

OXFORD VICTORIA HOUSE DEVELOPMENT LTD
VICTORIA HOUSE
BLOOMSBURY SQUARE, LONDON



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PART-BASEMENT 1, PART BASEMENT 2, PART LOWER GRD FLOOR, PART MEZZANINE, PART UPPER GRD FLOOR & LIFT No 2 OUTLINE MEP STRATEGY
LISTED BUILDING CONSENT
REVISION P04



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1.0 INTRODUCTION

1.1 Project Overview

This document considers the Mechanical, Electrical and Plumbing Health Services works in support of the Listed Building Consent application for the conversion within Levels B2 to Upper Ground / Mezzanine.

The areas included in this application are as follows:

- Part Basement Level B1 & B2
- Lower Ground Floor / Southeast Corner (Southampton Row / Vernon Place) – Retail Unit 1 (Former Bank)
- Lower Ground, Mezzanine & Upper Grd Floor / Northeast section (Southampton Row) - Retail Units 6,7,8,9
- Upper Ground Floor - Goods Lift (new access to upper Ground Floor)

Detailed in Appendix 1.0 are a set of drawings, which describe the final services arrangements for the following:

- Heating and cooling pipework
- Ventilation ductwork
- Above ground Public Health Services
- High level Electrical Services, including lighting, fire alarm and containment
- Low level Electrical Services.

1.2 The Building

Although the building was constructed in the 1920's, with the exception of the below ground drainage the Mechanical Electrical & Plumbing (MEP) services were consented in 2001, constructed in 2002-3 and then a further refurbishment on a number of the floors in 2020. All of the floors are currently air-conditioned with 4-pipe fan coil units providing heating and cooling and the intention is to adapt this function in the write-up areas. It is envisaged that the lab-enabled areas will also be air-conditioned.

The intention of this project is to insert a life science function into the Basements & Lower Ground Floor (50% office & 50% lab-enabled) in the same way as the consented application on the upper floors. The intent is to re-use as much of the current MEP installation as possible. The life science function requires increased ventilation to be provided with air handling units and fume exhaust fans & flues on the roof, which was consented in an earlier application.

The air handling units connect to new louvres, which have previously been consented.

2.0 ADAPT, REMOVE AND RE-USE OF EXISTING SERVICES

The intent is to adapt the existing MEP services, which have been designed for office use to a blend of laboratory and offices usage. 50% of the Basement is to be office write-up and the intent is to adapt and re-use the services, such as lights, fan coil units etc. The remaining 50% of the Basement is enabled for future laboratory usage and as such will be left as a shell, with services available for future connection.

The former retail areas will be adapted to life science function too.

The following works are envisaged;

2.1 Office Write-Up

- The fan coil units providing heating and cooling will be re-used elsewhere in the building. This may involve slight adjustments to suit the new locations.
- The lighting and emergency lighting system will be re-used. This may involve slight adjustments to

suit the new locations.

- The fire alarm system will be re-used, with local detectors adjusted to suit the new layout.
- The power containment system will be adapted to suit the new locations.
- The ventilation ductwork in the risers will be retained in the risers and replaced on the floors to suit the new configuration. New air handling units will be installed at high level within the write-up space and will connect to new fresh air and exhaust louvres, which have previously been consented.
- The heating and cooling pipework will be drained down and then replaced with new pipework around the perimeter to suit the new layout. New heat meters will be installed in the risers.

2.2 Laboratory Enabled

The laboratory enabled areas will be cleared of existing services, with most elements recycled or re-used elsewhere in the write-up areas. The only services remaining will be background lighting and fire-alarms. Thereafter a future Tenant will fit-out with new fan coil units, ventilation and lighting to serve the laboratory requirement. The fire alarm systems will be adapted. We are seeking consent for an indicative layout.

A new health facility will be created in Unit 1 with consulting and treatment rooms.

3.0 BUILDING SERVICES STRATEGY

3.1 MEP Design Strategy

The new MEP installations shall be designed to:

- Provide a robust and resilient installation, capable of maintaining the specified internal environment.
- Be energy efficient and minimise fossil fuel use.
- Serve the range of uses and be adaptable to accommodate changes to tenancies.
- Be simple to operate and maintain.
- Be quiet in operation to minimise external and internal noise.

All MEP services installations will be optimised to limit energy use whilst delivering an optimal environment for occupants and building use. The building will be well measured so that in-use energy can be monitored and be accessible.

