:

- 1. Significant number of photovoltaic panels on the roof generating 62,525 kWh / annum of electricity on site. Offset cost saving will allow for installation of high efficiency technology photovoltaic panels of efficiency in excess of 19%.
- 2. Procurement of high efficiency & optimum life cycle building service system such as MVHR units, CHP / Thermal Storage System, LED lighting for back of house areas etc. i.e. (all lighting to be LED type only).
- 3. Project design team will explore further potential of installing additional PV as the design develops further.

9.

Cooling and Overheating

9.1

Cooling Hierarchy

Policy 5.9 of the London Plan states that major development proposals should reduce potential overheating and reliance on air-conditioning systems and demonstrate this in accordance with the following cooling hierarchy:

Table 9-1 Hornsey Town Hall Cooling Strategy

London Plan: Policy 5.9 – cooling hierarchy	Hornsey Town Hall Cooling Strategy
1. Minimise internal heat generation through energy efficient design	Passive design implemented and confirmed by the FEE analysis, refer to section 5.4 . Use of LED lighting to reduce internal heat gains.
2. Reduce the amount of heat entering a building in summer through orientation, shading, albedo, fenestration, insulation and green roofs and walls.	Glazing ratio optimised throughout the building to provide sufficient daylight and solar control glass applied to minimise solar gains.
3. Manage the heat within the building through exposed internal thermal mass and high ceilings	The building design considers a medium weight thermal mass and the maximum floor to ceiling height available to accommodate building services.
4. Passive ventilation	Natural ventilation is possible through openable windows across all dwellings.
5. Mechanical ventilation	High efficient mechanical ventilation with heat recovery (MVHR) is proposed for all dwellings according to Part F of the Building Regulations. Summer by-pass is available to make the use of free-cooling during hot season.
6. Active cooling systems	As shown in the assessment detailed in this section, all habitable rooms pass the overheating criteria & occupant will be able to utilise natural ventilation at right conditions.

9.2

Overheating Analysis

The overheating analysis has been conducted in line with Part L1A 2013 criterion 3, paragraphs 2.38 to 2.42 and CIBSE TM 59:2017: “Design methodology for the assessment of overheating risk in homes”, a newly published guidance containing a standardised approach for these assessments.

Appendix I summarises the results for the sample dwellings areas assessed against the overheating criteria set by TM59 for naturally ventilated and mechanically ventilated homes, based on the layouts received by **01th December 2017**.



Figure 9-1 Residential buildings, Hornsey Town Hall

9.3 Overheating Analysis Summary – Residential Buildings

Following dynamic simulation modelling for the Residential Buildings within Hornsey Town Hall development at Crouch End, London, and following both GLA’s Cooling Hierarchy and CIBSE TM59 (criteria a and b), it can be outlined that all sample flats analysed at Block A (apart from Penthouses), Block B and Mews can mitigate active cooling through natural ventilation, following the recommendations as described below. The overheating assessment for duplexes at Block A complies with CIBSE Guide A.

9.3.1 Block A

9.3.1.1 All flats apart from Duplexes

- **Cooling Strategy:** Natural Ventilation with MVHR system.
- **Opening profiles for Bedrooms and Living Rooms during Summer**
Internal dry bulb temperature ≥ 22°C:

Windows and External Doors:
Daytime: 100% of free area opened.
Night time: 250mm of free area opened.

- **Blinds:**

Shading coefficient of 0.30.

- **Ventilation:**

Mechanical Ventilation with Heat Recovery (MVHR) will be included for all dwellings according to Part F of the Building Regulations.

9.3.1.2 Duplexes

- **Cooling Strategy:** Mechanical Cooling.
- **Blinds:**

Shading coefficient of 0.30.

- **Ventilation:**

Ventilation for the duplexes shall be based on the 'whole house' ventilation approach as defined in Approved Document Part F1.

9.3.2 Block B

- **Cooling Strategy:** Natural Ventilation with MVHR system.
- **Opening profiles for Bedrooms and Living Rooms during Summer**
Internal dry bulb temperature ≥ 22°C:

Windows and External Doors:
Daytime: 100% of free area opened.
Night time: 200mm of free area opened.

- **Blinds:**

Shading coefficient of 0.43.

- **Ventilation:**

Mechanical Ventilation with Heat Recovery (MVHR) will be included for all dwellings according to Part F of the Building Regulations.

9.3.3 Mews

- **Cooling Strategy:** Natural Ventilation with MVHR system.
- **Opening profiles for Bedrooms and Living Rooms during Summer**
Internal dry bulb temperature ≥ 22°C:

Windows:
Daytime: 50% of free area opened.
Night time: 75% of free area opened.

External Doors:
Daytime: 100% of free area opened.
Night time: 200mm of free area opened.

- **Blinds:**

Shading coefficient of 0.30.

- **Ventilation:**

Mechanical Ventilation with Heat Recovery (MVHR) will be included for all dwellings according to Part F of the Building Regulations.

9.4 Active Cooling

Above outlined overheating analysis reflect the design team’s commitment to mitigate active cooling from the residential apartments. All typical flats at Block A (apart from Penthouses), Block B and Mews, can be naturally ventilated and comply with the thermal comfort criteria of CIBSE TM59. However, Active Cooling is proposed for duplexes at Block A in order to deliver the required comfort levels as per GLA’s policy, and to maintain a set point temperature not higher than 26°C during summer period.

Design team will provide LBH an update on progress on future additional proposal of active cooling if a set point of 25°C is needed to maintain during peak conditions only.

10.

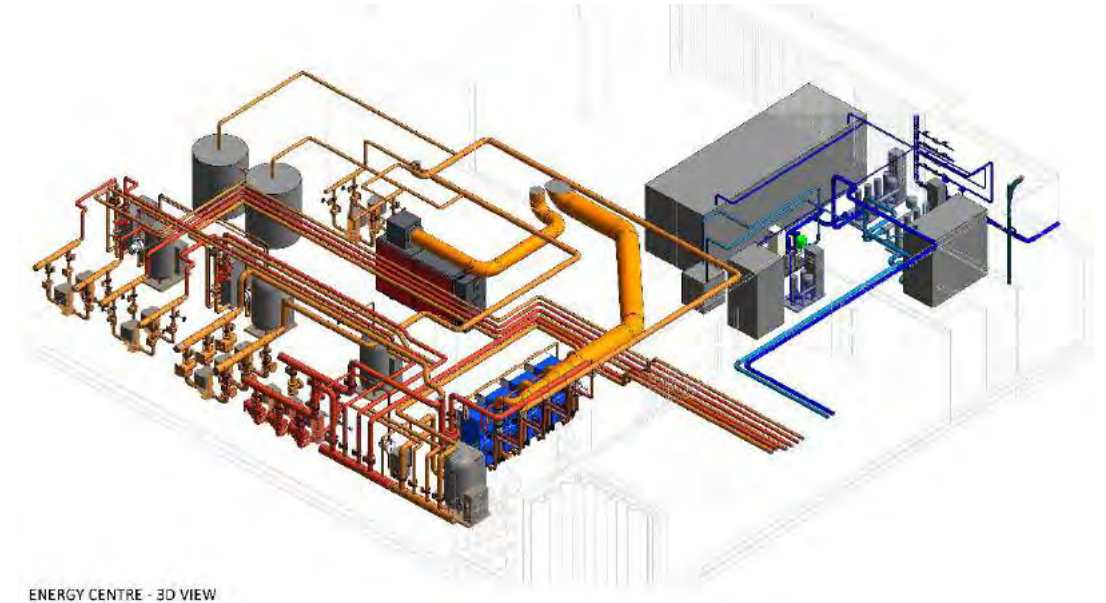
Energy Centre Strategy

The load profile analysis of the development indicates a relatively high year-round hot water demand due to the domestic hot water requirements associated with the residential areas, along with the base space heating demand. Hence CHP will be connected to a thermal store in conjunction with high efficiency condensing modular boilers to run at maximum efficiency. The CHP will be set up to run as the lead heating/hot water system. The cooling demand will be served via high efficiency air cooled chillers.

CHP units in combination of boilers are to serve the majority of the heating demand with back up from natural gas boilers. Given the large requirement of domestic hot water this scheme can take advantage of use of CHP as its main heating source. Given the urban location within the London Borough of Haringey, the excess electrical energy will be of great benefit to the local grid at any given time.

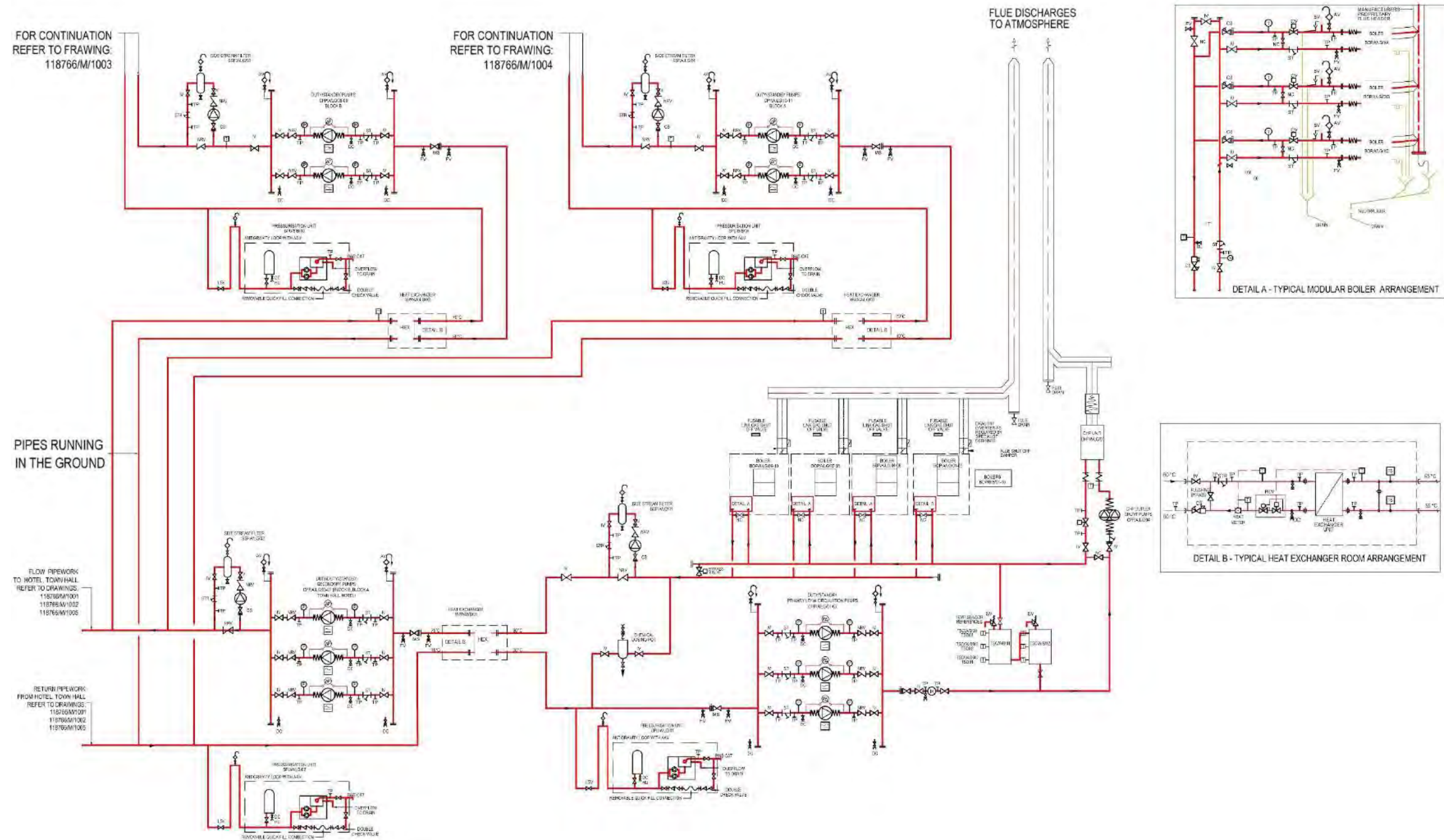
In order to optimise the PV, the electrical energy generated will go to the central electrical switchboard, where it will be distributed to areas where there is either a commercial or residential demand.

The schematic on the following page outlines the energy strategy to serve the heating and cooling demand of the building (Refer to **Mechanical Drawings** for details).



ENERGY CENTRE - 3D VIEW

Energy Centre Layout – Block A Basement



11.

Sustainability Statement

It is encouraged for the new dwellings to use the Home Quality Mark (HQM) assessment to demonstrate sustainability standards beyond those required by Building Regulations.

The HQM methodology assesses developments on the basis of credits for a set of performance criteria covering issues such as transport and movement, outdoor environment (including ecology and recreational spaces), safety and resilience, comfort, energy, materials, internal space and water.

This scheme gives an overall star rating from 1 to 5 stars and performance indicators on Living Costs, Health & Wellbeing and Environmental Footprint.

A pre-assessment of HQM was undertaken indicating an aspiration to achieve “**3 Stars**” rating; this can be found in **Appendix A - Subject to Appointment-**.

The non-domestic areas will be assessed under BREEAM 2014 Refurbishment (Non-Domestic): Hotel & Community Hall targeting “**Good**” rating. A copy of the pre-assessment can be found in **Appendix A - Subject to Appointment-**.

The key sustainability measures proposed for this development are outlined in the following subsections.
- 11.1

Reduction on carbon emissions

 - Energy efficiency and combined heat and power to achieve regulated carbon dioxide emission savings of:
 - Regulated carbon dioxide savings of **49.6%** relative to a New-Build **Part L1A** 2013 for the residential building Block A;
 - Regulated carbon dioxide savings of **50.5%** relative to a New-Build **Part L1A** 2013 for the residential building Block B;
 - Regulated carbon dioxide savings of **51.1%** relative to a New-Build **Part L1A** 2013 for the residential building Mews.
- 11.2

Sustainable Design and Technologies

 - Ensure a **maximum wholesome water consumption of 105 litres per person per day in homes**;
 - Use of **secondary recycled aggregates** from the demolition of existing buildings within the foundations and hard surfaces of the development, where possible;
 - Provide an adequate **external space** allocated **for non-recyclable and recyclable** house waste;
 - Specification of LED lighting that is energy efficient and suitably controlled;
 - Provide **sufficient cycle storage** for each dwelling and non-domestic accommodation;

- Provide energy efficient **fridge/freezers, washing machines, washer dryers or dishwashers** for market apartments and include information about energy efficiency labelling scheme for all apartments;
- Implement a site waste management plan (SWMP) during construction and set diversion targets;
- Provide appropriate **waste management facilities** for the collection of recyclables during the operation of the proposed development;
- Improve **daylight factors**, where feasible;
- Design for compliant with the principles of the **Technical Housing Standards - Nationally Described Space Standard**;
- Provide a **building/home user guide** to occupants; and
- Implement **responsible construction management** practices.

The following sections outline the main standards of sustainable design and construction at the proposed development.

11.3

Materials

Wherever possible, the design will incorporate the re-use of secondary aggregates from the demolition of the existing buildings on site.

Any timber used in key building elements, including finishing element will be legally sourced (e.g. FSC certified).

11.4

Water

The maximum indoor water consumption will be 105 litres per person per day in the new dwellings. This table gives indicative water fittings flow rates and capacities for an apartment with a single bathroom, which would comply with Approved Document Part G “optional” requirements from Table 2.2.

Table 11-1 Water Fittings - Basis of Specification for Residential Areas

Water fitting - Dwellings	Capacity / flow rate (Part G table 2.2)	Units
WC, dual flush	4/2.6	litres
Wash hand basin taps	5	litres/minute
Bath	170	litres
Shower	8	litres/minute
Kitchen sink taps	6	litres/minute
Washing machine	8.17	litres/kg
Dishwasher	1.25	litres/place setting

11.5

Waste

The recycled waste will be sorted post collection. All apartments will have a fixed 30 or 40-litre recycling bin and a household waste bin.

Adequate internal and external dedicated storage space for non-recyclable and recyclable household waste will be provided in the basement. The waste will be compacted before being collected by the local authority.

A pre-demolition audit will be carried out. A Site Waste Management Plan (SWMP) will be implemented according to best practice.

Construction waste materials will be sorted into separate key waste groups either on-site or off-site and diverted from landfill.

Wherever feasible, non-hazardous construction waste generated by Hornsey Town Hall development will be reused, salvaged/ reclaimed, recovered, recycled, composted on or off site and/or returned to the supplier.

11.6

Pollution

The boilers used in the central energy plant will be low NOx (≤40mg/kWh). The CHP plant will be fairly low NOx.

Night time light pollution will be minimised through the appropriate location and selection of external luminaires and light controls, including time clocks.

11.7

Health and Wellbeing

Hornsey Town Hall development will achieve adequate indoor ambient noise levels and appropriate sound insulation levels in order to reduce the likelihood of noise complaints from neighbours or other buildings. The external envelope will be designed to reduce noise levels from external sources to acceptable levels.

The acoustic performance of each dwelling shall improve the acoustic requirements of Part E of the Building Regulations.

Daylighting is optimised through the design of narrow floor plates and a central courtyard from level 1. Views out are maximised in the lower levels as well due to the layout arrangement.

Private residential balconies, terraces, communal courtyard and communal gardens are located at various levels across the development.

The ventilation strategy will be designed to supply sufficient outside air to the occupied spaces in order to remove any pollutants and reduce the risk to health associated with poor indoor air quality in line with Part F.

The heating strategy will be designed to achieve appropriate thermal comfort levels and allow independent adjustment of heating systems within each dwelling with thermostatic radiator valves on the radiators in each room.

All water systems will be designed in order to reduce the risk of Legionnaires’ disease in operation. The flow temperature of the domestic hot water systems will be set to 60°C, to help prevent legionella on stored systems. A maintenance regime will be in operation to flush any systems in apartments that have been unoccupied before they are used.

All apartments will be designed to comply with the principles of the Technical Housing Standards - Nationally Described Space Standard.

11.7.1

Adaptation to Climate Change

The building will be designed to be adaptable such that it can be kept comfortable in a more extreme climate in the future, e.g. hotter summers, wetter winters and heavier storms and floods. For example: where there are roof terraces, external shutters or blinds could easily be added to the apartment windows to reduce the risk of overheating.

11.8

Management

The development will be designed according to Secure by Design principles and will comply with Section 2 Physical Security.

It is expected that the main contractor complies with and go significantly beyond best practice principles under the Considerate Constructors Scheme (CCS).

The construction site will be managed in an environmentally sound manner in terms of resource use (including construction materials), energy and water consumption, and air and water pollution.

A home user guide will be provided to the residents, and a Building User Guide will be produced for the retail and office spaces.

11.9

Ecology

The landscaping design of the known Town Square and agencies to Block A and B proposed to Hornsey Town Hall development will contribute to enhance the site’s biodiversity.

11.10

Transport

Cycle storage spaces are proposed at basement level of Block A and B, and car parking spaces at basement level of Block A.

12.	Conclusion A detailed Energy and Sustainability Strategy has been developed for Hornsey Town Hall conforming to the guidelines set out in all relevant local, regional and national documents. This document also ensures that all opportunities for energy improvement are identified and explored for full utilization of energy improvement to aspect of plant and fabric replacement. The existing Hornsey Town Hall Building is Grade II* listed, and the Broadway Annexe Grade II. Consequently, there are significant constraints to ensure the architectural value and integrity of the buildings are maintained. The design considers improvements to fabric energy performance and building services whenever possible and feasible into the existing floors, maintaining the local character of the heritage site. Under Part L1B and L2B regulations, there are no requirement to submit carbon emissions calculations. As part of the refurbishment works and new buildings, there are future opportunities to consider any site wide sustainability benefits from potential connections to a district heating network. The strategy has appropriately considered the full array of options and technologies available now and in the future. The Proposed Development accounts for a holistic sustainable approach to design, within the limitations of the context, and have considerable improvements on energy efficiency of the existing building which will offset the existing poor energy performance on the site. The sections below summarise the main benefits in terms of energy and sustainability at Hornsey Town Hall.
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12.1	Energy Strategy It is proposed that extensive energy efficiency measures will be incorporated into the design and will result in the following: • <i>Regulated carbon dioxide savings of 49.6% relative to a New-Build Part L1A 2013 for the residential building Block A; and carbon offset payment towards a Zero Carbon compliant development;</i> • <i>Regulated carbon dioxide savings of 50.5% relative to a New-Build Part L1A 2013 for the residential building Block B; and carbon offset payment towards a Zero Carbon compliant development;</i> • <i>Regulated carbon dioxide savings of 51.1% relative to a New-Build Part L1A 2013 for the residential building Mews; and carbon offset payment towards a Zero Carbon compliant development;</i>
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	• <i>Improvement on the energy performance of the listed buildings Grade II* for the proposed refurbishment works on the Hornsey Town Hall, built in 1935;</i> • <i>Improvement on the energy performance of the listed buildings Grade II for the proposed refurbishment works on the Broadway Annexe, built in 1939.</i>
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12.2	Sustainability Strategy The key sustainability measures presented in this document aim to achieve: • <i>Excellent connection to transport links and provision of a “car free” zone with sheltered cycle storage;</i> • <i>Reduction of water consumption and discharge into existing drainage network;</i> • <i>Improvement on overall building energy performance, as stated in the Energy Strategy;</i> • <i>Extensive consultation with the local authority and other stakeholders such as Historic England to the sensitive planning context and Grade II* and Grade II listed site;</i> • <i>BREEAM 2014 Refurbishment (Non-Domestic): Hotel & Community Hall targeting Good rating; (Part 1 & 2) - Subject to Appointment-;</i> • <i>Home Quality Mark (HQM) for Residential Apartments with an aspiration to achieve 3 stars - Subject to Appointment-;</i> • <i>Mitigation of Overheating within Residential Apartments to ensure comfort as per CIBSE TM 52 (Refer to appendix for full overheating calculations);</i> Please refer to appendix section for further details on various sustainability aspect as outlined within pages above.
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Appendices

Appendix A - BREEAM Refurbishment 2014 & HQM Interim Assessments

118766/LP/180214 Issue 07

Major Refurbishment BREEAM 2014

Parts 1 & 2

Design Assessment

Hornsey Town Hall - Community

09/06/2017
Revision 1

Issue	Date	Reason for Issue	Prepared	Checked	Approved
1	09/06/2017	For information	MJ	DP	KA

Major Refurbishment BREEAM 2014 - Design Assessment
118766
09/06/2017
Revision 1

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Registered Office: Sweco UK Ltd, Grove House, Mansion Gate Drive, Leeds, LS7 4DN. Company Registration No 2888385

What by When

Project Name: *Hornsey Town Hall - Community*
BREEAM Scheme: *Major Refurbishment BREEAM 2014*
Stage: *Design & Procurement Assessment*
Target Rating: *Very Good*

Whilst it is important for the client and project team to consider sustainability and the BREEAM criteria at an early stage of design, several specialist appointments and the generation of subsequent reports are very important as they will affect the ability to award these credits in the future if these do not happen. Hence, we have listed here these credits and the necessary actions that the client needs to be aware of.

KEY:

Potential

Targeted

Credit awarded

N/A not targeted

ISSUE	NAME OF THE CREDIT	1 (A/B)	2 (C)	3 (D)	4 (E/F)	5	6 (J/K)
MAN 1	Appointment of BREEAM AP						
MAT 6	Materials efficiency analysis						
WST 5 & 6	Analysis of adaptability - Climate/Fnctional adaptation strategy appraisal						
LE 1 & 4	Appointment of suitably qualified ecologist						
LE 2	Concept ecology report / recommendations						
MAN 1	Have a schedule of responsibilities						
MAN 1	Agreement of BREEAM target						
MAN 1	Start public consultation						
MAN 2	Life cycle costing analysis - elemental						
HEA 6	Consultation with Security consultant						
ENE 4	Passive design analysis with energy specialist						
ENE4	Appointment of energy specialist for LZC study						
HEA 5	Appointment of suitably qualified acoustician						
TRA 5	Production of travel plan						
WST 5	Conduct a climate change adaptability report for fabric						
MAN 3	Register site to considerate construction scheme						
MAN 1	Provide consultation feedback						
MAN 2	Life cycle costing analysis - component level						
MAN 4	Appointment of commissioning manager						
BREEAM DESIGN STAGE CERTIFICATION							
MAN 3	Appointment of sustainability champion						
BREEAM FINAL CERTIFICATION							

BREEAM UK Refurbishment and Fit-out



The BREEAM UK Refurbishment and Fit-out scheme is a performance based assessment method and certification scheme for existing building refurbishment and fit-out projects.

The primary aim of BREEAM UK Refurbishment and Fit-out is to promote the delivery of sustainable refurbishment and fit-out, in order to mitigate the life cycle impacts of existing buildings on the environment in a robust and cost effective manner. This is achieved through integration and use of the scheme by clients and their project teams at key stages in the design and refurbishment/fit-out works process.

This enables the client, through the BREEAM assessor and the BRE Global certification process, to measure, evaluate and reflect the performance of their refurbishment or fit-out project against best practice in an independent and robust manner.

As illustrated below, the scheme provides a modular framework split up into four separate parts, that are assessed according to the scope of work of the project, with each part defining a set of individual measures and associated criteria that each project is assessed against. This allows projects to be assessed against the parts that are within the scope of influence of the project, while also ensuring that similar project types are assessed against a comparable set of criteria.



This approach provides the scheme's users with a flexible means of measuring the environmental performance of their building and comparing it with other buildings across the property market, backed with the assurance that independent third party certification of the assessment process provides.

It should be noted that currently, a client can choose which parts they wish to gain certification against and this choice is not limited by the scope of a project. This is to provide flexibility recognising that a project may be doing work that is within the scope of an assessment part (e.g. upgrading part of the core services), but due to economic, technical or other factors may not be at a level that is compliant with BREEAM. In these situations, clients can choose to omit certain assessment parts, however the certificate will clearly highlight the parts that a project has been certificated against and clients and others must make the scope of the assessment clear in any published material or claims made which reference BREEAM e.g. a BREEAM

Refurbishment and Fit-out 'Excellent' rating against Part 4.

Part 1: Fabric and Structure

A Part 1 assessment may be appropriate where a refurbishment project includes one or more of the following alterations to the building fabric and where the area to be renovated is greater than 50 per cent of the surface of the individual element or 25 per cent of the total building envelope:

Building façade: where the external façade of the buildings is being upgraded/refurbished such as new cladding, rendering, façade system, internal dry lining etc.

Roof: where a new roof is being installed or where significant changes are being made to the roof structure or the replacement/refurbishment of roof coverings.

Windows: where changes are being made to the windows such as replacement, upgrade/refurbishment of existing windows with new glazing or the specification of secondary glazing.

Note: A minor change to the building fabric (e.g. local upgrading of an external wall) below the above thresholds would not require a Part 1 assessment to be included, although it may be carried out in order to assess the overall performance of the building fabric.

Part 2: Core Services

A Part 2 assessment may be appropriate where at least two of the following are being installed or upgraded to a level that requires compliance with the Building Regulations Compliance Guide:

- Central air handling unit
- Heating boiler
- More than 50% of heat distribution
- Chiller plant
- More than 50% of chiller distribution

- Water services (sanitary fittings in core)
- Building management system
- Community heating system (e.g. CCHP)
- Low and zero carbon technologies.

Note: Where works comprise of 'like for like' component replacements e.g. a fan motor of an air handling unit a Part 2 assessment may not be appropriate although it may still be carried out in order to assess the performance of the core services.

Definition of core services

Core services are defined as services that supply multiple areas and/or tenants and will generally be centralised plant. The services will be deemed core where the services supply multiple tenancy areas and are not focused on the needs of the individual tenants. In such instances these services will normally be owned, operated and maintained by the landlord or their agent. In single tenancy occupancy buildings, the systems services will be considered as core where they supply the whole of the building. The services will normally be owned, operated and maintained by the building owner or their agent.

Category A Fit-out

A Part 2 assessment does not include the full scope of a Category A fit-out, due to the fact that the specification of items such as ceiling finishes, raised floors and the zoning of local services above the lettable floor area and other Category A works are not typically finalised until the space undergoes final fit-out (often referred to as Category B fit-out) according to the tenant's specification and are liable to change. These items are, therefore, excluded from a Part 2 assessment with local services assessed under Part 3 and interior finishes assessed under Part 4, which covers the typical scope of a Category B fit-out. Therefore, where category A works include local service provision (e.g. lighting) it may be appropriate to also assess the project against Part 3: Local services.

Part 3: Local Services

A Part 3 assessment may be appropriate where at least two of the following fixed local building services are being installed or upgraded e.g. a replacement or new installation of local heating/cooling units.

- Replacement of more than 50% of light fittings, system and controls
- Upgrade of zone controls
- Local ventilation

- Local heating units (including sources not connected to core services)
- Local cooling units (including sources not connected to core services)
- Point of use water heaters.

Note: If there is a requirement to replace a component of a local service as part of the refurbishment or fit-out and that component is a direct replacement then a Part 3 assessment may not be appropriate, though may still be carried out in order to assess the performance of local services. Examples of component replacements include new lamps within existing fittings, circulation pumps or individual heat emitters and valves.

Definition of local services

Local services are defined as services that supply a specific area and may connect into the distribution systems from the core services within the tenanted area.

Part 4: Interior Design - not deemed applicable for this Development

A Part 4 assessment may be appropriate where the refurbishment or fit-out works involve changes to the layout and/or redecoration of the refurbishment or fit-out area. including:

Remodelling/changes to interior spaces including two or more of the following:

- Wall coverings (alterations to at least 50% by area)
- Floor coverings (alterations to at least 50% by area)
- Ceiling covering or systems (alterations to at least 50% by area)
- Partitions (alterations to at least 50% by area)
- Raised floor system (alterations to at least 50% by area)
- Furniture and fittings e.g. office furniture, retail display furniture and fittings etc. (alterations to at least 50% by area)

AND at least one of the following:

- Sanitary fittings e.g. tea/coffee points, kitchenette and washrooms (alterations to at least 50% of fit #####)
- Equipment e.g. Office equipment, display lighting, display chillers/freezers (alterations to at least 50% of equipment)
- Local electrical installations e.g. sub-metering

Credit Scorer



Project Name: **Hornsey Town Hall - Community**
BREEAM Scheme: **Refurbishment 2014 (Non-Domestic): Other Buildings (Type 2) (Shell & Core)**
Stage: **Design Assessment**
Target Rating: **Very Good** Refurbishment Parts 1 & 2
Revision: **Rev01**

Targeted Score % **50.40** **Pass**
Potential Score % **59.33** **Very Good**
Achieved Score % **0.00** **Unclassified**

LEGEND:

Credit achieved / closed
Further evidence required
Potential credit

Mandatory requirements are highlighted in RED

Section	Code	Issue Name	Credit Name	Evidence Type	Available Credits	Targeted Credits	Evidence Received	Potential Credits
Management	Man 01	Project Brief & Design	Stakeholder Consultation (Project Delivery)	Meeting minutes Appointment letters	1	1	0	0
			Stakeholder Consultation (Third Party)	Public consultation documents Feedback provided	1	1	0	0
			Sustainability Champion - Design	Appointment letter and BREEAM progress reports	1	1	0	0
			Sustainability Champion - Monitoring Progress	BREEAM progress reports	1	1	0	0
	Man 02	Life Cycle Cost & Service Life Planning	Elemental Life Cycle Cost	All elements life cycle costing report	2	2	0	0
			Component Level LCC Plan	Detailed LCC report	1	0	0	0
			Capital Cost Reporting	Report capital cost of project	1	1	0	0
	Man 03	Responsible Construction Practices	Mandatory: Timber used on site	Detailed information on timber	-	-		-
			Environmental Management	EMS certificate	1	1	0	0
			Sustainability Champion - Construction	Log book of visits and actions taken by the appointed person	1	1	0	0
			Considerate Construction	CCS: score of 25 for 1 credit score of 35 for 2 credits	2	2	0	0
			Monitoring of Refurbishment or Fit Out Site Impacts - Utility Consumption (Energy & Water)	Monitoring energy and water	1	1	0	0
			Monitoring of Refurbishment or Fit Out Site Impacts - Transport of Construction Materials & Waste	Monitoring of fuel	1	1	0	0
	Man 04	Commissioning & Handover	Commissioning & Testing Schedule & Responsibilities	Schedule of commissioning Appointment letter	1	1	0	0
			Commissioning Building Services	Appointment letter	1	1	0	0
			Testing & Inspecting Building Fabric	Commitment letter	1	0	0	0
			Handover	Building user guide and training schedule	1	1	0	0
	Man 05	Aftercare	Post-Occupancy Evaluation	Commitment letter	3	0	0	0
Man				TOTAL:	21	16	0	0
				% of total score:	13.92%	10.61%	0.00%	0.00%

Design Stage Assessment Responsibility				
Client - Developers	Project Architect	SWECO M&E	Mace Contractor	Specialist / Others
✓	✓	✓	✓	
✓	✓			✓
✓		✓		
		✓		
				✓
				✓
✓				
			✓	
			✓	
			✓	
			✓	
			✓	
		✓	✓	
		✓	✓	
			✓	
			✓	
✓				✓

Notes
Design team & contractor scope of work + type of contract. Stage 2 Tender document provided. Will need design team meeting agenda & minutes etc.
Planning consultation with local authority + planning consultation with local residents + any input from office / retail specialists (agents).
BREEAM AP appointment letter is required.
BREEAM AP is appointed throughout the project up to PC Stage
Life Cycle Costing analysis to be undertaken. Appointment to occur to enable review of Stage C information and then the exercise repeated for the Stage D/E design. Evidence to be shown how this analysis has helped to drive the design / design change
Report a capital cost in £/m² for BRE purpose only.
MANDATORY CREDIT. All timber and timber-based products used on the project is 'Legally harvested and traded timber'
Contractor operates EMS: certificate of ISO 14001 /EMAS
Contractor to appoint BREEAM AP (site based). Contractor to be aware of this new requirement.
MANDATORY requirement for EXCELLENT: 1 credit (35 points as a minimum to achieve 2 credits) Innovation credit targeted i.e. 40 points should be aimed for.
Site-based energy and water usage to be monitored
Monitoring of materials coming to the site and waste leaving the site to establish carbon figures. Man 03 Responsible Constrution Practices commitment letter provided. Credit awarded.
Third party commissioning manager to be appointed. Scope of work to be provided as evidence. The principal contractor to account for the commissioning and testing programme, responsibilities and criteria within their budget and main programme of work
A specialist commissioning manager is appointed during the design stage (by either client or contractor)
Thermographic survey to be undertaken by professional holding a valid Level certificate (UKTA and ATTMA).
MANDATORY requirement for EXCELLENT: Building User Guide. Training Schedule for FM Team required
Third party Post Occupancy evaluation after 1 year of occupation. Interview FM & Employees

Section	Code	Issue Name	Credit Name	Evidence Type	Available Credits	Targeted Credits	Evidence Received	Potential Credits	Client - Developers	Project Architect	SWECO M&E	Mace Contractor	Specialist / Others	Notes
Health & Wellbeing	Hea 01	Visual Comfort	Daylighting	Daylighting report	3	0	0	0			✓			Daylighting factor >2 % for 40, 60 or 80% of floor plate and an uniformity ratio of at least 0.3
			View Out	Drawings	2	1	0	0		✓			One credit where 80% of the floor area space in relevant building areas is within 7m of a wall which has a window or permanent opening that provides an adequate view out and the window/opening must be ≥ 20% of the surrounding wall area. Where the room depth is greater than 7m, compliance is only possible where the percentage of window/opening is the same as, or greater than, the values in Table 1.0 of BS 8206.	
	Hea 02	Indoor Air Quality	Indoor Air Quality (IAQ) Plan	Plan	1	0	0	0			✓	✓	IAQ report required - minimise indoor air pollution during the design, construction and occupation of the building considering removal of contaminant sources; dilution and control of contaminant sources; procedures for pre-occupancy flush out; protection of HVAC systems from sources of pollution during refurbishment/fit-out works e.g. dust	
			Ventilation	Schematic drawings	1	1	0	0			✓		To be considered as design develops. Intake & exhaust locations to be 10m apart	
			Potential for Natural Ventilation	Detailed drawings	1	0	0	1					Based upon Building Design & Ventilaition System	
	Hea 04	Thermal Comfort	Thermal Modelling	Thermal modelling report	1	1	0	0			✓		CIBSE TM 11 compliant IES software to be used	
			Adaptability for a Projected Climate Change Scenario	Thermal modelling justifying how building will adapt to future	1	1	0	0			✓		Where thermal comfort criteria are met for the projected climate change environment. Thermal modelling is required.	
			Thermal Zoning & Controls	Detailed schematic drawings	1	1	0	0			✓		Appropriate thermal zoning & controls @ approx 40m2 zones.	
	Hea 05	Acoustic Performance	Acoustic Performance Standards	Acoustic report with relevant details	4	1	0	0		✓	✓	✓	Acoustic consultant report required. A programme of pre-completion testing is required for sound insulation and indoor ambient noise levels	
	Hea 06	Safety & Security	Security of Site & Building	Specialist report with recommendations	1	1	0	0		✓	✓		✓	A Suitably Qualified Security Specialist (ALO or CPDA) conducts an evidence based Security Needs Assessment (SNA) during or prior to Concept Design RIBA Stage 2
Hea				TOTAL:	16	7	0	1						
				% of total score:	12.65%	5.53%	0.00%	0.79%						
Energy	Ene 01	Reduction of Emissions	Reduction of Emissions	BRUKL report	15	2	0	0			✓			Energy modeling. Credits established via IES Modelling Tool.
	Ene 02	Energy Monitoring	Sub-Metering of Major Energy Consuming Systems	Schematic drawing	1	1	0	0			✓			MANDATORY: Sub-metering of main plant systems. i.e. Space heating, CHP, LTHW.
	Ene03	External Lighting	External Lighting	External lighting luminaire lumens/circuit watt	1	1	0	0			✓			The average initial luminous efficacy of the external light fittings within the construction zone is not less than 60 luminaire lumens per circuit Watt and are automatically controlled for prevention of operation during daylight hours and presence detection in areas of intermittent pedestrian traffic.
	Ene 04	Low Carbon Design	Passive Design Analysis	Reports and copies of analysis	1	1	0	0			✓			The project team carries out an analysis of the existing building fabric, form, site location and outline scheme design to influence decisions made during the Concept Design stage RIBA Stage 2 and identifies opportunities for the implementation of passive design solutions and retrofit measures i.e. site location, site weather, microclimate, building layout, orientation, form and fabric, thermal mass or other fabric thermal storage etc.
			Free Cooling	Specialist report	1	0	0	0			✓			The free cooling i.e. night time cooling (which could include the use of a high exposed thermal mass), ground coupled air cooling, displacement ventilation (not linked to any active cooling system), ground water cooling, surface water cooling, evaporative cooling, direct or indirect, absorption cooling, using waste heat etc.
			Low Zero Carbon Feasibility Study	LZC feasibility report LZC technical datasheet	1	0	0	0			✓		LZC Study to be produced considering renewable sources	
	Ene 06	Energy Efficient Transportation Systems	Energy Consumption	Analysis and feasibility report	1	1	0	0			✓			Lift analysis is carried out. Please note that the energy efficient features need to be incorporated.
			Energy Efficient Features	Specified lift datasheet	2	2	0	0			✓			
Ene				TOTAL:	23	8	0	0						
				% of total score:	15.36%	5.34%	0.00%	0.00%						
Transport	Tra 01	Public Transport Accessibility	Accessibility Index / Dedicated Bus Service	Public transport calculator	5	3	0	0	✓					London location - AI is 51. All credits achieved.
	Tra 02	Proximity to Amenities	Proximity to Local Amenities	Location map	1	1	0	0	✓					Food outlet and cash point within 500m.
	Tra 03	Cyclist Facilities	Cycle Storage	Drawings and specifications	1	0	0	0		✓				Based on the speculative office area of 6,936 m² 24 compliant cycle spaces are required.
			Cyclist Facilities	Drawings and specifications	1	0	0	0		✓	✓			Two of the following to be complied with: 3 showers, 24 lockers, changing facilities (bench seat, hooks) or drying space (adequate heating /ventilation for the drying of wet clothes).
	Tra 04	Maximum Car Parking Capacity	Car Parking Capacity	Car park drawing	2	0	0	0		✓				
	Tra 05	Travel Plan	Travel Plan	Travel plan report	1	1	0	0	✓				✓	Travel plan to be produced. Confirmation that the travel plan will be updated post refurbishment is required
Tra				TOTAL:	11	5	0	0						
				% of total score:	8.50%	3.86%	0.00%	0.00%						

Section	Code	Issue Name	Credit Name	Evidence Type	Available Credits	Targeted Credits	Evidence Received	Potential Credits	Client - Developers	Project Architect	SWECO M&E	Mace Contractor	Specialist / Others	Notes
Water	Wat 01	Water Consumption	Water Consumption	Water fittings schedule	5	3	0	0		✓				MANDATORY: 1 credit Water fitting schedulee with flow rates, flush volumes & controls to be provided.
	Wat 02	Water Monitoring	Water Monitoring	Schematic drawing and specifications	1	1	0	0			✓			MANDATORY: Water meter on mains. Water flow meter pulsed & BMS connected.
	Wat 03	Water Leak Detection	Leak Detection System	Schematic drawing and specifications	1	1	0	0			✓			Leak detection via BMS with audible alarm to be specified.
			Flow Control Devices	Schematic drawing and specifications	1	1	0	0			✓			Sanitary supply shut-off valves to be specified
	Wat 04	Water Efficient Equipment	Water Efficient Equipment	Mitigation and manufacturers spec	1	1	0	0		✓	✓			For irrigation, to be considered on roof garden
	Wat				TOTAL:	9	7	0	0					
				% of total score:	6.96%	5.41%	0.00%	0.00%						
Materials	Mat 01	Life Cycle Impacts	Life Cycle Impacts	Architectural specification	6	1	0	1		✓				2 credits assumed - based on construction materials and their inherent embodied carbon figures (assessed via 'Green Guide to Specification')
	Mat 03	Responsible Sourcing of Materials	Mandatory	Timber procurement details	-	-	0	-		✓		✓		MANDATORY All timber and timber-based products used on the project is Legally harvested and traded timber.
			Sustainable Procurement Plan	Materials sourcing policy	1	1	0	0				✓		Mace produced and issued a Sustainable Procurement Plan on 21.02.17. Credit awarded.
			Sustainable Procurement Plan	Commitment letter	3	1	0	1		✓		✓		Architect to identify the key material elements specified. Preferred manufacturers to be checked that they have EMS Certification (ISO 14001 etc.) Contractor to be aware of requirements
	Mat 04	Insulation	Embodied Impact	Schedule of thermal insulation	1	0	0	0		✓	✓	✓		All insulation to be 'Green Guide to Specification A rated' and sourced from EMS Certified Suppliers. Contractor to be aware of requirements
	Mat 05	Designing for Durability & Resilience	Designing for Durability & Resilience	Drawings and specifications	1	0	0	0		✓				Areas of heavy traffic i.e. goods access routes to have materials specified fit-for purpose.
	Mat 06	Material Efficiency	Material Efficiency	Meeting minutes	1	0	0	1		✓	✓	✓		New credit under 2014 scheme. Pre-fabrication & WRAP compliance to be shown. Contractor to be aware of requirements
	Mat				TOTAL:	13	3	0	3					
				% of total score:	14.50%	3.35%	0.00%	3.35%						
Waste	Wst 01	Construction Waste Management	Pre-refurbishment audit	Audit	1	1	0	0				✓		Pre-demolition audit to be carried out. Audit to assess which material can be re-used / recycled.
			Re-use and direct recycling of materials	Calculations and waste materials type	2	1	0	1				✓		Waste material inert (excluding soil), new and used metal materials, composite materials, new and used plasterboard, furniture, timber product, new and used mineral fibre ceiling panels and tiles are either directly re-used on-site or off-site or are sent back to the manufacturer for closed loop recycling
			Construction Resource Efficiency	Commitment letter Pre-demolition audit	3	1	0	1				✓		Waste Management Plan to be produced including volume of waste targets. Amount of construction waste generated per 100m² (gross internal floor area) needs to be less than 4.5m3 to achieve both credits. Wst 01 commitment letter provided. Credit awarded.
			Diversion of Resources from Landfill	Commitment letter	1	1	0	0				✓		85% by volume of non-hazardous construction and 90% by volume of demolition waste generated have been diverted from landfill. Wst 01 commitment letter provided. Credit awarded.
	Wst 03	Operational Waste	Operational Waste	Drawings and specification demonstrating waste storage details	1	1	0	0		✓				MANDATORY: Recyclable waste storage. Minimum of 10m² is provided for recycling waste. This needs to be clearly labelled.
	Wst 05	Adaptation to Climate Change	Adaptation to Climate Change - Structural & Fabric Resilience	Risk assessment report	1	0	0	1					✓	Conduct a climate change adaptation strategy appraisal for structural and fabric resilience by the end of Concept Design RIBA Stage 2. Assessment of new & existing fabric and it's durability to deal with extremes in weather.
	Wst 06	Functional Adaptability	Functional Adaptability	Meeting minutes and summary report	1	0	0	1		✓	✓			A building-specific functional adaptation strategy study to be undertaken by the client and design team by Concept Design RIBA Stage 2. Functional adaptation measures have been adopted in the design RIBA Stage 4.
	Wst				TOTAL:	10	5	0	4					
				% of total score:	7.25%	3.63%	0.00%	2.90%						

Section	Code	Issue Name	Credit Name	Evidence Type	Available Credits	Targeted Credits	Evidence Received	Potential Credits	Client - Developers	Project Architect	SWECO M&E	Mace Contractor	Specialist / Others	Notes
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	LE 02	Ecological Value of Site & Protection of Ecological Features	Ecological Value of Site	Ecology report	1	1	0	0					✓	Ecologist prior to any preliminary site refurbishment or fit-out or preparation works to assess site for any existing ecology and any existing features of ecological value
	LE 04	Enhancing Site Ecology	Ecologist's Report & Recommendations	Ecology report	1	1	0	0					✓	Ecologist has been appointed by the client or their project representative by the end of the RIBA Stage 1. Ecologist to make recommendations to enhance site-base ecology by the end of the RIBA Stage 2.
	LE 05	Long Term Impact on Biodiversity	Long Term Impact on Biodiversity	Ecology report	2	0	0	0				✓		Ecologist to write report based on their recommendations
LE				TOTAL:	4	2	0	0						
				% of total score:	9.28%	4.64%	0.00%	0.00%						

Pollution	Pol 01	Impact of Refrigerants	Pre-Requisite: systems with electric compressors	Specification	-	-		-			✓			All systems (with electric compressors) must comply with the requirements of BS EN 378:2008
			Impact of Refrigerants	Specification	2	0	0	0			✓			Refrigerant's Direct Effect Life Cycle CO2 equivalent emissions (DELCO2e) of ≤ 1000 kgCO2e/kW cooling/heating capacity - TBC.
			Leak Detection	Specification	1	0	0	0						Leak detection of refrigerants within the cooling system
	Pol 02	NOx Emissions	NOx Emissions	Specification and datasheet	3	3	0	0			✓			Boilers specified NOx emissions (40mg/kWh).
	Pol 03	Surface Water Run Off	Flood Resilience	FRA	2	2	0	0			✓			Flood risk assessment to be carried out.
			Surface Water Run Off	Attenuation calculation & drawings	2	1	0	1						Given planning requirement is for 50% reduction in existing run-off. Credits assumed
			Minimising Watercourse Pollution	Specialist report	1	1	0	0						Need to prevent the first 5mm of rainfall of leaving the site to the network. Rainwater harvesting can be shown to do so. However, viability and cost to be assessed
	Pol 04	Reduction of Night Time Light Pollution	Reduction of Night Time Light Pollution	Schedule of external lighting	1	1	0	0			✓		✓	The external lighting strategy (incl. landscaping lights and advertisements) has been designed in compliance with Table 2 of the ILP Guidance notes for the reduction of obtrusive light, 2011. All external lighting (except for safety and security lighting) can be automatically switched off between 23:00 and 07:00
	Pol 05	Reduction of Noise Pollution	Reduction of Noise Pollution	Acoustic report	1	1	0	0		✓	✓	✓	✓	Sandy Brown have been appointed as SQA and the Economist Plaza Impact Assessment report with their recommendations provided on 28.02.17. Will need a letter from the design team that attenuation measures recommended by SQA will be installed.
Pol				TOTAL:	13	9	0	1						
				% of total score:	11.60%	8.03%	0.00%	0.89%						

Innovation	Inn 02	Man 03:	Responsible Construction Practices	Score of 40 or more	1	0	0	1				✓		To achieve ≥ 40points in CCS scheme.
	Inn 04	Hea 01:	Visual Comfort	Daylighting report	1	0	0	0						NOT TARGETTED
	Inn 06	Ene 01:	Reduction of Energy Use & Carbon Emissions		5	0	0	0						NOT TARGETTED
	Inn 07	Wat 01:	Water Consumption		1	0	0	0						If 'Vacuum Drainage' is specified and/or equivalent water savings achieved, innovation credit possible
	Inn 08	Mat 01:	Life Cycle Impacts		3	0	0	0						NOT TARGETTED
	Inn 09	Mat 03:	Responsible Sourcing of Materials		1	0	0	0						Possible if all materials selected can be sourced from manufacturers holding appropriate EMS certification
	Inn 10	Wst 01:	Construction Waste Management		2	0	0	0						Possible - subject to Contractor signing up to and meeting a low construction waste target from site
	Inn 11	Wst 02:	Recycled Aggregates		0	0	0	0						NOT TARGETTED
	Inn 13	Pol 03:	Surface Water Run-Off (Simple Buildings)		1	0	0	0						NOT TARGETTED
Inn				TOTAL:	10	0	0	1						
				% of total score:	10.00%	0.00%	0.00%	1.00%						
Final BREEAM Score				Overall Credits	130	62	0	10						
				Final BREEAM score	110.02%	50.40%	0.00%	8.93%						

Credit Scorer

Project: Hornsey Town Hall - Community

Scheme: Refurbishment 2014 (Non-Domestic): Other Buildings (Type 2) (Shell & Core)

Parts: 1-2

Targeted Score %: 50.40

Pass



Code	Issue Name	Credit Name	Available Credits	Targeted Credits	Client	Architect	MEP	Contractor	Others	Notes
Man 01	Project Brief & Design	Stakeholder Consultation (Project Delivery) - Stage 2	1	1	✓	✓	✓	✓		Stakeholder consultation minutes required (scope of works, type of contract etc.)
		Stakeholder Consultation (Third Party)	1	0						Public consultation.
		Sustainability Champion - Design	1	1	✓		✓			Sweco could act as the BREEAM AP.
		Sustainability Champion - Monitoring Progress	1	1			✓			
Man 02	Life Cycle Cost & Service Life Planning	Elemental Life Cycle Cost - Stage 2 item	2	0					✓	Lifecycle costing analysis required.
		Component Level LCC Plan - Stage 4	1	0					✓	
		Capital Cost Reporting	1	0	✓					Report a capital cost in £/m2 for BRE purpose only.
Man 03	Responsible Construction Practices	Mandatory: Timber used on site	-	-				✓		Mandatory credit.
		Environmental Management	1	1				✓		Contractor operates EMS: certificate of ISO 14001 /EMAS
		Sustainability Champion - Construction - New credit under 2014	1	0				✓		Contractor to appoint BREEAM AP (site based).
		Considerate Construction	2	2				✓		Minimum Standard - 1 credit required for Excellent rating.
		Monitoring of Refurbishment or Fit Out Site Impacts - Utility Consumption (Energy & Water)	1	1				✓		Site-based energy and water consumption monitored.
		Monitoring of Refurbishment or Fit Out Site Impacts - Transport of Construction Materials & Waste	1	0				✓		Vehicle monitoring to establish carbon figures.
Man 04	Commissioning & Handover	Commissioning & Testing Schedule & Responsibilities	1	1			✓	✓		Commissioning schedule.
		Commissioning Building Services	1	1			✓	✓		Commissioning of building services.
		Testing & Inspecting Building Fabric	1	0				✓		Thermal survey / Air leakage testing.
		Handover	1	1				✓		Building User Guide Contents & Training Schedule for Facility Management Team Required.

