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KITCHEN EQUIPMENT & EXHAUST

**150 FRIAR STREET
READING
RG1 1HE**

Prepared by:
RS Designs
September 2021

Job Ref: RSD2471

Please read this report in conjunction with the drawings submitted as part of the Full Planning Application.

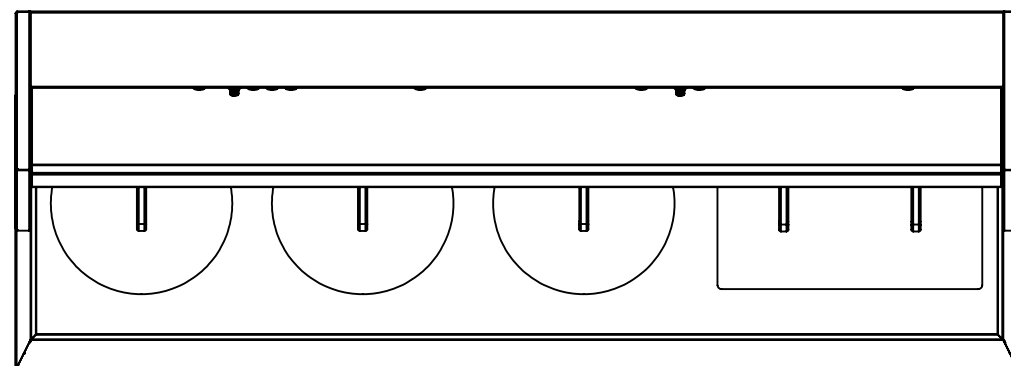
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1. Proposed Frying Range drawing

