Village Centre, Heyford Park

Ventilation Strategy Report

For: Dorchester Group

Job No:	1013241
Doc Ref:	1013241-RPT-00002 Ventilation Strategy Report
Latest Revision:	-
Date:	14/06/2016

Cundall Johnston and Partners LLP One Carter Lane London EC4V 5ER Tel +44 (0)20 7438 1600 www.cundall.com

Project Name:	
Client:	Dorchester Group
Report Title:	Ventilation Strategy Report
Job Number:	1013241

Document Revision History

Revision Ref	Issue Date	Purpose of issue / description of revision

Document Validation (latest issue)

15/06/2016	15/06/2016	15/06/2016
X Junji Zhu	X Carl Oughton	X Steve Cook
Principal author	Checked by	Verified by
Signed by: Oughton, Carl	Signed by: Oughton, Carl	Signed by: Oughton, Carl

Contents

1. Introduction

The site is located to the south of Camp Road, Upper Heyford, Bicester, Oxfordshire.

The proposal is to redevelop the site as follows:

- The western part of the site will incorporate Building 455 consisting of an entrance lobby, screening room, bowling alley, bar, conservatory, finishing kitchen, spa, function room, associated back of house areas and nineteen bedrooms on the 1st Floor
- The eastern part of the site will incorporate Building 457 consisting of an entrance lobby, function room, kitchen, ground and 1st floor bar areas, ground and 1st floor restaurants, market square terrace, village green terrace and associated back of house areas
- A canopy link is provided at ground floor level to interlink Buildings 455 and 457

This report provides the high level requirements for suitable ventilation provision within these units.

Figure 1 shows the layout of the proposed site plan.

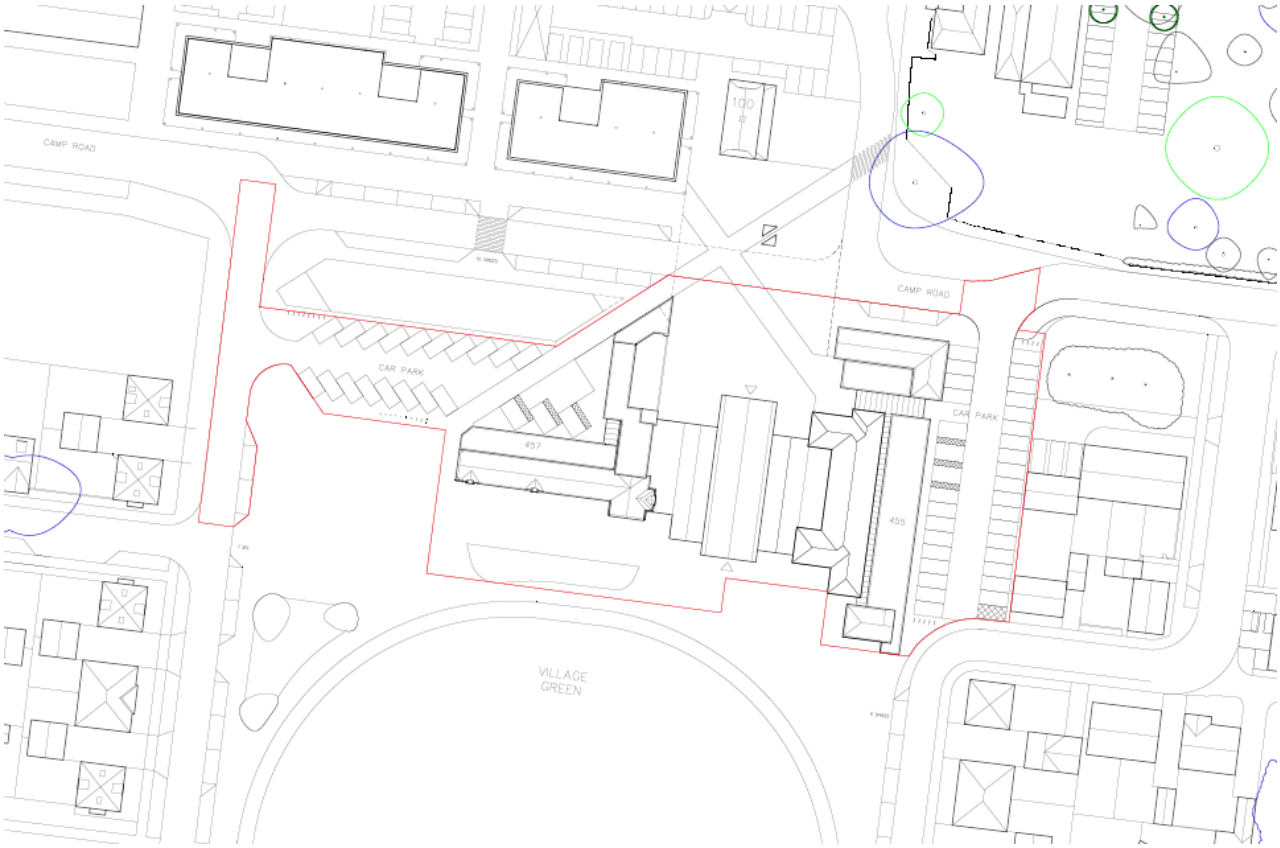


Figure 1 – Proposed Site Plan

2. Ventilation Provision

Each of the buildings have been listed below with the envisaged requirements for their ventilation provision.

