/INTEGRATION
3-5 SPAFIELD STREET
LONDON EC1R 4QB
+44 (0) 20 7183 8610
INTEGRATIONUK.COM

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MECHANICAL & ELECTRICAL SERVICES STRATEGY

40 GROSVENOR GARDENS, LONDON

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CLIENT
West End Investments Ltd.

IN CONJUNCTION WITH
Orbit Architects
83 Blackfriars Rd
South Bank
London
SE1 8HA

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1	Issued for information	Mo Bishara	Mike Spence	02/10/20

1 INTRODUCTION

This document sets out the strategy of the new mechanical & electrical building services installations for the proposed refurbishment and fit out of 40 Grosvenor Gardens, London.

The building is Grade II listed and comprises of two sections: The main building and the mews building where both share the same basement level. The main building consists of 5 levels, and the mews comprises of 2 levels. Existing plant is either located in various locations on external walls or within the basement kitchen of the main building.

The strategy and aspiration of the building is to create high quality office space throughout the building, with the flexibility for either a single tenant to occupy the whole building or for separate tenancies in the mews section and on every floor of the main building.

The existing building has had a series of modifications made to it, with various systems added over time. In particular wall mounted fan coil units have been added in some rooms with external condensers mounted in various locations on external walls, with pipework routed in surface mounted trunking. Existing pipework and electrical services are generally exposed or run in surface mounted trunking.

The existing mechanical and electrical services systems are aged and at the end of their efficient and functional operating life. Due to the condition and unsuitability to the proposed future fit-out, it is recommended that all existing services other than rainwater goods are stripped out and replaced with new services to suit the fit-out requirements.

In addition to using existing pipework routes where possible the intention is to create a new riser adjacent to the existing lift shaft to accommodate the new M&E services rising to serve all floors. This will ensure the new services will be well coordinated with the building fabric, with pipework and cable routes concealed throughout, and fan coil units concealed behind architectural casings.

2 SCOPE OF WORKS

2.1 UTILITY SERVICES

The existing building has been provided with a 200A, 3phase Low Voltage intake from the local LV network power supply. The intention is to relocate the existing electrical intake cut out to the new proposed location within the vaults at the front of the building at basement level.

The supply will be divided to feed both the main building and the mews, with smart meters to be coordinated with the electrical provider.

The existing metered incoming mains cold water supply meter will be retained and reused.

Two incoming telecom ducts will be allowed for to provide new fibre connections to both the main building and mews.

2.2 MECHANICAL SERVICES SYSTEMS

2.2.1 Heating and Cooling Systems

A new VRV system with heat recovery which will be capable of providing simultaneous heating and cooling to all office spaces.

The existing outdoor condenser units will be removed and new units will be installed on the roof of the main building. The units will be provided with the appropriate acoustic treatment to ensure reduced background noise.

Further space allocation will be made for future provision of tenant cooling plant.

Refrigerant pipework will be routed within dedicated M&E risers for both the Main building and Mews to serve branch controllers and fan coil units distributed around the building. Fan coil units will be concealed within architectural casings at low level.

Electric panel radiators will be provided to heat circulation spaces and toilets.

2.2.2 Ventilation Systems

The existing offices and workshop areas are naturally ventilated via operable windows and above ground it is intended to retain this strategy for the refurbished building to avoid the significant impact on the building fabric that a mechanical ventilation system would require.

Supply and extract ventilation will be provided to each toilet block via local heat recovery ventilation units mounted in the ceiling void over each WC, discharging via air bricks in the façade. The units will be controlled via local light switches.

Ventilation to the shower and changing rooms will be via a local heat recovery ventilation unit mounted in the ceiling void, discharging via an air bricks in the façade to the front lightwell. The unit will be controlled via local light switch.

The basement offices will require mechanical ventilation due to the lack of operable windows, and this will be provided by two mini air handling units mounted at high level with intake and exhaust ductwork connecting to new intake and exhaust louvres located in the central lightwell directly above.

2.2.3 Domestic Hot & Cold Water Services

The existing plant to be removed and replaced with new domestic hot and cold water systems distributing throughout the building.

A new cold water storage tank and pump, and new domestic hot water cylinder will be provided in the basement level within a dedicated cupboard below the staircase. Thermally insulated pipework will extend from the cupboard in concealed risers and services voids to serve all hot and cold water outlets in the building.

The existing riser chased into the wall along to serve the WCs will be reused to route the pipework vertically through the building. Where this isn't possible, new dedicated risers will be created to run the new pipe work.