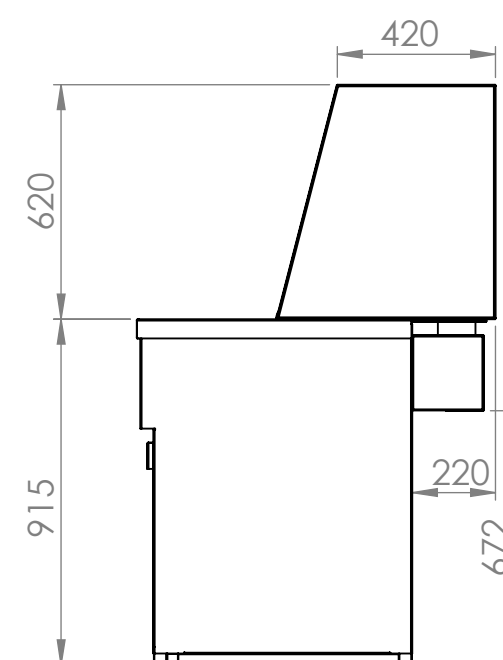
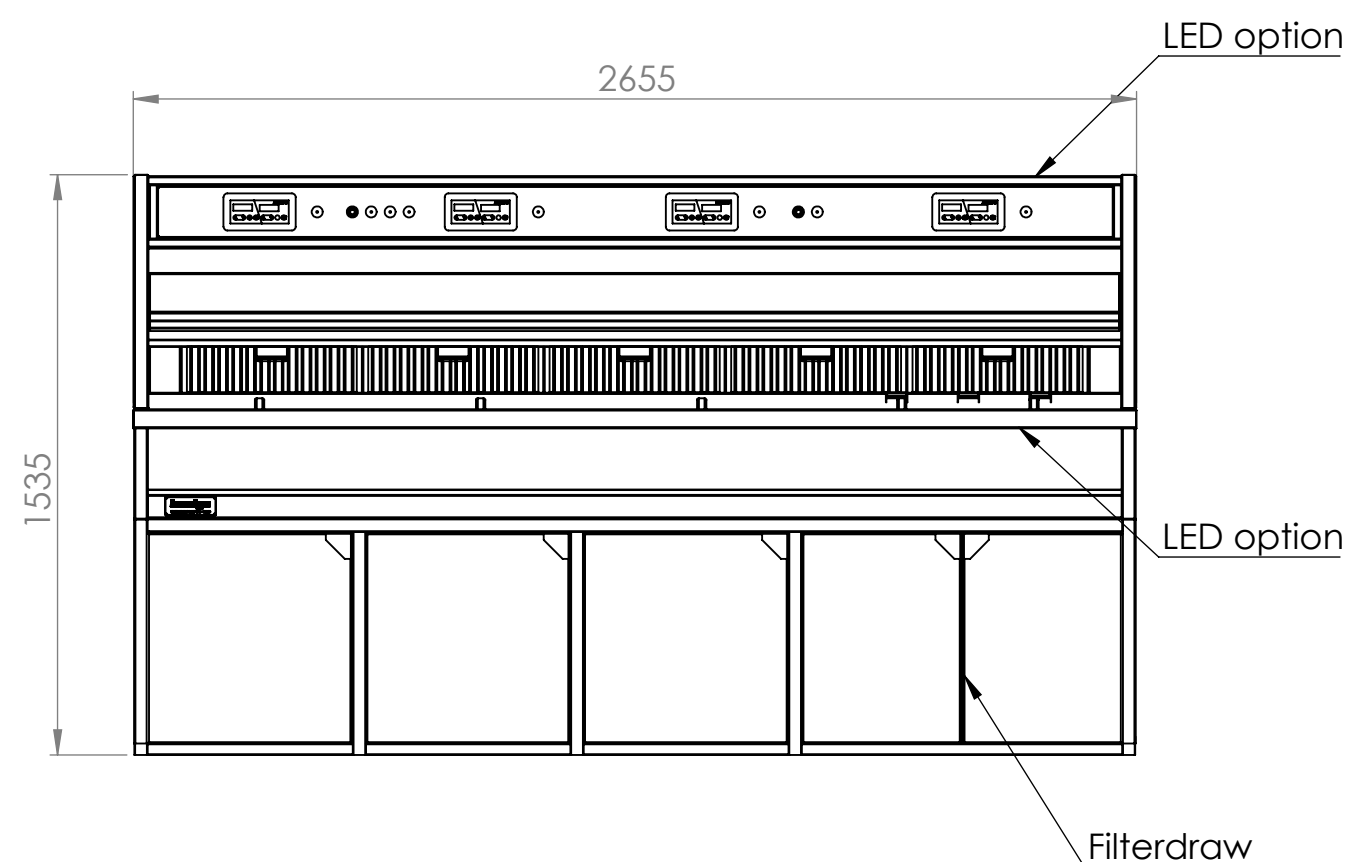
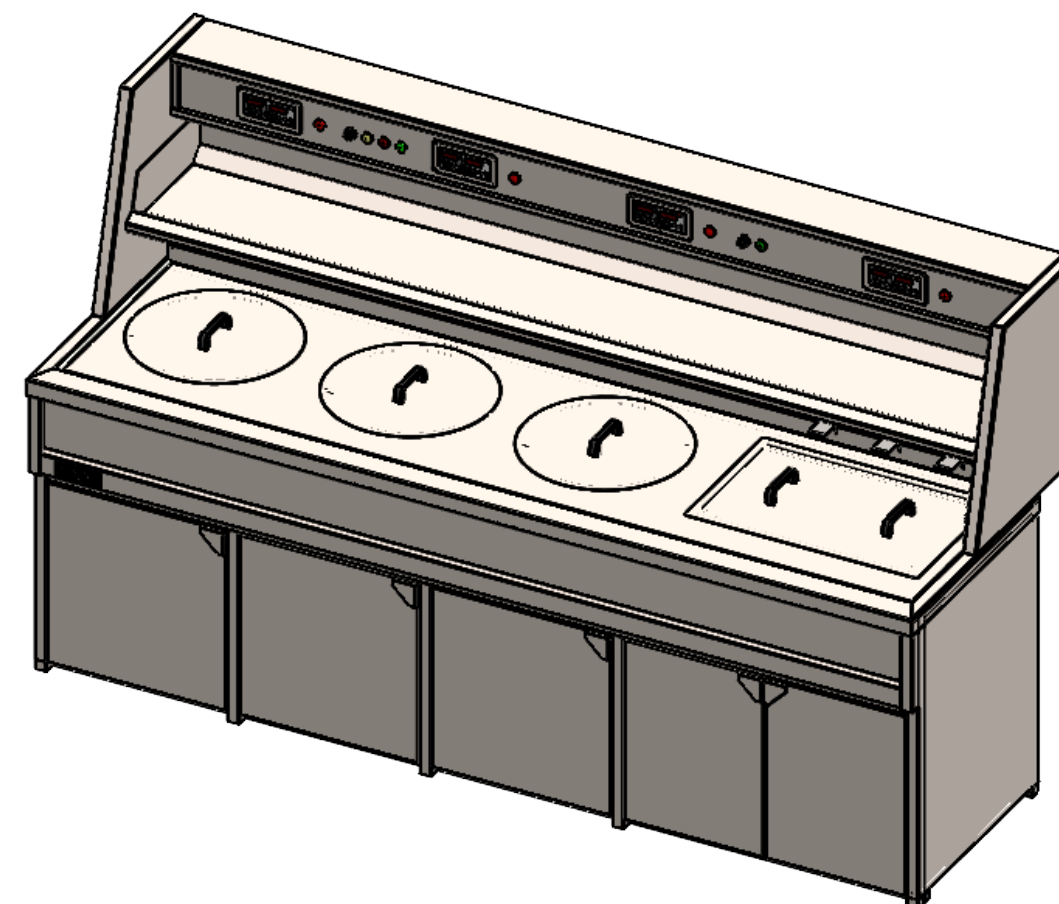


