

ANCOATS DISPENSARY, MANCHESTER

Statement on the Integration of Mechanical & Electrical Services to the existing Building

From the onset the design intent of the Mechanical & Electrical Services has aimed at mitigating the intervention of the existing building fabric. The key aspect of this intent has to utilise passive measures to reduce the extent of mechanical systems, such as primarily natural ventilation in lieu of mechanical systems.

For the measures taken to reduce the buildings demand, meeting the buildings demand efficiently and the use of low to zero carbon technologies, refer to the Ridge Energy Strategy report.

Where mechanical ventilation systems are required, for statutory requirements to bathrooms and kitchens then the intake and existing louvres have been carefully located and co-ordinated with the architect and to complement the existing façade and mitigate the visual impact on the building. The style of the louvre will also be carefully selected to compliment the style of the building but at the same time achieve the technical requirements of the ventilation system.

Further measures that have been implemented to minimise the impact, has been the avoidance of artificial cooling and avoid external heat regeneration plant. This has been achieved by exploiting the thermal mass of the existing structure and the tall windows that will promote good natural ventilation in the occupied spaces.

Internally, all the Mechanical & Electrical systems will be concealed within either vertical risers or above ceiling voids and therefore have minimised visual impacts on the building,

All above ground drainage will be contained within the building and not impacted on the external appearance of the building.

Overall, the design of the Mechanical & Electrical Services has been undertaken and a 3D Model to fully co-ordinate and integrate into the existing fabric and structure. The 3D Model tool allows the design team to fully understand the impact of the services to thus modify and adjust the design to fully integrate the building fabric.

In summary the Mechanical & electrical services consist of the following.

Hot Water Services

The hot water to each apartment will be provided by a low heat loss, hot water unvented storage heater cylinder.

The units are to be supplied with all manufacturer valves and accessories and will have an integrated expansion solution factory fitted. All pipes & connections are also hidden under an insulated removable top lid.

The water heater is to be controlled by a learning thermostat, provided by the manufacturer. The controller has a 24hr programmer, pre-set program function for use with low rate tariffs, boost override facility and is suitable for twin or Dual immersion elements.

Tank & Boosted Cold Water

The mains mains cold water enters into the plantroom and serves the main cold water storage tank at ground floor level contained within the building.

The main cold water storage tank is sized to cater for the combined water demand for the cold water & sprinkler requirements of the development.

The tank will be a sectional tank with externally flanged base, sides and lid.



Heating

Heating to the apartments will be provided by electric panel heaters. The heaters will provide the following functions:

- 3 on/offs per day
- Per day, 7 day programmable system
- One hour boost
- Set back temperature protection
- Individual room control

Each heater will have adjustable temperature control and be contemporary style with a flat front and RAL 9010 finish Adax Neo with WiFi Heater, Lot20 approved type heater.



Ventilation

The primary method of ventilating the apartments will be via openable windows, assisted by a Mechanical Ventilation Heat Recovery unit contained within a utility cupboard.

The opening windows will provide general ventilation to the spaces and achieve the summertime overheating criteria and Part F Purge Ventilation requirements.

To supplement the natural ventilation, a single Mechanical Ventilation Heat Recovery (MVHR) unit shall be provided to each apartment, located within the service cupboard, with ductwork to intake and exhaust louvres on the external façade.

The supply and extract air to the individual spaces shall be delivered via "flat" ductwork 220x 90 to plug type valves. The ductwork shall be "flat" due to the minimal ceiling void depth in the apartments.

Operation of the MVHR shall be continuous trickle operation with a boost facility which shall come into operation in the event of a pre-set humidity level, and in the case of studio living spaces, a boost switch provided in the kitchen area and/or linked to cooker operation.

Each kitchen area shall be provided with separate recirculation exhaust canopy similar to the Vent Axia Kinetic range.



Sprinklers

The building will incorporate a residential sprinkler system to BS9251: 2005 with the coverage as set out in the Fire Strategy Report.

Sprinklers are required to all apartments in compliance with BS9251:2014. The sprinklers are required to a 'residential' standard in accordance with BS9251:2014.

The Fire Strategy report contains specific conditions on the sprinkler installation, and these are:

- Sprinkler spray coverage must cover the hobs in the apartments and take into account any high-level kitchen cupboards in determining the spray pattern.

Incoming Supply

The incoming electrical supply shall be derived from the local ENW Low Voltage Network.

The LV supply shall terminate into a landlord owned main switch and distribution board within the Ground Floor LV Switch room. Power supplies to the apartments shall be derived from three phase distribution boards complete with individually housed single phase service cut out fuse units to BS 7657 that will serve each apartment individually.

Main Switchgear and Distribution

The objectives of the LV distribution system is to provide electrical power supplies of adequate capacity and safety close to the points of utilisation, i.e. from the mains intake at ground floor level, point to the local distribution boards in accordance with the following guidelines.

Small Power Installations

All general and cleaner's small power wiring within the landlords' residential areas shall be wired in LSF pvc multi-core cabling (twin and earth).

