



**Buck Street Market Unit 1.18-1.21**

**LabTech**

**Kitchen Ventilation Design Report**

**P02**

**07/06/2021**

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## Project Particulars

Client Name: LabTech

Project Name: Buck Street Market Unit 1.18-1.21

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## Revision History

Revision	Description	Date	Prepared By	Checked By
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# 1 Introduction

This report supports the proposal to convert unit 1.18-1.21, a large ground floor retail unit, into a food and beverage (F&B) unit at Buck Street Market, 180-188 Camden High Street.

The new kitchen associated with the proposed F&B unit will require a kitchen extract system identical to a number of the existing F&B units in the market.

This document is intended to set out our approach to ensuring no nuisance, disturbance or loss of amenity is caused by odour, fumes, food droplets or noise from our ventilation systems to nearby properties.

## 1.1 Information on Premises

Information on the proposed food and beverage outlet is provided in the table below. The consented opening hours of the market are from 8am – 11.30pm, we understand that the proposed operator will be operating from approximately 9am – 8pm.

Unit	End user	Size of Kitchen	Cooking method(s)	Meal type(s)
1.18	Clean Kitchen	Medium	Electric grills and fryers	Vegan Burgers

## 2 Risk Assessment for Odour

### 2.1 Risk Assessment Methodology

The EMAQ Guide (Control of Odour and Noise from Commercial Kitchen Exhaust Systems) advises that a risk assessment for odour to be carried for each premise to determine the level of odour control required.

The risk for each premises has been assessed using the following scoring methodology.

Impact Risk	Odour Control Requirement	Significance Score
Low to Medium	Low level of odour control	Less than 20
High	High level odour control	20 to 35
Very High	Very high level of odour control	More than 35

Criteria	Details	Score
A. Dispersion	Low level discharge	20
	< 10 m/s	15
	Between 10 m/s and 15 m/s	10
	> 15 m/s	5
B. Proximity of receptors	< 20m	10
	Between 20 and 100m	5
	> 100m	1
C. Size of kitchen	> 100 covers	5
	Between 30 and 100 covers	3
	< 30 covers	1
D. Cooking type (odour and grease loading)	Fried food, fish and chips	10
	Indian, Chinese, steakhouse	7
	Gas fired	4
	Mainly reheating and sandwiches	1

## 2.2 Risk Assessment Results

The risk assessment results for proposed food and beverage outlet is set out in the table below.

Unit	End User	A.	B.	C.	D.	Total	Impact Risk
1.18	Clean Kitchen	15	10	1	7	33	High

## 2.3 Risk Assessment Findings

The proposed kitchen unit has been identified with a high impact risk, on this basis we have proposed an odour abatement system providing a high level of grease and odour control:

- In-line single pass electrostatic precipitator (ESP)
- Provision for UV ozone system provided within kitchen canopies

This package of measures will provide a high level of odour and grease control in accordance with the EMAQ guidance.

### 3 Extraction Canopies

The commercial kitchen has been designed with an extraction system capable of maintaining the internal working environment within comfortable temperature, moisture, and air quality levels.

#### 3.1 Determining Flow Rate

The flow rate of 1.53m<sup>3</sup>/s has been determined by the specialist catering consultant in accordance with the Thermal Convection Method set out in B&ES DW/172 for the proposed kitchen.

#### 3.2 Make-up Air

The make-up air provision will therefore be entirely by natural infiltration.

#### 3.3 Canopy Type and Dimensions

The extraction canopy is to be an overhead wall type and has been designed to achieve the following.

- A maximum internal depth of 500mm
- A minimum 250mm exceedance of the plan dimensions of the catering equipment on each free side.
- A minimum canopy height of 1800mm (this is below the recommendation of between 2000 and 2100mm but cannot be increased due to the limited ceiling height).
- A minimum distance of 1000mm between the lowest edge of the grease filter and the cooking surface. (This is above 450mm minimum to minimise the risk of fire in the grease filter).

The proposed canopy will measure 1500mm wide x 1100mm deep providing a cooking area of 1000mm wide x 850mm deep.

## 4 System Operation

The extraction system operates in the following stages.

- Cooking pollutants/emissions captured by kitchen canopy baffle type grease filters
- Gaseous contaminants removed via integrated UV system in kitchen canopy
- Particulate containments removed using in line ESP
- Centrifugal fans provide pressure rise to match system resistance
- Discharge attenuators to attenuate noise to meet Local Authority noise criteria
- High velocity discharge terminal

### 4.1 Extract System Component Details

#### 4.1.1 System Layouts

Refer to drawing 5230-SP-NW-ZZ-DR-M-400 for the layout and location of equipment, ductwork and exhaust discharge points.

