

Bridgewater House, Manchester



Engineering Services information

UK Project Management and Building Consultancy

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Introduction

This project is to refurbish the 6th floor offices of Bridgewater House, Manchester on behalf of the tenant – British Council. The works shall be contained to the 6th floor for the majority of services, however new external plant is required for Air Conditioning and new louvres through the windows on the rear building elevation for ventilation.

Services Summary

The extent of works shall generally include for:

- Replacement of mechanical ventilation systems.
- Replacement of the heating and cooling (Air Conditioning)
- New local electric panel heaters in non air conditioned areas
- Modification of the local domestic cold water supply and new local Hot Water
- Modification of the above ground drainage and local connection into existing landlord drainage stacks.
- Replacement of internal office general lighting and emergency lighting including illuminated escape signage.
- Replacement of office small power
- Amendment of existing automatic fire detection and alarm system to an L2 level of coverage
- Amendment of existing access control and security systems

Services Strategy

Ventilation

New ventilation systems shall be local via Mechanical Ventilation Heat Recovery Units (MVHR) installed within the ceiling void. New intake and exhaust louvres shall be installed as window replacement units, through the building fabric on the rear elevation.

The ventilation intake and exhaust strategy has been designed to match the installed arrangement of the 7th floor above.

Air Conditioning

New Variable Refrigerant Flow (VRF) systems shall be installed. Internal unit shall be ceiling concealed Fan Coil Units (FCU). New outdoor units will be installed upon the main roof as detailed. All condensate drainage will route from indoor units to the main Soil vent Pipes (SVP) which are existing.

Domestic Water

The existing building cold water supply shall be utilised for tenant kitchen areas. The works shall include installation of new Point of Use electric water heaters within the office. The cold water supplies will be provided with appropriate backflow prevention to the water heaters.

Drainage

New horizontal drainage systems shall connect to proposed kitchen areas and condensate system from Air Conditioning. New drainage will connect to existing foul water SVPs, discharging to the existing below ground drainage network.

Lighting

New lighting and emergency lighting will be provided to the offices and call rooms. The light fittings shall be 600 x 600 to lay into the ceiling grid and smaller spaces shall utilise circular downlighters.

LV Distribution and Small Power

New power distribution will be provided via underfloor busbar system, connecting to the existing landlord's vertical busbar distribution.

Fire Alarm

The fire alarm system shall be amended for the new configurations, to meet an L2 level of coverage and alert the whole building in the event of a fire alarm activation. The local fire alarm panel within the office shall be linked to the building fire alarm system and coordinated in terms of cause and effect and evacuation strategy.

Regulatory Reference Documents

All design, materials, equipment and work supplied or executed will, where applicable, or otherwise indicated, will be in compliance with (but not limited to) the following documents as a minimum requirement. This list is by no means exhaustive.

- Construction Design & Management (CDM) Regulations
- Building Regulations – Approved Documents
- Building Control & Fire Officer Requirements
- Equality Act 2010 (formally, The Disability Discrimination Act)
- British and European Standards and Codes of Practice
- NES – Building Services
- CIBSE Design guides and recommendations
- CIBSE Commissioning guides
- BSRIA Guides
- BESA (HVCA) DW and TR Guides
- BS 7671 (Requirements for Electrical Installations), including all amendments.
- The Electricity Supply Regulations 1988
- The Electricity at Works Regulations 1989
- BS 8300 (mounting heights)
- Health & Safety at Works Act 1974
- The Local Enforcing Authorities Requirements
- BS 5266 Emergency Lighting
- BS 5499 Fire Safety Signs, Notices and Graphic Symbols
- BS EN 1838 Lighting Applications Emergency Lighting
- CIBSE/SLL Lighting Guide 7- LG7
- CIBSE/SLL Code for Interior Lighting.
- CIBSE/SLL Technical Memorandum Emergency Lighting.
- BS EN 12464 Light and Lighting – Lighting the workplace
- BS 7430 Earthing and Bonding
- BS 5839 - Fire Detection and Alarm Systems for Buildings
- BS EN 806 Domestic Water Services
- BS EN 12056 Above Ground Drainage
- Water Regulations (current edition)
- Local Authority & Planning requirements