Code	Issue Name	Credit Name	Available Credits	Targeted Credits	Client	Architect	MEP	Contractor	Others	Notes
Hea 01	Visual Comfort	Daylighting	3	0		✓	✓			Daylighting simulation.
		View out	2	2		✓				View out calculations.
		Internal and external lighting	1	1			✓	✓		Internal and external lighting in line with the relevant standards.
Hea 02	Indoor Air Quality	Indoor Air Quality (IAQ) Plan	1	1				✓		Air quality plan to be produced.
		Ventilation	1	0			✓			Air intakes and exhaust to be 10m apart.
		Potential for Natural Ventilation	1	0		✓	✓			Difficult to achieve if the building is not naturally ventilated.
Hea 04	Thermal Comfort	Thermal Modelling	1	1	✓		✓			Thermal Comfort Modelling.
		Adaptability for a Projected Climate Change Scenario - New 2014 credit	1	1	✓					Analysis of adaptability for a climate change.
		Thermal Zoning & Controls	1	1			✓	✓		Thermal zoning & controls.
Hea 05	Acoustic performance	Acoustic performance	2	2		✓				Relevant acoustic criteria to be met.
Hea 06	Safety and security	Security of Site & Building	1	1		✓				Implementation of the recommendations provided by a Security Consultant.
Ene 01	Reduction of Emissions	Reduction of Emissions	15	6			✓			Energy Modelling.
Ene 02	Energy Monitoring	Sub-Metering of Major Energy Consuming Systems	1	1	✓					Sub-Metering of the major systems.
		Sub-Metering of High Energy Load & Tenancy Areas	1	1	✓					Sub-Metering of tenancy areas.
Ene03	External Lighting	External Lighting	1	1	✓					All external lighting to have an efficacy >60lm/circuit watt
Ene 04	Low Carbon Design	Passive Design Analysis - Stage 2	1	1					✓	Passive design analysis.
		Free Cooling	1	0		✓	✓			Adoption of passive design solutions, including free cooling.
		Low Zero Carbon Feasibility Study	1	1	✓	✓	✓			Compliant LDC study.
Ene 06	Energy Efficient Transportation Systems	Energy Consumption	1	1		✓	✓			Installation of energy efficient lifts.
		Energy Efficient Features	2	2		✓	✓			
Tra 01	Public Transport Accessibility	Accessibility Index / Dedicated Bus Service	3	3	✓					Accessibility to Public Transport.
Tra 02	Proximity to Amenities	Proximity to Local Amenities	1	1	✓					Proximity to Local Amenities.
Tra 03	Cyclist Facilities	Cycle Storage	1	1	✓	✓				Provision of cyclist facilities.
		Cyclist Facilities	1	1	✓	✓				
Tra 05	Travel Plan	Travel Plan	1	1	✓				✓	Production of the Travel Plan and implementation of its recommendations.

Code	Issue Name	Credit Name	Available Credits	Targeted Credits	Client	Architect	MEP	Contractor	Others	Notes
Wat 01	Water Consumption	Water Consumption	5	3	✓	✓				Installation of water conserving fittings.
Wat 02	Water Monitoring	Water Monitoring	1	1	✓					Installation of water meters.
Wat 03	Water Leak Detection	Leak Detection System	1	1	✓					Water leak detection system.
		Flow Control Devices	1	1	✓					Installation of automatic shut-off valves.
Mat 01	Life Cycle Impacts	Life Cycle Impacts	6	2		✓			✓	Life Cycle Analysis of construction materials.
Mat 03	Responsible Sourcing of Materials	Pre-requisite	-	-		✓		✓		All timber and timber-based products used on the project is Legally harvested and traded timber.
		Sustainable Procurement Plan	1	1				✓		Contractor to produce and issue a Sustainable Procurement Plan
		Responsible Sourcing of Materials	3	1		✓		✓		Architect to identify the key building elements. Preferred manufacturers who hold EMS Certification (ISO 14001 etc.) to be specified.
Mat 04	Insulation	Embodied Impact	1	1		✓				All insulation to be 'Green Guide to Specification A rated' and sourced from EMS Certified Suppliers.
Mat 05	Designing for Durability & Resilience	Designing for Durability & Resilience	1	1		✓				Areas of heavy traffic i.e.goods access routes to have materials specitied fit-for purpose.
Mat 06	Material Efficiency	Material Efficiency - New 2014 credit - all Stages 1-5	1	1		✓	✓			Design team required to provide evidence of how the materials are chosen (based on life cycle cost, energy efficiency, waste, etc).
Wst 01	Construction Waste Management	Pre-refurbishment audit	1	1	✓					Pre-refurbishment audit.
		Re-use and direct recycling of materials	2	0				✓		Reuse and direct recycling of materials.
		Construction Resource Efficiency	3	2				✓		Resource management plan covering the waste arisings from the refurbishment or fit-out project with the aim of minimising waste.
		Diversion of Resources from Landfill	1	1				✓		Required percentage of waste to be diverted from landfill.
Wst 02	Recycled Aggregates	Recycled Aggregates	1	0		✓			✓	The use of recycled, secondary aggregates and reuse of aggregates in situ.
Wst 03	Operational Waste	Operational Waste	1	1		✓				Appropriate area of waste storage.
Wst 04	Speculative Floor & Ceiling Finishes	Speculative Floor & Ceiling Finishes	1	0	✓					For tenanted areas, prior to full fit-out works, interior finishes to be installed in a show area only.
Wst 05	Adaptation to Climate Change	Adaptation to Climate Change - Structural & Fabric Resilience	1	1		✓				Measures taken to mitigate the impact of extreme weather conditions arising from climate change.
Wst 06	Functional Adaptability	Functional Adaptability - New 2014 credit - Stage 2	1	0		✓	✓			Additional capacities & a well considered plant & fabric replacement strategy to be developed.

Code	Issue Name	Credit Name	Available Credits	Targeted Credits	Client	Architect	MEP	Contractor	Others	Notes
LE 02	Ecological Value of Site & Protection of Ecological Features	Protection of Ecological Features	1	1				✓	✓	Protection of existing Ecological Features.
LE 04	Enhancing Site Ecology	Ecologist's Report & Recommendations	1	1		✓			✓	Ecologist's report confirming approach.
Pol 01	Impact of Refrigerants	Pre-Requisite: systems with electric compressors	-	-	✓					All systems (with electric compressors) must comply with the requirements of BS EN 378:2008.
		Impact of Refrigerants	2	1			✓			Specification of a refrigerant with the low environmental impact.
		Leak Detection	1	1	✓		✓			Refrigerant leak detection system.
Pol 02	NOx Emissions	NOx Emissions	3	3			✓			The use of low emission heat sources in the building.
Pol 03	Surface Water Run Off	Flood Resilience	2	2					✓	Flood risk management.
		Surface Water Run Off	2	1			✓		✓	Reducing surface water run-off.
		Minimising Watercourse Pollution	1	0			✓		✓	Minimising water course pollution.
Pol 04	Reduction of Night Time Light Pollution	Reduction of Night Time Light Pollution	1	1	✓		✓			External lighting compliant with ILE guidance.
Pol 05	Reduction of Noise Pollution	Reduction of Noise Pollution	1	1	✓		✓			To reduce the impacts of noise arising from fixed installations affecting nearby noise-sensitive buildings.
Inn 01	Man 03:	Responsible Construction Practices	1	0				✓		CCS scheme beyond the best practice.

Major Refurbishment BREEAM 2014

Parts 1 & 2

Design Assessment

Hornsey Town Hall - Hotel

⁰
09/06/2017
Revision 1

Issue	Date	Reason for Issue	Prepared	Checked	Approved
1	09/06/2017	For information	MJ	DP	KA

Major Refurbishment BREEAM 2014 - Design Assessment
0
09/06/2017
Revision 1

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What by When

Project Name: *Hornsey Town Hall - Hotel*
BREEAM Scheme: *Major Refurbishment BREEAM 2014*
Stage: *Design & Procurement Assessment*
Target Rating: *Very Good*

Whilst it is important for the client and project team to consider sustainability and the BREEAM criteria at an early stage of design, several specialist appointments and the generation of subsequent reports are very important as they will affect the ability to award these credits in the future if these do not happen. Hence, we have listed here these credits and the necessary actions that the client needs to be aware of.

KEY:

Potential

Targeted

Credit awarded

N/A not targeted

ISSUE	NAME OF THE CREDIT	1 (A/B)	2 (C)	3 (D)	4 (E/F)	5	6 (J/K)
MAN 1	Appointment of BREEAM AP						
MAT 6	Materials efficiency analysis						
WST 5 & 6	Analysis of adaptability - Climate/Fnctional adaptation strategy appraisal						
LE 1 & 4	Appointment of suitably qualified ecologist						
LE 2	Concept ecology report / recommendations						
MAN 1	Have a schedule of responsibilities						
MAN 1	Agreement of BREEAM target						
MAN 1	Start public consultation						
MAN 2	Life cycle costing analysis - elemental						
HEA 6	Consultation with Security consultant						
ENE 4	Passive design analysis with energy specialist						
ENE4	Appointment of energy specialist for LZC study						
HEA 5	Appointment of suitably qualified acoustician						
TRA 5	Production of travel plan						
WST 5	Conduct a climate change adaptability report for fabric						
MAN 3	Register site to considerate construction scheme						
MAN 1	Provide consultation feedback						
MAN 2	Life cycle costing analysis - component level						
MAN 4	Appointment of commissioning manager						
BREEAM DESIGN STAGE CERTIFICATION							
MAN 3	Appointment of sustainability champion						
BREEAM FINAL CERTIFICATION							

BREEAM UK Refurbishment and Fit-out



The BREEAM UK Refurbishment and Fit-out scheme is a performance based assessment method and certification scheme for existing building refurbishment and fit-out projects.

The primary aim of BREEAM UK Refurbishment and Fit-out is to promote the delivery of sustainable refurbishment and fit-out, in order to mitigate the life cycle impacts of existing buildings on the environment in a robust and cost effective manner. This is achieved through integration and use of the scheme by clients and their project teams at key stages in the design and refurbishment/fit-out works process.

This enables the client, through the BREEAM assessor and the BRE Global certification process, to measure, evaluate and reflect the performance of their refurbishment or fit-out project against best practice in an independent and robust manner.

As illustrated below, the scheme provides a modular framework split up into four separate parts, that are assessed according to the scope of work of the project, with each part defining a set of individual measures and associated criteria that each project is assessed against. This allows projects to be assessed against the parts that are within the scope of influence of the project, while also ensuring that similar project types are assessed against a comparable set of criteria.



This approach provides the scheme's users with a flexible means of measuring the environmental performance of their building and comparing it with other buildings across the property market, backed with the assurance that independent third party certification of the assessment process provides.

It should be noted that currently, a client can choose which parts they wish to gain certification against and this choice is not limited by the scope of a project. This is to provide flexibility recognising that a project may be doing work that is within the scope of an assessment part (e.g. upgrading part of the core services), but due to economic, technical or other factors may not be at a level that is compliant with BREEAM. In these situations, clients can choose to omit certain assessment parts, however the certificate will clearly highlight the parts that a project has been certificated against and clients and others must make the scope of the assessment clear in any published material or claims made which reference BREEAM e.g. a BREEAM

Refurbishment and Fit-out 'Excellent' rating against Part 4.

Part 1: Fabric and Structure

A Part 1 assessment may be appropriate where a refurbishment project includes one or more of the following alterations to the building fabric and where the area to be renovated is greater than 50 per cent of the surface of the individual element or 25 per cent of the total building envelope:

Building façade: where the external façade of the buildings is being upgraded/refurbished such as new cladding, rendering, façade system, internal dry lining etc.

Roof: where a new roof is being installed or where significant changes are being made to the roof structure or the replacement/refurbishment of roof coverings.

Windows: where changes are being made to the windows such as replacement, upgrade/refurbishment of existing windows with new glazing or the specification of secondary glazing.

Note: A minor change to the building fabric (e.g. local upgrading of an external wall) below the above thresholds would not require a Part 1 assessment to be included, although it may be carried out in order to assess the overall performance of the building fabric.

Part 2: Core Services

A Part 2 assessment may be appropriate where at least two of the following are being installed or upgraded to a level that requires compliance with the Building Regulations Compliance Guide:

- Central air handling unit
- Heating boiler
- More than 50% of heat distribution
- Chiller plant
- More than 50% of chiller distribution

- Water services (sanitary fittings in core)
- Building management system
- Community heating system (e.g. CCHP)
- Low and zero carbon technologies.

Note: Where works comprise of 'like for like' component replacements e.g. a fan motor of an air handling unit a Part 2 assessment may not be appropriate although it may still be carried out in order to assess the performance of the core services.

Definition of core services

Core services are defined as services that supply multiple areas and/or tenants and will generally be centralised plant. The services will be deemed core where the services supply multiple tenancy areas and are not focused on the needs of the individual tenants. In such instances these services will normally be owned, operated and maintained by the landlord or their agent. In single tenancy occupancy buildings, the systems services will be considered as core where they supply the whole of the building. The services will normally be owned, operated and maintained by the building owner or their agent.

Category A Fit-out

A Part 2 assessment does not include the full scope of a Category A fit-out, due to the fact that the specification of items such as ceiling finishes, raised floors and the zoning of local services above the lettable floor area and other Category A works are not typically finalised until the space undergoes final fit-out (often referred to as Category B fit-out) according to the tenant's specification and are liable to change. These items are, therefore, excluded from a Part 2 assessment with local services assessed under Part 3 and interior finishes assessed under Part 4, which covers the typical scope of a Category B fit-out. Therefore, where category A works include local service provision (e.g. lighting) it may be appropriate to also assess the project against Part 3: Local services.

Part 3: Local Services

A Part 3 assessment may be appropriate where at least two of the following fixed local building services are being installed or upgraded e.g. a replacement or new installation of local heating/cooling units.

- Replacement of more than 50% of light fittings, system and controls
- Upgrade of zone controls
- Local ventilation

- Local heating units (including sources not connected to core services)
- Local cooling units (including sources not connected to core services)
- Point of use water heaters.

Note: If there is a requirement to replace a component of a local service as part of the refurbishment or fit-out and that component is a direct replacement then a Part 3 assessment may not be appropriate, though may still be carried out in order to assess the performance of local services. Examples of component replacements include new lamps within existing fittings, circulation pumps or individual heat emitters and valves.

Definition of local services

Local services are defined as services that supply a specific area and may connect into the distribution systems from the core services within the tenanted area.

Part 4: Interior Design - not deemed applicable for this Development

A Part 4 assessment may be appropriate where the refurbishment or fit-out works involve changes to the layout and/or redecoration of the refurbishment or fit-out area. including:

Remodelling/changes to interior spaces including two or more of the following:

- Wall coverings (alterations to at least 50% by area)
- Floor coverings (alterations to at least 50% by area)
- Ceiling covering or systems (alterations to at least 50% by area)
- Partitions (alterations to at least 50% by area)
- Raised floor system (alterations to at least 50% by area)
- Furniture and fittings e.g. office furniture, retail display furniture and fittings etc. (alterations to at least 50% by area)

AND at least one of the following:

- Sanitary fittings e.g. tea/coffee points, kitchenette and washrooms (alterations to at least 50% of fit #####)
- Equipment e.g. Office equipment, display lighting, display chillers/freezers (alterations to at least 50% of equipment)
- Local electrical installations e.g. sub-metering

Credit Scorer



Project Name: **Hornsey Town Hall - Hotel**
BREEAM Scheme: **Refurbishment 2014 (Non-Domestic): Other Buildings (Type 2) (Shell & Core)**
Stage: **Design Assessment**
Target Rating: **Very Good** Refurbishment Parts 1 &, 2
Revision: **Rev01**

Targeted Score % **50.40** **Good**
Potential Score % **59.33** **Very Good**
Achieved Score % **0.00** **Unclassified**

LEGEND:

Credit achieved / closed
Further evidence required
Potential credit

Mandatory requirements are highlighted in RED

Section	Code	Issue Name	Credit Name	Evidence Type	Available Credits	Targeted Credits	Evidence Received	Potential Credits
Management	Man 01	Project Brief & Design	Stakeholder Consultation (Project Delivery)	Meeting minutes Appointment letters	1	1	0	0
			Stakeholder Consultation (Third Party)	Public consultation documents Feedback provided	1	1	0	0
			Sustainability Champion - Design	Appointment letter and BREEAM progress reports	1	1	0	0
			Sustainability Champion - Monitoring Progress	BREEAM progress reports	1	1	0	0
	Man 02	Life Cycle Cost & Service Life Planning	Elemental Life Cycle Cost	All elements life cycle costing report	2	2	0	0
			Component Level LCC Plan	Detailed LCC report	1	0	0	0
			Capital Cost Reporting	Report capital cost of project	1	1	0	0
	Man 03	Responsible Construction Practices	Mandatory: Timber used on site	Detailed information on timber	-	-		-
			Environmental Management	EMS certificate	1	1	0	0
			Sustainability Champion - Construction	Log book of visits and actions taken by the appointed person	1	1	0	0
			Considerate Construction	CCS: score of 25 for 1 credit score of 35 for 2 credits	2	2	0	0
			Monitoring of Refurbishment or Fit Out Site Impacts - Utility Consumption (Energy & Water)	Monitoring energy and water	1	1	0	0
			Monitoring of Refurbishment or Fit Out Site Impacts - Transport of Construction Materials & Waste	Monitoring of fuel	1	1	0	0
	Man 04	Commissioning & Handover	Commissioning & Testing Schedule & Responsibilities	Schedule of commissioning Appointment letter	1	1	0	0
			Commissioning Building Services	Appointment letter	1	1	0	0
			Testing & Inspecting Building Fabric	Commitment letter	1	0	0	0
			Handover	Building user guide and training schedule	1	1	0	0
	Man 05	Aftercare	Post-Occupancy Evaluation	Commitment letter	3	0	0	0
Man				TOTAL:	21	16	0	0
				% of total score:	13.92%	10.61%	0.00%	0.00%

Design Stage Assessment Responsibility				
Client - Developers	Project Architect	SWECO M&E	Mace Contractor	Specialist / Others
✓	✓	✓	✓	
✓	✓			✓
✓		✓		
		✓		
				✓
				✓
✓				
			✓	
			✓	
			✓	
			✓	
			✓	
		✓	✓	
		✓	✓	
			✓	
			✓	
✓				✓

Notes
Design team & contractor scope of work + type of contract. Stage 2 Tender document provided. Will need design team meeting agenda & minutes etc.
Planning consultation with local authority + planning consultation with local residents + any input from office / retail specialists (agents).
BREEAM AP appointment letter is required.
BREEAM AP is appointed throughout the project up to PC Stage
Life Cycle Costing analysis to be undertaken. Appointment to occur to enable review of Stage C information and then the exercise repeated for the Stage D/E design. Evidence to be shown how this analysis has helped to drive the design / design change
Report a capital cost in £/m² for BRE purpose only.
MANDATORY CREDIT. All timber and timber-based products used on the project is 'Legally harvested and traded timber'
Contractor operates EMS: certificate of ISO 14001 /EMAS
Contractor to appoint BREEAM AP (site based). Contractor to be aware of this new requirement.
MANDATORY requirement for EXCELLENT: 1 credit (35 points as a minimum to achieve 2 credits) Innovation credit targeted i.e. 40 points should be aimed for.
Site-based energy and water usage to be monitored
Monitoring of materials coming to the site and waste leaving the site to establish carbon figures. Man 03 Responsible Construction Practices commitment letter provided. Credit awarded.
Third party commissioning manager to be appointed. Scope of work to be provided as evidence. The principal contractor to account for the commissioning and testing programme, responsibilities and criteria within their budget and main programme of work
A specialist commissioning manager is appointed during the design stage (by either client or contractor)
Thermographic survey to be undertaken by professional holding a valid Level certificate (UKTA and ATTMA).
MANDATORY requirement for EXCELLENT: Building User Guide. Training Schedule for FM Team required
Third party Post Occupancy evaluation after 1 year of occupation. Interview FM & Employees

Section	Code	Issue Name	Credit Name	Evidence Type	Available Credits	Targeted Credits	Evidence Received	Potential Credits	Client - Developers	Project Architect	SWECO M&E	Mace Contractor	Specialist / Others	Notes
Health & Wellbeing	Hea 01	Visual Comfort	Daylighting	Daylighting report	3	0	0	0			✓			Daylighting factor >2 % for 40, 60 or 80% of floor plate and an uniformity ratio of at least 0.3
			View Out	Drawings	2	1	0	0		✓			One credit where 80% of the floor area space in relevant building areas is within 7m of a wall which has a window or permanent opening that provides an adequate view out and the window/opening must be ≥ 20% of the surrounding wall area. Where the room depth is greater than 7m, compliance is only possible where the percentage of window/opening is the same as, or greater than, the values in Table 1.0 of BS 8206.	
	Hea 02	Indoor Air Quality	Indoor Air Quality (IAQ) Plan	Plan	1	0	0	0			✓	✓	IAQ report required - minimise indoor air pollution during the design, construction and occupation of the building considering removal of contaminant sources; dilution and control of contaminant sources; procedures for pre-occupancy flush out; protection of HVAC systems from sources of pollution during refurbishment/fit-out works e.g. dust	
			Ventilation	Schematic drawings	1	1	0	0			✓		To be considered as design develops. Intake & exhaust locations to be 10m apart	
			Potential for Natural Ventilation	Detailed drawings	1	0	0	1					Based upon Building Design & Ventilaition System	
	Hea 04	Thermal Comfort	Thermal Modelling	Thermal modelling report	1	1	0	0			✓		CIBSE TM 11 compliant IES software to be used	
			Adaptability for a Projected Climate Change Scenario	Thermal modelling justifying how building will adapt to future	1	1	0	0			✓		Where thermal comfort criteria are met for the projected climate change environment. Thermal modelling is required.	
			Thermal Zoning & Controls	Detailed schematic drawings	1	1	0	0			✓		Appropriate thermal zoning & controls @ approx 40m2 zones.	
	Hea 05	Acoustic Performance	Acoustic Performance Standards	Acoustic report with relevant details	4	1	0	0		✓	✓	✓	Acoustic consultant report required. A programme of pre-completion testing is required for sound insulation and indoor ambient noise levels	
	Hea 06	Safety & Security	Security of Site & Building	Specialist report with recommendations	1	1	0	0		✓	✓		✓	A Suitably Qualified Security Specialist (ALO or CPDA) conducts an evidence based Security Needs Assessment (SNA) during or prior to Concept Design RIBA Stage 2
Hea				TOTAL:	16	7	0	1						
				% of total score:	12.65%	5.53%	0.00%	0.79%						
Energy	Ene 01	Reduction of Emissions	Reduction of Emissions	BRUKL report	15	2	0	0			✓			Energy modeling. Credits established via IES Modelling Tool.
	Ene 02	Energy Monitoring	Sub-Metering of Major Energy Consuming Systems	Schematic drawing	1	1	0	0			✓			MANDATORY: Sub-metering of main plant systems. i.e. Space heating, CHP, LTHW.
	Ene03	External Lighting	External Lighting	External lighting luminaire lumens/circuit watt	1	1	0	0			✓			The average initial luminous efficacy of the external light fittings within the construction zone is not less than 60 luminaire lumens per circuit Watt and are automatically controlled for prevention of operation during daylight hours and presence detection in areas of intermittent pedestrian traffic.
	Ene 04	Low Carbon Design	Passive Design Analysis	Reports and copies of analysis	1	1	0	0			✓			The project team carries out an analysis of the existing building fabric, form, site location and outline scheme design to influence decisions made during the Concept Design stage RIBA Stage 2 and identifies opportunities for the implementation of passive design solutions and retrofit measures i.e. site location, site weather, microclimate, building layout, orientation, form and fabric, thermal mass or other fabric thermal storage etc.
			Free Cooling	Specialist report	1	0	0	0			✓			The free cooling i.e. night time cooling (which could include the use of a high exposed thermal mass), ground coupled air cooling, displacement ventilation (not linked to any active cooling system), ground water cooling, surface water cooling, evaporative cooling, direct or indirect, absorption cooling, using waste heat etc.
			Low Zero Carbon Feasibility Study	LZC feasibility report LZC technical datasheet	1	0	0	0			✓		LZC Study to be produced considering renewable sources	
	Ene 06	Energy Efficient Transportation Systems	Energy Consumption	Analysis and feasibility report	1	1	0	0			✓			Lift analysis is carried out. Please note that the energy efficient features need to be incorporated.
			Energy Efficient Features	Specified lift datasheet	2	2	0	0			✓			
Ene				TOTAL:	23	8	0	0						
				% of total score:	15.36%	5.34%	0.00%	0.00%						
Transport	Tra 01	Public Transport Accessibility	Accessibility Index / Dedicated Bus Service	Public transport calculator	5	3	0	0	✓					London location - AI is 51. All credits achieved.
	Tra 02	Proximity to Amenities	Proximity to Local Amenities	Location map	1	1	0	0	✓					Food outlet and cash point within 500m.
	Tra 03	Cyclist Facilities	Cycle Storage	Drawings and specifications	1	0	0	0		✓				Based on the speculative office area of 6,936 m² 24 compliant cycle spaces are required.
			Cyclist Facilities	Drawings and specifications	1	0	0	0		✓	✓			Two of the following to be complied with: 3 showers, 24 lockers, changing facilities (bench seat, hooks) or drying space (adequate heating /ventilation for the drying of wet clothes).
	Tra 04	Maximum Car Parking Capacity	Car Parking Capacity	Car park drawing	2	0	0	0		✓				
	Tra 05	Travel Plan	Travel Plan	Travel plan report	1	1	0	0	✓				✓	Travel plan to be produced. Confirmation that the travel plan will be updated post refurbishment is required
Tra				TOTAL:	11	5	0	0						
				% of total score:	8.50%	3.86%	0.00%	0.00%						

Section	Code	Issue Name	Credit Name	Evidence Type	Available Credits	Targeted Credits	Evidence Received	Potential Credits	Client - Developers	Project Architect	SWECO M&E	Mace Contractor	Specialist / Others	Notes
Water	Wat 01	Water Consumption	Water Consumption	Water fittings schedule	5	3	0	0		✓				MANDATORY: 1 credit Water fitting schedulee with flow rates, flush volumes & controls to be provided.
	Wat 02	Water Monitoring	Water Monitoring	Schematic drawing and specifications	1	1	0	0			✓			MANDATORY: Water meter on mains. Water flow meter pulsed & BMS connected.
	Wat 03	Water Leak Detection	Leak Detection System	Schematic drawing and specifications	1	1	0	0			✓			Leak detection via BMS with audible alarm to be specified.
			Flow Control Devices	Schematic drawing and specifications	1	1	0	0			✓			Sanitary supply shut-off valves to be specified
	Wat 04	Water Efficient Equipment	Water Efficient Equipment	Mitigation and manufacturers spec	1	1	0	0		✓	✓			For irrigation, to be considered on roof garden
	Wat				TOTAL:	9	7	0	0					
				% of total score:	6.96%	5.41%	0.00%	0.00%						
Materials	Mat 01	Life Cycle Impacts	Life Cycle Impacts	Architectural specification	6	1	0	1		✓				2 credits assumed - based on construction materials and their inherent embodied carbon figures (assessed via 'Green Guide to Specification')
	Mat 03	Responsible Sourcing of Materials	Mandatory	Timber procurement details	-	-	0	-		✓		✓		MANDATORY All timber and timber-based products used on the project is Legally harvested and traded timber.
			Sustainable Procurement Plan	Materials sourcing policy	1	1	0	0				✓		Mace produced and issued a Sustainable Procurement Plan on 21.02.17. Credit awarded.
			Sustainable Procurement Plan	Commitment letter	3	1	0	1		✓		✓		Architect to identify the key material elements specified. Preferred manufacturers to be checked that they have EMS Certification (ISO 14001 etc.) Contractor to be aware of requirements
	Mat 04	Insulation	Embodied Impact	Schedule of thermal insulation	1	0	0	0		✓	✓	✓		All insulation to be 'Green Guide to Specification A rated' and sourced from EMS Certified Suppliers. Contractor to be aware of requirements
	Mat 05	Designing for Durability & Resilience	Designing for Durability & Resilience	Drawings and specifications	1	0	0	0		✓				Areas of heavy traffic i.e. goods access routes to have materials specified fit-for purpose.
	Mat 06	Material Efficiency	Material Efficiency	Meeting minutes	1	0	0	1		✓	✓	✓		New credit under 2014 scheme. Pre-fabrication & WRAP compliance to be shown. Contractor to be aware of requirements
	Mat				TOTAL:	13	3	0	3					
				% of total score:	14.50%	3.35%	0.00%	3.35%						
Waste	Wst 01	Construction Waste Management	Pre-refurbishment audit	Audit	1	1	0	0				✓		Pre-demolition audit to be carried out. Audit to assess which material can be re-used / recycled.
			Re-use and direct recycling of materials	Calculations and waste materials type	2	1	0	1				✓		Waste material inert (excluding soil), new and used metal materials, composite materials, new and used plasterboard, furniture, timber product, new and used mineral fibre ceiling panels and tiles are either directly re-used on-site or off-site or are sent back to the manufacturer for closed loop recycling
			Construction Resource Efficiency	Commitment letter Pre-demolition audit	3	1	0	1				✓		Waste Management Plan to be produced including volume of waste targets. Amount of construction waste generated per 100m² (gross internal floor area) needs to be less than 4.5m3 to achieve both credits. Wst 01 commitment letter provided. Credit awarded.
			Diversion of Resources from Landfill	Commitment letter	1	1	0	0				✓		85% by volume of non-hazardous construction and 90% by volume of demolition waste generated have been diverted from landfill. Wst 01 commitment letter provided. Credit awarded.
	Wst 03	Operational Waste	Operational Waste	Drawings and specification demonstrating waste storage details	1	1	0	0		✓				MANDATORY: Recyclable waste storage. Minimum of 10m² is provided for recycling waste. This needs to be clearly labelled.
	Wst 05	Adaptation to Climate Change	Adaptation to Climate Change - Structural & Fabric Resilience	Risk assessment report	1	0	0	1					✓	Conduct a climate change adaptation strategy appraisal for structural and fabric resilience by the end of Concept Design RIBA Stage 2. Assessment of new & existing fabric and it's durability to deal with extremes in weather.
	Wst 06	Functional Adaptability	Functional Adaptability	Meeting minutes and summary report	1	0	0	1		✓	✓			A building-specific functional adaptation strategy study to be undertaken by the client and design team by Concept Design RIBA Stage 2. Functional adaptation measures have been adopted in the design RIBA Stage 4.
	Wst				TOTAL:	10	5	0	4					
				% of total score:	7.25%	3.63%	0.00%	2.90%						

Section	Code	Issue Name	Credit Name	Evidence Type	Available Credits	Targeted Credits	Evidence Received	Potential Credits	Client - Developers	Project Architect	SWECO M&E	Mace Contractor	Specialist / Others	Notes
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	LE 02	Ecological Value of Site & Protection of Ecological Features	Ecological Value of Site	Ecology report	1	1	0	0					✓	Ecologist prior to any preliminary site refurbishment or fit-out or preparation works to assess site for any existing ecology and any existing features of ecological value
	LE 04	Enhancing Site Ecology	Ecologist's Report & Recommendations	Ecology report	1	1	0	0					✓	Ecologist has been appointed by the client or their project representative by the end of the RIBA Stage 1. Ecologist to make recommendations to enhance site-base ecology by the end of the RIBA Stage 2.
	LE 05	Long Term Impact on Biodiversity	Long Term Impact on Biodiversity	Ecology report	2	0	0	0				✓		Ecologist to write report based on their recommendations
LE				TOTAL:	4	2	0	0						
				% of total score:	9.28%	4.64%	0.00%	0.00%						

Pollution	Pol 01	Impact of Refrigerants	Pre-Requisite: systems with electric compressors	Specification	-	-		-			✓			All systems (with electric compressors) must comply with the requirements of BS EN 378:2008
			Impact of Refrigerants	Specification	2	0	0	0			✓			Refrigerant's Direct Effect Life Cycle CO2 equivalent emissions (DELCO2e) of ≤ 1000 kgCO2e/kW cooling/heating capacity - TBC.
			Leak Detection	Specification	1	0	0	0						Leak detection of refrigerants within the cooling system
	Pol 02	NOx Emissions	NOx Emissions	Specification and datasheet	3	3	0	0			✓			Boilers specified NOx emissions (40mg/kWh).
	Pol 03	Surface Water Run Off	Flood Resilience	FRA	2	2	0	0			✓			Flood risk assessment to be carried out.
			Surface Water Run Off	Attenuation calculation & drawings	2	1	0	1						Given planning requirement is for 50% reduction in existing run-off. Credits assumed
			Minimising Watercourse Pollution	Specialist report	1	1	0	0						Need to prevent the first 5mm of rainfall of leaving the site to the network. Rainwater harvesting can be shown to do so. However, viability and cost to be assessed
	Pol 04	Reduction of Night Time Light Pollution	Reduction of Night Time Light Pollution	Schedule of external lighting	1	1	0	0			✓		✓	The external lighting strategy (incl. landscaping lights and advertisements) has been designed in compliance with Table 2 of the ILP Guidance notes for the reduction of obtrusive light, 2011. All external lighting (except for safety and security lighting) can be automatically switched off between 23:00 and 07:00
	Pol 05	Reduction of Noise Pollution	Reduction of Noise Pollution	Acoustic report	1	1	0	0		✓	✓	✓	✓	Sandy Brown have been appointed as SQA and the Economist Plaza Impact Assessment report with their recommendations provided on 28.02.17. Will need a letter from the design team that attenuation measures recommended by SQA will be installed.
Pol				TOTAL:	13	9	0	1						
				% of total score:	11.60%	8.03%	0.00%	0.89%						

Innovation	Inn 02	Man 03:	Responsible Construction Practices	Score of 40 or more	1	0	0	1				✓		To achieve ≥ 40points in CCS scheme.
	Inn 04	Hea 01:	Visual Comfort	Daylighting report	1	0	0	0						NOT TARGETTED
	Inn 06	Ene 01:	Reduction of Energy Use & Carbon Emissions		5	0	0	0						NOT TARGETTED
	Inn 07	Wat 01:	Water Consumption		1	0	0	0						If 'Vacuum Drainage' is specified and/or equivalent water savings achieved, innovation credit possible
	Inn 08	Mat 01:	Life Cycle Impacts		3	0	0	0						NOT TARGETTED
	Inn 09	Mat 03:	Responsible Sourcing of Materials		1	0	0	0						Possible if all materials selected can be sourced from manufacturers holding appropriate EMS certification
	Inn 10	Wst 01:	Construction Waste Management		2	0	0	0						Possible - subject to Contractor signing up to and meeting a low construction waste target from site
	Inn 11	Wst 02:	Recycled Aggregates		0	0	0	0						NOT TARGETTED
	Inn 13	Pol 03:	Surface Water Run-Off (Simple Buildings)		1	0	0	0						NOT TARGETTED
Inn				TOTAL:	10	0	0	1						
				% of total score:	10.00%	0.00%	0.00%	1.00%						
Final BREEAM Score				Overall Credits	130	62	0	10						
				Final BREEAM score	110.02%	50.40%	0.00%	8.93%						

Credit Scorer

Project: Hornsey Town Hall - Hotel

Scheme: Refurbishment 2014 (Non-Domestic): Other Buildings (Type 2) (Shell & Core)

Parts: 1-2

Targeted Score %: 50.40 Good



Code	Issue Name	Credit Name	Available Credits	Targeted Credits	Client	Architect	MEP	Contractor	Others	Notes
Man 01	Project Brief & Design	Stakeholder Consultation (Project Delivery) - Stage 2	1	1	✓	✓	✓	✓		Stakeholder consultation minutes required (scope of works, type of contract etc.)
		Stakeholder Consultation (Third Party)	1	0						Public consultation.
		Sustainability Champion - Design	1	1	✓		✓			Sweco could act as the BREEAM AP.
		Sustainability Champion - Monitoring Progress	1	1			✓			
Man 02	Life Cycle Cost & Service Life Planning	Elemental Life Cycle Cost - Stage 2 item	2	0					✓	Lifecycle costing analysis required.
		Component Level LCC Plan - Stage 4	1	0					✓	
		Capital Cost Reporting	1	0	✓					Report a capital cost in £/m2 for BRE purpose only.
Man 03	Responsible Construction Practices	Mandatory: Timber used on site	-	-				✓		Mandatory credit.
		Environmental Management	1	1				✓		Contractor operates EMS: certificate of ISO 14001 /EMAS
		Sustainability Champion - Construction - New credit under 2014	1	0				✓		Contractor to appoint BREEAM AP (site based).
		Considerate Construction	2	2				✓		Minimum Standard - 1 credit required for Excellent rating.
		Monitoring of Refurbishment or Fit Out Site Impacts - Utility Consumption (Energy & Water)	1	1				✓		Site-based energy and water consumption monitored.
		Monitoring of Refurbishment or Fit Out Site Impacts - Transport of Construction Materials & Waste	1	0				✓		Vehicle monitoring to establish carbon figures.
Man 04	Commissioning & Handover	Commissioning & Testing Schedule & Responsibilities	1	1			✓	✓		Commissioning schedule.
		Commissioning Building Services	1	1			✓	✓		Commissioning of building services.
		Testing & Inspecting Building Fabric	1	0				✓		Thermal survey / Air leakage testing.
		Handover	1	1				✓		Building User Guide Contents & Training Schedule for Facility Management Team Required.

Code	Issue Name	Credit Name	Available Credits	Targeted Credits	Client	Architect	MEP	Contractor	Others	Notes
Hea 01	Visual Comfort	Daylighting	3	0		✓	✓			Daylighting simulation.
		View out	2	2		✓				View out calculations.
		Internal and external lighting	1	1			✓	✓		Internal and external lighting in line with the relevant standards.
Hea 02	Indoor Air Quality	Indoor Air Quality (IAQ) Plan	1	1				✓		Air quality plan to be produced.
		Ventilation	1	0			✓			Air intakes and exhaust to be 10m apart.
		Potential for Natural Ventilation	1	0		✓	✓			Difficult to achieve if the building is not naturally ventilated.
Hea 04	Thermal Comfort	Thermal Modelling	1	1	✓		✓			Thermal Comfort Modelling.
		Adaptability for a Projected Climate Change Scenario - New 2014 credit	1	1	✓					Analysis of adaptability for a climate change.
		Thermal Zoning & Controls	1	1			✓	✓		Thermal zoning & controls.
Hea 05	Acoustic performance	Acoustic performance	2	2		✓				Relevant acoustic criteria to be met.
Hea 06	Safety and security	Security of Site & Building	1	1		✓				Implementation of the recommendations provided by a Security Consultant.
Ene 01	Reduction of Emissions	Reduction of Emissions	15	6			✓			Energy Modelling.
Ene 02	Energy Monitoring	Sub-Metering of Major Energy Consuming Systems	1	1	✓					Sub-Metering of the major systems.
		Sub-Metering of High Energy Load & Tenancy Areas	1	1	✓					Sub-Metering of tenancy areas.
Ene03	External Lighting	External Lighting	1	1	✓					All external lighting to have an efficacy >60lm/circuit watt
Ene 04	Low Carbon Design	Passive Design Analysis - Stage 2	1	1					✓	Passive design analysis.
		Free Cooling	1	0		✓	✓			Adoption of passive design solutions, including free cooling.
		Low Zero Carbon Feasibility Study	1	1	✓	✓	✓			Compliant LDC study.
Ene 06	Energy Efficient Transportation Systems	Energy Consumption	1	1		✓	✓			Installation of energy efficient lifts.
		Energy Efficient Features	2	2		✓	✓			
Tra 01	Public Transport Accessibility	Accessibility Index / Dedicated Bus Service	3	3	✓					Accessibility to Public Transport.
Tra 02	Proximity to Amenities	Proximity to Local Amenities	1	1	✓					Proximity to Local Amenities.
Tra 03	Cyclist Facilities	Cycle Storage	1	1	✓	✓				Provision of cyclist facilities.
		Cyclist Facilities	1	1	✓	✓				
Tra 05	Travel Plan	Travel Plan	1	1	✓				✓	Production of the Travel Plan and implementation of its recommendations.

Code	Issue Name	Credit Name	Available Credits	Targeted Credits	Client	Architect	MEP	Contractor	Others	Notes
Wat 01	Water Consumption	Water Consumption	5	3	✓	✓				Installation of water conserving fittings.
Wat 02	Water Monitoring	Water Monitoring	1	1	✓					Installation of water meters.
Wat 03	Water Leak Detection	Leak Detection System	1	1	✓					Water leak detection system.
		Flow Control Devices	1	1	✓					Installation of automatic shut-off valves.
Mat 01	Life Cycle Impacts	Life Cycle Impacts	6	2		✓			✓	Life Cycle Analysis of construction materials.
Mat 03	Responsible Sourcing of Materials	Pre-requisite	-	-		✓		✓		All timber and timber-based products used on the project is Legally harvested and traded timber.
		Sustainable Procurement Plan	1	1				✓		Contractor to produce and issue a Sustainable Procurement Plan
		Responsible Sourcing of Materials	3	1		✓		✓		Architect to identify the key building elements. Preferred manufacturers who hold EMS Certification (ISO 14001 etc.) to be specified.
Mat 04	Insulation	Embodied Impact	1	1		✓				All insulation to be 'Green Guide to Specification A rated' and sourced from EMS Certified Suppliers.
Mat 05	Designing for Durability & Resilience	Designing for Durability & Resilience	1	1		✓				Areas of heavy traffic i.e.goods access routes to have materials specitied fit-for purpose.
Mat 06	Material Efficiency	Material Efficiency - New 2014 credit - all Stages 1-5	1	1		✓	✓			Design team required to provide evidence of how the materials are chosen (based on life cycle cost, energy efficiency, waste, etc).
Wst 01	Construction Waste Management	Pre-refurbishment audit	1	1	✓					Pre-refurbishment audit.
		Re-use and direct recycling of materials	2	0				✓		Reuse and direct recycling of materials.
		Construction Resource Efficiency	3	2				✓		Resource management plan covering the waste arisings from the refurbishment or fit-out project with the aim of minimising waste.
		Diversion of Resources from Landfill	1	1				✓		Required percentage of waste to be diverted from landfill.
Wst 02	Recycled Aggregates	Recycled Aggregates	1	0		✓			✓	The use of recycled, secondary aggregates and reuse of aggregates in situ.
Wst 03	Operational Waste	Operational Waste	1	1		✓				Appropriate area of waste storage.
Wst 04	Speculative Floor & Ceiling Finishes	Speculative Floor & Ceiling Finishes	1	0	✓					For tenanted areas, prior to full fit-out works, interior finishes to be installed in a show area only.
Wst 05	Adaptation to Climate Change	Adaptation to Climate Change - Structural & Fabric Resilience	1	1		✓				Measures taken to mitigate the impact of extreme weather conditions arising from climate change.
Wst 06	Functional Adaptability	Functional Adaptability - New 2014 credit - Stage 2	1	0		✓	✓			Additional capacities & a well considered plant & fabric replacement strategy to be developed.

Code	Issue Name	Credit Name	Available Credits	Targeted Credits	Client	Architect	MEP	Contractor	Others	Notes
LE 02	Ecological Value of Site & Protection of Ecological Features	Protection of Ecological Features	1	1				✓	✓	Protection of existing Ecological Features.
LE 04	Enhancing Site Ecology	Ecologist's Report & Recommendations	1	1		✓			✓	Ecologist's report confirming approach.
Pol 01	Impact of Refrigerants	Pre-Requisite: systems with electric compressors	-	-	✓					All systems (with electric compressors) must comply with the requirements of BS EN 378:2008.
		Impact of Refrigerants	2	1			✓			Specification of a refrigerant with the low environmental impact.
		Leak Detection	1	1	✓		✓			Refrigerant leak detection system.
Pol 02	NOx Emissions	NOx Emissions	3	3			✓			The use of low emission heat sources in the building.
Pol 03	Surface Water Run Off	Flood Resilience	2	2					✓	Flood risk management.
		Surface Water Run Off	2	1			✓		✓	Reducing surface water run-off.
		Minimising Watercourse Pollution	1	0			✓		✓	Minimising water course pollution.
Pol 04	Reduction of Night Time Light Pollution	Reduction of Night Time Light Pollution	1	1	✓		✓			External lighting compliant with ILE guidance.
Pol 05	Reduction of Noise Pollution	Reduction of Noise Pollution	1	1	✓		✓			To reduce the impacts of noise arising from fixed installations affecting nearby noise-sensitive buildings.
Inn 01	Man 03:	Responsible Construction Practices	1	0				✓		CCS scheme beyond the best practice.

Home Quality Mark

Design Stage (Interim)

Hornsey Town Hall

118766
06/06/2017
Revision1



Hornsey Town Hall



Issue	Date	Reason for Issue	Prepared		Checked		Approved	
1	06-Jun-17	For information	DNP		ZS		KA	

Home Quality Mark - Design Stage (Interim)
118766
06/06/2017
Revision1

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What by When

Project Name: Hornsey Town Hall
Scheme: Home Quality Mark
Stage: Design Stage (Interim)
Target Score: 296

Whilst it is important for the client and project team to consider sustainability and the HQM criteria at an early stage of design, several specialist appointments and the generation of subsequent reports are very important as they will affect the ability to award these credits in the future if these do not happen. Hence, we have listed here these credits and the necessary actions that the client needs to be aware of.

- Targeted
- Credit awarded
- N/A not targeted
- Potential

Issue	Name	1 (A/B)	2 (C)	3 (D)	4 (E/F)	5	6 (J/K)
08 Security	Appointment of a suitably qualified security specialist (SQSS) #REF!						
18 Responsible sourcing	Need documented policy & procedure relating to the responsible sourcing of construction products						
19 Environmental Impact	Need documented policy & procedure relating to the responsible sourcing of construction products						
20 Life Cycle Costing	LCC analysis of construction products to be produced & kept updated up to the end of RIBA Stage 4						
27 Quality Improvement	Appoint AQP during Stage 1. Define roles, responsibilities and project delivery.						
31 Site Waste	Need documented policy & procedure relating to the opportunities to reduce waste						

Early Action

Project Name: Hornsey Town Hall
BREEAM Scheme: Home Quality Mark
Stage: Design Stage (Interim)
Target score: 296

Whilst it is important for the client and project team to consider sustainability and the BREEAM criteria at an early stage of design, several specialist appointments and the generation of subsequent reports are very important as they will affect the ability to award these credits in the future if these do not happen. Hence, we have listed here these credits and the necessary actions that the client needs to be aware of.

Ecological Consultant Appointment

Code	Credits	Title	Credit Criteria / Early Action Required
LE 03	2	Mitigating Ecological Impact	A suitably qualified Ecologist needs to be appointed to survey/assess the site for its current ecological value prior to any demolition etc.. If this is not done, LE03, LE04 & LE05 cannot be awarded in the final assessment. The ecologist will need to provide recommendations on any existing ecology which will need protection during the demolition and construction phases
LE 04	2	Enhancing Site Ecology	
LE 05	2	Long Term Impact on Biodiversity	

BREEAM Accredited Professional (AP) Appointment

Code	Credits	Title	Credit Criteria / Early Action Required
Man 01	2	Project Brief and Design	Appointment of a BREEAM AP from early RIBA Stage 2 to attend key client progress meetings throughout the project delivery from RIBA Stage 2 to end of RIBA Stage 4

Security Consultant / Officer Consultation

Code	Credits	Title	Credit Criteria / Early Action Required
Hea 06	2	Safety and Security	Provision of effective measures which support safe access to and from the building; Consultation with a suitably qualified security consultant should have taken place at RIBA Stage 2. The final design should reflect the recommendations/solutions and built to conform to either, Secured by Design and/or Safer Parking (SP) Scheme.

Transport Consultant Appointment

Code	Credits	Title	Credit Criteria / Early Action Required
Tra 05	1	Travel Plan (Architect or Sub-Consultant)	Travel Plan to be commissioned for the development clearly considering the impact onto the surrounding infrastructure etc.. due to the site specific travel survey / assessment having been developed.

