

Project name	Camberwell Park School		
Design note title	Scheme of Kitchen Extraction		
Document reference	CPK-VES-XX-XX-RP-ME-0001		
Author	JB		
Revision	02		
Date	29 October 2021	Approved	✓

1. INTRODUCTION

This Technical Note has been produced to provide a Kitchen Odour Risk Assessment, as well as providing details of the proposed kitchen ventilation extraction scheme for the proposed new build Camberwell Park School. The proposed new building is located off Brookside Road, Manchester, next to an existing school.

2. KITCHEN ODOUR RISK ASSESSMENT

This section presents the Kitchen Odour Risk Assessment, which has been undertaken based on the scoring matrix and descriptors provided in Appendix 3 of the EMAQ+ guidance.

2.1 Dispersion

A review of the building plans was undertaken to identify the kitchen extract point for the proposed building. The kitchen exhaust will rise through the building and discharge above roof level. The extract is anticipated to have a discharge rate of between 10 – 15m/s. Details of the proposed external extract fan layout is shown in Appendix C.

Based on the height (roof level) and anticipated dispersion rate of the extract serving the kitchen, the dispersion score for the proposed kitchen is considered to be Moderate. A dispersion score of 10 has therefore been assigned.

Table 1 – Dispersion Scores

Dispersion		
Score	Score	Details
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 10m/s
Moderate	10	Discharging 1m above eaves at 10-15m/s
Good	5	Discharging 1m above ridge at 15m/s

2.2 Proximity

EMAQ+ guidance groups proximity by distance from a kitchen extract point in metres, where 'close' is within 20m, 'Medium' is between 20m and 100m, and 'Far' is considered to be further than 100m. Accordingly, buffers at 20m and 100m from the proposed kitchen extract point have been created, as shown below in Figure 1.

