152-156 Kentish Town Road

Building Services Concept Design Report

For: AHIG Ltd

Job No: 1012395

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1. Executive Summary

1.1 Introduction

The proposal is for demolition of the existing building and a new building consisting of A1 at Lower Ground and Ground Floor, B1 at First Floor, and nine residential apartments at Second, Third and Fourth floors.

The objectives of this document are:-

- To confirm our understanding of the client brief and to explain our proposals at planning stage.
- To secure agreement for us to proceed to the next design stage with these proposals (or alternatives that might be agreed).
- To form the basis of preliminary cost estimating by the Quantity Surveyor and for comparison with base cost model.

1.2 Servicing Strategy

a) The existing intakes to the building will be removed with new supplies installed for gas, water, electricity and communications. Each apartment will be individually metered and the gas supply will serve a dedicated gas boiler per apartment.

b) A new Utility mains water connection will be provided to a combined break tank and booster set located at basement level, with meters in the cupboard to separately serve the apartments, the retail, the office and a landlords supply for wash-down purposes at Ground Floor.

c) A new gas fired condensing boiler and hot water storage cylinder (with trace heating or a pumped return) will be provided in each flat. Individual outlet flues will be routed to the façade. Underfloor hot water heating will be provided in the apartments, with electric underfloor heating and towel rails in Bathrooms.

d) Comfort cooling will not be provided for the residential.

e) Apartments are to be provided with continuous mechanical extract and supply ventilation via MVHR units in the bathroom ceiling voids with intake and extracts to the façade. Kitchen extract to be provided to the façades.

f) No centralised softened water is to be provided

g) Electrical services to apartments to include LED mains dimming, lighting including five amp outlets, power for kitchen equipment, electric oven, TV/Satellite distribution, IT cabling, Video access control system, fire detection and alarm. Also electric UFH to Bathroom and mirror demisters, terrace small power.

h) Lower Ground and Ground Floor retail and 1st Floor office areas will be Shell and Core.

i) Incoming services supplies will be sized for the apartments and future retail offices.

j) Hot water for toilets for the retail and office will be provided by local point of use water heaters

1.3 Access to Plant and Plant Removal

Mechanical and electrical plant is to be located to ensure adequate maintenance access space is achieved and all equipment can be serviced in accordance with the manufacturer's recommendations. Access panels in apartments to plasterboard will be minimised where ever possible. Future office/retail plant will be located at high level on the floors served with heat rejection at Roof level in a dedicated area with an acoustic enclosure.

4th Floor Roof level plant

The satellite dish, AOV, Photovoltaic cells and future office and retail heat rejection plant will be located on the roof. A cable tray in the riser will be left for future MVHR pipework to roof level.

Safe access to the roof to be developed at the next stage.

Plant replacement will be from a mobile crane located at the front at pavement level.

2. Basis of Design

2.1 Design Codes & Standards

The following codes and standards will be applied to the development:

- Building Regulations and its corresponding Approved Documents
- British Standards and Codes of Practice
- Statutory Undertakings Regulations
- Health & Safety (HSE) Guidance
- CDM Regulations
- All current statutory and other codes
- BRE Design Guidance
- Relevant EN and ISO standards
- BSRIA Application and guidance notes
- CIBSE Guides, Technical Memorandums and Commissioning Codes.
- Water Bylaws/Regulations
- BS EN 12056 Gravity drainage systems inside buildings
- The Institute of Plumbing and Heating Engineers – Plumbing Engineering Services Design Guide
- BS7671 (IEE Wiring Regulations)

2.2 Room Services Design Parameters

Room Type	Air Temperature (1), (2)		Humidity Control	Occupancy	Ventilation Rate		Electrical Loads / Heat Gains (w/m²)		Noise Criteria (4)	Air Infiltration (Air changes / hr)	Comments
	Summer (Cooling)	Winter (Heating)			Extract	Supply	Lighting	Equipment			
External Ambient (for 'steady state' plant sizing)	30ºC DB, 20ºC WB	minus 3ºC							Refer to section 2.4		
Kitchen	No control	21ºC +/- 2ºC	None	2 person	30 l/s general extract (Hood details TBA)	Transfer Air	20	1000	NR40 - 45	1,5	Equipment load is for electric cooking
Living Room	No cooling	21ºC +/- 2ºC	None	6 persons @75% diversity			20	15	NR30	1.5	
Master bedroom	No cooling	21ºC +/- 2ºC	None	2 persons			15	20	NR25	1.5	
Dining room	No cooling	21ºC +/- 2ºC	None	4 persons			20	15	NR30	1.5	
Double bedroom	No control	21ºC +/- 2ºC	None	2 persons	Transfer to Bathroom		15	20	NR25	1.5	
Bathrooms	No control	23ºC +/- 2ºC	None	-	Continuous extract, 10l/s trickle, 20l/s boost	Transfer Air	25	150	NR35	N/A	Equipment load is for electric UFH
Entrance Hall	No control	19ºC +/- 2ºC	None	-						2.0	
Dressing Room	No control	23ºC +/- 2ºC	None				15	10	NR30	1.5	
Offices											Shell and Core only, assume electrical distribution provision for 100 W/m²
Retail A1				-							Shell and Core only assume 150w/m²
Hallway & Stairs (Landlord areas)	No control	16ºC +/- 2ºC	None	-	Nat vent	Nat vent			NR40	2.0	150 lux on stairs

Notes

1. All temperatures are dry bulb air temperatures, +/-2℃ is the allowable measurement tolerance due to control bands and variation around room etc.
2. There will be no humidity control, save for fortuitous de-humidification as a result of air cooling by the fan coil units (i.e. the removal of moisture by condensation forming on cooling coils).
3. Purge Ventilation is to be provided through operable windows sized in accordance with Part F of the Building Regulations.

