Design Note – Discharging Condition 17

PROJECT:	**Camden**		
TITLE:	**DESIGN NOTE – KITCHEN EXTRACT – CONDITION 17**		
REVISION:	**P02**		
PREPARED BY:	Dylan Dreyer	Date:	08 October 2021
REVIEWED BY:	Steve Baverstock	Date:	**08 October 2021**
APPROVED BY:	Steve Baverstock	Date:	**08 October 2021**

1 Introduction

1.1 Design criteria

This design note has been prepared to allow the discharge of condition 17 which states:

> Prior to the commencement of the approved cafe use, full details of the ventilation system for the extraction and dispersal of cooking odours including details of the flue, method of odour control and maintenance regime shall be submitted to and approved by the Local Planning Authority in writing.
>
> The extraction system should terminate unimpeded in a vertical direction at least 1m above the eaves level of the building. The use shall be carried out in full accordance with the approved details.
>
> Reason: To safeguard the amenities of the adjoining premises and the area generally in accordance with the requirements of policy G1, A1, A4 and D1 of the London Borough of Camden Local Plan 2017.

1.1.1 Internal Design Conditions

Space	Supply Ventilation	Extract Ventilation
Kitchen Extract	656l/s	720l/s

Table 1 - Design criteria

1.2 Kitchen

The Kitchen will be located on the ground floor. A 500x250mm fire rated duct will connect to the canopy and be routed to the main riser where a 300mm fire rated duct will rise to roof level.

The riser will be accessible at each level to allow access for cleaning. The duct will be insulated with 100mm insulation.

An extract fan with silencers on the ductwork will be located on the roof and expel air to atmosphere in the plant enclosure.

Supply air to the kitchen will be served from the central AHU located on the roof. 10% make up air will be from the surrounding areas.

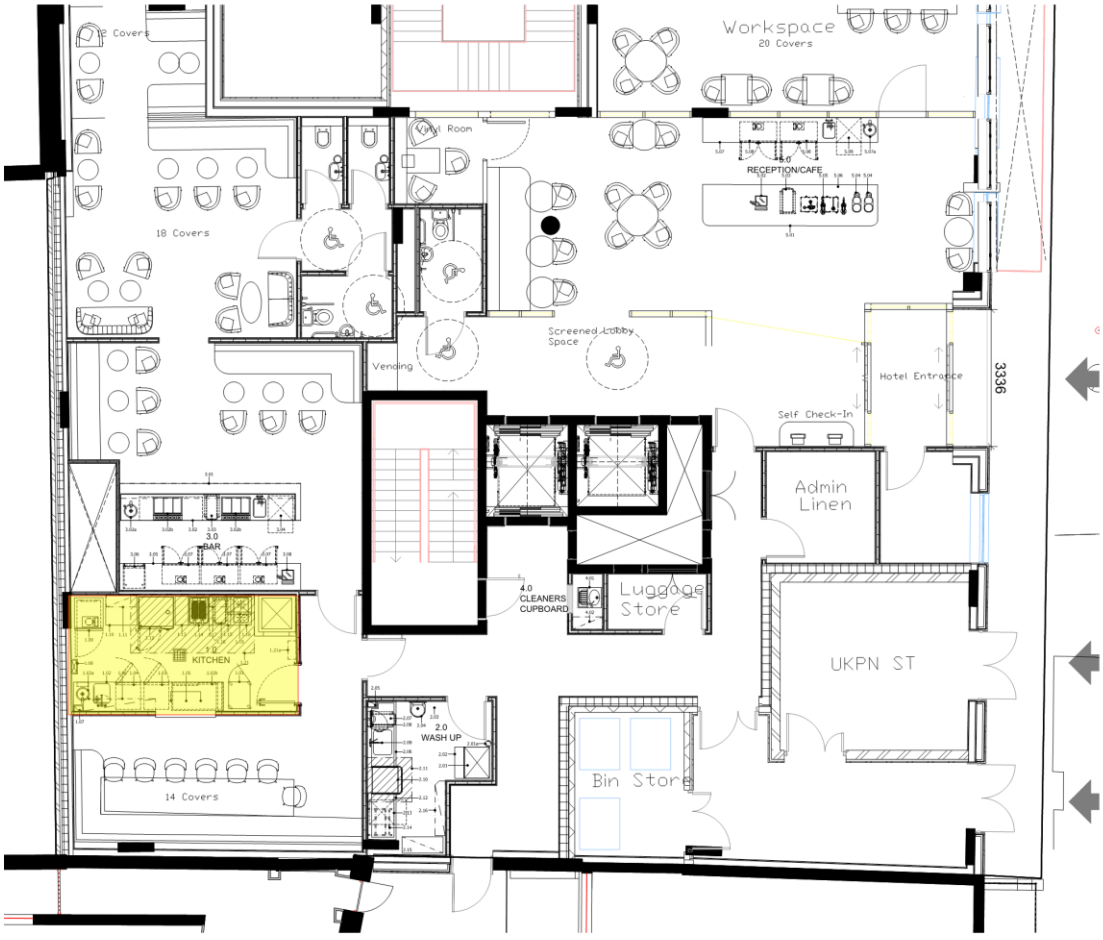

Figure 1. Location of kitchen on the ground floor highlighted in yellow.

