

UNIT 1A AND 1C, TANNOCHSIDE, UDDINGSTON

Building Services Tenant Specification

Revision 4

for

HF Developments/ AWG Developments

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Revision History

Rev	Date	Purpose/Status	Document Ref.	Comments
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1 INTRODUCTION

The purpose of this specification is to describe the elements of the building services works for the development of Unit 1, Tannochside, Uddingston. It is intended to provide a basis for preliminary discussions with prospective tenants.

1.1 OBJECTIVES

The objectives of this report are to: -

- i) Inform the prospective tenant of the services installations being provided in the base build.
- ii) Define the scope of work incorporated into the M&E installation.
- iii) Provide details of the incoming services.

1.2 REGULATIONS

The building engineering services design will be developed in accordance with the following standards and regulations: -

- i) Wiring Regulations for Electrical Installations Sixteenth Edition, published by the Institution of Electrical Engineers (BS 7671).
- ii) Electricity Supply Regulations, 1937.
- iii) Factories Act including Electricity (Factories Act) Special Regulations, 1981.
- iv) Requirements of the Health and Safety Executive under the Health and Safety at Work Act.
- v) Requirements of the Electricity Board.
- vi) The Electricity at Work Regulations.
- vii) Relevant British Standard Specification and/or Codes of practice for Materials and Equipment and Method of Installation.
- viii) The Building Regulations, technical standard (Scotland).
- ix) The Construction (Design and Management) Regulations.

2 CONNECTIONS TO UTILITIES

2.2 WATER

An individual water supply branches from the sites existing water infrastructure to serve a communal cold water storage tank located within the external Plantroom. Distribution from the cold water storage tank provides Unit A ground floor, Unit A first floor and Unit C with a sub-metered supply.

2.3 ELECTRICITY

A new 300kVA supply is provided to Unit AC.

2.4 COMMUNICATIONS

BT, C&W and Thus are in the immediate vicinity. 6 No. incoming ducts have been installed to the facility to give tenants the option of suppliers.

3 SPECIFICATION

3.1 MECHANICAL SERVICES TO LANDLORD AREAS AND OFFICE TENANCY

3.1.1 Design Standards

The main plant capacities for the Office tenancy have been sized to allow for the inclusion of the functional spaces and design criteria set out in the table below. The area figures referred to in this section are based on net area unless stated otherwise.

3.1.2 Design Criteria

		WINTER	SUMMER
a)	Outside temperatures	- 5°C saturated	24°C drybulb/19°C wet bulb (exceeded for 6 hours/ year during the occupied period based on CIBSE Guide A).
b)	Inside temperatures:		
	General offices	20°C±2°C BCO recommendation	22°C±2°C BCO recommendation
	Toilets	18°C db±2°C	Uncontrolled
c)	Humidity	No humidification provided.	No humidification provided.
d)	Fresh air quantity		
	Office	12 litres per sec per person (BCO recommendations).	
	Meeting rooms	N/A	
e)	Occupancy		
	Open plan office	1 person per 10m ² base build	
	Meeting rooms	N/A	
f)	Supply air quantity		
	General areas	As required by defined cooling loads and fresh air supply rates.	
	Toilets	N/A	
g)	Exhaust air quantities:		
	Toilets	10 air changes per hour	
	General Areas	80% of supply air volume flow rates	
h)	Load densities for cooling:		
	Offices:	Lighting	12W/m ² (BCO recommendation)
		Small Power	25W/m ² (BCO recommendation)

3.1.3 Systems

3.2.5.1 Ventilation Installation

Unit A & C are conditioned by a mechanical ventilation system supplying air to variable refrigerant volume fan coil units.

The ventilation is distributed to the offices from air handling units located in the plantroom to the north of the building and within the plant enclosed on the south elevation.

The system is fully time clock controlled via control panels located adjacent to the air handling units.

3.2.5.2 VRV Installation

The variable refrigerant installation consists of indoor cassette units connected to external condensers via a three pipe refrigerant systems. The system will provide heating and/ or cooling to the space to maintain the required internal temperature.

Temperature control is provided to the VRV system via a master controller in each of the separate spaces within unit A. Unit C house's a master control in each of the ground and first floors as well as four individually volume controlled zones per floor. These will enable temperature, fan speed and timed control of each group of indoor units.

3.2.5.3 Toilets

A dedicated exhaust system has been provided to each toilet core. Exhaust valves are linked to a twin extract fan which exhausts vitiated air to outside via roof cowls.

Twin extract fans units shall be located above the suspended ceiling systems within the toilet areas. Air will be extracted from the toilets and exhausted through the external wall.

3.1.4 Energy Efficiency Measures

The following energy efficiency measures will be incorporated: -

- Wide control bands on terminal unit controllers
- Heat exchangers on all air handling units providing heat recovery from exhaust air

3.1.5 Commissioning

Ramboll Whitbybird have nominated a representative to monitor the process to ensure that the commissioning and setting to work of the systems complies with the design intent and conforms to accepted CIBSE standards.

