

Project: 2388 – 65 Bed Care Home, Wargrave,

The Mount, School Hill, Wragrave, RG10 8DY

Client: Lawrence Baker

Ref: Planning Conditions Tracker - Item No.13 – Ventilation Information

Introduction

Harniss Contracting Ltd have been appointed to carry out MEP design and installation of the proposed 65 Bed Care Home on behalf of Lawrence Baker Construction.

This report has been prepared to provide information on the control of fumes and smells from the kitchen equipment, as per Item No.13, located within the Planning Conditions Tracker.

General Ductwork Design

The Kitchen Supply & Extract ductwork from the kitchen canopy will traverse across the kitchen ceiling void and is to terminate through the roof to atmosphere. Harniss Contracting Ltd can confirm the kitchen ventilation system will be designed in accordance with the relevant regulations and design criteria as listed below:

- Building Regulations Part F
- DW 172 Kitchen Ventilation
- TR19 – Fire Risk Management of Grease Accumulation in Kitchen Extraction Systems.

Odour Control

To prevent any detrimental effects on nearby residents, Harniss Contracting Ltd will terminate the Kitchen Extract through the roof as per the below sketch, in line with DW 172 – Kitchen Specification for Ventilation Systems.

The guidance states that a high velocity jet cowl should be used, and this will be positioned a minimum of 1m above the roof line.

In reference to the kitchen system example in the DW172 guidance, it states that it is normal to utilise either a carbon filter or high velocity discharge as odour control, not usually both.

Please see attached odour risk assessment carried out for the project and details of the kitchen fresh air and exhaust system:

Ricardo EMAQ+ Control of Odour and Noise from Commercial Kitchen Exhaust Systems - May 2022

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Appendix 3: Risk Assessment for Odour -

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 to Medium	Low level of odour control	Less than 20
High	High level of odour control	20 to 35
Very High	Very high Level of odour control	more than 35

* based on the sum of contributions from dispersion, proximity of receptors, size of kitchen & 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 below 10m/s.
	Moderate	10	Discharging 1m above eaves at 10-15m/s.
	Good	5	Discharging 1m above ridge at 15m/s.
Proximity of Receptors	Close	10	Closest sensitive receptor less than 20m from kitchen discharge.
	Medium	5	Closest sensitive receptor between 20 & 100m from kitchen discharge.
	Fair	1	Closest sensitive receptor more than 100m from kitchen discharge.
Size of Kitchen	Large	5	More than 100 covers or large sized takeaway
	Medium	3	Between 30 & 100 covers or medium sized takeaway
	Small	1	Less than 30 covers or small takeaway
Cooking Type (odour & grease Loading)	Very High	10	Pub (high level of fried food), fried chicken, burgers or fish and chips.
	High	7	Kebab, Vietnamese, Thai or Indian.
	Medium	4	Cantonese, Italian, French, Pizza (gas fired)
	Low	1	Most Pubs, Tea Rooms

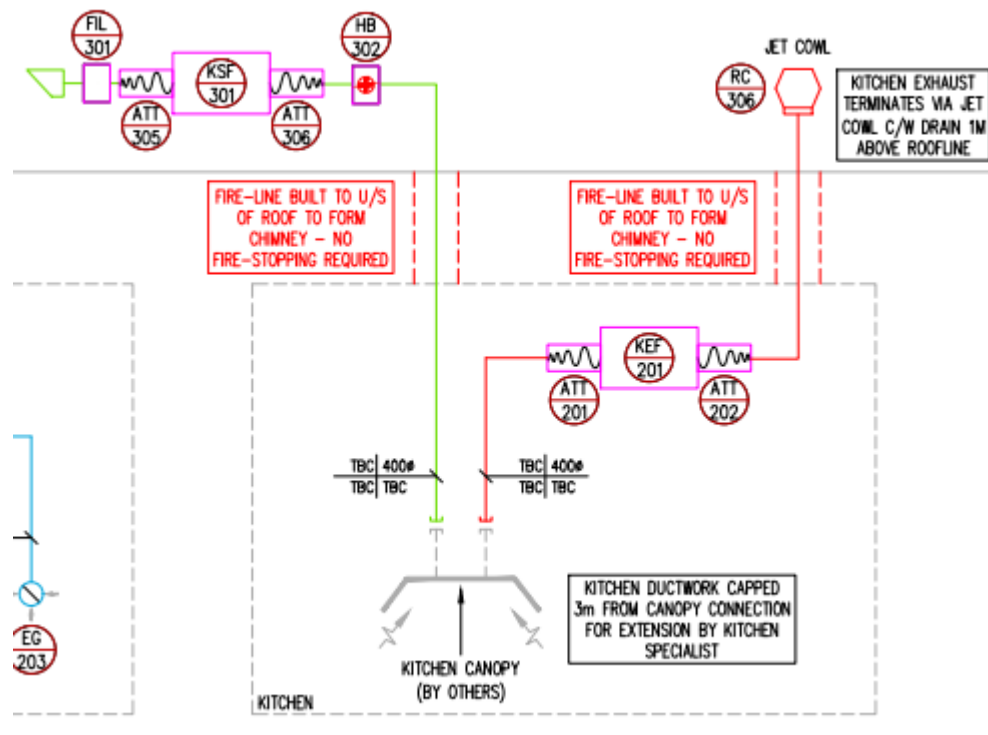
14

Total Score for project

Summary:

As the project has a significance score of 14, this therefore indicates a low level of odour control is required. A vertical discharge via a jet cowl 1m above the roof ridge line at 15m/s would therefore satisfy the requirements as assessed above with no additional odour control measures required.

