



Hello Oriental

200493

Kitchen Ventilation

DOCUMENT REVISION HISTORY			Ref:	200493 HELLO ORIENTAL
Rev	Author	Verification By	Date	Comments / Status
A	J. HAUTON	S. ARNOLD	18/05/21	FOR PLANNING
B	J. HAUTON	S. ARNOLD	19/05/21	DESIGN TEAM COMMENTS ADDED
C	J. HAUTON	S. ARNOLD	08/07/21	UPDATE WITH CONTRACTOR DESIGN

©2021 Couch Perry Wilkes

Couch Perry Wilkes shall not be liable in whole or part for any use of this document beyond such purpose(s) as the same was originally prepared or provided nor shall Couch Perry Wilkes be liable for any misinterpretation as to such intended purpose(s).

Contents

Section	Description	Page No.
1.0	Introduction & Summary	2
2.0	Design Criteria	3
3.0	Canopies	4
4.0	Ultra violet filtration	4
5.0	Discharge positions	5

Appendix A Kitchen Canopy Detail

Appendix B Basement Ventilation Layout

Appendix C Developers Ventilation Discharge Details

Appendix D EMAQ Risk Assessment

Section Title

1.0 Introduction & Summary

Hello Oriental are looking to provide new Kitchen in the Basement of the Bruntwood (the Developer) Circle Square Building for their new Restaurant.

A new Ventilation system is to be provided as part of this Fit-out project connecting to the ductwork provided by the Developer which rises to the building above.

The new Ventilation system will comprise of a Fire Rated Extract system from the Canopies in the kitchen and a separate make-up fresh air system.

The Kitchen extract system will also be provided an Ultra Violet filtration system to remove Smoke and Grease at source close to the kitchen and an Odour Control Unit. This allows the maximum dwell time in the ductwork before being discharged to atmosphere.

The systems are designed in accordance with DW 172 and EMAQ '*Control of Odour and Noise from Commercial Kitchen Exhaust Systems*'

Supply and Extract fans are being supplied with inlet and discharge attenuators to limit noise transmission. Fans are also located in the Basement and so a good distance from the external louvres.

Extract fan is a bifurcated fan to keep the motors out of the air stream.

The Developers system does not discharge at Roof level but at Ground Floor Ceiling Void level. On this basis, additional Ultra Violet Filtration and Odour Neutralising are being provided on the Kitchen Extract as part of the Fit Out works.

Fire Suppression is being provided to the Cooker Hood only.



Control of Odour and Noise from Commercial Kitchen Exhaust Systems

Update to the 2004 report prepared by NETCEN for the Department for Environment, Food and Rural Affairs



