

Ventilation & Extraction Statement

NOVEMBER 2022

50 BUCKLAND ROAD, READING, RG2 7SW

Application for:

**Change of use from class use A1 to a takeaway class use A5 and
installation of extractor fan with flue**

Kitchen Ventilation /Extraction

The detailed and installation of the ventilation system will be undertaken by a consultant and contractor specializing in commercial kitchens. The final cooking line has not yet been determined but the performance characteristics of the extract system will be in accordance with HVCA standard DW172 and DEFRA Guidance on control of odour and noise for commercial kitchens. This statement sets out the performance objectives of the system, namely that the ventilation and extraction system is to ensure that there is no disturbance, nuisance, loss of amenity to nearby premises as a result of fumes, odour, food particles or noise.

The system performance is to be such that the extract rate of air from the kitchen always results in the dining and ancillary areas of the restaurant being under negative pressure. Incoming fresh air is to be sufficient to replace that displaced by extraction.

Noise resulting from the use of this plant, machinery or equipment shall not exceed a level of 36dB(A) below the existing background level (or 15dB(A) below if there is a particular tonal quality) when measured according to British Standard BS4142-1997, at a point one metre external to the nearest noise sensitive premises. The rating level of the noise emitted from fixed plant and stationary equipment shall be lower than existing background level (to be measured over the period of operation of the proposed plant and equipment and over a minimum reference time interval of 1 hour in the daytime and 15 minutes at night) by at least 5dB(A).

The Retail unit

The kitchen will be preparing food associated with as Asian Cuisine. This will involve frying, grilling and well as baking. The methods of cooking will predominantly be oven and gas hob. The proposed hours of business are 10am - 11pm, Mondays – Sunday. The ventilation and extract system will not be operated outside opening hours. Gas equipment will be used.

Ventilation and Extraction System

Noise resulting from the use of this plant, machinery or equipment shall not exceed a level of 36dB(A) below the existing background level (or 10dB(A) below if there is a particular tonal quality) when measured according to British Standard BS4142-1997, at a point one metre external to the nearest noise sensitive premises.

Extractor Fan

The silent Helios extractor fan the fumes from the restaurant. See specifications below. The fan is 500mm in diameter.



Helios High Temp Gigabox - 1 ph - GBW 355/4 T120

£1,185.00

For up to 120 deg. C airflow temperatures these robust and powerful boxed centrifugal fans offer high performance of up to 0.825 m³/s. these 355 mm connection diameter fans model GBW 355/4 at 1340 rpm. Centrifugal box fans with side outlet and motor out of the airstream. Suitable for all applications especially where high performance combined with up to 120 deg C is required and such as for commercial kitchen extract



SOUND LEVELS

Fan sound levels, measured in a reverberant chamber in accordance with **BS848** Part 2. Published dB(A) figures are free field sound pressure levels at 3m with spherical propagation at a reference level of 2 x 10⁻⁵Pa (20 micro- Pascal). The sound power level spectra figures are dB with a reference level of 10–12 Watts (1 pico-watt). To ensure minimum noise levels during speed control, an auto transformer speed control is used.

SOUND DATA FOR FAN

Sound Power Level Spectra dB (re 10–12Watts)

Unit MID OCTAVE BANDS dBA @

Code	63	125	250	500	1k	2k	4k	8k	3m
TP500									
Inlet	78	92	93	88	88	79	72	66	71
Outlet	88	91	95	90	88	82	75	70	72

The extractor unit has 2 silencers fitted to reduce the noise level to an acceptable level of 36dBA. The dwell time for the filter of 0.1 seconds with the carbon filter is recommended to ensure effective odour control, which will effectively reduce the Face Velocity and rating to one third. The type of filter used for this system is Discard Cell size of 594x594x481 where the Maximum permissible Airflow (m³/hr) at 0.1sec dwell time is 2890 m³/hr. Details of fan and filter are attached.

Cooker Hood

An extraction canopy is to extend over the full length of the cooking equipment; overhanging the appliances by a minimum of 250mm. the dimensions of the opening of the cooker hood will be determined when definitive catering equipment layouts are

finalized. The canopy will be fitted with gas interlock system, solenoid, and air differential switches.

Ductwork

All kitchen extract ductwork is to be 2mm thick welded black Steel. Welding is to be continuous throughout with no flanges or bolts. All joints must be continuously welded. All kitchen extract ductwork within the ceiling void and risers is to be insulated with 25mm aluminum foil faces mineral fibre fleece with a minimum density of 16Kg/m³ fixed to the ductwork with adhesive and taped with 50mm galvanized wire netting with joints sealed with adhesive tape Gyplglas DR16A or similar approved.

Where ductwork passes through floors and roof, a one-hour fire resistant cladding is to be applied. Where ductwork passes into another fire rated compartment the ductwork is to have the same fire rating as the area it is passing through and must have been tested in accordance with BS476 Part 24 1987.

