



11 Commercial Street - Newport



Planning Statement

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CSN-MDC-XX-ZZ-SP-H-1004 – 11 Commercial Street Newport – Ventilation Statement

Commercial Kitchen Canopy, Ventilation, Noise and Odour Assessment Statement

This document has been prepared to address and satisfy the planning condition relating to the mechanical extraction of fumes from food preparation areas within each unit. In accordance with the condition, all cooking-related fumes shall be mechanically extracted to a discharge point agreed in writing by the Local Planning Authority (LPA).

Full details of the proposed extraction equipment, including discharge arrangements, will be compiled with a full design prior to installation. The approved system will be installed before any unit commences operations involving food preparation and cooking, and will be maintained thereafter in accordance with the manufacturer's specifications.

Canopy Construction

The kitchen extraction canopies will be constructed from high-grade stainless steel with a polished finish suitable for use in commercial kitchen environments. Fabrication will ensure all surfaces are smooth and free of sharp edges or exposed joints, with internal features designed to aid regular cleaning and maintenance. The canopies will include integrated condensation channels and will be installed flush to ceiling and wall surfaces to eliminate dust traps. Where required, infill panels matching the canopy finish will be installed for a continuous hygienic finish.

Splashbacks

Stainless steel splashbacks, matching the finish of the canopies, will be installed on the rear and side walls beneath the extraction units. These will extend from the base of the canopy down to floor level and will be sealed appropriately using food-safe silicone sealant where absolutely necessary. Joining trims will be prioritised to ensure long-term durability and hygiene compliance.

Lighting

Each canopy will be equipped with vapour-proof, recessed lighting fixtures suitable for high-temperature and humid environments. Lighting will provide a sufficient level of illumination at working surfaces to comply with operational standards for food preparation.

Airflow

All ductwork associated with the kitchen ventilation system will comply with industry best practice as outlined in HVCA specifications DW/172 and DW/144. Ducts will follow the most direct and efficient routes to discharge points, minimising bends and horizontal runs to improve airflow and ease of cleaning. Internal duct surfaces will be smooth to inhibit grease build-up.

Fan Equipment

Ventilation systems will include appropriately rated fans designed to meet the extraction and air supply requirements of the kitchen. Fans will be fitted with variable speed controls, local isolators, and emergency stop mechanisms. All equipment will be mounted with vibration-resistant fixings to minimise transmission of noise and vibration to adjacent areas. Fans and motors will be housed in enclosures that allow easy access for maintenance and meet all relevant fire and safety standards.

Grease Filtration

The extraction canopies will incorporate internal plenums fitted with stainless steel baffle filters to capture airborne grease before it enters the ductwork. Filters will be arranged to prevent bypass of extracted air and will be removable for daily cleaning. The design ensures compatibility with commercial dishwashing units for efficient maintenance. Filter positioning will take into account adjacent high-temperature equipment to avoid damage or performance reduction.

Ductwork Requirements

The kitchen extract system will be compliant with BESA Specification for Kitchen Ventilation Systems DW/172. Internal surfaces of the kitchen extract systems will be rectangular and free of any irregularities which make grease accumulation more likely and cleaning more difficult.

The design will include access panels either side of every bend and at a maximum spacing of 2m in the horizontal ductwork, to facilitate manual cleaning. Access panels will be provided in sufficient number, quality and size, to enable unrestricted access for regular cleaning and inspection of the internal surfaces and in-line components. All access panels will be in accordance with the requirements of DW/144, DW/172 & TR/19.

The extract system will be designed and commissioned to ensure the kitchen as a whole is under a negative pressure and allows for a make-up air between 75-95% of the extracted quantity, to prevent migration of odours and/or heat to other premises or public areas.

The fan unit selected will be suitable for kitchen extraction and be fully accessible for cleaning, with the motor & wiring out of the airstream, to minimise the risk of ignition.

Air Balance and Supply Strategy

The kitchen supply air system provided will be installed in accordance with DW172 Section 6. The supply system will be positioned as to not obstruct safe access to the kitchen extract system.

The calculations used to provide sufficient fresh air to ensure complete combustion of fuel and provide safe operation for gas equipment (BS6173:2009) will be based between 75-95% of the extract volume of air to ensure the kitchen is kept under a negative pressure.

Make-up air will be introduced into the kitchen by means of the canopy or ventilated ceiling, or through the ventilation system or by a combination of all three.