3.2 ELECTRICAL INSTALLATION

3.2.1 Main Electrical Supplies

3.2.1.1 Main Switchgear

The building is supplied from an REC substation outwith the site boundary.

A free standing floor mounted cubicle type switchboard has been established within a new plant area with short circuit withstand of 50kA for 1 second and Form 4 type 2 separation. Cable access is top incoming and top outgoing.

Automatic multi-stage power factor correction equipment is provided to achieve a power factor 0.95 lagging minimum. The equipment is integral to the main switchboard and is complete with all relays, contactors and control equipment to facilitate its operation.

The switchboard/ distribution system is accommodates the following equipment to serve the development: -

- Outgoing moulded case circuit breakers/fuse switches for sub mains supplies for load centres and risers
- Supplies to mechanical services plant
- Supplies to lifts
- Power factor correction equipment
- Spare moulded case circuit breakers/fuse switches for future use

A complete earthing system to statutory requirements has been provided.

3.2.2 Sub Distribution Installation

3.2.2.1 General

From the main LV switchboard, electrical services supply the complete development, which generally includes: -

- Sub main distribution to tenant's distribution boards.
- Sub main distribution to mechanical services system control panels.
- Sub main distribution for heat pumps.
- Sub main distribution for lift power supplies.
- Sub main distribution to air handling plant control panels.
- Sub main distribution to fire alarm and security panels.

3.2.2.2 Tenants Services

Design Basis

A suitable allowance been made for diversity during the detailed design phase. Distribution boards have been sized to cater for the installed equipment and reasonable allowances made for the tenant's future installations, all as recommended in the British Council for Offices.

Load Densities

Office areas - Lighting	12 W/m ² Nett Lettable area
Sockets and Small Power	25 W/m ² Nett Lettable area

System Description

The distribution boards incorporate integral isolators and miniature circuit breakers to BS EN 60-898 1991.

Within the base build socket outlets and suitable rated isolation and connection equipment have been provided for general cleaners' sockets, hand dryers and ancillary services.

Distribution boards serving final circuits are complete with suitably rated miniature circuit breakers. Tenant's small power distribution boards will be fitted with MCB's by the tenant at a future date to suit their small power installation.

3.2.3 Lighting Installation

3.2.3.1 General

Illumination levels for the complete building complies with the requirements of the CIBSE 'Code for Interior Lighting' and the appropriate Lighting Design Guides.

3.2.3.2 Office Areas

Office areas are generally illuminated using high frequency luminaires employing high efficacy (high lumen output) low energy lamp technology. Recessed modular luminaires are used throughout the space.

The luminaire louvre design has been specified to comply with the requirements of CIBSE Lighting Guide 3 (LG7) with a limiting peak intensity of 1000cd/m² at 65°. The design assumes that highly reflective surfaces will be utilised throughout maximising the opportunity for aligning with LG7.

3.2.3.3 Plant Areas

The plant areas are illuminated using high frequency fluorescent luminaires with high efficacy low energy lamps.

3.2.3.4 General Circulation Areas/ Toilets

High frequency compact fluorescent recessed luminaires has been used in general circulation and toilet areas.

3.2.3.5 External Lighting

Functional external lighting is provided at all access/egress routes and on the roof for access to the plant areas and plant rooms.

3.2.3.6 External Car Park Lighting

External car park lighting has been replaced to accommodate the increased site area.

3.2.3.7 Energy Efficiency

Where possible high frequency compact fluorescent luminaires have used throughout. Where linear fluorescents are used high frequency control gear and high efficacy lamps have been utilised. Low voltage sources have been kept to a minimum. In compliance with Technical Standards (Scotland), lamps with an average efficiency of not less than 65 lumens/ watt have been selected.

3.2.4 Emergency Lighting

The emergency lighting installation is designed to comply with the requirements of all current regulations and guides, principally BS5266 and EN1838.

The system is designed to provide a minimum of three hours duration in the event of mains failure. Emergency exit signage is provided throughout the complete building in accordance with Technical Standards and Statutory approvals.

The system will comprise of self contained emergency lighting battery/inverter packs contained within individual luminaires.

3.2.5 Lighting Control

3.2.5.1 Office Areas

Artificial lighting control is provided locally to control groups of luminaries.

Cabling is installed on a modular basis with plug-in units to provide for future cellularisation. The modules have the following features: -

- a) Capable of supporting 8 luminaires with two switch inputs
- b) For base build inputs are linked, which can be removed for future tenant flexibility
- c) Each output shall be capable of 6 pole connection
- d) Capable of accepting control signals from a future tenants lighting control system
- e) Capable of additional switch inputs from photocell's and presence detectors
- f) All modules will be complete with 2 spare outputs to provide the flexibility for future cellularisation.

3.2.5.2 Toilets/ Stairs

Switches are provided locally.

