



Engineering
Consultants

VENTILATION REPORT

**DOCUMENT
REFERENCE:**
020-09-VS-01

REVISION:
3

PROJECT TITLE:
GREGGS – GEORGE & DRAGON

CLIENT:
GREENE KING

DATE:
02.04.23

PRODUCED BY:
JM

☎ 01733 857565

✉ info@concept-mep.co.uk

1.	INTRODUCTION	3
1.1	GENERAL DESCRIPTION	3
1.2	SCOPE	4
1.3	DETAILS OF PROPOSED FILTRATION/DEODOURISERS	7
1.4	SCHEDULED MAINTENANCE PLAN	7
1.5	RISK ASSESSMENT FOR ODOUR	7

1. INTRODUCTION

The purpose of this document is to summarise the intended ventilation and extraction philosophy to be provided to the proposed Greggs Drive-thru on the George & Dragon site in Reading.

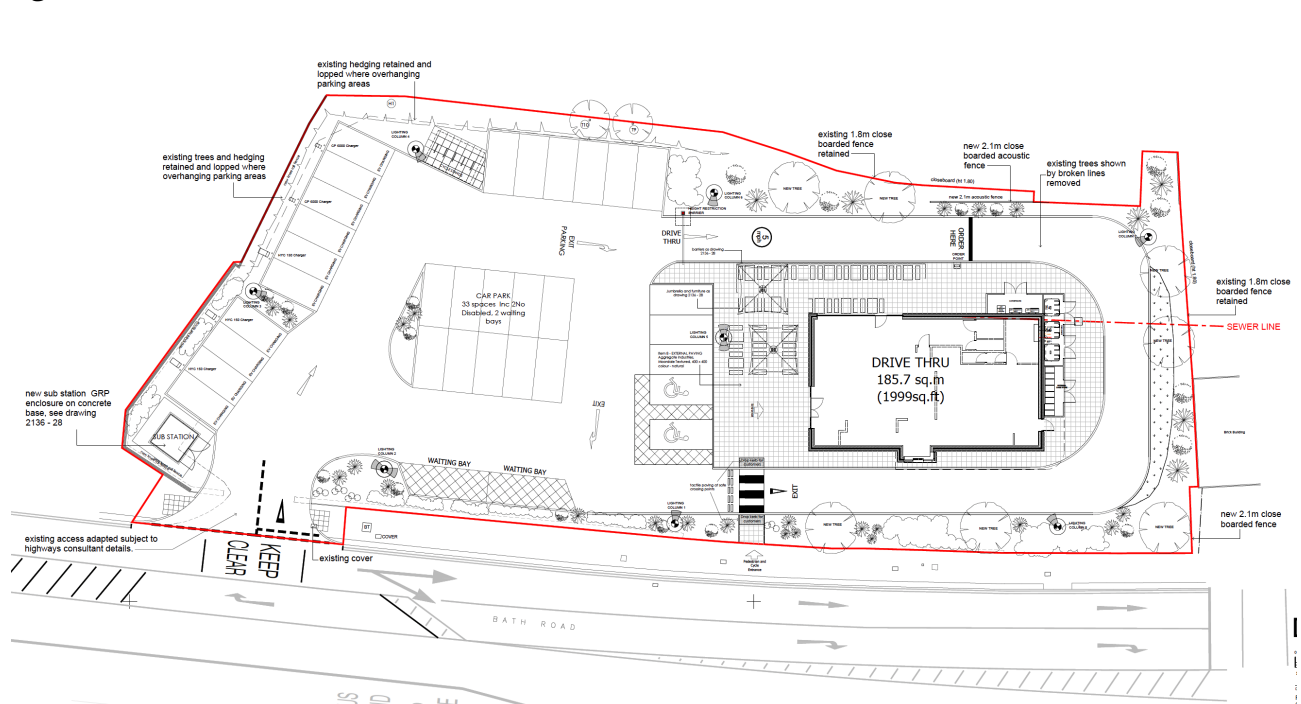
1.1 GENERAL DESCRIPTION

The site was previously a public house / restaurant (which has been closed for some time) but is to be redeveloped to include a Greggs Drive thru.

