

## **Review of Mechanical Services Plant Proposals At Spectrum House**

**DATE OF ISSUE:** 13 JANUARY 2022  
**ISSUE:** 0.1  
**HM REFERENCE:** 32124-RP-EB-001

**PROJECT:**

**SPECTRUM HOUSE  
32-34 GORDON HOUSE ROAD  
LONDON  
NW51LP**

**CLIENT:**

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X  
X  
X**

PROJECT NAME: **SPECTRUM HOUSE**

REPORT NAME: **Review of Mechanical Services Plant Proposals  
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ISSUE STATUS: **DRAFT**

HM REFERENCE: **32124-RP-EB-001**

DATE OF ISSUE: **13 JANUARY 2022**

ISSUE: **0.1**

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#### DOCUMENT HISTORY:

ISSUE	DATE	DETAILS
0.1	13/1/2022	DRAFT FOR COMMENT

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## 1. INTRODUCTION

Hilson Moran have been appointed to provide an independent commentary on the suitability of the mechanical services plant proposals for Spectrum House. The commentary is based on the principles of the strategy that is proposed.

Spectrum House is located at 32-34 Gordon House Road, in the London Borough of Camden and is a multi-let business centre comprising 32 units. The building comprises a three-storey frontage and west wing with a newer, two storey U shaped extension to the back. There is both an internal courtyard and a mews that runs the length of the building to the west. The internal area of the property is approximately 4490sqm.



***Gordon House Road Elevation***



***View of the Internal Courtyard***



*View from the courtyard Back Towers the Main Building*

## 2. SUMMARY OF PROPOSALS

Hilson Moran have reviewed the proposals set out in documentation including the Design and Access Statement provided by Weston Allison Wright Architects, proposals developed by the Building Services Engineering Consultants and the Acoustic Noise Impact Assessment.

In summary the proposal are:

- Overall to carry out a consolidation of the locations of the external condenser units on the building including the provision of an acoustic screen on the upper roof to screen the units in this location.
- Relocation of a number of the existing external condenser units to the consolidated location.
- Replacement of the existing split system heating and cooling heat pump systems in several the commercial units.
- Provision of new split system heating and cooling heat pump systems in a number of the commercial units to replace existing direct electrical heating and radiator heating systems fed from gas boilers.

## 3. EXISTING BUILDING

The older part of the building facing Gordon House Road is brick construction with pitched “north light” roof sections and some areas of flat roof. The commercial units in the courtyard are of a more modern lightweight construction. The building has opening windows throughout with natural ventilation being the primary means of ventilation in the buildings.

The commercial units are predominantly used as office and there are a number of gym operators in the units on the west of the building. The gyms also have mechanical ventilation as would be expected for this type of high-density occupancy.

## 4. COMMENTARY ON MECHANICAL SERVICES PROPOSALS

The design and access statement refers to “air conditioning” and “AC” condensers. It is noted that “air conditioning” is generally considered to be the provision of full mechanical ventilation with heating and cooling to maintain optimal internal conditions for ventilation, heating, cooling and humidity and would typically be used in a building with a sealed façade.

Existing and proposed new split air source heat pump systems will provide local heating and comfort cooling only with the building remaining predominantly naturally ventilated.

It is clear that the proposal for the building is NOT to provide “air conditioning” but to provide heating with the same system having the ability to provide “comfort cooling” in peak summer months by the use of heat pump system.

Outside of the heating season, it would be anticipated that the occupiers would typically use the opening windows to regulate the internal conditions and then in peak summertime use the comfort cooling to provide more comfortable conditions in the internal spaces.

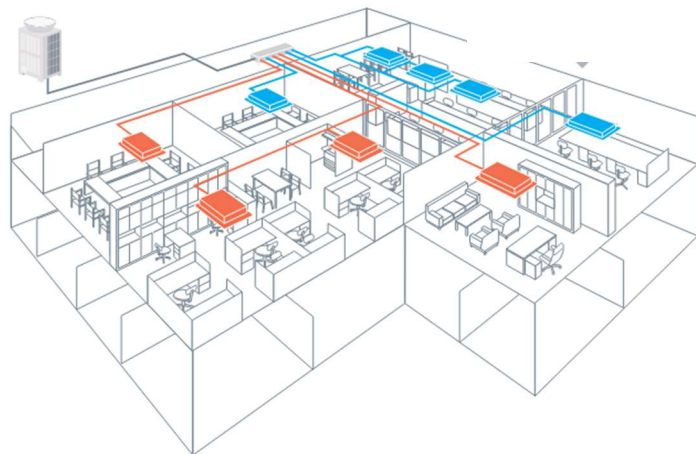
Heat pumps are being used extensively on the site already and are proposed to replace existing gas boiler plant and wet heating systems as well as some direct electric heating which is inefficient and of an age that it is life expired.

Heat pumps are considered a renewable in heating mode. In addition, removing gas-based heating system and replacing with electric heat pumps will consume less carbon (gas has more carbon intensity than electricity with the grid being decarbonised). Overall, the heat pumps will be more efficient than the gas and direct electric heating systems they replace, which will reduce the operational carbon of the building.

It is noted that the existing heat pumps are “split” type systems with one or more system serving each commercial unit. “Split” heat pump systems generally have a single external condenser for either one or a limited number of internal terminal units.



There are larger scale heat pump systems available which can provide for multiple indoor units from a single external condenser unit such as “VRF” type systems.

**Y Series VRF  
(130-150kW)**Heat Pump Outdoor Unit  
(Heating or Cooling)***Typical “VRF” System (Mitsubishi)***

It is noted that this type of system has been investigated as overall it would require less external condenser units mounted on the roof. It is noted that this type of system has been deemed unsuitable to be used as:

- The weight of external VRF units are significantly heavier than split unit condensers and the existing lightweight roof structure would not be able to support them without significant structural intervention.
- VRF units are taller than split unit condensers which would require the plant screen to be higher than is currently proposed which would have a resulting visual impact.

Therefore, where new heat pumps are proposed to replace existing gas and electric heating they have been based on “split” type systems following the principle of the the existing heat pump systems in the building.

It is also noted that an acoustician (Mayer Brown) were appointed to review the proposals and have provided a noise impact assessment concluding that the proposals for rationalisation of the plant complies with national, city-wide and local noise related planning policy objectives in this respect.

**5. CONCLUSION**

The proposals presented for the mechanical services plant in the information that has been reviewed are considered to be appropriate as:

- Relocation of a number of the existing split system condensers assist in consolidating the external plant locations.

- New split heat pump systems are replacing existing life expired gas or direct electric heating systems which is an improvement to the existing life expired systems as they are considered a renewable in heating mode, will be more efficient than the gas and direct electric heating systems they replace providing a saving in the operational carbon of the building as electricity is less carbon intensive than gas.
- Provision of new systems by use of VRF systems with fewer external units, which would have resulted in less overall roof plant, has been considered but deemed unsuitable due to the additional weight and requirements for enhancing the structure of the roof and additional height of this type of equipment which would require a taller acoustic screen. Therefore, the adoption of the established principles of using split type heat pump systems in each of the commercial units is considered appropriate with these limitations.
- Any acoustic impact has been adequately assessed.

It is noted that full “air conditioning” is not being proposed for the building and the buildings ventilation strategy will remain as existing, which is predominantly naturally ventilated.