Please see below image detailing the Supply & Extract terminations:



Additionally, Harniss Contracting Ltd will ensure the exhaust discharge velocity is in between 12-15m/s. This will ensure the air is projected up into the atmosphere away from any nearby residents.

See below DW-172 Duct velocity recommendations:

Table 11 Duct Velocities		
	Supply	Extract
Main Runs	6-8 ms ⁻¹	6-9 ms ⁻¹
Branch Runs	4-6 ms ⁻¹	5-7 ms ⁻¹
Spigots	3-5 ms ⁻¹	5-7 ms ⁻¹

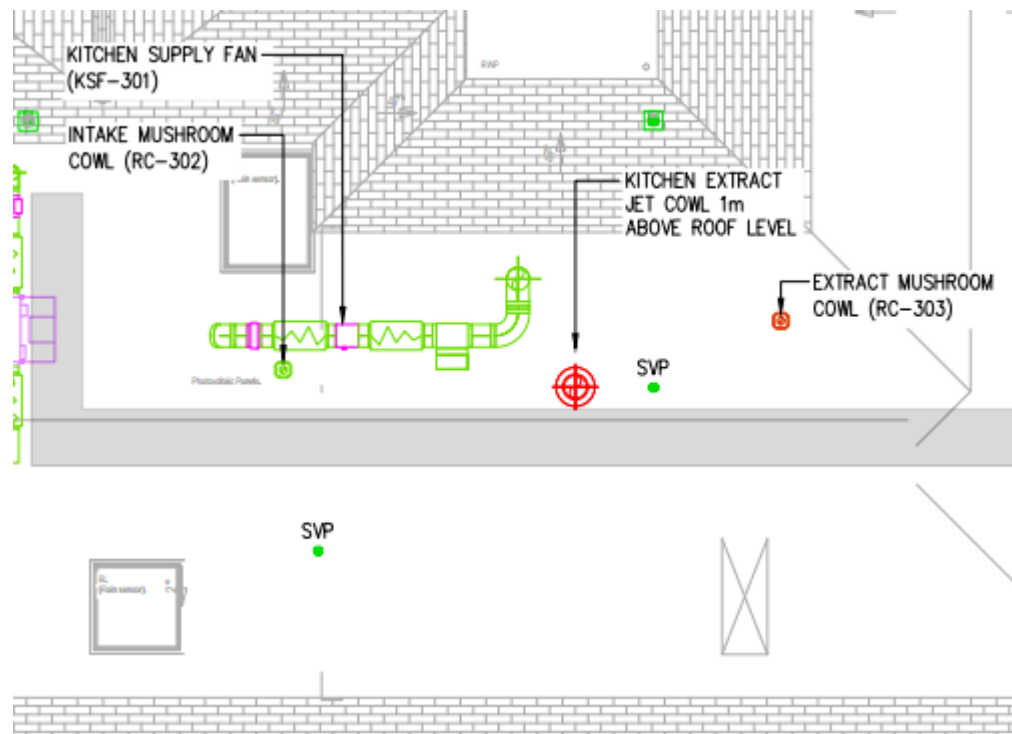
Location of Terminations

The supply ductwork is located on the roof & extract ductwork will be terminated through the roof and the termination points can be seen within the image below.

The Kitchen supply system is detailed in green and the kitchen extract system is detailed in red.

Regulations state the ductwork will need to terminate at a much higher position and much higher velocity than the supply air. This is to ensure exhaust air does not enter the supply air stream and recirculate into the kitchen and is discharged away from the nearest sensitive receptors.

We shall ensure the Kitchen extract termination point is as far away as practicable from the intake air to prevent the recirculation of stale air and a minimum of 1m above roof level.



Maintenance

In line with the recommendations below as set out in TR19, it clearly states the cleaning frequency schedule.

For this project, the frequency will be in line with 'light use' criteria, therefore the kitchen ventilation and equipment including filters will be maintained annually.

Frequency of Cleaning

7.35 The need for specialist cleaning of extract systems will depend on the level of usage of the cooking equipment, types and quantity of cooking and other risk factors such as vulnerability of the system to ignition and of the building and its occupant/users to system fire, hygiene, vermin and mechanical hazards. Typical cleaning intervals are shown in Table 11:

Table 11: Frequency of Cleaning		
Heavy Use	12-16 hours per day	- 3 monthly
Moderate Use	6-12 hours per day	- 6 monthly
Light Use	2-6 hours per day	- 12 monthly

End.