An air supply temperature of 10 ° C is considered a minimum for comfort directly below the supply terminals (BSRIA Study Feb 2013). This can be gained by using an Electric Heater Battery or Low Pressure, Hot Water Coil and offered as a separate item

Performance Criteria:

All kitchen ventilation systems must comply with the following performance criteria:

CRITERIA	PERFORMANCE
Fire	System must meet the fire safety requirements of the development Fire Strategy
Odour	No objectionable or offensive odours will be perceived by neighbouring receptors
Grease	Surface grease deposit limits to be in line with BESA TR/19. Maximum deposit not to exceed 200microns inside the kitchen ventilation system. No grease emission from the kitchen ventilation system.
Smoke	World Health Organisation for maximum levels: PM2.5 - 10µg/m ³ annual mean, 25µg/m ³ 24-hour mean PM10 - 20µg/m ³ annual mean, 50µg/m ³ 24-hour mean
Ozone	World Health Organisation for maximum levels: 100 µg/m ³ 8-hour mean
Noise	Noise emissions limited to comply with the developments noise criteria

Kitchen Ventilation Design - "Example Cookline For Vendor"

Project	11 Commercial Street Newport	Designed By	Shane Burchell	Date	15/06/2025
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Item Ref	Appliance	Width (m)	Depth (m)	Area (m²)	Power	Coefficient	Volume
	Benches, Table & Worktops	0.600	0.800	0.480	N/A	0.03	0.014
	Deep Fat Fryer *(3no.)	0.600	0.800	0.480	Electric	0.45	0.216
	Benches, Table & Worktops	0.600	0.800	0.480	N/A	0.03	0.014
	Deep Fat Fryer *(3no.)	0.350	0.500	0.175	Electric	0.45	0.079
	Induction Hob, Ceramic Stove	0.380	0.600	0.228	Electric	0.20	0.046
	Mild Steel Griddle	0.900	0.600	0.540	Electric	0.25	0.135
	Bains Marie, Hot Cupboard	0.600	0.300	0.180	Electric	0.15	0.027
Drawing Ref		Drawing		Theoretical Extract Volume Required (m³/sec)		0.531	
Revision		Rev 0		Canopy Factor		Overhead Wall (OPEN BOTH ENDS)	
						1.25	

CANOPY DETAILS		
Canopy Type	Wall - Extract Only	
Canopy Length	3000	mm
Canopy Depth	1300	mm
Canopy Back Height	500	mm
Canopy Front Height	500	mm
Canopy Area	3.900	m²
Face Velocity Method	0.975	m³/sec

FILTER DETAILS		
Filter Type	Baffle Filter	
Filter Size	500 x 500	mm
Number Of Filters	4	no.
Volume Per Filter	0.166	m³/sec
Free Area Per Filter	0.098	m²
Velocity Per Filter	1.7	m/s
Pressure Loss	27	Pa

GRILLE DETAILS		
Grille Type	Canopy - Perforated	
Grille Size	1395 x 345	mm
Number Of Grilles	2	no.
Volume Per Grille	0.340	m³/sec
Free Area Per Grille	0.193	m²
Velocity Per Grille	1.8	m/s
Pressure Loss	38	Pa

EXTRACT SYSTEM DETAILS			
Extract Volume Required	0.664	0.800	m³/sec
Header Velocity	(Advised 6 - 9)	6.3	m/s
Header Duct Size	(Rectangle)	500 x 250	mm
Number Of Spigot		1	no.
Spigot Velocity	(Advised 5 - 7)	6.3	m/s
Spigot Duct Size	(Rectangle)	500 x 250	mm
Termination Type			
Termination Velocity			m/s
Termination Size	(Rectangle)		mm
Estimated System Meterage			m
Pressure Loss Of Ductwork			Pa
Inlet Attenuation	TBC		mm
Outlet Attenuation	TBC		mm
Odour Control	TBC		
Smoke Control	TBC		
Grease Control	TBC		
Number Of Access Doors	TBC		

SUPPLY AIR SYSTEM DETAILS			
85% Supply Volume Required		0.680	m³/sec
Header Velocity	(Advised 6 - 8)	7.0	m/s
Header Duct Size	(Rectangle)	400 x 250	mm
Number Of Spigot		1	no.
Spigot Velocity	(Advised 3 - 5)	5.0	m/s
Spigot Duct Size	(Rectangle)	500 x 250	mm
Termination Type			
Termination Velocity			m/s
Termination Size	(Rectangle)		mm
Estimated System Meterage			m
Pressure Loss Of Ductwork			Pa
Outlet Attenuation	TBC		mm
Inlet Attenuation	TBC		mm
G4 Pleated Filters			mm
Number Of G4 Pleated Filters			no.
Electric Heat Battery	16° Rise	TBC	kW
Insulation		TBC	m²

Odour Assessment:

The following risk assessment for odour uses the methodology set out in Annex C of the Defra document 'Guidance on the Control of Odour and Noise from Commercial Kitchen Exhaust Systems'. The assessment is used to establish the appropriate filtration systems for incorporation into the kitchen extract design.

