



Extraction Report And Proposed Plans

| June 2021 | |
|--|--|
| This report takes into account the particular instructions and requirement of our of | |

The Revelator BN1 2AB

(Based on DEFRA 2005"The Guidance on the Control of Odour and Noise from Commercial Kitchen Exhaust Systems"
This Publication was withdrawn September 2007.
New Publication not yet released.

Report by Lewis Duct Clean

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Kitchen Ventilation Duty Calculation Sheet Equipment Calculation to DW/172 Preferred Method



Lewis Duct Clean Kitchen Ventilation Specialists

Contact : Paul Kelly

Project : The Revelator, Brighton Canopy Type : Wall Type Open One End

These calculations are based upon DW172 the HVCA Standard and relate ONLY to the equipment under the relevant canopy and do NOT include for general Kitchen ventilation Flow rate calculation method one

DW172 Canopy Flow Rate Calculation

08 July 2020

Catering Equipment beneath relevant canopy requiring ventilation



| Item | Description | Power | Width | Depth | Coeff | Area ² | Flow rate |
|---|--|---------------|-----------|---------------|--------------|-------------------|-----------|
| 5 | Chargrill | Electric | 400 | 800 | 0.52 | 0.32 | 0.17 |
| 6 | Griddle | Electric | 400 | 800 | 0.25 | 0.32 | 0.08 |
| 7 | 4 Ring Burner & Oven | Electric | 800 | 800 | 0.51 | 0.64 | 0.33 |
| 8 | Twin Fryer | Electric | 400 | 800 | 0.45 | 0.32 | 0.14 |
| | | | | | | 0.00 | 0.00 |
| | | | | | | 0.00 | 0.00 |
| | | | | | | 0.00 | 0.00 |
| | | | | | | 0.00 | 0.00 |
| | | | | | | 0.00 | 0.00 |
| | | | | | | 0.00 | 0.00 |
| | | | | | | 0.00 | 0.00 |
| | | | | | | 0.00 | 0.00 |
| | | | | | | 0.00 | 0.00 |
| | | | | | | 0.00 | 0.00 |
| | | | | | | 0.00 | 0.00 |
| | | | | | | 0.00 | 0.00 |
| | | | | | | 0.00 | 0.00 |
| | | | | | | 0.00 | 0.00 |
| | Theo | retical Extra | | e Required a | | | 0.72 |
| Canopy Factor Overhead Wall Type Open One End | | | | | | 1.20 | |
| | Specific Extract Flow Rate Required M3/S taking into account canopy factor | | | | | 0.86 | |
| | Safety Margin over and above the requirements of DW172 | | | | | 10% | |
| | Total Extract Flow Rate Incl | uding Safety | Margin f | or equipmen | t under can | opy only | 0.95 |
| | Supply Flow Rate (85%) M3/S | | | | 0.80 | | |
| | If canopy is Induction slot type t | | | | , | , . | 0.47 |
| | If canopy is Induction slot type the | Supply Flow | Rate out | board throug | h fascia (35 | %) M3/S | 0.33 |
| | | | Heater B | attery at 859 | 6 with 21c r | ise (KW) | 20 |
| | Heater Battery at 35% 21c rise (KW) | | | | | 8 | |
| | | | | | | | |
| | Duct and Canopy Spigot sizes Number velocity M/S SQ | | | | Diameter | | |
| | Single Extract Duct 1 7 368 | | | | 415 | | |
| | | Branch Extra | act Ducts | 2 | 7 | 260 | 293 |

| Duct and Canopy Spigot sizes | Number | Velocity M/S | SQ | Diameter |
|------------------------------|--------|--------------|-----|----------|
| Single Extract Duct | 1 | 7 | 368 | 415 |
| Branch Extract Ducts | 2 | 7 | 260 | 293 |
| Single Supply Duct (85%) | 1 | 5 | 401 | 453 |
| Branch Supply Ducts (85%) | 4 | 5 | 201 | 226 |
| | | | | |

| Discharge and inlet grilles or louvres | Number | Velocity M/S | SQ | |
|---|--------|--------------|-----|--|
| Extract Louvres/Grillesetc | 1 | 2.5 | 615 | |
| Supply Air Louvres/Grillesetc | 1 | 2.5 | 567 | |
| Supply Air via perforated supply air panels (54% Free Area) | 1 | 2.5 | 772 | |

Client to confirm that cooking equipment is listed correctly

Approximate Extract System Pa (To Be Confirmed Following Ductwork Design)

| <u>ltem</u> | Friction loss (Pa) |
|-----------------------|--------------------|
| Baffle filters | 100 |
| Bends | 60 |
| Carbon cells (clean) | 60 |
| Type 4 grease filters | 70 |
| Synthetic Bag filters | 70 |
| Discharge cowl | 20 |
| Ductwork Route | 20 |
| | Total 400 PA |

Lotal, 400 PA

Lewis Duct Clean

Kitchen Ventilation Specialists

Lewis Duct Conn. Jane Duct Conn. Jane

Site Details

Name: The Revelator

Location:113-114 Western Rd, Hove, Brighton BN1 2AB

Type of cooking: burgers, sandwiches etc. (finger foods)

Number of meals to be served a day: breakfast/lunch/dinner

Proposed hours of operation of the business: 14/15 Hours Per Day

Report Aims

This report aims to outline the specific measures taken to control any increase in odor nuisance resulting from the proposed kitchen extract system.