Specialists / Others

Code	Credits	Title	Credit Criteria / Early Action Required
Man 02	2	Life Cycle Cost & Service Life Planning (Cost Consultant)	A Life Cycle Cost analysis should be undertaken at Stage 2 / 3 A strategic and system-level Life Cycle Cost analysis is undertaken A technical design Life Cycle Cost analysis is undertaken Stages 4 / 5
Hea 02	1	Indoor Air Quality	Appointment of a specialist to carry out an 'Indoor Air Quality Plan' assessment for the development considering neighbouring pollutants, any flue gases etc.. proposed and the locations of air intakes and exhausts
Ene 04 / Hea 04	2	Passive Design / Adaptability - for a projected climate change scenario	Appointment of a specialist to carry out the analysis for the passive design and energy strategy, projected climate change scenario should be considered as part of the thermal model
Pol 03	1	Surface Water Run-Off	The commission of a 'Flood Risk Assessment' for the site. This should include an analysis for the 1 in 100 year storm event and attenuation measure recommendations to adhere to adequate discharge flow rates and SUDS techniques

Client Considerations (further credit requirements to be aware of at RIBA Stage 1 to 3)

Code	Credits	Title	Credit Criteria / Early Action Required
Man 01	1	Project Brief and Design	To award the credit, the client needs to confirm that from RIBA Stage 1 or equivalent the client, building occupier, design team and contractor are involved in contributing to the decision making process for the project. As a minimum this includes meeting to identify and define their roles, responsibilities and contributions during design, construction, Commissioning and handover upto occupation (Stage 6)
Man 01	2	Stakeholder Consultation	During preparation of the brief, all relevant parties and relevant bodies are identified and consulted with by the design team. (Relevant bodies are - Actual intended building users, representative consultation group from the existing community, existing partnerships and networks that have knowledge and experience from existing buildings of the same type, potential users of any shared facilities e.g. operators of clubs and community groups). A consultation plan should have been prepared and includes a timescale and methods of consultation for all relevant parties/bodies and how the relevant parties will be kept informed about progress. Consultation feedback has been given with suggestions made, including how the results of the consultation process have influenced the proposed design. Through consultation and the resulting measures taken any areas of features of historic/heritage value are protected.

Contractor Considerations (further credit requirements to be aware of at RIBA Stage 2)

Code	Credits	Title	Credit Criteria / Early Action Required
Man 01	1	Sustainability Champion	A Site Sustainability Manager / BREEAM AP should be appointed during the Construction, Handover & Close out stages (RIBA Stages 5 & 6).
Wst 05	1	Adaptation to Climate Change	To award the credit, the main contractor needs to set up a workshop with the design team to assess the climate change risks of new & existing fabric and its durability to deal with extremes in weather.
Wst 06	1	Functional Adaptability	To award the credit, the main contractor needs to recognise the additional capacities & a well considered plant & fabric replacement strategy to be developed.

Score Summary

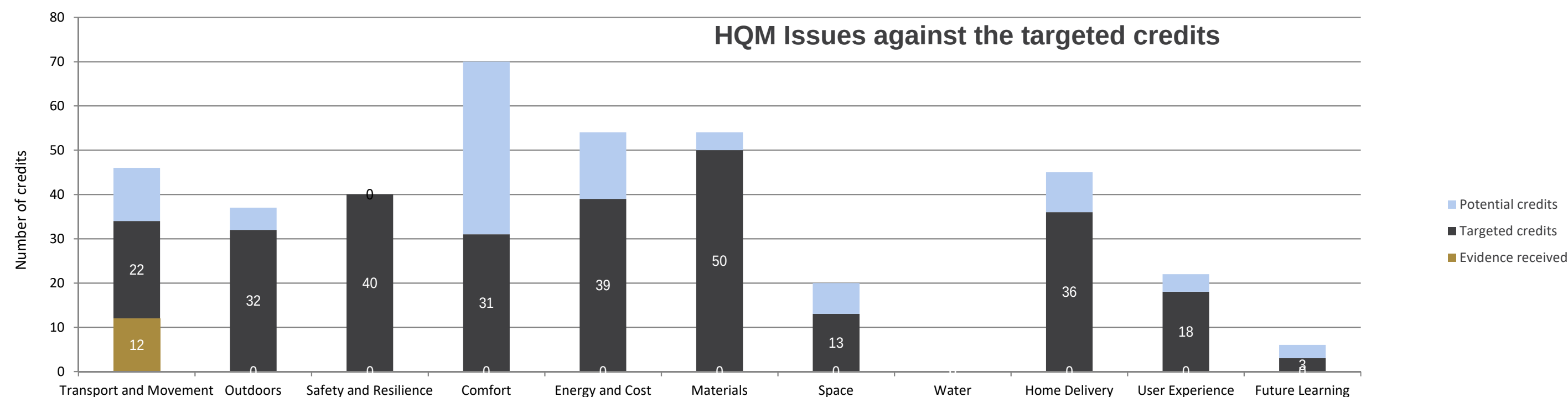
Project Name: **Hornsey Town Hall**

BREEAM Scheme: **Home Quality Mark**

Target Rating: **296**

Achieved score: **12**

Date of issued: **06/06/2017**



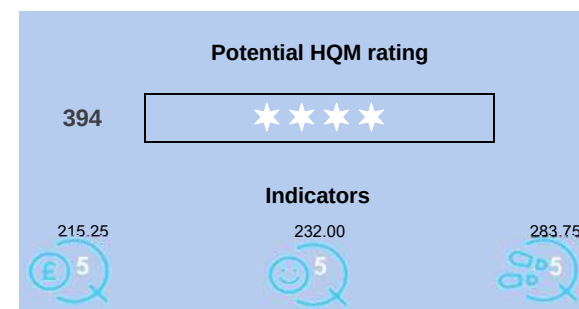
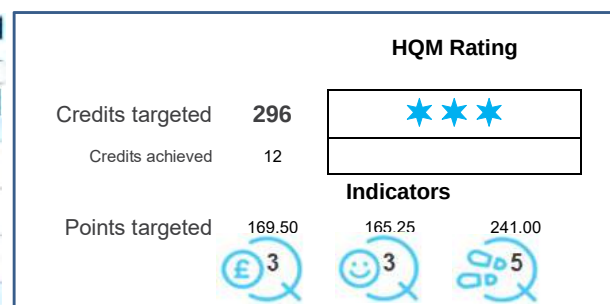
Credit Review

06/06/2017 Rev.1

Project Name **Hornsey Town Hall**
Project Type **Design Stage (Interim)**
Scheme **Home Quality Mark**

	1 Star	2 Star	3 Star	4 Star	5 Star
Minimum Total credits	150	225	275	375	400
Percentage	30	45	55	75	80

Indicators					
Indicator bands	1	2	3	4	5
Living Costs	81	121	148	202	215
Health & Wellbeing	82	123	150	205	219
Environmental Footprint	121	182	222	303	323
Percentage	30	45	55	75	80



- Credit awarded
- Credit not targeted
- Potential additional credit
- Further information required

Credit Ref.	Credit Title	Credit Name	Credits Available	Credits Targeted	Potential Additional	Credits Achieved	Pre-requisite	Responsibilities	RIBA Stage	Status	Comments / Actions
OUR SURROUNDINGS - Transport and Movement											
01	Accessible Public Transport	Access to public transport	16	12		12		Client*PM*Architect*			London N8 9JJ achieves an AI score of 8.42.
02	Alternative Sustainable Transport Options	Cycle Storage	6	3	3	0		Architect*			Provision of individual or communal cycle storage based on the number of bedrooms. Block A requires 67 spaces for 3 credits. 133 for 6 credits. TP proposes 129. Block B requires 41 spaces for 3 credits and 82 spaces for 6 credits. TP proposes 82.
		Cycle networks	3		3	0		Architect*			Is the home connected to a safe cycle route? Council being asked to extend cycle network to cover Weston Park.
		Electric charging points	4		4	0		Architect*			The home has access to a dedicated/communal electric charging point, located within close proximity to the home via a safe pedestrian route. 45 allocated car parking spaces. 3 communal. If communal spaces had electric charging points then 4 credits could be achieved by all dwellings. Proposal is for 9 residential spaces to have electric vehicle charging access with a provision for 9 more upon demand.
		Car clubs	2		2	0		Client*PM*Architect*			The home has access to one of the following: Car pool, Lift sharing scheme or Community electric vehicle hire. Car club spaces within ~150m. Further 2 spaces would need to be within 650m to count. Need safe pedestrian route.
03	Local Amenities	+Key local amenities	12	12		0		Client*PM*Architect*			3 or more Admin, Health & Retail services e.g. Post office, cash point, GP, Small shops etc. are located within walking distance.
		*Beneficial local amenities	7	7		0		Client*PM*Architect*			2 or more leisure facilities, schhols, large retail (restaurant, cinema etc.) & community facilities e.g. library within 30 minutes of the home.
OUR SURROUNDINGS - Outdoors											
04	Ecology	Previously developed land	6	6		0		Architect*			At least 75% of the proposed development's footprint is on an area of land which has previously been occupied by industrial, commercial or domestic buildings or fixed surface infrastructure
		+Appointing an expert	2	2		0		Client*PM*Architect*			A suitably qualified ecologist or a local wildlife professional will be appointed.
		Early appointment	2	2		0		Client*PM*Architect*			The appointment of the suitably qualified ecologist or local wildlife professional takes place early in the process, prior to site clearance and construction
		* +Survey - COMPREHENSIVE ROUTE	3	3		0		Ecologist*			A Suitably Qualified Ecologist carries out an ecology survey of the site, identifies applicable local best practise guidance and provides recommendations to protect, maintain and enhance ecology on site.
		Recommendations - COMPREHENSIVE ROUTE	10	10		0		Ecologist			Number of recommendations implemented awards the credits.
		Diseased or Invasive Species - COMPREHENSIVE ROUTE	2	0		0		Ecologist			Diseased or Invasive species have been identified and will be removed
		Maintaining Ecology - COMPREHENSIVE ROUTE	3	3		0		Ecologist			Information for an Ecology Management Strategy will be passed onto those who hgave responsibility for maintaining ecology in the communal areas.
Comprehensive		*Local Biodiversity records - COMPREHENSIVE ROUTE	2	2		0		Ecologist*			Information collected as part of the ecology survey and any new ecology onsite arising from enhancement is added to the local biodiversity records centre database by the suitably qualified ecologist.
05	Recreational Space	Accessible public recreational space	4	4		0		Architect*			The home is within walking distance of public recreational space.
		Private Space	6	0	1	0		Client*PM*Architect*			Private external space is provided that is clearly associated with the home. Balconies need to be at least 1.5m deep. Achivable in some but not most
		+Communal Space	2	0	1	0		Client*PM*Architect*			The home is within close proximity to communal space.
		Management strategy	3	0	3	0		Client			Suitable management and maintenance arrangements are in place for communal space before practical completion of the project
		+Growing Space	2	0		0		Client*PM*Architect*			The local authority and local growing initiatives or groups (where present) have been consulted to determine the demand for and suitable types of growing space in the local area.
		*Expert input	1	0		0		Client*PM*Architect*			Expert advice is sought at the design stage to inform the design of the growing space

Credit Ref.	Credit Title	Credit Name	Credits Available	Credits Targeted	Potential Additional	Credits Achieved	Pre-requisite	Responsibilities	RIBA Stage	Status	Comments / Actions
		*Initial planting	2	0		0		Client*PM*Architect*			Growing space is planted with edible species ready for the handover phase

Credit Ref.	Credit Title	Credit Name	Credits Available	Credits Targeted	Potential Additional	Credits Achieved	Pre-requisite	Responsibilities	RIBA Stage	Status	Comments / Actions
OUR SURROUNDINGS - Safety and Resilience											
06	Flood Risk	Flood risk - LOW	18	18		0		Flood Risk Consultant*			A site-specific FRA confirms the development site is situated in a flood zone that is defined as having a low annual probability of flooding and is not in a functional floodplain
07	Managing the Impact of Rainfall	+Home information	0	0		0	Yes/No?	Contractor*			Rainfall management home information must be provided.
		Managing the rate & volume of run-off - COMPREHENSIVE ROUTE	12	12		0		Flood Risk Consultant			Drainage measures are specified to ensure that the peak rate & volume of run-off from the site to the watercourses (natural or municipal) is no greater for the developed site than it was for either the pre-development site for 9 credits; OR an equivalent run-off for a greenfield site for 12 credits
		Water quality	2	0		0		Flood Risk Consultant			If a low risk source of watercourse pollution exists, an sufficient level of pollution prevention treatment is provided using SuDS techniques. If there is a high risk of contamination or spillage of substances such as petrol & oil, separators are installed in surface water drainage systems
		Designing for maintenance and operation	2	0		0		Client			Agreements put in place for the ownership, long term operation and maintenance of all SuDS for the design life of the development.
Comprehensive											
08	Security	+Security needs assessment	0	0		0	Yes/No?	Architect*	2		Appoint a suitably qualified security specialist to conduct an evidence-based security needs assessment during, or prior to, Concept Design (RIBA Stage 2)
		*Security features	10	10		0		Architect*Contractor*			The recommendations made by the suitably qualified security specialist will be implemented.
OUR SURROUNDINGS		TOTAL CREDITS:	144	106	17	12					

Credit Ref.	Credit Title	Credit Name	Credits Available	Credits Targeted	Potential Additional	Credits Achieved	Pre-requisite	Responsibilities	RIBA Stage	Status	Comments / Actions
MY HOME - Comfort											
09	Indoor Pollutants	Minimising emissions from building product types	4	2	2	0		Architect*Contractor*			Specify & use building products with low VOC (formaldehyde) content.
		Minimising airborne formaldehyde from all sources	3	0	3	0		Architect*Contractor*			Measure the TVOC concentration in indoor air post construction (pre-occupancy). Must not exceed 0.1 mg/m3 (100 µg/m3), averaged over 30 mins
		Minimising airborne TVOCs (total volatile organic compounds) from all sources	3	0	3	0		Architect*Contractor*			TVOC in indoor air measured post construction must not exceed 0.3 mg/m3, (over 8 hours). No individual compound exceeding 0.03 mg/m3.
10	Daylight	Average daylight factor (kitchens)	6	0	6	0		Architect*			All kitchens achieve a minimum average daylight factor of at least 2%
		Average daylight factor (living spaces)	6	2	4	0		Architect*			Credits will be awarded based upon the minimum average daylight factor achieved for all living rooms, dining rooms and studies
		View of sky	4	0	4	0		Architect*			80% of the working plane in each kitchen, living room, dining room and study receives direct light from the sky.
11	Internal and External Noise	+Suitably qualified acoustician	0	0		0	Yes/No?	M&E*Architect*Acoustician			A suitably qualified acoustician (SQA) is appointed
		*Internal noise levels	2	2		0		M&E*Architect*Acoustician			The home has been designed and built to meet exceed the requirements of Part E
		*External noise levels	2	2		0		M&E*Architect*Acoustician			The noise levels of external functional spaces do not exceed the requirements of 55dB or 50dB (LAEq,T)
12	Sound Insulation	Sound insulation between dwellings	4	3	1	0		M&E*Architect*Acoustician			The home has been designed and built to meet exceed the requirements of Part E by 3dB, 5dB or 8dB.
		Sound insulation between rooms	4	0	4	0		M&E*Architect*Acoustician			The sound insulation between internal floors & walls in the home have been designed and built to meet 43dB, 45dB or 48dB.
13	Temperature	+Home information	0	0		0	Yes/No?	Contractor*			Home information is provided to the occupant relating to the temperature controls
		* +Temperature: Current Conditions - COMPREHENSIVE ROUTE	12	12		0		Sweco M&E*			Thermal modelling has been carried out using software in accordance with CIBSE AM11 Building Energy and Environmental Modelling. The modelling demonstrates that: a. For air conditioned buildings: i. Summer operative temperature ranges in the home are in accordance with the criteria set out in CIBSE Guide A Environmental design, Table 1.5. b. For naturally ventilated/free running buildings: i. The building is designed to limit the risk of overheating, in accordance with the adaptive comfort methodology outlined in CIBSE TM52: The limits of thermal comfort: avoiding overheating in European buildings
		Predicted climate change environment -COMPREHENSIVE ROUTE	8	8		0		Sweco M&E			The thermal modelling demonstrates that the relevant requirements are achieved for a projected climate change environment
14	Ventilation	+Home information	0	0		0	Yes/No?	Contractor*			Home information is provided to the occupant relating to the ventilation systems
		* +Ventilation air intakes	4	0	4	0		Sweco M&E*			The home's ventilation air intakes should avoid drawing in pollution in accordance with CIBSE TM21
		* +Ventilation rates	4	0	4	0		Sweco M&E*			MEV & MVHR systems has the capacity to achieve the Applicable min ventilation rate during continuous operation (Part F or calc) and a boost air flow rate of at least 25% greater than the Applicable min ventilation rate
		*Maintenance & controls	4	0	4	0		Sweco M&E*Contractor*			Any required maintenance of any part of the ventilation system can be completed safely by the occupant.

Credit Ref.	Credit Title	Credit Name	Credits Available	Credits Targeted	Potential Additional	Credits Achieved	Pre-requisite	Responsibilities	RIBA Stage	Status	Comments / Actions
MY HOME - Energy											
15	Energy and Cost	+Home information	0	0		0	Yes/No?	Contractor*			Home information is provided to the occupant relating to energy efficiency
		Energy performance - COMPREHENSIVE ROUTE	42	15	10	0		Sweco M&E			Calculate the Home Energy Performance Ratio (HEPR) for each dwelling using SAP and data for installed lighting, appliances & hot water.
		Towards carbon negative	6	0		0		Sweco M&E*			The building achieves a HEPR ≥ 0.9 and zero net regulated CO2 emissions. A percentage of the buildings unregulated operational energy consumption (SAP - Section 16) is generated by carbon neutral on-site or near-site sources
		Cost - COMPREHENSIVE ROUTE	14	5	3	0		Sweco M&E			Calculate a cost output via the comprehensive route
Comprehensive											
16	Decentralised Energy	+Home information	0	0		0	Yes/No?	Contractor*			Providing relevant home information regarding any LZCT system installations or retrofit options available to the householder
		Feasibility study	2	2				Sweco M&E			An appropriately qualified professional (AQP) will establish the most feasible recognised local (on-site or near-site) LZC energy source(s) for the building, as well as any suitable infrastructure for future retrofit
		*Installation	6	6				Sweco M&E*Contractor*			Where LZCTs are designed and installed in line with the feasibility study findings
		*Infrastructure	0	0				Sweco M&E*Contractor*			Where the feasibility study confirms the installation of LZCTs is not currently a viable option, appropriate infrastructure is installed to allow the future retrofit of LZCTs in accordance with the feasibility study recommendations.
Installation											
17	Impact on Local Air Quality	Impact on local air quality	11	11		0		Sweco M&E*			A natural gas fired appliance has been installed to meet the dwelling's hot water and heating demand. Under normal operating conditions, a NOx emission level (measured on a dry basis at 0% excess O2)
MY HOME - Materials											
18	Responsible sourcing of construction products	+Legally harvested and legally traded timber	0	0		0	Yes/No?	Client*Architect*Contractor*			All timber and timber based products used in the buildings meet the definition of 'legally harvested and legally traded timber'
		*Product procurement policy and product environmental information	3	3		0		Client*Architect*Contractor*	2		There is a documented policy and procedure that sets out procurement requirements for all suppliers and trades to adhere to relating to the responsible sourcing of construction products
		*Responsible sourcing of construction products assessment - FOUNDATION ROUTE	28	10	3			Sweco M&E*Architect*			The dwelling has been assessed to either the foundation route
		*Responsible sourcing of construction products assessment - COMPREHENSIVE ROUTE	0			0		Sweco M&E*Architect*			The dwelling has been assessed to either the intermediate or comprehensive route
Foundation											
19	Environmental Impact from Construction Products	Product procurement policy and product environmental information	8	8		0	Yes/No?	Client*Architect*	2		A policy & procedure that sets out procurement requirements for all suppliers & trades to adhere relating to the sourcing of construction products with lower environmental impact. A number of products with EPDs need to be specified.
		Building life cycle assessment - FOUNDATION ROUTE	8	1	1	0		Sweco M&E*Architect*			The dwelling is assessed using the HQM materials tool
		Building life cycle assessment - COMPREHENSIVE ROUTE	0			0		Sweco M&E*Architect*			The dwelling has been assessed using an IMPACT compliant tool
Foundation											
20	Life Cycle Costing of Construction Products	Homeowner's life cycle cost report	9	9				Client*Architect*Contractor*	2		A life cycle cost (LCC) analysis (PD 156865:2008) is produced by a suitably qualified cost consultant at a level of detail suitable to inform the homeowner of key maintenance and operational costs
		Component level life cycle cost optimisation	9	9		0		Client*Architect*Contractor*	4		By the end of RIBA stage 4, a component level LCC appraisal (PD 156865:2008) is carried out & appropriate examples are provided by the design team to demonstrate how the component level LCC optimisation has been used to influence building & systems design/specification to reduce the overall maintenance & operational costs to the homeowner.
21	Durability of Construction Products	+Integral elements	7	7		0		Architect*			The integral building elements at risk of severe material degradation have been identified & appropriate measures have been incorporated into the design and specification to limit the degradation effects identified
		Finishing elements	3	3		0		Architect			The relevant finishing building elements at risk of cosmetic material degradation have been identified & appropriate measures have been incorporated into the design and specification to limit the degradation effects identified

Credit Ref.	Credit Title	Credit Name	Credits Available	Credits Targeted	Potential Additional	Credits Achieved	Pre-requisite	Responsibilities	RIBA Stage	Status	Comments / Actions
MY HOME - Space											
22	Drying Space	Adequate external drying space	1	0		0		Architect*			An adequate external drying space is provided where the drying space is secure and has a length of 4m+ for 1 or 2 bed dwellings with 2m+ for each subsequent bedroom.
		Adequate internal drying space	2	0		0		Sweco M&E*Architect*			An adequate internal drying space is provided where the drying space is secure and has a length of 4m+ for 1 or 2 bed dwellings with 2m+ for each subsequent bedroom.
23	Access and Space	Nationally described space standards	4	4		0		Architect*			The home meets the Technical Housing Standards - Nationally Described Space Standard
		Flexible design	2	2		0		Architect*			Internal functional space within the home offers flexible design options that meet every day needs and long term demands
		Accessible design	4	0	4	0		Architect*			The internal & external spaces associated with the home meet the requirements of either the Building Regulations Approved Document Part M - Access to and use of buildings, Category 2 – Accessible and adaptable dwellings OR Category 3 – Wheelchair user dwellings.
24	Recyclable Waste	Consultation with the waste collection authority	2	2		0		Architect*			The waste collection authority is consulted to determine the waste collection patterns, identifying the: a. number of recyclable streams (including composting) b. type and size of waste collection containers (e.g. dedicated wheelie bins, boxes, communal bins etc.).
		Recyclable waste	5	5		0		Architect*			Dedicated internal space, with fixed units to store recyclable waste, is provided. The number of internal recyclable waste facilities should reflect the number of recyclable waste streams collected by the waste collection authority. The combined capacity of internal recyclable waste facilities should be a minimum of 30 litres for homes with 1-2 bedrooms & 40 litres for homes with 3 or more bedrooms.
		Composting	3	0	3	0		Architect*			All homes are provided with composting facilities, for garden and/or food waste, in the form of one or more of the following: a. Individual home-composting facilities. b. Local communal facilities within close proximity of the home. c. Composting collection services run by the waste collection authority. All homes are provided with internal composting waste storage that is a minimum of 10 litres in volume.
MY HOME - Water											
25	Water Efficiency	+Water efficient fittings	8	0				Sweco M&E*Architect*			The water efficiency standards in the Building Regulations Approved Document Part G need to be met AND a water consumption of 100L/p/day without rainwater or grey water harvesting achieved.
		*Water recycling	2	0		0		Sweco M&E*Architect*			Rainwater or greywater recycling systems have been specified and it is demonstrated that there is sufficient water supplied by these systems to offset the demand for WC flushing for the home
MY HOME		TOTAL CREDITS:	261	133	65	0					

Credit Ref.	Credit Title	Credit Name	Credits Available	Credits Targeted	Potential Additional	Credits Achieved	Pre-requisite	Responsibilities	RIBA Stage	Status	Comments / Actions
KNOWLEDGE SHARING - Home Delivery											
26	Commissioning and Performance	+Commissioning and testing strategy	0	0		0	Yes/No?	Sweco M&E*Contractor*			There is a schedule of commissioning and testing that identifies and includes a suitable timescale for commissioning of all building services and control systems and testing building fabric
		*Commissioning building services and control systems	5	5				Sweco M&E*Contractor*			The following building systems are commissioned in line with appropriate commissioning best practice guidance: a. Hot water b. Heating c. Ventilation (e.g. MVHR) d. Comfort cooling e. Low and zero carbon technologies. For buildings with complex building services and systems (e.g. communal systems with a centralised plant), a specialist commissioning manager must be appointed to conduct and manage commissioning activities
		*Testing building fabric	5	5		0		Sweco M&E*Contractor*			Post construction testing and inspection of the integrity of building fabric is carried out, and includes the quality assurance of at least one of the following: a. Continuity of insulation b. Avoidance of thermal bridging c. Air leakage paths.
27	Quality Improvement	+Collaborative working	2	2		0		Architect*Client*	2		Stakeholders need to have met to identify roles, responsibilities and required actions for the project.
		*Quality control	5	5		0		Architect*Client*	1		A written performance strategy has been produced that summarises the specific targets, roles, responsibilities and the required actions for the project.
		Feedback from previous projects	3	0	3	0		Client*Contractor*			Demonstrate that lessons learnt from previous developments, within two years prior to the assessed dwelling's design completion, have been incorporated into the design of the dwelling being assessed
28	Considerate Construction	Considerate Construction	4	4		0		Contractor*			The principal contractor commits to achieve a Considerate Constructor Scheme score of 35 or greater with a minimum score of 7 in each section.
29	Construction Energy Use	Contractor's energy efficiency checklist	2	2		0		Contractor*			The contractor completes an energy efficiency checklist
		Energy monitoring and reporting	2	2		0		Contractor*			Target, monitor and record data on the principal contractor's and subcontractors' energy consumption as a result of the use of construction plant, equipment (mobile and fixed) and site accommodation.
		Detailed monitoring and reporting	1	1		0		Contractor*			Monitor & record data on principal contractor's & subcontractors' metered energy consumption as a result of the use of construction plant, equipment (mobile and fixed) & site accommodation at weekly (or more frequent) intervals.
30	Construction Water Use	Contractor's energy efficiency checklist	2	2		0		Contractor*			The contractor completes an water efficiency checklist
		Water monitoring and reporting	2	2				Contractor*			Target, monitor and record data on the principal contractor's and subcontractors' water consumption as a result of the use of construction plant, equipment (mobile and fixed) and site accommodation.
		Detailed monitoring and reporting	1	1				Contractor*			Monitor & record data on principal contractor's & subcontractors' metered water consumption as a result of the use of construction plant, equipment (mobile and fixed) & site accommodation at weekly (or more frequent) intervals.
31	Site Waste	Product procurement policy	1	1		0		Contractor*	2		A documented policy and procedure that sets out procurement requirements for all suppliers and trades to adhere to relating to opportunities for minimising construction waste on-site
		Construction resource efficiency	8	2	2	0		Contractor*			A Resource Management Plan (RMP) has been developed covering the non-hazardous waste related to on-site construction and where applicable, dedicated off-site manufacture or fabrication (including demolition and excavation waste) generated by the building's design and construction.
		Diversion of construction waste from landfill	4	2	2	0		Contractor*			Waste materials will be sorted into separate key waste groups. Credits are awarded for the project's performance with regards to the diversion of non-hazardous construction and demolition (where applicable) waste from landfill.
		+Diversion of excavation waste from landfill	2	0	2	0		Contractor*			At least 95% (either by volume or tonnage) of excavation waste is diverted from landfill.

Credit Ref.	Credit Title	Credit Name	Credits Available	Credits Targeted	Potential Additional	Credits Achieved	Pre-requisite	Responsibilities	RIBA Stage	Status	Comments / Actions
KNOWLEDGE SHARING - User Experience							0				
32	Aftercare	Building warranty	0	0		0	Yes/No?	Architect*Contractor*			The dwelling is covered by a building warranty, from a warranty provider who is a member of and fully complies with "The Consumer Code for Home Builders" (http://consumercodeforhomebuilders.com/) or is recognised by the Trading Standards Institute.
		+Basic aftercare support	0	0			Yes/No?	Contractor*			Home information is provided relating to the aftercare support that is available to the occupant. Provide occupants with an initial visit to show them around their home on the first day of occupation
		4-6 week visit	3	3				Client*			A commitment has been made to offer a home visit to be carried out between the first 4 to 6 weeks of occupation.
		Remote support	3	3				Client*			Remote support is made available to the occupants for 1 to 3 years.
		On-site support	4	4		0		Client*			On-site support is made available to the occupants for 1 to 3 years.
33	Home Information	+Core home information	2	2		0		Client*Contractor*			Basic Home information will be provided.
		*Issue specific home information	3	3		0		Client*Contractor*			Specific information is also provided.
34	Smart Homes	+Connectivity	1	1		0		Architect*			A good indoor signal is available to the dwelling for at least two of the following: a. 3G or 4G, b. Broadband or c. Digital television.
		* +Basic starter solutions	2	2		0		Architect*Sweco M&E*			Sensors/transmitters are installed that: a. Monitor the dwelling's electricity and primary heating fuel consumption b. Monitor internal temperature levels in the main living room as a minimum; And are either: c. Self-charging (e.g. fixed to incoming mains supply/supplies); Or d. Have a 2-year battery life (as a minimum) and are capable of alerting occupants when battery life is low.
		*Advanced starter solutions	3	0	3	0		Architect*Sweco M&E*			Sensors or transmitters installed are also able to monitor: a. Humidity in the kitchen, bathroom and a main bedroom b. CO2 in the main living room and a main bedroom c. External temperature d. Motion sensors at the main entrances to detect occupancy or unexpected movement (i.e. for security) e. Water consumption.
		Controls	1	0	1	0		Architect*Sweco M&E*			A home system is installed that provides intuitive and remote control via an accessible interface for at least one of the following: a. Heating systems and/or ventilation for maintaining a comfortable internal temperature b. Lighting for security (e.g. pre-setting lighting to come on at certain times) as well as for energy savings and comfort levels (e.g. allowing occupants to turn off or dim lights remotely) c. Security systems (e.g. connecting with security cameras, door and window controls, and alarm systems)
KNOWLEDGE SHARING - Future Learning											
35	Post Occupancy Evaluation	+Basic POE - FOUNDATION ROUTE	3	3		0		Client*			A commitment has been made for an appropriately qualified professional to collect occupant feedback (POE 1- see Methodology), between 12 and 18 months after occupation and to appropriately disseminate the POE results and lessons learnt to key stakeholders, in order to share good practice.
		Enhanced POE - FOUNDATION ROUTE	3	0	3	0		Client			A commitment has been made to undertake at least one other POE method, i.e. Energy Audit, Water Audit, Forensic Walkthrough, LZCT performance monitoring or Temperature monitoring.
		+Basic POE - COMPREHENSIVE ROUTE	0	0		0		Client*			A commitment has been made for an independent party to collect occupant feedback (POE 1- see Methodology), between 12 and 18 months after occupation and to appropriately disseminate the POE results and lessons learnt to key stakeholders, in order to share good practice.
Foundation		*Enhanced POE - COMPREHENSIVE ROUTE	0	0		0		Client*			A commitment has been made to undertake at least one other POE method, i.e. Energy Audit, Water Audit, Forensic Walkthrough, LZCT performance monitoring or Temperature monitoring.
Knowledge sharing		TOTAL CREDITS:	77	57	16	0					

Appendices

Appendix B - Block A - SAP Worksheets

118766/LP/180214 Issue 07

This design draft submission provides evidence towards compliance with Part L of the Building Regulations, in accordance with Appendix C of AD L1A. It has been carried out using Approved SAP software. It has been prepared from plans and specifications and may not reflect the 'as built' property. This report covers only items included within the SAP and is not a complete report of regulations compliance.

Assessor name	Mr David Partington	Assessor number	5662
Client		Last modified	15/01/2018
Address	01 Hornsey Town Hall [Servicing Scheme TBC], London		

Check	Evidence	Produced by	OK?																		
Criterion 1: predicted carbon dioxide emission from proposed dwelling does not exceed the target																					
TER (kg CO ₂ /m ² .a)	Fuel = N/A Fuel factor = 1.00 TER = 13.05	Authorised SAP Assessor																			
DER for dwelling as designed (kg CO ₂ /m ² .a)	DER = 8.36	Authorised SAP Assessor																			
Are emissions from dwelling as designed less than or equal to the target?	DER 8.36 < TER 13.05	Authorised SAP Assessor	Passed																		
Is the fabric energy efficiency of the dwelling as designed less than or equal to the target?	DFEE 33.4 < TFEE 35.2	Authorised SAP Assessor	Passed																		
Criterion 2: the performance of the building fabric and the heating, hot water and fixed lighting systems should be no worse than the design limits																					
Fabric U-values																					
Are all U-values better than the design limits in Table 2?	<table><tr><th>Element</th><th colspan="2">Weighted average Highest</th></tr><tr><td>Wall</td><td>0.17 (max 0.30)</td><td>0.17 (max 0.70)</td></tr><tr><td>Party wall</td><td>0.00 (max 0.20)</td><td>N/A</td></tr><tr><td>Floor</td><td>(no floor)</td><td></td></tr><tr><td>Roof</td><td>(no roof)</td><td></td></tr><tr><td>Openings</td><td>1.35 (max 2.00)</td><td>1.40 (max 3.30)</td></tr></table>	Element	Weighted average Highest		Wall	0.17 (max 0.30)	0.17 (max 0.70)	Party wall	0.00 (max 0.20)	N/A	Floor	(no floor)		Roof	(no roof)		Openings	1.35 (max 2.00)	1.40 (max 3.30)	Authorised SAP Assessor	Passed
Element	Weighted average Highest																				
Wall	0.17 (max 0.30)	0.17 (max 0.70)																			
Party wall	0.00 (max 0.20)	N/A																			
Floor	(no floor)																				
Roof	(no roof)																				
Openings	1.35 (max 2.00)	1.40 (max 3.30)																			
Thermal bridging																					
How has the loss from thermal bridges been calculated?	Thermal bridging calculated using default y-value of 0.15	Authorised SAP Assessor																			
Heating and hot water systems																					
Does the efficiency of the heating systems meet the minimum value set out in the Domestic Heating Compliance Guide?	Community heating scheme Secondary heating system: None	Authorised SAP Assessor	N/A																		
Does the insulation of the hot water cylinder meet the standards set out in the Domestic Heating Compliance Guide?	No hot water cylinder in the dwelling	Authorised SAP Assessor																			
Do controls meet the minimum controls provision set out in the Domestic Heating Compliance Guide?	Space heating control: Charging system linked to use, programmer and TRVs No hot water cylinder in the dwelling	Authorised SAP Assessor	Passed																		
Fixed internal lighting																					

Check	Evidence	Produced by	OK?
Does fixed internal lighting comply with paragraphs 42 to 44?	Schedule of installed fixed internal lighting Standard lights = 0 Low energy lights = 10 Percentage of low energy lights = 100% Minimum = 75 %	Authorised SAP Assessor	Passed
Criterion 3: the dwelling has appropriate passive control measures to limit solar gains			
Does the dwelling have a strong tendency to high summertime temperatures?	Overheating risk (June) = Slight (20.84°) Overheating risk (July) = Medium (22.51°) Overheating risk (August) = Medium (22.14°) Region = Thames Thermal mass parameter = 250.00 Ventilation rate in hot weather = 4.00 ach Blinds/curtains = None	Authorised SAP Assessor	Passed
Criterion 4: the performance of the dwelling, as designed, is consistent with the DER			
Design air permeability (m ³ /(h.m ²) at 50Pa)	Design air permeability = 3.00 Max air permeability = 10.00	Authorised SAP Assessor	Passed
Mechanical ventilation system Specific fan power (SFP)	Mechanical ventilation with heat recovery: SFP = 0.50 W/(litre/sec) Max SFP = 1.5 W/(litre/sec) Heat recovery efficiency = 91.00 % Min heat recovery efficiency = 70.00 %	Authorised SAP Assessor	Passed
Have the key features of the design been included (or bettered) in practice?	The following party walls have a U-value less than 0.2W/m ² K: • Party Wall (0.00) Design air permeability of 3 m ³ /(h.m ²) is less than 4 m ³ /(h.m ²) at 50 Pa Community heating with CHP - Mains gas	Authorised SAP Assessor	

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Assessor name	Mr David Partington	Assessor number	5662
Client		Last modified	15/01/2018
Address	01 Hornsey Town Hall [Servicing Scheme TBC], London		

Check	Evidence	Produced by	OK?																		
Criterion 1: predicted carbon dioxide emission from proposed dwelling does not exceed the target																					
TER (kg CO ₂ /m ² .a)	Fuel = N/A Fuel factor = 1.00 TER = 13.05	Authorised SAP Assessor																			
DER for dwelling as designed (kg CO ₂ /m ² .a)	DER = 6.18	Authorised SAP Assessor																			
Are emissions from dwelling as designed less than or equal to the target?	DER 6.18 < TER 13.05	Authorised SAP Assessor	Passed																		
Is the fabric energy efficiency of the dwelling as designed less than or equal to the target?	DFEE 33.4 < TFEE 35.2	Authorised SAP Assessor	Passed																		
Criterion 2: the performance of the building fabric and the heating, hot water and fixed lighting systems should be no worse than the design limits																					
Fabric U-values																					
Are all U-values better than the design limits in Table 2?	<table><tr><th>Element</th><th colspan="2">Weighted average Highest</th></tr><tr><td>Wall</td><td>0.17 (max 0.30)</td><td>0.17 (max 0.70)</td></tr><tr><td>Party wall</td><td>0.00 (max 0.20)</td><td>N/A</td></tr><tr><td>Floor</td><td>(no floor)</td><td></td></tr><tr><td>Roof</td><td>(no roof)</td><td></td></tr><tr><td>Openings</td><td>1.35 (max 2.00)</td><td>1.40 (max 3.30)</td></tr></table>	Element	Weighted average Highest		Wall	0.17 (max 0.30)	0.17 (max 0.70)	Party wall	0.00 (max 0.20)	N/A	Floor	(no floor)		Roof	(no roof)		Openings	1.35 (max 2.00)	1.40 (max 3.30)	Authorised SAP Assessor	Passed
Element	Weighted average Highest																				
Wall	0.17 (max 0.30)	0.17 (max 0.70)																			
Party wall	0.00 (max 0.20)	N/A																			
Floor	(no floor)																				
Roof	(no roof)																				
Openings	1.35 (max 2.00)	1.40 (max 3.30)																			
Thermal bridging																					
How has the loss from thermal bridges been calculated?	Thermal bridging calculated using default y-value of 0.15	Authorised SAP Assessor																			
Heating and hot water systems																					
Does the efficiency of the heating systems meet the minimum value set out in the Domestic Heating Compliance Guide?	Community heating scheme Secondary heating system: None	Authorised SAP Assessor	N/A																		
Does the insulation of the hot water cylinder meet the standards set out in the Domestic Heating Compliance Guide?	No hot water cylinder in the dwelling	Authorised SAP Assessor																			
Do controls meet the minimum controls provision set out in the Domestic Heating Compliance Guide?	Space heating control: Charging system linked to use, programmer and TRVs No hot water cylinder in the dwelling	Authorised SAP Assessor	Passed																		
Fixed internal lighting																					

Check	Evidence	Produced by	OK?
Does fixed internal lighting comply with paragraphs 42 to 44?	Schedule of installed fixed internal lighting Standard lights = 0 Low energy lights = 10 Percentage of low energy lights = 100% Minimum = 75 %	Authorised SAP Assessor	Passed
Criterion 3: the dwelling has appropriate passive control measures to limit solar gains			
Does the dwelling have a strong tendency to high summertime temperatures?	Overheating risk (June) = Slight (20.84°) Overheating risk (July) = Medium (22.51°) Overheating risk (August) = Medium (22.14°) Region = Thames Thermal mass parameter = 250.00 Ventilation rate in hot weather = 4.00 ach Blinds/curtains = None	Authorised SAP Assessor	Passed
Criterion 4: the performance of the dwelling, as designed, is consistent with the DER			
Design air permeability (m ³ /(h.m ²) at 50Pa)	Design air permeability = 3.00 Max air permeability = 10.00	Authorised SAP Assessor	Passed
Mechanical ventilation system Specific fan power (SFP)	Mechanical ventilation with heat recovery: SFP = 0.50 W/(litre/sec) Max SFP = 1.5 W/(litre/sec) Heat recovery efficiency = 91.00 % Min heat recovery efficiency = 70.00 %	Authorised SAP Assessor	Passed
Have the key features of the design been included (or bettered) in practice?	The following party walls have a U-value less than 0.2W/m ² K: • Party Wall (0.00) Design air permeability of 3 m ³ /(h.m ²) is less than 4 m ³ /(h.m ²) at 50 Pa Community heating with CHP - Mains gas Use of the following low carbon or renewable technologies: • Photovoltaic array	Authorised SAP Assessor	

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Assessor name	Mr David Partington	Assessor number	5662
Client		Last modified	15/01/2018
Address	01 Hornsey Town Hall [Servicing Scheme TBC], London		

Check	Evidence	Produced by	OK?																		
Criterion 1: predicted carbon dioxide emission from proposed dwelling does not exceed the target																					
TER (kg CO ₂ /m ² .a)	Fuel = N/A Fuel factor = 1.00 TER = 13.05	Authorised SAP Assessor																			
DER for dwelling as designed (kg CO ₂ /m ² .a)	DER = 11.79	Authorised SAP Assessor																			
Are emissions from dwelling as designed less than or equal to the target?	DER 11.79 < TER 13.05	Authorised SAP Assessor	Passed																		
Is the fabric energy efficiency of the dwelling as designed less than or equal to the target?	DFEE 33.4 < TFEE 35.2	Authorised SAP Assessor	Passed																		
Criterion 2: the performance of the building fabric and the heating, hot water and fixed lighting systems should be no worse than the design limits																					
Fabric U-values																					
Are all U-values better than the design limits in Table 2?	<table><tr><th>Element</th><th colspan="2">Weighted average Highest</th></tr><tr><td>Wall</td><td>0.17 (max 0.30)</td><td>0.17 (max 0.70)</td></tr><tr><td>Party wall</td><td>0.00 (max 0.20)</td><td>N/A</td></tr><tr><td>Floor</td><td colspan="2">(no floor)</td></tr><tr><td>Roof</td><td colspan="2">(no roof)</td></tr><tr><td>Openings</td><td>1.35 (max 2.00)</td><td>1.40 (max 3.30)</td></tr></table>	Element	Weighted average Highest		Wall	0.17 (max 0.30)	0.17 (max 0.70)	Party wall	0.00 (max 0.20)	N/A	Floor	(no floor)		Roof	(no roof)		Openings	1.35 (max 2.00)	1.40 (max 3.30)	Authorised SAP Assessor	Passed
Element	Weighted average Highest																				
Wall	0.17 (max 0.30)	0.17 (max 0.70)																			
Party wall	0.00 (max 0.20)	N/A																			
Floor	(no floor)																				
Roof	(no roof)																				
Openings	1.35 (max 2.00)	1.40 (max 3.30)																			
Thermal bridging																					
How has the loss from thermal bridges been calculated?	Thermal bridging calculated using default y-value of 0.15	Authorised SAP Assessor																			
Heating and hot water systems																					
Does the efficiency of the heating systems meet the minimum value set out in the Domestic Heating Compliance Guide?	Community heating scheme Secondary heating system: None	Authorised SAP Assessor	N/A																		
Does the insulation of the hot water cylinder meet the standards set out in the Domestic Heating Compliance Guide?	No hot water cylinder in the dwelling	Authorised SAP Assessor																			
Do controls meet the minimum controls provision set out in the Domestic Heating Compliance Guide?	Space heating control: Charging system linked to use, programmer and TRVs No hot water cylinder in the dwelling	Authorised SAP Assessor	Passed																		
Fixed internal lighting																					

Check	Evidence	Produced by	OK?
Does fixed internal lighting comply with paragraphs 42 to 44?	Schedule of installed fixed internal lighting Standard lights = 0 Low energy lights = 10 Percentage of low energy lights = 100% Minimum = 75 %	Authorised SAP Assessor	Passed
Criterion 3: the dwelling has appropriate passive control measures to limit solar gains			
Does the dwelling have a strong tendency to high summertime temperatures?	Overheating risk (June) = Slight (20.84°) Overheating risk (July) = Medium (22.51°) Overheating risk (August) = Medium (22.14°) Region = Thames Thermal mass parameter = 250.00 Ventilation rate in hot weather = 4.00 ach Blinds/curtains = None	Authorised SAP Assessor	Passed
Criterion 4: the performance of the dwelling, as designed, is consistent with the DER			
Design air permeability (m ³ /(h.m ²) at 50Pa)	Design air permeability = 3.00 Max air permeability = 10.00	Authorised SAP Assessor	Passed
Mechanical ventilation system Specific fan power (SFP)	Mechanical ventilation with heat recovery: SFP = 0.50 W/(litre/sec) Max SFP = 1.5 W/(litre/sec) Heat recovery efficiency = 91.00 % Min heat recovery efficiency = 70.00 %	Authorised SAP Assessor	Passed
Have the key features of the design been included (or bettered) in practice?	The following party walls have a U-value less than 0.2W/m ² K: • Party Wall (0.00) Design air permeability of 3 m ³ /(h.m ²) is less than 4 m ³ /(h.m ²) at 50 Pa	Authorised SAP Assessor	

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Assessor name	Mr David Partington	Assessor number	5662
Client		Last modified	15/01/2018
Address	02 Blcok A, Hornsey Town Hall [Servicing Scheme TBC], London		

Check	Evidence	Produced by	OK?																		
Criterion 1: predicted carbon dioxide emission from proposed dwelling does not exceed the target																					
TER (kg CO ₂ /m ² .a)	Fuel = N/A Fuel factor = 1.00 TER = 12.00	Authorised SAP Assessor																			
DER for dwelling as designed (kg CO ₂ /m ² .a)	DER = 7.82	Authorised SAP Assessor																			
Are emissions from dwelling as designed less than or equal to the target?	DER 7.82 < TER 12.00	Authorised SAP Assessor	Passed																		
Is the fabric energy efficiency of the dwellling as designed less than or equal to the target?	DFEE 27.6 < TFEE 28.8	Authorised SAP Assessor	Passed																		
Criterion 2: the performance of the building fabric and the heating, hot water and fixed lighting systems should be no worse than the design limits																					
Fabric U-values																					
Are all U-values better than the design limits in Table 2?	<table><tr><th>Element</th><th colspan="2">Weighted average Highest</th></tr><tr><td>Wall</td><td>0.17 (max 0.30)</td><td>0.17 (max 0.70)</td></tr><tr><td>Party wall</td><td>0.00 (max 0.20)</td><td>N/A</td></tr><tr><td>Floor</td><td>(no floor)</td><td></td></tr><tr><td>Roof</td><td>(no roof)</td><td></td></tr><tr><td>Openings</td><td>1.35 (max 2.00)</td><td>1.40 (max 3.30)</td></tr></table>	Element	Weighted average Highest		Wall	0.17 (max 0.30)	0.17 (max 0.70)	Party wall	0.00 (max 0.20)	N/A	Floor	(no floor)		Roof	(no roof)		Openings	1.35 (max 2.00)	1.40 (max 3.30)	Authorised SAP Assessor	Passed
Element	Weighted average Highest																				
Wall	0.17 (max 0.30)	0.17 (max 0.70)																			
Party wall	0.00 (max 0.20)	N/A																			
Floor	(no floor)																				
Roof	(no roof)																				
Openings	1.35 (max 2.00)	1.40 (max 3.30)																			
Thermal bridging																					
How has the loss from thermal bridges been calculated?	Thermal bridging calculated using default y-value of 0.15	Authorised SAP Assessor																			
Heating and hot water systems																					
Does the efficiency of the heating systems meet the minimum value set out in the Domestic Heating Compliance Guide?	Community heating scheme Secondary heating system: None	Authorised SAP Assessor	N/A																		
Does the insulation of the hot water cylinder meet the standards set out in the Domestic Heating Compliance Guide?	No hot water cylinder in the dwelling	Authorised SAP Assessor																			
Do controls meet the minimum controls provision set out in the Domestic Heating Compliance Guide?	Space heating control: Charging system linked to use, programmer and TRVs No hot water cylinder in the dwelling	Authorised SAP Assessor	Passed																		
Fixed internal lighting																					

Check	Evidence	Produced by	OK?
Does fixed internal lighting comply with paragraphs 42 to 44?	Schedule of installed fixed internal lighting Standard lights = 0 Low energy lights = 10 Percentage of low energy lights = 100% Minimum = 75 %	Authorised SAP Assessor	Passed
Criterion 3: the dwelling has appropriate passive control measures to limit solar gains			
Does the dwelling have a strong tendency to high summertime temperatures?	Overheating risk (June) = Slight (20.63°) Overheating risk (July) = Medium (22.36°) Overheating risk (August) = Medium (22.19°) Region = Thames Thermal mass parameter = 250.00 Ventilation rate in hot weather = 4.00 ach Blinds/curtains = None	Authorised SAP Assessor	Passed
Criterion 4: the performance of the dwelling, as designed, is consistent with the DER			
Design air permeability (m ³ /(h.m ²) at 50Pa)	Design air permeability = 3.00 Max air permeability = 10.00	Authorised SAP Assessor	Passed
Mechanical ventilation system Specific fan power (SFP)	Mechanical ventilation with heat recovery: SFP = 0.50 W/(litre/sec) Max SFP = 1.5 W/(litre/sec) Heat recovery efficiency = 91.00 % Min heat recovery efficiency = 70.00 %	Authorised SAP Assessor	Passed
Have the key features of the design been included (or bettered) in practice?	The following party walls have a U-value less than 0.2W/m ² K: • Wall 1 (0.00) Design air permeability of 3 m ³ /(h.m ²) is less than 4 m ³ /(h.m ²) at 50 Pa Community heating with CHP - Mains gas	Authorised SAP Assessor	

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Assessor name	Mr David Partington	Assessor number	5662
Client		Last modified	15/01/2018
Address	02 Blcok A, Hornsey Town Hall [Servicing Scheme TBC], London		