Fig.1 – Site Aerial View



Fig.2 – Site Plan



1.2 SCOPE

This odour review relates to the operation of Greggs premises and the potential odour impacts on any sensitive receptors in close proximity to the site.

The Department for Environment Food and Rural Affairs (DEFRA) published guidance (Now withdrawn and not presently replaced) on the control of odours from kitchens. Although the guidance is not statutory, it provides information on best practice techniques for the minimisation of odour and noise nuisance from kitchen exhaust systems.

The type and levels of odour control required downstream of the canopy is very much dependent on a number of factors. The principal ones are:

- Type of food prepared. This is probably the most dominant factor as the type of food, and particularly any spices used, dictates the chemical constituents present in the exhaust air;
- Size of the cooking facility. The number of covers the facility is designed to handle affects the intensity of odour in the exhausted air, and the air volume throughput the system must be designed to achieve; and
- Types of cooking appliances used. This dictates the level of fat, water droplets and temperature within the ventilation air.

The DEFRA guidance includes two Tables which classify the odour and grease content of extract air according to the general cooking type and equipment used.

The majority of the food served within the Greggs premises is pre-prepared products baked off from frozen.

No cooking processes such as deep or shallow frying, grilling, griddling or any other more odorous kitchen processes take place.

The type of foods baked from frozen are as follows:

- Selection of frozen savoury bakes
- Multigrain and white baguettes
- Croissants
- Pizza slices
- Selection of breakfast products inclusive of bacon, this is the only product baked from chilled.

The kitchen extracts are located on the roof (figure 3) via weather proofed cowls (figure 5).