Performance Design Criteria

ITEM	CRITERIA	PERFORMANCE	SOURCE
External Temperature:	Summer:	28°C dry bulb 20°C dry bulb	CIBSE Guide A
	Winter:	-4.5°C dry bulb, saturated	CIBSE Guide A
Internal Temperature:	Office areas:	24°C +/- 2°C Cooling (Control band) 20°C +/- 2°C Heating (Control band)	British Council for Offices (BCO) 2019
	Toilets	20°C Heating (Minimum). No cooling.	CIBSE Guide A
Outdoor Air Requirement	Office Ventilation:	10 l/s per person based upon proposed occupancy	CIBSE Guide A
	WCs / Showers	Minimum 6 Air Changes per Hour	CIBSE Guide A
Design Noise Level	NR 40 for offices		British Council for Offices (BCO) 2019
Ductwork Sizing	Primary Duct: Secondary Duct: Flexible Duct: Air terminals: Weather Louvre:	6.0 m/s 2.5 – 4.0 m/s 2.5m/s 2.5m/s 2.0m/s	CIBSE Guide B2 Tables 2.16 and 2.18
Fan Coil Unit Control	Operate all FCU's in common areas from central controller.		British Council for Offices (BCO) 2019
Water Distribution	New copper pipework to appliances to BS EN 806 and BS 8558. New Point of use water heater for sink		BS EN 806 and BS 8558.
Drainage	New drainage to kitchen to BS EN 12056. Foul water laid at gradient of 1:50. Condensate drainage laid at gradient of 1:80		BS EN 12056.
Internal Lighting Levels	Offices 500 Lux		LG 7, BS 12464, BCO Guidance
Lighting Efficiency	High output LED luminaires with a minimum efficacy of 80 lumens per circuit watt, L80, 50,000 hour life. Overall lighting efficacy to comply with ADL2B as a minimum.		AD L2B
Lighting Control	Automatic lighting control systems to be installed in compliance with ADL2B via presence detectors and switch override.		AD L2B
Emergency Lighting	As BS5266 / BSEN1838 - In accordance with BS5266 Pt 1 2011, with 1.0 lux min escape routes, 0.5lux min open plan areas.		BS5266 / BSEN1838
Fire Alarm Systems	L2 system level of coverage for this space only. Modifications to the fire alarm systems shall comply with the current edition of BS EN 5839. Sound pressure levels shall be in accordance with BS5839. Generally, 65dBA throughout or 5dBA above the ambient noise level. Whichever is greater.		BS 5839

Reference Images

Reference 1: existing louvres to be matched.



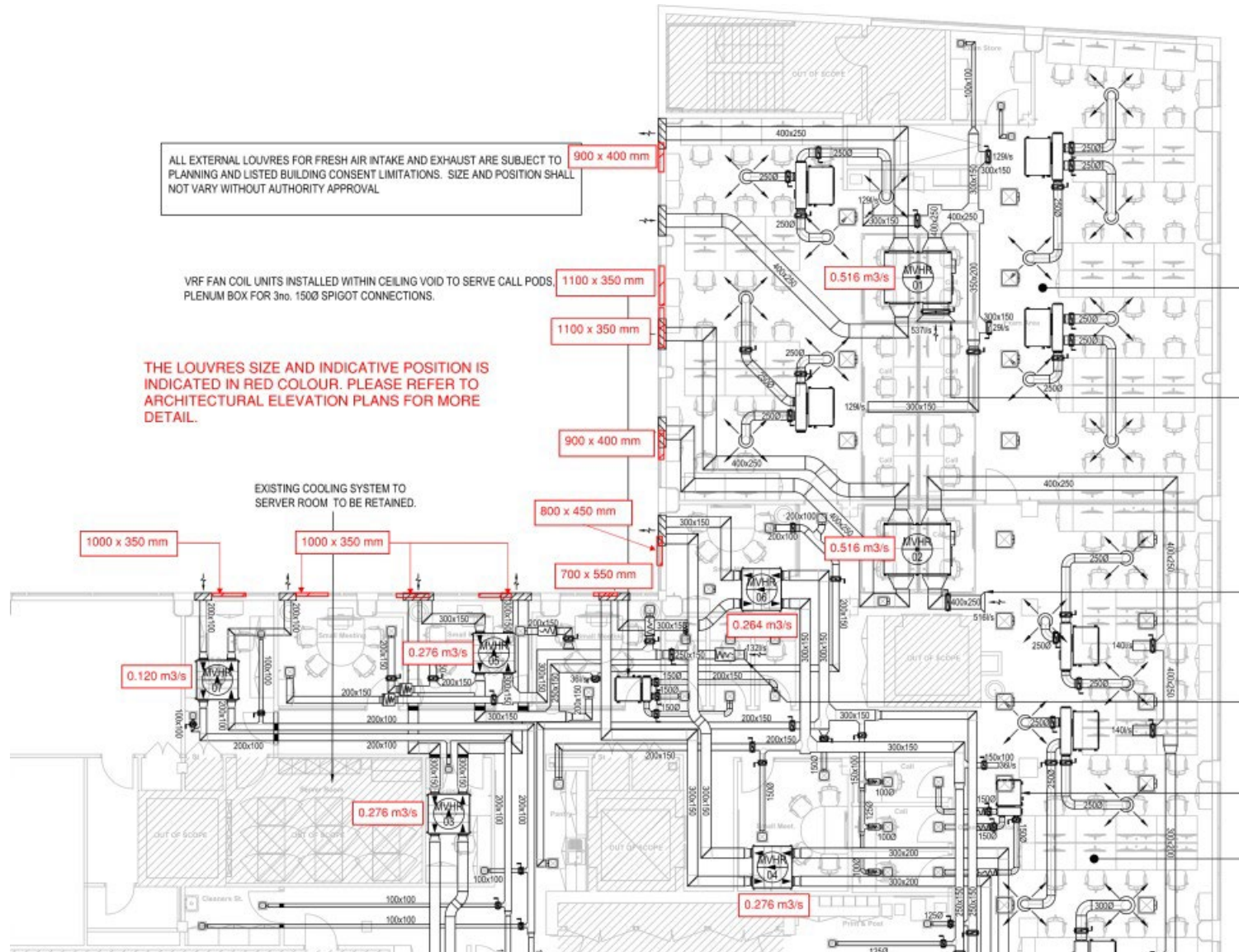
Reference 2: Existing roof plant to be matched