2.3 Environmental Design Parameters

U-values for thermal elements (to comply with Part-L1A 2013) – Residential

Detail	Design	Regulations (L1a)
Ground floor average area weighted U-value	0.10W/m^{2}K	0.25W/m^{2}K
External wall average area weighted U-value	0.15W/m^{2}K	0.30W/m^{2}K
Roof average area weighted U-value	0.10W/m^{2}K	0.20W/m^{2}K
Window area weighted U-value (including frame)	1.40W/m^{2}K	2.00W/m^{2}K
Roof light area weighted U-value (including frame)	1.40W/m^{2}K	2.00W/m^{2}K
Window Visible Light Transmission (%)	60.0%	n/a
Roof Visible Light Transmission (%)	n/a	n/a
Glazing total solar transmission (G-value)	40.0%	n/a
External door average area weighted U-value	1.40W/m2K	2.0W/m2K
Thermal Bridging Y Value	Accredited Construction	n/a
Air permeability @ 50 Pascals	3.0m^3/hr/m^2	10m^3/hr/m^2

Detail	Be Lean	Be Green
Heating type	Individual Combi Boilers - Underfloor and Radiators	Underfloor from DHW
Heating fuel	Natural gas	Gas - DHW System for Underfloor Electric - Underfloor to wet areas
Gross boiler seasonal efficiency	90.0%	90.0%
Heating Emitters	Underfloor	Underfloor
Boiler Compensator	Weather	Weather
Controls	Time and temperature zone control	Time and temperature zone control
Ventilation	MVHR 92% Efficiency	MVHR 92% efficiency
Extract SFP (W/L/s)	0.55	0.55
Ductwork	Semi-rigid	Semi-rigid
Hot water pipework insulated	Yes	Yes
Hot water daily usage	< 125 l/p/day	< 125 l/p/day
Hot Water System	Instantaneous Combi	Gas boiler

Note that the 'U' values above will be under 2013 Part L1A.

2.4 Building Services Plant Redundancies

Plant	Redundancy
Boilers	None
Hot water storage & pump	None
Cold water booster Pumps	None
Kitchen extract fan	None
MVHR	None

2.5 Public Health Services Design Parameters

2.5.1 Domestic Cold Water

- Sanitary fittings to be flow restricted to comply with Building Regulations Part G to meet 125 litres per person per day. Standard bath volume up to 165 litres capacity. Dual flush WC of 6/3 litre flushes to be specified by Architect. Flow rates for showers at 9 litres/min, basin at 4 litres/min, kitchen tap at 6 litres/min. Infrastructure to be designed so as to supply additional showers in the future i.e. equivalent to 20 litre/min for each shower.
- Pipe velocities 1.50 m/s max
- Supply Pressure: Approximately 2.5 Bar at the entry into the apartment but to suit selected sanitary ware
- Water Hardness: As per Thames Water incoming mains water i.e. approximately 300ppm. A Physical Water conditioner will be installed on the cold feed to the hot water heaters to reduce scale build up
- Apartment Water Storage capacity is 490l, with 22l per person with ~6 hours of water storage

2.5.2 Domestic Hot Water

- Water Temperature: Assumed 10°C for hot water plant sizing
- Mixed temperatures to be based upon 65% hot and 35% cold
- Hot water storage based upon 80% of showers to be used in a one hour period, each shower being used for a duration of 8 minutes
- Recovery times to be less than half an hour
- Storage Temperature: 60°C, hot water distribution 55°C
- Temperature control to all sanitary fittings except kitchen sink

2.6 Acoustic Design Parameters

Please refer to the Acoustic Consultant's Report.

2.6.1 Electrical Services Design Parameters

2.6.2 Electrical Demand

TBC

2.6.3 Lighting Levels

These are approximate target levels, as there are no specific standards for houses or apartments.

Apartments

Lounge/dining – -50 Lux approximately (Note LG9 recommendations are for 150 Lux, additional lighting via luminaires plugged into 5amp outlets)

Bedrooms – 50 Lux approximately (Note LG9 recommendations are for 150 Lux, additional lighting via luminaires plugged into 5amp outlets)

Kitchen – 150 Lux on worktops

Bathroom – 100 Lux

Offices/ Retail

Shell and Core although we assume some background lighting will be provided.

Stairs – 150 Lux

Plantrooms – 200 Lux

Office/ retail toilets – 100-150 Lux

Corridors – 100 Lux

Stoves – 200 Lux

Appendix A – Drawings

1012395-SK-001

1012395-SK-002

1012395-SK-003

1012395-SK-004

1012395-SK-005

1012395-SK-006