Fig.3 - Floor & Roof Plan

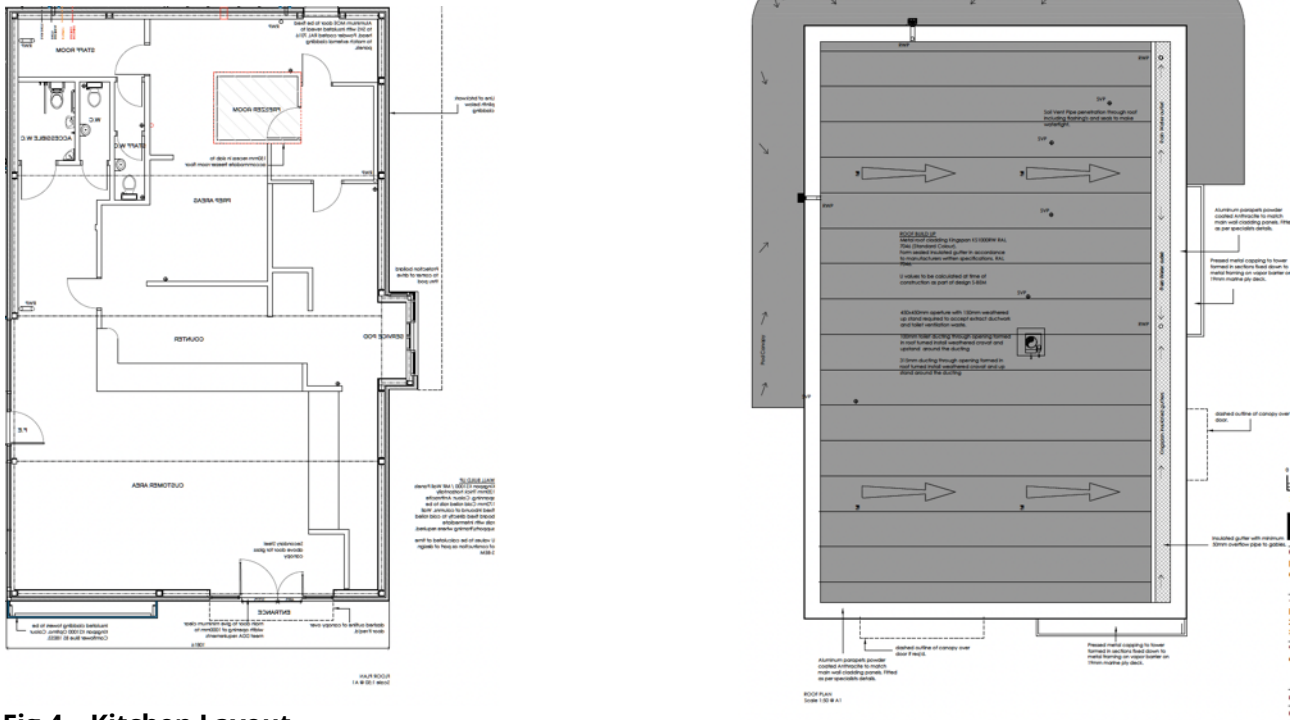


Fig.4 - Kitchen Layout

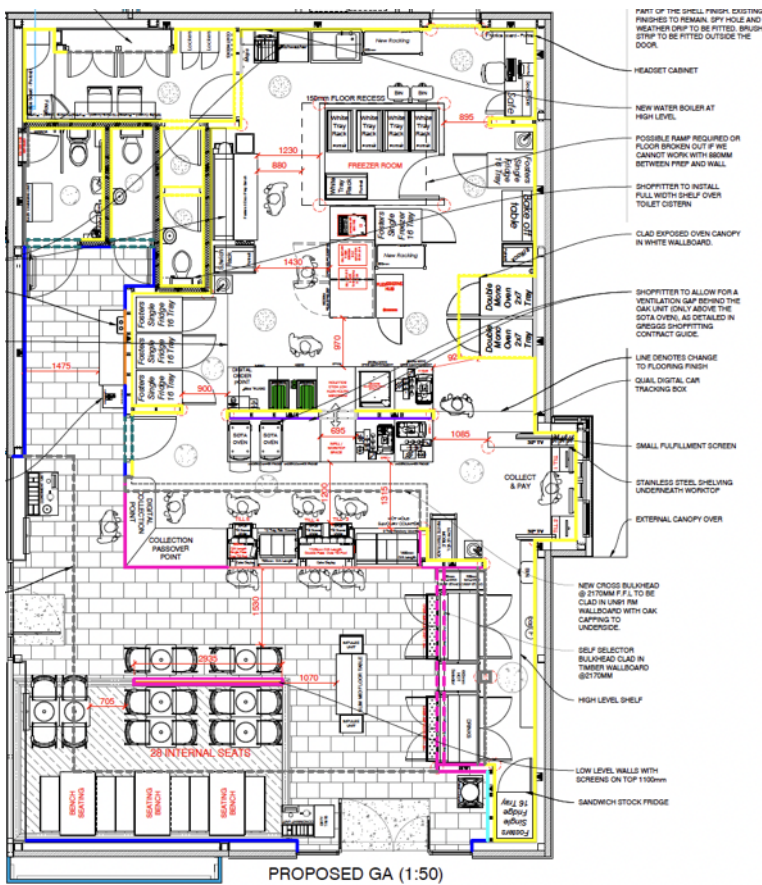


Fig.5 – Kitchen Extract System Roof Cowl



The primary kitchen extract system terminates in a curved duct as above in figure 5.

The extract system is formed of Galvanised sheet steel ducting to standard DW144 and DW172. Ductwork size will be no more than 315 mm in diameter and will be complete with access panels at 2000 mm spaces for inspection and cleaning.

The ductwork will be run to the following areas:

- 1: Refrigeration equipment
- 2: Ovens
- 3: Staff areas

The purposed use of the extract system is as follows:

1: Refrigerated Equipment

Remove excess heat, this helps the performance of the equipment. 600 x 600 grilles will be fitted above the refrigerated cabinets within the suspended ceiling grid.

2: Ovens

Remove excess heat and steam when the oven doors are opened. A polished stainless steel oven canopy complete with baffle filters will be fitted above the ovens connected to the extract system.

3: Staff areas

Provide ventilation as outlined in the building regulations.