HE44

HE44

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65x40



Tekeningnr: HE44HE44HE44HE65	Tekenaar: B. Heijerman
Omschrijving:	Klant:
hewigo Golsweg 22 7102 EC Winterswijk Tel: 0543-512423	Referentie:
	Datum: 3-9-2021
	Schaal: 1:20
	A3

2. Frying range image



3. EMAQ Report



hewigo

ESTABLISHED FISH AND CHIP RANGE MANUFACTURERS



The Commercial Kitchen Filtration Expert

Specification & EMAQ Report

Project:

Prepared for: Phillip Purkiss

Prepared by: Dan Franklyn

Date: 25/06/ 2021

Contact details:

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Interpretation of Requirements

Following our conversation, I am pleased to provide an equipment selection for an odour control solution.

As with any project we get involved in we always recommend to our clients that they should closely follow the DEFRA guide for guidance on odour control equipment selection.

This ensures that what they propose will be in line with local authority's requirements and if the system is maintained correctly, they will not exhaust nuisance odours leading to complaints from nearby residents.

With this in mind, I carried out a risk assessment as detailed in Annex C of the DEFRA Guide. Taking into consideration the level of discharge, proximity of receptors, size of kitchen and cooking type your project requires a high level of odour control to comply.

We have scored as below and as taken from Annex C: Risk Assessment for Odour:

Dispersion = 10

Proximity of receptors = 10

Size of kitchen = 3

Cooking type 10

Total score = 33

The type of odour abatement system that complies is as below, taken directly from the DEFRA Guide and must be to a very high level of control;

Odour arrestment plant performance

High level odour control may include:

1. Fine filtration or ESP followed by carbon filtration (carbon filters rated with a 0.2 – 0.4 residence time).
2. Fine filtration or ESP followed by UV ozone system to achieve the same level of control as 1.



Impact Risk	Odour Control Requirement	Significance Score*
Low to Medium	Low level odour control	Less than 20
High	High level odour control	20 to 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	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 1m above eaves at 10 -15 m/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 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	1	Most pubs, Italian, French, Pizza or steakhouse.

The System

As our ESP's have been specifically designed for kitchen extract and not modified from industrial use, they have integral sumps to collect the oil, grease and smoke particles filtered out of the exhaust; this not only simplifies servicing but eradicates potentially dangerous spillage from the bottom of the units and greatly cuts down on flammable build-ups within the duct run.

The ionisation voltage has been designed to run at a negative potential, which enhances the ionisation of particles and produces more Ozone, which is helpful in reducing odours in kitchen applications.

Our ESP units fit in-line with the kitchen ducting and can be configured modularly to cope with all extract volume requirements.

The Electrostatic Precipitator is a very efficient means for separating the particulate phase; operating efficiency when clean can be as high as 98% at particle sizes down to 0.01 micron.

The Electrostatic Precipitator does not present a high-pressure loss (175PA approx. dependant on airflow). This gives a specific advantage in that most standard Kitchen extractor fans will have the capability of overcoming this small differential.

