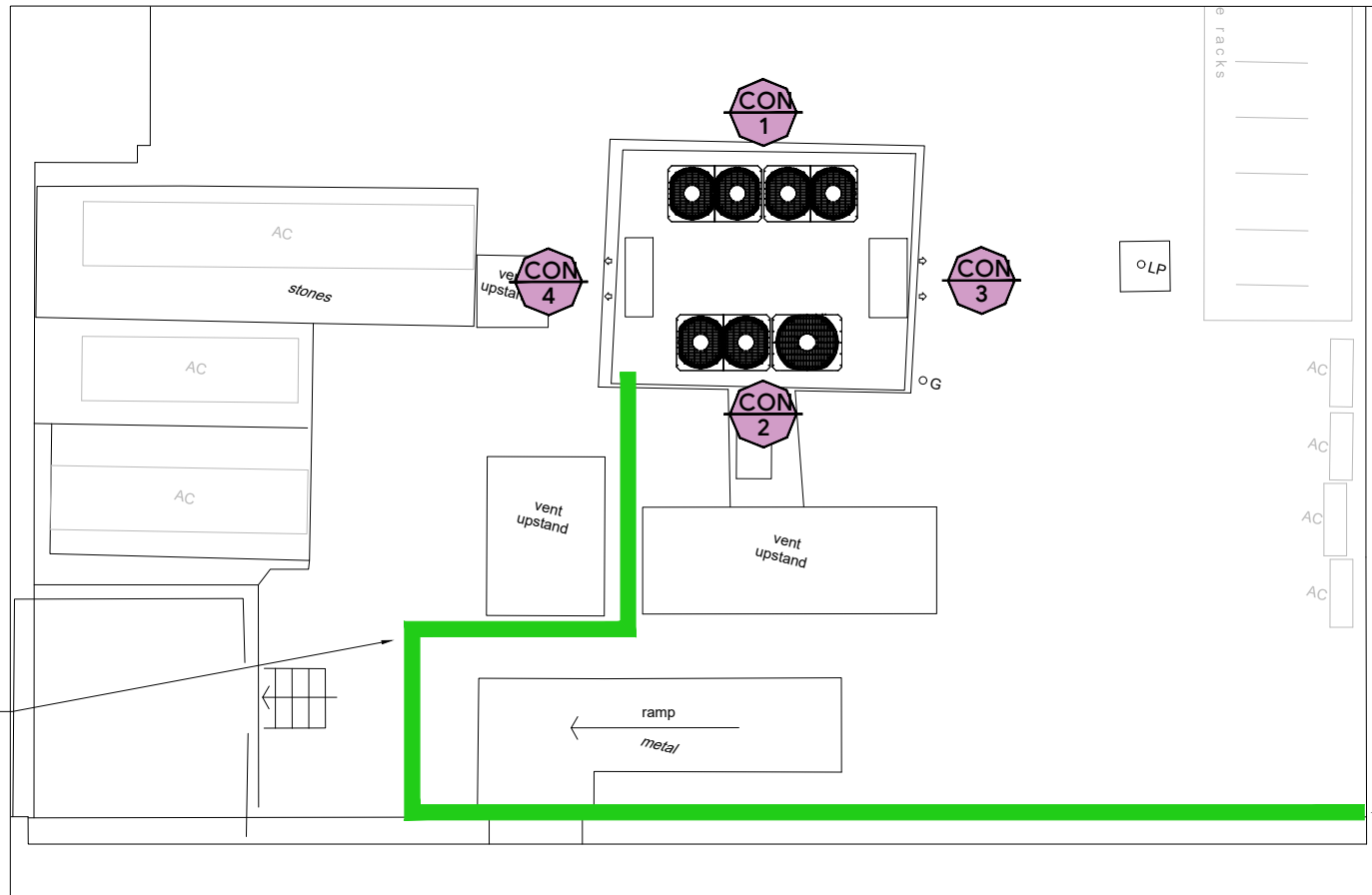


CONDENSERS TO BE INSTALLED IN LINE WITH MANUFACTURER REQUIREMENTS.