Dr Nigel Gibson
5-9-2018

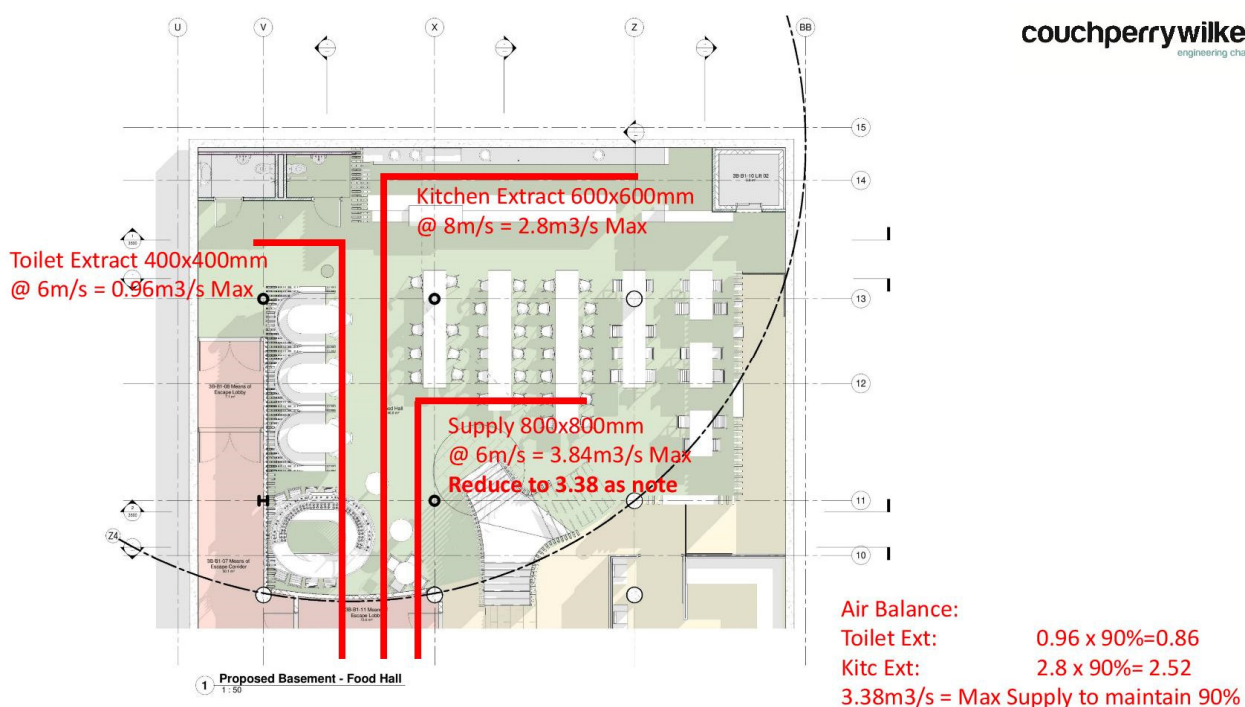
Section Title

2.0 Design Criteria

The air flow rates have been determined by the Kitchen Specialist (Monarch) to suit the appliances being used and the table below confirms the details in the mechanical specification. This equates to over 40 air changes per hour in the kitchen and dishwash space.

The diagram after also confirms a supply rate capacity at 90% overall for the space. This can be lowered to 85% as part of the commissioning exercise to be fully in compliance with the recommendation on page IV of the EMAQ document. The second diagram also confirms the duct velocities, again fully in accordance with the EMAQ document on page V.

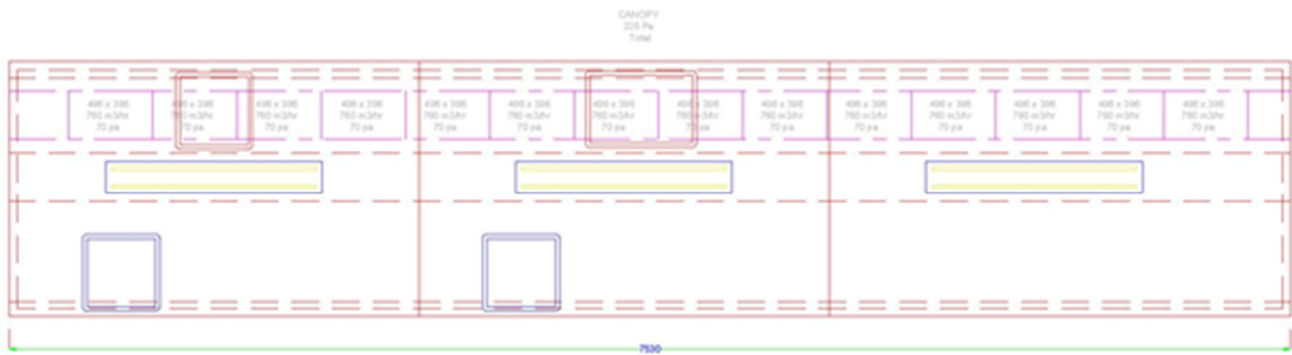
INTERNAL DESIGN CONDITIONS – GENERAL REQUIREMENTS				
ROOM / AREA	WINTER °C OPERATIVE	SUMMER °C OPERATIVE	SERVICES NOISE LEVEL (NR) (1.)	VENTILATION
Restaurant & Bar	Minimum 21°C	Maximum 22°C	NR37	Supply only at 3.38m³/s
Kitchen & Dishwash	Minimum 18°C	Shall comply with CIBSE TM50 and BESA DW172	NR 40	Kitchen Extract based on equipment load as 2.8m³/s
Corridors	Minimum 18°C	Uncontrolled	NR37	N/A
Toilets / Access WC	Minimum 18°C	Uncontrolled	NR40	Mechanical based on 6 ACH/hr Total Toilet extract 0.96m³/s
Store Rooms	Minimum 16°C	Uncontrolled	NR40	Extract based on 2 ACH/hr
Bin Store	Minimum 16°C	Uncontrolled	NR40	0.37m³/s extract for Cold Room Condensor
Lockers	Minimum 18°C	Uncontrolled	NR40	Extract based on 3 ACH/hr
Office	Minimum 21°C	Maximum 22°C	NR37	12l/s per person