Ducts should not contain any dampers or other obstructions except as required by the local authority. One hour fire rated access doors are to be fitted at each bend and change in direction in the ductwork. Elbows are to have the radius of 1.5 times the duct width at its centre line. The size and location of the access doors is to allow for internal cleaning of the ductwork in all positions.

Extract ducts are to be sized in accordance with the velocity reduction method 9.2m/s.

Filters

Primary and grease baffle filters will be provided at the hood opening and a secondary grease baffle filter at the neck. A bag particle filter and odour control counteractant is to be fitted between the secondary grease filter and the fan. Filters will be cleaned/replaced in accordance with the manufacturer's recommendations. The carbon filters to be replaced every 6 months and the grease filters to be washed on weekly basis

Flue

The kitchen extract flue in the drawings has been located as far as possible from neighbouring buildings. The final discharge is to be vertically upwards with no obstruction cowl. A rainwater flap is to be fitted. An efflux velocity of a minimum of 9.0 m/s should ensure effective dispersion and dilution of odours.

System Performance Specification

The volume of the kitchen is approximately 150m³.

The velocity of the extracted air leaving the system is to be a minimum of 9.2m/s.

The time gases remain in the carbon filtration zone is to be 0.1seconds.

Noise

The extract fan and ductwork fixings are to have anti vibration mountings and flexible couplings. The anti-vibration mounts (TP500-14) and mounting feet (ref: 105 03 500) used for the fan are: as shown on the attached Helios fan specification leaflet.

The rating noise level of the restaurant in relation to the existing background noise level at the nearest noise sensitive property is to comply with BS4142 and DEFRA guidance on control of odour and noise from commercial kitchens.

(a) The level of noise emitted from any new plant shall be lower than the existing background level by at least 10 LpA. Noise levels shall be determined at one metre from the window of the nearest noise sensitive premises. The measurements and assessments shall be made in accordance with B.S. 4142. The background noise level shall be expressed as the lowest LA90 during which plant is or may be in operation. Following installation but before the new plant comes into operation measurements of noise from the new plant will be taken and a report demonstrating that the plant as installed meets the design requirements shall be submitted to and approved in writing by the Local Planning Authority.

(b) All constituent parts of the new plant shall be maintained and replaced in whole or in part as often is required to ensure compliance with the noise levels approved by the Local Planning Authority.

Equipment operation will be restricted to 10am - 11pm, Mondays – Sunday

The external gullows brackets have been resiliently mounted;

Isolating the fan from the inlet and discharge ducts using flexible couplings.

The fan is to be mounted using anti-vibration mounts.

The duct should be isolated from the structure of the building using anti-vibration

The efflux velocity will be 9.2m/s.

The carbon filter would be replaced on a 6 monthly basis and the grease filters will be washed on a weekly basis.

The fan is internally located.

Odour Control

Suitable ventilation and filtration equipment shall be installed to suppress and disperse fumes and smell created from the cooking operations on the premises. The equipment shall be effectively operated and maintained in accordance with manufacturer's instructions for as long as the proposed use continues. The approved equipment shall be installed and be in full working order prior to the commencement of use. Details to include outlet height, which in general should be at least 1m above ridge height of the nearest building.

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WC Extract

The WC extract ductwork will be entirely separate from the extract system.

Other Noise

Any back door to the kitchen and door to any other food preparation and storage areas is to be fitted with a self closer. This will ensure that any noise break out from these areas will be kept to a minimum.

Specification:

GBW 355/4 T120 model:
Max Air Volume : 825 l/s
Noise : 36 dB(A)
Watts : 320 W
R.P.M : 1340

Helios GBW High Temp Single Phase Fan Overview:

For up to 120 deg C these are powerful box fans offering for high volumes and high pressure. A fully speed controllable boxed backward curved centrifugal fan range suitable for indoor or outdoor use rated IP54 able to handle cooking grease and other airborne pollutants. Motor out of the high temperature airstream.

Application:

355 mm fans suitable airflow temperatures up to 120 deg C for ventilating spaces with high ambient air temperatures. Offering good volumes even with long duct runs. Can be used with the flow option of one or two side outlets. Applications including commercial kitchens, workshops and factories etc.

Main Features:

- Complete with 355 mm circular duct connections and flexible connections..
- Fully speed controllable
- High performance up to 0.825 m3/s.
- Powerful backward curved centrifugal fan ideal for high temp ambient applications.
- 1 Year no quibble warranty
- Quality assured by the manufacturer ISO9001

Helios GBW 355 T120 Dimensions:

Duct Diameter :355 mm
Length : 500 mm
Weight :38.0 KG

Resources:

Installation Instructions - [click here](#)
Wiring Diagram - [click here](#)
Catalogue Pages - [click here](#)

Helios Code:

GBW 355/4 T120 High Temp

Specifications



Reviews