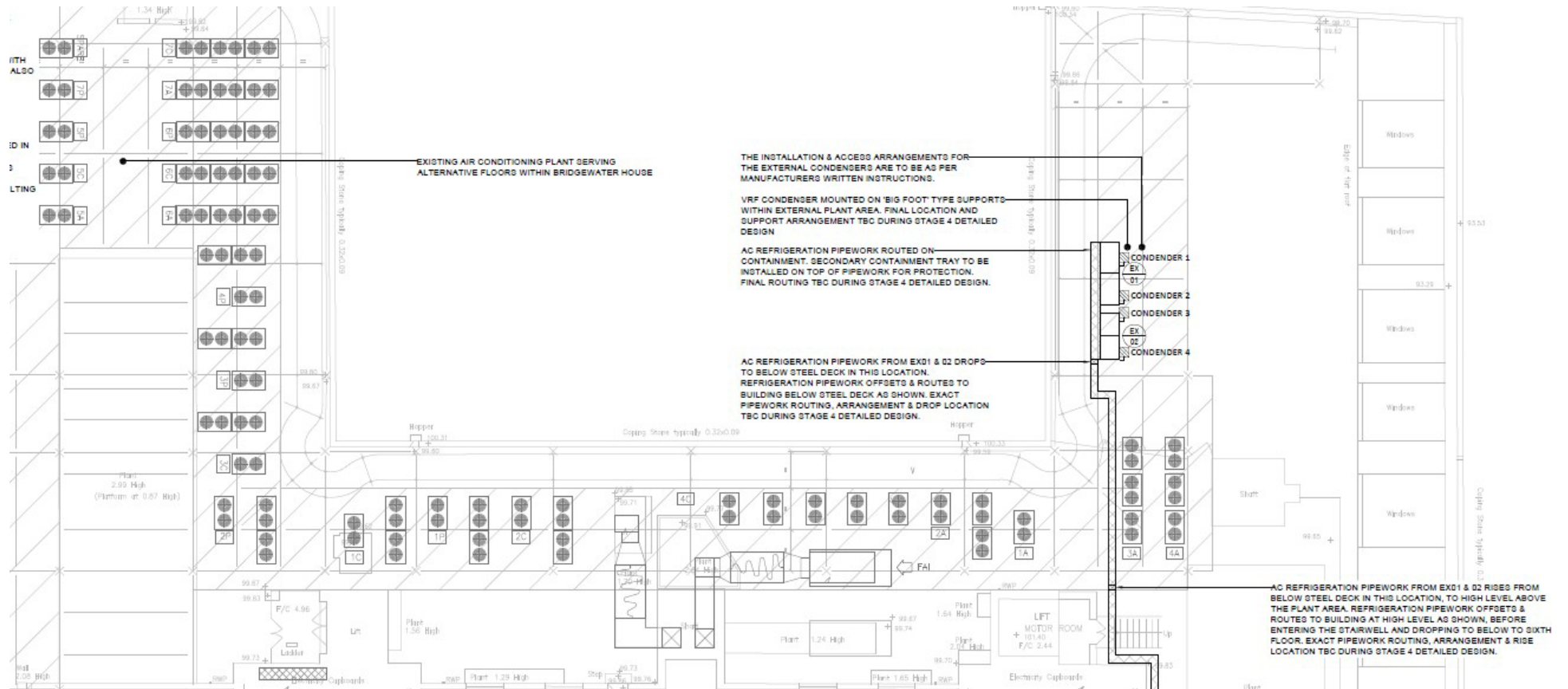
Reference 3: proposed outdoor condenser unit



Appendix A: Louvre sizes



Appendix B: Proposed roof plant



Thank you

For more information

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