Future provision will be made within the M&E risers for tenant kitchenettes on each floor.

2.2.4 Drainage Systems

A new fully ventilated foul drainage system, serving all new sanitary appliances and connecting to the existing below ground drainage system at basement level will be provided.

As much as possible existing drainage stack locations will be reused, including the existing external drainage stack running down the rear of the main building.

Future provision will be made for tenant kitchenettes on each floor.

2.3 ELECTRICAL SERVICES SYSTEMS

2.3.1 LV Distribution

The existing primary 200A three phase Low Voltage supply cut-out head and utility meter previously located on the corridor in the basement level will be relocated to the new proposed located in the front vault plantroom.

The connection for the building will be split to serve the main building and the mews separately.

Main isolators will be provided as means of isolation for the entire building electrical system feeding distribution boards and consumer units located at different floors to minimise cable runs.

A new three phase supply will be routed from the main LV switchboard to new VRF plant at roof level including circuit protection, cabling, and isolators.

New three phase distribution boards will be located at basement level serving the landlord equipment in the main building and mews portion of the building.

New single-phase consumer units, and dedicated smart meters will be located at each floor within dedicated cupboards for lighting and power final circuits including RCD / RCBO / MCB protective devices to serve the new office areas.

Low voltage containment for mains, sub-mains and final distribution power cabling including fixings support will be provided. The containment route will be routed through both vaults to supply the building.

ELV (Extra Low Voltage) containment for lighting controls, telecoms, security, fire alarm and intercom services including fixings supports will be provided.

2.3.2 Earthing, Surge Protection & Lightning Protection

An electrical earth network including bonding, CPCs, surge protection and connection to existing supply earthing system will be provided.

Supplementary bonding will be installed to all extraneous metalwork and incoming services.

Primary surge protection will be provided within the main distribution board. The surge protection shall be connected direct to the load side of the boards but maintain full shrouding.

The existing lightning protection to the building will be tested to ensure the system is adequate. Modification will be required to ensure the system meets current regulations.

2.3.3 Small Power

Small power and lighting services from local distribution board and consuming units including circuit protection, wiring, lighting supplies, socket outlets, floor boxes, switched fused connection units, etc. will be provided.

Distribution will be concealed in wall cavities, and small power will be recessed in the wall with flush finishes.

Areas with no wall cavity will be avoided. Where areas with no wall cavity need to be used, perimeter trunking or exposed conduits will be used to run power and data distribution to sockets and data points. Sockets to be integrated in the trunking or surface mounted.

New floor boxes will be provided where possible to suit the new office layouts.

Distribution in plantroom and storage areas will be run in metal conduits.

2.3.4 Lighting

Internal general lighting to all areas, utilising low energy fittings, i.e. surface mounted or recessed liner LED luminaires including wiring, controls, control gear, switches, dimmers, and ancillary devices.

Emergency lighting system will be provided including integral batteries, wiring, controls, test switches, containment, etc.

All fittings colour temperature, rendering and glare and efficiency shall comply with CIBSE LG 7 and Building Regulations Part L2B.

2.3.5 Fire Detection & Alarm Systems

A new addressable L1 fire alarm system to BS 5839 will be provided to serve all floors, including main fire alarm panel, smoke detectors, manual call points, sounders, fire alarm interfaces, cabling throughout the building.

The fire alarm panel will be located in the entrance for easy access by the firefighters. A repeater panel will be located at the entrance to the mews.

2.3.6 Telephone & Data Systems

Two new fibre connections will provide the broadband requirements for both the main building and the mews.

A new cable patch panel for wiring termination in will be installed in designated telecoms cupboards, with space provision in the tenant space for telecoms racks to be provided by the tenant.

Containment for voice & data distribution from the main distribution patch panel will be routed to each floor for structured cabling installations via the electrical riser. Data wiring from the patch panel in the telecoms cupboard will be routed to data points to suit the office layout.

2.3.7 Security & Access Control Systems

New CCTV system will be installed to cover the common areas and external building perimeter including external and internal cameras, primary wiring, power wiring, containment and recording and monitoring facilities.

A new security intruder alarm system will be provided including PIR detectors, alarm contacts to all doors and selected windows, alarm keypad, internal sounders and NSI certification.

A new access control system will be installed to the main entrance doors used as primary access route including door control unit, proximity reader, break glass unit and interfacing with fire alarm system for all evacuation doors.