This is particularly advantageous when it is considered that if the pressure loss were high larger noisier fans would probably be necessary resulting in potential noise pollution.

ON-100

Purified Air use patented technology to scientifically treat cooking odours emitted by commercial kitchen and restaurant exhausts. Once the airstream in the exhaust duct has had the majority of the particulate contaminates removed by one of our ESP units the gaseous phase or malodour can then be treated by the O.N. 100.

The vapour from a specially blended neutralising agent, ELIMINODOR®, is mixed with ambient air drawn into the O.N. 100 and ionised to a negative potential of 15,000 volts. This ionised vapour then passes along a nonconductive tube to be discharged into the centre of the duct via a venturi spigot, the metal ducting is earthed through the same high tension circuit, which makes the contaminant at an opposite potential to the negatively charged ELIMINODOR® vapour. This then causes the negative and positive particles to combine, so treating the malodour by chemical reaction.

Specification

1 No. ESP3000E Unit.

Specification per unit

Air Volume Max*	1.4m ³ /s
Electrical Supply	220/240V 50Hz 1ph
Power Consumption	30 W
Weight each	85kg
Min/Max Working Temperature	4/56°C
Max Relative Humidity	75%

1 No. ON-100 Unit.

Specification per unit

Electrical Supply:	220/240V 50Hz
Max Power Consumption:	40 Watts
Ionisation Voltage	15kV negative
Max Air Volume:	up to 4.16m ³ /sec
Dimensions:	H 500mm /W 400mm D 200mm
Weight:	12.25 Kg

4. ESP 3000E Odour Control Unit

Our ESP Range

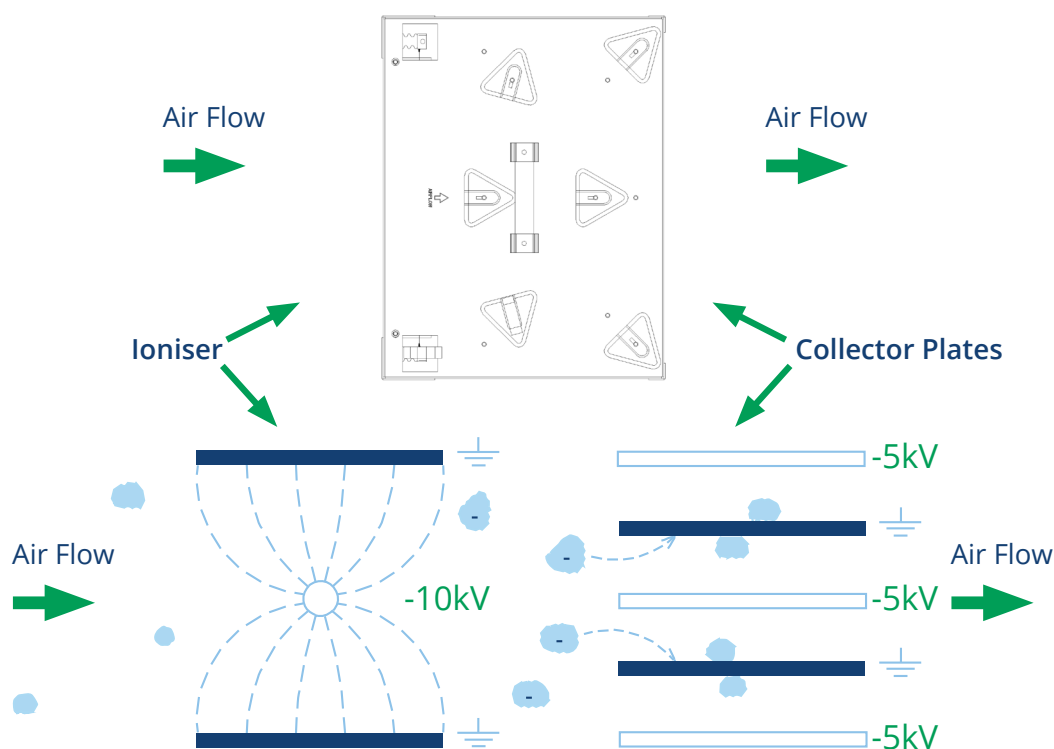


ESP 4500

- ESP 1500E which can handle up to 0.7m³/sec of air flow
- ESP 3000E which can handle up to 1.4m³/sec of air flow
- ESP 4500E which can handle up to 2.1m³/sec of air flow
- ESP 6000E which can handle up to 2.8m³/sec of air flow