3.2 Description of Works

The existing building services will be adapted to CAT A for the write-up areas and shell and core for the laboratory enabled areas. The following description of works will be undertaken by the Landlord:

- Adapt the incoming mains electrical supply and LV distribution to tenanted areas.
- Retain the incoming water supply serving central Landlord water storage tanks and booster to serve tenanted areas.
- Retain the ducts, containment and a new Comms Intake Room for incoming voice and data services.
- Heating provided by new air source heat pumps, but supplemented by existing gas fired boilers to reduce carbon emissions. This has previously been consented.
- Cooling provided by new central chillers and cooling towers, which were approved in the previous consented application.
- Chilled water and heating pipework to each tenant area, valved and metered at riser.
- Laboratory ventilation provided by new air handling units located at high level, which will connect to previously consented louvres.
- Adapt the services to toilets on Lower Ground & Upper Ground.
- New services to toilets and changing in Level B1. This was previously consented.
- Adapt the existing general supply / extract ventilation to each tenant area.
- New Cat 5 Lab cold water and domestic cold water to each tenant area, valved and metered at riser.
- Adapt the existing primary power distribution systems.
- New power busbar risers and distribution board(s) to each tenant area & common areas.



- Adapt the central fire alarm and detection system.
- New above ground laboratory drainage provided.
- Adapt the existing central building management system.
- New fume exhaust discharge stacks, fans and ductwork distribution to the perimeter of the tenant area, where it will be capped. This was previously consented.
- Adapt the existing CCTV and access control, as consented in the previous application.
- New metering (electrical, water and heat).
- Adapt the existing Lighting and Emergency Lighting to Write Up and new background lighting to laboratory areas.
- Adapt automatic addressable fire detection and alarm system (category L2) to be provided to all areas.
- New services to the Prayer Room.

3.3 Lab Enabled Areas

The area designated for laboratory function will be left as a shell, but with Landlord MEP Services capped at the perimeter for future fit-out by the Tenant. It is the design intent that the areas will be heated and cooled by 4-pipe fan coil units located in the ceiling with mechanical ventilation provided by roof mounted air handling units. A suspended ceiling is assumed in the laboratory function, but exposed services are envisaged in the write-up / office function. It should be noted that the MEP Concept Design Drawings indicate the design intent following a Tenant fit-out.

Where services are currently located in an area designated as lab enabled, the existing MEP services will generally be stripped out. This is because the exact function of the space can only be determined by the incoming Tenant. However, consideration should be given as to how the adjacent Write-Up Area's existing services are retained, as they are typically served from the Lab Enabled Area.

Detailed below are the various interface strategies for the MEP services between Landlord and Tenant in the Lab Enabled Areas;

- 2 pipe chilled water valved connections will be capped at the riser for future connection by the Tenant. The service will be metered by the Landlord.
- 2 pipe heating water valved connections will be capped at the riser for future connection by the Tenant. The service will be metered by the Landlord.
- Mechanical fresh air and extract ventilation will be provided by the Landlord, with capped connections at the perimeter. At the point of interface, Constant Air Volume (CAV) boxes will be provided to regulate the specified airflow.
- Fume exhaust ductwork will be capped at the perimeter for future connection by the Tenant. This ductwork will form part of a central fume exhaust system. This was previously consented.
- Potable cold water pipe connection will be capped at the perimeter for future connection by the Tenant. It is envisaged that hot water will be generated by the Tenant by local direct electric water heaters.
- CAT 5 laboratory cold water will be capped at the perimeter for future connection by the Tenant.
- Provision for lab gases shall be within each Tenant demise. Any lab gas systems shall be provided during the Tenant fit-out. Any lab gas systems stored internally will be housed within proprietary fire-rated gas safety cabinets.
- Building Management System (BMS) touch screen user controls in the mechanical riser including graphical layout overview. Tenants can also access controller via web browser as part of Cat B fit-out.
- Below ground drainage connections for laboratory function will be provided at regular intervals. The drainage will be routed through the floor below for connection into the main drainage stacks.
- Power supply to each tenancy will be metered by the Landlord. A dedicated Tenant distribution board will be provided in the riser. An essential services supply will be provided, which will be backed by the Landlord's standby generator.
- Lighting and emergency lighting will be provided to illuminate the shell space, but will be required to be upgraded by the Tenant.
- Fire Alarm; Automatic addressable fire detection and alarm system (category L2) to be adapted to all

areas.