Check	Evidence	Produced by	OK?																		
Criterion 1: predicted carbon dioxide emission from proposed dwelling does not exceed the target																					
TER (kg CO ₂ /m ² .a)	Fuel = N/A Fuel factor = 1.00 TER = 12.00	Authorised SAP Assessor																			
DER for dwelling as designed (kg CO ₂ /m ² .a)	DER = 5.63	Authorised SAP Assessor																			
Are emissions from dwelling as designed less than or equal to the target?	DER 5.63 < TER 12.00	Authorised SAP Assessor	Passed																		
Is the fabric energy efficiency of the dwelling as designed less than or equal to the target?	DFEE 27.6 < TFEE 28.8	Authorised SAP Assessor	Passed																		
Criterion 2: the performance of the building fabric and the heating, hot water and fixed lighting systems should be no worse than the design limits																					
Fabric U-values																					
Are all U-values better than the design limits in Table 2?	<table><tr><th>Element</th><th colspan="2">Weighted average Highest</th></tr><tr><td>Wall</td><td>0.17 (max 0.30)</td><td>0.17 (max 0.70)</td></tr><tr><td>Party wall</td><td>0.00 (max 0.20)</td><td>N/A</td></tr><tr><td>Floor</td><td>(no floor)</td><td></td></tr><tr><td>Roof</td><td>(no roof)</td><td></td></tr><tr><td>Openings</td><td>1.35 (max 2.00)</td><td>1.40 (max 3.30)</td></tr></table>	Element	Weighted average Highest		Wall	0.17 (max 0.30)	0.17 (max 0.70)	Party wall	0.00 (max 0.20)	N/A	Floor	(no floor)		Roof	(no roof)		Openings	1.35 (max 2.00)	1.40 (max 3.30)	Authorised SAP Assessor	Passed
Element	Weighted average Highest																				
Wall	0.17 (max 0.30)	0.17 (max 0.70)																			
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Openings	1.35 (max 2.00)	1.40 (max 3.30)																			
Thermal bridging																					
How has the loss from thermal bridges been calculated?	Thermal bridging calculated using default y-value of 0.15	Authorised SAP Assessor																			
Heating and hot water systems																					
Does the efficiency of the heating systems meet the minimum value set out in the Domestic Heating Compliance Guide?	Community heating scheme Secondary heating system: None	Authorised SAP Assessor	N/A																		
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Do controls meet the minimum controls provision set out in the Domestic Heating Compliance Guide?	Space heating control: Charging system linked to use, programmer and TRVs No hot water cylinder in the dwelling	Authorised SAP Assessor	Passed																		
Fixed internal lighting																					

Check	Evidence	Produced by	OK?
Does fixed internal lighting comply with paragraphs 42 to 44?	Schedule of installed fixed internal lighting Standard lights = 0 Low energy lights = 10 Percentage of low energy lights = 100% Minimum = 75 %	Authorised SAP Assessor	Passed
Criterion 3: the dwelling has appropriate passive control measures to limit solar gains			
Does the dwelling have a strong tendency to high summertime temperatures?	Overheating risk (June) = Slight (20.63°) Overheating risk (July) = Medium (22.36°) Overheating risk (August) = Medium (22.19°) Region = Thames Thermal mass parameter = 250.00 Ventilation rate in hot weather = 4.00 ach Blinds/curtains = None	Authorised SAP Assessor	Passed
Criterion 4: the performance of the dwelling, as designed, is consistent with the DER			
Design air permeability (m ³ /(h.m ²) at 50Pa)	Design air permeability = 3.00 Max air permeability = 10.00	Authorised SAP Assessor	Passed
Mechanical ventilation system Specific fan power (SFP)	Mechanical ventilation with heat recovery: SFP = 0.50 W/(litre/sec) Max SFP = 1.5 W/(litre/sec) Heat recovery efficiency = 91.00 % Min heat recovery efficiency = 70.00 %	Authorised SAP Assessor	Passed
Have the key features of the design been included (or bettered) in practice?	The following party walls have a U-value less than 0.2W/m ² K: • Wall 1 (0.00) Design air permeability of 3 m ³ /(h.m ²) is less than 4 m ³ /(h.m ²) at 50 Pa Community heating with CHP - Mains gas Use of the following low carbon or renewable technologies: • Photovoltaic array	Authorised SAP Assessor	

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Client		Last modified	15/01/2018
Address	02 Blcok A, Hornsey Town Hall [Servicing Scheme TBC], London		

Check	Evidence	Produced by	OK?																		
Criterion 1: predicted carbon dioxide emission from proposed dwelling does not exceed the target																					
TER (kg CO ₂ /m ² .a)	Fuel = N/A Fuel factor = 1.00 TER = 12.00	Authorised SAP Assessor																			
DER for dwelling as designed (kg CO ₂ /m ² .a)	DER = 10.87	Authorised SAP Assessor																			
Are emissions from dwelling as designed less than or equal to the target?	DER 10.87 < TER 12.00	Authorised SAP Assessor	Passed																		
Is the fabric energy efficiency of the dwellling as designed less than or equal to the target?	DFEE 27.6 < TFEE 28.8	Authorised SAP Assessor	Passed																		
Criterion 2: the performance of the building fabric and the heating, hot water and fixed lighting systems should be no worse than the design limits																					
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Element	Weighted average Highest																				
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Thermal bridging																					
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Does the insulation of the hot water cylinder meet the standards set out in the Domestic Heating Compliance Guide?	No hot water cylinder in the dwelling	Authorised SAP Assessor																			
Do controls meet the minimum controls provision set out in the Domestic Heating Compliance Guide?	Space heating control: Charging system linked to use, programmer and TRVs No hot water cylinder in the dwelling	Authorised SAP Assessor	Passed																		
Fixed internal lighting																					

Check	Evidence	Produced by	OK?
Does fixed internal lighting comply with paragraphs 42 to 44?	Schedule of installed fixed internal lighting Standard lights = 0 Low energy lights = 10 Percentage of low energy lights = 100% Minimum = 75 %	Authorised SAP Assessor	Passed
Criterion 3: the dwelling has appropriate passive control measures to limit solar gains			
Does the dwelling have a strong tendency to high summertime temperatures?	Overheating risk (June) = Slight (20.63°) Overheating risk (July) = Medium (22.36°) Overheating risk (August) = Medium (22.19°) Region = Thames Thermal mass parameter = 250.00 Ventilation rate in hot weather = 4.00 ach Blinds/curtains = None	Authorised SAP Assessor	Passed
Criterion 4: the performance of the dwelling, as designed, is consistent with the DER			
Design air permeability (m ³ /(h.m ²) at 50Pa)	Design air permeability = 3.00 Max air permeability = 10.00	Authorised SAP Assessor	Passed
Mechanical ventilation system Specific fan power (SFP)	Mechanical ventilation with heat recovery: SFP = 0.50 W/(litre/sec) Max SFP = 1.5 W/(litre/sec) Heat recovery efficiency = 91.00 % Min heat recovery efficiency = 70.00 %	Authorised SAP Assessor	Passed
Have the key features of the design been included (or bettered) in practice?	The following party walls have a U-value less than 0.2W/m ² K: • Wall 1 (0.00) Design air permeability of 3 m ³ /(h.m ²) is less than 4 m ³ /(h.m ²) at 50 Pa	Authorised SAP Assessor	

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Assessor name	Mr David Partington	Assessor number	5662
Client		Last modified	15/01/2018
Address	03 Hornsey Town Hall [Servicing Scheme TBC], London		

Check	Evidence	Produced by	OK?																		
Criterion 1: predicted carbon dioxide emission from proposed dwelling does not exceed the target																					
TER (kg CO ₂ /m ² .a)	Fuel = N/A Fuel factor = 1.00 TER = 13.12	Authorised SAP Assessor																			
DER for dwelling as designed (kg CO ₂ /m ² .a)	DER = 8.11	Authorised SAP Assessor																			
Are emissions from dwelling as designed less than or equal to the target?	DER 8.11 < TER 13.12	Authorised SAP Assessor	Passed																		
Is the fabric energy efficiency of the dwellling as designed less than or equal to the target?	DFEE 29.5 < TFEE 33.4	Authorised SAP Assessor	Passed																		
Criterion 2: the performance of the building fabric and the heating, hot water and fixed lighting systems should be no worse than the design limits																					
Fabric U-values																					
Are all U-values better than the design limits in Table 2?	<table><tr><th>Element</th><th colspan="2">Weighted average Highest</th></tr><tr><td>Wall</td><td>0.17 (max 0.30)</td><td>0.17 (max 0.70)</td></tr><tr><td>Party wall</td><td>0.00 (max 0.20)</td><td>N/A</td></tr><tr><td>Floor</td><td>(no floor)</td><td></td></tr><tr><td>Roof</td><td>(no roof)</td><td></td></tr><tr><td>Openings</td><td>1.34 (max 2.00)</td><td>1.40 (max 3.30)</td></tr></table>	Element	Weighted average Highest		Wall	0.17 (max 0.30)	0.17 (max 0.70)	Party wall	0.00 (max 0.20)	N/A	Floor	(no floor)		Roof	(no roof)		Openings	1.34 (max 2.00)	1.40 (max 3.30)	Authorised SAP Assessor	Passed
Element	Weighted average Highest																				
Wall	0.17 (max 0.30)	0.17 (max 0.70)																			
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Floor	(no floor)																				
Roof	(no roof)																				
Openings	1.34 (max 2.00)	1.40 (max 3.30)																			
Thermal bridging																					
How has the loss from thermal bridges been calculated?	Thermal bridging calculated using default y-value of 0.15	Authorised SAP Assessor																			
Heating and hot water systems																					
Does the efficiency of the heating systems meet the minimum value set out in the Domestic Heating Compliance Guide?	Community heating scheme Secondary heating system: None	Authorised SAP Assessor	N/A																		
Does the insulation of the hot water cylinder meet the standards set out in the Domestic Heating Compliance Guide?	No hot water cylinder in the dwelling	Authorised SAP Assessor																			
Do controls meet the minimum controls provision set out in the Domestic Heating Compliance Guide?	Space heating control: Charging system linked to use, programmer and TRVs No hot water cylinder in the dwelling	Authorised SAP Assessor	Passed																		
Fixed internal lighting																					

Check	Evidence	Produced by	OK?
Does fixed internal lighting comply with paragraphs 42 to 44?	Schedule of installed fixed internal lighting Standard lights = 0 Low energy lights = 10 Percentage of low energy lights = 100% Minimum = 75 %	Authorised SAP Assessor	Passed
Criterion 3: the dwelling has appropriate passive control measures to limit solar gains			
Does the dwelling have a strong tendency to high summertime temperatures?	Overheating risk (June) = Slight (20.52°) Overheating risk (July) = Medium (22.19°) Overheating risk (August) = Slight (21.78°) Region = Thames Thermal mass parameter = 250.00 Ventilation rate in hot weather = 4.00 ach Blinds/curtains = None	Authorised SAP Assessor	Passed
Criterion 4: the performance of the dwelling, as designed, is consistent with the DER			
Design air permeability (m ³ /(h.m ²) at 50Pa)	Design air permeability = 3.00 Max air permeability = 10.00	Authorised SAP Assessor	Passed
Mechanical ventilation system Specific fan power (SFP)	Mechanical ventilation with heat recovery: SFP = 0.50 W/(litre/sec) Max SFP = 1.5 W/(litre/sec) Heat recovery efficiency = 91.00 % Min heat recovery efficiency = 70.00 %	Authorised SAP Assessor	Passed
Have the key features of the design been included (or bettered) in practice?	The following party walls have a U-value less than 0.2W/m ² K: • Wall 1 (0.00) Design air permeability of 3 m ³ /(h.m ²) is less than 4 m ³ /(h.m ²) at 50 Pa Community heating with CHP - Mains gas	Authorised SAP Assessor	

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Assessor name	Mr David Partington	Assessor number	5662
Client		Last modified	15/01/2018
Address	03 Hornsey Town Hall [Servicing Scheme TBC], London		

Check	Evidence	Produced by	OK?																		
Criterion 1: predicted carbon dioxide emission from proposed dwelling does not exceed the target																					
TER (kg CO ₂ /m ² .a)	Fuel = N/A Fuel factor = 1.00 TER = 13.12	Authorised SAP Assessor																			
DER for dwelling as designed (kg CO ₂ /m ² .a)	DER = 5.93	Authorised SAP Assessor																			
Are emissions from dwelling as designed less than or equal to the target?	DER 5.93 < TER 13.12	Authorised SAP Assessor	Passed																		
Is the fabric energy efficiency of the dwellling as designed less than or equal to the target?	DFEE 29.5 < TFEE 33.4	Authorised SAP Assessor	Passed																		
Criterion 2: the performance of the building fabric and the heating, hot water and fixed lighting systems should be no worse than the design limits																					
Fabric U-values																					
Are all U-values better than the design limits in Table 2?	<table><tr><th>Element</th><th colspan="2">Weighted average Highest</th></tr><tr><td>Wall</td><td>0.17 (max 0.30)</td><td>0.17 (max 0.70)</td></tr><tr><td>Party wall</td><td>0.00 (max 0.20)</td><td>N/A</td></tr><tr><td>Floor</td><td>(no floor)</td><td></td></tr><tr><td>Roof</td><td>(no roof)</td><td></td></tr><tr><td>Openings</td><td>1.34 (max 2.00)</td><td>1.40 (max 3.30)</td></tr></table>	Element	Weighted average Highest		Wall	0.17 (max 0.30)	0.17 (max 0.70)	Party wall	0.00 (max 0.20)	N/A	Floor	(no floor)		Roof	(no roof)		Openings	1.34 (max 2.00)	1.40 (max 3.30)	Authorised SAP Assessor	Passed
Element	Weighted average Highest																				
Wall	0.17 (max 0.30)	0.17 (max 0.70)																			
Party wall	0.00 (max 0.20)	N/A																			
Floor	(no floor)																				
Roof	(no roof)																				
Openings	1.34 (max 2.00)	1.40 (max 3.30)																			
Thermal bridging																					
How has the loss from thermal bridges been calculated?	Thermal bridging calculated using default y-value of 0.15	Authorised SAP Assessor																			
Heating and hot water systems																					
Does the efficiency of the heating systems meet the minimum value set out in the Domestic Heating Compliance Guide?	Community heating scheme Secondary heating system: None	Authorised SAP Assessor	N/A																		
Does the insulation of the hot water cylinder meet the standards set out in the Domestic Heating Compliance Guide?	No hot water cylinder in the dwelling	Authorised SAP Assessor																			
Do controls meet the minimum controls provision set out in the Domestic Heating Compliance Guide?	Space heating control: Charging system linked to use, programmer and TRVs No hot water cylinder in the dwelling	Authorised SAP Assessor	Passed																		
Fixed internal lighting																					

Check	Evidence	Produced by	OK?
Does fixed internal lighting comply with paragraphs 42 to 44?	Schedule of installed fixed internal lighting Standard lights = 0 Low energy lights = 10 Percentage of low energy lights = 100% Minimum = 75 %	Authorised SAP Assessor	Passed
Criterion 3: the dwelling has appropriate passive control measures to limit solar gains			
Does the dwelling have a strong tendency to high summertime temperatures?	Overheating risk (June) = Slight (20.52°) Overheating risk (July) = Medium (22.19°) Overheating risk (August) = Slight (21.78°) Region = Thames Thermal mass parameter = 250.00 Ventilation rate in hot weather = 4.00 ach Blinds/curtains = None	Authorised SAP Assessor	Passed
Criterion 4: the performance of the dwelling, as designed, is consistent with the DER			
Design air permeability (m ³ /(h.m ²) at 50Pa)	Design air permeability = 3.00 Max air permeability = 10.00	Authorised SAP Assessor	Passed
Mechanical ventilation system Specific fan power (SFP)	Mechanical ventilation with heat recovery: SFP = 0.50 W/(litre/sec) Max SFP = 1.5 W/(litre/sec) Heat recovery efficiency = 91.00 % Min heat recovery efficiency = 70.00 %	Authorised SAP Assessor	Passed
Have the key features of the design been included (or bettered) in practice?	The following party walls have a U-value less than 0.2W/m ² K: • Wall 1 (0.00) Design air permeability of 3 m ³ /(h.m ²) is less than 4 m ³ /(h.m ²) at 50 Pa Community heating with CHP - Mains gas Use of the following low carbon or renewable technologies: • Photovoltaic array	Authorised SAP Assessor	

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Assessor name	Mr David Partington	Assessor number	5662
Client		Last modified	15/01/2018
Address	03 Hornsey Town Hall [Servicing Scheme TBC], London		

Check	Evidence	Produced by	OK?																		
Criterion 1: predicted carbon dioxide emission from proposed dwelling does not exceed the target																					
TER (kg CO ₂ /m ² .a)	Fuel = N/A Fuel factor = 1.00 TER = 13.12	Authorised SAP Assessor																			
DER for dwelling as designed (kg CO ₂ /m ² .a)	DER = 11.31	Authorised SAP Assessor																			
Are emissions from dwelling as designed less than or equal to the target?	DER 11.31 < TER 13.12	Authorised SAP Assessor	Passed																		
Is the fabric energy efficiency of the dwellling as designed less than or equal to the target?	DFEE 29.5 < TFEE 33.4	Authorised SAP Assessor	Passed																		
Criterion 2: the performance of the building fabric and the heating, hot water and fixed lighting systems should be no worse than the design limits																					
Fabric U-values																					
Are all U-values better than the design limits in Table 2?	<table><tr><th>Element</th><th colspan="2">Weighted average Highest</th></tr><tr><td>Wall</td><td>0.17 (max 0.30)</td><td>0.17 (max 0.70)</td></tr><tr><td>Party wall</td><td>0.00 (max 0.20)</td><td>N/A</td></tr><tr><td>Floor</td><td>(no floor)</td><td></td></tr><tr><td>Roof</td><td>(no roof)</td><td></td></tr><tr><td>Openings</td><td>1.34 (max 2.00)</td><td>1.40 (max 3.30)</td></tr></table>	Element	Weighted average Highest		Wall	0.17 (max 0.30)	0.17 (max 0.70)	Party wall	0.00 (max 0.20)	N/A	Floor	(no floor)		Roof	(no roof)		Openings	1.34 (max 2.00)	1.40 (max 3.30)	Authorised SAP Assessor	Passed
Element	Weighted average Highest																				
Wall	0.17 (max 0.30)	0.17 (max 0.70)																			
Party wall	0.00 (max 0.20)	N/A																			
Floor	(no floor)																				
Roof	(no roof)																				
Openings	1.34 (max 2.00)	1.40 (max 3.30)																			
Thermal bridging																					
How has the loss from thermal bridges been calculated?	Thermal bridging calculated using default y-value of 0.15	Authorised SAP Assessor																			
Heating and hot water systems																					
Does the efficiency of the heating systems meet the minimum value set out in the Domestic Heating Compliance Guide?	Community heating scheme Secondary heating system: None	Authorised SAP Assessor	N/A																		
Does the insulation of the hot water cylinder meet the standards set out in the Domestic Heating Compliance Guide?	No hot water cylinder in the dwelling	Authorised SAP Assessor																			
Do controls meet the minimum controls provision set out in the Domestic Heating Compliance Guide?	Space heating control: Charging system linked to use, programmer and TRVs No hot water cylinder in the dwelling	Authorised SAP Assessor	Passed																		
Fixed internal lighting																					

Check	Evidence	Produced by	OK?
Does fixed internal lighting comply with paragraphs 42 to 44?	Schedule of installed fixed internal lighting Standard lights = 0 Low energy lights = 10 Percentage of low energy lights = 100% Minimum = 75 %	Authorised SAP Assessor	Passed
Criterion 3: the dwelling has appropriate passive control measures to limit solar gains			
Does the dwelling have a strong tendency to high summertime temperatures?	Overheating risk (June) = Slight (20.52°) Overheating risk (July) = Medium (22.19°) Overheating risk (August) = Slight (21.78°) Region = Thames Thermal mass parameter = 250.00 Ventilation rate in hot weather = 4.00 ach Blinds/curtains = None	Authorised SAP Assessor	Passed
Criterion 4: the performance of the dwelling, as designed, is consistent with the DER			
Design air permeability (m ³ /(h.m ²) at 50Pa)	Design air permeability = 3.00 Max air permeability = 10.00	Authorised SAP Assessor	Passed
Mechanical ventilation system Specific fan power (SFP)	Mechanical ventilation with heat recovery: SFP = 0.50 W/(litre/sec) Max SFP = 1.5 W/(litre/sec) Heat recovery efficiency = 91.00 % Min heat recovery efficiency = 70.00 %	Authorised SAP Assessor	Passed
Have the key features of the design been included (or bettered) in practice?	The following party walls have a U-value less than 0.2W/m ² K: • Wall 1 (0.00) Design air permeability of 3 m ³ /(h.m ²) is less than 4 m ³ /(h.m ²) at 50 Pa	Authorised SAP Assessor	

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Assessor name	Mr David Partington	Assessor number	5662
Client		Last modified	15/01/2018
Address	12 Hornsey Town Hall [Servicing Scheme TBC], London		

Check	Evidence	Produced by	OK?																		
Criterion 1: predicted carbon dioxide emission from proposed dwelling does not exceed the target																					
TER (kg CO ₂ /m ² .a)	Fuel = N/A Fuel factor = 1.00 TER = 15.29	Authorised SAP Assessor																			
DER for dwelling as designed (kg CO ₂ /m ² .a)	DER = 9.79	Authorised SAP Assessor																			
Are emissions from dwelling as designed less than or equal to the target?	DER 9.79 < TER 15.29	Authorised SAP Assessor	Passed																		
Is the fabric energy efficiency of the dwelling as designed less than or equal to the target?	DFEE 33.7 < TFEE 33.8	Authorised SAP Assessor	Passed																		
Criterion 2: the performance of the building fabric and the heating, hot water and fixed lighting systems should be no worse than the design limits																					
Fabric U-values																					
Are all U-values better than the design limits in Table 2?	<table><tr><th>Element</th><th colspan="2">Weighted average Highest</th></tr><tr><td>Wall</td><td>0.17 (max 0.30)</td><td>0.17 (max 0.70)</td></tr><tr><td>Party wall</td><td>0.00 (max 0.20)</td><td>N/A</td></tr><tr><td>Floor</td><td>(no floor)</td><td></td></tr><tr><td>Roof</td><td>(no roof)</td><td></td></tr><tr><td>Openings</td><td>1.34 (max 2.00)</td><td>1.40 (max 3.30)</td></tr></table>	Element	Weighted average Highest		Wall	0.17 (max 0.30)	0.17 (max 0.70)	Party wall	0.00 (max 0.20)	N/A	Floor	(no floor)		Roof	(no roof)		Openings	1.34 (max 2.00)	1.40 (max 3.30)	Authorised SAP Assessor	Passed
Element	Weighted average Highest																				
Wall	0.17 (max 0.30)	0.17 (max 0.70)																			
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Floor	(no floor)																				
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Openings	1.34 (max 2.00)	1.40 (max 3.30)																			
Thermal bridging																					
How has the loss from thermal bridges been calculated?	Thermal bridging calculated using default y-value of 0.15	Authorised SAP Assessor																			
Heating and hot water systems																					
Does the efficiency of the heating systems meet the minimum value set out in the Domestic Heating Compliance Guide?	Community heating scheme Secondary heating system: None	Authorised SAP Assessor	N/A																		
Does the insulation of the hot water cylinder meet the standards set out in the Domestic Heating Compliance Guide?	No hot water cylinder in the dwelling	Authorised SAP Assessor																			
Do controls meet the minimum controls provision set out in the Domestic Heating Compliance Guide?	Space heating control: Charging system linked to use, programmer and at least 2 room thermostats No hot water cylinder in the dwelling	Authorised SAP Assessor	Passed																		
Fixed internal lighting																					

Check	Evidence	Produced by	OK?
Does fixed internal lighting comply with paragraphs 42 to 44?	Schedule of installed fixed internal lighting Standard lights = 0 Low energy lights = 10 Percentage of low energy lights = 100% Minimum = 75 %	Authorised SAP Assessor	Passed
Criterion 3: the dwelling has appropriate passive control measures to limit solar gains			
Does the dwelling have a strong tendency to high summertime temperatures?	Overheating risk (June) = Slight (20.89°) Overheating risk (July) = Medium (22.55°) Overheating risk (August) = Medium (22.13°) Region = Thames Thermal mass parameter = 250.00 Ventilation rate in hot weather = 4.00 ach Blinds/curtains = None	Authorised SAP Assessor	Passed
Criterion 4: the performance of the dwelling, as designed, is consistent with the DER			
Design air permeability (m ³ /(h.m ²) at 50Pa)	Design air permeability = 3.00 Max air permeability = 10.00	Authorised SAP Assessor	Passed
Mechanical ventilation system Specific fan power (SFP)	Mechanical ventilation with heat recovery: SFP = 0.42 W/(litre/sec) Max SFP = 1.5 W/(litre/sec) Heat recovery efficiency = 91.00 % Min heat recovery efficiency = 70.00 %	Authorised SAP Assessor	Passed
Have the key features of the design been included (or bettered) in practice?	The following party walls have a U-value less than 0.2W/m ² K: • Party Wall (0.00) Design air permeability of 3 m ³ /(h.m ²) is less than 4 m ³ /(h.m ²) at 50 Pa Community heating with CHP - Mains gas	Authorised SAP Assessor	

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Assessor name	Mr David Partington	Assessor number	5662
Client		Last modified	15/01/2018
Address	12 Hornsey Town Hall [Servicing Scheme TBC], London		

Check	Evidence	Produced by	OK?																		
Criterion 1: predicted carbon dioxide emission from proposed dwelling does not exceed the target																					
TER (kg CO ₂ /m ² .a)	Fuel = N/A Fuel factor = 1.00 TER = 15.29	Authorised SAP Assessor																			
DER for dwelling as designed (kg CO ₂ /m ² .a)	DER = 7.60	Authorised SAP Assessor																			
Are emissions from dwelling as designed less than or equal to the target?	DER 7.60 < TER 15.29	Authorised SAP Assessor	Passed																		
Is the fabric energy efficiency of the dwelling as designed less than or equal to the target?	DFEE 33.7 < TFEE 33.8	Authorised SAP Assessor	Passed																		
Criterion 2: the performance of the building fabric and the heating, hot water and fixed lighting systems should be no worse than the design limits																					
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Element	Weighted average Highest																				
Wall	0.17 (max 0.30)	0.17 (max 0.70)																			
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Thermal bridging																					
How has the loss from thermal bridges been calculated?	Thermal bridging calculated using default y-value of 0.15	Authorised SAP Assessor																			
Heating and hot water systems																					
Does the efficiency of the heating systems meet the minimum value set out in the Domestic Heating Compliance Guide?	Community heating scheme Secondary heating system: None	Authorised SAP Assessor	N/A																		
Does the insulation of the hot water cylinder meet the standards set out in the Domestic Heating Compliance Guide?	No hot water cylinder in the dwelling	Authorised SAP Assessor																			
Do controls meet the minimum controls provision set out in the Domestic Heating Compliance Guide?	Space heating control: Charging system linked to use, programmer and at least 2 room thermostats No hot water cylinder in the dwelling	Authorised SAP Assessor	Passed																		
Fixed internal lighting																					

Check	Evidence	Produced by	OK?
Does fixed internal lighting comply with paragraphs 42 to 44?	Schedule of installed fixed internal lighting Standard lights = 0 Low energy lights = 10 Percentage of low energy lights = 100% Minimum = 75 %	Authorised SAP Assessor	Passed
Criterion 3: the dwelling has appropriate passive control measures to limit solar gains			
Does the dwelling have a strong tendency to high summertime temperatures?	Overheating risk (June) = Slight (20.89°) Overheating risk (July) = Medium (22.55°) Overheating risk (August) = Medium (22.13°) Region = Thames Thermal mass parameter = 250.00 Ventilation rate in hot weather = 4.00 ach Blinds/curtains = None	Authorised SAP Assessor	Passed
Criterion 4: the performance of the dwelling, as designed, is consistent with the DER			
Design air permeability (m ³ /(h.m ²) at 50Pa)	Design air permeability = 3.00 Max air permeability = 10.00	Authorised SAP Assessor	Passed
Mechanical ventilation system Specific fan power (SFP)	Mechanical ventilation with heat recovery: SFP = 0.42 W/(litre/sec) Max SFP = 1.5 W/(litre/sec) Heat recovery efficiency = 91.00 % Min heat recovery efficiency = 70.00 %	Authorised SAP Assessor	Passed
Have the key features of the design been included (or bettered) in practice?	The following party walls have a U-value less than 0.2W/m ² K: • Party Wall (0.00) Design air permeability of 3 m ³ /(h.m ²) is less than 4 m ³ /(h.m ²) at 50 Pa Community heating with CHP - Mains gas Use of the following low carbon or renewable technologies: • Photovoltaic array	Authorised SAP Assessor	

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Assessor name	Mr David Partington	Assessor number	5662
Client		Last modified	15/01/2018
Address	12 Hornsey Town Hall [Servicing Scheme TBC], London		

Check	Evidence	Produced by	OK?																		
Criterion 1: predicted carbon dioxide emission from proposed dwelling does not exceed the target																					
TER (kg CO ₂ /m ² .a)	Fuel = N/A Fuel factor = 1.00 TER = 15.29	Authorised SAP Assessor																			
DER for dwelling as designed (kg CO ₂ /m ² .a)	DER = 14.10	Authorised SAP Assessor																			
Are emissions from dwelling as designed less than or equal to the target?	DER 14.10 < TER 15.29	Authorised SAP Assessor	Passed																		
Is the fabric energy efficiency of the dwellling as designed less than or equal to the target?	DFEE 33.7 < TFEE 33.8	Authorised SAP Assessor	Passed																		
Criterion 2: the performance of the building fabric and the heating, hot water and fixed lighting systems should be no worse than the design limits																					
Fabric U-values																					
Are all U-values better than the design limits in Table 2?	<table><tr><th>Element</th><th colspan="2">Weighted average Highest</th></tr><tr><td>Wall</td><td>0.17 (max 0.30)</td><td>0.17 (max 0.70)</td></tr><tr><td>Party wall</td><td>0.00 (max 0.20)</td><td>N/A</td></tr><tr><td>Floor</td><td>(no floor)</td><td></td></tr><tr><td>Roof</td><td>(no roof)</td><td></td></tr><tr><td>Openings</td><td>1.34 (max 2.00)</td><td>1.40 (max 3.30)</td></tr></table>	Element	Weighted average Highest		Wall	0.17 (max 0.30)	0.17 (max 0.70)	Party wall	0.00 (max 0.20)	N/A	Floor	(no floor)		Roof	(no roof)		Openings	1.34 (max 2.00)	1.40 (max 3.30)	Authorised SAP Assessor	Passed
Element	Weighted average Highest																				
Wall	0.17 (max 0.30)	0.17 (max 0.70)																			
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Do controls meet the minimum controls provision set out in the Domestic Heating Compliance Guide?	Space heating control: Charging system linked to use, programmer and at least 2 room thermostats No hot water cylinder in the dwelling	Authorised SAP Assessor	Passed																		
Fixed internal lighting																					

Check	Evidence	Produced by	OK?
Does fixed internal lighting comply with paragraphs 42 to 44?	Schedule of installed fixed internal lighting Standard lights = 0 Low energy lights = 10 Percentage of low energy lights = 100% Minimum = 75 %	Authorised SAP Assessor	Passed
Criterion 3: the dwelling has appropriate passive control measures to limit solar gains			
Does the dwelling have a strong tendency to high summertime temperatures?	Overheating risk (June) = Slight (20.89°) Overheating risk (July) = Medium (22.55°) Overheating risk (August) = Medium (22.13°) Region = Thames Thermal mass parameter = 250.00 Ventilation rate in hot weather = 4.00 ach Blinds/curtains = None	Authorised SAP Assessor	Passed
Criterion 4: the performance of the dwelling, as designed, is consistent with the DER			
Design air permeability (m ³ /(h.m ²) at 50Pa)	Design air permeability = 3.00 Max air permeability = 10.00	Authorised SAP Assessor	Passed
Mechanical ventilation system Specific fan power (SFP)	Mechanical ventilation with heat recovery: SFP = 0.42 W/(litre/sec) Max SFP = 1.5 W/(litre/sec) Heat recovery efficiency = 91.00 % Min heat recovery efficiency = 70.00 %	Authorised SAP Assessor	Passed
Have the key features of the design been included (or bettered) in practice?	The following party walls have a U-value less than 0.2W/m ² K: • Party Wall (0.00) Design air permeability of 3 m ³ /(h.m ²) is less than 4 m ³ /(h.m ²) at 50 Pa	Authorised SAP Assessor	

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Assessor name	Mr David Partington	Assessor number	5662
Client		Last modified	15/01/2018
Address	13 Hornsey Town Hall [Servicing Scheme TBC], London		

Check	Evidence	Produced by	OK?																		
Criterion 1: predicted carbon dioxide emission from proposed dwelling does not exceed the target																					
TER (kg CO ₂ /m ² .a)	Fuel = N/A Fuel factor = 1.00 TER = 13.86	Authorised SAP Assessor																			
DER for dwelling as designed (kg CO ₂ /m ² .a)	DER = 8.65	Authorised SAP Assessor																			
Are emissions from dwelling as designed less than or equal to the target?	DER 8.65 < TER 13.86	Authorised SAP Assessor	Passed																		
Is the fabric energy efficiency of the dwelling as designed less than or equal to the target?	DFEE 31.4 < TFEE 34.8	Authorised SAP Assessor	Passed																		
Criterion 2: the performance of the building fabric and the heating, hot water and fixed lighting systems should be no worse than the design limits																					
Fabric U-values																					
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Floor	(no floor)																				
Roof	(no roof)																				
Openings	1.33 (max 2.00)	1.40 (max 3.30)																			
Thermal bridging																					
How has the loss from thermal bridges been calculated?	Thermal bridging calculated using default y-value of 0.15	Authorised SAP Assessor																			
Heating and hot water systems																					
Does the efficiency of the heating systems meet the minimum value set out in the Domestic Heating Compliance Guide?	Community heating scheme Secondary heating system: None	Authorised SAP Assessor	N/A																		
Does the insulation of the hot water cylinder meet the standards set out in the Domestic Heating Compliance Guide?	No hot water cylinder in the dwelling	Authorised SAP Assessor																			
Do controls meet the minimum controls provision set out in the Domestic Heating Compliance Guide?	Space heating control: Charging system linked to use, programmer and TRVs No hot water cylinder in the dwelling	Authorised SAP Assessor	Passed																		
Fixed internal lighting																					

Check	Evidence	Produced by	OK?
Does fixed internal lighting comply with paragraphs 42 to 44?	Schedule of installed fixed internal lighting Standard lights = 0 Low energy lights = 10 Percentage of low energy lights = 100% Minimum = 75 %	Authorised SAP Assessor	Passed
Criterion 3: the dwelling has appropriate passive control measures to limit solar gains			
Does the dwelling have a strong tendency to high summertime temperatures?	Overheating risk (June) = Not significant (20.37°) Overheating risk (July) = Medium (22.05°) Overheating risk (August) = Slight (21.67°) Region = Thames Thermal mass parameter = 250.00 Ventilation rate in hot weather = 4.00 ach Blinds/curtains = None	Authorised SAP Assessor	Passed
Criterion 4: the performance of the dwelling, as designed, is consistent with the DER			
Design air permeability (m ³ /(h.m ²) at 50Pa)	Design air permeability = 3.00 Max air permeability = 10.00	Authorised SAP Assessor	Passed
Mechanical ventilation system Specific fan power (SFP)	Mechanical ventilation with heat recovery: SFP = 0.50 W/(litre/sec) Max SFP = 1.5 W/(litre/sec) Heat recovery efficiency = 91.00 % Min heat recovery efficiency = 70.00 %	Authorised SAP Assessor	Passed
Have the key features of the design been included (or bettered) in practice?	The following party walls have a U-value less than 0.2W/m ² K: • Wall 1 (0.00) Design air permeability of 3 m ³ /(h.m ²) is less than 4 m ³ /(h.m ²) at 50 Pa Community heating with CHP - Mains gas	Authorised SAP Assessor	

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Assessor name	Mr David Partington	Assessor number	5662
Client		Last modified	15/01/2018
Address	13 Hornsey Town Hall [Servicing Scheme TBC], London		

Check	Evidence	Produced by	OK?																		
Criterion 1: predicted carbon dioxide emission from proposed dwelling does not exceed the target																					
TER (kg CO ₂ /m ² .a)	Fuel = N/A Fuel factor = 1.00 TER = 13.86	Authorised SAP Assessor																			
DER for dwelling as designed (kg CO ₂ /m ² .a)	DER = 6.47	Authorised SAP Assessor																			
Are emissions from dwelling as designed less than or equal to the target?	DER 6.47 < TER 13.86	Authorised SAP Assessor	Passed																		
Is the fabric energy efficiency of the dwelling as designed less than or equal to the target?	DFEE 31.4 < TFEE 34.8	Authorised SAP Assessor	Passed																		
Criterion 2: the performance of the building fabric and the heating, hot water and fixed lighting systems should be no worse than the design limits																					
Fabric U-values																					
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Openings	1.33 (max 2.00)	1.40 (max 3.30)																			
Thermal bridging																					
How has the loss from thermal bridges been calculated?	Thermal bridging calculated using default y-value of 0.15	Authorised SAP Assessor																			
Heating and hot water systems																					
Does the efficiency of the heating systems meet the minimum value set out in the Domestic Heating Compliance Guide?	Community heating scheme Secondary heating system: None	Authorised SAP Assessor	N/A																		
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Do controls meet the minimum controls provision set out in the Domestic Heating Compliance Guide?	Space heating control: Charging system linked to use, programmer and TRVs No hot water cylinder in the dwelling	Authorised SAP Assessor	Passed																		
Fixed internal lighting																					

Check	Evidence	Produced by	OK?
Does fixed internal lighting comply with paragraphs 42 to 44?	Schedule of installed fixed internal lighting Standard lights = 0 Low energy lights = 10 Percentage of low energy lights = 100% Minimum = 75 %	Authorised SAP Assessor	Passed
Criterion 3: the dwelling has appropriate passive control measures to limit solar gains			
Does the dwelling have a strong tendency to high summertime temperatures?	Overheating risk (June) = Not significant (20.37°) Overheating risk (July) = Medium (22.05°) Overheating risk (August) = Slight (21.67°) Region = Thames Thermal mass parameter = 250.00 Ventilation rate in hot weather = 4.00 ach Blinds/curtains = None	Authorised SAP Assessor	Passed
Criterion 4: the performance of the dwelling, as designed, is consistent with the DER			
Design air permeability (m ³ /(h.m ²) at 50Pa)	Design air permeability = 3.00 Max air permeability = 10.00	Authorised SAP Assessor	Passed
Mechanical ventilation system Specific fan power (SFP)	Mechanical ventilation with heat recovery: SFP = 0.50 W/(litre/sec) Max SFP = 1.5 W/(litre/sec) Heat recovery efficiency = 91.00 % Min heat recovery efficiency = 70.00 %	Authorised SAP Assessor	Passed
Have the key features of the design been included (or bettered) in practice?	The following party walls have a U-value less than 0.2W/m ² K: • Wall 1 (0.00) Design air permeability of 3 m ³ /(h.m ²) is less than 4 m ³ /(h.m ²) at 50 Pa Community heating with CHP - Mains gas Use of the following low carbon or renewable technologies: • Photovoltaic array	Authorised SAP Assessor	

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Client		Last modified	15/01/2018
Address	13 Hornsey Town Hall [Servicing Scheme TBC], London		

Check	Evidence	Produced by	OK?																		
Criterion 1: predicted carbon dioxide emission from proposed dwelling does not exceed the target																					
TER (kg CO ₂ /m ² .a)	Fuel = N/A Fuel factor = 1.00 TER = 13.86	Authorised SAP Assessor																			
DER for dwelling as designed (kg CO ₂ /m ² .a)	DER = 12.19	Authorised SAP Assessor																			
Are emissions from dwelling as designed less than or equal to the target?	DER 12.19 < TER 13.86	Authorised SAP Assessor	Passed																		
Is the fabric energy efficiency of the dwellling as designed less than or equal to the target?	DFEE 31.4 < TFEE 34.8	Authorised SAP Assessor	Passed																		
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Thermal bridging																					
How has the loss from thermal bridges been calculated?	Thermal bridging calculated using default y-value of 0.15	Authorised SAP Assessor																			
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Do controls meet the minimum controls provision set out in the Domestic Heating Compliance Guide?	Space heating control: Charging system linked to use, programmer and TRVs No hot water cylinder in the dwelling	Authorised SAP Assessor	Passed																		
Fixed internal lighting																					

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Does fixed internal lighting comply with paragraphs 42 to 44?	Schedule of installed fixed internal lighting Standard lights = 0 Low energy lights = 10 Percentage of low energy lights = 100% Minimum = 75 %	Authorised SAP Assessor	Passed
Criterion 3: the dwelling has appropriate passive control measures to limit solar gains			
Does the dwelling have a strong tendency to high summertime temperatures?	Overheating risk (June) = Not significant (20.37°) Overheating risk (July) = Medium (22.05°) Overheating risk (August) = Slight (21.67°) Region = Thames Thermal mass parameter = 250.00 Ventilation rate in hot weather = 4.00 ach Blinds/curtains = None	Authorised SAP Assessor	Passed
Criterion 4: the performance of the dwelling, as designed, is consistent with the DER			
Design air permeability (m ³ /(h.m ²) at 50Pa)	Design air permeability = 3.00 Max air permeability = 10.00	Authorised SAP Assessor	Passed
Mechanical ventilation system Specific fan power (SFP)	Mechanical ventilation with heat recovery: SFP = 0.50 W/(litre/sec) Max SFP = 1.5 W/(litre/sec) Heat recovery efficiency = 91.00 % Min heat recovery efficiency = 70.00 %	Authorised SAP Assessor	Passed
Have the key features of the design been included (or bettered) in practice?	The following party walls have a U-value less than 0.2W/m ² K: • Wall 1 (0.00) Design air permeability of 3 m ³ /(h.m ²) is less than 4 m ³ /(h.m ²) at 50 Pa	Authorised SAP Assessor	

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Client		Last modified	15/01/2018
Address	14 Hornsey Town Hall [Servicing Scheme TBC], London		

Check	Evidence	Produced by	OK?																		
Criterion 1: predicted carbon dioxide emission from proposed dwelling does not exceed the target																					
TER (kg CO ₂ /m ² .a)	Fuel = N/A Fuel factor = 1.00 TER = 15.83	Authorised SAP Assessor																			
DER for dwelling as designed (kg CO ₂ /m ² .a)	DER = 9.78	Authorised SAP Assessor																			
Are emissions from dwelling as designed less than or equal to the target?	DER 9.78 < TER 15.83	Authorised SAP Assessor	Passed																		
Is the fabric energy efficiency of the dwellling as designed less than or equal to the target?	DFEE 33.1 < TFEE 34.0	Authorised SAP Assessor	Passed																		
Criterion 2: the performance of the building fabric and the heating, hot water and fixed lighting systems should be no worse than the design limits																					
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Fixed internal lighting																					

Check	Evidence	Produced by	OK?
Does fixed internal lighting comply with paragraphs 42 to 44?	Schedule of installed fixed internal lighting Standard lights = 0 Low energy lights = 10 Percentage of low energy lights = 100% Minimum = 75 %	Authorised SAP Assessor	Passed
Criterion 3: the dwelling has appropriate passive control measures to limit solar gains			
Does the dwelling have a strong tendency to high summertime temperatures?	Overheating risk (June) = Slight (21.04°) Overheating risk (July) = Medium (22.69°) Overheating risk (August) = Medium (22.25°) Region = Thames Thermal mass parameter = 250.00 Ventilation rate in hot weather = 4.00 ach Blinds/curtains = None	Authorised SAP Assessor	Passed
Criterion 4: the performance of the dwelling, as designed, is consistent with the DER			
Design air permeability (m ³ /(h.m ²) at 50Pa)	Design air permeability = 3.00 Max air permeability = 10.00	Authorised SAP Assessor	Passed
Mechanical ventilation system Specific fan power (SFP)	Mechanical ventilation with heat recovery: SFP = 0.42 W/(litre/sec) Max SFP = 1.5 W/(litre/sec) Heat recovery efficiency = 91.00 % Min heat recovery efficiency = 70.00 %	Authorised SAP Assessor	Passed
Have the key features of the design been included (or bettered) in practice?	The following party walls have a U-value less than 0.2W/m ² K: • Party Wall (0.00) Design air permeability of 3 m ³ /(h.m ²) is less than 4 m ³ /(h.m ²) at 50 Pa Community heating with CHP - Mains gas	Authorised SAP Assessor	

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Criterion 1: predicted carbon dioxide emission from proposed dwelling does not exceed the target																					
TER (kg CO ₂ /m ² .a)	Fuel = N/A Fuel factor = 1.00 TER = 15.83	Authorised SAP Assessor																			
DER for dwelling as designed (kg CO ₂ /m ² .a)	DER = 7.60	Authorised SAP Assessor																			
Are emissions from dwelling as designed less than or equal to the target?	DER 7.60 < TER 15.83	Authorised SAP Assessor	Passed																		
Is the fabric energy efficiency of the dwelling as designed less than or equal to the target?	DFEE 33.1 < TFEE 34.0	Authorised SAP Assessor	Passed																		
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Fixed internal lighting																					

Check	Evidence	Produced by	OK?
Does fixed internal lighting comply with paragraphs 42 to 44?	Schedule of installed fixed internal lighting Standard lights = 0 Low energy lights = 10 Percentage of low energy lights = 100% Minimum = 75 %	Authorised SAP Assessor	Passed
Criterion 3: the dwelling has appropriate passive control measures to limit solar gains			
Does the dwelling have a strong tendency to high summertime temperatures?	Overheating risk (June) = Slight (21.04°) Overheating risk (July) = Medium (22.69°) Overheating risk (August) = Medium (22.25°) Region = Thames Thermal mass parameter = 250.00 Ventilation rate in hot weather = 4.00 ach Blinds/curtains = None	Authorised SAP Assessor	Passed
Criterion 4: the performance of the dwelling, as designed, is consistent with the DER			
Design air permeability (m ³ /(h.m ²) at 50Pa)	Design air permeability = 3.00 Max air permeability = 10.00	Authorised SAP Assessor	Passed
Mechanical ventilation system Specific fan power (SFP)	Mechanical ventilation with heat recovery: SFP = 0.42 W/(litre/sec) Max SFP = 1.5 W/(litre/sec) Heat recovery efficiency = 91.00 % Min heat recovery efficiency = 70.00 %	Authorised SAP Assessor	Passed
Have the key features of the design been included (or bettered) in practice?	The following party walls have a U-value less than 0.2W/m ² K: • Party Wall (0.00) Design air permeability of 3 m ³ /(h.m ²) is less than 4 m ³ /(h.m ²) at 50 Pa Community heating with CHP - Mains gas Use of the following low carbon or renewable technologies: • Photovoltaic array	Authorised SAP Assessor	

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TER (kg CO ₂ /m ² .a)	Fuel = N/A Fuel factor = 1.00 TER = 15.83	Authorised SAP Assessor																			
DER for dwelling as designed (kg CO ₂ /m ² .a)	DER = 14.07	Authorised SAP Assessor																			
Are emissions from dwelling as designed less than or equal to the target?	DER 14.07 < TER 15.83	Authorised SAP Assessor	Passed																		
Is the fabric energy efficiency of the dwelling as designed less than or equal to the target?	DFEE 33.1 < TFEE 34.0	Authorised SAP Assessor	Passed																		
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Criterion 4: the performance of the dwelling, as designed, is consistent with the DER			
Design air permeability (m ³ /(h.m ²) at 50Pa)	Design air permeability = 3.00 Max air permeability = 10.00	Authorised SAP Assessor	Passed
Mechanical ventilation system Specific fan power (SFP)	Mechanical ventilation with heat recovery: SFP = 0.42 W/(litre/sec) Max SFP = 1.5 W/(litre/sec) Heat recovery efficiency = 91.00 % Min heat recovery efficiency = 70.00 %	Authorised SAP Assessor	Passed
Have the key features of the design been included (or bettered) in practice?	The following party walls have a U-value less than 0.2W/m ² K: • Party Wall (0.00) Design air permeability of 3 m ³ /(h.m ²) is less than 4 m ³ /(h.m ²) at 50 Pa	Authorised SAP Assessor	

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Assessor name	Mr David Partington	Assessor number	5662
Client		Last modified	24/01/2018
Address	07 Hornsey Town Hall [Servicing Scheme TBC], London		

Check	Evidence	Produced by	OK?																		
Criterion 1: predicted carbon dioxide emission from proposed dwelling does not exceed the target																					
TER (kg CO ₂ /m ² .a)	Fuel = N/A Fuel factor = 1.00 TER = 15.08	Authorised SAP Assessor																			
DER for dwelling as designed (kg CO ₂ /m ² .a)	DER = 9.74	Authorised SAP Assessor																			
Are emissions from dwelling as designed less than or equal to the target?	DER 9.74 < TER 15.08	Authorised SAP Assessor	Passed																		
Is the fabric energy efficiency of the dwellling as designed less than or equal to the target?	DFEE 37.3 < TFEE 39.0	Authorised SAP Assessor	Passed																		
Criterion 2: the performance of the building fabric and the heating, hot water and fixed lighting systems should be no worse than the design limits																					
Fabric U-values																					
Are all U-values better than the design limits in Table 2?	<table><tr><th>Element</th><th colspan="2">Weighted average Highest</th></tr><tr><td>Wall</td><td>0.17 (max 0.30)</td><td>0.17 (max 0.70)</td></tr><tr><td>Party wall</td><td>0.00 (max 0.20)</td><td>N/A</td></tr><tr><td>Floor</td><td>(no floor)</td><td></td></tr><tr><td>Roof</td><td>0.13 (max 0.20)</td><td>0.13 (max 0.35)</td></tr><tr><td>Openings</td><td>1.30 (max 2.00)</td><td>1.30 (max 3.30)</td></tr></table>	Element	Weighted average Highest		Wall	0.17 (max 0.30)	0.17 (max 0.70)	Party wall	0.00 (max 0.20)	N/A	Floor	(no floor)		Roof	0.13 (max 0.20)	0.13 (max 0.35)	Openings	1.30 (max 2.00)	1.30 (max 3.30)	Authorised SAP Assessor	Passed
Element	Weighted average Highest																				
Wall	0.17 (max 0.30)	0.17 (max 0.70)																			
Party wall	0.00 (max 0.20)	N/A																			
Floor	(no floor)																				
Roof	0.13 (max 0.20)	0.13 (max 0.35)																			
Openings	1.30 (max 2.00)	1.30 (max 3.30)																			
Thermal bridging																					
How has the loss from thermal bridges been calculated?	Thermal bridging calculated using default y-value of 0.15	Authorised SAP Assessor																			
Heating and hot water systems																					
Does the efficiency of the heating systems meet the minimum value set out in the Domestic Heating Compliance Guide?	Community heating scheme Secondary heating system: None	Authorised SAP Assessor	N/A																		
Does the insulation of the hot water cylinder meet the standards set out in the Domestic Heating Compliance Guide?	No hot water cylinder in the dwelling	Authorised SAP Assessor																			
Do controls meet the minimum controls provision set out in the Domestic Heating Compliance Guide?	Space heating control: Charging system linked to use, programmer and TRVs No hot water cylinder in the dwelling	Authorised SAP Assessor	Passed																		
Fixed internal lighting																					