1.3 Kitchen Extract canopy details

Details of the canopy are listed below and show the various filters which will be used to eliminate nuisance odours:

Canopy details:

Halton Model:	UVF
Canopy size:	3150 x 1600 x 555
Extract Flow Rate:	0.72m^3/s
Static Pressure at Extrat spigot:	140Pa
Extract Spigot (20 Mex):	1no 500 x 250
Supply Flow Rate:	0.656m^3/s
Static Pressure at Supply Spigot:	53Pa
Supply Spigots:	3No. 250 Dia
KSA Filters 500x330x50:	5
Coalescer Filters 500x330x20:	5
Grease Drawers:	1
UV rack Size & Number:	1No. UVR4L (1.6A)

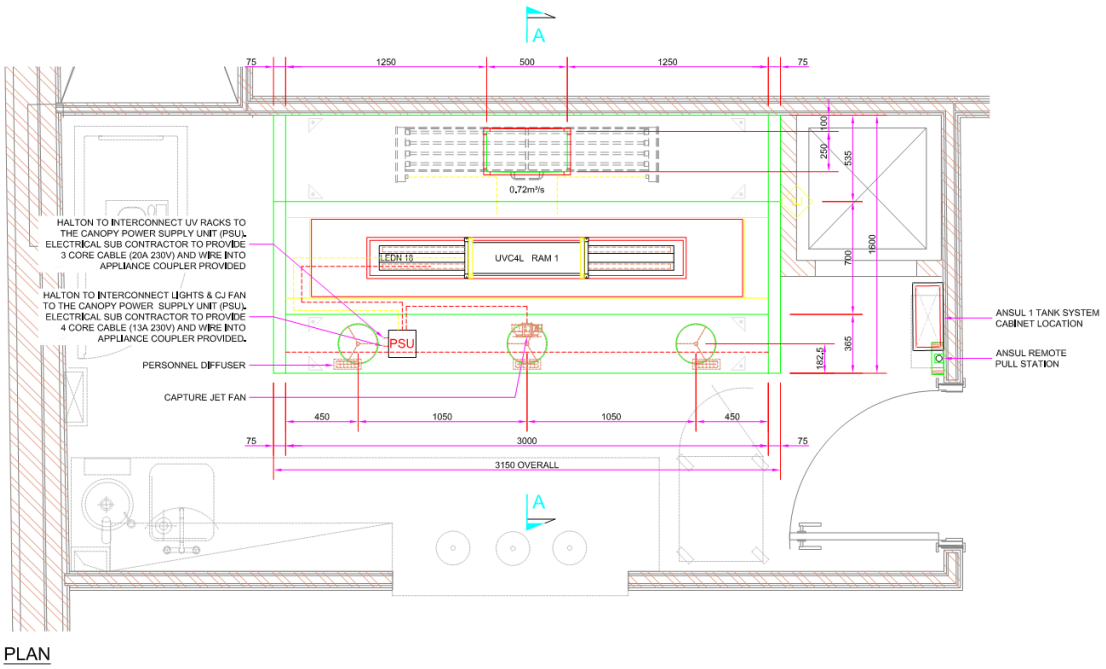

Figure 2. Kitchen layout showing extract canopy.