As all of the products, apart from bacon, is cooked from frozen, it should be considered as outlined in the Defra Guidance the cooking type and grease loading is low to moderate (See section 1.5).

1.3 DETAILS OF PROPOSED FILTRATION/DEODOURISERS

The proposal is to install the following filtration measures to the extract system:

1: Baffle filters connected to the oven canopy

The purpose of these filters is to catch any grease which may escape into the ventilation system

2: Oven condensers

The basic principle employed by installing an oven condenser is to remove baking odours by removing them as steam and then condensate into water. When the oven operator presses the damper button it opens a valve on the damper (exhaust) inside the oven chamber. This releases the steam from the baking chamber into the condenser, which is sited on top of the oven, within the condenser is a bath of cold water.

3: Pleated Panel Filters

The filter will be used as first line pre filter. Refer to attached manufacture's specifications for further details.

4: Carbon-pleat Disposal Panel Filter

These filters will be used to remove any additional odours which may escape into the system past the condenser and panel filter. Refer to attached manufacture's specifications for further details.

The extract is proposed to run during trading hours only.

1.4 SCHEDULED MAINTENANCE PLAN

All Greggs routinely maintain their extract system's equipment based on manufacturer's specifications as follows:

1: Baffle Filters

Due to the nature of cooking these are routinely inspected and cleaned by Greggs in-house maintenance team once every 3 months.

2: Oven Condensers

As part of Greggs routine in-house maintenance schedule, once every 3 months.

3: Pleated filters

As part of Greggs routine in-house maintenance schedule, change once every 6 months.

4: Carbon Filters

As part of Greggs routine in-house maintenance schedule, change once every 6 months.

1.5 RISK ASSESSMENT FOR ODOUR

The following 'Risk Assessment for Odour' has derived from criteria outlined by DEFRA 2005, Guidance on the Control of Odour and Noise from Commercial Kitchen Exhaust Systems Appendix C. The assessment has been undertaken by Concept MEP to accurately score the site to DEFRA standards.

Odour control must be designed to prevent odour nuisance in a given situation. The following score methodology is suggested as a means of determining odour control requirements using a simple risk

assessment approach. The odour control requirements considered here are consistent with the performance requirements listed in this report.

Impact Risk	Odour Control Requirement	Significance Score
Low/Medium	Low Level Odour Control	Less than 20
High	High Level Odour Control	20-35
Very High	Very High-Level Odour Control	More than 35

Based on the sum of contributions from dispersion, proximity of receptors, size of kitchen and cooking type:

Criteria	Rating	Score	Details
Dispersion	Very Poor	25	Low level discharge, discharge into courtyard or restriction on stack
	Poor	20	Not low level but below eaves, or discharge at below 10 m/s.
	Moderate	10	Discharging 1m above eaves at 10 -15m/s
	Good	5	Discharging 1m 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
	Far	1	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	1	Less than 30 covers or small take away
Cooking Type (odour/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	1	Most pubs, Italian, French, Pizza or Steakhouse

Site Details

Consultant:	Concept-MEP Ltd
Contractor:	N/A
Site Name:	Greggs – George & Dragon
Client Address:	Reading

Evaluation Date:	03/10/2022
-------------------------	------------

Below is an evaluation for the site based on the criteria on the previous page

Criteria	Rating	Score	Details/ Comments
Dispersion	Moderate	10	Discharging 1m above eaves at 10 -15m/s
Proximity of Receptors	Medium	5	Closest sensitive receptor between 20 and 100m from kitchen discharge
Size of Kitchen	Small	1	Small Drive-through / take away kitchen
Cooking Type	Low	1	Pub type food to include frying and Char grilling.

Impact Risk	Odour Control Requirement	Significance Score
Low/Medium	Low Level Odour Control	17

APPENDIX A – Carbon Filters

Westbury Filtration Ltd.
1 Sandringham Court, Network 65
Burnley, BB11 5TD
United Kingdom

T: +44 (0) 1282 459744
F: +44 (0) 1282 459521
E: sales@filtration.co.uk
W: www.filtration.com



PRODUCT DATASHEET

THE CARBOPLEAT DISPOSABLE PANEL - GAS PHASE FILTRATION

The Carbopleat Disposable panel filter provides a low cost but effective solution to removing airborne molecular contamination at levels of less than one particle per million. It provides low resistance to air with uniform dispersion of carbon throughout the media. Being fully incinerable, the product is particularly suited for application where this form of disposal of the spent filter is anticipated.