Check	Evidence	Produced by	OK?
Does fixed internal lighting comply with paragraphs 42 to 44?	Schedule of installed fixed internal lighting Standard lights = 0 Low energy lights = 10 Percentage of low energy lights = 100% Minimum = 75 %	Authorised SAP Assessor	Passed
Criterion 3: the dwelling has appropriate passive control measures to limit solar gains			
Does the dwelling have a strong tendency to high summertime temperatures?	Overheating risk (June) = Not significant (19.97°) Overheating risk (July) = Slight (21.68°) Overheating risk (August) = Slight (21.36°) Region = Thames Thermal mass parameter = 250.00 Ventilation rate in hot weather = 4.00 ach Blinds/curtains = None	Authorised SAP Assessor	Passed
Criterion 4: the performance of the dwelling, as designed, is consistent with the DER			
Design air permeability (m ³ /(h.m ²) at 50Pa)	Design air permeability = 3.00 Max air permeability = 10.00	Authorised SAP Assessor	Passed
Mechanical ventilation system Specific fan power (SFP)	Mechanical ventilation with heat recovery: SFP = 0.50 W/(litre/sec) Max SFP = 1.5 W/(litre/sec) Heat recovery efficiency = 91.00 % Min heat recovery efficiency = 70.00 %	Authorised SAP Assessor	Passed
Have the key features of the design been included (or bettered) in practice?	The following party walls have a U-value less than 0.2W/m ² K: • Party Wall (0.00) Design air permeability of 3 m ³ /(h.m ²) is less than 4 m ³ /(h.m ²) at 50 Pa Community heating with CHP - Mains gas	Authorised SAP Assessor	

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Assessor name	Mr David Partington	Assessor number	5662
Client		Last modified	24/01/2018
Address	07 Hornsey Town Hall [Servicing Scheme TBC], London		

Check	Evidence	Produced by	OK?																		
Criterion 1: predicted carbon dioxide emission from proposed dwelling does not exceed the target																					
TER (kg CO ₂ /m ² .a)	Fuel = N/A Fuel factor = 1.00 TER = 15.08	Authorised SAP Assessor																			
DER for dwelling as designed (kg CO ₂ /m ² .a)	DER = 7.55	Authorised SAP Assessor																			
Are emissions from dwelling as designed less than or equal to the target?	DER 7.55 < TER 15.08	Authorised SAP Assessor	Passed																		
Is the fabric energy efficiency of the dwelling as designed less than or equal to the target?	DFEE 37.3 < TFEE 39.0	Authorised SAP Assessor	Passed																		
Criterion 2: the performance of the building fabric and the heating, hot water and fixed lighting systems should be no worse than the design limits																					
Fabric U-values																					
Are all U-values better than the design limits in Table 2?	<table><tr><th>Element</th><th colspan="2">Weighted average Highest</th></tr><tr><td>Wall</td><td>0.17 (max 0.30)</td><td>0.17 (max 0.70)</td></tr><tr><td>Party wall</td><td>0.00 (max 0.20)</td><td>N/A</td></tr><tr><td>Floor</td><td>(no floor)</td><td></td></tr><tr><td>Roof</td><td>0.13 (max 0.20)</td><td>0.13 (max 0.35)</td></tr><tr><td>Openings</td><td>1.30 (max 2.00)</td><td>1.30 (max 3.30)</td></tr></table>	Element	Weighted average Highest		Wall	0.17 (max 0.30)	0.17 (max 0.70)	Party wall	0.00 (max 0.20)	N/A	Floor	(no floor)		Roof	0.13 (max 0.20)	0.13 (max 0.35)	Openings	1.30 (max 2.00)	1.30 (max 3.30)	Authorised SAP Assessor	Passed
Element	Weighted average Highest																				
Wall	0.17 (max 0.30)	0.17 (max 0.70)																			
Party wall	0.00 (max 0.20)	N/A																			
Floor	(no floor)																				
Roof	0.13 (max 0.20)	0.13 (max 0.35)																			
Openings	1.30 (max 2.00)	1.30 (max 3.30)																			
Thermal bridging																					
How has the loss from thermal bridges been calculated?	Thermal bridging calculated using default y-value of 0.15	Authorised SAP Assessor																			
Heating and hot water systems																					
Does the efficiency of the heating systems meet the minimum value set out in the Domestic Heating Compliance Guide?	Community heating scheme Secondary heating system: None	Authorised SAP Assessor	N/A																		
Does the insulation of the hot water cylinder meet the standards set out in the Domestic Heating Compliance Guide?	No hot water cylinder in the dwelling	Authorised SAP Assessor																			
Do controls meet the minimum controls provision set out in the Domestic Heating Compliance Guide?	Space heating control: Charging system linked to use, programmer and TRVs No hot water cylinder in the dwelling	Authorised SAP Assessor	Passed																		
Fixed internal lighting																					

Check	Evidence	Produced by	OK?
Does fixed internal lighting comply with paragraphs 42 to 44?	Schedule of installed fixed internal lighting Standard lights = 0 Low energy lights = 10 Percentage of low energy lights = 100% Minimum = 75 %	Authorised SAP Assessor	Passed
Criterion 3: the dwelling has appropriate passive control measures to limit solar gains			
Does the dwelling have a strong tendency to high summertime temperatures?	Overheating risk (June) = Not significant (19.97°) Overheating risk (July) = Slight (21.68°) Overheating risk (August) = Slight (21.36°) Region = Thames Thermal mass parameter = 250.00 Ventilation rate in hot weather = 4.00 ach Blinds/curtains = None	Authorised SAP Assessor	Passed
Criterion 4: the performance of the dwelling, as designed, is consistent with the DER			
Design air permeability (m ³ /(h.m ²) at 50Pa)	Design air permeability = 3.00 Max air permeability = 10.00	Authorised SAP Assessor	Passed
Mechanical ventilation system Specific fan power (SFP)	Mechanical ventilation with heat recovery: SFP = 0.50 W/(litre/sec) Max SFP = 1.5 W/(litre/sec) Heat recovery efficiency = 91.00 % Min heat recovery efficiency = 70.00 %	Authorised SAP Assessor	Passed
Have the key features of the design been included (or bettered) in practice?	The following party walls have a U-value less than 0.2W/m ² K: • Party Wall (0.00) Design air permeability of 3 m ³ /(h.m ²) is less than 4 m ³ /(h.m ²) at 50 Pa Community heating with CHP - Mains gas Use of the following low carbon or renewable technologies: • Photovoltaic array	Authorised SAP Assessor	

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Assessor name	Mr David Partington	Assessor number	5662
Client		Last modified	24/01/2018
Address	07 Hornsey Town Hall [Servicing Scheme TBC], London		

Check	Evidence	Produced by	OK?																		
Criterion 1: predicted carbon dioxide emission from proposed dwelling does not exceed the target																					
TER (kg CO ₂ /m ² .a)	Fuel = N/A Fuel factor = 1.00 TER = 15.08	Authorised SAP Assessor																			
DER for dwelling as designed (kg CO ₂ /m ² .a)	DER = 13.95	Authorised SAP Assessor																			
Are emissions from dwelling as designed less than or equal to the target?	DER 13.95 < TER 15.08	Authorised SAP Assessor	Passed																		
Is the fabric energy efficiency of the dwelling as designed less than or equal to the target?	DFEE 37.3 < TFEE 39.0	Authorised SAP Assessor	Passed																		
Criterion 2: the performance of the building fabric and the heating, hot water and fixed lighting systems should be no worse than the design limits																					
Fabric U-values																					
Are all U-values better than the design limits in Table 2?	<table><tr><th>Element</th><th colspan="2">Weighted average Highest</th></tr><tr><td>Wall</td><td>0.17 (max 0.30)</td><td>0.17 (max 0.70)</td></tr><tr><td>Party wall</td><td>0.00 (max 0.20)</td><td>N/A</td></tr><tr><td>Floor</td><td>(no floor)</td><td></td></tr><tr><td>Roof</td><td>0.13 (max 0.20)</td><td>0.13 (max 0.35)</td></tr><tr><td>Openings</td><td>1.30 (max 2.00)</td><td>1.30 (max 3.30)</td></tr></table>	Element	Weighted average Highest		Wall	0.17 (max 0.30)	0.17 (max 0.70)	Party wall	0.00 (max 0.20)	N/A	Floor	(no floor)		Roof	0.13 (max 0.20)	0.13 (max 0.35)	Openings	1.30 (max 2.00)	1.30 (max 3.30)	Authorised SAP Assessor	Passed
Element	Weighted average Highest																				
Wall	0.17 (max 0.30)	0.17 (max 0.70)																			
Party wall	0.00 (max 0.20)	N/A																			
Floor	(no floor)																				
Roof	0.13 (max 0.20)	0.13 (max 0.35)																			
Openings	1.30 (max 2.00)	1.30 (max 3.30)																			
Thermal bridging																					
How has the loss from thermal bridges been calculated?	Thermal bridging calculated using default y-value of 0.15	Authorised SAP Assessor																			
Heating and hot water systems																					
Does the efficiency of the heating systems meet the minimum value set out in the Domestic Heating Compliance Guide?	Community heating scheme Secondary heating system: None	Authorised SAP Assessor	N/A																		
Does the insulation of the hot water cylinder meet the standards set out in the Domestic Heating Compliance Guide?	No hot water cylinder in the dwelling	Authorised SAP Assessor																			
Do controls meet the minimum controls provision set out in the Domestic Heating Compliance Guide?	Space heating control: Charging system linked to use, programmer and TRVs No hot water cylinder in the dwelling	Authorised SAP Assessor	Passed																		
Fixed internal lighting																					

Check	Evidence	Produced by	OK?
Does fixed internal lighting comply with paragraphs 42 to 44?	Schedule of installed fixed internal lighting Standard lights = 0 Low energy lights = 10 Percentage of low energy lights = 100% Minimum = 75 %	Authorised SAP Assessor	Passed
Criterion 3: the dwelling has appropriate passive control measures to limit solar gains			
Does the dwelling have a strong tendency to high summertime temperatures?	Overheating risk (June) = Not significant (19.97°) Overheating risk (July) = Slight (21.68°) Overheating risk (August) = Slight (21.36°) Region = Thames Thermal mass parameter = 250.00 Ventilation rate in hot weather = 4.00 ach Blinds/curtains = None	Authorised SAP Assessor	Passed
Criterion 4: the performance of the dwelling, as designed, is consistent with the DER			
Design air permeability (m ³ /(h.m ²) at 50Pa)	Design air permeability = 3.00 Max air permeability = 10.00	Authorised SAP Assessor	Passed
Mechanical ventilation system Specific fan power (SFP)	Mechanical ventilation with heat recovery: SFP = 0.50 W/(litre/sec) Max SFP = 1.5 W/(litre/sec) Heat recovery efficiency = 91.00 % Min heat recovery efficiency = 70.00 %	Authorised SAP Assessor	Passed
Have the key features of the design been included (or bettered) in practice?	The following party walls have a U-value less than 0.2W/m ² K: • Party Wall (0.00) Design air permeability of 3 m ³ /(h.m ²) is less than 4 m ³ /(h.m ²) at 50 Pa	Authorised SAP Assessor	

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Assessor name	Mr David Partington	Assessor number	5662
Client		Last modified	15/01/2018
Address	12 Hornsey Town Hall [Servicing Scheme TBC], London		

Check	Evidence	Produced by	OK?																		
Criterion 1: predicted carbon dioxide emission from proposed dwelling does not exceed the target																					
TER (kg CO ₂ /m ² .a)	Fuel = N/A Fuel factor = 1.00 TER = 14.40	Authorised SAP Assessor																			
DER for dwelling as designed (kg CO ₂ /m ² .a)	DER = 10.70	Authorised SAP Assessor																			
Are emissions from dwelling as designed less than or equal to the target?	DER 10.70 < TER 14.40	Authorised SAP Assessor	Passed																		
Is the fabric energy efficiency of the dwellling as designed less than or equal to the target?	DFEE 47.8 < TFEE 48.1	Authorised SAP Assessor	Passed																		
Criterion 2: the performance of the building fabric and the heating, hot water and fixed lighting systems should be no worse than the design limits																					
Fabric U-values																					
Are all U-values better than the design limits in Table 2?	<table><tr><th>Element</th><th colspan="2">Weighted average Highest</th></tr><tr><td>Wall</td><td>0.17 (max 0.30)</td><td>0.17 (max 0.70)</td></tr><tr><td>Party wall</td><td>0.00 (max 0.20)</td><td>N/A</td></tr><tr><td>Floor</td><td colspan="2">(no floor)</td></tr><tr><td>Roof</td><td>0.13 (max 0.20)</td><td>0.13 (max 0.35)</td></tr><tr><td>Openings</td><td>1.30 (max 2.00)</td><td>1.30 (max 3.30)</td></tr></table>	Element	Weighted average Highest		Wall	0.17 (max 0.30)	0.17 (max 0.70)	Party wall	0.00 (max 0.20)	N/A	Floor	(no floor)		Roof	0.13 (max 0.20)	0.13 (max 0.35)	Openings	1.30 (max 2.00)	1.30 (max 3.30)	Authorised SAP Assessor	Passed
Element	Weighted average Highest																				
Wall	0.17 (max 0.30)	0.17 (max 0.70)																			
Party wall	0.00 (max 0.20)	N/A																			
Floor	(no floor)																				
Roof	0.13 (max 0.20)	0.13 (max 0.35)																			
Openings	1.30 (max 2.00)	1.30 (max 3.30)																			
Thermal bridging																					
How has the loss from thermal bridges been calculated?	Thermal bridging calculated using default y-value of 0.15	Authorised SAP Assessor																			
Heating and hot water systems																					
Does the efficiency of the heating systems meet the minimum value set out in the Domestic Heating Compliance Guide?	Community heating scheme Secondary heating system: None	Authorised SAP Assessor	N/A																		
Does the insulation of the hot water cylinder meet the standards set out in the Domestic Heating Compliance Guide?	Cylinder volume = 250.00 litres Declared cylinder loss = 1.61kWh/day Maximum permitted cylinder loss = 2.56kWh/day Primary hot water pipes are (assumed) insulated	Authorised SAP Assessor	Passed																		
Do controls meet the minimum controls provision set out in the Domestic Heating Compliance Guide?	Space heating control: Charging system linked to use, programmer and TRVs Hot water control: Cylinder thermostat	Authorised SAP Assessor	Passed																		

Check	Evidence	Produced by	OK?
Fixed internal lighting			
Does fixed internal lighting comply with paragraphs 42 to 44?	Schedule of installed fixed internal lighting Standard lights = 0 Low energy lights = 10 Percentage of low energy lights = 100% Minimum = 75 %	Authorised SAP Assessor	Passed
Criterion 3: the dwelling has appropriate passive control measures to limit solar gains			
Does the dwelling have a strong tendency to high summertime temperatures?	Overheating risk (June) = Not significant (19.78°) Overheating risk (July) = Slight (21.5°) Overheating risk (August) = Slight (21.14°) Region = Thames Thermal mass parameter = 250.00 Ventilation rate in hot weather = 5.00 ach Blinds/curtains = None	Authorised SAP Assessor	Passed
Criterion 4: the performance of the dwelling, as designed, is consistent with the DER			
Design air permeability (m ³ /(h.m ²) at 50Pa)	Design air permeability = 3.00 Max air permeability = 10.00	Authorised SAP Assessor	Passed
Mechanical ventilation system Specific fan power (SFP)	Mechanical ventilation with heat recovery: SFP = 0.61 W/(litre/sec) Max SFP = 1.5 W/(litre/sec) Heat recovery efficiency = 89.00 % Min heat recovery efficiency = 70.00 %	Authorised SAP Assessor	Passed
Have the key features of the design been included (or bettered) in practice?	The following party walls have a U-value less than 0.2W/m ² K: • Party Wall (0.00) Design air permeability of 3 m ³ /(h.m ²) is less than 4 m ³ /(h.m ²) at 50 Pa Space cooling is specified Community heating with CHP - Mains gas	Authorised SAP Assessor	

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Assessor name	Mr David Partington	Assessor number	5662
Client		Last modified	15/01/2018
Address	12 Hornsey Town Hall [Servicing Scheme TBC], London		

Check	Evidence	Produced by	OK?																		
Criterion 1: predicted carbon dioxide emission from proposed dwelling does not exceed the target																					
TER (kg CO ₂ /m ² .a)	Fuel = N/A Fuel factor = 1.00 TER = 14.40	Authorised SAP Assessor																			
DER for dwelling as designed (kg CO ₂ /m ² .a)	DER = 8.51	Authorised SAP Assessor																			
Are emissions from dwelling as designed less than or equal to the target?	DER 8.51 < TER 14.40	Authorised SAP Assessor	Passed																		
Is the fabric energy efficiency of the dwellling as designed less than or equal to the target?	DFEE 47.8 < TFEE 48.1	Authorised SAP Assessor	Passed																		
Criterion 2: the performance of the building fabric and the heating, hot water and fixed lighting systems should be no worse than the design limits																					
Fabric U-values																					
Are all U-values better than the design limits in Table 2?	<table><tr><th>Element</th><th colspan="2">Weighted average Highest</th></tr><tr><td>Wall</td><td>0.17 (max 0.30)</td><td>0.17 (max 0.70)</td></tr><tr><td>Party wall</td><td>0.00 (max 0.20)</td><td>N/A</td></tr><tr><td>Floor</td><td colspan="2">(no floor)</td></tr><tr><td>Roof</td><td>0.13 (max 0.20)</td><td>0.13 (max 0.35)</td></tr><tr><td>Openings</td><td>1.30 (max 2.00)</td><td>1.30 (max 3.30)</td></tr></table>	Element	Weighted average Highest		Wall	0.17 (max 0.30)	0.17 (max 0.70)	Party wall	0.00 (max 0.20)	N/A	Floor	(no floor)		Roof	0.13 (max 0.20)	0.13 (max 0.35)	Openings	1.30 (max 2.00)	1.30 (max 3.30)	Authorised SAP Assessor	Passed
Element	Weighted average Highest																				
Wall	0.17 (max 0.30)	0.17 (max 0.70)																			
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Thermal bridging																					
How has the loss from thermal bridges been calculated?	Thermal bridging calculated using default y-value of 0.15	Authorised SAP Assessor																			
Heating and hot water systems																					
Does the efficiency of the heating systems meet the minimum value set out in the Domestic Heating Compliance Guide?	Community heating scheme Secondary heating system: None	Authorised SAP Assessor	N/A																		
Does the insulation of the hot water cylinder meet the standards set out in the Domestic Heating Compliance Guide?	Cylinder volume = 250.00 litres Declared cylinder loss = 1.61kWh/day Maximum permitted cylinder loss = 2.56kWh/day Primary hot water pipes are (assumed) insulated	Authorised SAP Assessor	Passed																		
Do controls meet the minimum controls provision set out in the Domestic Heating Compliance Guide?	Space heating control: Charging system linked to use, programmer and TRVs Hot water control: Cylinder thermostat	Authorised SAP Assessor	Passed																		

Check	Evidence	Produced by	OK?
Fixed internal lighting			
Does fixed internal lighting comply with paragraphs 42 to 44?	Schedule of installed fixed internal lighting Standard lights = 0 Low energy lights = 10 Percentage of low energy lights = 100% Minimum = 75 %	Authorised SAP Assessor	Passed
Criterion 3: the dwelling has appropriate passive control measures to limit solar gains			
Does the dwelling have a strong tendency to high summertime temperatures?	Overheating risk (June) = Not significant (19.78°) Overheating risk (July) = Slight (21.5°) Overheating risk (August) = Slight (21.14°) Region = Thames Thermal mass parameter = 250.00 Ventilation rate in hot weather = 5.00 ach Blinds/curtains = None	Authorised SAP Assessor	Passed
Criterion 4: the performance of the dwelling, as designed, is consistent with the DER			
Design air permeability (m ³ /(h.m ²) at 50Pa)	Design air permeability = 3.00 Max air permeability = 10.00	Authorised SAP Assessor	Passed
Mechanical ventilation system Specific fan power (SFP)	Mechanical ventilation with heat recovery: SFP = 0.61 W/(litre/sec) Max SFP = 1.5 W/(litre/sec) Heat recovery efficiency = 89.00 % Min heat recovery efficiency = 70.00 %	Authorised SAP Assessor	Passed
Have the key features of the design been included (or bettered) in practice?	The following party walls have a U-value less than 0.2W/m ² K: - Party Wall (0.00) Design air permeability of 3 m ³ /(h.m ²) is less than 4 m ³ /(h.m ²) at 50 Pa Space cooling is specified Community heating with CHP - Mains gas Use of the following low carbon or renewable technologies: - Photovoltaic array	Authorised SAP Assessor	

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Assessor name	Mr David Partington	Assessor number	5662
Client		Last modified	15/01/2018
Address	12 Hornsey Town Hall [Servicing Scheme TBC], London		

Check	Evidence	Produced by	OK?																		
Criterion 1: predicted carbon dioxide emission from proposed dwelling does not exceed the target																					
TER (kg CO ₂ /m ² .a)	Fuel = N/A Fuel factor = 1.00 TER = 14.40	Authorised SAP Assessor																			
DER for dwelling as designed (kg CO ₂ /m ² .a)	DER = 15.35	Authorised SAP Assessor																			
Are emissions from dwelling as designed less than or equal to the target?	DER 15.35 > TER 14.40 Excess emissions = 0.95 kg/m ² (6.60%)	Authorised SAP Assessor	Failed																		
Is the fabric energy efficiency of the dwelling as designed less than or equal to the target?	DFEE 47.8 < TFEE 48.1	Authorised SAP Assessor	Passed																		
Criterion 2: the performance of the building fabric and the heating, hot water and fixed lighting systems should be no worse than the design limits																					
Fabric U-values																					
Are all U-values better than the design limits in Table 2?	<table><tr><th>Element</th><th colspan="2">Weighted average Highest</th></tr><tr><td>Wall</td><td>0.17 (max 0.30)</td><td>0.17 (max 0.70)</td></tr><tr><td>Party wall</td><td>0.00 (max 0.20)</td><td>N/A</td></tr><tr><td>Floor</td><td colspan="2">(no floor)</td></tr><tr><td>Roof</td><td>0.13 (max 0.20)</td><td>0.13 (max 0.35)</td></tr><tr><td>Openings</td><td>1.30 (max 2.00)</td><td>1.30 (max 3.30)</td></tr></table>	Element	Weighted average Highest		Wall	0.17 (max 0.30)	0.17 (max 0.70)	Party wall	0.00 (max 0.20)	N/A	Floor	(no floor)		Roof	0.13 (max 0.20)	0.13 (max 0.35)	Openings	1.30 (max 2.00)	1.30 (max 3.30)	Authorised SAP Assessor	Passed
Element	Weighted average Highest																				
Wall	0.17 (max 0.30)	0.17 (max 0.70)																			
Party wall	0.00 (max 0.20)	N/A																			
Floor	(no floor)																				
Roof	0.13 (max 0.20)	0.13 (max 0.35)																			
Openings	1.30 (max 2.00)	1.30 (max 3.30)																			
Thermal bridging																					
How has the loss from thermal bridges been calculated?	Thermal bridging calculated using default y-value of 0.15	Authorised SAP Assessor																			
Heating and hot water systems																					
Does the efficiency of the heating systems meet the minimum value set out in the Domestic Heating Compliance Guide?	Community heating scheme Secondary heating system: None	Authorised SAP Assessor	N/A																		
Does the insulation of the hot water cylinder meet the standards set out in the Domestic Heating Compliance Guide?	Cylinder volume = 250.00 litres Declared cylinder loss = 1.61kWh/day Maximum permitted cylinder loss = 2.56kWh/day Primary hot water pipes are (assumed) insulated	Authorised SAP Assessor	Passed																		
Do controls meet the minimum controls provision set out in the Domestic Heating Compliance Guide?	Space heating control: Charging system linked to use, programmer and TRVs Hot water control: Cylinder thermostat	Authorised SAP Assessor	Passed																		

Check	Evidence	Produced by	OK?
Fixed internal lighting			
Does fixed internal lighting comply with paragraphs 42 to 44?	Schedule of installed fixed internal lighting Standard lights = 0 Low energy lights = 10 Percentage of low energy lights = 100% Minimum = 75 %	Authorised SAP Assessor	Passed
Criterion 3: the dwelling has appropriate passive control measures to limit solar gains			
Does the dwelling have a strong tendency to high summertime temperatures?	Overheating risk (June) = Not significant (19.78°) Overheating risk (July) = Slight (21.5°) Overheating risk (August) = Slight (21.14°) Region = Thames Thermal mass parameter = 250.00 Ventilation rate in hot weather = 5.00 ach Blinds/curtains = None	Authorised SAP Assessor	Passed
Criterion 4: the performance of the dwelling, as designed, is consistent with the DER			
Design air permeability (m ³ /(h.m ²) at 50Pa)	Design air permeability = 3.00 Max air permeability = 10.00	Authorised SAP Assessor	Passed
Mechanical ventilation system Specific fan power (SFP)	Mechanical ventilation with heat recovery: SFP = 0.61 W/(litre/sec) Max SFP = 1.5 W/(litre/sec) Heat recovery efficiency = 89.00 % Min heat recovery efficiency = 70.00 %	Authorised SAP Assessor	Passed
Have the key features of the design been included (or bettered) in practice?	The following party walls have a U-value less than 0.2W/m ² K: • Party Wall (0.00) Design air permeability of 3 m ³ /(h.m ²) is less than 4 m ³ /(h.m ²) at 50 Pa Space cooling is specified	Authorised SAP Assessor	

Appendices

Appendix C - Block B - SAP Worksheets

118766/LP/180214 Issue 07

This design draft submission provides evidence towards compliance with Part L of the Building Regulations, in accordance with Appendix C of AD L1A. It has been carried out using Approved SAP software. It has been prepared from plans and specifications and may not reflect the 'as built' property. This report covers only items included within the SAP and is not a complete report of regulations compliance.

Assessor name	Mr David Partington	Assessor number	5662
Client		Last modified	01/02/2018
Address	02 Block B, Hornsey Town Hall [Servicing Scheme TBC], London		

Check	Evidence	Produced by	OK?																		
Criterion 1: predicted carbon dioxide emission from proposed dwelling does not exceed the target																					
TER (kg CO ₂ /m ² .a)	Fuel = N/A Fuel factor = 1.00 TER = 15.55	Authorised SAP Assessor																			
DER for dwelling as designed (kg CO ₂ /m ² .a)	DER = 9.78	Authorised SAP Assessor																			
Are emissions from dwelling as designed less than or equal to the target?	DER 9.78 < TER 15.55	Authorised SAP Assessor	Passed																		
Is the fabric energy efficiency of the dwelling as designed less than or equal to the target?	DFEE 35.8 < TFEE 38.6	Authorised SAP Assessor	Passed																		
Criterion 2: the performance of the building fabric and the heating, hot water and fixed lighting systems should be no worse than the design limits																					
Fabric U-values																					
Are all U-values better than the design limits in Table 2?	<table><tr><th>Element</th><th colspan="2">Weighted average Highest</th></tr><tr><td>Wall</td><td>0.17 (max 0.30)</td><td>0.17 (max 0.70)</td></tr><tr><td>Party wall</td><td>0.00 (max 0.20)</td><td>N/A</td></tr><tr><td>Floor</td><td>0.12 (max 0.25)</td><td>0.12 (max 0.70)</td></tr><tr><td>Roof</td><td>(no roof)</td><td></td></tr><tr><td>Openings</td><td>1.40 (max 2.00)</td><td>1.40 (max 3.30)</td></tr></table>	Element	Weighted average Highest		Wall	0.17 (max 0.30)	0.17 (max 0.70)	Party wall	0.00 (max 0.20)	N/A	Floor	0.12 (max 0.25)	0.12 (max 0.70)	Roof	(no roof)		Openings	1.40 (max 2.00)	1.40 (max 3.30)	Authorised SAP Assessor	Passed
Element	Weighted average Highest																				
Wall	0.17 (max 0.30)	0.17 (max 0.70)																			
Party wall	0.00 (max 0.20)	N/A																			
Floor	0.12 (max 0.25)	0.12 (max 0.70)																			
Roof	(no roof)																				
Openings	1.40 (max 2.00)	1.40 (max 3.30)																			
Thermal bridging																					
How has the loss from thermal bridges been calculated?	Thermal bridging calculated using default y-value of 0.15	Authorised SAP Assessor																			
Heating and hot water systems																					
Does the efficiency of the heating systems meet the minimum value set out in the Domestic Heating Compliance Guide?	Community heating scheme Secondary heating system: None	Authorised SAP Assessor	N/A																		
Does the insulation of the hot water cylinder meet the standards set out in the Domestic Heating Compliance Guide?	No hot water cylinder in the dwelling	Authorised SAP Assessor																			
Do controls meet the minimum controls provision set out in the Domestic Heating Compliance Guide?	Space heating control: Charging system linked to use, programmer and TRVs No hot water cylinder in the dwelling	Authorised SAP Assessor	Passed																		
Fixed internal lighting																					

Check	Evidence	Produced by	OK?
Does fixed internal lighting comply with paragraphs 42 to 44?	Schedule of installed fixed internal lighting Standard lights = 0 Low energy lights = 10 Percentage of low energy lights = 100% Minimum = 75 %	Authorised SAP Assessor	Passed
Criterion 3: the dwelling has appropriate passive control measures to limit solar gains			
Does the dwelling have a strong tendency to high summertime temperatures?	Overheating risk (June) = Not significant (19.6°) Overheating risk (July) = Slight (21.31°) Overheating risk (August) = Slight (20.95°) Region = Thames Thermal mass parameter = 250.00 Ventilation rate in hot weather = 4.00 ach Blinds/curtains = None	Authorised SAP Assessor	Passed
Criterion 4: the performance of the dwelling, as designed, is consistent with the DER			
Design air permeability (m ³ /(h.m ²) at 50Pa)	Design air permeability = 3.00 Max air permeability = 10.00	Authorised SAP Assessor	Passed
Mechanical ventilation system Specific fan power (SFP)	Mechanical ventilation with heat recovery: SFP = 0.50 W/(litre/sec) Max SFP = 1.5 W/(litre/sec) Heat recovery efficiency = 91.00 % Min heat recovery efficiency = 70.00 %	Authorised SAP Assessor	Passed
Have the key features of the design been included (or bettered) in practice?	The following party walls have a U-value less than 0.2W/m ² K: • Party Wall (0.00) The following floors have a U-value less than 0.13W/m ² K: • Floor 1 (0.12) Design air permeability of 3 m ³ /(h.m ²) is less than 4 m ³ /(h.m ²) at 50 Pa Community heating with CHP - Mains gas	Authorised SAP Assessor	

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Assessor name	Mr David Partington	Assessor number	5662
Client		Last modified	01/02/2018
Address	02 Block B, Hornsey Town Hall [Servicing Scheme TBC], London		

Check	Evidence	Produced by	OK?																		
Criterion 1: predicted carbon dioxide emission from proposed dwelling does not exceed the target																					
TER (kg CO ₂ /m ² .a)	Fuel = N/A Fuel factor = 1.00 TER = 15.55	Authorised SAP Assessor																			
DER for dwelling as designed (kg CO ₂ /m ² .a)	DER = 7.59	Authorised SAP Assessor																			
Are emissions from dwelling as designed less than or equal to the target?	DER 7.59 < TER 15.55	Authorised SAP Assessor	Passed																		
Is the fabric energy efficiency of the dwelling as designed less than or equal to the target?	DFEE 35.8 < TFEE 38.6	Authorised SAP Assessor	Passed																		
Criterion 2: the performance of the building fabric and the heating, hot water and fixed lighting systems should be no worse than the design limits																					
Fabric U-values																					
Are all U-values better than the design limits in Table 2?	<table><tr><th>Element</th><th colspan="2">Weighted average Highest</th></tr><tr><td>Wall</td><td>0.17 (max 0.30)</td><td>0.17 (max 0.70)</td></tr><tr><td>Party wall</td><td>0.00 (max 0.20)</td><td>N/A</td></tr><tr><td>Floor</td><td>0.12 (max 0.25)</td><td>0.12 (max 0.70)</td></tr><tr><td>Roof</td><td>(no roof)</td><td></td></tr><tr><td>Openings</td><td>1.40 (max 2.00)</td><td>1.40 (max 3.30)</td></tr></table>	Element	Weighted average Highest		Wall	0.17 (max 0.30)	0.17 (max 0.70)	Party wall	0.00 (max 0.20)	N/A	Floor	0.12 (max 0.25)	0.12 (max 0.70)	Roof	(no roof)		Openings	1.40 (max 2.00)	1.40 (max 3.30)	Authorised SAP Assessor	Passed
Element	Weighted average Highest																				
Wall	0.17 (max 0.30)	0.17 (max 0.70)																			
Party wall	0.00 (max 0.20)	N/A																			
Floor	0.12 (max 0.25)	0.12 (max 0.70)																			
Roof	(no roof)																				
Openings	1.40 (max 2.00)	1.40 (max 3.30)																			
Thermal bridging																					
How has the loss from thermal bridges been calculated?	Thermal bridging calculated using default y-value of 0.15	Authorised SAP Assessor																			
Heating and hot water systems																					
Does the efficiency of the heating systems meet the minimum value set out in the Domestic Heating Compliance Guide?	Community heating scheme Secondary heating system: None	Authorised SAP Assessor	N/A																		
Does the insulation of the hot water cylinder meet the standards set out in the Domestic Heating Compliance Guide?	No hot water cylinder in the dwelling	Authorised SAP Assessor																			
Do controls meet the minimum controls provision set out in the Domestic Heating Compliance Guide?	Space heating control: Charging system linked to use, programmer and TRVs No hot water cylinder in the dwelling	Authorised SAP Assessor	Passed																		
Fixed internal lighting																					

Check	Evidence	Produced by	OK?
Does fixed internal lighting comply with paragraphs 42 to 44?	Schedule of installed fixed internal lighting Standard lights = 0 Low energy lights = 10 Percentage of low energy lights = 100% Minimum = 75 %	Authorised SAP Assessor	Passed
Criterion 3: the dwelling has appropriate passive control measures to limit solar gains			
Does the dwelling have a strong tendency to high summertime temperatures?	Overheating risk (June) = Not significant (19.6°) Overheating risk (July) = Slight (21.31°) Overheating risk (August) = Slight (20.95°) Region = Thames Thermal mass parameter = 250.00 Ventilation rate in hot weather = 4.00 ach Blinds/curtains = None	Authorised SAP Assessor	Passed
Criterion 4: the performance of the dwelling, as designed, is consistent with the DER			
Design air permeability (m ³ /(h.m ²) at 50Pa)	Design air permeability = 3.00 Max air permeability = 10.00	Authorised SAP Assessor	Passed
Mechanical ventilation system Specific fan power (SFP)	Mechanical ventilation with heat recovery: SFP = 0.50 W/(litre/sec) Max SFP = 1.5 W/(litre/sec) Heat recovery efficiency = 91.00 % Min heat recovery efficiency = 70.00 %	Authorised SAP Assessor	Passed
Have the key features of the design been included (or bettered) in practice?	The following party walls have a U-value less than 0.2W/m ² K: - Party Wall (0.00) The following floors have a U-value less than 0.13W/m ² K: - Floor 1 (0.12) Design air permeability of 3 m ³ /(h.m ²) is less than 4 m ³ /(h.m ²) at 50 Pa Community heating with CHP - Mains gas Use of the following low carbon or renewable technologies: - Photovoltaic array	Authorised SAP Assessor	

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Client		Last modified	01/02/2018
Address	02 Block B, Hornsey Town Hall [Servicing Scheme TBC], London		

Check	Evidence	Produced by	OK?																		
Criterion 1: predicted carbon dioxide emission from proposed dwelling does not exceed the target																					
TER (kg CO ₂ /m ² .a)	Fuel = N/A Fuel factor = 1.00 TER = 15.55	Authorised SAP Assessor																			
DER for dwelling as designed (kg CO ₂ /m ² .a)	DER = 14.01	Authorised SAP Assessor																			
Are emissions from dwelling as designed less than or equal to the target?	DER 14.01 < TER 15.55	Authorised SAP Assessor	Passed																		
Is the fabric energy efficiency of the dwelling as designed less than or equal to the target?	DFEE 35.8 < TFEE 38.6	Authorised SAP Assessor	Passed																		
Criterion 2: the performance of the building fabric and the heating, hot water and fixed lighting systems should be no worse than the design limits																					
Fabric U-values																					
Are all U-values better than the design limits in Table 2?	<table><tr><th>Element</th><th colspan="2">Weighted average Highest</th></tr><tr><td>Wall</td><td>0.17 (max 0.30)</td><td>0.17 (max 0.70)</td></tr><tr><td>Party wall</td><td>0.00 (max 0.20)</td><td>N/A</td></tr><tr><td>Floor</td><td>0.12 (max 0.25)</td><td>0.12 (max 0.70)</td></tr><tr><td>Roof</td><td>(no roof)</td><td></td></tr><tr><td>Openings</td><td>1.40 (max 2.00)</td><td>1.40 (max 3.30)</td></tr></table>	Element	Weighted average Highest		Wall	0.17 (max 0.30)	0.17 (max 0.70)	Party wall	0.00 (max 0.20)	N/A	Floor	0.12 (max 0.25)	0.12 (max 0.70)	Roof	(no roof)		Openings	1.40 (max 2.00)	1.40 (max 3.30)	Authorised SAP Assessor	Passed
Element	Weighted average Highest																				
Wall	0.17 (max 0.30)	0.17 (max 0.70)																			
Party wall	0.00 (max 0.20)	N/A																			
Floor	0.12 (max 0.25)	0.12 (max 0.70)																			
Roof	(no roof)																				
Openings	1.40 (max 2.00)	1.40 (max 3.30)																			
Thermal bridging																					
How has the loss from thermal bridges been calculated?	Thermal bridging calculated using default y-value of 0.15	Authorised SAP Assessor																			
Heating and hot water systems																					
Does the efficiency of the heating systems meet the minimum value set out in the Domestic Heating Compliance Guide?	Community heating scheme Secondary heating system: None	Authorised SAP Assessor	N/A																		
Does the insulation of the hot water cylinder meet the standards set out in the Domestic Heating Compliance Guide?	No hot water cylinder in the dwelling	Authorised SAP Assessor																			
Do controls meet the minimum controls provision set out in the Domestic Heating Compliance Guide?	Space heating control: Charging system linked to use, programmer and TRVs No hot water cylinder in the dwelling	Authorised SAP Assessor	Passed																		
Fixed internal lighting																					

Check	Evidence	Produced by	OK?
Does fixed internal lighting comply with paragraphs 42 to 44?	Schedule of installed fixed internal lighting Standard lights = 0 Low energy lights = 10 Percentage of low energy lights = 100% Minimum = 75 %	Authorised SAP Assessor	Passed
Criterion 3: the dwelling has appropriate passive control measures to limit solar gains			
Does the dwelling have a strong tendency to high summertime temperatures?	Overheating risk (June) = Not significant (19.6°) Overheating risk (July) = Slight (21.31°) Overheating risk (August) = Slight (20.95°) Region = Thames Thermal mass parameter = 250.00 Ventilation rate in hot weather = 4.00 ach Blinds/curtains = None	Authorised SAP Assessor	Passed
Criterion 4: the performance of the dwelling, as designed, is consistent with the DER			
Design air permeability (m ³ /(h.m ²) at 50Pa)	Design air permeability = 3.00 Max air permeability = 10.00	Authorised SAP Assessor	Passed
Mechanical ventilation system Specific fan power (SFP)	Mechanical ventilation with heat recovery: SFP = 0.50 W/(litre/sec) Max SFP = 1.5 W/(litre/sec) Heat recovery efficiency = 91.00 % Min heat recovery efficiency = 70.00 %	Authorised SAP Assessor	Passed
Have the key features of the design been included (or bettered) in practice?	The following party walls have a U-value less than 0.2W/m ² K: • Party Wall (0.00) The following floors have a U-value less than 0.13W/m ² K: • Floor 1 (0.12) Design air permeability of 3 m ³ /(h.m ²) is less than 4 m ³ /(h.m ²) at 50 Pa	Authorised SAP Assessor	

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Client		Last modified	01/02/2018
Address	03 Block B, Hornsey Town Hall [Servicing Scheme TBC], London		

Check	Evidence	Produced by	OK?																		
Criterion 1: predicted carbon dioxide emission from proposed dwelling does not exceed the target																					
TER (kg CO ₂ /m ² .a)	Fuel = N/A Fuel factor = 1.00 TER = 15.78	Authorised SAP Assessor																			
DER for dwelling as designed (kg CO ₂ /m ² .a)	DER = 9.97	Authorised SAP Assessor																			
Are emissions from dwelling as designed less than or equal to the target?	DER 9.97 < TER 15.78	Authorised SAP Assessor	Passed																		
Is the fabric energy efficiency of the dwelling as designed less than or equal to the target?	DFEE 38.9 < TFEE 42.4	Authorised SAP Assessor	Passed																		
Criterion 2: the performance of the building fabric and the heating, hot water and fixed lighting systems should be no worse than the design limits																					
Fabric U-values																					
Are all U-values better than the design limits in Table 2?	<table><tr><th>Element</th><th colspan="2">Weighted average Highest</th></tr><tr><td>Wall</td><td>0.17 (max 0.30)</td><td>0.17 (max 0.70)</td></tr><tr><td>Party wall</td><td>0.00 (max 0.20)</td><td>N/A</td></tr><tr><td>Floor</td><td>0.13 (max 0.25)</td><td>0.13 (max 0.70)</td></tr><tr><td>Roof</td><td>(no roof)</td><td></td></tr><tr><td>Openings</td><td>1.33 (max 2.00)</td><td>1.40 (max 3.30)</td></tr></table>	Element	Weighted average Highest		Wall	0.17 (max 0.30)	0.17 (max 0.70)	Party wall	0.00 (max 0.20)	N/A	Floor	0.13 (max 0.25)	0.13 (max 0.70)	Roof	(no roof)		Openings	1.33 (max 2.00)	1.40 (max 3.30)	Authorised SAP Assessor	Passed
Element	Weighted average Highest																				
Wall	0.17 (max 0.30)	0.17 (max 0.70)																			
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Openings	1.33 (max 2.00)	1.40 (max 3.30)																			
Thermal bridging																					
How has the loss from thermal bridges been calculated?	Thermal bridging calculated using default y-value of 0.15	Authorised SAP Assessor																			
Heating and hot water systems																					
Does the efficiency of the heating systems meet the minimum value set out in the Domestic Heating Compliance Guide?	Community heating scheme Secondary heating system: None	Authorised SAP Assessor	N/A																		
Does the insulation of the hot water cylinder meet the standards set out in the Domestic Heating Compliance Guide?	No hot water cylinder in the dwelling	Authorised SAP Assessor																			
Do controls meet the minimum controls provision set out in the Domestic Heating Compliance Guide?	Space heating control: Charging system linked to use, programmer and TRVs No hot water cylinder in the dwelling	Authorised SAP Assessor	Passed																		
Fixed internal lighting																					

Check	Evidence	Produced by	OK?
Does fixed internal lighting comply with paragraphs 42 to 44?	Schedule of installed fixed internal lighting Standard lights = 0 Low energy lights = 10 Percentage of low energy lights = 100% Minimum = 75 %	Authorised SAP Assessor	Passed
Criterion 3: the dwelling has appropriate passive control measures to limit solar gains			
Does the dwelling have a strong tendency to high summertime temperatures?	Overheating risk (June) = Not significant (19.96°) Overheating risk (July) = Slight (21.65°) Overheating risk (August) = Slight (21.25°) Region = Thames Thermal mass parameter = 250.00 Ventilation rate in hot weather = 4.00 ach Blinds/curtains = None	Authorised SAP Assessor	Passed
Criterion 4: the performance of the dwelling, as designed, is consistent with the DER			
Design air permeability (m ³ /(h.m ²) at 50Pa)	Design air permeability = 3.00 Max air permeability = 10.00	Authorised SAP Assessor	Passed
Mechanical ventilation system Specific fan power (SFP)	Mechanical ventilation with heat recovery: SFP = 0.50 W/(litre/sec) Max SFP = 1.5 W/(litre/sec) Heat recovery efficiency = 91.00 % Min heat recovery efficiency = 70.00 %	Authorised SAP Assessor	Passed
Have the key features of the design been included (or bettered) in practice?	The following walls have a U-value less than 0.15W/m ² K: - W External (0.13) The following party walls have a U-value less than 0.2W/m ² K: - Party Wall (0.00) Design air permeability of 3 m ³ /(h.m ²) is less than 4 m ³ /(h.m ²) at 50 Pa Community heating with CHP - Mains gas	Authorised SAP Assessor	

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Address	03 Block B, Hornsey Town Hall [Servicing Scheme TBC], London		

Check	Evidence	Produced by	OK?																		
Criterion 1: predicted carbon dioxide emission from proposed dwelling does not exceed the target																					
TER (kg CO ₂ /m ² .a)	Fuel = N/A Fuel factor = 1.00 TER = 15.78	Authorised SAP Assessor																			
DER for dwelling as designed (kg CO ₂ /m ² .a)	DER = 7.78	Authorised SAP Assessor																			
Are emissions from dwelling as designed less than or equal to the target?	DER 7.78 < TER 15.78	Authorised SAP Assessor	Passed																		
Is the fabric energy efficiency of the dwelling as designed less than or equal to the target?	DFEE 38.9 < TFEE 42.4	Authorised SAP Assessor	Passed																		
Criterion 2: the performance of the building fabric and the heating, hot water and fixed lighting systems should be no worse than the design limits																					
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Are all U-values better than the design limits in Table 2?	<table><tr><th>Element</th><th colspan="2">Weighted average Highest</th></tr><tr><td>Wall</td><td>0.17 (max 0.30)</td><td>0.17 (max 0.70)</td></tr><tr><td>Party wall</td><td>0.00 (max 0.20)</td><td>N/A</td></tr><tr><td>Floor</td><td>0.13 (max 0.25)</td><td>0.13 (max 0.70)</td></tr><tr><td>Roof</td><td>(no roof)</td><td></td></tr><tr><td>Openings</td><td>1.33 (max 2.00)</td><td>1.40 (max 3.30)</td></tr></table>	Element	Weighted average Highest		Wall	0.17 (max 0.30)	0.17 (max 0.70)	Party wall	0.00 (max 0.20)	N/A	Floor	0.13 (max 0.25)	0.13 (max 0.70)	Roof	(no roof)		Openings	1.33 (max 2.00)	1.40 (max 3.30)	Authorised SAP Assessor	Passed
Element	Weighted average Highest																				
Wall	0.17 (max 0.30)	0.17 (max 0.70)																			
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Roof	(no roof)																				
Openings	1.33 (max 2.00)	1.40 (max 3.30)																			
Thermal bridging																					
How has the loss from thermal bridges been calculated?	Thermal bridging calculated using default y-value of 0.15	Authorised SAP Assessor																			
Heating and hot water systems																					
Does the efficiency of the heating systems meet the minimum value set out in the Domestic Heating Compliance Guide?	Community heating scheme Secondary heating system: None	Authorised SAP Assessor	N/A																		
Does the insulation of the hot water cylinder meet the standards set out in the Domestic Heating Compliance Guide?	No hot water cylinder in the dwelling	Authorised SAP Assessor																			
Do controls meet the minimum controls provision set out in the Domestic Heating Compliance Guide?	Space heating control: Charging system linked to use, programmer and TRVs No hot water cylinder in the dwelling	Authorised SAP Assessor	Passed																		
Fixed internal lighting																					

Check	Evidence	Produced by	OK?
Does fixed internal lighting comply with paragraphs 42 to 44?	Schedule of installed fixed internal lighting Standard lights = 0 Low energy lights = 10 Percentage of low energy lights = 100% Minimum = 75 %	Authorised SAP Assessor	Passed
Criterion 3: the dwelling has appropriate passive control measures to limit solar gains			
Does the dwelling have a strong tendency to high summertime temperatures?	Overheating risk (June) = Not significant (19.96°) Overheating risk (July) = Slight (21.65°) Overheating risk (August) = Slight (21.25°) Region = Thames Thermal mass parameter = 250.00 Ventilation rate in hot weather = 4.00 ach Blinds/curtains = None	Authorised SAP Assessor	Passed
Criterion 4: the performance of the dwelling, as designed, is consistent with the DER			
Design air permeability (m ³ /(h.m ²) at 50Pa)	Design air permeability = 3.00 Max air permeability = 10.00	Authorised SAP Assessor	Passed
Mechanical ventilation system Specific fan power (SFP)	Mechanical ventilation with heat recovery: SFP = 0.50 W/(litre/sec) Max SFP = 1.5 W/(litre/sec) Heat recovery efficiency = 91.00 % Min heat recovery efficiency = 70.00 %	Authorised SAP Assessor	Passed
Have the key features of the design been included (or bettered) in practice?	The following walls have a U-value less than 0.15W/m ² K: - W External (0.13) The following party walls have a U-value less than 0.2W/m ² K: - Party Wall (0.00) Design air permeability of 3 m ³ /(h.m ²) is less than 4 m ³ /(h.m ²) at 50 Pa Community heating with CHP - Mains gas Use of the following low carbon or renewable technologies: - Photovoltaic array	Authorised SAP Assessor	

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Assessor name	Mr David Partington	Assessor number	5662
Client		Last modified	01/02/2018
Address	03 Block B, Hornsey Town Hall [Servicing Scheme TBC], London		

