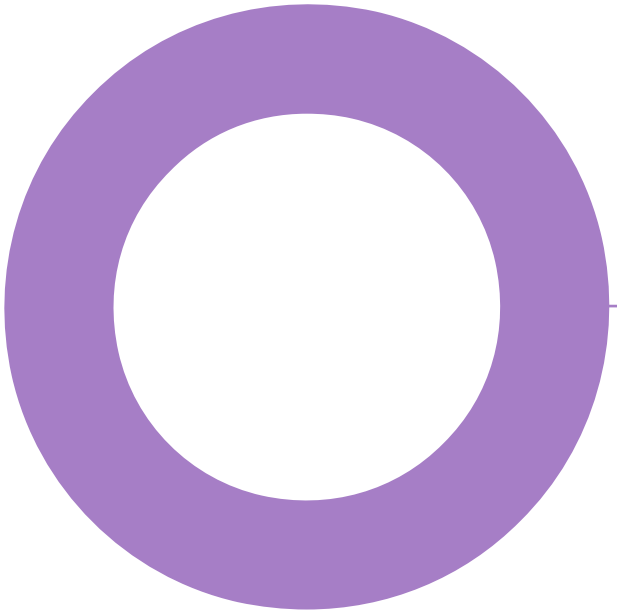
HOARE LEA

58 Victoria Embankment. London.

UKRI.

MEP ENGINEERING
OUTLINE DESCRIPTION OF THE WORKS

REVISION 02



Audit sheet.

Rev.	Date	Description	Prepared	Verified
01	13/12/2017	Initial issue	JO/MAB	PRJ
02	25/01/2018	Updated to incorporate findings of survey of ventilation system	PRJ	JO/MAB

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Contents.

1. Introduction

This document outlines the Hoare Lea understanding of the Mechanical and Electrical design brief for the fit-out associated with the third and fourth floors of 58 Victoria Embankment, London.

It also discusses the feasibility of the proposed layout of the spaces and the where applicable, the restrictions imposed by the capacities of the building services systems currently installed and to which the office floors are to be connected.

2. Electrical Services

2.1 Existing Electrical Services

2.1.1 Mains Distribution

Low voltage supplies to the floor via 400A TPN rising busbar's -1No Essential and 1No Non-Essential.

Landlords services are supplied from a separate 400A TPN rising busbar in the landlords core.

The wiring is carried out using a modular wiring system to local ceiling mounted MDB's from where each final circuit is distributed.

2.1.2 Lighting

Lighting to the office spaces is a combination of linear fluorescent and LED downlights installed recessed within the suspended ceiling.

The office floor has DALI port addressing Lighting Control Module's (LCM's) which will enable individual luminaire DALI addresses to be pre-set within the LCM's. The LCM's on the floor connect back to the on-floor Area Controller(s) via the on-floor Local Operating Network (LON).

The DALI based lighting control system is capable of daylight dimming, scene setting control and the testing and monitoring of the emergency lighting within the tenants demise.

2.1.3 Small Power

There are ceiling mounted small power supplies to the ceiling mounted fan coil units serving each floor.

No further small power has been installed to the office floor.

2.1.4 ICT Cabling Installation

There is currently no ICT cabling installed within the office floors.

2.1.5 Fire Alarm

The fire alarm to the floor is provided by a combination of smoke detectors, smoke detectors with integral sounders and manual call points. All fire alarm devices on a floor, whether in the landlords or the tenant's demise are connected to the fire alarm system via a fire alarm junction box located within the landlord's riser.

2.1.6 Access Control

The doors to the office floor are access controlled and the access control system forms part of the landlord's installation.

2.2 Proposed Electrical Services

2.2.1 Mains Distribution

The existing LV distribution to the office floor is to be retained to distribute LV power supplies across the office floors.

A new system of underfloor busbar's will be provided to the void beneath the raised access floor to distribute LV power throughout the office space. This will be a 63A rated TPN busbar with an overall height of approximately 50mm to fit within the floor void.