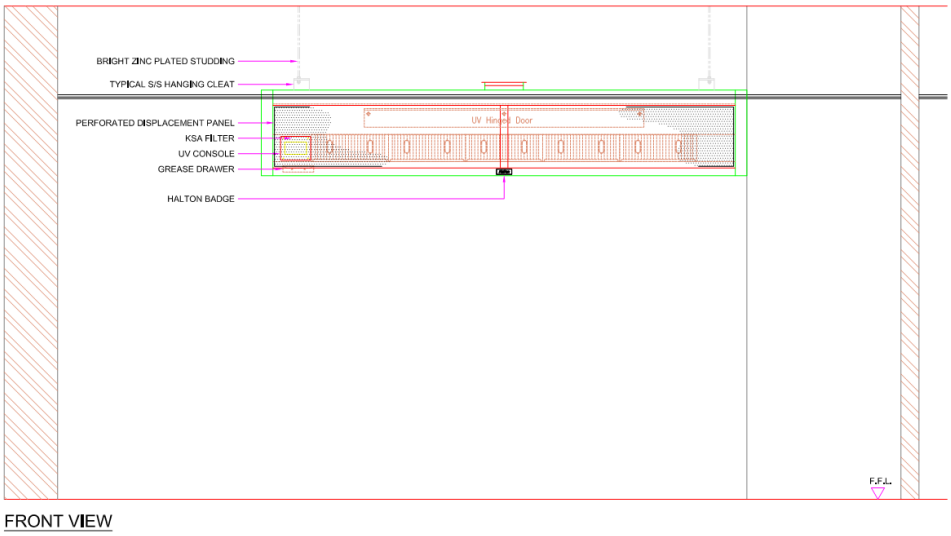

Figure 3. Section showing the extract canopy

1.4 Kitchen Extract Fan

The kitchen extract fan will be located at roof level and be manufactured by Nuaire from their SQF range. Silencers will be installed either side of the fan. The extract duct will terminate vertically 1m above roof level.

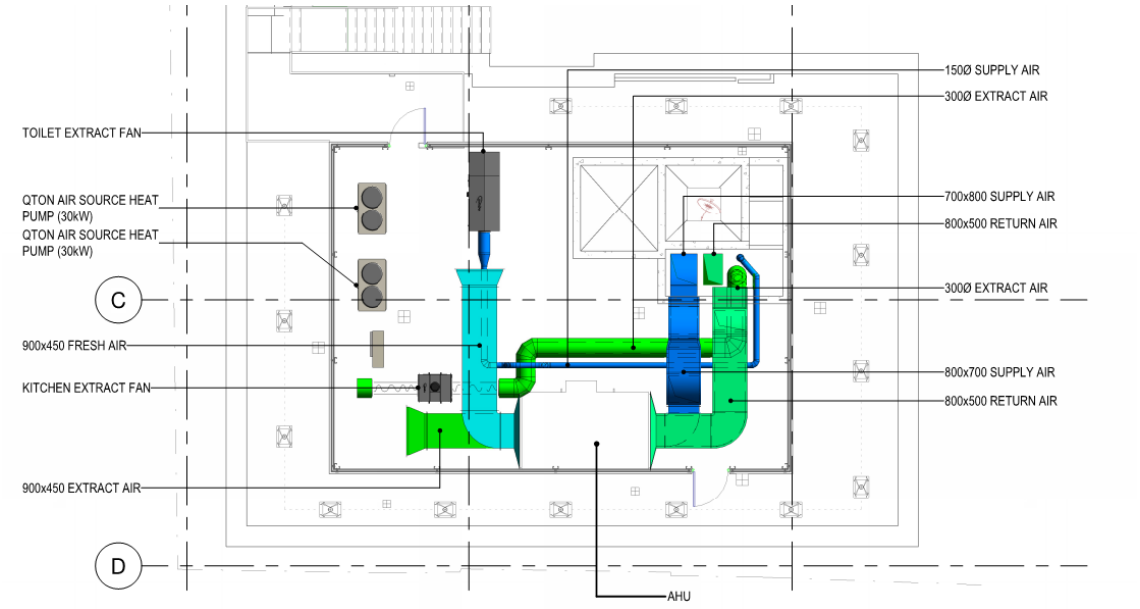

Figure 4. Location of kitchen extract fan located on roof. Note: the discharge will be vertical and shall be 1m above the building roof level.

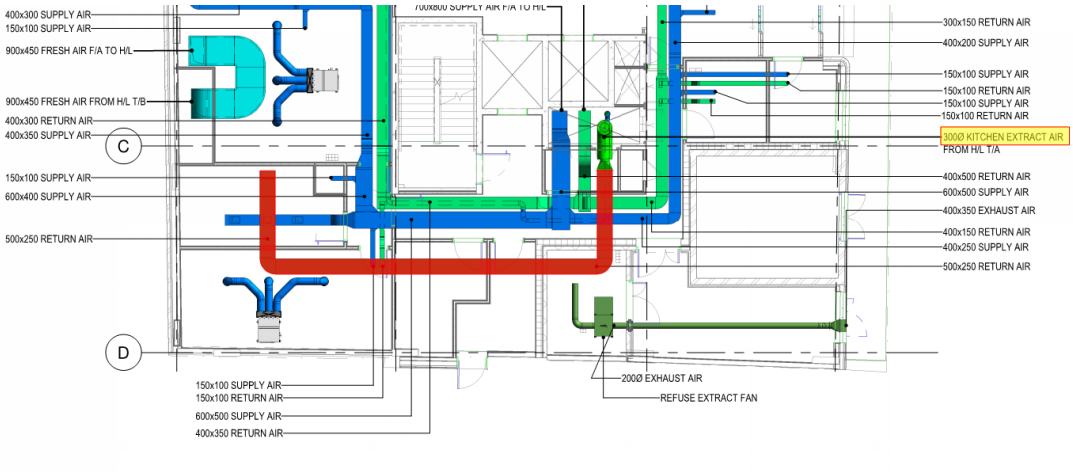

Figure 5. Kitchen extract duct highlighted in red routed from kitchen to riser. Clear access to the extract duct for maintenance is allowed for on each floor via the services riser.

