

AMP 44772/1

Chorlton Library - Design Process and Reasoning for Current Meeting Room Ventilation Design Rev A

Introduction

It is a Health & Safety and Building Regulations requirement to provide adequate ventilation for occupiable spaces. Ventilation is required to change the air in order to provide oxygenated fresh air supply and to remove airborne contaminants and CO₂ laden air. The acceptable minimum fresh air input flow rate is 10 litres/sec per occupant.

The current proposal was chosen after careful consideration, taking into account the availability of suitable products in the ventilation equipment market and impact on the listed building.

It is current standard practice to use heat-reclaim ventilation equipment to minimise loss of energy and minimise the emission of carbon associated with offsetting such losses with extra heating.

As there are two proposed meeting rooms, they each should ideally be served by dedicated units (rather than one central unit)

Methods Considered

Roof Void (Loft) Mounted Unit(s)

The ceiling level roof void access hatch is small and not considered suitable for regular maintenance access to current standards and it would not be large enough to allow accommodation of ventilation equipment. The hatch would need to be increased in size and the void decked out if joists structurally suitable to form a plant deck. New holes would be needed in the plaster ceiling for grilles.

This method has been discounted as it is considered onerous/disruptive and has various associated risks.

Ceiling Void Mounted Unit(s)

If a suspended ceiling were installed, the meeting rooms could be served by one common or two dedicated ceiling void mounted units complete with associated ductwork, air diffusers and grilles.

Multiple fixings to the existing ceiling/joists would be needed to support the suspended ceiling and ventilation equipment.

Suspended ceilings are not considered in keeping with the building and without a suspended ceiling, exposed units, ducts etc would look unsightly or not in keeping with the building.

Wall Mounted Unit(s)

Wall mounted units are considered to be the most appropriate, however there is a very limited range of wall mounted heat recovery units available in the market and are 'domestic' in size. To provide sufficient airflow, two small units would be required per room with two connections to outside per unit (air in and air out) totalling 8No penetrations. Larger sized wall mounted units could not be found during the search.

One advantage is that the smaller units need smaller holes (85mm diameter) and should only mean removal of 8No half bricks (rather than forming fewer, larger holes). Should the meeting rooms ever

be removed, there are spare original bricks in the basement to make good the holes (assuming they will be available at such time).

Of the methods assessed, the current proposal is considered the most discrete and least impactful on the building appearance and fabric.

The proprietary 150mm diameter external weather terminals are to be painted to suit the brickwork

Having further considered the proposed weather terminal arrangement, it is considered the most appropriate method to use the manufacturer's weather terminals but have these painted to match/blend with the external face of the brickwork (using suitable primer and paint to ensure a durable finish). This is for various reasons:

- Warranty of equipment performance.
- Hygiene – ventilation systems (especially fresh air supply) need to be kept clean – the manufacturer's terminals meet this requirement.
- Minimum impact of fixings (further shrouding would entail fixing more disruption to existing brickwork)

Summary of Considerations

Method	Pros	Cons	Conclusion
Roof Void Unit(s)	Would be discrete if feasible	Hatch would need to be increased in size. New penetrations would be needed in ceiling for grilles.	Too onerous/risky and disruptive.
Ceiling Void Unit(s)	Fewer but larger penetrations relative to current design.	Suspended ceiling required to hide unit(s). Multiple fixings to existing ceiling needed	Suspended ceiling not desirable.
Wall Mounted Units	Minimum impact on appearance and fabric	Only small units available therefore 8No holes required but these will be small	This is considered the most discrete and least disruptive method