REFRIGERANT INSULATION SHALL BE KINGSPAN KOOLTHERM. BLACK FOAM INSULATION IS NOT PERMITTED ANYWHERE IN THE OVERALL INSTALLATION.

FLOOR MOUNTED CONDENSERS TO BE INSTALLED ON A BIGFOOT SYSTEM, AND SHALL BE ATTENUATED IN LINE WITH ACOUSTIC REQUIREMENTS.



Existing comms room condenser and FCU system in secondary courtyard shall be isolated and removed. New condensers 5+6 shall be installed in the existing condensers place. Pipework to within the demise shall follow the same route.

Refrigerant shall rise up the building facade and enter the demise at HL. Contractor to agree penetration location, fire seal, facade finish and waterproofing detail with architect prior to carrying out any works

1 Mechanical Layout

NTS
HVAC
This drawing is indicative only. The Contractor must perform detailed surveys and validations of all existing services to ensure their detailed design meets all requirements.

Condenser Units:

- Location: These are not shown on the drawings. The contractor shall install as per the spec and to suit the manufacturers recommendations especially in regard to unit spacing.
- Following the technical submittal approval from MMA the contractor shall confirm with the structural engineer/project manager the weight of condenser and all ancillaries to confirm this is acceptable.
- The contractor shall allow for installing XLPE/SWA/LSOF cables and MID Modbus billable meters from the associated distribution board.
- Contractor shall allow for the application for planning permission for the installation of new external mechanical systems such as condensers, refrigerant pipe runs, and ventilation louvers.

Indoor Units:

- Location: The locations shown on the drawing are indicative following the intrusive survey the contractor and the MEP coordinator shall perform full coordination and issue a coordinated drawing for comment before ordering. The contractor shall install to suit unknown down stand beams and other elements. Where electrical or mechanical supplies need to be relocated to allow the preferred location the contractor shall allow to relocate.
- Following the technical submittal approval from MMA, the contractor shall confirm with the structural engineer/project manager the weight of the fan coil unit and all ancillaries to confirm this is acceptable. For tendering purposes these shall be installed with unistrut and drop rods as per manufacturers recommendations.
- Power Supply: The contractor shall provide a new 32A RCBO 30mA 2.5mm² twin and each LSOF ring main power supply to each internal fan coil unit. Terminating in a soffit mounted metal clad illuminated switch spur, connected via flex cable to the fan coil unit and pump. There shall be a maximum of 10 indoor units per circuit.
- The contractor shall allow for the installation of UV devices to eliminate bacteria and viruses from the air, these UV devices shall be placed at the return air/fresh air supply at the rear of all the FCUs. This will only be ordered following an approved technical submittal.
- Condensate: The contractor shall allow for installing aspen orange low noise condensate pumps for each indoor unit. The pump shall pump the condensate to the highest point on the soffit and drop to a copper drainage pipe laid to fall. The drainage pipe shall be routed to the local soil vent pipe and connected via a HEPA Trap.
- Control: The contractor shall allow for installing a fixed temperature sensor/controller per fan coil unit. Where applicable the sensor/controller shall be manufactured by the fan coil unit manufacturer otherwise by Trend (see full specification for details).
- The contractor shall allow to extend return air sensor from all the FCUs closer to the return air grilles, and supply air to the FCUs shall be such that the air does not blow directly into the rear of a ducted unit, and rather across the unit.
- Contractor to allow for new valve sets where required.
- BMS All fan coil unit shall be controllable from a central location via either the fan coil unit manufacturer's controller or by a Trend system (see full specification for details).
- All units shall be selected to be the minimum noise rating. The noise rating shall be highlighted on the technical submittal for review by the project manager. The contractor shall allow for attenuation where required.
- All units shall be linked to the fire alarm and isolate during a fault or a fire within the unit.
- Contractor to allow for Ceiling Access panels to access the FCU controls/valves when required
- Contractor shall install refrigerant leak detection as required.