Technical Data

SQF - Squif Single In-line Fan
In Line Single Fan

Fan Code:	**SQFA42-3**
Installation Manual Links:	671175
Required Duty:	0.72 m³/s @ 238 Pa
Actual Duty:	0.894 m³/s @ 367 Pa
Actual at Required Flow:	0.72 m³/s @ 424 Pa
When Speed Controlled to Required Duty (80.5%):	
Fan Input Power:	**0.285 kW**
Motor Input Power:	**0.393 kW**
Specific Fan Power:	**0.5 W/(l/s)**
Motor Efficiency:	79 %
Fan Total Efficiency:	60 %
Fan Input Power:	0.544 kW
Maximum Fan Input Power:	0.555 kW
Motor Input Power:	0.751 kW
Specific Fan Power:	0.8 W/(l/s)
Nominal Fan Speed:	4 Pole 1,450 RPM
Electrical Supply:	400 V 3 Phase 50 Hz
Motor Rating:	0.75 kW
Motor Current:	flc: 1.7 A
Motor Current:	sc: 9.04 A
Starting currents are nominal for D.O.L. starting.	
Max. Operating Temp.:	90°C
Weight:	77 kg

Sound Data

Acoustic perfomance to ISO 13347 and AMCA 300.
Breakout Noise (dBA): 50 dBA @ 3m
Breakout level is spherical. For hemi-spherical add 3 dBA.

Sound Power Levels re 1 pWatts (Hz):

Hz	63	125	250	500	1k	2k	4k	8k
Induct Inlet	83	90	79	73	69	71	70	62
Induct Outlet	80	91	75	70	73	75	72	64
Breakout	76	84	71	65	60	62	55	40

Above noise calculated speed controlled to required duty (80.5%)

For 100% Speed:	+2	+2	+3	+4	+5	+5	+5	+5
Breakout Noise (dBA):	+3							

Values shown are for inlet Lw and outlet Lw sound power levels for: Installation Type D: ducted inlet, ducted outlet. Ratings include the effects of duct end correction.
Please note that the noise data stated on this data sheet for the unit and/or silencer is tested in accordance with UK, European and International industry laboratory standards. However onsite conditions may vary and we would recommend that this information is verified by an acoustic specialist in order to ensure its suitability for the intended application.

Table 2. Showing kitchen extract details.

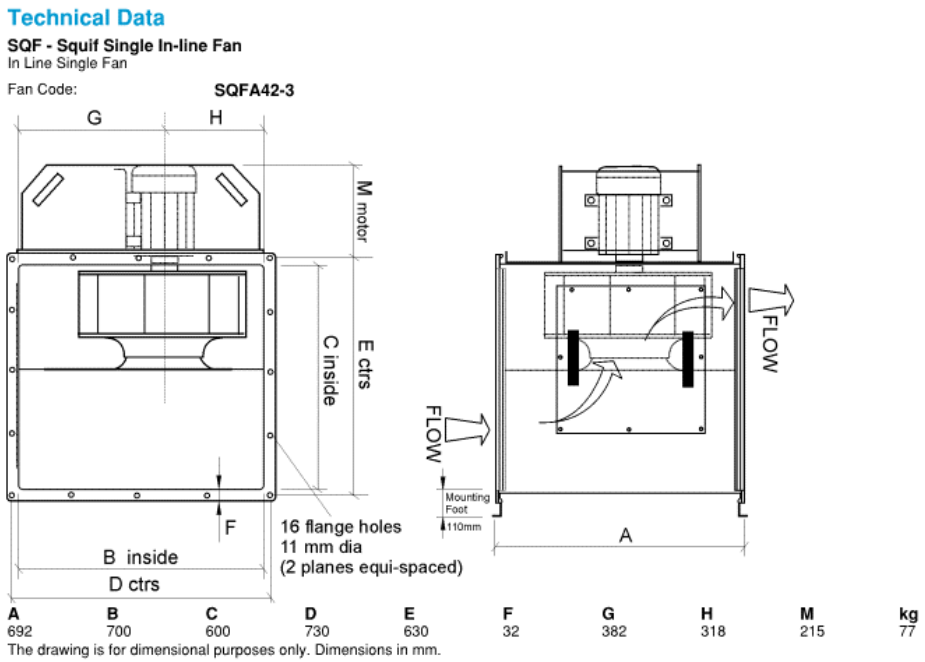

Figure 6. Kitchen extract fan dimensions.

Meinhardt (UK) Ltd
10 Aldersgate Street
London
EC1A 4HJ
T: +44 (0) 20 7831 7969

www.meinhardt.co.uk