It allocates a score to give an overall risk rating from three possible levels Low to

Medium, High and Very High. Each of the four factors is scored according to the criteria above and a total "significance score" obtained. This score is used to assess the level of odour control required for the particular situation as follows:

PLEASE NOTE – This score is based on the proposed design.

Subject to change following final design

| CriteriaScore | Score | Score | Details |
|--|-----------|-------|---|
| Dispersion | Very poor | 20 | Low level discharge, discharge into courtyard or restriction on stack. |
| | Poor | 15 | Not low level but below eaves, or discharge at below 10 m/s. |
| | Moderate | 10 | Discharging I m above eaves at 10 -15 m/s. |
| | Good | 5 | Discharging I m above ridge at 15 m/s. |
| Proximity of receptors | Close | 10 | Closest sensitive receptor less than 20m from kitchen discharge. |
| | Medium | 5 | Closest sensitive receptor between 20 and 100m from kitchen discharge. |
| | Fair | I | Closest sensitive receptor more than 100m from kitchen discharge. |
| Size of kitchen | Large | 5 | More than 100 covers or large sized take away |
| | Medium | 3 | Between 30 and 100 covers or medium sized take away. |
| | Small | I | Less than 30 covers or small take away. |
| Cooking type (odour and grease loading) | Very high | 10 | Pub (high level of fried food), fried chicken, burgers or fish & chips. |
| | High | 7 | Kebab, Vietnamese, Thai or Indian. |
| | Medium | 4 | Cantonese, Japanese or Chinese. |
| | Low | I | Most pubs, Italian, French, Pizza or steakhouse. |





| Impact Risk | Odour Control Requirement | Significance Score |
|---------------|----------------------------------|--------------------|
| Low To Medium | Low Level Of Odour Control | Less Than 20 |
| <u>High</u> | High Level Of Odour Control | 20 to 35 |
| Very High | Very High Level Of Odour Control | More Than 35 |

| Impact Risk | Odour Control Requirement | Significance Score |
|-------------|-----------------------------|--------------------|
| <u>High</u> | High Level Of Odour Control | <u>27</u> |

Requirements for High level odour control may include:

Fine filtration or ESP followed by carbon filtration (carbon filters rated with a 0.2-0.4 second residence time).

Fine filtration or ESP followed by a UV ozone system to achieve the same level of control as 1.

Proposed Odour Control Requirement -

In order to follow the DEFRA reports guidelines we would recommend:

High level odour control

Fine filtration or ESP followed by carbon filtration (carbon filters rated with a 0.2 X / 0.4 second residence time).

Fine Filtration - Canopy Baffles

To prevent some on the grease moving through the system. Baffle Filter Dimension 495W X 395H X 45D

Fine Filtration - Mesh & Pre Bag Filters-

Catch small grease particles that pass through the coarse initial grease filters.

Carbon Filtration - Carbon Unit

To give dwell times of 0.2 - 0.4 seconds:

 $0.8 \times 0.6 \times 0.6$ (4 x Activated Carbon Blocks $200 \times 600 \times 600$) =0.288 m2 (Area Of Carbon Filter) 0.288 (Area) ÷ 0.23 m3/s (Airflow) =**0.3Seconds (Dwell Time)**

This unit will be approximately 800mm W x 600 mm H x 1150mm L



System / Filter Maintenance



Canopy Baffle Filters

Depending on the cooking volume of a particular kitchen, cleaning the baffle filters should be done either daily, weekly or once a month. Busy establishments like restaurants should consider cleaning the baffle filters daily or at least once every two days to ensure they are functioning at optimum levels at all times.

Grease Filters:

These are washable metal filters that are typically removed and cleaned by restaurant owners. A set of spares can be obtained to make this job more manageable, however a weekly wash is often acceptable dependant on the type and frequency of the cooking.

Pre Paper /Bag Filters:

These disposable secondary filters are designed to catch small grease particles that pass through the coarse initial grease filters. These filters offer protection to the Carbon filters that follow.

These filters should be changed at twice their initial resistance. The time period can vary depending on covers but it is commonly between 1-3 monthly.

Carbon Filters:

Carbon Filters take on gases rather than particulates making it difficult to determine their life, however typically they will last 6 months to a year.

We would also recommend that a full comprehensive clean is carried out to the Kitchen ventilation system on a 6 monthly basis to carry out the clean to TR19 guidelines,. Deliverables include a ventilation system clean, to include all accessible ductwork, the inspection of all equipment, pre and post clean photographs (held electronically by us for one year and available on request), issue of a clean certificate, (which you may find is a requirement of your insurers) and suggested schedule for the next 12 months.

Site Specific Filter Replacements/Cleaning Recommendations

| Filter Type | Cleaning/ Replacement Period |
|-----------------------------------|---|
| Baffle Filter | Cleaning Daily (In house). If kept clean and in good condition these will not require replacement. |
| Mesh Filter | Cleaned Weekly. Inspection on cleaning date. Replaced if levels of grease are excessive. |
| Pleated-Paper Filter (Extract) | Replaced between 1/3 Months |
| Pleated-Paper Filter (Supply Air) | Replaced between 1/3 Months |
| Carbon Filters | Typically 6 monthly replacement. Inspection on cleaning date. Replaced if levels of grease are excessive. |