Ductwork:

- The contractor shall allow for appropriately sized cross talk attenuation (with fire dampers where crossing fire barriers) between partitioned walls, to allow extract air to pass through to the bellmouth - where applicable.
- Ductwork sizes are indicative only, contractor is responsible for sizing of ductwork to suit architectural layouts and requirements.
- All secondary ductwork leading to the rear of a FCU shall have attenuators to prevent sound leaking into adjacent offices - where applicable.
- The contractor shall allow for all ductwork to be cleaned in accordance with TR19 and all filters to be changed once works have been completed. A certificate of cleaning shall be issued proving ductwork has been cleaned, and filters changed once all major works have been completed.
- FD denotes Fire Damper. Contractor to liaise with fire consultant to confirm where fire dampers are required and whether they should be MSFDs as per MMA drawing. This must be done prior to Tender. For tendering purposes allow for MSFDs with central controller. Access to be provided for all MSFDs.
- Plenum box and Spigots are CDP items. Where shown the contractor shall install a plenum box and spigots to the fan coil units and route to corresponding diffuser (with its own plenum). All plenum box selections shall be verified by the manufacturer before ordering. A grill sample must be provided for the architect before ordering.
- Ducting. The ducting shall be rigid where required, where flexible this shall be the last 600mm. The contractor shall allow for pre-insulated ductwork throughout.
- All services, including HVAC and containment, shall be sprayed out black and labelled

Pipework Routing:

- All pipework shall be mounted on HD cable basket and fire stopped where penetrating fire barriers.
- In external plant areas, the pipework shall be installed and protected using inverted cable trays.

Commissioning:

- The contractor shall commission the as per the manufacturers recommendations and CIBSE guidelines, this includes all electrical and control wiring.

2 Mechanical scope of works

High and Low Level HVAC

The purpose of this drawing is to highlight the scope of works required to install a new mechanical heating and cooling systems to suit the architectural fitout. The general works involve:

- Stripping out completely the HVAC and replacing with new VRF AC, controllers, Ventilation, and new BMS to suit the architectural layouts.
- Installing new condensers in external plant area.

Existing Services

The existing mechanical services are to be fully stripped out and currently consist of:

- Fan coil units, providing heating and cooling to the space, ventilation systems, and control systems. These shall be stripped out prior to the fit-out works.
- Fresh air is supplied to the space via dedicated MVHR units connected to external louvers on the perimeter of the floors. Existing units shall be stripped out prior to the fit-out works.
- WC systems are part of the landlord demise and shall not be modified.

Proposed Works

The proposed mechanical services consist of:

- Contractor to perform an intrusive survey to ensure that there are no underlying defects that were not detected from previous non-intrusive site surveys.
- All remaining redundant ductwork and mechanical services are to be stripped out in the aim of installing a brand new mechanical air conditioning system.
- New Heat Recovery units to be installed in ceiling voids.
- The ventilation supplies to each area shall be fitted with occupancy sensors linked to the PIRs to monitor occupancy and control rate at which the AHU supplies fresh air. Placement and quantities and installation shall be in line with the manufacturer recommendation. When there are occupants the electronic dampers to the floor will open fully, when there are no occupants the dampers shall close to a minimum vent rate.
- New VRF FCU system to be installed with fresh air being supplied to the back of the FCUs. New wall mounted controllers with built in thermostats (in accordance with Architect specification following a sample agreement) to be installed as per architectural requirements. The system shall be interfaced into the new landlord BMS system.
- High Level general extract. An appropriately sized 'Bellmouth' is to be connected to the main extract ductwork from the MVHRs. This Bellmouth shall extract air from office spaces via the mesh ceiling, and is also controlled via the electronic damper system.

The contractor shall provide a sample to the architect prior to full order of each displacement grille for agreement and sample calculations shall be completed showing compliance with BCO for review by MMA.

NOTE THE ABOVE IS A HIGH LEVEL SCOPE OF WORKS. THE CONTRACTOR SHALL REFER TO THE FULL SPECIFICATION FOR THE FULL LIST AND DETAILS OF WORKS REQUIRED. MSE IS A CONTRACTOR DESIGN PORTION AND THE CONTRACTOR SHALL INCLUDE THE FULL SURVEY, ISOLATION, DRAIN-DOWN, DISPOSAL, DESIGN, INSTALLATION, TESTING AND COMMISSIONING OF ALL SYSTEMS.