Check	Evidence	Produced by	OK?																		
Criterion 1: predicted carbon dioxide emission from proposed dwelling does not exceed the target																					
TER (kg CO ₂ /m ² .a)	Fuel = N/A Fuel factor = 1.00 TER = 15.78	Authorised SAP Assessor																			
DER for dwelling as designed (kg CO ₂ /m ² .a)	DER = 14.35	Authorised SAP Assessor																			
Are emissions from dwelling as designed less than or equal to the target?	DER 14.35 < TER 15.78	Authorised SAP Assessor	Passed																		
Is the fabric energy efficiency of the dwellling as designed less than or equal to the target?	DFEE 38.9 < TFEE 42.4	Authorised SAP Assessor	Passed																		
Criterion 2: the performance of the building fabric and the heating, hot water and fixed lighting systems should be no worse than the design limits																					
Fabric U-values																					
Are all U-values better than the design limits in Table 2?	<table><tr><th>Element</th><th colspan="2">Weighted average Highest</th></tr><tr><td>Wall</td><td>0.17 (max 0.30)</td><td>0.17 (max 0.70)</td></tr><tr><td>Party wall</td><td>0.00 (max 0.20)</td><td>N/A</td></tr><tr><td>Floor</td><td>0.13 (max 0.25)</td><td>0.13 (max 0.70)</td></tr><tr><td>Roof</td><td>(no roof)</td><td></td></tr><tr><td>Openings</td><td>1.33 (max 2.00)</td><td>1.40 (max 3.30)</td></tr></table>	Element	Weighted average Highest		Wall	0.17 (max 0.30)	0.17 (max 0.70)	Party wall	0.00 (max 0.20)	N/A	Floor	0.13 (max 0.25)	0.13 (max 0.70)	Roof	(no roof)		Openings	1.33 (max 2.00)	1.40 (max 3.30)	Authorised SAP Assessor	Passed
Element	Weighted average Highest																				
Wall	0.17 (max 0.30)	0.17 (max 0.70)																			
Party wall	0.00 (max 0.20)	N/A																			
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Roof	(no roof)																				
Openings	1.33 (max 2.00)	1.40 (max 3.30)																			
Thermal bridging																					
How has the loss from thermal bridges been calculated?	Thermal bridging calculated using default y-value of 0.15	Authorised SAP Assessor																			
Heating and hot water systems																					
Does the efficiency of the heating systems meet the minimum value set out in the Domestic Heating Compliance Guide?	Community heating scheme Secondary heating system: None	Authorised SAP Assessor	N/A																		
Does the insulation of the hot water cylinder meet the standards set out in the Domestic Heating Compliance Guide?	No hot water cylinder in the dwelling	Authorised SAP Assessor																			
Do controls meet the minimum controls provision set out in the Domestic Heating Compliance Guide?	Space heating control: Charging system linked to use, programmer and TRVs No hot water cylinder in the dwelling	Authorised SAP Assessor	Passed																		
Fixed internal lighting																					

Check	Evidence	Produced by	OK?
Does fixed internal lighting comply with paragraphs 42 to 44?	Schedule of installed fixed internal lighting Standard lights = 0 Low energy lights = 10 Percentage of low energy lights = 100% Minimum = 75 %	Authorised SAP Assessor	Passed
Criterion 3: the dwelling has appropriate passive control measures to limit solar gains			
Does the dwelling have a strong tendency to high summertime temperatures?	Overheating risk (June) = Not significant (19.96°) Overheating risk (July) = Slight (21.65°) Overheating risk (August) = Slight (21.25°) Region = Thames Thermal mass parameter = 250.00 Ventilation rate in hot weather = 4.00 ach Blinds/curtains = None	Authorised SAP Assessor	Passed
Criterion 4: the performance of the dwelling, as designed, is consistent with the DER			
Design air permeability (m ³ /(h.m ²) at 50Pa)	Design air permeability = 3.00 Max air permeability = 10.00	Authorised SAP Assessor	Passed
Mechanical ventilation system Specific fan power (SFP)	Mechanical ventilation with heat recovery: SFP = 0.50 W/(litre/sec) Max SFP = 1.5 W/(litre/sec) Heat recovery efficiency = 91.00 % Min heat recovery efficiency = 70.00 %	Authorised SAP Assessor	Passed
Have the key features of the design been included (or bettered) in practice?	The following walls have a U-value less than 0.15W/m ² K: • W External (0.13) The following party walls have a U-value less than 0.2W/m ² K: • Party Wall (0.00) Design air permeability of 3 m ³ /(h.m ²) is less than 4 m ³ /(h.m ²) at 50 Pa	Authorised SAP Assessor	

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Assessor name	Mr David Partington	Assessor number	5662
Client		Last modified	01/02/2018
Address	06 Block B, Hornsey Town Hall [Servicing Scheme TBC], London		

Check	Evidence	Produced by	OK?																		
Criterion 1: predicted carbon dioxide emission from proposed dwelling does not exceed the target																					
TER (kg CO ₂ /m ² .a)	Fuel = N/A Fuel factor = 1.00 TER = 13.83	Authorised SAP Assessor																			
DER for dwelling as designed (kg CO ₂ /m ² .a)	DER = 8.66	Authorised SAP Assessor																			
Are emissions from dwelling as designed less than or equal to the target?	DER 8.66 < TER 13.83	Authorised SAP Assessor	Passed																		
Is the fabric energy efficiency of the dwellling as designed less than or equal to the target?	DFEE 29.4 < TFEE 32.8	Authorised SAP Assessor	Passed																		
Criterion 2: the performance of the building fabric and the heating, hot water and fixed lighting systems should be no worse than the design limits																					
Fabric U-values																					
Are all U-values better than the design limits in Table 2?	<table><tr><th>Element</th><th colspan="2">Weighted average Highest</th></tr><tr><td>Wall</td><td>0.17 (max 0.30)</td><td>0.17 (max 0.70)</td></tr><tr><td>Party wall</td><td>0.00 (max 0.20)</td><td>N/A</td></tr><tr><td>Floor</td><td>(no floor)</td><td></td></tr><tr><td>Roof</td><td>(no roof)</td><td></td></tr><tr><td>Openings</td><td>1.33 (max 2.00)</td><td>1.40 (max 3.30)</td></tr></table>	Element	Weighted average Highest		Wall	0.17 (max 0.30)	0.17 (max 0.70)	Party wall	0.00 (max 0.20)	N/A	Floor	(no floor)		Roof	(no roof)		Openings	1.33 (max 2.00)	1.40 (max 3.30)	Authorised SAP Assessor	Passed
Element	Weighted average Highest																				
Wall	0.17 (max 0.30)	0.17 (max 0.70)																			
Party wall	0.00 (max 0.20)	N/A																			
Floor	(no floor)																				
Roof	(no roof)																				
Openings	1.33 (max 2.00)	1.40 (max 3.30)																			
Thermal bridging																					
How has the loss from thermal bridges been calculated?	Thermal bridging calculated using default y-value of 0.15	Authorised SAP Assessor																			
Heating and hot water systems																					
Does the efficiency of the heating systems meet the minimum value set out in the Domestic Heating Compliance Guide?	Community heating scheme Secondary heating system: None	Authorised SAP Assessor	N/A																		
Does the insulation of the hot water cylinder meet the standards set out in the Domestic Heating Compliance Guide?	No hot water cylinder in the dwelling	Authorised SAP Assessor																			
Do controls meet the minimum controls provision set out in the Domestic Heating Compliance Guide?	Space heating control: Charging system linked to use, programmer and TRVs No hot water cylinder in the dwelling	Authorised SAP Assessor	Passed																		
Fixed internal lighting																					

Check	Evidence	Produced by	OK?
Does fixed internal lighting comply with paragraphs 42 to 44?	Schedule of installed fixed internal lighting Standard lights = 0 Low energy lights = 10 Percentage of low energy lights = 100% Minimum = 75 %	Authorised SAP Assessor	Passed
Criterion 3: the dwelling has appropriate passive control measures to limit solar gains			
Does the dwelling have a strong tendency to high summertime temperatures?	Overheating risk (June) = Not significant (20.44°) Overheating risk (July) = Medium (22.17°) Overheating risk (August) = Slight (21.97°) Region = Thames Thermal mass parameter = 250.00 Ventilation rate in hot weather = 4.00 ach Blinds/curtains = None	Authorised SAP Assessor	Passed
Criterion 4: the performance of the dwelling, as designed, is consistent with the DER			
Design air permeability (m ³ /(h.m ²) at 50Pa)	Design air permeability = 3.00 Max air permeability = 10.00	Authorised SAP Assessor	Passed
Mechanical ventilation system Specific fan power (SFP)	Mechanical ventilation with heat recovery: SFP = 0.50 W/(litre/sec) Max SFP = 1.5 W/(litre/sec) Heat recovery efficiency = 91.00 % Min heat recovery efficiency = 70.00 %	Authorised SAP Assessor	Passed
Have the key features of the design been included (or bettered) in practice?	The following party walls have a U-value less than 0.2W/m ² K: • Party Wall (0.00) Design air permeability of 3 m ³ /(h.m ²) is less than 4 m ³ /(h.m ²) at 50 Pa Community heating with CHP - Mains gas	Authorised SAP Assessor	

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Assessor name	Mr David Partington	Assessor number	5662
Client		Last modified	01/02/2018
Address	06 Block B, Hornsey Town Hall [Servicing Scheme TBC], London		

Check	Evidence	Produced by	OK?																		
Criterion 1: predicted carbon dioxide emission from proposed dwelling does not exceed the target																					
TER (kg CO ₂ /m ² .a)	Fuel = N/A Fuel factor = 1.00 TER = 13.83	Authorised SAP Assessor																			
DER for dwelling as designed (kg CO ₂ /m ² .a)	DER = 6.47	Authorised SAP Assessor																			
Are emissions from dwelling as designed less than or equal to the target?	DER 6.47 < TER 13.83	Authorised SAP Assessor	Passed																		
Is the fabric energy efficiency of the dwelling as designed less than or equal to the target?	DFEE 29.4 < TFEE 32.8	Authorised SAP Assessor	Passed																		
Criterion 2: the performance of the building fabric and the heating, hot water and fixed lighting systems should be no worse than the design limits																					
Fabric U-values																					
Are all U-values better than the design limits in Table 2?	<table><tr><th>Element</th><th colspan="2">Weighted average Highest</th></tr><tr><td>Wall</td><td>0.17 (max 0.30)</td><td>0.17 (max 0.70)</td></tr><tr><td>Party wall</td><td>0.00 (max 0.20)</td><td>N/A</td></tr><tr><td>Floor</td><td>(no floor)</td><td></td></tr><tr><td>Roof</td><td>(no roof)</td><td></td></tr><tr><td>Openings</td><td>1.33 (max 2.00)</td><td>1.40 (max 3.30)</td></tr></table>	Element	Weighted average Highest		Wall	0.17 (max 0.30)	0.17 (max 0.70)	Party wall	0.00 (max 0.20)	N/A	Floor	(no floor)		Roof	(no roof)		Openings	1.33 (max 2.00)	1.40 (max 3.30)	Authorised SAP Assessor	Passed
Element	Weighted average Highest																				
Wall	0.17 (max 0.30)	0.17 (max 0.70)																			
Party wall	0.00 (max 0.20)	N/A																			
Floor	(no floor)																				
Roof	(no roof)																				
Openings	1.33 (max 2.00)	1.40 (max 3.30)																			
Thermal bridging																					
How has the loss from thermal bridges been calculated?	Thermal bridging calculated using default y-value of 0.15	Authorised SAP Assessor																			
Heating and hot water systems																					
Does the efficiency of the heating systems meet the minimum value set out in the Domestic Heating Compliance Guide?	Community heating scheme Secondary heating system: None	Authorised SAP Assessor	N/A																		
Does the insulation of the hot water cylinder meet the standards set out in the Domestic Heating Compliance Guide?	No hot water cylinder in the dwelling	Authorised SAP Assessor																			
Do controls meet the minimum controls provision set out in the Domestic Heating Compliance Guide?	Space heating control: Charging system linked to use, programmer and TRVs No hot water cylinder in the dwelling	Authorised SAP Assessor	Passed																		
Fixed internal lighting																					

Check	Evidence	Produced by	OK?
Does fixed internal lighting comply with paragraphs 42 to 44?	Schedule of installed fixed internal lighting Standard lights = 0 Low energy lights = 10 Percentage of low energy lights = 100% Minimum = 75 %	Authorised SAP Assessor	Passed
Criterion 3: the dwelling has appropriate passive control measures to limit solar gains			
Does the dwelling have a strong tendency to high summertime temperatures?	Overheating risk (June) = Not significant (20.44°) Overheating risk (July) = Medium (22.17°) Overheating risk (August) = Slight (21.97°) Region = Thames Thermal mass parameter = 250.00 Ventilation rate in hot weather = 4.00 ach Blinds/curtains = None	Authorised SAP Assessor	Passed
Criterion 4: the performance of the dwelling, as designed, is consistent with the DER			
Design air permeability (m ³ /(h.m ²) at 50Pa)	Design air permeability = 3.00 Max air permeability = 10.00	Authorised SAP Assessor	Passed
Mechanical ventilation system Specific fan power (SFP)	Mechanical ventilation with heat recovery: SFP = 0.50 W/(litre/sec) Max SFP = 1.5 W/(litre/sec) Heat recovery efficiency = 91.00 % Min heat recovery efficiency = 70.00 %	Authorised SAP Assessor	Passed
Have the key features of the design been included (or bettered) in practice?	The following party walls have a U-value less than 0.2W/m ² K: • Party Wall (0.00) Design air permeability of 3 m ³ /(h.m ²) is less than 4 m ³ /(h.m ²) at 50 Pa Community heating with CHP - Mains gas Use of the following low carbon or renewable technologies: • Photovoltaic array	Authorised SAP Assessor	

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Assessor name	Mr David Partington	Assessor number	5662
Client		Last modified	01/02/2018
Address	06 Block B, Hornsey Town Hall [Servicing Scheme TBC], London		

Check	Evidence	Produced by	OK?																		
Criterion 1: predicted carbon dioxide emission from proposed dwelling does not exceed the target																					
TER (kg CO ₂ /m ² .a)	Fuel = N/A Fuel factor = 1.00 TER = 13.83	Authorised SAP Assessor																			
DER for dwelling as designed (kg CO ₂ /m ² .a)	DER = 12.17	Authorised SAP Assessor																			
Are emissions from dwelling as designed less than or equal to the target?	DER 12.17 < TER 13.83	Authorised SAP Assessor	Passed																		
Is the fabric energy efficiency of the dwellling as designed less than or equal to the target?	DFEE 29.4 < TFEE 32.8	Authorised SAP Assessor	Passed																		
Criterion 2: the performance of the building fabric and the heating, hot water and fixed lighting systems should be no worse than the design limits																					
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Element	Weighted average Highest																				
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Floor	(no floor)																				
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Openings	1.33 (max 2.00)	1.40 (max 3.30)																			
Thermal bridging																					
How has the loss from thermal bridges been calculated?	Thermal bridging calculated using default y-value of 0.15	Authorised SAP Assessor																			
Heating and hot water systems																					
Does the efficiency of the heating systems meet the minimum value set out in the Domestic Heating Compliance Guide?	Community heating scheme Secondary heating system: None	Authorised SAP Assessor	N/A																		
Does the insulation of the hot water cylinder meet the standards set out in the Domestic Heating Compliance Guide?	No hot water cylinder in the dwelling	Authorised SAP Assessor																			
Do controls meet the minimum controls provision set out in the Domestic Heating Compliance Guide?	Space heating control: Charging system linked to use, programmer and TRVs No hot water cylinder in the dwelling	Authorised SAP Assessor	Passed																		
Fixed internal lighting																					

Check	Evidence	Produced by	OK?
Does fixed internal lighting comply with paragraphs 42 to 44?	Schedule of installed fixed internal lighting Standard lights = 0 Low energy lights = 10 Percentage of low energy lights = 100% Minimum = 75 %	Authorised SAP Assessor	Passed
Criterion 3: the dwelling has appropriate passive control measures to limit solar gains			
Does the dwelling have a strong tendency to high summertime temperatures?	Overheating risk (June) = Not significant (20.44°) Overheating risk (July) = Medium (22.17°) Overheating risk (August) = Slight (21.97°) Region = Thames Thermal mass parameter = 250.00 Ventilation rate in hot weather = 4.00 ach Blinds/curtains = None	Authorised SAP Assessor	Passed
Criterion 4: the performance of the dwelling, as designed, is consistent with the DER			
Design air permeability (m ³ /(h.m ²) at 50Pa)	Design air permeability = 3.00 Max air permeability = 10.00	Authorised SAP Assessor	Passed
Mechanical ventilation system Specific fan power (SFP)	Mechanical ventilation with heat recovery: SFP = 0.50 W/(litre/sec) Max SFP = 1.5 W/(litre/sec) Heat recovery efficiency = 91.00 % Min heat recovery efficiency = 70.00 %	Authorised SAP Assessor	Passed
Have the key features of the design been included (or bettered) in practice?	The following party walls have a U-value less than 0.2W/m ² K: • Party Wall (0.00) Design air permeability of 3 m ³ /(h.m ²) is less than 4 m ³ /(h.m ²) at 50 Pa	Authorised SAP Assessor	

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Assessor name	Mr David Partington	Assessor number	5662
Client		Last modified	31/01/2018
Address	01 Hornsey Town Hall [Servicing Scheme TBC], London		

Check	Evidence	Produced by	OK?																		
Criterion 1: predicted carbon dioxide emission from proposed dwelling does not exceed the target																					
TER (kg CO ₂ /m ² .a)	Fuel = N/A Fuel factor = 1.00 TER = 14.79	Authorised SAP Assessor																			
DER for dwelling as designed (kg CO ₂ /m ² .a)	DER = 9.28	Authorised SAP Assessor																			
Are emissions from dwelling as designed less than or equal to the target?	DER 9.28 < TER 14.79	Authorised SAP Assessor	Passed																		
Is the fabric energy efficiency of the dwellling as designed less than or equal to the target?	DFEE 35.5 < TFEE 38.9	Authorised SAP Assessor	Passed																		
Criterion 2: the performance of the building fabric and the heating, hot water and fixed lighting systems should be no worse than the design limits																					
Fabric U-values																					
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Do controls meet the minimum controls provision set out in the Domestic Heating Compliance Guide?	Space heating control: Charging system linked to use, programmer and TRVs No hot water cylinder in the dwelling	Authorised SAP Assessor	Passed																		
Fixed internal lighting																					

Check	Evidence	Produced by	OK?
Does fixed internal lighting comply with paragraphs 42 to 44?	Schedule of installed fixed internal lighting Standard lights = 0 Low energy lights = 10 Percentage of low energy lights = 100% Minimum = 75 %	Authorised SAP Assessor	Passed
Criterion 3: the dwelling has appropriate passive control measures to limit solar gains			
Does the dwelling have a strong tendency to high summertime temperatures?	Overheating risk (June) = Not significant (20.18°) Overheating risk (July) = Slight (21.88°) Overheating risk (August) = Slight (21.52°) Region = Thames Thermal mass parameter = 250.00 Ventilation rate in hot weather = 4.00 ach Blinds/curtains = None	Authorised SAP Assessor	Passed
Criterion 4: the performance of the dwelling, as designed, is consistent with the DER			
Design air permeability (m ³ /(h.m ²) at 50Pa)	Design air permeability = 3.00 Max air permeability = 10.00	Authorised SAP Assessor	Passed
Mechanical ventilation system Specific fan power (SFP)	Mechanical ventilation with heat recovery: SFP = 0.50 W/(litre/sec) Max SFP = 1.5 W/(litre/sec) Heat recovery efficiency = 91.00 % Min heat recovery efficiency = 70.00 %	Authorised SAP Assessor	Passed
Have the key features of the design been included (or bettered) in practice?	The following party walls have a U-value less than 0.2W/m ² K: • Party Wall (0.00) Design air permeability of 3 m ³ /(h.m ²) is less than 4 m ³ /(h.m ²) at 50 Pa Community heating with CHP - Mains gas	Authorised SAP Assessor	

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Assessor name	Mr David Partington	Assessor number	5662
Client		Last modified	31/01/2018
Address	01 Hornsey Town Hall [Servicing Scheme TBC], London		

Check	Evidence	Produced by	OK?																		
Criterion 1: predicted carbon dioxide emission from proposed dwelling does not exceed the target																					
TER (kg CO ₂ /m ² .a)	Fuel = N/A Fuel factor = 1.00 TER = 14.79	Authorised SAP Assessor																			
DER for dwelling as designed (kg CO ₂ /m ² .a)	DER = 7.09	Authorised SAP Assessor																			
Are emissions from dwelling as designed less than or equal to the target?	DER 7.09 < TER 14.79	Authorised SAP Assessor	Passed																		
Is the fabric energy efficiency of the dwelling as designed less than or equal to the target?	DFEE 35.5 < TFEE 38.9	Authorised SAP Assessor	Passed																		
Criterion 2: the performance of the building fabric and the heating, hot water and fixed lighting systems should be no worse than the design limits																					
Fabric U-values																					
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Openings	1.33 (max 2.00)	1.40 (max 3.30)																			
Thermal bridging																					
How has the loss from thermal bridges been calculated?	Thermal bridging calculated using default y-value of 0.15	Authorised SAP Assessor																			
Heating and hot water systems																					
Does the efficiency of the heating systems meet the minimum value set out in the Domestic Heating Compliance Guide?	Community heating scheme Secondary heating system: None	Authorised SAP Assessor	N/A																		
Does the insulation of the hot water cylinder meet the standards set out in the Domestic Heating Compliance Guide?	No hot water cylinder in the dwelling	Authorised SAP Assessor																			
Do controls meet the minimum controls provision set out in the Domestic Heating Compliance Guide?	Space heating control: Charging system linked to use, programmer and TRVs No hot water cylinder in the dwelling	Authorised SAP Assessor	Passed																		
Fixed internal lighting																					

Check	Evidence	Produced by	OK?
Does fixed internal lighting comply with paragraphs 42 to 44?	Schedule of installed fixed internal lighting Standard lights = 0 Low energy lights = 10 Percentage of low energy lights = 100% Minimum = 75 %	Authorised SAP Assessor	Passed
Criterion 3: the dwelling has appropriate passive control measures to limit solar gains			
Does the dwelling have a strong tendency to high summertime temperatures?	Overheating risk (June) = Not significant (20.18°) Overheating risk (July) = Slight (21.88°) Overheating risk (August) = Slight (21.52°) Region = Thames Thermal mass parameter = 250.00 Ventilation rate in hot weather = 4.00 ach Blinds/curtains = None	Authorised SAP Assessor	Passed
Criterion 4: the performance of the dwelling, as designed, is consistent with the DER			
Design air permeability (m ³ /(h.m ²) at 50Pa)	Design air permeability = 3.00 Max air permeability = 10.00	Authorised SAP Assessor	Passed
Mechanical ventilation system Specific fan power (SFP)	Mechanical ventilation with heat recovery: SFP = 0.50 W/(litre/sec) Max SFP = 1.5 W/(litre/sec) Heat recovery efficiency = 91.00 % Min heat recovery efficiency = 70.00 %	Authorised SAP Assessor	Passed
Have the key features of the design been included (or bettered) in practice?	The following party walls have a U-value less than 0.2W/m ² K: - Party Wall (0.00) Design air permeability of 3 m ³ /(h.m ²) is less than 4 m ³ /(h.m ²) at 50 Pa Community heating with CHP - Mains gas Use of the following low carbon or renewable technologies: - Photovoltaic array	Authorised SAP Assessor	

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Assessor name	Mr David Partington	Assessor number	5662
Client		Last modified	31/01/2018
Address	01 Hornsey Town Hall [Servicing Scheme TBC], London		

Check	Evidence	Produced by	OK?																		
Criterion 1: predicted carbon dioxide emission from proposed dwelling does not exceed the target																					
TER (kg CO ₂ /m ² .a)	Fuel = N/A Fuel factor = 1.00 TER = 14.79	Authorised SAP Assessor																			
DER for dwelling as designed (kg CO ₂ /m ² .a)	DER = 13.22	Authorised SAP Assessor																			
Are emissions from dwelling as designed less than or equal to the target?	DER 13.22 < TER 14.79	Authorised SAP Assessor	Passed																		
Is the fabric energy efficiency of the dwelling as designed less than or equal to the target?	DFEE 35.5 < TFEE 38.9	Authorised SAP Assessor	Passed																		
Criterion 2: the performance of the building fabric and the heating, hot water and fixed lighting systems should be no worse than the design limits																					
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How has the loss from thermal bridges been calculated?	Thermal bridging calculated using default y-value of 0.15	Authorised SAP Assessor																			
Heating and hot water systems																					
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Fixed internal lighting																					

Check	Evidence	Produced by	OK?
Does fixed internal lighting comply with paragraphs 42 to 44?	Schedule of installed fixed internal lighting Standard lights = 0 Low energy lights = 10 Percentage of low energy lights = 100% Minimum = 75 %	Authorised SAP Assessor	Passed
Criterion 3: the dwelling has appropriate passive control measures to limit solar gains			
Does the dwelling have a strong tendency to high summertime temperatures?	Overheating risk (June) = Not significant (20.18°) Overheating risk (July) = Slight (21.88°) Overheating risk (August) = Slight (21.52°) Region = Thames Thermal mass parameter = 250.00 Ventilation rate in hot weather = 4.00 ach Blinds/curtains = None	Authorised SAP Assessor	Passed
Criterion 4: the performance of the dwelling, as designed, is consistent with the DER			
Design air permeability (m ³ /(h.m ²) at 50Pa)	Design air permeability = 3.00 Max air permeability = 10.00	Authorised SAP Assessor	Passed
Mechanical ventilation system Specific fan power (SFP)	Mechanical ventilation with heat recovery: SFP = 0.50 W/(litre/sec) Max SFP = 1.5 W/(litre/sec) Heat recovery efficiency = 91.00 % Min heat recovery efficiency = 70.00 %	Authorised SAP Assessor	Passed
Have the key features of the design been included (or bettered) in practice?	The following party walls have a U-value less than 0.2W/m ² K: • Party Wall (0.00) Design air permeability of 3 m ³ /(h.m ²) is less than 4 m ³ /(h.m ²) at 50 Pa	Authorised SAP Assessor	

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Assessor name	Mr David Partington	Assessor number	5662
Client		Last modified	31/01/2018
Address	04 Block B, Hornsey Town Hall [Servicing Scheme TBC], London		

Check	Evidence	Produced by	OK?																		
Criterion 1: predicted carbon dioxide emission from proposed dwelling does not exceed the target																					
TER (kg CO ₂ /m ² .a)	Fuel = N/A Fuel factor = 1.00 TER = 14.27	Authorised SAP Assessor																			
DER for dwelling as designed (kg CO ₂ /m ² .a)	DER = 9.23	Authorised SAP Assessor																			
Are emissions from dwelling as designed less than or equal to the target?	DER 9.23 < TER 14.27	Authorised SAP Assessor	Passed																		
Is the fabric energy efficiency of the dwellling as designed less than or equal to the target?	DFEE 33.5 < TFEE 34.1	Authorised SAP Assessor	Passed																		
Criterion 2: the performance of the building fabric and the heating, hot water and fixed lighting systems should be no worse than the design limits																					
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Thermal bridging																					
How has the loss from thermal bridges been calculated?	Thermal bridging calculated using default y-value of 0.15	Authorised SAP Assessor																			
Heating and hot water systems																					
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Fixed internal lighting																					

Check	Evidence	Produced by	OK?
Does fixed internal lighting comply with paragraphs 42 to 44?	Schedule of installed fixed internal lighting Standard lights = 0 Low energy lights = 10 Percentage of low energy lights = 100% Minimum = 75 %	Authorised SAP Assessor	Passed
Criterion 3: the dwelling has appropriate passive control measures to limit solar gains			
Does the dwelling have a strong tendency to high summertime temperatures?	Overheating risk (June) = Slight (21.42°) Overheating risk (July) = Medium (23.1°) Overheating risk (August) = Medium (22.86°) Region = Thames Thermal mass parameter = 250.00 Ventilation rate in hot weather = 4.00 ach Blinds/curtains = None	Authorised SAP Assessor	Passed
Criterion 4: the performance of the dwelling, as designed, is consistent with the DER			
Design air permeability (m ³ /(h.m ²) at 50Pa)	Design air permeability = 3.00 Max air permeability = 10.00	Authorised SAP Assessor	Passed
Mechanical ventilation system Specific fan power (SFP)	Mechanical ventilation with heat recovery: SFP = 0.50 W/(litre/sec) Max SFP = 1.5 W/(litre/sec) Heat recovery efficiency = 91.00 % Min heat recovery efficiency = 70.00 %	Authorised SAP Assessor	Passed
Have the key features of the design been included (or bettered) in practice?	The following party walls have a U-value less than 0.2W/m ² K: • Party Wall (0.00) Design air permeability of 3 m ³ /(h.m ²) is less than 4 m ³ /(h.m ²) at 50 Pa Community heating with CHP - Mains gas	Authorised SAP Assessor	

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Client		Last modified	31/01/2018
Address	04 Block B, Hornsey Town Hall [Servicing Scheme TBC], London		

Check	Evidence	Produced by	OK?																		
Criterion 1: predicted carbon dioxide emission from proposed dwelling does not exceed the target																					
TER (kg CO ₂ /m ² .a)	Fuel = N/A Fuel factor = 1.00 TER = 14.27	Authorised SAP Assessor																			
DER for dwelling as designed (kg CO ₂ /m ² .a)	DER = 7.04	Authorised SAP Assessor																			
Are emissions from dwelling as designed less than or equal to the target?	DER 7.04 < TER 14.27	Authorised SAP Assessor	Passed																		
Is the fabric energy efficiency of the dwelling as designed less than or equal to the target?	DFEE 33.5 < TFEE 34.1	Authorised SAP Assessor	Passed																		
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Criterion 3: the dwelling has appropriate passive control measures to limit solar gains			
Does the dwelling have a strong tendency to high summertime temperatures?	Overheating risk (June) = Slight (21.42°) Overheating risk (July) = Medium (23.1°) Overheating risk (August) = Medium (22.86°) Region = Thames Thermal mass parameter = 250.00 Ventilation rate in hot weather = 4.00 ach Blinds/curtains = None	Authorised SAP Assessor	Passed
Criterion 4: the performance of the dwelling, as designed, is consistent with the DER			
Design air permeability (m ³ /(h.m ²) at 50Pa)	Design air permeability = 3.00 Max air permeability = 10.00	Authorised SAP Assessor	Passed
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Address	04 Block B, Hornsey Town Hall [Servicing Scheme TBC], London		

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Criterion 1: predicted carbon dioxide emission from proposed dwelling does not exceed the target																					
TER (kg CO ₂ /m ² .a)	Fuel = N/A Fuel factor = 1.00 TER = 14.27	Authorised SAP Assessor																			
DER for dwelling as designed (kg CO ₂ /m ² .a)	DER = 13.11	Authorised SAP Assessor																			
Are emissions from dwelling as designed less than or equal to the target?	DER 13.11 < TER 14.27	Authorised SAP Assessor	Passed																		
Is the fabric energy efficiency of the dwelling as designed less than or equal to the target?	DFEE 33.5 < TFEE 34.1	Authorised SAP Assessor	Passed																		
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Does fixed internal lighting comply with paragraphs 42 to 44?	Schedule of installed fixed internal lighting Standard lights = 0 Low energy lights = 10 Percentage of low energy lights = 100% Minimum = 75 %	Authorised SAP Assessor	Passed
Criterion 3: the dwelling has appropriate passive control measures to limit solar gains			
Does the dwelling have a strong tendency to high summertime temperatures?	Overheating risk (June) = Slight (21.42°) Overheating risk (July) = Medium (23.1°) Overheating risk (August) = Medium (22.86°) Region = Thames Thermal mass parameter = 250.00 Ventilation rate in hot weather = 4.00 ach Blinds/curtains = None	Authorised SAP Assessor	Passed
Criterion 4: the performance of the dwelling, as designed, is consistent with the DER			
Design air permeability (m ³ /(h.m ²) at 50Pa)	Design air permeability = 3.00 Max air permeability = 10.00	Authorised SAP Assessor	Passed
Mechanical ventilation system Specific fan power (SFP)	Mechanical ventilation with heat recovery: SFP = 0.50 W/(litre/sec) Max SFP = 1.5 W/(litre/sec) Heat recovery efficiency = 91.00 % Min heat recovery efficiency = 70.00 %	Authorised SAP Assessor	Passed
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Address	05 Block B, Hornsey Town Hall [Servicing Scheme TBC], London		

Check	Evidence	Produced by	OK?																		
Criterion 1: predicted carbon dioxide emission from proposed dwelling does not exceed the target																					
TER (kg CO ₂ /m ² .a)	Fuel = N/A Fuel factor = 1.00 TER = 13.41	Authorised SAP Assessor																			
DER for dwelling as designed (kg CO ₂ /m ² .a)	DER = 8.27	Authorised SAP Assessor																			
Are emissions from dwelling as designed less than or equal to the target?	DER 8.27 < TER 13.41	Authorised SAP Assessor	Passed																		
Is the fabric energy efficiency of the dwelling as designed less than or equal to the target?	DFEE 25.3 < TFEE 28.7	Authorised SAP Assessor	Passed																		
Criterion 2: the performance of the building fabric and the heating, hot water and fixed lighting systems should be no worse than the design limits																					
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Criterion 3: the dwelling has appropriate passive control measures to limit solar gains			
Does the dwelling have a strong tendency to high summertime temperatures?	Overheating risk (June) = Not significant (20.48°) Overheating risk (July) = Medium (22.22°) Overheating risk (August) = Medium (22.08°) Region = Thames Thermal mass parameter = 250.00 Ventilation rate in hot weather = 4.00 ach Blinds/curtains = None	Authorised SAP Assessor	Passed
Criterion 4: the performance of the dwelling, as designed, is consistent with the DER			
Design air permeability (m ³ /(h.m ²) at 50Pa)	Design air permeability = 3.00 Max air permeability = 10.00	Authorised SAP Assessor	Passed
Mechanical ventilation system Specific fan power (SFP)	Mechanical ventilation with heat recovery: SFP = 0.50 W/(litre/sec) Max SFP = 1.5 W/(litre/sec) Heat recovery efficiency = 91.00 % Min heat recovery efficiency = 70.00 %	Authorised SAP Assessor	Passed
Have the key features of the design been included (or bettered) in practice?	The following party walls have a U-value less than 0.2W/m ² K: • Party Wall (0.00) Design air permeability of 3 m ³ /(h.m ²) is less than 4 m ³ /(h.m ²) at 50 Pa Community heating with CHP - Mains gas	Authorised SAP Assessor	

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Assessor name	Mr David Partington	Assessor number	5662
Client		Last modified	31/01/2018
Address	05 Block B, Hornsey Town Hall [Servicing Scheme TBC], London		

Check	Evidence	Produced by	OK?																		
Criterion 1: predicted carbon dioxide emission from proposed dwelling does not exceed the target																					
TER (kg CO ₂ /m ² .a)	Fuel = N/A Fuel factor = 1.00 TER = 13.41	Authorised SAP Assessor																			
DER for dwelling as designed (kg CO ₂ /m ² .a)	DER = 6.08	Authorised SAP Assessor																			
Are emissions from dwelling as designed less than or equal to the target?	DER 6.08 < TER 13.41	Authorised SAP Assessor	Passed																		
Is the fabric energy efficiency of the dwelling as designed less than or equal to the target?	DFEE 25.3 < TFEE 28.7	Authorised SAP Assessor	Passed																		
Criterion 2: the performance of the building fabric and the heating, hot water and fixed lighting systems should be no worse than the design limits																					
Fabric U-values																					
Are all U-values better than the design limits in Table 2?	<table><tr><th>Element</th><th colspan="2">Weighted average Highest</th></tr><tr><td>Wall</td><td>0.17 (max 0.30)</td><td>0.17 (max 0.70)</td></tr><tr><td>Party wall</td><td>0.00 (max 0.20)</td><td>N/A</td></tr><tr><td>Floor</td><td>(no floor)</td><td></td></tr><tr><td>Roof</td><td>(no roof)</td><td></td></tr><tr><td>Openings</td><td>1.32 (max 2.00)</td><td>1.40 (max 3.30)</td></tr></table>	Element	Weighted average Highest		Wall	0.17 (max 0.30)	0.17 (max 0.70)	Party wall	0.00 (max 0.20)	N/A	Floor	(no floor)		Roof	(no roof)		Openings	1.32 (max 2.00)	1.40 (max 3.30)	Authorised SAP Assessor	Passed
Element	Weighted average Highest																				
Wall	0.17 (max 0.30)	0.17 (max 0.70)																			
Party wall	0.00 (max 0.20)	N/A																			
Floor	(no floor)																				
Roof	(no roof)																				
Openings	1.32 (max 2.00)	1.40 (max 3.30)																			
Thermal bridging																					
How has the loss from thermal bridges been calculated?	Thermal bridging calculated using default y-value of 0.15	Authorised SAP Assessor																			
Heating and hot water systems																					
Does the efficiency of the heating systems meet the minimum value set out in the Domestic Heating Compliance Guide?	Community heating scheme Secondary heating system: None	Authorised SAP Assessor	N/A																		
Does the insulation of the hot water cylinder meet the standards set out in the Domestic Heating Compliance Guide?	No hot water cylinder in the dwelling	Authorised SAP Assessor																			
Do controls meet the minimum controls provision set out in the Domestic Heating Compliance Guide?	Space heating control: Charging system linked to use, programmer and TRVs No hot water cylinder in the dwelling	Authorised SAP Assessor	Passed																		
Fixed internal lighting																					

Check	Evidence	Produced by	OK?
Does fixed internal lighting comply with paragraphs 42 to 44?	Schedule of installed fixed internal lighting Standard lights = 0 Low energy lights = 10 Percentage of low energy lights = 100% Minimum = 75 %	Authorised SAP Assessor	Passed
Criterion 3: the dwelling has appropriate passive control measures to limit solar gains			
Does the dwelling have a strong tendency to high summertime temperatures?	Overheating risk (June) = Not significant (20.48°) Overheating risk (July) = Medium (22.22°) Overheating risk (August) = Medium (22.08°) Region = Thames Thermal mass parameter = 250.00 Ventilation rate in hot weather = 4.00 ach Blinds/curtains = None	Authorised SAP Assessor	Passed
Criterion 4: the performance of the dwelling, as designed, is consistent with the DER			
Design air permeability (m ³ /(h.m ²) at 50Pa)	Design air permeability = 3.00 Max air permeability = 10.00	Authorised SAP Assessor	Passed
Mechanical ventilation system Specific fan power (SFP)	Mechanical ventilation with heat recovery: SFP = 0.50 W/(litre/sec) Max SFP = 1.5 W/(litre/sec) Heat recovery efficiency = 91.00 % Min heat recovery efficiency = 70.00 %	Authorised SAP Assessor	Passed
Have the key features of the design been included (or bettered) in practice?	The following party walls have a U-value less than 0.2W/m ² K: • Party Wall (0.00) Design air permeability of 3 m ³ /(h.m ²) is less than 4 m ³ /(h.m ²) at 50 Pa Community heating with CHP - Mains gas Use of the following low carbon or renewable technologies: • Photovoltaic array	Authorised SAP Assessor	

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Client		Last modified	31/01/2018
Address	05 Block B, Hornsey Town Hall [Servicing Scheme TBC], London		

Check	Evidence	Produced by	OK?																		
Criterion 1: predicted carbon dioxide emission from proposed dwelling does not exceed the target																					
TER (kg CO ₂ /m ² .a)	Fuel = N/A Fuel factor = 1.00 TER = 13.41	Authorised SAP Assessor																			
DER for dwelling as designed (kg CO ₂ /m ² .a)	DER = 11.50	Authorised SAP Assessor																			
Are emissions from dwelling as designed less than or equal to the target?	DER 11.50 < TER 13.41	Authorised SAP Assessor	Passed																		
Is the fabric energy efficiency of the dwellling as designed less than or equal to the target?	DFEE 25.3 < TFEE 28.7	Authorised SAP Assessor	Passed																		
Criterion 2: the performance of the building fabric and the heating, hot water and fixed lighting systems should be no worse than the design limits																					
Fabric U-values																					
Are all U-values better than the design limits in Table 2?	<table><tr><th>Element</th><th colspan="2">Weighted average Highest</th></tr><tr><td>Wall</td><td>0.17 (max 0.30)</td><td>0.17 (max 0.70)</td></tr><tr><td>Party wall</td><td>0.00 (max 0.20)</td><td>N/A</td></tr><tr><td>Floor</td><td>(no floor)</td><td></td></tr><tr><td>Roof</td><td>(no roof)</td><td></td></tr><tr><td>Openings</td><td>1.32 (max 2.00)</td><td>1.40 (max 3.30)</td></tr></table>	Element	Weighted average Highest		Wall	0.17 (max 0.30)	0.17 (max 0.70)	Party wall	0.00 (max 0.20)	N/A	Floor	(no floor)		Roof	(no roof)		Openings	1.32 (max 2.00)	1.40 (max 3.30)	Authorised SAP Assessor	Passed
Element	Weighted average Highest																				
Wall	0.17 (max 0.30)	0.17 (max 0.70)																			
Party wall	0.00 (max 0.20)	N/A																			
Floor	(no floor)																				
Roof	(no roof)																				
Openings	1.32 (max 2.00)	1.40 (max 3.30)																			
Thermal bridging																					
How has the loss from thermal bridges been calculated?	Thermal bridging calculated using default y-value of 0.15	Authorised SAP Assessor																			
Heating and hot water systems																					
Does the efficiency of the heating systems meet the minimum value set out in the Domestic Heating Compliance Guide?	Community heating scheme Secondary heating system: None	Authorised SAP Assessor	N/A																		
Does the insulation of the hot water cylinder meet the standards set out in the Domestic Heating Compliance Guide?	No hot water cylinder in the dwelling	Authorised SAP Assessor																			
Do controls meet the minimum controls provision set out in the Domestic Heating Compliance Guide?	Space heating control: Charging system linked to use, programmer and TRVs No hot water cylinder in the dwelling	Authorised SAP Assessor	Passed																		
Fixed internal lighting																					

Check	Evidence	Produced by	OK?
Does fixed internal lighting comply with paragraphs 42 to 44?	Schedule of installed fixed internal lighting Standard lights = 0 Low energy lights = 10 Percentage of low energy lights = 100% Minimum = 75 %	Authorised SAP Assessor	Passed
Criterion 3: the dwelling has appropriate passive control measures to limit solar gains			
Does the dwelling have a strong tendency to high summertime temperatures?	Overheating risk (June) = Not significant (20.48°) Overheating risk (July) = Medium (22.22°) Overheating risk (August) = Medium (22.08°) Region = Thames Thermal mass parameter = 250.00 Ventilation rate in hot weather = 4.00 ach Blinds/curtains = None	Authorised SAP Assessor	Passed
Criterion 4: the performance of the dwelling, as designed, is consistent with the DER			
Design air permeability (m ³ /(h.m ²) at 50Pa)	Design air permeability = 3.00 Max air permeability = 10.00	Authorised SAP Assessor	Passed
Mechanical ventilation system Specific fan power (SFP)	Mechanical ventilation with heat recovery: SFP = 0.50 W/(litre/sec) Max SFP = 1.5 W/(litre/sec) Heat recovery efficiency = 91.00 % Min heat recovery efficiency = 70.00 %	Authorised SAP Assessor	Passed
Have the key features of the design been included (or bettered) in practice?	The following party walls have a U-value less than 0.2W/m ² K: • Party Wall (0.00) Design air permeability of 3 m ³ /(h.m ²) is less than 4 m ³ /(h.m ²) at 50 Pa	Authorised SAP Assessor	

Appendices

Appendix D - Mews - SAP Worksheets

118766/LP/180214 Issue 07

This design draft submission provides evidence towards compliance with Part L of the Building Regulations, in accordance with Appendix C of AD L1A. It has been carried out using Approved SAP software. It has been prepared from plans and specifications and may not reflect the 'as built' property. This report covers only items included within the SAP and is not a complete report of regulations compliance.