- Surveillance and Intruder alarm; No systems installed by base build in Tenant demises. Part of Tenant fit-out, if required.
- Access Control system provided on the stair door at every level
- Landlord video intercom handset located at entrance to floorplate with spare cable length to locate on a future Tenant reception desk.
- Fully distributed fibre to each floor in the tenant comms riser, with at least 2No providers.
- Space allocated at roof level and in riser for future Tenant plant.

It should be noted that consent is sought for indicative laboratory layouts. These are based upon our assessment of the potential tenant's requirement.

4.0 ON FLOOR SERVICES ARRANGEMENT

4.1 Basement

The proposal seeks to convert the current areas used for ad hoc private hire into labs, write-up, and associated spaces.

- The B1 areas will be accessed from a central core. This is accessible direct via stairs from the main entrance lobby and has connectivity via the lift No 6 & 13 and existing staircases to the rest of the building.
- The central core has the previously approved welfare facilities of new toilet provisions and the addition of a Parent room. This proposal will add to the communal facilities with the inclusion of a new Meditation / Prayer Room for the use of all within the building.
- The central access core will lead to the main facilities North and South.
- North. The octagon space will be designed as the reception and collaboration zone for this part of the facility with spaces beyond being allocated for labs, write-up spaces and associated stores.
- South. The reception space leads to the subdivision of the space into labs with associated stores and write-up areas. Access from these labs will be granted to other areas of the building for additional write up space.
- The design of the space allows for additional labs of various sizes to be adapted to the needs of the Tenants and their requirements. As with other parts of the building the proposals are flexible depending upon need for labs or associated spaces.

The intent is to retain as much of the office servicing as possible within the write-up areas, whilst enabling laboratory functions in the designated areas.

The works will comprise the following:

- The Write-Up Areas will be fitted out to CAT A. For the description, refer to Section 2.1 Office Write-Up.
- The Lab-Enabled Areas will be fitted out to shell standard, however we are seeking consent for the indicative layouts shown on the drawings. For the description, refer to Section 2.2 Lab Enabled Areas.
- New MEP services to the Prayer Room.

4.2 Unit 1 (Former Bank)

Unit 1 has the opportunity of being a self-contained unit with connectivity to the main building and facilities



through level B1 and proposed access via level B2. This new access from Unit 1 to B2 is not being created through an historic area, but through a secondary space and vault area of the former bank. The creation of the B2 door is to enable connectivity to the main building to enable servicing of the unit through deliveries, waste streams, etc so routes do not have to be taken through more sensitive parts of the building.

- Unit 1 covers basement levels B2, B1 and Street Level at Southampton Row and Vernon Place, the former Bank is currently vacant.
- This unit has the potential for a number of related uses due to its position and layout, these could be medical, healthcare or lab and write up facilities.
- The street level is proposed to house the main unit reception, visual side of the proposed unit.
- Lower floors of the building being used for conversion into potential consultation / treatment rooms or lab areas and associated spaces.
- Connectivity with the building enables collaboration with other users and to enable the Tenant to use the main facilities of the building.
- MEP alterations will be required to accommodate the above. This will involve new ventilation, fan coil units for heating & cooling, new lighting and fire alarms. These services will serve new treatment and consulting rooms and labs.

However, in order to enable this space and the space above for laboratory function a number of works have to be undertaken. The layouts are indicative of a tenant's requirement. These are described below:

- The existing services will be stripped out in their entirety.
- The current heating and chilled water pipes serving the Unit need to have heat meters fitted in the risers to ensure compliance with the heat meter regulations.

4.3 Units 6, 7, 8 and 9

Units 6, 7, 8, 9 is proposed to utilise the various heights of the spaces for conversion into the following:

- Main access to this proposed facility will be via Southampton Row via an entrance adjacent to the Southampton Row entrance into the main building. The units are currently vacant.
- The double height space of the reception will flow into the double height space of the former colonnade. This area is proposed as circulation / write up and will provide active frontages to Southampton Row with the activities it generates.
- Ground floor laboratories are proposed under the mezzanine level above. A new air handling unit will be located at high level and will connect into new ventilation louvres, which have been consented in a previous application.
- A flight of stairs and existing platform lift take you to the Upper Ground Floor area where additional labs are proposed and access to the main Victoria House can be made via the North stair. Lift No 13 will contain a new stop to access the Upper Ground floor.

The works will comprise the following:

- The Write-Up Areas will be fitted out to CAT A. For the description, refer to Section 2.1 Office Write-Up.

- The Lab-Enabled Areas will be fitted out to shell standard. For the description, refer to Section 2.2 Lab Enabled Areas. The layouts are indicative of a potential tenant's requirement.

