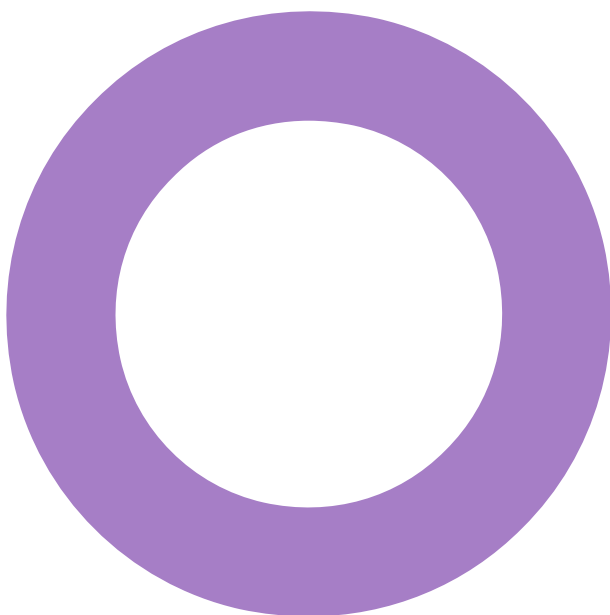


Dixons Academy.
Wythenshawe.
Morgan Sindall.

MEP ENGINEERING

VENTILATION AND EXTRACTION STATEMENT

REVISION P01 – 30 MARCH 2023



Audit sheet.

Rev.	Date	Description of change / purpose of issue	Prepared	Reviewed	Authorised
P01	30/03/23	First Issue – For Planning	EJG	LW	EJG

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1. Summary

This ventilation and extraction statement has been prepared to support the full planning application for the partial demolition of existing buildings to the north of the main school building and refurbishment and extensions to the main school building, with associated hardstanding and landscape works at the former Newall Green High School site, to the west of Greenbrow Road, Wythenshawe, Manchester, M23 2SX.

2. Ventilation Strategy

2.1 Existing School

The existing school is predominantly mechanical ventilated by local heat recovery units located within the teaching spaces, connecting to façade mounted louvres located at the head of windows. The existing ventilation systems are being stripped out in their entirety and replaced as part of these works.

2.2 Proposed Development

The proposed development is the partial demolition, refurbishment and extension of the Newall Green High School site.

The design and installation of ventilation systems will be developed in line with the following current standards, applicable at the time of submission for Planning:

- Current Building Regulations Approved Documents
- CIBSE Guides
- School Output Specification Generic Design Brief (Rev C16)
- School Specific Design Brief
- Health and Safety at Work Act
- All relevant British Standards and Codes of Practices
- All ventilation systems will be specified to meet the acoustic requirements set out in the Acoustic Planning Report.

Wherever possible, natural ventilation and hybrid ventilation will be the primary solution for providing ventilation through the school, with mechanical ventilation provided to internal rooms and areas where natural or hybrid ventilation solutions are not appropriate.

Within classrooms, a natural/hybrid solution has been proposed, using façade openings and hybrid natural ventilation units. Units will be complete with heat recovery and low temperature hot water (LTHW) heating coils. In the existing building, openable windows will be provided within the existing façade openings. Within the new build classrooms, openable louvred panels will be provided so as not to inhibit the effective use of the blinds. The windows/panels will be manually openable. The hybrid natural ventilation units will be connected to the high-level louvres and will provide a hybrid air distribution supply to the classrooms, which will allow for heat recovery and 'mixing' of the supply and return air during winter months.

The existing building constraints mean that some classrooms are not suitable for the hybrid ventilation solution. In these classrooms a local void mounted heat recovery unit shall be provided. Where hybrid ventilation units are proposed within existing classrooms, these will need to be coordinated with the existing openings in the façade and may require bespoke units/transformation pieces to allow connection of the units.

In addition, within Science classrooms, a single extract fan shall be provided in each classroom to provide boost ventilation during practical lessons. The activation of the boost fan shall be via the hybrid ventilation unit ventilation controller to ensure that supply air is matched to the extract volume.

Combined temperature and CO₂ sensors will be provided to each teaching space to monitor CO₂ concentration and the temperature. Where required, the controller will include an integral LED indicator light, to identify to the staff when the windows need opening. The sensors/controller will be located adjacent to the Teachers station/desk.

The Science prep room will be provided with a ducted fume cupboard with the extract fan located externally at roof level to ensure that the system operates under negative pressure. The extract fan will be chemical resistant and will be cited with due regard to the roof topography and surrounding buildings to minimise the risk of fumes being drawn into the building. Chemical Resistant plastic ductwork shall be provided between the fume cupboard and the extract fan (located at roof level).

A local extract fan will be provided to the Kiln room to extract vitiated air from the space and exhaust to atmosphere operating to control the temperature within the space.