Section Title

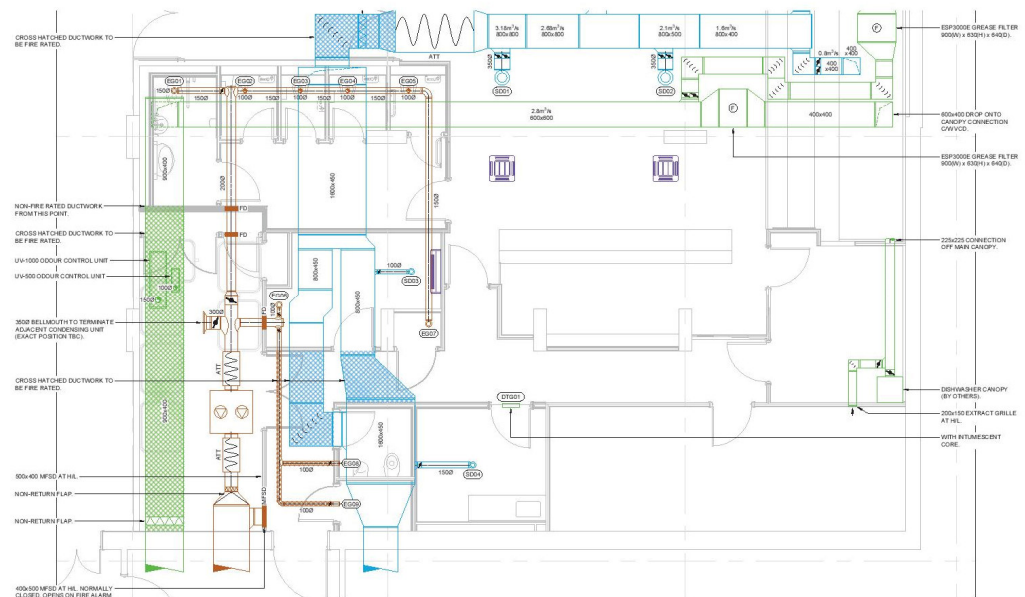
3.0 Canopies

The Kitchen Area has a Canopy being designed specifically for this project as the detail below – the full drawing is within Appendix A. There is also a 1000 x 1000 condensation hood in the Dishwash Area or removing vapour. The Kitchen Canopy has filtration provided within (Baffle filters, Filter Class G2 and UL Class 2).



4.0 Ultra violet filtration

After the filters within the Canopy there is also to be Ultra Violet Filtration within the ductwork to remove Smoke and Grease close to the canopies and Odour as indicated on the drawing. These are additional measures being provided as the Developers ductwork does not discharge at roof level. Full drawing in Appendix B.