ITEM	DESCRIPTION	SPECIFICATION
Equipment	Traffolyte UV tag showing, ref. year, serial and model number	BS1710:2014
Warning Labels	Labeling is required to identify all safety requirements or hazardous areas..	ISO EN 7010 Signs & Singals Regulations 1996. COSHH Signs.
Cabling	Heat Shrink Fit, UV, Pre-Printed Labeling.	BS1710:2014

3 Equipment labeling requirements

MAIN DUCTWORK DETAILS	DETAILS
DUCTWORK	RIGID CIRCULAR DUCTWORK
INSULATED DUCTWORK	WHERE PASSING THROUGH ANY VOID SPACE OR HEATED SPACES CARRYING COLD AIR. USE PRE-INSULATED DUCTWORK THROUGHOUT
BRACKETS	APPROVED DUCT BRACKETS
BALANCING	ACTIONAIR BALANCING DAMPERS ON ALL BRANCHES
FIRE PROTECTION	ACTIONAIR FIRE SMOKE DAMPERS WHERE CROSSING FIRE BARRIER
ATTENUATION	IF REQUIRED ECO-ACOUSTICS EAM11004
EXTERNAL	PLENUM BOX TO BE MANUFACTURED BY CONTRACTOR

4 Ductwork details

General Drawing Notes:

- This drawing is subject to copyright and is not to be reproduced in part or whole without approval.
- This drawing and all associated documentation has been produced exclusively for the use of the client and Martin P Mulryan & Associates (MMA Engineers) accept no responsibility for use by any third parties.
- Do not scale from this drawing - check all dimensions onsite.
- This drawing shows design intent only. The contractor must produce fully dimensioned and coordinated installation/working drawings for review and acceptance prior to any ordering or installation of equipment.
- This drawing shall be read in conjunction with the project specification(s) and all other contract documentation. Any discrepancies identified on this drawing must be reported to the Consulting Building Services Engineer (CBSE) immediately.

Standard Drawing Notes:

Survey
The contractor shall allow to complete a full intrusive survey of the building. The contractor shall identify all redundant and non-redundant services. Any services to be retained should be fully validated to enable a complete coordinated design. A survey report shall be issued to MMA prior to works commencing onsite.

Disconnection and disposal of existing Services
Where equipment is redundant the contractor shall allow for all safe drain-down, disconnection, removal and disposal of equipment.

RFIs
Where the contractor has reason to request information the contractor shall issue a copy of the MMA RFI form fully and return to the project manager with sufficient time to action.
Link: mmaengineers.co.uk/onsite/RFI

Coordinated Equipment Selection
Prior to ordering any equipment, including equipment specified in this drawing or MMA specification, the contractor shall issue a copy of the MMA TS (technical submittal) form and return to the project manager with sufficient time to action. Any equipment or ancillaries ordered or installed prior to acceptance will be the responsibility of the contractor.
Link: mmaengineers.co.uk/onsite/TS

Installation & Working Drawings
All equipment shall be installed to manufactures recommendations, British Standards and Approved Documents. The tenderer is to allow for producing coordinated MEP installation and builderswork drawings prior to commencement on site as per the MMA specifications.

Commissioning
All equipment shall be commissioned to CIBSE/BSRIA recommendations with commissioning reports sent to MMA for review.

Project Completion
Prior to competition the contractor shall issue a completed copy of the MMA document 'Information Required Prior to Practical Completion'. MMA will not chase the issue of the document, but this should be fully completed with all associated documents attached. It should be assumed that PC will not be given without this document being approved by the project Manager.
Link: mmaengineers.co.uk/onsite/PC



T1	09.12.22	LTA Issue	ZB
Rev:	Date:	Status/Amendments:	By:

TENDER



Client:
Acturis

Project:
100 Hatton Gardens

Drawing Title:
Proposed External Plant Strategy

Drawn By: Z.B	Checked By: P.M	Cad By: Z.B
Scale: NTS	Paper Size: A1	Date Created: 27.10.2022
Drawing Number: 6136-XX-ZZ-DR-M-05		Drawing Revision: T1