



24/10/2019

PROPOSED VENTILATION SYSTEM AT Walberton Care Home, Yapton Ln, Walberton, Arundel BN18 0AS

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1.0 INTRODUCTION:

The information contained within this document should be used as supporting information when applying for Change of Use Planning Approval and is based on the :DEFRA Annex B - Guidance on the control of odour and noise from Commercial Kitchen Exhaust system - Jan 05. This follows feedback from various Local Authorities who use Annex B as a guide when referring to the extract system as part of the application process.

Annex B advises that the aim of any ventilation/extraction is to ensure that no nuisance, disturbance or loss of amenity is caused by odour, fumes, food droplets or noise, to nearby properties.

Additionally, the visual appearance of the flue may be important and the flue itself may require a separate planning permission. Enquiries should be made to the Local Authority Planning Department regarding this matter.

A suitably qualified and experienced person with specialist knowledge of ventilation schemes should undertake the design and installation of a

ventilation system.

Designing and installing appropriate ventilation systems may involve considerable expense.

In circumstances where the end user of the premises is unknown, or where the specific type of food to be cooked is unknown, the installation should be designed to achieve the highest level of odour control in order to cater for a worst case scenario.

There are many different types of odour abatement available (carbon filters, electrostatic precipitation, high dilution and high velocity extraction) however not all types are suitable for all cooking methods. In each case, grease filters must be installed.

2.0 PREAMBLE

All work is carried out in accordance with the latest relevant British (or Irish regulations where applicable) and European Standards, statutory Regulation and Byelaws together with the following publications:

- CIBSE Codes and guides to current practice
- Water Authority Byelaws
- HVCA - DW143 Practical Guide to Ductwork Leakage Testing
- HVCA DW144 Specification for Sheet Metal Ductwork
- HVCA DW172 Guide to Good Practice for Kitchen Ventilation Systems
- HVCA - RUAG70 Guide to Good Practice Refrigeration
- TR19 - Duct & Kitchen extract cleaning systems
- The Building Regulations
- Gas Safety (Installation and Use) Regulations 1998

All plant, ducts, pipe cables etc. shall be adequately protected against accidental damage corrosion and external environment and shall be capable of safe decontamination and removal in the future without disturbing other services. Pipes and ducts shall be adequately sized, kept as short as practicable, leak-proof with a minimum number of joints and have provision for routine maintenance. All facilities shall be designed to prevent the ingress or egress of rodents, vermin, and insects.

The duct will be fixed to the shell of the unit using anti-vibration fixing mounts and under no circumstances will flexible ductwork be used other than the fan connections

The HVAC contractor shall supply the client with system design drawings, prior to manufacture and installation

For projects in England and Wales, the HVAC contractor shall also demonstrate compliance with Building Regulations Approved documents L2A & L2B. This will include:

- (a) Provision of details of the efficiency and controls of heating, cooling and ventilation systems in accordance with Non-Domestic Heating, Cooling and Ventilation compliance Guide (2006)
- (b) Provision of commissioning certificates including air leakage tests on the ductwork

Fire/smoke dampers shall be installed in all fire compartment walls to Building

Control requirements

The HVAC contractor shall ensure that externally, the ductwork conforms to the supplied drawings in terms of its route, height and termination. These drawings will have formed part of the planning permission and must not be deviated from without prior consultation with the Project Manager / Architect. Upon completion of the installation, all shall be fully tested and proved including airflows. The Contractor shall produce an Operating and Maintenance Manual which shall contain details of all equipment supplied; a record drawing of the complete mechanical services installation and copies of all Test Certificates. It shall contain a Maintenance Schedule based on the manufacturer's recommendations.

3.0 INFORMATION ON TYPE OF OPERATION

The proposed hours of operation of the business and ventilation plant will be in accordance with the hours stated in the approved Change of Use

4.0 PLANS AND DRAWINGS

Please refer to drawing CS209-PRELIM of the proposed premises which shows the indicative internal arrangement and location of the ventilation system.

A schematic drawing produced by the HVAC Designer will be provided at a later date.

5.0 DETAILED DESIGN OF VENTILATION SYSTEM

5.1 Tumble Dryer Fresh air intake system

A copy of the manufacturer's product data sheet should be supplied clearly showing:

• Manufacturer's name: Westbury Filtration

• Filter name and product code: Type 90 and VL2 Panel Filter

• Dimensions of the pre-filter: 45mm thick (rated airflow 2.0m/s) see data sheets

• Nature of the filter media: Disposable glass fibre media

• Manufacturer's recommendations on the frequency and type of maintenance of the pre-filter having regard to the conditions that it will be used under: 3 monthly maintenance

• Fan - S & P CVAB/4-4000/400ND

• Proposed fresh air intake flow rate (expressed as mE/second): 0.82mE/s

• Ductwork velocity - 8m/3

Details of proposal: Proposed new 400mm dia. galvanised fresh air intake duct to run internally in loft. 3 of grilles to be placed over the top of tumble dryer units. Ductwork to pass up through roof and connect onto acoustic type box fan to have anti-vibe type canvas to supply side. Mounted on anti-vibe type big feet.