Key:

C – Common

U - Uncommon

Catering Type	<u>Smoke, Grease & Odour</u>			<u>Smoke, Grease & Solid Filtration</u>			<u>Low Odour</u>	<u>High Odour</u>	
	Smoke	Grease	Odour	Grease Filter	Cold Water Mist Hood	Electrostatic Precipitator	3 Stage Fine Filtration	Odour Control	Activated Carbon Filter
African	Low	Medium	Medium	C	U	C	U	C	U
Care Home	Low	Low	Low	U	U	U	C	C	U
Chinese	Low	Very High	Medium	C	C	C	U	C	U
Chargrilling	Very High	High	High	C	C	C	U	C	C
European	Low	Low	Medium	C	U	C	U	C	U
Fish & Chips	Low	High	Medium	C	C	C	U	C	U
Food Court	Low	Low	Low	C	U	C	U	U	U
Fried Chicken	Low	High	High	C	C	C	U	C	C
Indian	Low	High	Very High	C	C	C	U	C	C
Malaysian	Low	High	High	C	C	C	U	C	C
Mexican	Low	High	High	C	C	C	U	C	C
Pizzeria	Low	Low	Low	C	U	C	U	C	U
Pub Food	Medium	Medium	Medium	C	U	C	U	C	U
School/Nursey	Low	Low	Low	U	U	U	C	U	U
Sea Food	Low	Low	High	C	U	C	U	C	U
Turkish	High	Medium	Medium	C	U	C	U	C	U
Warmed Food	None	Low	Low	U	U	U	C	U	U

Risk Assessment for Odour Control

Odour control must be designed to prevent nuisance in a given situation. The following score methodology is suggested as a means of determining odour control requirements require at the aforementioned site.

<u>Measure</u>	<u>Score</u>	<u>Details</u>
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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	Not low level but below eaves, or discharge at above 10 m/s
Good	5	Discharging 1m above ridge at 15 m/s

Proximity of Dwellings

Close	10	Closest sensitive receptor less than 20m from kitchen discharge
Medium	5	Closest sensitive receptor between 20 and 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 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)

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 Food Courts

Impact Risk

Low to Medium	Low Level Odour Control if any	Less than 20
High	High Level Odour Control	20-35
Very High	Very High Level Pollution Control	More than 35

<u>Total Score</u>	<u>19</u> <u>Electrostatic Precipitator Units Recommended</u>
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Sound Attenuation:

The noise generated by the kitchen ventilation systems shall be kept to a minimum. The level of noise and vibration from the plant will not be transmitted through either the structure of the building or the ductwork so as to be a nuisance for those either working in the conditioned space, or in adjoining premises.

Tolerance of noise levels is subjective but within the conditional space levels should meet the requirements of BS 8233 "Guidance on sound insulation and noise reduction for buildings" which are summarized; BB93 Acoustic design of schools-performance standards. Kitchens 50 dBA. The atmospheric side of any system requires individual examination but Local Authorities will usually advise on their specific noise requirements.

The systems should comply to BS 4142 - "Rating of Industrial Noise Affecting Mixed Residential and Industrial Areas" as the basis of the design for attenuation. Generally, the maximum acceptable noise level at the discharge point of the system is that which should not increase the overall level by more than 2dB(A).

Where in-line attenuators are used they shall be constructed so that there is no grease impregnation into the acoustic media. A protective membrane, such as melinex lining will be specified for this purpose, this will reduce the design performance of the attenuator.

Isolation of vibration using correctly specified resilient mountings or pads, together with heat resistant flexible connections to the ductwork will also reduce transmission to the structure.

Noise Generating Equipment – By virtue the plant is noise generating and measures shall be taken to reduce and mitigate plant noise break out to local residential receptors/premises. The final design will include acoustic measures to comply with criterion as indicated with a noise report if available

These can be controlled using measures such as:-

- Acoustic Silencers
- Low Velocity Ductwork Sizing
- Acoustic Fan Jackets
- Anti-Vibration Ancillaries

Cleaning:

The following are the Maximum Grease Deposit Levels as set out in BESA Guide to Good Practice Internal Cleanliness of Ventilation Systems TR/19 and these apply to this specification:

<u>Wet Film Thickness Test Measurement</u>	<u>Required Action</u>
Average of 200microns across Kitchen Extract System	Complete system cleaning required
Any single measurement above 500microns i.e. 'hot spots'	Urgent Local Clean Required (i.e. specific attention to problem areas)

The below table sets out the minimum frequency with which full system cleaning of ductwork will be undertaken. Minimum frequency of ductwork cleaning (as set out in BESA Guide to Good Practice Internal Cleanliness of Ventilation Systems TR/19.):

	<u>Frying time</u>	<u>Minimum clean frequency</u>
Heavy Use	12-16 hours per day	3 Monthly
Moderate Use	6-12 hours per day	6 Monthly
Low Use	2-6 hours per day	12 Monthly

The canopy and extract plenum are an area of higher fire risk and consideration will be given to more frequent cleaning. Cleaning operations will be done in line with the frequencies indicated above. Post-clean wet film thickness tests will be representative of the entire system and will not exceed 50 µm.

Operation & Maintenance:

Issue of Operating and Maintenance Instruction Manuals is a pre-requisite of practical completion of the Works. Ensure that the following are included:

- A full description of each of the systems installed.
- A description of the mode of operation of all systems.
- Diagrammatic drawings of each system indicating principal items of plant, equipment, etc.
- A set of drawings of the installation upon which is recorded all plant settings, flow rates, and noise level readings as adjusted and measured during the testing and commissioning period.

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