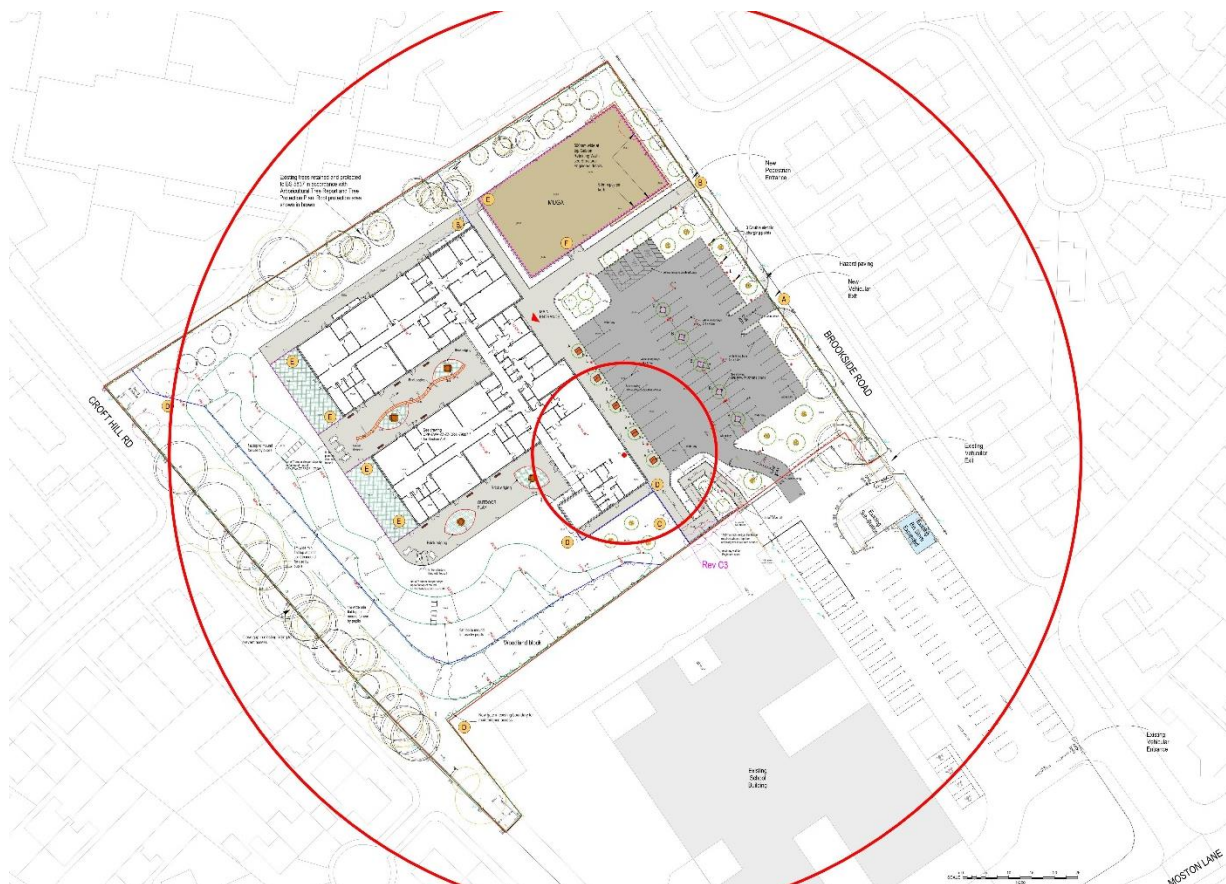


Figure 1 - 20m and 100m Buffer Zone

The figure above shows that there are no high sensitivity receptors within 20m of the proposed kitchen extract, where high sensitivity receptors are defined as residential dwellings in accordance with IAQM guidance. Accordingly, the Proximity is defined as Medium to all sources.

Table 2 – Proximity Scores

Proximity		
Score	Score	Details
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

2.3 Size of Kitchen

The size of the proposed kitchen is estimated to fall with the Medium category, between 30 and 100 covers.

Table 3 – Size Scores

Size of Kitchen		
Score	Score	Details
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

2.4 Cooking Type

The nature of the food and cooking type (odour/grease loading) undertaken in the proposed kitchen is taken to include those within the Low category. See Table 4 below.

Table 4 – Cooking Type Scores

Cooking Type		
Score	Score	Details
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, Japanese or Chinese
Low	1	Most pubs, Italian, French, Pizza or Steakhouse

2.5 Risk Assessment Conclusions

The sum of the above scores is used to determine the impact risk and associated odour control requirement at source as shown in Table 5.

Table 5 – Total Score

Conclusion		
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

The total combined score for the kitchen is 19, as this is less than 20, it indicates that the risk of problems occurring due to this type of cooking activity is low. Based on this assessment approach the emissions from this kitchen will need a low level of odour control to prevent nuisance.

3. KITCHEN EXTRACTION

The method of kitchen extract ventilation is to be via extract canopy arrangement, with local air capture canopy located above areas of cooking. Grease filters shall be integrated within the canopies.

Kitchen exhaust ductwork shall discharge at roof level via high velocity outlets at least 1.0m above the nearest openable window.

Kitchen ductwork installation shall be designed and installed and commissioned in accordance with DW 172 HVCA.

Make-up air supply to the kitchen shall be provided by a supply fan with an LTHW coil for space heating. Supply flow rate shall be 85% of the extract.

The following appendices detail the extraction design.