2.2.2 Lighting

The existing lighting to the office floor will retained and modified to suit the reconfigured floorplate. Where cellular offices are to be constructed within the space, new LED lighting, with DALI drivers will be installed to achieve the lighting levels. The new luminaires will be connected through either the existing LCM's or new LCM's will be provided as necessary.

The existing lighting control system will be modified as required to suit the new lighting installation.

2.2.3 Small Power

A new small power installation will be provided, connected to the LV distribution through the new underfloor busbar system.

From the busbar, there are a number of options for providing power to the desk, these are as follows:

Floor Outlet boxes
The floor outlet boxes would be connected directly to the underfloor busbar system, via an unfused tap-off unit, the cable from the tap-off unit not exceeding 3 metres in length to comply with BS 7671.

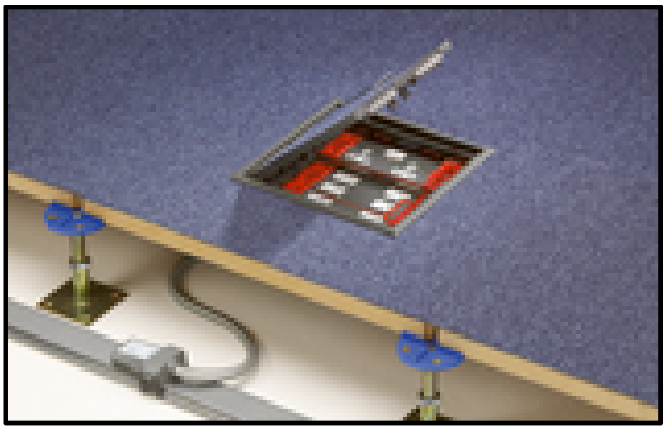

Figure 1 - Typical underfloor busbar / floorbox arrangement

The floor boxes will then contain 13A socket outlets (and RJ45 data outlets) for direct connection of desk mounted equipment.

Desk Mounted Power modules
These are modules which are provided as part of the furniture, built into the desk, or are installed into a channel with in the desk.

The desk module consists of 13A socket outlets (and RJ45 data outlets) for direct connection of desk mounted equipment. The desk module will also include an inbuilt overcurrent and earth-fault protection device.

Figure 2 - Typical desk mounted power module arrangement

The desk module would be connected to the underfloor busbar via an unfused tap-off unit, the cable form the tap-off unit not exceeding 3 metres in length. The tap-off unit will be accessed using a floor grommet

Of the two systems, the desk mounted module provides greater ease of connection to the LV supply (and data network) as the outlets are generally at desk level, however, these will need a greater number of floor grommets as the maximum length from tap-off unit to desk module cannot exceed 3 metres without additional provision to protect the cable. The same requirements stands for the floor outlet box, but as the

floor outlet box is installed in the floor with devices connected via the floor box outlets, a smaller quantity of floor boxes could be accommodated, to service the desk mounted equipment.

The cable from the tap-off could exceed 3 metres in length, to comply with the requirements of BS7671, unless either the tap-off is fused or the busbar is protected by a protective device not exceeding 32Amps.

2.2.4 ICT Cabling Installation

A new ICT installation will be provided to serve the office floor. A data cabinet will be provided within the new comm's room, from where the network (Cat 6) cabling would be terminated and routed to and terminated at outlets across the floor. The outlets would be located in either a floor box or a desk mounted power module depending on the preferred solution.

The provision will be for the passive element of the structured cabling installation, with all active equipment and the associated additional cabinet requirements provided by the Tenant.

2.2.5 Fire Alarm

The fire alarm within the office floor will be reconfigured to meet the requirements of BS 5839, with the provision of new fire alarm devices as required to achieve compliance. The devices will be connected to the floor loop, which emanates at the fire alarm junction box within the landlords riser.