Construction

The Carbopleat Filter contains a dual layer core of pleated carbon impregnated media that is so stiff, it is self supporting and requires no additional metal supporting wire. The pre-filter layer of the media also provides G4 efficiency to EN779. The media is loaded with 220g/m² of 60x50 mesh activated carbon making it both highly effective and long lasting. Adhesive is not used in the media, with the carbon granules thermally bonded into the media; this ensures that 95% of the carbon's surface is utilized in use.



The aerodynamic pack is then fully bonded into a moisture resistant rigid white lined card frame and fitted with an airflow indicator.

Applications

The carbopleat is suitable for most applications to remove airborne molecular contamination at levels of less than one particle per million, typically, furnaces, heating vents, air purifiers and ozone removal devices.

Range

The FP/PL is available in a large range of standard sizes in 2" (50mm) nominal depth and may also be produced in non-standard sizes to suit application requirements.

The key attributes of the product are consistent efficiency, robust construction and long life combined with low replacement cost.

Filter Reference	Dimensions	Media Area (m2)	Rated Capacity (m3/hr)	Initial Resistance (pa)	Carbon Weight (g)
FP/CPL 24242	595x595x47mm	1.18	2040	70	232
FP/CPL 24122	595x296x47mm	0.55	1020	70	109
FP/CPL 24202	595x495x47mm	0.93	1700	70	186

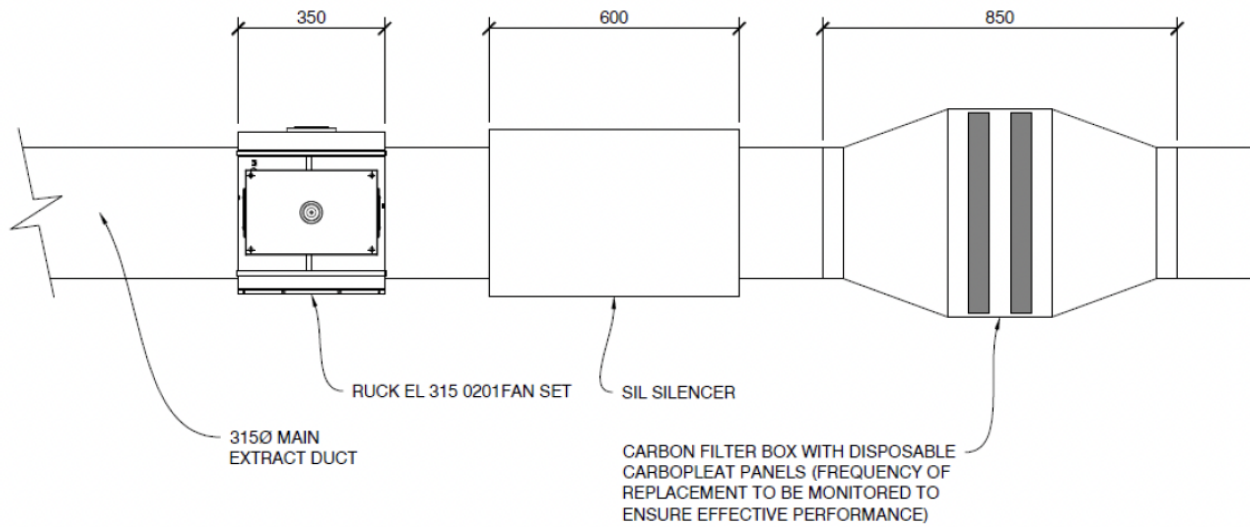
Please note: In their continuous search for product improvement Westbury Filtration reserve the right to change materials and specifications without prior notice.