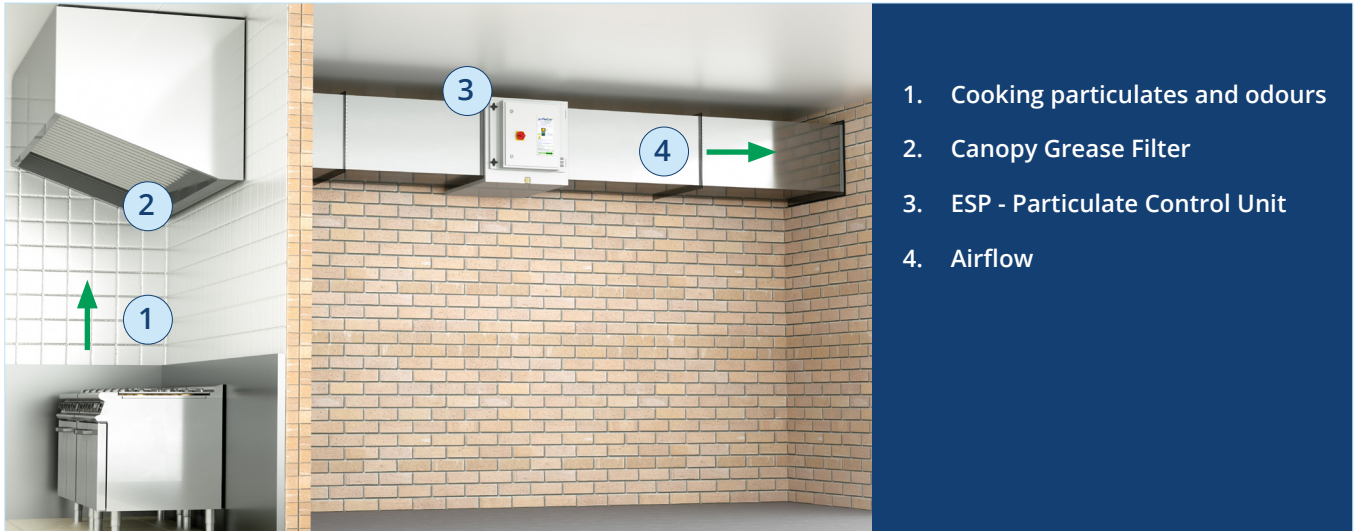
Our ESP's have been specifically designed for kitchen extract systems; they have integral sumps to collect the oil, grease and smoke particles filtered out of the exhaust. This not only simplifies servicing but eradicates potentially dangerous spillage from the bottom of the units and greatly cuts down on build-ups of grease within the ducting.

The ionisation voltage has been designed to run at a negative potential which enhances the ionisation of particles and also produces more ozone which is helpful in reducing cooking odours.



The above diagram shows, in a basic visual, how an electrostatic precipitator works. As air passes into the combined ioniser / collector cell, the particulates in the air stream are polarised to a negative potential. As they continue through the ioniser and between the collector cell plates, the polarised particulates are repelled away from the negatively charged plates and attracted to the earthed plates where they stick and so are filtered out of the air flow.

Our ESP units fit in-line with the kitchen ducting and can be configured modularly to cope with all extract volume requirements.



KEY FEATURES

- Eliminates up to 98% of oil, grease and smoke particles
- Filters particles down to sub-micron levels
- Produces Ozone to help reduce malodours
- Designed with an integral sump
- Modular in design
- Specifically designed for commercial kitchen application
- Energy efficient: - uses no more than 50W
- Greatly reduces grease build-up within the duct run