2.2.6 Access Control

The access control is a landlords system and it is not intended that any additional works are required to this system.

If there is a tenant requirement to provide access control to doors internal to the office floor space, this would be a new tenant system and not an extension of the landlords system.

3. Mechanical Services

3.1 Existing Mechanical Services

3.1.1 Ventilation

The office levels are currently provided with supply and extract ventilation from a basement located air handling unit. Air is distributed up various risers with horizontal distribution at each level. Air is delivered to the space via the ceiling void mounted fan coil units which supply the air via grilles at the perimeter and within the wider office area.

3.1.2 Heating and Cooling

The offices are currently heated and cooled via 4-pipe ceiling void mounted fan coil units. The heating and cooling air is delivered into the space via each fan coil unit from the connected ductwork and supply grilles. The air is returned back to the fan coil units via the perforated ceiling tiles using the ceiling void as a plenum.

The heat source for the building is centrally located boiler plant within the basement.

The cooling plant for the building is roof mounted air cooled chillers and basement located circulating pumps.

The heating and cooling pipework rises vertically from the basement with horizontal distribution at each level to serve each fan coil unit.

3.1.3 Domestic Water Services

Hot water is generated centrally at basement level and is distributed vertically to each level.

Cold water is stored at basement level and is distributed vertically to each level.

3.2 Proposed Mechanical Services

3.2.1 Ventilation

To accommodate the new layout the horizontal ductwork layout will require modification with some stripping back of the existing ductwork and new ductwork extended to serve the relocated and new refrigerant based VRF fan coil units (see 3.2.2. below) that will be required to service the open plan and cellular spaces.

The record drawing information for the ventilation plant suggests that at L3 and L4 it can support 68 people at 12 litres per second per person (l/s/p) and 81 people at 10 l/s/p. 12 l/s/p satisfies BCO guidance and 10 l/s/p is compliant with Part F of the Building Regulations. Based on an occupancy of circa 100 people per floor this would equate to 7.4 l/s/p which is below current building regulations minimum.

Additional ceiling void mounted MVHR (Mechanical Ventilation Heat Recovery) units will be installed to supplement the ventilation on each floor. Fresh air will be supplied and discharged via the existing windows/ light-wells with modifications to the existing windows.

The existing ceiling mounted fan coil units and ventilation duct-work will be modified, re-positioned & re-routed to accommodate the new ceiling void mounted plant.

Existing structural steel beams within the coiling void span the height of the void in most places. Pre-formed openings in the beams allow ducts and other services to pass through them. The route of existing ducts and services will need to be altered to accommodate the additional ventilation plant and equipment. The existing perforated metal ceilings will be demounted to accommodate these works.

3.2.2 Heating and Cooling

Where possible the existing fan coil units will be retained to heat and cool the office. A number of fan coil units are likely to require relocating. The heating and chilled water pipework would be modified and new branch pipework incorporating necessary valving provided to serve the relocated fan coil units.

We propose a refrigerant based VRF system incorporating indoor fan coil units to service the cellular spaces to provide effective temperature control in these areas.

The comms room would be provided with split DX cooling units with wall mounted internal fan coil units and roof mounted external condensing units.

3.2.3 Domestic Water Services

There are capped domestic hot and cold water connections in the landlords 'L' shaped riser. We would expect these to be sufficient to serve the proposed vending / social hub area.

4. Public Health Services

4.1 Existing Public Health Services

There are 3 no. SVP locations on each floor. The SVP in the landlords 'L' shaped riser has a capped 50mm connection at each level for tenant to use.

4.2 Proposed Public Health Services

Where the proposed vend / social hub area is currently located the drainage pipework from it would require dropping to the ceiling void of the floor below and routing to the nearest stack. This strategy will be fine between L4 and L3 but could be problematic between L3 and L2, as L2 is occupied by someone else. We understand that Nesta occupy L2 and that they be more amenable to accommodate the drainage run from L3 through their ceiling void to the nearest stack.