5.0 ENERGY AND SUSTAINABILITY

5.1 Introduction

The energy and sustainability statements below reflect a strategy which already been consented in a previous application, but not yet implemented.

The existing central plant will remain operational throughout the conversion works in order to maintain services to the existing Tenants. However, it is the intent to significantly improve the buildings energy and sustainability credentials by implementing a number of energy efficiency measures.

As the building is currently air-conditioned and no new areas of air-conditioning are being created, there is no requirement to submit a statement demonstrating how the cooling hierarchy has been followed.

5.2 Improved Energy Metering & Analytics

The building will be well measured to enable operation to be monitored, analysed and optimised. Smart metering and energy management systems are proposed to enable all energy use to be monitored, analysed and managed through the life of the building. An automated metering and targeting (AM&T) system.

All meters shall be compatible with the BMS and data acquisition system for automatic collation, recording, monitoring and billing of metering data.

Allowance will be made within the system for the monitoring and recording of all water, electricity, gas and heat meters. Meters will be grouped by area and end use, and aggregated into virtual meters such that energy consumption can be viewed by end use (e.g., total lighting consumption, or total heating consumption) or by area. The virtual meters are to be easily re-configurable by the FM Team such as to allow custom meter groupings.

5.3 Carbon Emission Reduction

5.3.1 Demand Reduction (Be Lean)

As the building is a conversion project, there is little scope to improve the buildings fabric beyond the current U-values. It would be uneconomic to add further insulation to the walls or to replace glazing units with new double-glazed units.

The existing central plant will remain operational throughout the construction works in order to maintain services to the existing Tenants. However, it is the intent to significantly improve the buildings energy and sustainability credentials by implementing the following measures:

- Optimise Variable Speed Drives (VSDs)

Although the secondary LTHW & CHW pumps have VSDs fitted, it appears that they do not operate in variable flow mode due to balancing and control issues. The intent is to address this by changing the problematic valves and implementing a new control strategy. The VSD's operation will be assisted by fitting Pressure Independent Control Valves (PICV) to all the fan coil units.

- Heat Recovery to AHUs

The 4No supply air handling units do not incorporate heat recovery from the exhaust air. This could be achieved by replacing the supply air handling units and extract fans and introducing new units with heat



recovery coils. It should be noted that these air handling units were installed in 2002/3 and are nearing the end of their life and require replacement. Their replacement has been previously consented.

- Reduce Lighting Energy

Lighting systems will be upgraded across the conversion floors to LED type of at least 110lm/W. They will be installed with associated lighting controls and daylight dimming to further reduce their energy usage.

5.3.2 Heating Infrastructure (Be Clean)

Utilising the London Heat Map, it can be seen that there are no existing heat networks in the vicinity of the building. There are a number of potential heat supply sites located nearby, however, there is no infrastructure in place to bring heat to the building.

5.3.3 Renewable Energy (Be Clean)

The incorporation of low and zero carbon technologies (LZCT) will reduce the demand on finite natural energy sources and by reducing the energy demand of the proposed development there will be both beneficial effects for the environment and a reduction in running costs.

The intention is to insert heat pumps to generate low carbon heating and cooling. The heat pumps will be used to supply the majority of the buildings heating and hot water demand with the existing gas boilers being used to supply the remaining demand. New chillers will also support the cooling demand.

5.3.4 Estimate of Carbon Reduction

In line with guidance contained with the Greater London Authority Supplementary Planning Guidance document 'Energy Assessment Guidance 2022'¹ the building has been modelled using the Part L 2021 methodology with the carbon factors changed using the updated 'Carbon Emissions Reporting Spreadsheet 2022'.

The conversion will be completed so that passive measures to reduce the energy demand are incorporated first. At the Be Lean stage, there will be a **15%** reduction in carbon emissions from the existing building by the installation of more energy efficient lighting systems and heat recovery on the ventilation plant. By the installation of an air source heat pump to supply a large proportion of the buildings heating demand, a further saving of **36%** has been achieved compared to the existing baseline of gas fired boilers supplying all of the buildings heating load. In total, there will be a **51%** reduction in carbon emissions compared to the baseline scheme.

	Regulated non-residential carbon dioxide savings	
	(Tonnes CO ₂ per annum)	(%)
Be lean: savings from energy demand reduction	110.3	15%
Be clean: savings from heat network	0.0	0%
Be green: savings from renewable energy	266.0	36%
Total Cumulative Savings	376.3	51%

¹ Energy Assessment Guidance – June 2022



APPENDIX 1.0
MEP STAGE 3 DESIGN DRAWINGS