

Site – 3<sup>rd</sup> floor MI Comms Room, Kantar

222Grays Inn Road, London, WC1X 8XF

Client – Ms Martine Smith - IT Project Manager – Kantar

JDS Job reference – QB2353



### EXISTING SETUP

The computer equipment heat load, in the 3<sup>rd</sup> floor MI comms room, has increased and this along with ongoing refrigerant leaks on the existing air conditioning units serving the comms room has prompted the client to add some additional cooling units to provide some redundancy and reliability. Due to the ongoing problems experienced with the existing Denco air conditioning units it is recognised that a programme to replace these units is urgent

The MI room is currently served by 2 No. Upflow Denco units, model U53AV, each indoor unit has two circuit with 1 No. DCRA32-6 outdoor condenser per circuit, providing a cooling duty of 58kW per indoor unit. The existing outdoor units are located on the roof on the Gray's Inn Road, side of buildings

### Proposals

#### **Comms Room – 3<sup>rd</sup> floor**

To provide more cooling in the 3<sup>rd</sup> floor, additional cooling units will need to be installed but there is currently not enough free space available in the comms room to allow this.

To facilitate the extra cooling units, the proposal is to increase the size of the comms room by moving the wall line in towards the open plan office. The corridor space in front of the comms room is wide enough to allow this to be carried out and still maintain a suitable size walkway.

Due to the problems experienced with the existing AC units, temporary AC units have needed to be used but there are currently no means of discharging the heat to outside. As part of the works we propose to replace one of the existing glazing panels in the comms room with a full-size weather louvre (similar to one already in the staircase beside). This would then be fitted with a plenum box to allow temporary AC units to be connected to the plenum to discharge the heat outside.



EXISTING LOUVRE

PROPOSED NEW LOUVRE

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### **Air Conditioning Units**

The proposal is to supply and install of 3 additional units, each unit to be Upflow with two circuits. Each indoor unit will have two condensing units, six outdoor units in total.

The new units will be from the Mitsubishi IT Cooling range, and will be using R410a refrigerant, with inverter regulated evaporator fans, compressors, and condenser fans, giving a system that will modulate to accurately reflect the prevailing heat load.

Refrigerant pipe work will be run between the indoor out outdoor units. For each circuit there will be a 1 1/8 and ac 3/4 pipe, and both of these will be insulated.

### **Outdoor Units**

The proposed location for the new outdoor units and pipe work routes is show on drawings JDS-KNT-003 OP3 & JDS-KNT-RF OP3.

Roof location is shown on drawings JDS-KNT-RF OP3. The location provides good access for maintenance and also negates the need for a crane to install the units and to carry out any major repairs to the units

### **Pipe Work Riser**

Floor plan is shown on drawings JDS-KNT-003 OP3.

The riser pipe work runs outside the building in the lightwell in Gray's Inn Road and Coleys Street corner

This route does not affect the buildings fabric. The use of the fire exist in the case of an emergency, will be affected during the installation works and alternative arrangements will need to be put in place during this time. There is already landlord's chiller water pipe work in this corner of the light well so a president has already been set. The pipe work would run partly in front of the staircase windows but as the staircase is only for emergency use this is purely aesthetic and does not compromise the use of the staircase.

### **Fire protection**

There are currently two fire protection systems in the comms room. The first is a gas suppression system and the second is a VESDA smoke detection system. Due to increase in the size of the comms room the gas suppression system will need to have a larger gas capacity. The proposal is to form a larger gas bottle store, add additional stored gas cylinders and add additional distribution

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pipe work within the comms room. The VESDA system will have to be extended so that it is also detecting the air flow through the new AC units.

### **Equipment Selection**

Area/Room	MI Comms Room – Additional Units
Indoor Units	3 No Mitsubishi s-Mext DX F03 O 044 D system upflow cooling only close control air conditioning
Outdoor Units	6 No PUAZ-ZRP250YKA3 Air Cooled Condensers
Cooling Capacity	Cooling = 3x 44 KW

### **Ductwork – Comms Room**

The proposal is to supply, install and insulate new ductwork from the new AC units to the existing cold aisle in the comms room as show on 3<sup>rd</sup> floor plan drawings.

### **Electrical Works**

- 1) 6 No 32A 3 Phase supplies will be require on the roof for the air-cooled condensers
- 2) 3 No 10A 3 Phase supplies will be required in the comms room for the indoor units
- 3) 3 No 13 A 1 Phase supplies will be required in the comms room for the condensate pumps
- 4) Lights to be altered to suit the new wall layout

### **Working Hour**

The plan would be for the works on the floors and risers to be carried out, outside normal working hours and on the roof and outside the building in normal hours, subject to agreement on noisy works.

### **Planning Permission**

The additional units on the roof will require planning permission. A planning application will be made following an agreed location for the new AC outdoor units.

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## **Sequence**

1. Provide Autocad drawings for the room and the outdoor unit A/C location for the landlord approval
2. Issue drawings and scope of work to Landlord for the application to alter
3. Agree Programme – Draft programme issued with durations – Starts TBC

## **Technical Submissions**

Structural Engineers Report

Builders Work

Fire Suppression

AC units

Drawings

JDS-KNT-RF OP3

JDS-KNT-003 OP3

Marked up external Photos indicating external plant, external pipe work and temporary scaffolding required to carry out the works

## **Installation of Refrigeration Pipe work**

The refrigeration pipe work connecting the indoor units to the outdoor condensing units is to be of refrigerant quality tube, installed to the highest standard of recognised practice.

All bends and sets in pipe work are to be achieved by the use of bending machines. Where it is impractical to bend tubing, long radius sweep bend fittings will be used.

All pipe work is to be adequately supported through its entire length by brackets securely fixed to floors, roofs and walls.

Suction and liquid lines are to be insulated with half inch Class 1 armour flex securely fixed. All joint are to be properly taped with matching tape.

The pipe work will be sized according to equipment manufacturer's recommendations to avoid damage to compressors. Oil traps will be installed where necessary.

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All brazing will be carried out with two operatives one to braze and one to fire watch. All combustible materials will be removed where possible to do so. A fire extinguisher will be present at all times. Brazing will stop one hour before the end of the working day. The site will then be checked one hour later.

The pipe work will be purged with the use of oxygen free nitrogen to stop any oxidisation within the pipe work.

On completion the installation will be pressure tested and commissioned according to manufacturer's recommendations.

### **Refrigeration/Air-conditioning Technician**

The refrigeration/air-conditioning technician will have a minimum of five years' experience. Will be at least City & Guilds qualified and will have been on training courses with most of the major manufacturers of Air-conditioning/Refrigeration equipment. They will of course have excellent knowledge of the various control systems involved with this type of equipment. Every JD Services HVAC Ltd Refrigeration/Air conditioning technician will hold current "Safe Handling of Refrigerants" certification and will have available a proprietary refrigerant reclaim unit. They will also hold recognised training from the manufacturer on the installation and commissioning of VRF/ VRV type systems.

### **Installation of Electrical works**

All electrical installations will comply with IEE 18th Edition regulations.

New mains supplies will be run from the third-floor distribution board subject to detailed survey.