#### 4.1.2 Cooker Hood (Incorporating Grease Filters & Provision for UV system)

Product data for the cooker hood and grease filters is to be supplied by the kitchen consultant as standalone appendix to this document.

#### 4.1.3 Electrostatic Precipitators (ESPs)

A single pass ESP unit will be provided. The ESP unit is specifically designed for kitchen extract usage and incorporate integral sumps to collect the oil, grease and smoke particles filtered out of the exhaust. The ESP will operate to separate particles down to 0.01 micron at an operating efficiency of up to 98%.

Ref	ESP 1.18-1.21
Unit Served Tenant	1.18 – 1.21
Tenant	Clean Kitchen
Manufacturer	PurifiedAir
Product	ESP3000EI
Max airflow	1.4 m <sup>3</sup> /s
Pressure drop	200 Pa
Dimensions	900 mm W, 630 mm H, 640mm D
Electrical Data	Supply: 230 V / 1 ph / 50 Hz, Power: 30 W



#### 4.1.4 Fans

The kitchen extract fan has been selected in accordance with the following general requirements.

- Backward curved centrifugal impellers
- Out-of-airstream motors
- Mounted within acoustically lined box frame
- Frequency inverter speed control


Fan noise (breakout and induct) has been considered in the selection of the fan to ensure that the noise emission does not exceed the levels set out in the Hoare Lea Noise Impact Assessment rev1 dated 18 May 2018 which was submitted with the consented planning application. Details of the proposed extract fan are provided below:

Ref	EF 1.18-1.21
Unit Served Tenant	1.18 – 1.21
Tenant	Clean Kitchen
Manufacturer	Soler & Palau
Product	KABT/4/9000/500
Fan Type	Centrifugal discharge, motor outside air stream, airflow up to 100 deg C
Required Duty (Flow Rate)	1.53 m <sup>3</sup> /s
Required Duty (Flow Rate)	550 Pa
Limiting specific fan power (SFP)	2.0 W/l/s
Width	710 mm
Height	710 mm
Depth	750 mm
Electricity Supply	400 V / 3 ph / 50 Hz
Rated Power	1.8 kW
Full Load Current (FLC)	3.3 Amps

4.1.5 Anti-vibration Mountings

All fixed building services equipment associated with the kitchen extract system is to be provided with suitable anti-vibration mountings selected in accordance with CIBSE Guide B4.

The fan will be installed with spring type anti-vibration mounts achieving a minimum 25mm static deflection

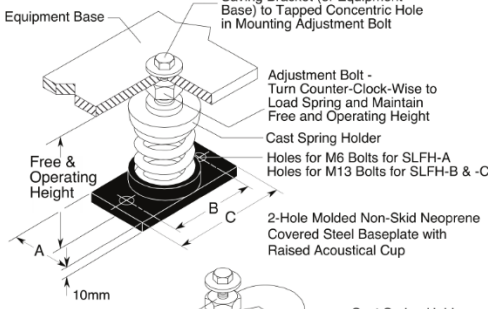


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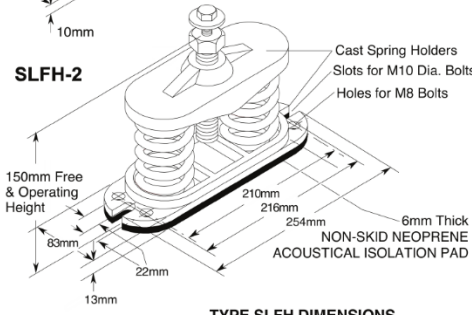
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MASON M.I. \_\_\_\_\_  
DWG. NO. \_\_\_\_\_

**TYPE**  
**SLFH**  
25mm Deflection  
A, B, C & 2  
Series Mountings

**SLFH-A,-B,-C**  


Equipment Base  
Cap Screw E secures Height Saving Bracket (or Equipment Base) to Tapped Concentric Hole in Mounting Adjustment Bolt  
Adjustment Bolt - Turn Counter-Clock-Wise to Load Spring and Maintain Free and Operating Height  
Cast Spring Holder  
Holes for M6 Bolts for SLFH-A  
Holes for M13 Bolts for SLFH-B & -C  
2-Hole Molded Non-Skid Neoprene Covered Steel Baseplate with Raised Acoustical Cup  
10mm  
Free & Operating Height  
A  
B  
C

**SLFH-2**  


Cast Spring Holders  
Slots for M10 Dia. Bolts  
Holes for M8 Bolts  
150mm Free & Operating Height  
210mm  
216mm  
254mm  
6mm Thick NON-SKID NEOPRENE ACOUSTICAL ISOLATION PAD  
83mm  
22mm  
13mm