Mechanical supply and extract ventilation will serve landlocked office areas and high-density areas that cannot be served via hybrid roof terminal units. This will primarily be via two centralised air handling units (AHUs), located at roof level. AHUs will provide filtration through the inclusion of G4 grade panel filters on the air inlet to the units and F7 grade filtration in the supply air. In addition, the return air path will include G4 grade panel filters prior to discharging to atmosphere. From the AHUs, distribution ductwork will connect to the grilles and diffusers, complete with dampers and associated attenuation to suit the noise criteria of the rooms they are serving.

Staff areas located on the perimeter of the buildings shall be ventilated by means of natural ventilation via openable windows. Where the overheating assessment shows a risk of overheating, these spaces will be provided with additional supplementary mechanical ventilation from the central air handling units.

Plant rooms shall be ventilated by means of natural ventilation via louvred doors/louvres on the façade.

2.2.1 Toilet Extract

All sanitary accommodation and washrooms will be provided with dedicated mechanical extract ventilation.

Sanitary accommodation will be maintained under a negative pressure by mechanical extract ventilation with a nominal transfer of air from surrounding spaces to reduce the risk of smells transferring to surrounding spaces.

The toilet extract ventilation will be provided via a central twin-fan unit(s), incorporating automatic changeover, and extracting vitiated air from most toilet areas within the vicinity of the toilet extract duct riser(s). The twin-fan unit(s) will be located at roof level. The air will be extracted via ductwork distributed within the ceiling void and back to the central twin-fans, located at roof level, where it will be discharged to atmosphere.

Where there are remote toilet areas, extract will be provided by local "twin-fan" units incorporating automatic changeover and shall either be a central system serving a designated area(s) or local extract systems.

