



Air Exchange and Odour Assessment for the Vegetarian Society HQ

15 Jersey Street, Ancoats, Manchester, M4 6EZ

1. Overview

The Vegetarian Society teaching kitchen operates predominantly domestic equipment with domestic output volume.

The site provides classroom space for a maximum of 18 people at any one time and while it will open for business seven days a week - classes run mainly on Friday, Saturday and Sunday, comprising a mixture of instruction, preparation, cooking and communal eating.

The client specifies being a vegetarian teaching kitchen, there will be no deep frying or cooking of meat or fish. There are no fryers within the classroom kitchen environment.

The client states, the majority of our teaching workshops are plant-based and employ food preparation, hob based and oven cooking, no different to food preparation and cooking in a domestic kitchen.

On average on any one taught course there is an **average of one hour of cooking time** on hobs and in the convection ovens.

The kitchen is equipped with:

- Ten Cooking stations each equipped with work area, four-zone domestic induction hob, and electricity supply for small equipment
- Two x 5 grid convection ovens. These are the only non-domestic cooking appliances. On this basis these are operated under a Lincat recirculation hood. These extraction hoods are designed to operate over electric cookers and are fitted with aluminium grease filters, charcoal filters and fine filtration foam filters.



Main teaching area is $12.3\text{m} \times 4.1\text{m} \times 3.5\text{m} = 176.51\text{m}^3$ (without pitched roof area)
Pitched area above the main teaching area is $12.3\text{m} \times 4.1\text{m} \times .55\text{m} = 27.73\text{m}^3$

Section total = 204.24m^3

Smaller section of the teaching kitchen is $9.2\text{m} \times 3.8\text{m} \times 3.5\text{m} = 122.36\text{m}^3$
Pitch area above is $9.2\text{m} \times 3.8\text{m} \times .55\text{m} = 19.23\text{m}^3$

Section total 141.59m^3

Overall teaching kitchen volume = 346.17m^3

2.3 Air exchange requirements

Overall volume rounded to 350m^3
15 room changes per hour are required

Total volume of air to be exchanged is $350\text{m}^3 \times 15 = 5250\text{m}^3/\text{h}$ or $1.45\text{m}^3/\text{s}$

3. Fan and vent requirements

The teaching kitchen will benefit from Systemair ES12 fans at three points in the external courtyard wall and three points in the gable end wall. This allows for adequate air exchange across the space via lower rated fans which reduces noise both internal to the teaching kitchen and also externally. The fans can be switched between extraction and intake, and this allows the distance between fans to be actively managed preventing exchange of the same parcel of air.

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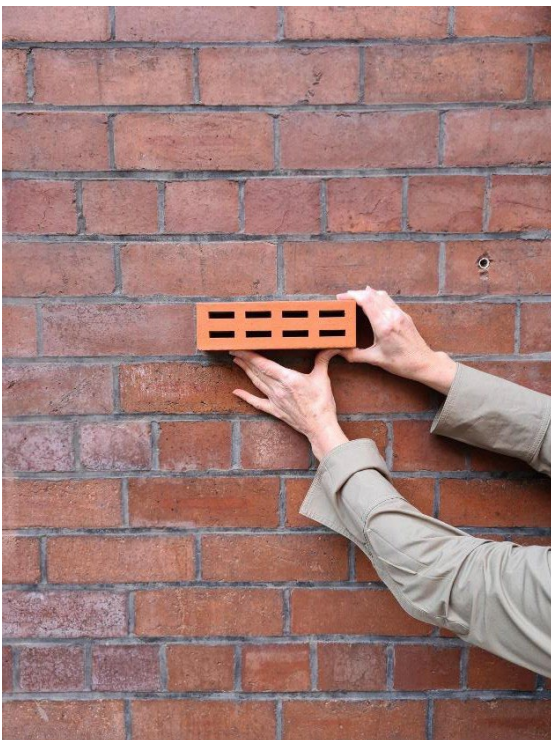
COMMERCIAL KITCHEN

PROJECTS

External aluminum louvered grills will be fitted on the gable wall immediately facing the Fairbairn Building (part of the Royal Mills estate) and these sit approximately 20mm from the external walls.

On the external wall overlooking the rear courtyard and Cotton Street, air bricks will be installed to the external elevation, with brick chosen to match the existing brickwork.

The design of the air brick is shown below (the final brick will be water jet cut from heritage brick providing a match for the existing brickwork) and while this will reduce the available void space (compared to the louvre vents), the fact that louvre vents are being retained on the other wall should still allow for adequate air exchange in line with the calculations above, particularly as the windows on the courtyard elevation can be opened to provide for additional voiding.



Vent brick to be installed to courtyard elevation

4. Odour Potential

The teaching kitchen benefits from high ceilings and opening windows on both sides – top opening windows on the Henry Street side and traditional opening windows on the courtyard side providing natural ventilation.

Additionally, as noted in section 3 above, six ventilation units are installed on the elevations to allow air circulation.

These units can move air in and out of the teaching kitchen – providing for circulation of air. A specification for these fans is included with this document and an ambient noise survey has been provided under separate cover.

When considering the potential for odour from the operation it is important to bear in mind that the Vegetarian Society teaching kitchen is predominantly domestic in operation.

As noted in section one above, it caters for a maximum of 18 people at any one time and classes run mainly on Friday, Saturday and Sunday, with cooking comprising only around one hour of each class. There is no deep frying or cooking of meat or fish. The method of food preparation is akin to that practised in a domestic kitchen.

However, there is an electric fume filtration canopy fitted above the two convection ovens to prevent any build-up of odour from longer cooking times in the ovens. This removes odour from the air before it is recirculated and does not require external venting.



Lincat electric fume filtration canopy above the two convection ovens