Assessor name	Mr David Partington	Assessor number	5662
Client		Last modified	08/01/2018
Address	G02 Mews, Hornsey Town Hall [Servicing Scheme TBC], London		

Check	Evidence	Produced by	OK?																		
Criterion 1: predicted carbon dioxide emission from proposed dwelling does not exceed the target																					
TER (kg CO ₂ /m ² .a)	Fuel = N/A Fuel factor = 1.55 TER = 24.14	Authorised SAP Assessor																			
DER for dwelling as designed (kg CO ₂ /m ² .a)	DER = 14.34	Authorised SAP Assessor																			
Are emissions from dwelling as designed less than or equal to the target?	DER 14.34 < TER 24.14	Authorised SAP Assessor	Passed																		
Is the fabric energy efficiency of the dwellling as designed less than or equal to the target?	DFEE 47.0 > TFEE 46.6 Variance = 0.4 kWh/m ² (0.9%)	Authorised SAP Assessor	Failed																		
Criterion 2: the performance of the building fabric and the heating, hot water and fixed lighting systems should be no worse than the design limits																					
Fabric U-values																					
Are all U-values better than the design limits in Table 2?	<table><tr><th>Element</th><th colspan="2">Weighted average Highest</th></tr><tr><td>Wall</td><td>0.17 (max 0.30)</td><td>0.17 (max 0.70)</td></tr><tr><td>Party wall</td><td>0.00 (max 0.20)</td><td>N/A</td></tr><tr><td>Floor</td><td>0.12 (max 0.25)</td><td>0.12 (max 0.70)</td></tr><tr><td>Roof</td><td>(no roof)</td><td></td></tr><tr><td>Openings</td><td>1.34 (max 2.00)</td><td>1.40 (max 3.30)</td></tr></table>	Element	Weighted average Highest		Wall	0.17 (max 0.30)	0.17 (max 0.70)	Party wall	0.00 (max 0.20)	N/A	Floor	0.12 (max 0.25)	0.12 (max 0.70)	Roof	(no roof)		Openings	1.34 (max 2.00)	1.40 (max 3.30)	Authorised SAP Assessor	Passed
Element	Weighted average Highest																				
Wall	0.17 (max 0.30)	0.17 (max 0.70)																			
Party wall	0.00 (max 0.20)	N/A																			
Floor	0.12 (max 0.25)	0.12 (max 0.70)																			
Roof	(no roof)																				
Openings	1.34 (max 2.00)	1.40 (max 3.30)																			
Thermal bridging																					
How has the loss from thermal bridges been calculated?	Thermal bridging calculated using default y-value of 0.15	Authorised SAP Assessor																			
Heating and hot water systems																					
Does the efficiency of the heating systems meet the minimum value set out in the Domestic Heating Compliance Guide?	Community heating scheme Secondary heating system: None	Authorised SAP Assessor	N/A																		
Does the insulation of the hot water cylinder meet the standards set out in the Domestic Heating Compliance Guide?	No hot water cylinder in the dwelling	Authorised SAP Assessor																			
Do controls meet the minimum controls provision set out in the Domestic Heating Compliance Guide?	Space heating control: Charging system linked to use, programmer and TRVs No hot water cylinder in the dwelling	Authorised SAP Assessor	Passed																		
Fixed internal lighting																					

Check	Evidence	Produced by	OK?
Does fixed internal lighting comply with paragraphs 42 to 44?	Schedule of installed fixed internal lighting Standard lights = 0 Low energy lights = 10 Percentage of low energy lights = 100% Minimum = 75 %	Authorised SAP Assessor	Passed
Criterion 3: the dwelling has appropriate passive control measures to limit solar gains			
Does the dwelling have a strong tendency to high summertime temperatures?	Overheating risk (June) = High (33.6°) Overheating risk (July) = High (34.64°) Overheating risk (August) = High (33.63°) Region = Thames Thermal mass parameter = 250.00 Ventilation rate in hot weather = 0.10 ach Blinds/curtains = None	Authorised SAP Assessor	Failed
Criterion 4: the performance of the dwelling, as designed, is consistent with the DER			
Design air permeability (m ³ /(h.m ²) at 50Pa)	Design air permeability = 3.00 Max air permeability = 10.00	Authorised SAP Assessor	Passed
Mechanical ventilation system Specific fan power (SFP)	Mechanical ventilation with heat recovery: SFP = 0.50 W/(litre/sec) Max SFP = 1.5 W/(litre/sec) Heat recovery efficiency = 91.00 % Min heat recovery efficiency = 70.00 %	Authorised SAP Assessor	Passed
Have the key features of the design been included (or bettered) in practice?	The following party walls have a U-value less than 0.2W/m ² K: • Party Wall (0.00) The following floors have a U-value less than 0.13W/m ² K: • Floor 1 (0.12) Design air permeability of 3 m ³ /(h.m ²) is less than 4 m ³ /(h.m ²) at 50 Pa	Authorised SAP Assessor	

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Assessor name	Mr David Partington	Assessor number	5662
Client		Last modified	08/01/2018
Address	G02 Mews, Hornsey Town Hall [Servicing Scheme TBC], London		

Check	Evidence	Produced by	OK?																		
Criterion 1: predicted carbon dioxide emission from proposed dwelling does not exceed the target																					
TER (kg CO ₂ /m ² .a)	Fuel = N/A Fuel factor = 1.55 TER = 24.14	Authorised SAP Assessor																			
DER for dwelling as designed (kg CO ₂ /m ² .a)	DER = 12.17	Authorised SAP Assessor																			
Are emissions from dwelling as designed less than or equal to the target?	DER 12.17 < TER 24.14	Authorised SAP Assessor	Passed																		
Is the fabric energy efficiency of the dwelling as designed less than or equal to the target?	DFEE 47.0 > TFEE 46.6 Variance = 0.4 kWh/m ² (0.9%)	Authorised SAP Assessor	Failed																		
Criterion 2: the performance of the building fabric and the heating, hot water and fixed lighting systems should be no worse than the design limits																					
Fabric U-values																					
Are all U-values better than the design limits in Table 2?	<table><tr><th>Element</th><th colspan="2">Weighted average Highest</th></tr><tr><td>Wall</td><td>0.17 (max 0.30)</td><td>0.17 (max 0.70)</td></tr><tr><td>Party wall</td><td>0.00 (max 0.20)</td><td>N/A</td></tr><tr><td>Floor</td><td>0.12 (max 0.25)</td><td>0.12 (max 0.70)</td></tr><tr><td>Roof</td><td>(no roof)</td><td></td></tr><tr><td>Openings</td><td>1.34 (max 2.00)</td><td>1.40 (max 3.30)</td></tr></table>	Element	Weighted average Highest		Wall	0.17 (max 0.30)	0.17 (max 0.70)	Party wall	0.00 (max 0.20)	N/A	Floor	0.12 (max 0.25)	0.12 (max 0.70)	Roof	(no roof)		Openings	1.34 (max 2.00)	1.40 (max 3.30)	Authorised SAP Assessor	Passed
Element	Weighted average Highest																				
Wall	0.17 (max 0.30)	0.17 (max 0.70)																			
Party wall	0.00 (max 0.20)	N/A																			
Floor	0.12 (max 0.25)	0.12 (max 0.70)																			
Roof	(no roof)																				
Openings	1.34 (max 2.00)	1.40 (max 3.30)																			
Thermal bridging																					
How has the loss from thermal bridges been calculated?	Thermal bridging calculated using default y-value of 0.15	Authorised SAP Assessor																			
Heating and hot water systems																					
Does the efficiency of the heating systems meet the minimum value set out in the Domestic Heating Compliance Guide?	Community heating scheme Secondary heating system: None	Authorised SAP Assessor	N/A																		
Does the insulation of the hot water cylinder meet the standards set out in the Domestic Heating Compliance Guide?	No hot water cylinder in the dwelling	Authorised SAP Assessor																			
Do controls meet the minimum controls provision set out in the Domestic Heating Compliance Guide?	Space heating control: Charging system linked to use, programmer and TRVs No hot water cylinder in the dwelling	Authorised SAP Assessor	Passed																		
Fixed internal lighting																					

Check	Evidence	Produced by	OK?
Does fixed internal lighting comply with paragraphs 42 to 44?	Schedule of installed fixed internal lighting Standard lights = 0 Low energy lights = 10 Percentage of low energy lights = 100% Minimum = 75 %	Authorised SAP Assessor	Passed
Criterion 3: the dwelling has appropriate passive control measures to limit solar gains			
Does the dwelling have a strong tendency to high summertime temperatures?	Overheating risk (June) = High (33.6°) Overheating risk (July) = High (34.64°) Overheating risk (August) = High (33.63°) Region = Thames Thermal mass parameter = 250.00 Ventilation rate in hot weather = 0.10 ach Blinds/curtains = None	Authorised SAP Assessor	Failed
Criterion 4: the performance of the dwelling, as designed, is consistent with the DER			
Design air permeability (m ³ /(h.m ²) at 50Pa)	Design air permeability = 3.00 Max air permeability = 10.00	Authorised SAP Assessor	Passed
Mechanical ventilation system Specific fan power (SFP)	Mechanical ventilation with heat recovery: SFP = 0.50 W/(litre/sec) Max SFP = 1.5 W/(litre/sec) Heat recovery efficiency = 91.00 % Min heat recovery efficiency = 70.00 %	Authorised SAP Assessor	Passed
Have the key features of the design been included (or bettered) in practice?	The following party walls have a U-value less than 0.2W/m ² K: - Party Wall (0.00) The following floors have a U-value less than 0.13W/m ² K: - Floor 1 (0.12) Design air permeability of 3 m ³ /(h.m ²) is less than 4 m ³ /(h.m ²) at 50 Pa Use of the following low carbon or renewable technologies: - Photovoltaic array	Authorised SAP Assessor	

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Client		Last modified	08/01/2018
Address	101 Mews, Hornsey Town Hall [Servicing Scheme TBC], London		

Check	Evidence	Produced by	OK?																		
Criterion 1: predicted carbon dioxide emission from proposed dwelling does not exceed the target																					
TER (kg CO ₂ /m ² .a)	Fuel = N/A Fuel factor = 1.55 TER = 23.19	Authorised SAP Assessor																			
DER for dwelling as designed (kg CO ₂ /m ² .a)	DER = 12.75	Authorised SAP Assessor																			
Are emissions from dwelling as designed less than or equal to the target?	DER 12.75 < TER 23.19	Authorised SAP Assessor	Passed																		
Is the fabric energy efficiency of the dwellling as designed less than or equal to the target?	DFEE 35.0 < TFEE 37.3	Authorised SAP Assessor	Passed																		
Criterion 2: the performance of the building fabric and the heating, hot water and fixed lighting systems should be no worse than the design limits																					
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Are all U-values better than the design limits in Table 2?	<table><tr><th>Element</th><th colspan="2">Weighted average Highest</th></tr><tr><td>Wall</td><td>0.17 (max 0.30)</td><td>0.17 (max 0.70)</td></tr><tr><td>Party wall</td><td>0.00 (max 0.20)</td><td>N/A</td></tr><tr><td>Floor</td><td>(no floor)</td><td></td></tr><tr><td>Roof</td><td>0.13 (max 0.20)</td><td>0.13 (max 0.35)</td></tr><tr><td>Openings</td><td>1.37 (max 2.00)</td><td>1.40 (max 3.30)</td></tr></table>	Element	Weighted average Highest		Wall	0.17 (max 0.30)	0.17 (max 0.70)	Party wall	0.00 (max 0.20)	N/A	Floor	(no floor)		Roof	0.13 (max 0.20)	0.13 (max 0.35)	Openings	1.37 (max 2.00)	1.40 (max 3.30)	Authorised SAP Assessor	Passed
Element	Weighted average Highest																				
Wall	0.17 (max 0.30)	0.17 (max 0.70)																			
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Roof	0.13 (max 0.20)	0.13 (max 0.35)																			
Openings	1.37 (max 2.00)	1.40 (max 3.30)																			
Thermal bridging																					
How has the loss from thermal bridges been calculated?	Thermal bridging calculated using default y-value of 0.15	Authorised SAP Assessor																			
Heating and hot water systems																					
Does the efficiency of the heating systems meet the minimum value set out in the Domestic Heating Compliance Guide?	Community heating scheme Secondary heating system: None	Authorised SAP Assessor	N/A																		
Does the insulation of the hot water cylinder meet the standards set out in the Domestic Heating Compliance Guide?	No hot water cylinder in the dwelling	Authorised SAP Assessor																			
Do controls meet the minimum controls provision set out in the Domestic Heating Compliance Guide?	Space heating control: Charging system linked to use, programmer and TRVs No hot water cylinder in the dwelling	Authorised SAP Assessor	Passed																		
Fixed internal lighting																					

Check	Evidence	Produced by	OK?
Does fixed internal lighting comply with paragraphs 42 to 44?	Schedule of installed fixed internal lighting Standard lights = 0 Low energy lights = 10 Percentage of low energy lights = 100% Minimum = 75 %	Authorised SAP Assessor	Passed
Criterion 3: the dwelling has appropriate passive control measures to limit solar gains			
Does the dwelling have a strong tendency to high summertime temperatures?	Overheating risk (June) = Slight (21.48°) Overheating risk (July) = Medium (23.12°) Overheating risk (August) = Medium (22.74°) Region = Thames Thermal mass parameter = 250.00 Ventilation rate in hot weather = 4.00 ach Blinds/curtains = None	Authorised SAP Assessor	Passed
Criterion 4: the performance of the dwelling, as designed, is consistent with the DER			
Design air permeability (m ³ /(h.m ²) at 50Pa)	Design air permeability = 3.00 Max air permeability = 10.00	Authorised SAP Assessor	Passed
Mechanical ventilation system Specific fan power (SFP)	Mechanical ventilation with heat recovery: SFP = 0.42 W/(litre/sec) Max SFP = 1.5 W/(litre/sec) Heat recovery efficiency = 91.00 % Min heat recovery efficiency = 70.00 %	Authorised SAP Assessor	Passed
Have the key features of the design been included (or bettered) in practice?	The following party walls have a U-value less than 0.2W/m ² K: • Party Wall (0.00) Design air permeability of 3 m ³ /(h.m ²) is less than 4 m ³ /(h.m ²) at 50 Pa	Authorised SAP Assessor	

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Client		Last modified	08/01/2018
Address	101 Mews, Hornsey Town Hall [Servicing Scheme TBC], London		

Check	Evidence	Produced by	OK?																		
Criterion 1: predicted carbon dioxide emission from proposed dwelling does not exceed the target																					
TER (kg CO ₂ /m ² .a)	Fuel = N/A Fuel factor = 1.55 TER = 23.19	Authorised SAP Assessor																			
DER for dwelling as designed (kg CO ₂ /m ² .a)	DER = 10.57	Authorised SAP Assessor																			
Are emissions from dwelling as designed less than or equal to the target?	DER 10.57 < TER 23.19	Authorised SAP Assessor	Passed																		
Is the fabric energy efficiency of the dwelling as designed less than or equal to the target?	DFEE 35.0 < TFEE 37.3	Authorised SAP Assessor	Passed																		
Criterion 2: the performance of the building fabric and the heating, hot water and fixed lighting systems should be no worse than the design limits																					
Fabric U-values																					
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Criterion 3: the dwelling has appropriate passive control measures to limit solar gains			
Does the dwelling have a strong tendency to high summertime temperatures?	Overheating risk (June) = Slight (21.48°) Overheating risk (July) = Medium (23.12°) Overheating risk (August) = Medium (22.74°) Region = Thames Thermal mass parameter = 250.00 Ventilation rate in hot weather = 4.00 ach Blinds/curtains = None	Authorised SAP Assessor	Passed
Criterion 4: the performance of the dwelling, as designed, is consistent with the DER			
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Are emissions from dwelling as designed less than or equal to the target?	DER 9.72 < TER 18.31	Authorised SAP Assessor	Passed																		
Is the fabric energy efficiency of the dwellling as designed less than or equal to the target?	DFEE 20.8 < TFEE 23.2	Authorised SAP Assessor	Passed																		
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Criterion 3: the dwelling has appropriate passive control measures to limit solar gains			
Does the dwelling have a strong tendency to high summertime temperatures?	Overheating risk (June) = Not significant (20.1°) Overheating risk (July) = Slight (21.85°) Overheating risk (August) = Slight (21.7°) Region = Thames Thermal mass parameter = 250.00 Ventilation rate in hot weather = 4.00 ach Blinds/curtains = None	Authorised SAP Assessor	Passed
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DER for dwelling as designed (kg CO ₂ /m ² .a)	DER = 7.54	Authorised SAP Assessor																			
Are emissions from dwelling as designed less than or equal to the target?	DER 7.54 < TER 18.31	Authorised SAP Assessor	Passed																		
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DER for dwelling as designed (kg CO ₂ /m ² .a)	DER = 11.39	Authorised SAP Assessor	
Are emissions from dwelling as designed less than or equal to the target?	DER 11.39 < TER 20.49	Authorised SAP Assessor	Passed
Is the fabric energy efficiency of the dwellling as designed less than or equal to the target?	DFEE 32.6 < TFEE 35.0	Authorised SAP Assessor	Passed
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Appendices

Appendix E - CHP Specifications & Load Profiles

118766/LP/180214 Issue 07

Appendix E: CHP Sizing , Heating load profiles & NOx Emissions

1. CHP Sizing

1.1 CHP Sizing Philosophy

The Bosch CE 70 Unit. 70 kW(e) & 109 kW(t) has been sized based upon single day heat consumption profile. With CHP running hours limited to morning 06.00hrs to 20.00hrs i.e. 15 hours per day. The CHP size may be increased as the design progressing and depending upon availability of export to surrounding building. The current size is based upon conservative assumptions with focus on running hours and payback to ensure continued viability of the CHP.

The CHP is sized based upon dominant domestic hot water demand as the space heating for domestic areas will be negligible and only occur during peak winter days. This is attributed to the fact the façade is highly insulated and internal gains itself will heat the occupancy areas. Example average heat loss for the apartments is 15 W/m² at -4 °C outdoor DBT, the heat loss is negligible at UK average temperature of 5 to 9 °C.

The CHP is sized calculations provided are based upon 15 hours per day i.e. 365 days x 15 hours = 5,475 hours. With aim of running the CHP for 5,900 hours, additional 425 hours will be during winter months. In a nutshell the CHP will run for 15+ hours during peak winter months maintaining the targeted 75 % contribution.

1.2 Heat Demand from Residential (Domestic)

The DHW demand has been calculated using the CIBSE AM 12 & DHW demand of 10 min of DHW at 65°C equivalent minutes per apartment within the limit of institute of plumbing codes. (Note: 65°C unblended DHW, with blend of 32°C the constant use per bedroom rises between 15 to 20 min)

Below is the hourly domestic hot water profile applied for estimating the demand profile for the residential apartments:

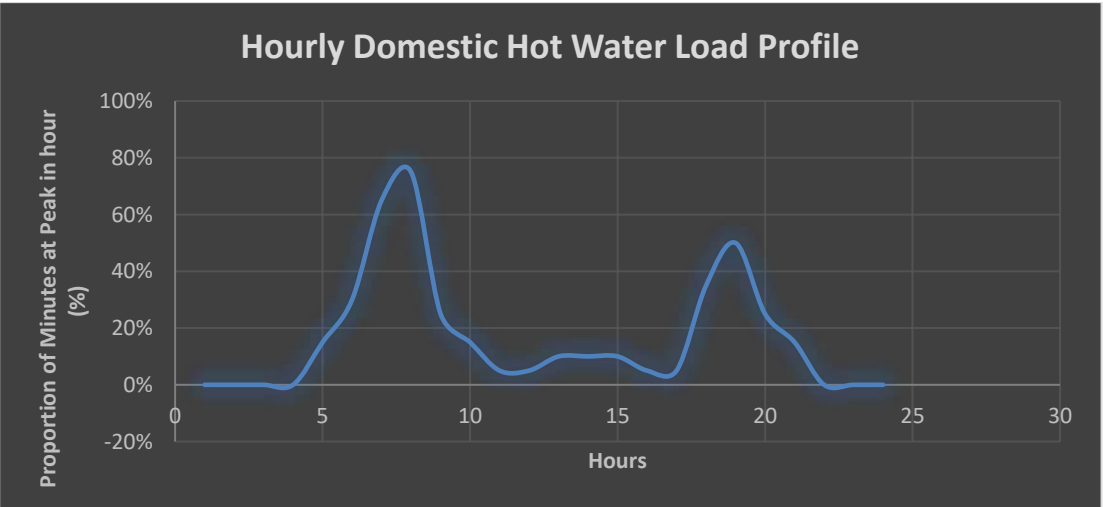


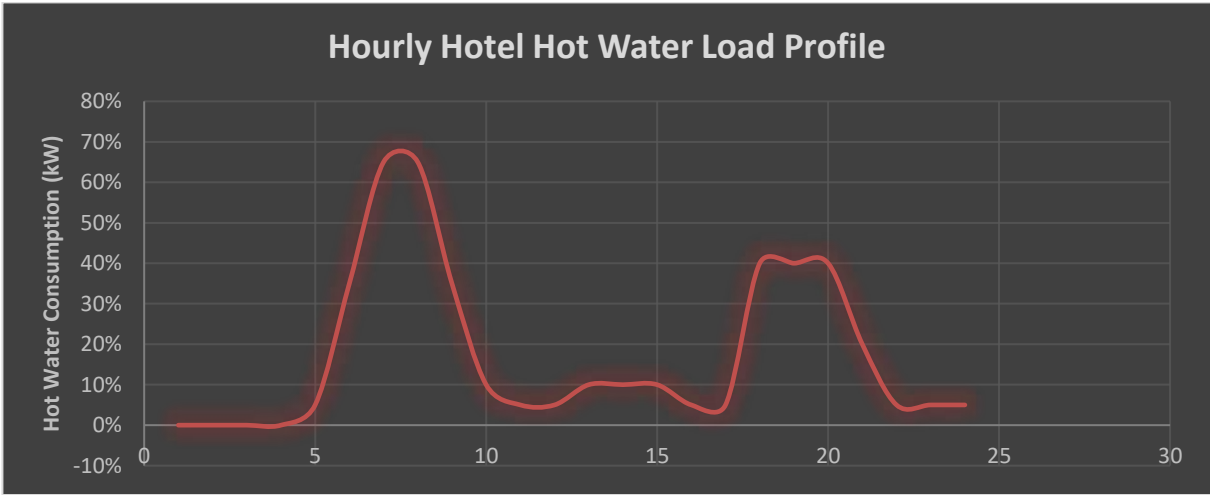
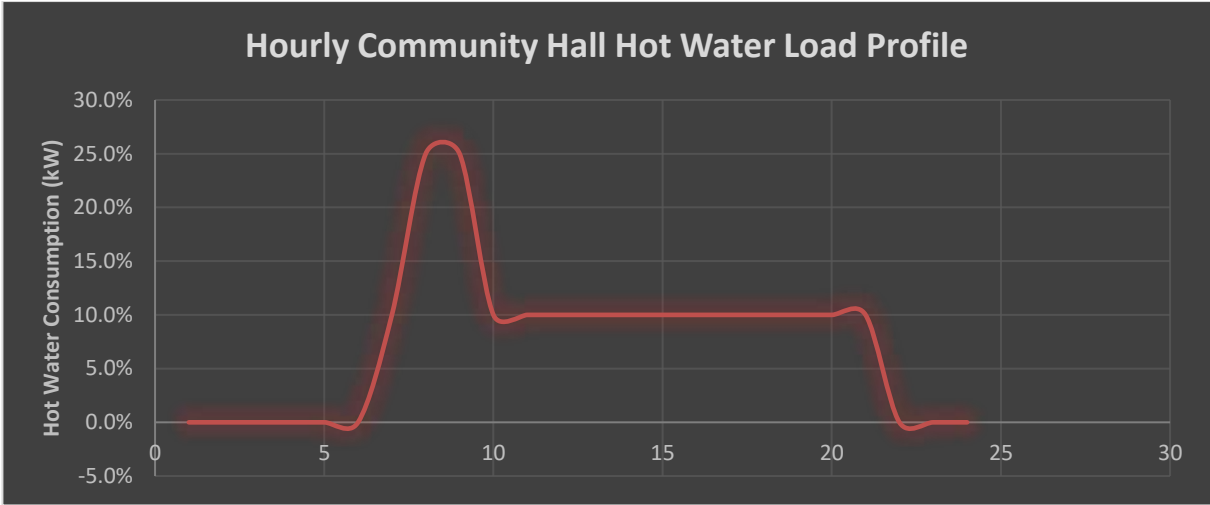
Table below outlines the daily DHW usage profile for the residential apartments and total kWh demand at instance of each hours The heat demand from apartment buildings has been calculated as 2,040 kWh per day.

1.3 Heat Demand from Non-Domestic – Community Hall & Hotel

The proposed development consists of community hall & hotel non domestic developments.

The space heating demand for the non-domestic areas will be served via the central plant. Additional heat demand will lead to increase in number of hours the CHP will run as outlines in section 1.1

Hourly profile below outlines the demand from the non-domestic community & hotel buildings.



At the time of formulating the energy strategy the exact heat loss from the non-domestic areas which are refurbishment type had not been fully established. Reason for this is limitation on façade upgrade imposed by Grade 2 listed status of the building. The heat loss will be fully established at later design stages and taken into account to review the size of the CHP ensuring targeted 75 % contribution is made.

The total domestic hot water heat demand from the non-domestic areas is estimated to be 556 kWh per day.

Appendix E: CHP Sizing , Heating load profiles & NOx Emissions

1.4

Balance of Heat supply via CHP & Boilers

Table below outlines the CHP & Thermal Storage performance. Size of the CHP & Thermal storage has been calculated based upon:

- 1. Serving maximum of the heat demand for the entire site with minimum of 75 % heat contribution from the CHP
- 2. Aim of achieving payback within 5 years (max) to ensure replacement of CHP at end of life
- 3. Minimum 15 hours running of CHP per day to target 5,475 hours/year as minimum (related to payback)
- 4. Additional 425 hours running during peak winter months via additional heat load via space heating during peak summer months
- 5. The CHP size is based upon conservative assumptions and is likely to increase with viability of exports & clarity on space heating demand from the Grade 2 listed non-domestic areas.

CHP SPECIFICATION	BOSCH CHP CE 70-2NA	
CHP THERMAL OUTPUT	109	kW
CHP ELECTRICAL OUTPUT	70	kW
CHP FUEL CONSUMPTION (NCV)	204	kW
CHP FUEL CONSUMPTION (GCV)	224	kW
NATURAL GAS GROSS CALORIFIC VALUE FACTOR	1.10	
CHP ELECTRICAL EFFICIENCY (GCV)	31.2%	%
CHP THERMAL EFFICIENCY (GCV)	48.6%	%
CHP OVERALL EFFICIENCY (GCV)	79.8%	%
CHP POWER FACTOR	1.56	

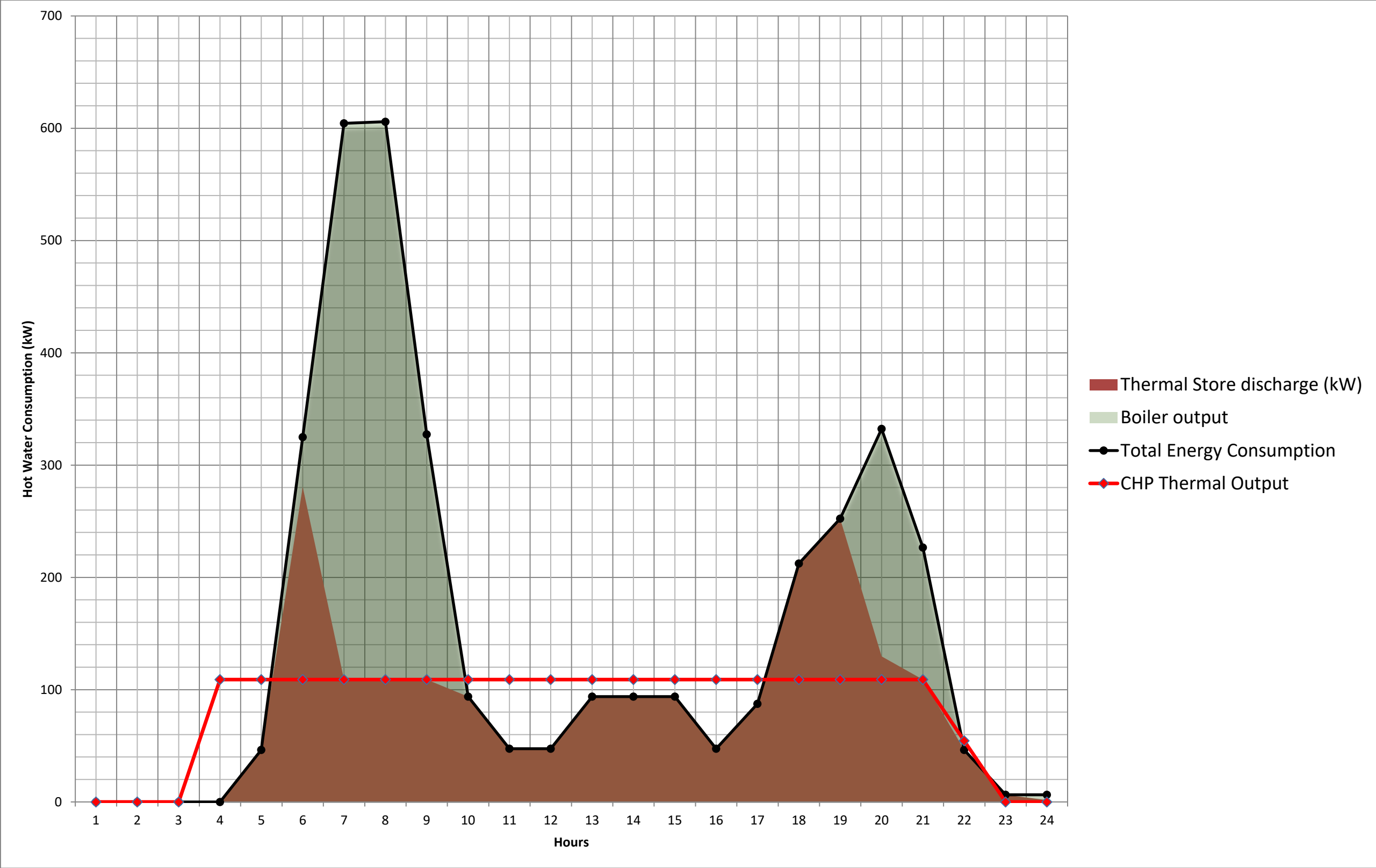
Table below outlines size of thermal storage which consists of size of thermal flywheel within the plantroom & available hydraulic circuit & systems.

Thermal Store Set Up & Size			
Specific Heat Capacity, Cp	4.18	kJ/kgC	
Return Temperature, T2	90	°C	
Flow Temperature, T1	60	°C	
Thermal Store size	10,000	litres	
Thermal Store Peak Capacity	348	kW	

Plot outlined in the next page details the balance of heat from CHP & Thermal storage.

The resulting percentage use of CHP & Thermal Storage will be minimum of **75 % demand** being served. The boilers supplying the high peak demands only. During peak winter months the CHP will run additional hours in the early morning and evening which is when the space heating demand is likely to be highest. As outlined above the proposed CHP unit is best estimate with design information available at this stage. The CHP size will be reviewed during design stages with aim of payback and minimum 75 % demand being met via the CHP system.

Appendix E: CHP Sizing , Heating load profiles & NOx Emissions

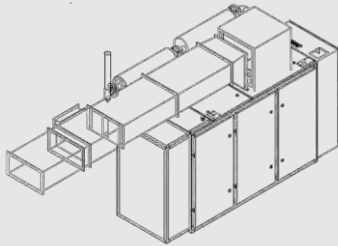


Appendix E: CHP Sizing , Heating load profiles & NOx Emissions

2. Combined Heat and Power Unit

2.1 CHP Specification

On Hornsey Town Hall development a single CHP Bosch Thermotechnology CE 70-2 NA unit has been selected for serving the entire DHW demand and maximum proportion of space heating demand for the building. Below are some specification features of the proposed units.

Application of CHP	CHP Size Required Based on Bosch CE50-2NA	
One Unit for the whole development of Combined Heat and Power with suitably sized Thermal Storage unit. Specified unit listed within the CHPQA List. 	Natural Gas Consumption (NCV)	109
	Natural Gas Consumption (GCV)	70
	CHP Heat-Output (Non-Condensing)	204
	CHP Electrical Output	224
	Heat Efficiency	31.2%
	Electrical Efficiency	48.6%
	Overall Efficiency	79.8%
	Power Ratio	1.56
	CHPQA Index	134

2.2 CHP Management

Following will be applied to the CHP as part of the building system maintenance

- Remote monitoring via Bosch to indentify fault / preventive maintenance
- BMS Monitoring for Heat & Electricity out-put
- Routine Set run-hour based maintenance to check vital CHP systems
- CHP system part of seasonal commissioning as part of credits targeted within BREEAM management section

Below is the proposed level of Bosch CHP Service Contract which will be selected following the CHP procurement.

Contract detail	Contract level	
	Premium Plus*	Premium*
Contract detail	Premium Plus*	Premium*
Duration of contract (subject to contract being continuously maintained)	10 years	10 years
Transferable with ownership or maintenance responsibility of CHP	✓	✓
Scheduled Services		
Scheduled services including service parts and labour	✓	✓
High performance lubricating oil as required as part of service	✓	✓
Environmentally correct waste oil disposal	✓	✓
All resulting repairs within the acoustic enclosure, including parts and labour (excludes engine block, see warranty)	✓	Additional charge outside warranty period
Remote CHP monitoring	✓	✓
Monthly CHP management and engineering report	✓	
Oil analysis and report	✓	
Time specified engineer visits	✓	
Dedicated site engineer	✓	
Scheduled Engine Inspection		
Level 1 including all related parts and labour	✓	✓
Level 2 including all related parts and labour	✓	✓
Level 3 including all related parts and labour plus engine replacement with factory reconditioned engine	✓	✓
Extended Warranty		
Warranty cover (subject to continuous contract being maintained)	Total cover parts & labour	Additional 1 year
Warranty of engine block	Total cover parts & labour	Additional 1 year on renewal of second year contract Additional year after level 3 overhaul
Breakdown Repair		
Automatic notification of faults detected by remote monitoring	✓	✓
Remote fault diagnostics	✓	✓
All required engineer visits	✓	Additional charge outside warranty period
All breakdown repairs within acoustic enclosure, including parts and labour (excludes engine block, see warranty)	✓	Additional charge outside warranty period

*Terms and conditions apply.

3. NOx Emissions

Table 2.3 below is from GLA guidelines on Proposed NOx Emission standards for CHP Units. Which indicate **5000 mg/kWh** for spark ignition type engine.

Table 2.3 Greater London Authority Proposed NO_x emission standards for CHP

Prime mover	Power output (kW _e)	NO _x (g/kWh)
Gas turbine	60 – 100	0.5
Gas turbine	>100	1.1
Gas engine: compression ignition	70 - 1500	5
Gas engine: spark ignition	70 - 1500	5

Bosch CE 70 Unit NOx Specifications Factors are: NOx at 5% O₂ (mg/kWh) <95 and NOx at 0% O₂ (mg/kWh) <133.

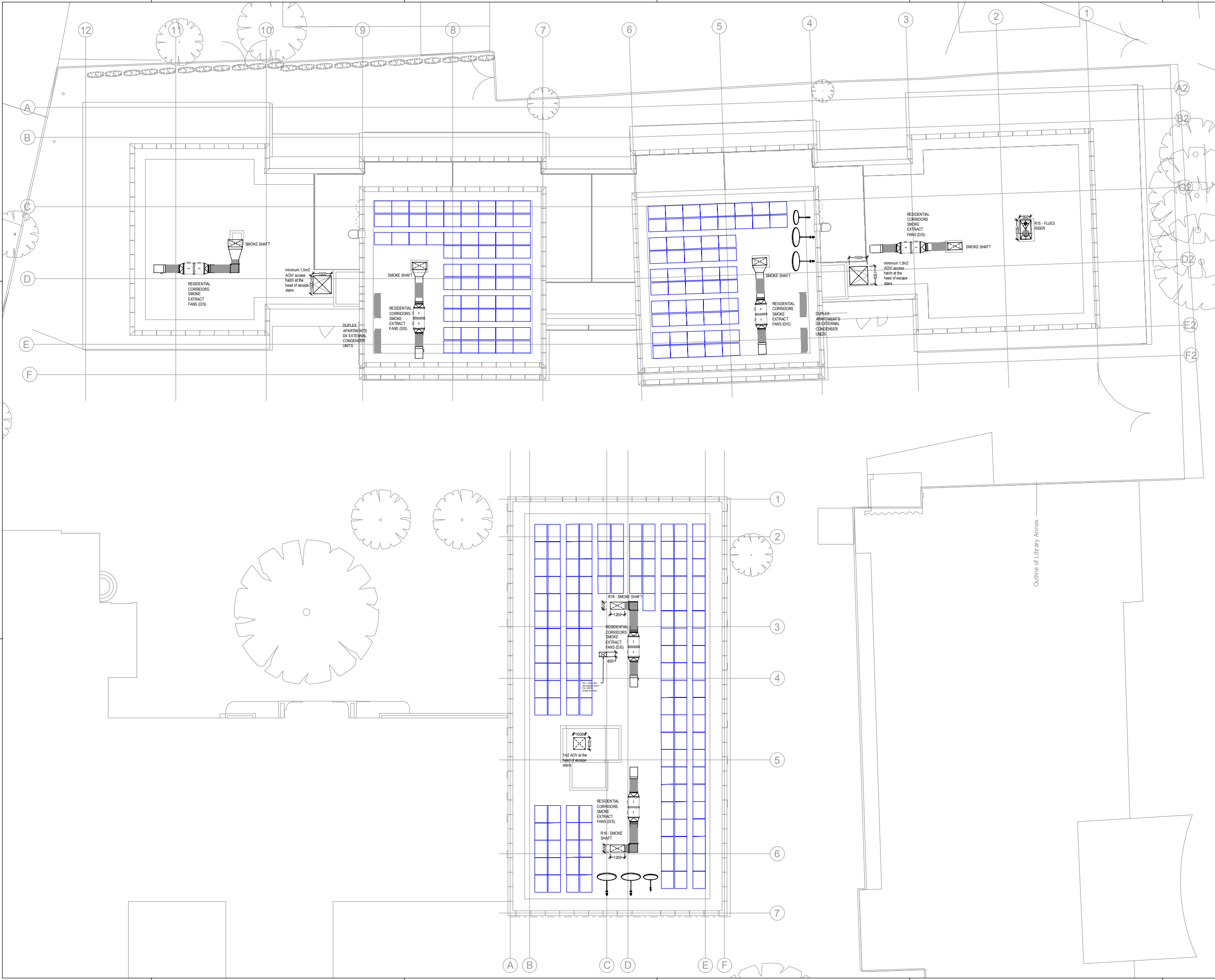
- The NOx Levels are well below the GLA Guidance and
- BREEAM 2014 – Pol 02 Calculation result in NOx Emission achieving 3 of 3 credits

Natural Gas Boiler Section to be based upon units with less than 40 NOx at 0 % O₂ (mg/kWh).

Appendices

Appendix F - Photovoltaic Panel Notional Layout

118766/LP/180214 Issue 07



- NOTES
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 - DO NOT SCALE.
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REV	DATE/DESCRIPTION	BY	CHK	APP

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CLIENT
CROUCH END (FEC) LIMITED

ARCHITECT
MAKE

PROJECT
HORNSEY TOWN HALL

TITLE
**COMBINED SERVICES RISER LAYOUT
ROOF LEVEL**

ELEMENT		DISCIPLINE	
		MECHANICAL	
PROJECT No. 118766		SCALE 1:100	SHEET SIZE A0
ORIGINATED TG	DRAWN TG	CHECKED GP	APPROVED GP
DATE NOV '17	DATE NOV '17	DATE NOV '17	DATE NOV '17
DRAWING No. 118766-SK-03			REV 00

Appendices

Appendix G - Low and Zero Carbon Payback Calculations

118766/LP/180214 Issue 07

Appendix D: Low and Zero Carbon Technologies Payback Calculations

Combined Heat and Power Payback Calculations

Calculation and Assumptions

Annual electricity output of CHP	378,000	kWh/yr
Annual heat output of CHP	588,600	kWh/yr
Displaced heating system efficiency	80%	%
Annual displaced gas for heating	717,805	kWh/yr
Annual gas consumption of CHP	925,056	kWh/yr

Gas price (year 1)	£ 0,06	/kWh
Electricity price (year 1)	-£ 0,13	/kWh
Annual maintenance costs (year 1)	£ 3,000	

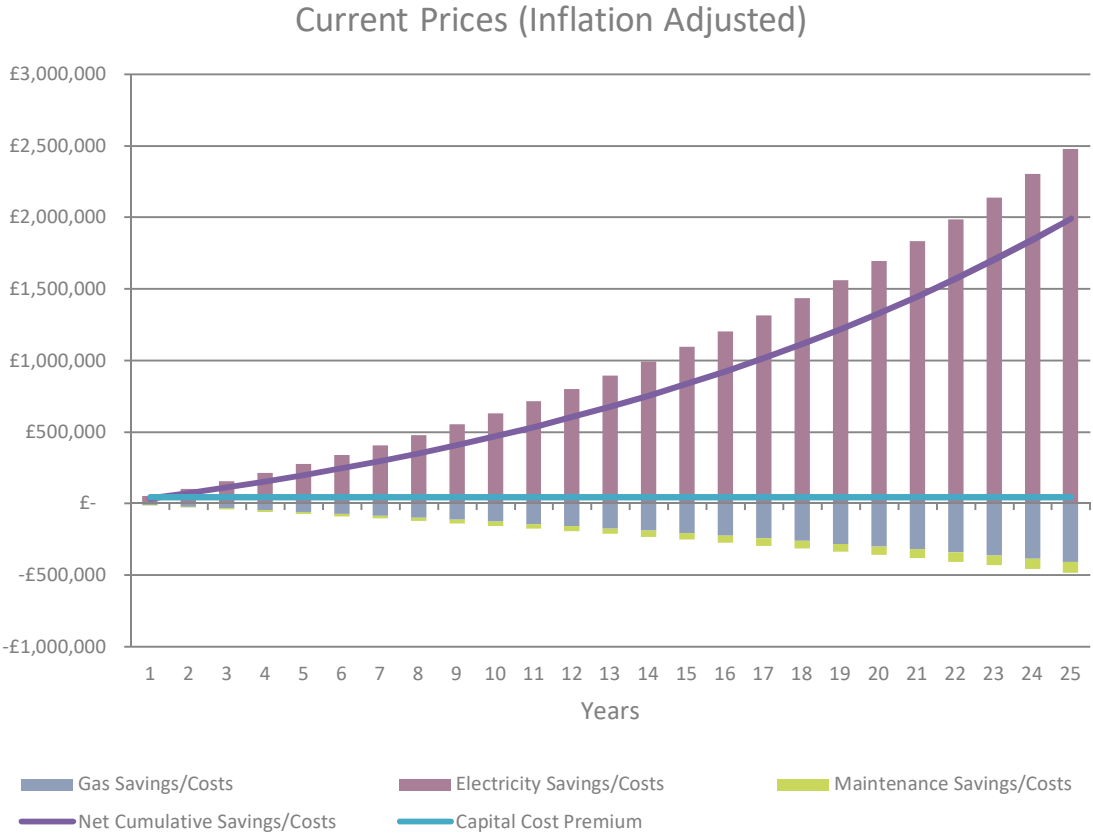
Average gas inflation	5%
Average electricity inflation	7.5%
Average CPI inflation	2%

Capital cost reduction of base case	£ 20,000
Capital cost of proposed CHP	£ 64,000
Capital cost premium	£ 44,000

Payback Period

Simple payback (at nominal prices)	2	years
Discounted payback (at present prices)	2	years
Net present value	£ 1,907,293	

- Note:**
- 1. Capital costs are approximate and to be confirmed by quantity surveyors.
 - 2. The payback analysis is only indicative of the proposed solution.
 - 3. The payback period may vary by – 1 to + 1 years, based upon energy prices.
 - 4. Final pay back will be confirmed at the point of Stage D Design once the manufacturer and specification are finalised.



Appendix D: Low and Zero Carbon Technologies Payback Calculations

Photovoltaic (PV) Cell Payback Calculations

Calculation and Assumptions

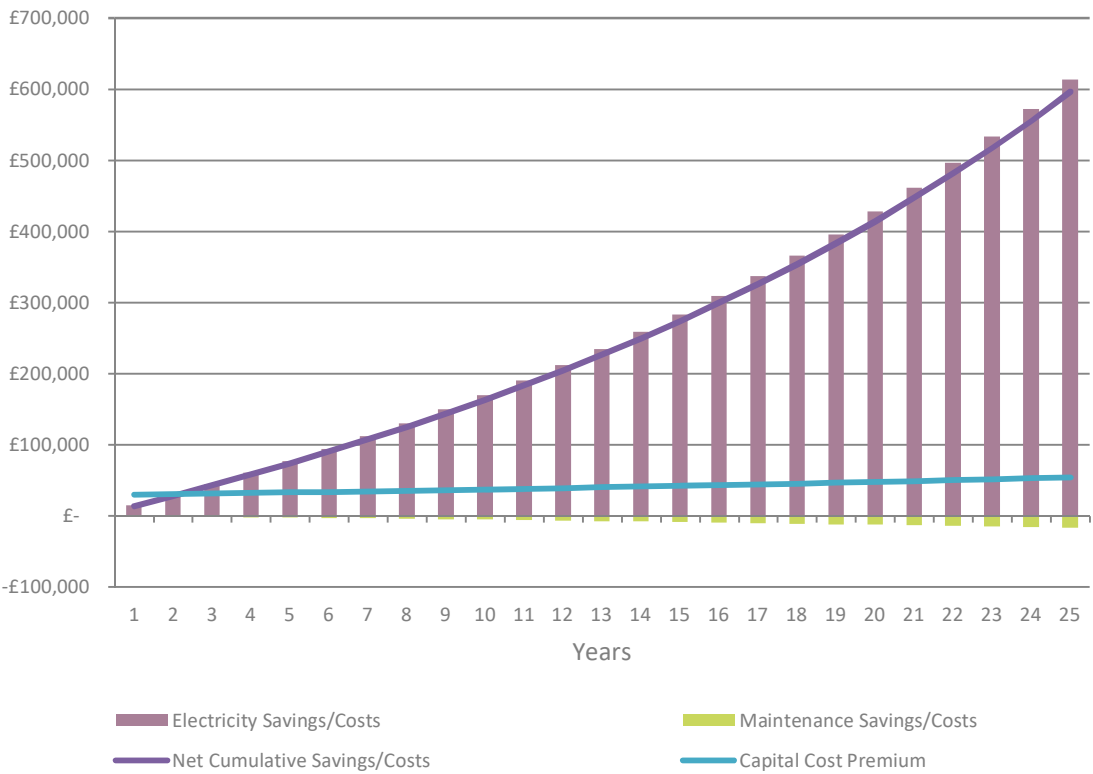
Annual electricity output of PV	62,525	kWh/yr
Degradation of performance	1%	%/yr
Electricity price (year 1)	£ 0.13	/kWh
Annual maintenance costs (year 1)	£ 500	
FIT Generation	-£ 0.10	/kWh
Average electricity inflation	7.5%	
Average CPI inflation	2.5%	
Capital cost reduction of base case	£ n/a	
Capital cost of proposed PV	£ 30,000	
Capital cost premium	£ 30,000	

Payback Period

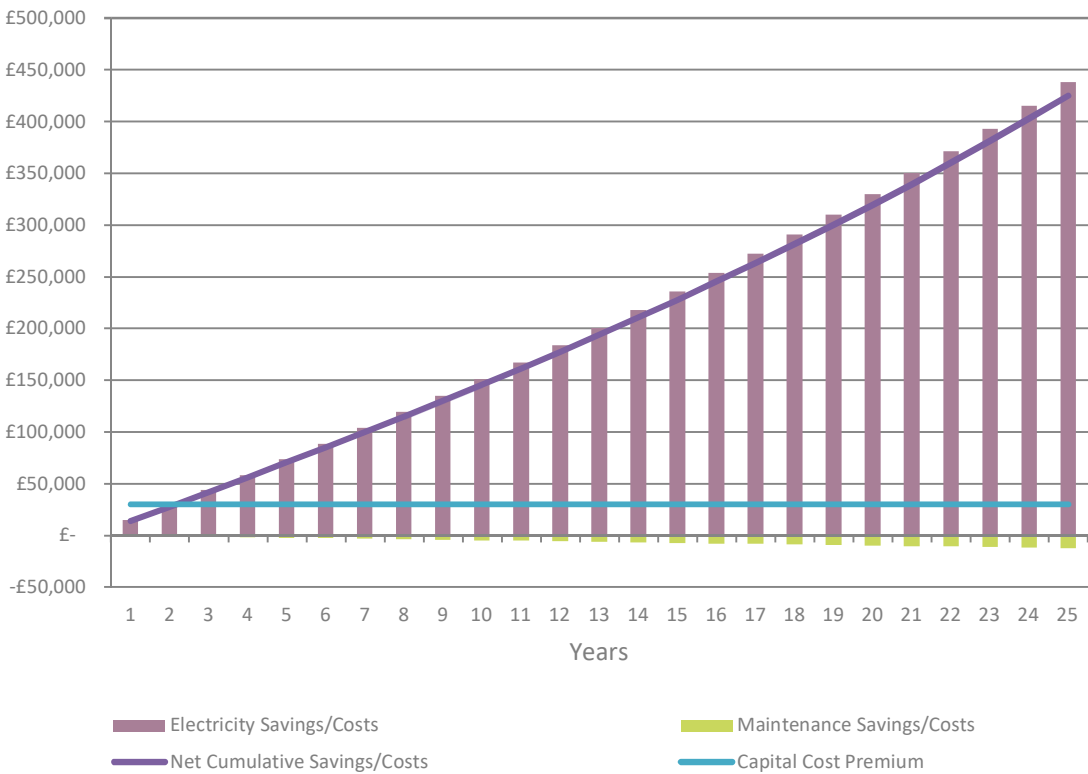
Simple payback (at nominal prices)	3	years
Discounted payback (at present prices)	3	years
Net present value	£ 395,184	

- Note:
- PV costs are indicative only, quantity surveyor to confirm the final costs.
 - Final pay back will be confirmed at the point of Stage D Design once the manufacturer and specification are finalised.

Nominal Prices



Current Prices (Inflation Adjusted)



Appendices

Appendix H – Haringey Sustainability Checklist

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HARINGEY SUSTAINABILITY CHECKLIST

To accompany all applications for planning permission, listed building consent and conservation area consent

N.B. THIS FORM IS IN TWO PARTS

PART A: Question Nos. 1 - 20 - to be answered for ALL APPLICATIONS (including major ones)

PART B: Question Nos. 21 - 27 ADDITIONAL questions for MAJOR APPLICATIONS ONLY

A major application is one which is for 10 or more dwellings or where the proposed floorspace exceeds 1000 sq. m. or if the site is 1 hectare or larger

PART A: ANSWER THESE QUESTIONS FOR ALL PLANNING AND LISTED BUILDING APPLICATIONS						
Sustainability Issue		UDP Policy/SPG	☒ Tick box if you have taken this into account State how you have taken this into account or if not, or not applicable, state why not	Office Use Case No. HGY/ / Officer's comment		
SC1	Environmental Pollution	Air Quality	Does the scheme provide for or encourage non high emission road vehicles e.g. bicycles, electric cars etc? If new housing is proposed will energy efficient condensing boilers be installed?	UD1 - 2, ENV6, M3 - 4 & M7; SPG7b, SPG8c, & SPG8i; PPG23	☒ The number of on-site parking spaces are reduced. Low NOx Condensing Central Site wide heating boilers will be installed as part of the proposal. There are significant number of cycling spaces provided.	
			SC2	Environmental Resources/Pollution	NoiseFumes/Light/Glare & Land Contamination	Is disturbance from noise, fumes, chemicals, solvents, or other pollutants avoided? Can external artificial lighting cause problems? Can materials cause glare? Is the land potentially contaminated and if so has a site investigation been carried out?
SC3	Environmental Resources/Pollution	Waste Storage & Recycling Facilities	Is provision made for external and internal storage for waste separation/collection and recycling? If the scheme is large, has a waste management plan been provided?	UD6 & ENV8; SPG8a	☒ Provision has been made for internal and external storage space for non-recyclable and recyclable household waste. All apartments will have a fixed 30-40 litre recycling bin and a household waste bin. Relevant HQM & BREEAM Credits have been targeted.	
SC4	Environmental Resources	Solar Design & Renewable Energy	Is the siting, layout and design of the scheme maximising the potential for (on site and adjoining) daylighting, passive solar gain and natural ventilation? Are there any photovoltaic (PV) or solar panels?	ENV6; SPG8c; PPG22 & Annex	☒ Extensive daylight is introduced in all residential areas. All rooms will have natural ventilation, and in most cases cross-ventilation. Passive solar gain has been considered. The proposal include 2 PV panels per apartment.	
SC5	Environmental Resources	Efficient Use of Land and Buildings	Are existing buildings to be reused or if redeveloped will the buildings be more sustainable than those existing? Will there be a sharing or mix of uses on the site?	UD5, EMP5, EMP7 & CW1; PPG3	☒ The Town Hall is being redeveloped to be more sustainable, including heating, ventilation, lighting and electrical systems. The Town Hall will include mix of community uses, offices, and apart-hotel. The Broadway Annexe will account for retail and residential uses.	

Sustainability Issue		UDP Policy/ PPG etc	☒ Tick box if you have taken this into account State how you have taken this into account or if not, or not applicable, state why not	Office Use Officer's comment		
SC6	Environmental Resources	Sustainable Materials	Is provision made for reusing reclaimed materials or those which have been recycled, and or/easily replaceable without harm to the environment?	ENV6; SPG8b	☒ The proposals will consider reuse of secondary aggregates from the demolition of the existing buildings if this is technically and economically feasible. Any timber used in key building elements, including finishing element will be legally sourced.	
SC7	Environmental Resources	Sustainable Drainage & Water Conservation	What measures for water conservation are being made? Is provision made for sustainable drainage systems, grey water recycling or rainwater harvesting? If new development is proposed, has a drainage impact assessment been provided?	ENV1- 2;SPG8b, SPG9 Appendix1: PPG23 & PPG25	☒ Reduced water usage through use of low flow water outlets and appliances will lead the reduction of consumption. The residential units will be designed to achieved 105 litres per person per day. HQM & BREEAM will target high % credits for Water Use	
SC8	Environmental Resources	Trees/Landscape	What provision is made for existing/new trees and has a landscape scheme (Including survey of existing trees) been submitted?	UD3, OS6 & OS16; SPG8d	☒ The proposal includes restoration of Hornsey Town Hall 1930's central park, retaining existing trees. Hard and soft landscaping works will be built around the Town Hall building and public realm spaces for the new residential buildings.	
SC9	Environmental Heritage/Resources	Biodiversity & Ecological Heritage	Is provision made for natural wildlife, which includes plants/habitat, retention and creation?	UD3, OS5, OS10; SPG8d & SPG8g; PPG9	☒ The special ecological or biodiversity value within the development will be enhanced by restoring the current landscaping and including new planting which will improve the appearance of the surrounding area and provide a more varied planting scheme. Full Ecology review for HQM & BREEAM	
SC10	Environmental Heritage	Listed Buildings & Locally Listed ones	Does the scheme affect the character appearance of any historic building or structure on the site or adjoining the site or the setting of a listed building? Is a locally listed building affected?	CSV1 - 3, CSV5; SPG2; & PPG 15	☒ Town Hall is listed grade II* and Broadway Annexe listed grade II. Both building will be refurbished without jeopardizing its historical character. Refer to project architects for details	
SC11	Environmental Heritage	Conservation Area & Other Built Heritage	Is there an impact on the character or appearance of a conservation area or an adjoining one? Is a site of archaeological importance or industrial heritage affected?	CSV1 - 5, SPG2; PPG15 & PPG 16	☒ The site is within the Crouch End Conservation Area. The new residential buildings are designed with appropriate scale and massing to not compete with the historical heritage buildings. Refer to project architects for details	

Sustainability Issue		UDP Policy/ PPG etc	☒ Tick box if you have taken this into account	Office Use
			State how you have taken this into account or if not, or not applicable, state why not	Officer's comment
SC12	Urban Design Quality, Views & Public Art Does the scheme have a positive visual impact on the immediate local/wider area and views? Is this supported in an accompanying urban design statement? Is there to be a Percent for Arts contribution ?	UD1, UD3 - 4; SPG1a - 1c, PPG1, PPG8 & PG22	☒ The refurbishment works will upgrade the existing setting by adding improved landscaping and by using traditional and contextual materials to preserve the heritage. Modern residential buildings follow appropriate scale and massing. There is no % for Arts contribution.	
SC13	Designing out Crime and Designing for Privacy Does the design of the development unduly affect the safety of users? Is privacy safeguarded in a way which does not compromise safety?	AC3 - 4, UD2 - 3; SPG3b & SPG5	☒ Qualified security specialist will provide recommendations to be implemented within the development.	
SC14	Accessed By All Will pedestrians be able to move safely around the site ? Is access to all parts of the scheme possible by those who are frail, are in a wheelchair, pushing a pram or otherwise mobility impaired?	UD2 & M3; SPG4 & SPG7a	☒ There will be level access into the building, and all existing and proposed spaces will become fully accessible for all users.	
SC15	Open Space Is there to be a loss or gain in public formal/ informal open space or openness of Green Belt or Metropolitan Open Land?	AC1, AC3 - 4, OS1 - 4, OS7 - OS9, OS14; SPG10a & SPG10d	☒ The site is not part of a Green Belt or Metropolitan Open Land. However, there will be gain in public open space.	
SC16	Affordable Housing If this is a housing scheme, will there be any "affordable" housing contribution?	HSG4 & EMP7; SPG10a & SPG10b; PPG3	☒ This is a housing scheme.	
SC17	Education/Health Facilities Will there be a potential affect on the demand or provision for school places, health services such as GPs?	UD10, CW2; SPG10a, SPG10c & SPG11b; PPG1 & PPG12; Circular 1/97	☐ Not Applicable	

Sustainability Issue			UDP Policy/ PPG etc	☒ Tick box if you have taken this into account State how you have taken this into account or if not, or not applicable, state why not	Office Use Officer's comment
SC18	Social/Economic	Leisure & Cultural Facilities	OS8,OS11 - 12, CCT1 - CCT5; SPG10a & SPG11b; PPG17	☒ The proposal enhances an existing Town Hall building that includes community spaces such as an Assembly Hall.	
		Is a leisure (e.g. a cinema an allotment etc) or cultural facility lost or gained?			
SC19	Social/Economic	Local Shops/Services	TCR3 & 4; PPG 6	☒ The Town Hall and Broadway Annexe will include F&B spaces.	
		Will there still be an appropriate range of local shops and services to meet local needs?			
SC20	Social/Economic	Jobs & Training	AC1 -2, UD10, EMP 1 - 3 & EMP 5; SPG10a; PPG 4	☒ The Town Hall will include extension of Co-working areas, F&B and Apart-Hotel. The scheme will be an opportunity for new local jobs. Building contractors will be encouraged to employ and/or train local underqualified labour as part of the contract.	
		Will local access to temporary and/or permanent jobs be lost or provided? Will there be opportunities for training local underqualified labour?			