3 ESP Units Stacked in modular formation



4 ESP Units Stacked in modular formation with a double pass

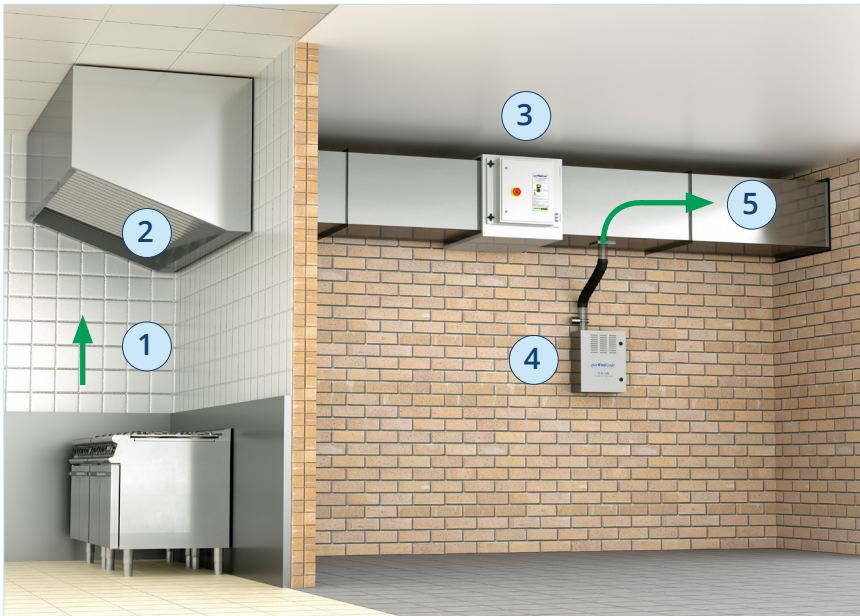
Technical Specification

	ESP 1500E	ESP 3000E	ESP 4500E	ESP 6000E
Electrical Supply	220/240V 50Hz	220/240V 50Hz	220/240V 50Hz	220/240V 50Hz
Power Consumption	20 Watts	30 Watts	40 Watts	50 Watts
Max Air Volume	up to 0.7m ³ /sec	up to 1.4m ³ /sec	up to 2.1m ³ /sec	up to 2.8m ³ /sec
Dimensions W/H/D	450mm/630mm/ 640mm	900mm/630mm/ 640mm	1350mm/630mm/ 640mm	1800mm/630mm/ 640mm
Weight	55Kg	85Kg	118Kg	153Kg

5. ON100 Odour Neutraliser

ON100

Purified Air use patented technology to scientifically treat cooking odours emitted by commercial kitchen and restaurant exhausts.



1. Cooking particulates and odours
2. Canopy Grease Filter
3. ESP - Particulate Control Unit
4. ON100 Odour Control Unit
5. Eliminodor® joins airflow

Once the airstream in the exhaust duct has had the majority of the particulates removed by one of our ESP units the gaseous phase or malodour can then be treated by the ON 100.



The vapour from a specially blended neutralising agent, ELIMINODOR®, is mixed with ambient air drawn into the ON100 and ionised to a negative potential of

15,000 volts. This ionised vapour then passes along a nonconductive tube to be discharged into the centre of the duct via a venturi spigot, the metal ducting is earthed through the same high tension circuit which makes the contaminant at an opposite potential to the negatively charged ELIMINODOR® vapour. This then causes the negative and positive particles to combine, so treating the malodour by chemical reaction.

Key Features

- Compact Design
- Easy to maintain
- Easy to install
- No airflow resistance
- Energy efficient - uses no more than 40W

Technical Specification

Electrical Supply	220/240V 50Hz
Max Power Consumption	40 Watts
Ionisation voltage	15kV negative
Max Air Volume	up to 4.16m ³ /sec
Dimensions	W 400mm H 500mm D 200mm
Weight	12.25kg



ON100 Unit

ELIMINODOR®

This product has been specifically developed and blended for use in Purified Air's ON100 unit.

ELIMINODOR® is a finely balanced blend of essential oils and other chemicals which neutralise odorous gases found in the exhausts of commercial kitchens and restaurants.

Purified Air have designed this unique system to ensure that only minimal quantities of ELIMINODOR® are required for optimum results.

Approximate dosage: one litre every 2 - 4 weeks under normal conditions.