Appendix A - Kitchen Layout

Revisions	
A	14.04.20
B	15.09.20
C	21.01.21

kitchequip.co.uk

CATERING EQUIPMENT & TABLEWARE DISTRIBUTORS

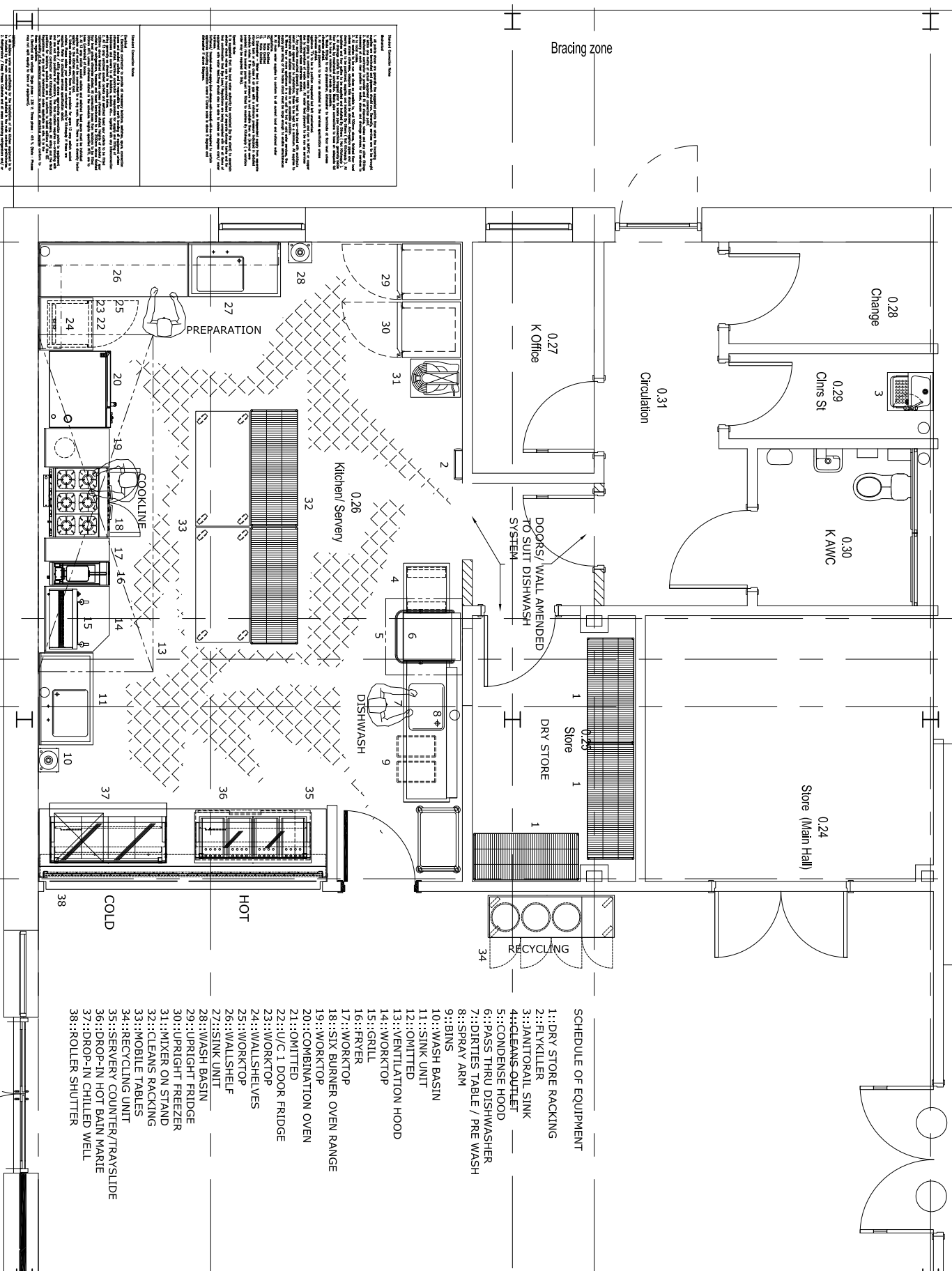
Grant View
New Lane
Barnsley
S70 2JH
Tel: 0114 588477
Fax: 0114 588477
Email: info@kitchequip.co.uk
www.kitchequip.co.uk

Client
CAMBERWELL SCHOOL

Project
CAMBERWELL SCHOOL

Drz Title
FOODSERVICE LAYOUT

Date	14.03.2020	Scale	Drawn By
Drawn No	1:25	Issued	DH
Rev No	KE/1564/RS	Rev No	C



Notes

1. To be used as a guide only. The client is responsible for the accuracy of the information provided. The client is responsible for the accuracy of the information provided. The client is responsible for the accuracy of the information provided.