3.2.5.3 External Car Park

Photocell and timeclock with a local override switch.

3.2.6 Small Power Installation

3.2.6.1 Tenants Provision

Distribution boards for “Lighting” and tenants “Small Power” final circuits have been provided.

The distribution boards incorporate integral isolators and miniature circuit breakers to BS EN 60-898 1991.

The boards have been sized to accommodate future tenants fit-out requirements. Cleaners sockets and ancillary power supplies have been installed for hand dryers only and water heaters only.

3.2.7 Fire Detection and Alarm System

3.2.7.1 Fire Detection System

The design and installation of the fire detection and alarm system is in accordance with the requirements of BS 5839 and BS 5588. The classification of protection is to the requirements of L2.

The building has its own fire detection and alarm system. The panel is of the analogue addressable type.

The fire detection system comprises manual break glass call points together with automatic detection from optical smoke detectors and fixed high temperature heat detectors.

In accordance with the British Standards, the fire alarm system is divided into protected fire zones. The fire zones has been designated and arranged in accordance with the Architects fire compartmentation drawings.

The system is designed taking cognisance of the requirement that it may be modified in future to suit the tenants’ floor plan layout.

3.2.7.1 Control and Interlinks

The fire alarm system has control interfaces with the mechanical services installation.

3.2.8 Security Installation

3.2.8.1 Intruder Detection

An intruder detection system is provided to cover all external access doors and routes to the building. Heavy duty magnetic door contacts and passive infra red detectors are employed to facilitate intruder detection. Control and indication equipment is located in the Riser/ Plant areas with keypads located at strategic points to control the system.

A tamper proof self activating external audible alarm sounder located in a weatherproof housing complete with rechargeable battery and strobe light is located on the building.

3.2.9 Provisions for Disabled Persons

The following provisions has been made for disabled persons: -

- i) Disabled persons alarm pull cords are provided in all disabled persons WCs.
- ii) Passenger lifts have been designed, constructed and installed in accordance with the BSEN81/ BSEN81/70 and the requirements of Technical Standards (Scotland).

3.2.10 Voice and Data Installation

i) Cable Management Containment System

A basket type cable containment system is routed throughout the building. The cable basket is linked to the main telecommunications intake position.

ii) Telephone lines are provided for the following systems:

- Redcare GSM monitored line for the fire and security systems.
- Dedicated line for the passenger lifts

iii) The provision of incoming communication lines for the prospective tenant are excluded from the base build.

3.3 VERTICAL TRANSPORTATION SYSTEMS

3.3.1 Passenger Lifts

The following selection has been made:

	Unit A	Unit C
Capacity:	8	8
Speed:	1m/s	1m/s
No:	1	1

The passenger lifts serve all office floors.

Car finishes are of a standard appropriate for a development of this nature and be compatible with lobby finishes.

3.4 PUBLIC HEALTH SERVICES

3.4.1 Sanitary Plumbing

3.4.1.1 Toilet Cores

Soil vent pipes serving all floors are located within vertical service ducts offsetting at high level to first floor and discharging to below ground drainage. Stub stacks have been provided where necessary to serve ground floor appliances to limit the effects of 'back pressure' in the main vertical discharge stacks.

A soil vent pipe and vent pipe with blanked off branches are provided for the tea point risers for later tenant fit-out.

3.4.1.2 Safety Valve Drainage

Safety valve discharge from the electrical water heaters drainage have been located in the toilet cores to drain emergency discharges. Pipework will be led to discharge to suitable locations.

Safety valve drains are also be provided in the tea point risers for later tenant fit out.

3.4.2 Water Services

3.4.2.1 Domestic Water Service

a) Cold Water

Within the external Plantroom located to the rear side of unit C a cold water tank provides a minimum storage capacity to meet demand for domestic and drinking water purposes.

An individual water supply branches from the sites existing water infrastructure to serve the cold water storage tank. Water is distributed from the water storage tank by a booster set comprising of 2 pumps (duty, assist) and an accumulator.

Distribution off the booster set will split into 2 individual supplies with one supply serving unit A&C and the second supply serving unit B.

b) Hot Water

Local electric unvented hot water heaters have provided to serve the sanitary ware in the toilet cores. These have located local to the appliances services.

All unvented hot water heaters have been provided with expansion vessels and safety valves.

Water heater mounted blended water thermostatic mixing valves will control temperatures to prevent excessive hot water where required at various wash hand basins.

4 METERING STRATEGY

4.1 ELECTRICAL

One mains supply will be taken from the local utility company terminating in a metering panel with each tenant sub metered. The landlord will be responsible for monitoring the meters and issuing bills.

4.2 MECHANICAL

A branch of existing mains water supply shall serve a communal cold water storage tank booster set from which three individual supplies shall be taken. Each supply shall be fitted with an individual meter for the associated unit. The landlord will be responsible for monitoring the meters and issuing bills.