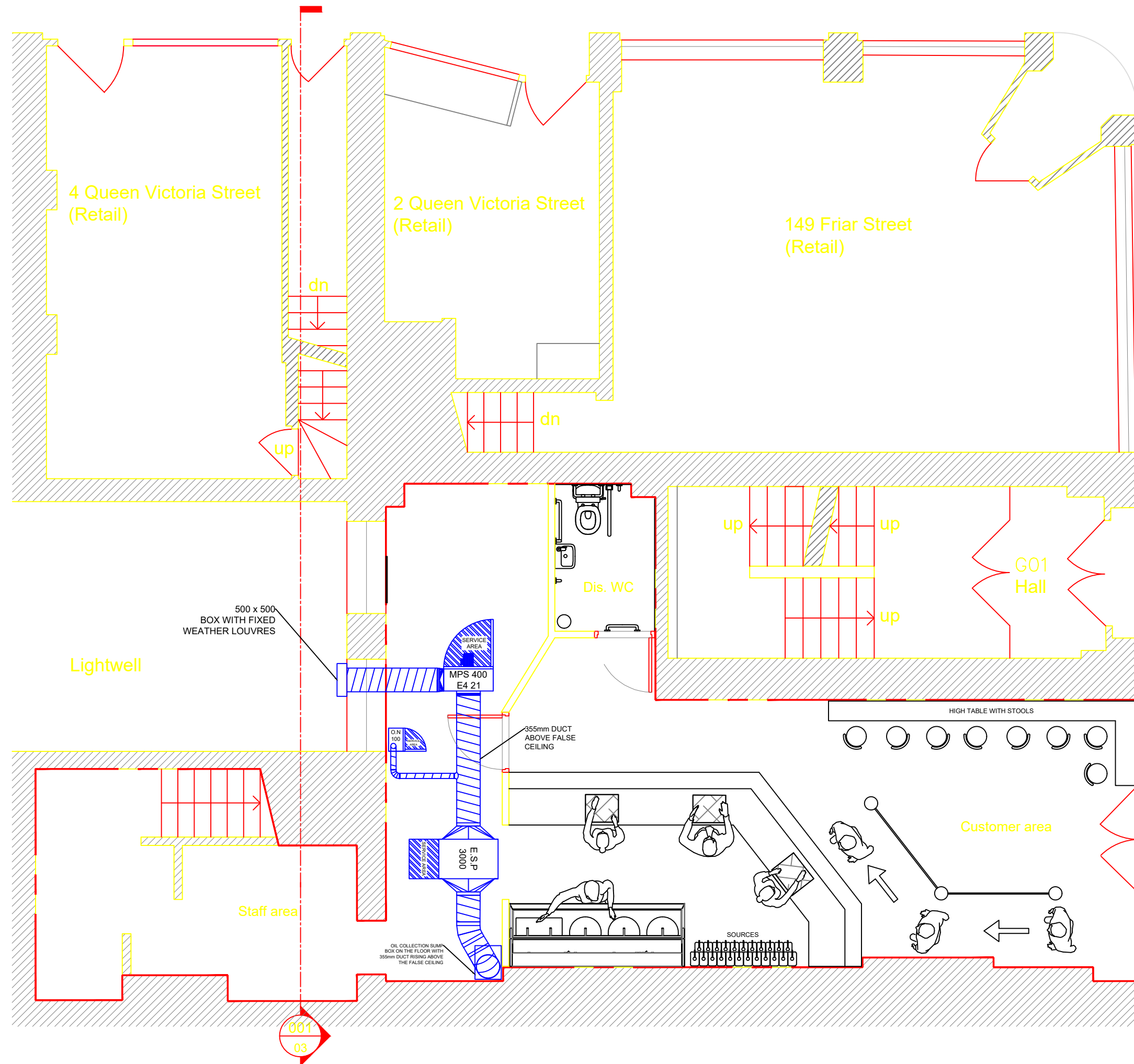


Guaranteed Process

Purified Air's ON100 unit in conjunction with ELIMINODOR® can reduce malodour in your commercial kitchen exhaust by up to 90%.

The contamination of ELIMINODOR® with any other ingredients will cause its blend to become unstable and could render ELIMINODOR® completely ineffective, it will also nullify all and any manufacturer's warranty supplied by Purified Air Limited for the ELIMINODOR® and the ON100 unit that it is used in.

6. Proposed drawing



FRIAR STREET

HEWIGO UK LTD

CUSTOMER NAME :	Mr Zahir Kanji JACKS
DATE :	13.09.2021
SCALE :	1:60 = A3
DRAWN BY :	JASON BATE

7. Typical low level Exhaust termination grille