**TYPE SLFH RATINGS**

Size	Rated Capacity (kg)	Rated Defl. (mm)	Mount Constant (kg/mm)	Spring Color/Stripe
SLFH-A-45	20	41	0.5	Blue
SLFH-A-75	34	38	0.9	Orange
SLFH-A-125	57	34	1.7	Brown
SLFH-A-200	91	29	3.1	Black
SLFH-A-310	141	25	5.5	Yellow
SLFH-A-400	181	25	7.1	Green
SLFH-A-510	231	25	9.1	Red
SLFH-A-625	283	25	11.2	White
SLFH-B-65	29	53	0.6	Brown
SLFH-B-85	39	53	0.7	White/Black
SLFH-B-115	52	51	1.0	Silver
SLFH-B-150	68	51	1.3	Orange
SLFH-B-280	127	41	3.1	Green
SLFH-B-450	204	33	6.1	Red
SLFH-B-750	340	28	12.0	White
SLFH-B-1000	454	25	17.9	Blue
SLFH-C-1000	454	25	17.9	Black
SLFH-C-1350	612	25	24.1	Yellow
SLFH-C-1750	794	25	31.3	Black*
SLFH-C-2100	953	25	37.5	Yellow*
SLFH-C-2385	1082	25	42.6	Yellow**
SLFH-C-2650	1202	25	47.3	Red*
SLFH-C-2935	1331	25	52.4	Red**
SLFH-2-2700	1225	25	48.2	Yellow
SLFH-2-3500	1588	25	62.5	Black
SLFH-2-4200	1905	25	75.0	Yellow*
SLFH-2-4770	2164	25	85.2	Yellow**

\* with RED core spring \*\* with GREEN core spring  
All springs have additional travel to solid equal to 50% of the Rated Deflection. Solid Spring Height = Free Height minus 1.5 times the Rated Deflection.

**TYPE SLFH DIMENSIONS**

Size	Free & Oper. Height	A	B	C	Locking Cap Screw
SLFH-A-45-400	108	57	76	92	3/8 x 1
SLFH-A-510-625	117	57	76	92	3/8 x 1
SLFH-B	150	70	105	133	1/2 x 1 1/4
SLFH-C	150	76	121	152	1/2 x 1 1/4
SLFH-2	-	-	-	-	1/2 x 1 1/4

Multiple spring Mounts have C-size springs.  
SLFH-2 indicates 2 springs.  
♦ If using 45 thru 400 with 510 or 625, Free & Operating Height is 118.

**SPRING DATA**

Spring OD	Free HT	Ratio K <sub>s</sub> /K <sub>o</sub>	Ratio OD/OH
45	76	0.70-0.90	0.88-1.25
45	79-86	0.50-0.60	0.74-0.82
60	102	0.70-0.90	0.80-1.25
60	105	0.90-1.00	0.92-0.94
73	105	0.90-1.00	0.92-0.94

**PLAN VIEW OF MOUNT LOCATIONS**  
TAG : \_\_\_\_\_  
UNIT : \_\_\_\_\_  


\_\_\_\_\_ Inch SPECIFIED DEFLECTION

1 :	6 :
2 :	7 :
3 :	8 :
4 :	9 :
5 :	10 :

Material for One Set : \_\_\_\_\_ Sets Required

FORM S-201m 09/2010

DWN: \_\_\_\_\_

CHKD: \_\_\_\_\_

DATE: \_\_\_\_\_

DWG. No. \_\_\_\_\_

## 5 Inspection, Cleaning & Maintenance Requirements

### 5.1 General

The inspection, cleaning and maintenance regimes for the extraction systems shall follow the guidance set out in B&ES DW/172, TR/19 and the manufacturers recommendations. Some of the key maintenance activities and service intervals are set out below, and should be incorporated into the operation & maintenance manuals for the systems.

### 5.2 Electrostatic Precipitators (ESPs)

The manufacturer requires that the ESP units are internally inspected and cleaned at an interval ranging between 1 week and 3 months dependent on the operating conditions. We would propose that the units are initially inspected on a frequent (weekly) basis which can be relaxed to suit the actual operating conditions as they become apparent for each unit.

### 5.3 Extract Canopies & Ductwork

All exposed metal surfaces of the ductwork and extract canopies within the kitchen area should be inspected at least weekly to ensure that there is no accumulation of grease or dirt, or surface damage.

The baffle type grease filters contained within the canopy should be removed and cleaned on a minimum weekly basis.

Specialist cleaning of the internal surfaces of the ductwork surfaces will be required on a periodic basis which should be advised by a specialist cleaning contractor based on the intensity of usage, however initially this is likely to be on a 3 monthly basis.

### 5.4 Extract Fans

The internal surfaces of the extract fans should be inspected and cleaned at the same intervals as the ductwork to prevent any build up of grease or dirt.

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