All small power within apartments shall be wired in LSOH pvc multi-core cabling (twin and earth).

Cleaner's sockets shall be provided in landlord's areas in accordance with the requirements of BS767.

Accessories shall be mounted to comply with the DDA regulations i.e., within the 600–1200mm zone, low level accessories shall be mounted at 450mm to the bottom of the accessories.

Lighting

Lighting and emergency lighting shall be provided to all areas as BS EN 12464-1, BS5266 and CIBSE Guides.

Typically, energy efficient LED lighting shall be used throughout.

Escape route and Emergency lighting shall be integral to the general lighting and shall be equipped with 3-hour emergency conversion kits and in accordance with BS 5266-1.

Luminaires shall be provided in accordance with the Great Places Employer Requirements Version 16 as follows:

Apartments

Room Type	Luminaire Type	Example Image
All rooms other than bathroom and kitchens	Light pendants c/w LED bulbs for energy efficiency	
Bathrooms / En-suites	White Circular LED Bulkhead IP65 rated c/w minimum 5 year warranty	
Kitchens	Chrome 4 LED spot bar light and LED pendant over dining area table.	
Utility Cupboards	Battern Lamp Holder with LED bulb.	

Fire Alarm

The system has to fully open protocol with all commissioning and engineers' codes provided to the client on handover.

The fire alarm system shall be in accordance with the buildings fire strategy, prepared by the fire engineer.

The design and installation shall be in accordance with BS 5839.

The landlord system will comprise a main fire alarm panels, manual call points, smoke/heat detectors, flashing beacons and interfaces. Any voids that are in excess of 800mm will require coverage.

Security Access Systems & Intercom System

A fully addressable door entry control system for resident's access shall be provided and shall be designed and installed in accordance with the Secure by Design / Crime Impact Statement.

The intent throughout the scheme and typically covers the following:

- Main entrances
- Cycle store
- Lifts at ground floor
- All Apartment front doors

- Lift lobbies, communal corridors

All areas above, with the exception of individual apartment doors, shall be fitted with hard wired fob readers c/w maglocks, press to release, reader, green breakglass units and fire alarm interfaces.

The individual apartments will be fitted with battery operated readers.

CCTV

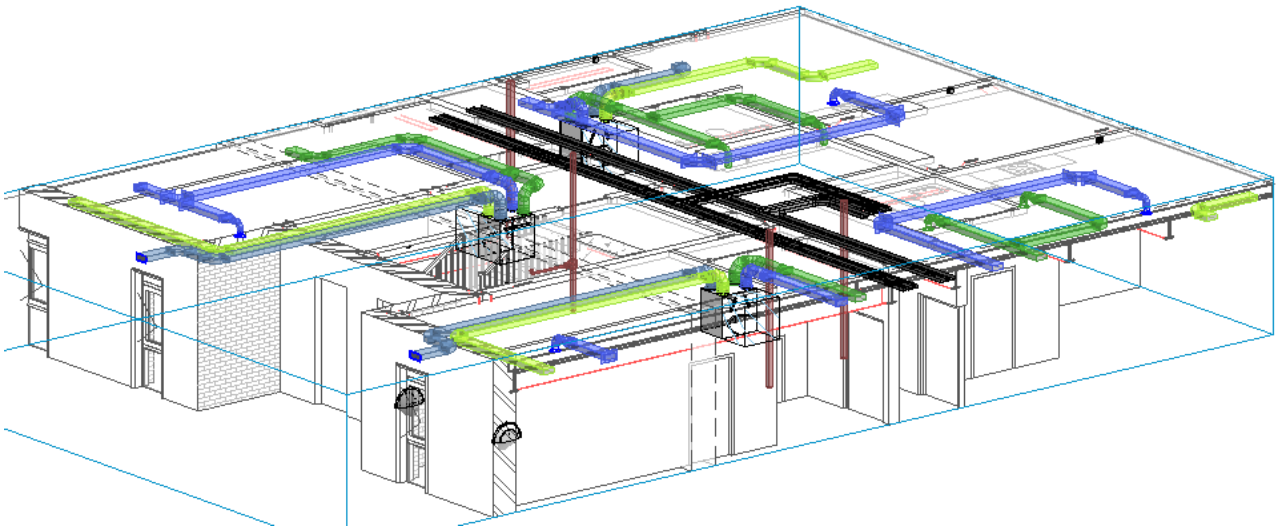
An IP based CCTV system shall be provided to cover internal and external areas of the building and perimeter.

The intent of the coverage and an indicative layout of number and positions of the cameras.

- Main entrances internally
- Lift lobbies on all levels
- All corridors
- Within lifts
- External perimeter & Amenity areas (all perimeter areas)
- Refuse store
- Cycle store
- Site entrances externally

Overall all cables, pipework and ductwork will be concealed and equipment and fittings selected to blend into the overall Architectural design of the building.

APPENDIX



The above image shows a 3D snapshot of the apartment ventilation system.