



Dr. Williams Library
14 Gordon Square
Bloomsbury
London
WC1H 0AR

Mechanical & Electrical Services Scheme Design
Summary for the Refurbishment of Existing Building for
inclusion in Design & Access Statement

October 2019

Project: Dr. Williams Library
14 Gordon Square
Bloomsbury
London
WC1H 0AR

Client: The Trustees of Dr. Williams Library

Document: Mechanical & Electrical Scheme Design Summary Report for
The Refurbishment of the existing Building for inclusion in
the Design & Access Statement

Date: October 2019

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Contents:

- 1.0 SUMMARY OF BUILDING SERVICES DESIGN**
- 2.0 DESCRIPTION OF PROPOSED SERVICES**

1.0 SUMMARY OF BUILDING SERVICES DESIGN

The building services design for the refurbishment and extension of Dr. Williams Library at 14 Gordon Square, London, WC1H have been developed in conjunction with the architecture and existing structure with the aim of producing the clients ambition to deliver a highest quality working environment for the storage of historic books and manuscripts whilst maintaining the fabric of the existing building in accordance with the recommendations of BS EN 16893 2018 Conservation of Cultural Heritage – Specifications for the location, construction and modifications of buildings or rooms intended for storage or use of heritage collections.

The existing building was originally constructed circa 1849 and is grade II listed. The building has and the building services installations have been modified several times during the buildings history and there appears to have been a significant intervention dating from the 1980's.

The electrical installations in the main appear to date from the 1980's are well beyond their recognised economic life of 20-25 years published in CIBSE guide M.

Similarly the heating plant dates from 1980's but two of the original boilers have recently been replaced. The central plant has an economic life expectancy of 15-20 years as published in CIBSE Guide M and is past its anticipated life.

The installation has not been done sympathetically and had little regard for interventions into the building fabric.

The heating controls are very limited with no zone control. The system operates at 80C flow and 70C return which is too high and can cause damage to timber elements and finishes.

The lack of humidity and temperature control means that the existing heating system is not fit for purpose.

All of the building services have been designed in accordance with current legislation and good practice guides including but not limited to:

- Local Planning Policy and Supplementary Planning Guide Lines
- Local Authority Regulations and Approvals
- Local Bye-laws and Regulations
- Building Regulations Parts E,F and L,
- BS EN 16893; 2018

The design has been developed to ensure that there is no detrimental impact on the existing utility infrastructure.

The sites drainage system shall include separate foul and surface water drainage which shall connect to the existing sewer connections that have the capacity to handle the discharge.

The Building is to be compliant with Building Regulations Part L2B 2017 and will include the following:

- High efficiency gas fire heating extended from the new heating system in the main building.
- Conservation Heating including Zone Control of heating areas
- Energy efficient LED lighting
- Energy efficient fabric providing better than minimum building regulations standards where new elements to be constructed.
- Energy efficient Building Services solutions and plant selections compliant with Current Building regulations Part L 2A

2.0 DESCRIPTION OF PROPOSED SERVICES

2.1 Utility Services

Electrical Supplies

The existing electrical supply is limited to 200 amp TP&N located in the basement switch room.

The existing electrical supply to the main building is beyond its useful working life and is not compliant with current electricity at work act, regulations and good practice. For this reason a new supply has been requested from UKPN to be located in a more suitable location but it is not intended that an increase in supply capacity is required.

A new separately metered supply shall be provided to serve Split metered distribution boards for both the Landlord and Tenant at each floor level.

Gas Supplies

The existing gas supply to the existing building shall remain and be reused. There is no requirement to increase the gas supply but an application has been made for a new gas meter.

Water Supplies

The existing water supplies shall be retained and reused to serve a new potable water storage tank and booster set located at basement level adjacent to the incoming main and a plant space has been allocated

Foul Water Drainage

A CCTV survey of the existing underground combined sewer has been undertaken and generally the installation is sound but some remedial works on displaced joints and scaling have been identified.

Generally it is proposed that the existing installation is retained and reused but there will be some modifications to accommodate new foul water stacks to feed WC accommodation and showers.

2.2 Heating and Cooling

No cooling is being provided.

Conservation heating will be provided throughout the building to control the temperature and humidity within the achieve and library spaces.

Comfort heating shall be provided to library office spaces, breakout spaces and lettable office spaces.

The heating system shall incorporate high efficiency condensing boilers and shall operate at 60C flow and 40C return which would be more sympathetic to the building fabric.

Each room shall be an individual control zone.

All lettable office spaces shall be provided with an energy meter.

2.3 Ventilation

The building will be naturally ventilated.

Toilet and shower rooms shall be provided with extract ventilation in accordance with Part F of the building regulations.

2.4 Electrical Power

From the new meter supply power shall be taken to a new switch panel located at level 01. Each outgoing way shall be metered and this shall include supplies to the lifts and Motor Control Panels for mechanical plant.

From the switch panel new supplies shall be taken to each floor to serve new split metered panel boards so that metering for power and lighting can be measured. The design incorporates energy metering in accordance with the requirements of Part L

The investigation works undertaken by the structural engineer suggest that there is sufficient depth to accommodate recessed floor boxes.

2.5 Lighting and Emergency Lighting

High efficiency lighting using LED fittings complete with daylight dimming and local motion sensor switching shall be included throughout the Lettable Offices and Library offices and administration spaces.

There will be some feature lighting to the main entrance area and Library rooms.

Within cellular offices and meeting rooms local switching shall be provided and in addition scene setting or dimming shall be provided in meeting rooms.

External access routes at Roof levels and within Level 01 shall be provided with batten type Led fittings switched locally.

Emergency lighting shall be provided on all escape routes to comply with BS 5266

2.6 Fire Alarms

Fire alarms shall be provided through the building to comply with BS 5839 part 1 to category L1 standard.

The fire alarm panel shall be located within the reception area.

2.7 Domestic Water Supplies

A new potable water standard water storage tank and booster set shall be provided at basement level and water shall be boosted to serve water fittings at each floor level. A pressure reducing valve shall be provided at each floor to regulate the pressure to 1.5 bar

Hot water shall be produced by instantaneous point of use non storage electric water heaters.

2.8 Data Containment

Data containment shall be provided via the 3 compartment trunking system and cable trays within the electrical riser to connect each floor box back to the proposed comms room.

Each desk floor box shall contain 2 power and 2 data outlets.