HAT-MUT-129

APPENDIX B – Typical Extract Arrangement

GREGGS Main Extract Specification – Issue 1

Typical Arrangement



APPENDIX C – EXTRACT FAN

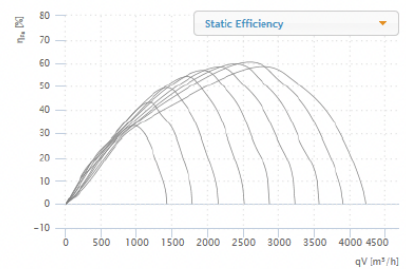
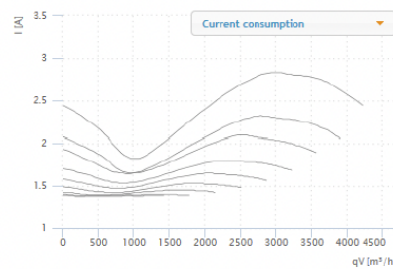
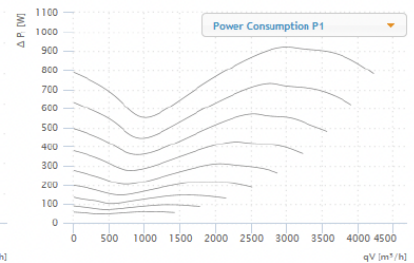
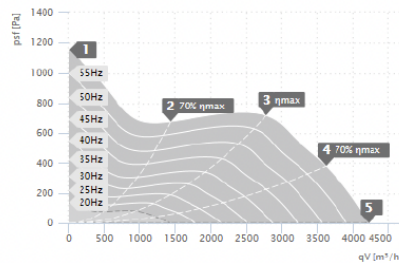
Fan Set Specification – RUCK EL 315 D2 01

EL 315 D2 01 | 112759



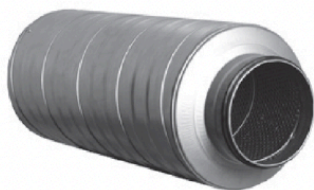
- Attention! See note at FU-operation
- Diagonal impeller with stator
- Galvanized metal housing
- Speed controllable
- Integrated thermostatic switch
- Including mounting bracket

EL 315 D2 01 50 Hz	
Voltage U_N	230 V 3~
Current I_{max}	3 A
Ambient Temperature t_A	40 °C
Medium temperatures t_M	40 °C
Speed Control	f
Motor Protection	TAO
Isolation Class	F
Weight	15,5 kg



APPENDIX D – EXTRACT SILENCER

Circular Silencer



Description

The silencers are usually supplied with SPIRAL®system sealing. Diameters d_1 > 315 mm require additional NSL couplings to be ordered, which should be installed in the silencer prior to installation. These male ends are not silencer parts, and they should be ordered separately.

Glass mineral wool inside with thickness:

50 mm d1a SIL-50 - depending on the dimension of the outer casing

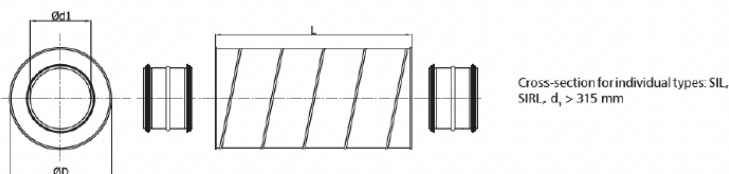
100 mm d1a SIL-100 - depending on the dimension of the outer casing

Example identification

Product code: SIL - iii - aaa - bbb

type _____
insulation thickness _____
 $\varnothing d_1$ _____
L _____

Dimensions



SIL-50 - 50 mm thickness insulation

Description	$\varnothing d_1$ nom [mm]	D nom [mm]	L [mm]	attenuation [dB] for frequency [Hz]							[kg]
				125	250	500	1000	2000	4000	8000	
315-600	315	400	600	5	8	16	25	19	14	15	12

Description	pressure loss [Pa] for air velocity [m/s]				
	2	4	8	10	12
SIL-50-315-600	0,13	0,53	2,11	3,30	4,75