



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

Mechanical & Electrical Services Scheme Design  
Summary for Rear Extensions 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  
Rear Extensions inclusion in the Design & Access Statement

**Date:** October 2019

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## 1.0 SUMMARY OF BUILDING SERVICES DESIGN

The building services design for the rear extension of Dr. Williams Library at 14 Gordon Square, London, WC1H 0AR have been developed in conjunction with the Architecture and Structure with the aim of producing the clients ambition to deliver the highest quality working environment for the storage of historic books and manuscripts following the of 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 proposed design promotes the health and wellbeing of the occupants whilst delivering genuinely sustainable design solutions that do not adversely impact on the local and global environments.

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
- The London Plan & Emerging London Plan
- 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 design has at its core the Energy Hierarchy set out within the London Plan and Local planning policy and seeks to follow:

- Be Lean: use less energy through energy efficiency measures
- Be Clean: use energy efficiently and reduce CO<sub>2</sub> emissions
- Be Green: use renewable energy or Low to Zero Carbon Technologies

The design as developed to dates makes provision for on-site renewable generation via the introduction of Photovoltaic Cells to produce 9.6kWp. Reference should be made to the energy and sustainability statement issued as part of the planning application for more details.

The Building is to be compliant with Building Regulations Part L2A 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
- Heat recovery air handling plant to provide fresh air in composting high efficiency carbon filters.

## **2.0 DESCRIPTION OF PROPOSED SERVICES**

### **2.1 Utility Services**

#### **Electrical Supplies**

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 each wing of the rear extensions.

#### **Gas Supplies**

The existing gas supply to the existing building shall remain and be reused. There is no requirement to increase the gas supply.

#### **Water Supplies**

There are no water fittings within the new extension and no water supplies are required.

#### **Foul Water Drainage**

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

There are no water fittings within the rear extensions and there will be no impact on the existing drainage infrastructure.

### **2.2 Heating and Cooling**

No cooling is being provided.

Conservation heating will be provided throughout the extension buildings to control the temperature and humidity within the achieved spaces.

Radiators shall be provided and arranged so that they do not impact on the storage racking and each floor shall be split into 4No. control zones.

Each wing shall be provided with a 50mm LTHW heating supply from the main header with the new boiler room in the existing building.

## **2.3 Ventilation**

The archives shall have a controlled ventilation system that shall incorporate High Efficiency Particulate Air (HEPA) filters and heat recovery exchangers with an air handling unit located within the building mounted on the soffit of the uppermost floor.

Supply and exhaust air ductwork shall be distributed vertically to serve each floor level and horizontally on each floor to ensure an even air distribution throughout the space.

The ventilation rate shall be 0.5 Air changes per hour.

Fire dampers shall be provided in the distribution ductwork horizontally through the floor to maintaining the fire integrity of the building.

## **2.4 Electrical Power**

New separately metered supplies shall be taken from the new switch panel located within the basement of the existing building to serve a new 4 +6 way TP&N distribution board located at Level 01.

From the distribution boards small power shall be distributed to each floor such that each floor has its own supply to serve a maximum of 8No. power outlets distributed evenly around the perimeter of the floor plate.

A 9.6kW Electrical power Photovoltaic power generation system shall be incorporated at roof level and shall connect into the local UKPN power network at Level 01. The installation is required to meet the 35% reduction in carbon emissions required by local and London wide planning policy.

## **2.5 Lighting and Emergency Lighting**

High efficiency lighting using LED fittings complete with local motion sensor switching shall be included throughout the achieve space.

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 main building and each floor level of both extension wings shall be a designated zone

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## **2.7 Data Containment**

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