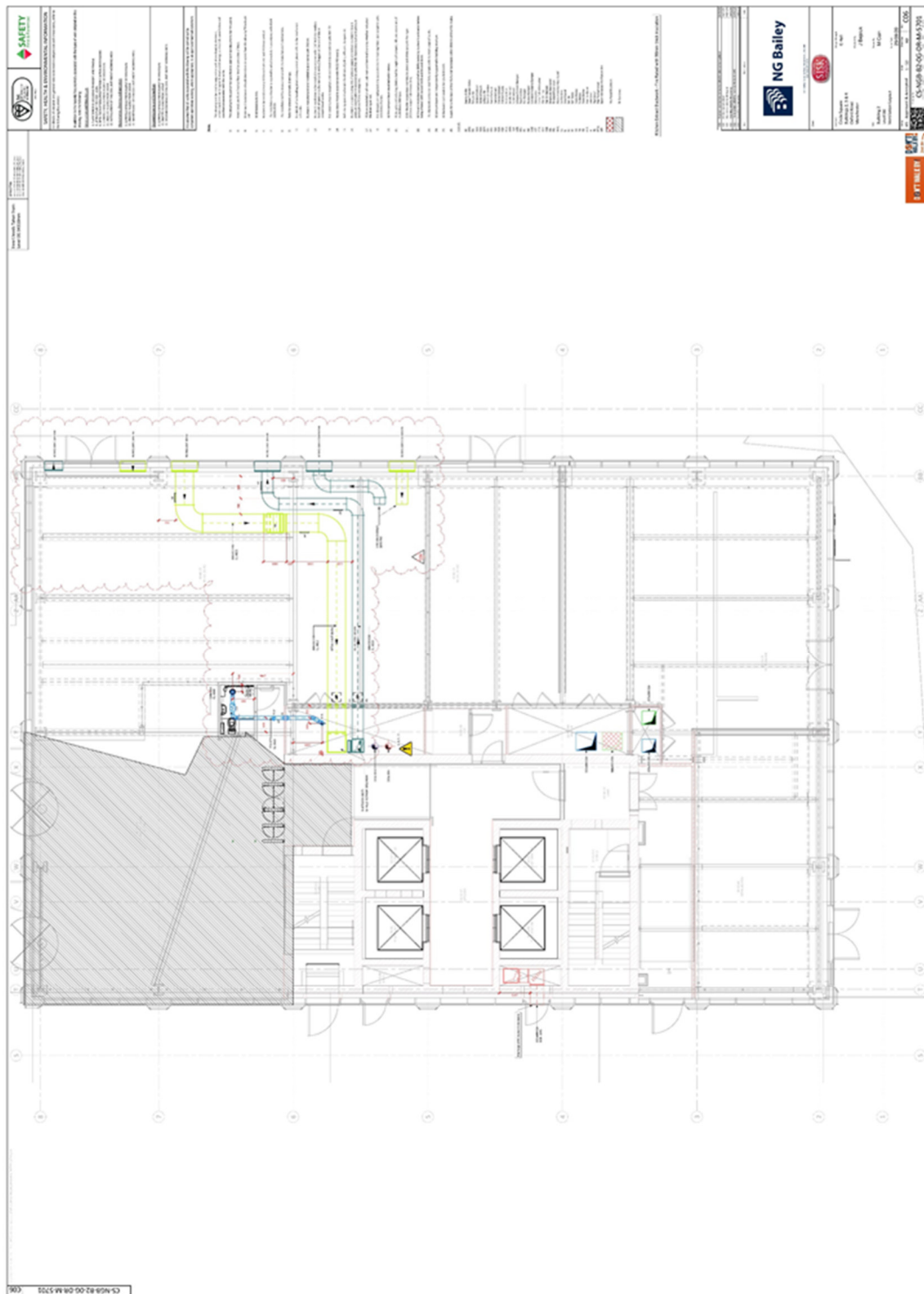
Section Title

Appendix B – Ventilation Layout



Section Title

Appendix C – Developers Ventilation Discharge Details



Section Title

Appendix D – EMAQ Risk Assessment

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 ¹ .
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 ¹ .
Cooking type (odour and grease loading)	Very high	10	Pub (high level of fried food), fried chicken, burgers or fish & chips. <i>Turkish, Middle Eastern or any premises cooking with solid fuel</i>
	High	7	Vietnamese, Thai, Indian, <i>Japanese, Chinese, steakhouse</i>
	Medium	4	Cantonese, <i>Italian, French, Pizza (gas fired)</i> .
	Low	1	Most pubs (no fried food, mainly reheating and sandwiches etc). <i>Tea rooms</i> ¹

Hello Oriental

Circle Square

EMAQ Risk Assessment
for Odour

Total Score = 37

Very high level of risk
Hence use of Odour filtration
and UV filtration to remove
Grease and Smoke