2.1 Building 455

Supply and extract ventilation will be provided to the following areas via dedicated stand-alone air handling units: -

- Bar, spa, bowling alley, function room, back of house areas and conservatory
- Screening room
- Finishing/serving kitchen
- 1st floor bedrooms

The finishing/serving kitchen within Building 455 will receive food, that is cooked and prepared within the main kitchen in Building 457, for serving.

Extract from the finishing/serving kitchen will be via a dedicated extract fan located at roof level.

Ductwork will be routed from the roof mounted AHU via the roof voids, ceiling voids and dedicated ductwork risers to serve the associated areas. Access for cleaning of the ductwork distribution systems will be provided in accordance with current legislation.

The toilets on each floor will be mechanically ventilated via a central toilet extract fan unit located externally at roof level. Make-up air to the toilet areas will be from adjacent areas via undercut doors.

The location of the AHU's, extract fans, etc. at roof level are to be determined at a later date once the scheme develops further.

Localised weatherproof louvres may be installed to accommodate fresh air intake and exhaust air discharge from back of house areas, WC's, etc.

To assist with the overall energy strategy the supply and extract ventilation systems will incorporate heat recovery in the form of an air to air plate heat exchanger.

2.2 Building 457

Supply and extract ventilation will be provided to the following areas via dedicated stand-alone AHU's: -

- Ground and 1st floor restaurants, ground and 1st floor bar areas, market square terrace, function room and associated back of house areas
- Main kitchen

Extract from the main kitchen will be via a dedicated extract fan located at roof level.

Ductwork will be routed from the roof mounted AHU's via the roof voids, ceiling voids and dedicated ductwork risers to serve the associated areas. Access for cleaning of the ductwork distribution systems will be provided in accordance with current legislation.

The toilets will be mechanically ventilated via a central toilet extract fan unit located externally at roof level. Make-up air to the toilet areas will be from adjacent areas via undercut doors.

The location of the AHU's, extract fans, etc. at roof level are to be determined at a later date once the scheme develops further.

Exhaust air from the kitchen will be discharged at roof level to promote odours being entrained in the prevailing winds avoiding issues with supply air intake cross contamination.

Localised weatherproof louvres may be installed to accommodate fresh air intake and exhaust air discharge from back of house areas, WC's, etc.

To assist with the overall energy strategy the supply and extract ventilation systems will incorporate heat recovery in the form of an air to air plate heat exchanger.

2.3 Canopy Link

The delicatessen/café within the canopy link will receive food, that is cooked and prepared within the main kitchen in Building 457, for serving.

Ventilation to the canopy link will be via a combination of low level air inlets, openable doors and automatic opening vents (AOV).

3. Methods of Odour Control

Methods of controlling fumes/vapours/odours vary in nature depending on the type of exhaust generated by the source.

The type of systems implemented will need to be undertaken on a unit by unit basis as each system will need to cater specifically for the proposed end use.

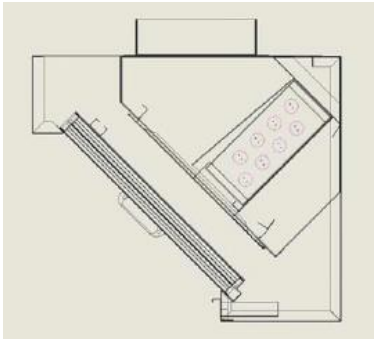
For the purposes of this report, there are a number of options described below illustrating the type of systems that can be put in place. The options below are provided by Britannia Kitchen Ventilation and have been used for illustrative purposes, there are other manufacturers/suppliers available on the market.

3.1 Flue Terminal Filtration

Filtration units, located towards the end of a an extract flue, have a number of different types of filters to remove grease, particulates and odours from the airstream. These are typically suited to applications that produce low intensities of fumes/odours.

3.2 In-Hood UV Filtration

For applications that produce higher levels of grease and odours within the airstream, UV filtration is an effective method to cleanse the air. In combination with high efficiency baffle filters that remove larger particulates, the high intensity UV lamps built within the extract hoods destroy organic matter, thereby removing the majority of grease and odour from the extracted fumes.



For high intensity applications, both systems can be implemented to offer the best levels of fumes and odour removal possible.

3.3 Odour Neutraliser

Ambient air is drawn into the odour neutraliser unit and mixed with a specially blended neutralising chemical. A vapour is formed which is the ionised to a negative potential of 15,000 volts. The ionised vapour passes along a non-conductive tube and is discharged into the ductwork via a venturi spigot. The ductwork is earthed through the same circuit which makes a contaminant at an opposite potential to the negatively charged vapour. The electrostatic difference between the two causes them to combine electrically which creates a chemical reaction thus treating the odour.

3.4 Electrostatic Precipitator

An electrostatic precipitator (ESP) is a highly efficient filtration device that removes fine particles, like dust and smoke, from an air flow system using the force of an induced electrostatic charge minimally impeding the flow of gases through the unit. An ESP applies energy only to the particulate matter being collected and therefore is very efficient in its consumption of energy (in the form of electricity).

4. Conclusion

It is proposed that an extract hood will be installed within the main kitchen within Building 457. The extract hood will incorporate high efficiency baffle filters with a UV filtration system to assist with cleansing the extract air. In combination with high efficiency baffle filters the high intensity UV lamps will destroy organic matter, thereby removing the majority of grease and odour from the extracted fumes.

Space provision will be allowed for within the roof mounted extract fan, serving the main kitchen within Building 457, for the future installation of a flue terminal filtration unit, should it be deemed that this is required.