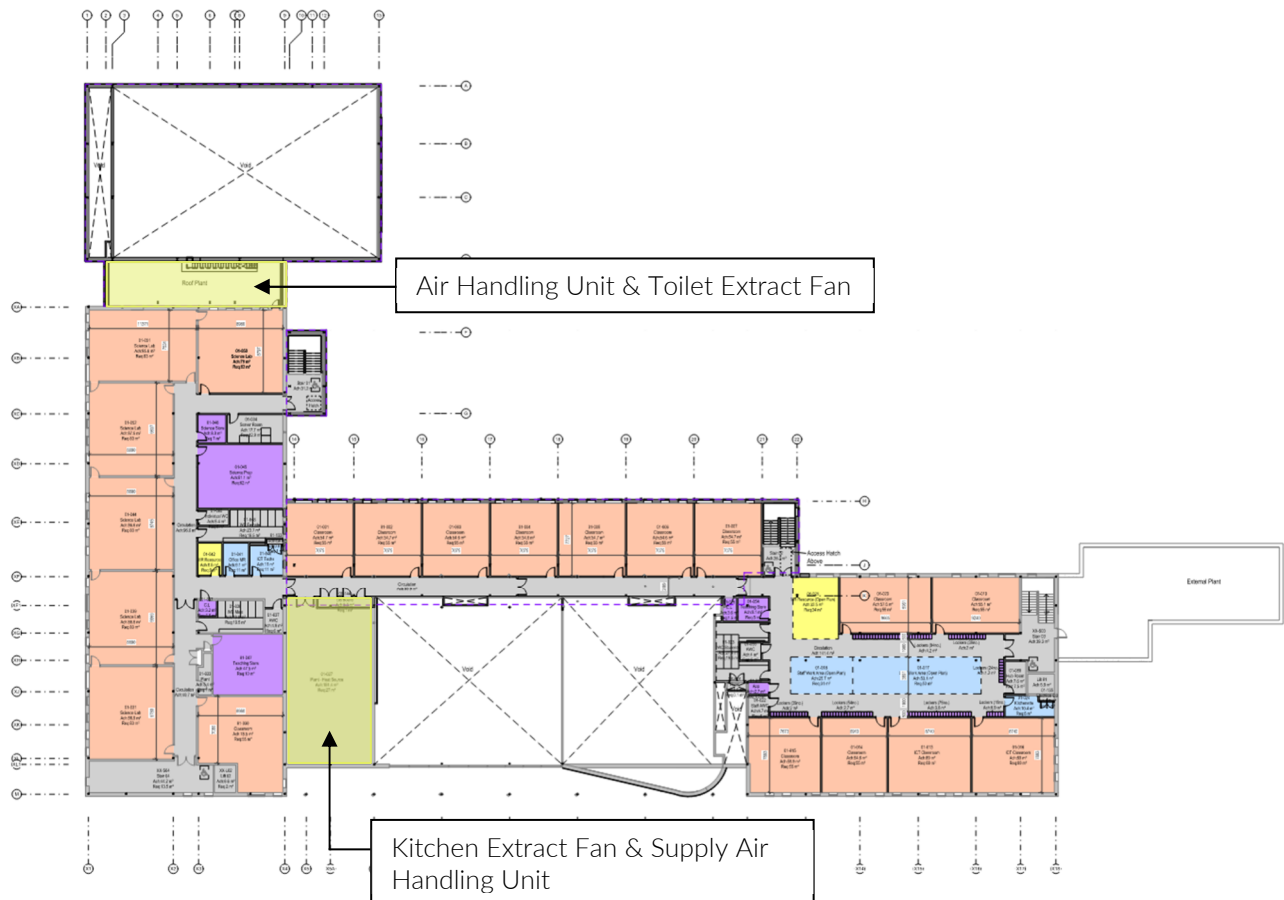
2.2.2 Kitchen Ventilation

Kitchen extract ventilation will be provided via a dedicated extract fan (motor outside of airstream), located at in the first floor plant room and this will be interlocked with the supply air handling unit and safety systems. The ventilation system will be fitted with attenuation and grease and particle filtration.

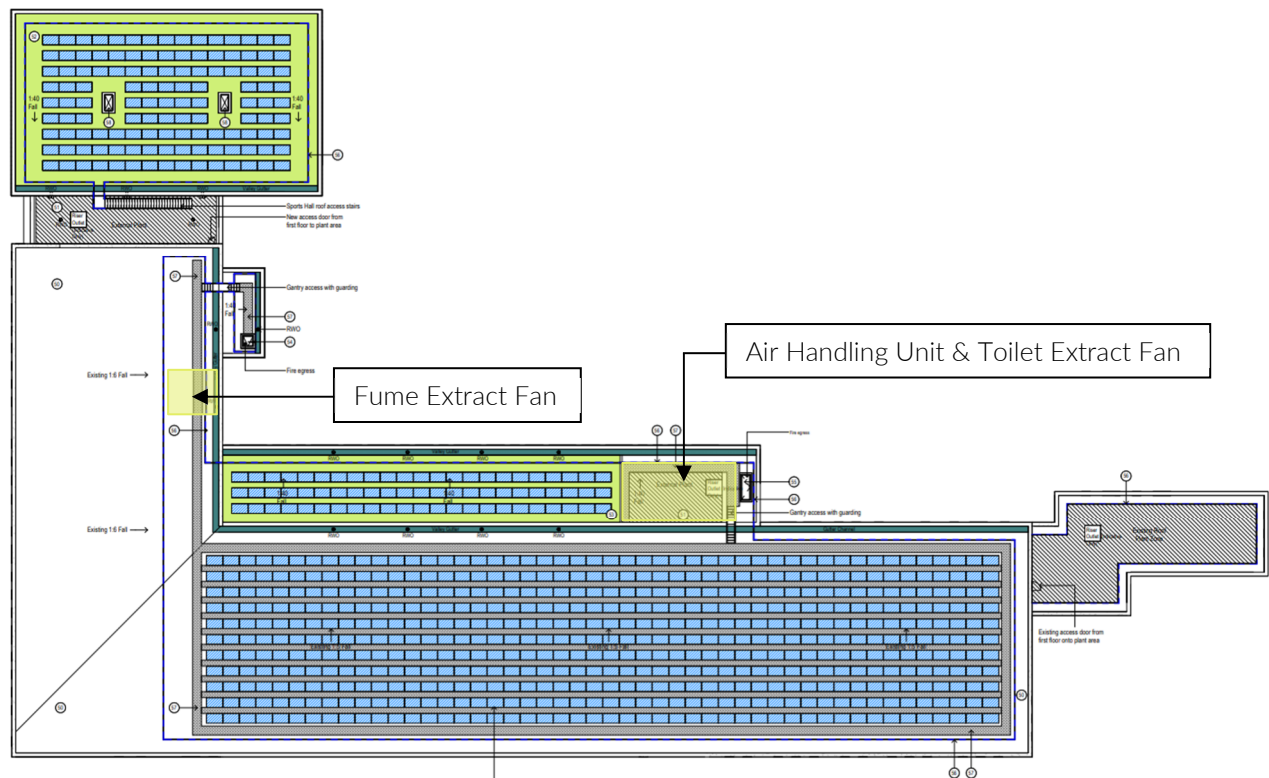
The kitchen will be maintained under negative pressure by mechanical extract ventilation to pull air from the ancillary spaces avoiding the cross-contamination of airborne grease. A supply AHU will provide tempered, fresh air to the kitchen, kitchen office and dry store.

2.2.3 Plant Locations

The below plans show the locations of the centralised ventilation plant for the scheme.



First Floor Plan



Roof Plan

3. Other Exhaust Emissions

There is no combustion plant proposed for the scheme and there is no life safety generator.



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