5.11 Kitchen Fresh air intake system

A copy of the manufacturer's product data sheet should be supplied clearly showing:

• Manufacturer's name: Westbury Filtration
 • Filter name and product code: Type 90 and VL2 Panel Filter
 • Dimensions of the pre-filter: 45mm thick (rated airflow 2.0m/s) see data sheets
 • Nature of the filter media: Disposable glass fibre media
 • Manufacturer's recommendations on the frequency and type of maintenance of the pre-filter having regard to the conditions that it will be used under: 3 monthly maintenance
 • Fan - S & P CVAB/4-6000/450ND
 • Proposed fresh air intake flow rate (expressed as mE/second): 1.5mE/s
 • Ductwork velocity - 8m/3
 Details of proposal: Proposed new 600x300mm dia. galvanised fresh air intake duct to run from kitchen canopy up internally to pass through loft and connect onto acoustic type box fan to have anti vibrate type canopy to supply side. Mounted on anti vibrate type big feet.

5.2 Electrostatic precipitators

(NOT REQUIRED ON THIS SITE - REFER TO 5.9 CARBON FILTERS)

5.3 Odour counteracting or neutralising system

(NOT REQUIRED ON THIS SITE - REFER TO 5.9 CARBON FILTERS)

5.4 Cooker hood

The following information on the characteristics of the cooker hood should be supplied that clearly shows:

• The hood will be made of: Stainless Steel construction with all visible joints to be welded, ground and polished and to incorporate a gutter around all edges with a plugged drain connection at lowest point.

• Length that the cooker hood overhangs the appliances: 300mm all round

• Face velocity at the cooker hood (metres per second): 0.25m/s

• Dimensions of the opening of the cooker hood= 3750 x 1400mm

The hood will include baffle type grease filters, stainless steel frame.

• Manufacturer's name: Ace Filtration

• Filter name and product code: Model AF111 450x450mm Baffle type filters

5.5 System Operation / Extract Fan

In addition to the specification of the components the following must be provided about the system:

• Dwell time of the gases in the carbon filtration zone: N/A

• Fan - S & P CVAB/4-9000/500ND

• Proposed extract rate (expressed as mE/second): 1.8mE/s

• Ductwork velocity: 8m/s

• Efflux velocity: 14m/s

Note: The system performance is dependant upon the extract rate of the air. Where the rate can be adjusted using dampers or a variable speed

fan, then the conditions under which the extract rate can be achieved must be described.

5.6 Flue Design

The height and velocity of the final discharge are the two important factors. Generally, the greater the flue height, the better the dispersion and dilution of odours. The discharge of air should be at a minimum height of 1m above the roof ridge, especially if there are buildings nearby that may affect odour dispersion and dilution.

Where this is not possible (e.g. because of ownership or structural constraints), additional techniques will be required in order to reduce odours, such as an increase in efflux velocity and additional filters, etc. The final discharge should be vertically upwards, unimpeded by flue terminals. The number of bends in the ducting should be minimised and the ducting should have a smooth internal surface.

Details of proposal: Proposed new 600x300mm galvanised extract duct to run from canopy in kitchen up through into loft void. To then pass through roof and connect onto anti vibe canvas " acoustic type box fan mounted on anti vibe feet.

5.7 Noise

Data on the noise produced by the system as a whole should be provided including:

- Sound power levels or sound pressure levels at given distances (the assumptions to this calculation must be clearly stated);
- An octave band analysis of the noise produced by the system should also be provided, where possible; and
- Hours of operation of the ventilation system (where this differs from the hours of opening). Please see data sheets for fans. No additional noise control needed.

5.8 Maintenance

A schedule of maintenance must be provided including details for:

- Cleaning of washable grease filters: Weekly
- Frequency of inspection and replacement of prefilters where proposed): Monthly

5.9 Carbon Filters

N/A for this project

6.0 Additional notes for guidance

The air inlets must not permit pests to enter the kitchen. Fly screens are an example of how this can be achieved.

Enough air must be permitted into the premises to replace air extracted. The method for supplying this make-up air should be detailed. The route of the air into the kitchen must not result in its contamination, for example passage



through a toilet. Separate provision must be made for ventilation of a toilet. There must be enough removable access panels to permit adequate cleaning of all the ductwork. Fresh air is introduced via a dedicated air handling unit to supply 80% of the extracted air, fresh air filtered to EU4.

APPENDIX 1

PRODUCT DATA SHEETS

ø G4 Panel (Kitchen supply filter)

ø S & P S & P CVAB/4-4000/400ND Tumble dryer fan

ø S & P S & P CVAB/4-6000/450ND kitchen supply fan

ø S & P S & P CVAB/4-9000/500ND Kitchen extract fan

ø Ace Filtration - Model AF111 450x450mm Baffle type filters (Canopy Filters)