PART B: ANSWER THE FOLLOWING ADDITIONAL QUESTIONS FOR MAJOR SCHEMES ONLY

(Major schemes, for this purpose, are for 10 or more dwellings or where the proposed floorspace exceeds 1000 sq. m. or if the site is 1 hectare or larger).

SC21	Environmental	Resources	Other Renewable Energy Has an energy assessment been provided? In addition to those matters mentioned under item 4 above, will there be any other forms of renewable energy (CHP, windmills etc)?	UD1 & ENV6; PPG22 & Annex	☒ The development will include a CHP unit along with 2 PV panels per apartment to achieve the necessary carbon emissions.	
SC22		Resources/Pollution	Demands for Public Transport Is the nature of the scheme such that it could generate increased demand for public transport facilities?	UD10; SPG7c, SPG10a & SPG10e	☒ The development could generate increased demand for public transportation. Although full travel plan will be developed to assess the impact and relevant measures will be adopted.	
SC23	Environmental	Pollution/Resources	Major Trip Generating or more than 1000 sq. m Is a traffic impact assessment required and if so, provided? Is a travel plan required? Is an air quality statement (air quality impact assessment) required and if so, provided?	UD1; SPG7c & SPG8i; PPG13	☒ Travel plan, traffic impact assessment and air quality impact assessment are being provided.	

Appendices

Appendix I – Overheating Assessment Residential Spaces

118766/LP/180214 Issue 07

Overheating Assessment Residential Spaces

Block A, Block B & Mews

118766/LP/180105
Revision 01

Issue	Date	Reason for Issue	Prepared		Checked		Approved	
01	05/01/18	For Information	LP	05/01/18	KA	05/01/18	GP	05/01/18

Overheating Assessment - Residential Spaces
118766/LP/180105
Revision 01

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1.

Executive Summary

A detailed overheating assessment using dynamic simulation modelling was carried out for the Residential spaces at the Hornsey Town Hall, at Crouch End, London:

- Block A
- Block B
- Mews

This report shows compliance with the GLA's Cooling Hierarchy and CIBSE TM59.

2.

Introduction

This report summarizes the overheating results for the sample dwellings areas assessed against the statutory overheating criteria for the development at Crouch End, London.

The overheating analysis was carried out using IES Dynamic Building Simulation Software and conducted in line with Part L1A 2013 criterion 3, paragraphs 2.38 to 2.42 and CIBSE TM59:2017: “Design methodology for the assessment of overheating risk in homes”, a guidance published in April 2017 containing a standardised approach for these assessments.

3.	Overheating Assessment Criteria Overheating is critical for residential apartments which are not mechanically cooled and careful consideration will be required to ensure the design incorporated passive measures such as openable windows with cross flow, exposed thermal mass, acoustic louvers for bedroom, external noise analysis and energy efficient appliances. Apartments which are cooled still require passive measure to be included in design to ensure the cooling loads are low to reduce cooling energy demand & actual size of the fan coils.
3.1	Planning and Regulations
3.1.1	GLA Policy 5.9 Over heating and Cooling The GLA London Plan policy 5.9 refers to guidance in the London Climate Change Adaptation Strategy. That strategy document provides overheating criteria based on CIBSE Guide A. When the London Plan was written, the version of Guide A at the time was dated 2006. This has now been provided in CIBSE TM52 “The Limits of Thermal Comfort - Avoiding Overheating in European Buildings” 2013. Policy 5.9 states that major development proposals should reduce potential overheating and reliance on air-conditioning systems and demonstrate this in accordance with the following cooling hierarchy: ▪ Minimise internal heat generation through energy efficient design. ▪ Reduce the amount of heat entering a building in summer through orientation, shading, albedo, fenestration, insulation and green roofs and walls. ▪ Manage the heat within the building through exposed internal thermal mass and high ceiling. ▪ Passive ventilation ▪ Mechanical ventilation ▪ Active cooling systems (ensuring they are the lowest carbon options)
3.1.2	What is Part L1A 2013 Over heating? Part L1A of the Building Regulations includes Criterion 3 – “Limiting the effects of heat gains in summer”.

2.40 SAP 2012 Appendix P contains a procedure enabling designers to check whether solar gains are excessive. Reasonable provision is achieved if the SAP assessment indicates that the dwelling does not have a high risk of high internal temperatures. This assessment should be done regardless of whether or not the dwelling has mechanical cooling. If the dwelling has mechanical cooling, the assessment should be based on the design without the cooling system operating, but with an appropriate assumption about effective air-change rate through openable windows. NOTE: Designers may want to exceed the requirements in the current Building Regulations to consider the impacts of future global warming on the risks of higher internal temperatures occurring more often. CIBSE TM 36 Climate change and the indoor environment gives guidance on this issue.

SAP provides an “overheating check”, which can be used to demonstrate compliance with Criterion 3. For each month of June, July and August, a single calculation is carried out to predict the average internal temperature for that month. If the resulting mean internal temperature is greater than 23.5°C, a high risk of overheating is predicted. If it is between 22°C and 23.5°C, the risk of overheating is medium and between 20.5°C and 22.0°C, the risk is slight.

The usefulness of the results from the “overheating check” are very limited however, as SAP only considers average summer temperatures. It does not take into account external temperatures on very hot days or the duration of warm spells.

3.2	Residential Buildings: How is Over heating Checked?
3.2.1	Thermal Comfort Design Criteria As Defined within TM59:2017 In order to comply with CIBSE TM59, both of the following criteria must be met for naturally ventilated buildings: a) Living rooms, bedrooms and kitchens must comply with CIBSE TM52 Criterion 1 (Hours of exceedance) during the period from May to September; AND b) In bedrooms, the operative temperature between 22.00 and 07.00 cannot exceed 26°C for more than 1% of annual hours, or 32 hours in total.

For mechanically ventilated buildings (CIBSE Guide A), the predicted operative temperature should not exceed **26°C** for more than **3% of the annual occupied hours** for residential spaces using design summer year weather file, based on CIBSE Guide A.

Moreover, the guidance recommends that developments assess the risk of overheating for communal corridors due to heat losses from pipework, heat interface units (HIUs) and heat maintenance tape in the case of community heating systems. The test should be based on the number of annual hours the operative temperature exceeds 28°C, if it is exceeded for more than 3% of total annual hours this should be flagged as a significant risk within the report.

The potential for overheating from the communal corridors has been assessed accounting for a heat gain of 240W from pipework. The assessment showed that the

operative temperature of 28°C is not exceeded for more than 3% of the total annual hours.

CIBSE TM52: ‘The limits of thermal comfort: avoiding overheating in European building’ (2013) assesses the likelihood of overheating in **naturally ventilated buildings** and the criteria are based on a quantum defined as ΔT .

In this context, ΔT is defined as the difference between the actual operative temperature in the room at any one time (T_{op}) and the maximum acceptable temperature in the room (T_{max}):

$$\Delta T = T_{op} - T_{max}$$

Where:

$$T_{max} = 0.33 T_{rm} + 21.8$$

T_{rm} is the exponentially weighted running mean temperature for any given day, and is a function of outdoor air temperature. This weighted approach to the running mean allows an occupant’s subjective feelings towards thermal comfort to be accounted for, with the most recent temperature experience dominating an occupant’s clothing levels and their temperature expectations. T_{rm} is defined as follows:

$$T_{rm} = (1 - \alpha) (T_{od-1} + \alpha T_{od-2} + \alpha^2 T_{od-3} \dots)$$

Where: α is a constant less than 1 (proposed to be 0.8)

T_{od-1} , T_{od-2} , etc. are the daily mean temperatures for yesterday, the day before, and so on...

The criteria to be assessed are described by the following:

Criterion 1: Hours of Exceedence (H_e)

*The number of hours (H_e) during which ΔT is greater than or equal to one degree (K) during the non-heating period (1st May to 30th September inclusive) shall not be more than **3% of occupied hours**.*

The analysis tested the rooms by considering:

- Clothing level: 0.50 for summer
- Activity level: seated at rest
- Design air speed: 0.15m/s

3.2.2 Thermal Comfort Design Criteria As Defined within CIBSE Guide A

In a changing climate, overheating in buildings, especially those without mechanical cooling, is a serious and potentially increasing problem. According to CIBSE Guide A, a mechanically cooled building should aim to provide an indoor environment where the PMV index is near to or equal to zero. It will be considered as overheating if the value of the PMV index is above 0.5 (equivalent to a PPD of 10%). Where a value of PMV is not available, the maximum operative temperatures are given in Table 1.8 in CIBSE Guide A for various different types of space, using assumed values of the metabolic rate and an assumed clothing insulation of 1.0 for winter and 0.5 for summer. The predicted indoor temperatures **should not exceed the tabulated values for more than 3% of occupied hours**. For summer conditions, simulations should be made using design summer years as recommended in CIBSE TM48.

4.

Cooling Hierarchy

Policy 5.9 of the London Plan states that major development proposals should reduce potential overheating and reliance on air-conditioning systems and demonstrate this in accordance with the following cooling hierarchy:

Table 4-1 Hornsey Town Hall – Residential Spaces - Cooling Strategy

London Plan: Policy 5.9 – Cooling hierarchy	Cooling Strategy
1. Minimise internal heat generation through energy efficient design	Passive design implemented and confirmed by the FEE analysis. Use of LED lighting to reduce internal heat gains.
2. Reduce the amount of heat entering a building in summer through orientation, shading, albedo, fenestration, insulation and green roofs and walls.	Glazing ratio optimised throughout the building to provide sufficient daylight and solar control glass applied to minimise solar gains.
3. Manage the heat within the building through exposed internal thermal mass and high ceilings	The building design considers a medium weight thermal mass and the maximum floor to ceiling height available to accommodate building services.
4. Passive ventilation	Natural ventilation is possible through openable windows across all dwellings.
5. Mechanical ventilation	High efficient mechanical ventilation with heat recovery (MVHR) is proposed for all dwellings according to Part F of the Building Regulations. Summer by-pass is available to make the use of free-cooling during hot season.
6. Active cooling systems	As shown in the assessment detailed in this section, all habitable rooms pass the overheating criteria & occupant will be able to utilise natural ventilation at right conditions.

5. Overheating Analysis

The overheating analysis has been conducted in line with Part L1A 2013 criterion 3, paragraphs 2.38 to 2.42 and CIBSE TM 59:2017: “Design methodology for the assessment of overheating risk in homes”, a newly published guidance document containing a standardised approach for these assessments.

This section summarises the results for the sample dwellings areas of the four residential blocks (Figure 5-1) assessed against the overheating criteria set by TM59 for naturally ventilated homes.



Figure 5-1 Residential buildings, Hornsey Town Hall

5.1 Methodology – Residential Areas

The London Heathrow DSY1 2020s 50th percentile, which considers a moderately warm summer in suburban areas in London, was selected as the weather file, in line with CIBSE TM49 (2014): ‘Design Summer Years (DSY) London’ guidance and TM59 (2017).

The methodology used is in line with TM59 for 1, 2 and 3 bedroom apartments with combined living room and kitchen as shown below:

Table 5-1 Internal gain values (CIBSE TM59)

Area	No. People	Sensible/ Latent Gain (W/person)	Equipment Gain
1 Bed-Unit: Living Rooms/ Kitchen	1	75 / 55	Peak load: 450W from 6pm-8pm 200W from 8pm-10pm 110W from 9am-6pm and from 10pm-12pm Baseload of 85W for the rest of the day
2 Bed-Unit: Living Rooms/ Kitchen	2	75 / 55	Peak load: 450W from 6pm-8pm 200W from 8pm-10pm 110W from 9am-6pm and from 10pm-12pm Baseload of 85W for the rest of the day
3 Bed-Unit: Living Rooms/ Kitchen	3	75 / 55	Peak load: 450W from 6pm-8pm 200W from 8pm-10pm 110W from 9am-6pm and from 10pm-12pm Baseload of 85W for the rest of the day
Single Bedrooms	1	75 / 55	Peak load: 80W from 8am-11pm Baseload: 10W from 11pm-8am
Double Bedrooms	2	75 / 55	Peak load: 80W from 8am-11pm Baseload: 10W from 11pm-8am

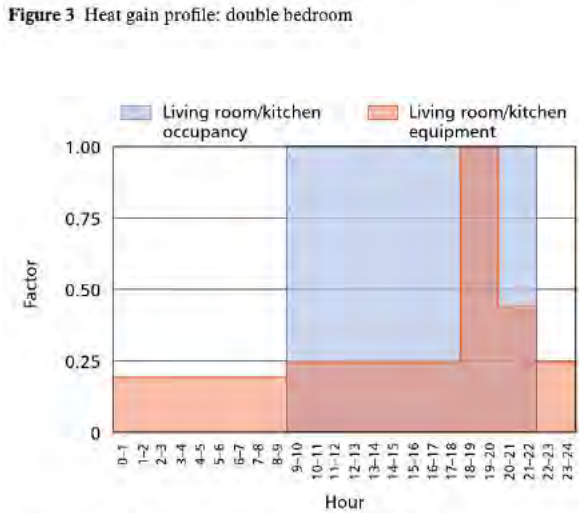
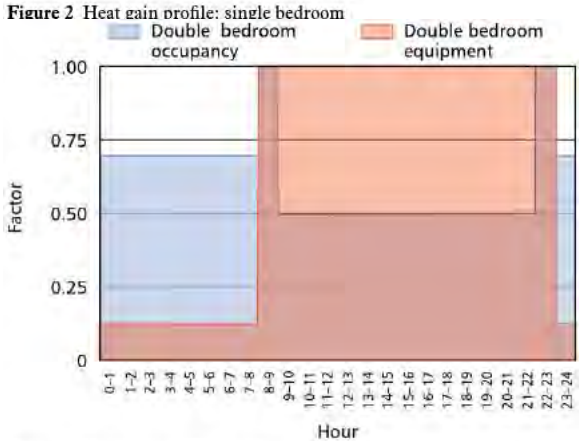
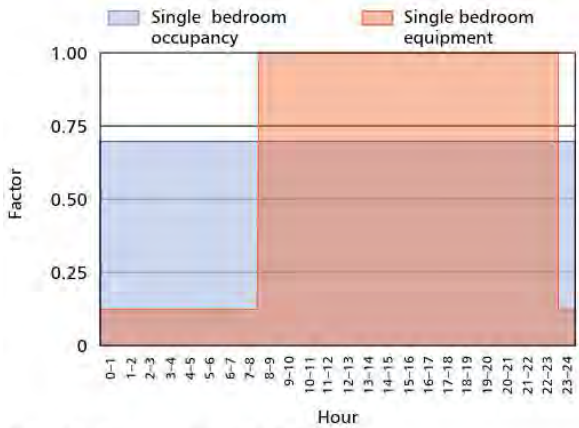


Figure 4 Heat gain profile: combined living room/kitchen

Figure 5-2 Internal gain variation profile (CIBSE TM59)

5.2 Flats Analysed

The units with higher risk of overheating are those with the highest proportion of glazing face southwest or west orientation, on the topmost floor (exposed roof), with limited shading and with security and privacy limitations. Based on the above, the flats selected for the assessment at Hornsey Town Hall are the described in the following sections.

5.2.1 Residential Building Block A

The flats assessed at Block A are:

Level 04:

- Flat AN41.
- Flat AN42.
- Flat AN45.
- Flat AN46.
- Flat AN47.
- Flat AS41.
- Flat AS45.
- Flat AS47.
- Flat AS48.

Level 05:

- Flat AN46.
- Flat AS41.

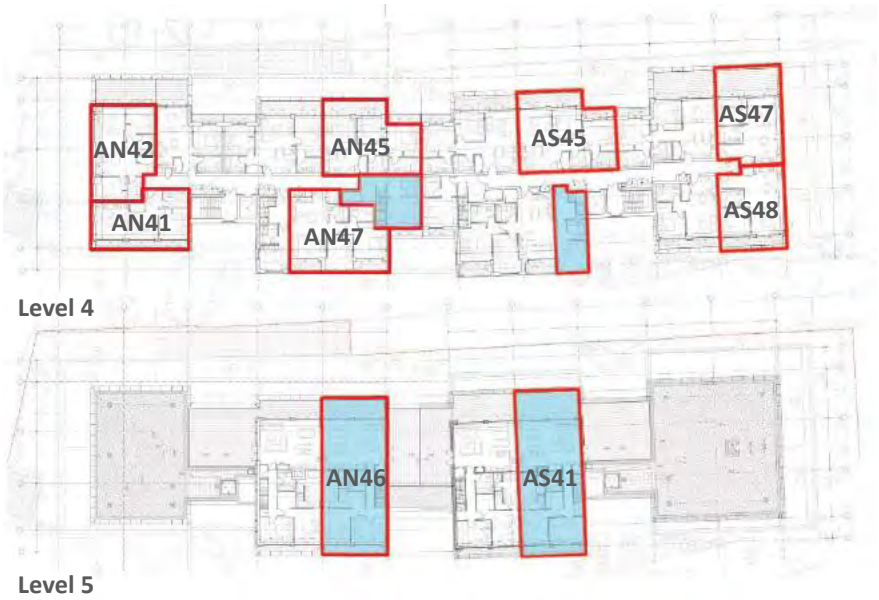


Figure 5-3 Block A, sample apartments selected for the overheating analysis highlighted in red.

5.2.2 Residential Building Block B

The flats assessed at Block B are:

Level 05:

- Flat B61.
- Flat B62.
- Flat B63.
- Flat B64.
- Flat B65.
- Flat B66.



Figure 5-4 Block B, zoning assigned to the sample apartments

5.2.3 Residential Building Mews

The flats assessed at Mews building are:

Level 00:

- Flat M001.
- Flat M002.
- Flat M003.

Level 01:

- Flat M101.
- Flat M102.

- Flat M103.

Level 02:

- Flat M201.
- Flat M202.
- Flat M203.

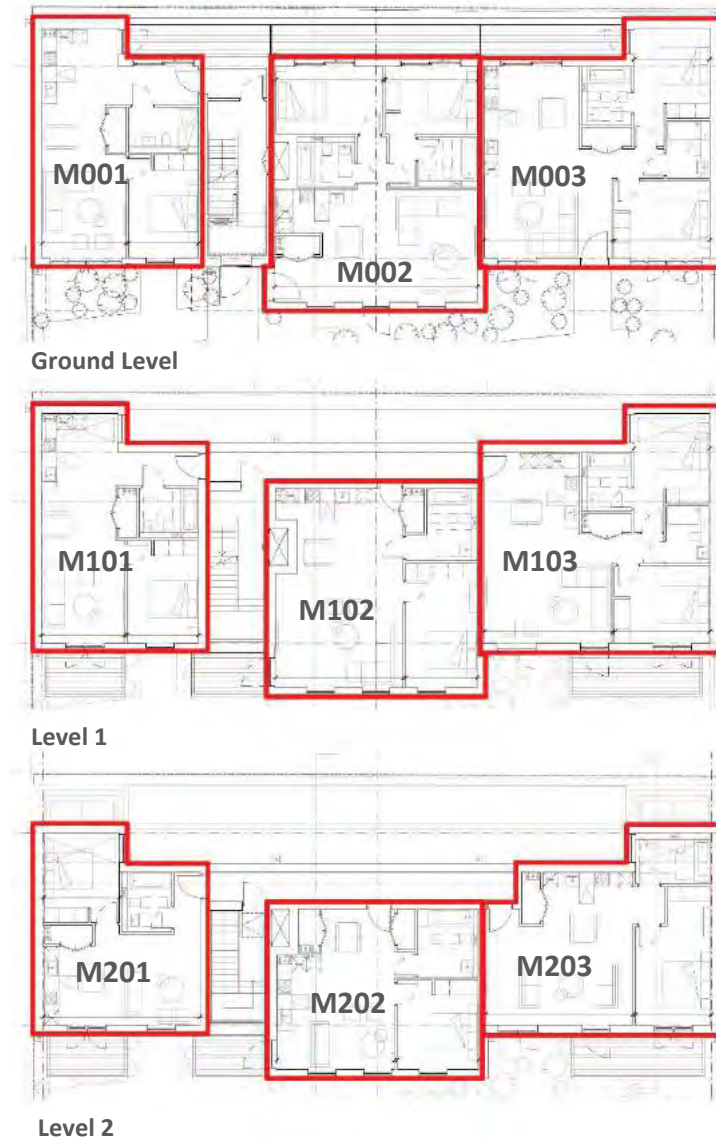


Figure 5-5 Mews, zoning assigned to the apartments

5.3 Window Openings for Purge and Natural Ventilation

The free areas presented within this section are calculated based on the degree of the open portion of the window or ‘geometric free area’: $D \times W$, as illustrated by **Error! Reference source not found.**5-6. The guidance on how the geometric free area is calculated is given in CIBSE AM 10 (section 4.4.3.1).

For an effective natural ventilation, the sum of all **geometric free areas** from the openable panes in the room should be at least 5% of the room floor area. This value will always be greater than the minimum required for purge ventilation (Part F). The openable areas per opening types for Block A, Block B and Mews are described in Tables 5-2, 5-3 and 5-4.

The openable panes are considered to be open when the internal dry bulb temperature exceeds 22°C and the room is occupied, in line with TM59 methodology. The opening profiles applied are described in Tables 5-10, 5-11 and 5-12.

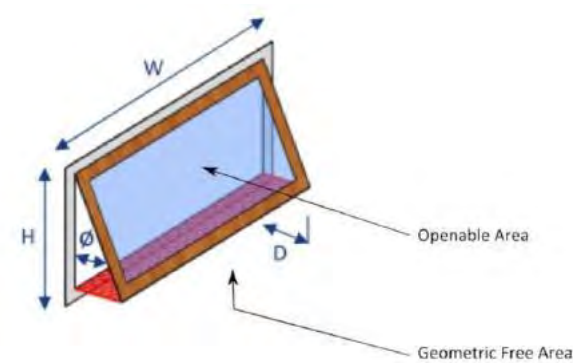


Figure 5-6 Window Geometric Free Area

Table 5-2 Block A Opening window types and opening areas

Opening Type (W x H)	Openable area W x H (m²)	Opening Angle/ Distance	Geometric free area (m²)	Percentage of opening to window area (%)
Windows (0.75m x 1.44m)	1.08	45°	1.08	100%
Hinged Door 1 Pane (0.80m x 2.55m)	2.04	90°	2.04	100%
Hinged Door 1 Pane (0.90m x 2.55m)	2.30	90°	2.30	100%
Hinged Door 2 Panes (0.80m x 2.55m)	3.83	90°	3.83	100%
Hinged Door 4 Panes (0.75m x 2.55m)	9.18	90°	9.18	100%
Hinged Door 4 Panes (0.90m x 2.55m)	9.18	90°	9.18	100%

Table 5-3 Block B Opening window types and opening areas

Opening Type (W x H)	Openable area W x H (m²)	Opening Angle/ Distance	Geometric free area (m²)	Percentage of opening to window area (%)
Windows (0.34m x 1.28m)	0.43	45°	0.43	100%
Hinged Door 1 Pane (0.90m x 2.40m)	2.16	90°	2.16	100%
Hinged Door 1 Pane (1.20m x 2.40m)	2.88	90°	2.88	100%
Hinged Doors 4 Panes (0.60m x 2.40m)	2.88	90°	2.88	100%
Hinged Doors 4 Panes (1.20m x 2.40m)	5.76	90°	5.76	100%

Table 5-4 Mews Opening window types and opening areas

Opening Type (W x H)	Openable area W x H (m²)	Opening Angle/ Distance	Geometric free area (m²)	Percentage of opening to window area (%)
Windows (1.14m x 1.30m)	1.48	45°	1.48	100%
Windows (0.79m x 1.50m)	1.19	45°	1.19	100%
Hinged Door 1 Pane (1.00m x 2.40m)	2.40	90°	2.40	100%
Hinged Door 1 Pane (1.14m x 2.40m)	2.72	90°	2.72	100%
Hinged Door 2 Panes (0.792m x 2.40m)	3.80	90°	3.80	100%
Hinged Door 4 Panes (0.792m x 2.40m)	3.80	90°	3.80	100%
Sliding Door 2 Panes (0.792 m x 2.40m)	2.98	1.24 m	2.98	100%

5.4 Building Envelope

The building element properties applied to the thermal model are outlined in the following tables.

Table 5-5 Building Thermal Envelope U-values for Residential Areas

Parameter		Part L1A Limiting Values	% Improvement over PartL1A	Target Values ^{Note 4}
Building Air Tightness		10m³/h/m² @ 50pa	70%	3 m³/h/m² @ 50pa ^{Note 1}
Thermal Bridging (γ-value)		0.15 W/m².K	30%	0.15 W/m².K ^{Note 5}
Thermal Mass (Medium)		250 kJ/m².K	N/A	250 kJ/m².K
U-values	Wall/Solid	0.30 W/m².K	43%	0.17 W/m².K
	Roof	0.20 W/m².K	35%	0.13 W/m².K
	Exposed/ Ground Floor ^{Note 2}	0.25 W/m².K	52%	0.12 W/m².K
	Party Walls ^{Note 3}	0.50 W/m².K	N/A	0.0 W/m².K
Glazing g-value (BS EN 410) ^{Note 6}				0.55
Glazing g-value (BS EN 410) ^{Note 6}		Roof lights		0.65
Windows U-value (overall)		2.00 W/m².K	30%	1.40 W/m².K
Doors U-value (overall)		2.00 W/m².K	35%	1.30 W/m².K
Roof lights U-value (overall)		2.00 W/m².K	45%	1.10 W/m².K
Glazing Lighting Transmittance		N/A	N/A	≥70%

Notes:

1. The design air permeability of 3 m³/h/m² @50Pa will be subject to an increase of 2.0 m³/h/m² @50Pa as described in section 2.9 of AD Part L1A for all apartments which are not pressure tested. The energy model assumes that **100% of apartments will be air pressure tested**.
2. Relates to floor construction at ground floor and any exposed heated floor area; subject to floor detailing of the floating slab.
3. For the purposes of SAP, party walls are considered to be those that are adjacent to other spaces that are assumed to be heated to the same level as the dwelling; this includes foyers, corridors, risers, stairwells and common areas.

4. The “Target Values” are the construction parameters applied to the Actual Building simulation model and are representative of **average** of various areas.
5. The U-values include for repeating thermal cold bridges. For non-repeating thermal bridging, it will be necessary to calculate the γ-value for each apartment. The use of the default γ-value of 0.15W/m²K **may not** achieve the Design Fabric Energy Efficiency necessary to meet Criterion 1 of Part L1A. The use of default ψ values (Ψ) may not achieve the required γ-value therefore junctions between elements and opening details may require to either be Approved Design Details **OR** calculated in accordance with BR497.
6. Glazing g-value to vary based upon exposure to sunlight in order to balance day lighting against the cooling loads.

5.5 Blinds

This section describes the blinds specification included in the overheating assessment.

Two options of internal blinds were identified to contribute to lower solar gains coming into the habitable spaces and are considered in this section.

The overheating analysis is based on 100% of the glazing having blinds closed, taken into account that **its operability will not interfere or clash with the openings**. The specification of blinds to control solar gains will be included in the Building User Guide.

Table 5-6 Options of Blinds

Supplier	Blind Type	As, %	Rs, %	Ts, %	Sc, %
Umbra Shading	Spectrum 5010 – 10% Linen	23	62	15	30
Waverley	Omega Pastell 50 (OP5111) Light Colour	0	57	43	43

As: Solar absorption

Rs: Solar reflectance

Ts: Solar transmission

Sc: Shading coefficient.

The simulated scenarios with the inclusion of blinds are described in Tables 5-7, 5-8 and 5-9. To avoid overheating risk, blinds may be encouraged to be installed following recommendations from section 6 in this report.

5.6 Scenarios

The following sections summarise the overheating results of the habitable rooms at sample flats for Block A, Block B and Mews.

The natural ventilation strategy for Block A, Block B and Mews considered a building thermal performance as described in tables 5-1 (section 5 of this report).

The windows and/or external doors for the bedrooms and living rooms were considered opened when the internal dry bulb temperature exceeds 22°C. The openings for the bedrooms and living rooms were analysed based on different scenarios for the night time ventilation. All options included blinds installed with a shading coefficient (SC) of 0.30 for Block A and Mews, and blinds with a shading coefficient (SC) of 0.43 for Block B. Options 1a and 1b excluded MVHR, whereas options 2a and 2b included the system along with natural ventilation.

A summary of the scenarios considered for Block A, Block B and Mews are summarised in Tables 5-7, 5-8 and 5-9. The compliance with overheating criteria are summarised in Tables 5-10, 5-11 and 5-12.

Table 5-7 Block A, scenarios of the overheating analysis

Option Number	g-value	Auxiliary Ventilation, l/s/m²	Additional Shading
1a	0.55	N/A	Blinds SC: 0.30
1b	0.55	N/A	Blinds SC: 0.30
2a	0.55	0.30	Blinds SC: 0.30
2b	0.55	0.30	Blinds SC: 0.30

Table 5-8 Block B, scenarios of the overheating analysis

Option Number	g-value	Auxiliary Ventilation, l/s/m²	Additional Shading
1a	0.55	N/A	Blinds SC: 0.43
1b	0.55	N/A	Blinds SC: 0.43
2a	0.55	0.30	Blinds SC: 0.43
2b	0.55	0.30	Blinds SC: 0.43

Table 5-9 Mews, scenarios of the overheating analysis

Option Number	g-value	Auxiliary Ventilation, l/s/m²	Additional Shading
1a	0.55	N/A	Blinds SC: 0.30
1b	0.55	N/A	Blinds SC: 0.30
2a	0.55	0.30	Blinds SC: 0.30
2b	0.55	0.30	Blinds SC: 0.30

5.7 Compliance with overheating criteria CIBSE TM59

The open plan living rooms include the kitchen area and they need to comply only with Criterion a, whereas the bedrooms need to comply with Criterion ‘a’ and ‘b’.

Table 5-10 Block A, Results of the overheating analysis

Option Number	Profiles for Openings Bedrooms and Living Rooms				MVHR	Rooms Assessed	Rooms failing Criteria a	Bedrooms failing Criteria b	TM59
	Windows		Doors						
	Day	Night	Day	Night					
1a	100%	Closed	100%	Closed	✗	18	2	9	Fail
1b	100%	250mm	100%	250mm	✗	18	0	1	Fail
2a	100%	Closed	100%	Closed	✓	18	1	9	Fail
2b	100%	250 mm	100%	250 mm	✓	18	0	0	Pass

Table 5-11 Block B, Results of the overheating analysis

Option Number	Profiles for Openings Bedrooms and Living Rooms				MVHR	Rooms Assessed	Rooms failing Criteria a	Bedrooms failing Criteria b	TM59
	Windows		Doors						
	Day	Night	Day	Night					
1a	100%	Closed	100%	Closed	✗	19	2	12	Fail
1b	100%	200mm	100%	200mm	✗	19	0	3	Fail
2a	100%	Closed	100%	Closed	✓	19	1	12	Fail
2b	100%	200 mm	100%	200 mm	✓	19	0	0	Pass

Table 5-12 Mews, Results of the overheating analysis

Option Number	Profiles for Openings Bedrooms and Living Rooms				MVHR	Rooms Assessed	Rooms failing Criteria a	Bedrooms failing Criteria b	TM59
	Windows		Doors						
	Day	Night	Day	Night					
1a	50%	50%	100%	100mm	✗	21	0	8	Fail
1b	75%	75%	100%	200mm	✗	21	0	1	Fail
2a	50%	50%	100%	100mm	✓	21	0	7	Fail
2b	75%	75%	100%	200mm	✓	21	0	0	Pass

For Block A, B and Mews, the results show that blinds and night time ventilation are required for passing CIBSE TM59, due to the high solar gains into the spaces during daytime from the significant percentage of glazing. Thus, security provisions are required during night time for the three residential buildings.

- **Block A:** Night time ventilation is required with at least 250mm distance being opened for all opening types in living rooms and bedrooms.
- **Block B:** Night time ventilation is required with at least 200mm distance being opened for all opening types in living rooms and bedrooms.
- **Mews:** Night time ventilation is required with at least 75% of the geometric free area for all windows being opened in living rooms and bedrooms, and at least 200mm distance being opened for all external doors in living rooms and bedrooms.

Mechanical Ventilation with Heat Recovery (MVHR) is proposed along with the natural means in order to deliver the required comfort levels as per GLA’s policy. The mixed-mode ventilation strategy will be able to mitigate overheating with low carbon emissions. Design team will provide LBH an update on progress on future additional proposal of active cooling if a set point of 25°C is needed to maintain during peak conditions only.

Considering a Mechanical Cooling strategy, all duplexes highlighted in blue in Figure 5-3 where assessed to comply with CIBSE Guide A (2015a) and they should not exceed an operative temperature of 26°C for more than 3% of the annual occupied hours. The following section describes compliance with CIBSE Guide A for apartments AN46 and AS41 at Block A.

5.8 Compliance with overheating criteria CIBSE Guide A

As mentioned in Section 5.1 in this report, the overheating model for the duplexes at Block A was conducted using London DSY1 weather file. The operative temperatures are summarised below, where all assessed rooms show compliance with the required criteria: “The predicted indoor temperatures should not exceed the tabulated values for more than 3% of occupied hours”.

Table 5-13 Operative Temperatures for duplexes at Block A

	> 25.00	> 26.00	> 27.00
AN46 Bed1	0	0	0
AN46 Bed2	0	0	0
AN46 Bed3	0	0	0
AN46 Living	0	0	0
AS41 Bed1	0	0	0
AS41 Bed2	0	0	0
AS41 Bed3	0	0	0
AS41 Living	0	0	0

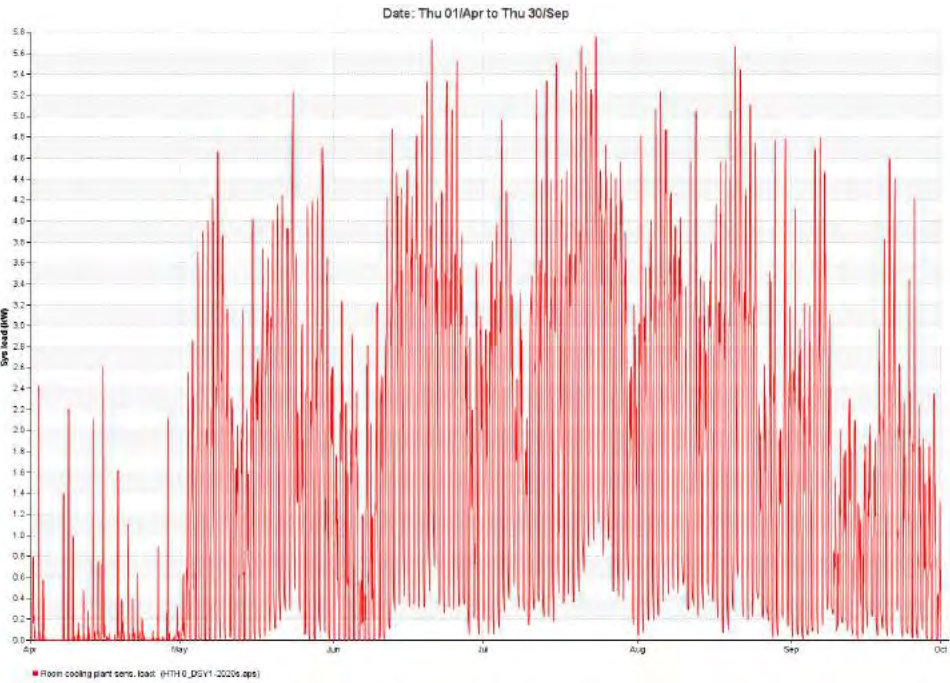


Figure 5-7 Room Cooling Plant Sensible Load

6.	Conclusions and Recommendations Following dynamic simulation modelling for the Residential Buildings within Hornsey Town Hall development at Crouch End, London, and following both GLA’s Cooling Hierarchy and CIBSE TM59 (criteria a and b), it can be outlined that all sample flats analysed at Block A (apart from duplexes), Block B and Mews can mitigate active cooling through natural ventilation, following the recommendations as described below. The overheating assessment for duplexes at Block A complies with CIBSE Guide A.	6.2	Block B ▪ Cooling Strategy: Natural Ventilation with MVHR system. ▪ Opening profiles for Bedrooms and Living Rooms during Summer Internal dry bulb temperature ≥ 22°C: Windows and External Doors: Daytime: 100% of free area opened. Night time: 200mm of free area opened. ▪ Blinds: Shading coefficient of 0.43. ▪ Ventilation: Mechanical Ventilation with Heat Recovery (MVHR) will be included for all dwellings according to Part F of the Building Regulations.
6.1	Block A	6.3	Mews ▪ Cooling Strategy: Natural Ventilation with MVHR system. ▪ Opening profiles for Bedrooms and Living Rooms during Summer Internal dry bulb temperature ≥ 22°C: Windows: Daytime: 50% of free area opened. Night time: 75% of free area opened. External Doors: Daytime: 100% of free area opened. Night time: 200mm of free area opened. ▪ Blinds: Shading coefficient of 0.30. ▪ Ventilation: Mechanical Ventilation with Heat Recovery (MVHR) will be included for all dwellings according to Part F of the Building Regulations.
6.1.1	All flats apart from Duplexes ▪ Cooling Strategy: Natural Ventilation with MVHR system. ▪ Opening profiles for Bedrooms and Living Rooms during Summer Internal dry bulb temperature ≥ 22°C: Windows and External Doors: Daytime: 100% of free area opened. Night time: 250mm of free area opened. ▪ Blinds: Shading coefficient of 0.30. ▪ Ventilation: Mechanical Ventilation with Heat Recovery (MVHR) will be included for all dwellings according to Part F of the Building Regulations.		
6.1.2	Duplexes ▪ Cooling Strategy: Mechanical Cooling. ▪ Blinds: Shading coefficient of 0.30. ▪ Ventilation: Ventilation for the duplexes shall be based on the 'whole house' ventilation approach as defined in Approved Document Part F1.		



WHITECODE

As Built Stage Checklist

Section 1: General Details

Development Name: Hornsey Town Hall – Blocks A, B and Mews	Phase: -
Client Name & Address: Ardmore	
Number of Plots: 131	

Section 2: Building Fabric Details

Element:	U-value (W/m ² K):	Detailed section/U-value calculation reports received?					
Exposed floors	0.12	☒ Yes ☐ No					
External walls	0.17 0.21 (East elevation Block B)	☒ Yes ☐ No					
Common area walls (between dwelling and corridor)	0.20	☒ Yes ☐ No					
Party wall (between dwellings)	0.00						
Effective sealing installed around edges of party walls	☒ Yes ☐ No						
Fully filled cavity	☒ Yes ☐ No						
Roofs	0.13	☒ Yes ☐ No					
Terrace Roofs	0.18						
Front doors:							
Type (i.e. solid, half glazed):	Solid	U-value: 1					
Windows/Glazed doors:		Frame material: Wood					
Window Type 1 U-value:	1.40	g-value: 0.45					
		Frame material: Composite					
Thermal Bridging (γ-value) default to be used (0.15 W/m ² K)?		☐ Yes ☒ No					
If no, please state psi value (W/mK) to be used for each junctions (if default or ACD value to be used please state 'default' or 'ACD'):							
E1	N/A	E8	N/A	E17	0.00 - default	R1	N/A
E2	0.3 ACD	E9	N/A	E18	0.06 - ACD	R2	N/A
E3	All full length	E23	N/A	E25	0.12 - default	R3	N/A
E4	0.5 ACD	E10	N/A	P1	N/A	R4	N/A
E5	0.16 ACD	E24	N/A	P6	N/A	R5	N/A
E19	N/A	E11	N/A	P2	N/A	R6	N/A
E20	0.07 ACD	E12	N/A	P3	0 - default	R7	N/A
E21	N/A	E13	N/A	P7	0.16 - default	R8	N/A
E22	N/A	E14	0.08 - default	P8	N/A	R9	N/A
E6	N/A	E15	N/A	P4	0.24 - default		N/A
E7	ACD calculated	E16	0.08 - ACD	P5	N/A		N/A
NB: If default γ-value is not to be used, psi calculations are to be provided by a suitably qualified person and signed check sheets are to be provided once the development has been constructed.							
Air Permeability:							
Design air permeability rate (m ³ /hm ² (@50Pa)):				4			
NB: A further 2m ³ /hm ² (@50Pa) will be added to the design air permeability rate. This is to ensure all dwellings pass the As Built stage when 2m ³ /hm ² (@50Pa) is to be added to the average test result for dwellings not being air pressure tested. If all dwellings are being tested please tick here: ☒							
Lighting:							
Percentage of low energy lighting:				100%			

Section 3: Ventilation Details

Mechanical ventilation being installed:		☒ Yes ☐ No	
Type:	Balanced Heat Recovery	Approved Installer?	☒ Yes ☐ No
Manufacturer:	Vent Axia	Model:	Sentinel Kinetic B
NB: If approved installer, certificate is to be provided from competent persons scheme			

Section 4: Heating Details

Individual space heating systems:		☐ Yes ☒ No	
Community heating systems Blocks A and B: AND MEWS		☒ Yes ☐ No	
Model & manufacturer:	Bosch CHP	Gas boiler	
Fuel:	Mains gas	Mains gas	
Efficiency:	87.7% Electrical efficiency 34.3%	95%	
Heat demand percentage:	60%	40%	
Emitter:	Underfloor heating		
Water heating systems:			
From combi boiler:	☐ Yes ☒ No	Separate community system:	None
Cylinder in dwelling:	☐ Yes ☒ No	Heat exchanger in dwelling:	☒ Yes ☐ No
Model & manufacturer:	TBC	Fuel:	Mains gas
Water timed separately:	☒ Yes ☐ No	≤125 litres/person/day:	☒ Yes ☐ No



As Built Stage Checklist Continued...

WHITECODE

Section 1: General Details

Development Name: Hornsey Town Hall	Phase: 4a
Client Name & Address: Ardmore	
Number of Plots: 131	

Heating system Mews:		☒ Yes ☐ No
Model & manufacturer:	Air Source Heat Pump LG Arum240LTE5	
Fuel:	Electric	
Efficiency:	6.57 entered as SAP table 1.70	
Heat demand percentage:	100%	
Emitter:	Underfloor heating	
Water heating systems:		
From combi boiler:	☐ Yes ☒ No	Separate community system:
Cylinder in dwelling:	☒ Yes ☐ No	Heat exchanger in dwelling:
Model & manufacturer:	TBC	None
Water timed separately:	☒ Yes ☐ No	☒ Yes ☐ No
		Fuel:
		Electric
		☐ Yes ☐ No
		≤125 litres/person/day:

Section 5: Renewables

Solar water heating systems:		☐ Yes ☒ No
Photovoltaics systems:		☒ Yes ☐ No
Model & manufacturer:	TBC	Installed power peak (site-wide):
Collector tilt (if on flat roof):	30 degrees	58.97kWp split between A and B
Wind turbines:		As per SWECO report
Other:	☐ Yes ☒ No	

NB: MCS certificate required on completion of development for renewable energy to be included in the EPC.

Section 6: Other Details

Cooling:	☐ Yes ☒ No
Appendix Q used:	☐ Yes ☒ No
If yes please provide details:	

Section 7: Drawings & Other Comments

Finalised/frozen floor plans (with internal layouts), internal sections and elevations are required in DWG format:	
Drawings received:	☒ Yes ☐ No
Other comments:	If no, when will they be available: N/A

Section 8: Signed Confirmation

I confirm that all of the above information is correct to the best of my knowledge. Please proceed and produce As Built Stage SAP Assessment and EPCs	
Name:	Organisation:
Signed:	Date:

Hornsey Town Hall

Home Quality Mark Beta

Post Construction Site Inspection Report

Prepared for Ardmore

Assessment Reference BREEAM-0081-5787

Revision 1

21st October 2024



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CONSULTING

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Rev No.:	Date:	Status/Comments:	Prepared by:	Position
1	21.10.24	Post Construction	Katy Venables	HQM Assessor

1.0 Introduction

This report has been produced by Whitecode Consulting Ltd who is licensed by BRE to carry out HQM Assessments. The Post Construction review aims to provide evidence obtained from a site inspection to ensure that commitments made during the design process have been implemented in accordance with HQM criteria.

The assessment is registered under HQM Beta and seeks to achieve a 3 Star rating which requires a score of 55% or above.

The site inspections occurred on 8th March 2022 and 21st October 2024 at 10.00am in the presence of Elliot Bacon, Senior Design Manager at Ardmere.

The table below identifies the apartments inspected which represents a cross section of all types and tenures.

Block	Plot Number
Block A	AN01, AN04, AN07, AN46, AN48, AS01, AS06, AS15, AS27, AS41, AS49
Block B	B02, B11, B16, B21, B33, B45, B54
The Mews	PM001, PM102, PM103, PM201, PM202

1.0 Site Context

The proposed development application was granted consent by the Haringey Council in March 2018 (application reference: HGY/2017/2220). The approved planning application includes:

“Refurbishment and change of use of the Hornsey Town Hall from B1 Use and Sui-Generis Use to a mixed use scheme comprising a hotel (Use Class C1), food and beverage uses (Use Classes A3 and A4), community uses (Use Class D1, D2 and Sui-Generis Use) and co-working use (Use Class B1). Use of the Town Hall roof terrace as a bar (Use Class A4). Removal of east wing extension and erection of east wing roof extensions to the Town Hall. Change of use of the ground floor of Broadway Annex Building East to food and beverage use/drinking establishment use (Use Class A3/A4). Provision of 146 residential units (including 11 affordable) comprising: the erection of a 7 storey building; the erection of a part 4, part 5, part 6, part 7 storey building and associated car parking at basement level; change of use of the first and second floors of the Broadway Annexe to residential use and the erection of an extension to the rear of the Broadway Annex; the erection of a residential mews block to the rear of the Broadway Annexe. Alterations and landscaping improvements to the town hall square and open spaces. Provision of cycle parking. Demolition of the Weston Clinic building; courtyard infill extension to the Town Hall; Hornsey Library garage; Library annex and energy centre. Demolition and replacement of metal stairwell to the rear of the Assembly Hall and demolition and replacement of stage hoist structure adjoining the Assembly Hall.”.

2.0 Site Inspection Findings

Drying Space

Design Specification

Ardmore provided commitment to install drying lines in each apartment.

Visual Inspection

Drying lines have been installed in all bathrooms. The model is consistent with the datasheet provided by Ardmore and provides 5 lines which extends the length of the bath.





Decentralised Energy and Impact on Air Quality

Design Specification

The Feasibility Study confirmed CHP's and PV to be the most suitable LZC technology for the residential blocks.

Visual Inspection

Rehema CHP and Hoval Ultragas gas boiler have been installed in the energy centre. PV was seen on the roofs of Block A and B.





Cycle Storage

Design Specification

Drawings indicated the location of cycle racks provided for each block. Block A and Block B cycle stores are to be located on the lower ground floor and accessed by residents via a lift direct from each floor to the lower ground floor. The Mews would have a shared store with The Broadway Annex, located opposite the Mews building and easily accessible to the residents.

Visual Inspection

Two-tier cycle racks have been installed in Blocks A and B in accordance with design proposals. A gated store has been provided opposite The Mews.



Block A





Block B



The Mews

Recyclable Waste

Design Specification

Design stage specification confirmed concrete slab to the external plant area, permeable tarmacking in the car park and block paving to the pedestrian areas. Boundary protection proposed included timber fence and a mesh fence to the plant enclosure.

Visual Inspection

Each bin store has waste bins for storage of mixed recyclable waste and general waste. Food waste bins were also seen on site but were yet to be moved to the bin store.

All kitchen have internal recycling bins fitted in a base unit cupboard. Bins are consistent with the datasheet provided by Ardmore.



General waste bins



Mixed recycling bins



Food waste bins





Internal recycling bins

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