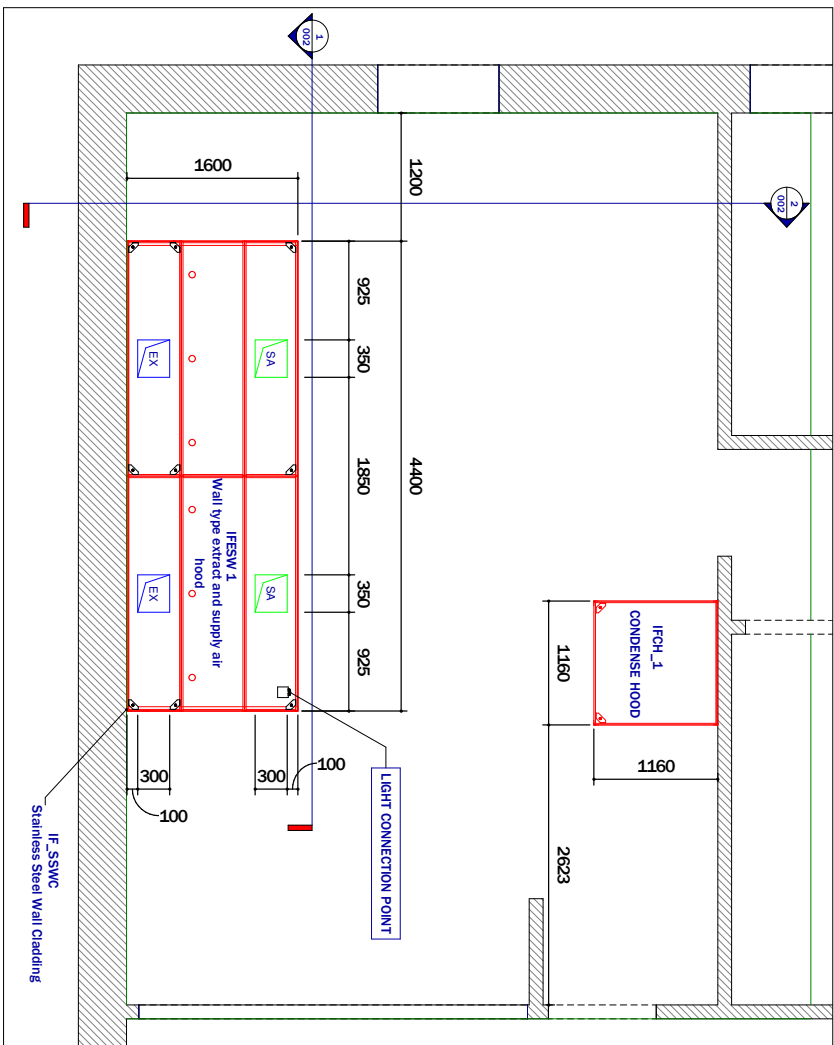
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TECHNICAL DESIGN NOTE



Appendix B - Kitchen Hood



- ALL ELECTRICAL CONNECTIONS BY OTHERS.
- ALL FANS AND DUCT WORK BY OTHERS.
- ALL SPIGOTS WILL BE FIXED IN POSITIONS SHOWN READY FOR FINAL CONNECTION TO MAIN DUCTS BY OTHERS.
- HOOD IS MANUFACTURED TO SUIT A MAX SUSPENDED CEILING HEIGHT OF 2.450M. HIGHER CEILINGS WILL REQUIRE VALANCE TO TOP OF HOOD AT EXTRA COST.
- STAINLESS STEEL WALL CLADDING REQUIRES A FLAT DRY SURFACE FOR BONDING TO.
- ALL SERVICES MUST AVOID CANOPY HANGING POINTS.
- STRUCTURAL CEILING HEIGHT TO BE PROVIDED TO MANUFACTURE.
- NO ALLOWANCE HAS BEEN MADE FOR: CANOPY EMERGENCY LIGHTING, POWERED ACCESS EQUIPMENT, SECONDARY SUPPORT STEEL WORK, MIDDLE AREA LIGHTING, ODOUR CONTROL, ELECTRICAL WORKS.

KEY		
IMAGE	DESCRIPTION	CODE
	CANOPY HANGING POINT	HP
	CANOPY LIGHT CONNECTION POINT	CP
	LED SPOT LIGHT	SL
	INFILL PANEL	IP
	GALVANIZED STEEL EXTRACT DUCT	EX
	GALVANIZED STEEL SUPPLY AIR DUCT	SA

HOOD DETAILS										
Item Number	Manufacturer	Description	Number of Canopy Sections	Hood Length	Hood Depth	Front Hood Height	Hood Floor Offset	Hood Weight	Hood Notes	
IFESW 1	Innox	Wall type extract and supply air hood	2	4400	1600	480	2000	197.12 kg		
IFCH 1	Innox	CONDENSE HOOD		1160	1160	480	2000	30.95 kg	NON MECHANICAL	
EXTRACT VOLUME										
Item Number	Extract Volume	Extract Pressure Drop	No of Extract Spigots	Extract Spigot Width	Extract Spigot Depth	Extract Spigot Velocity				
IFESW 1	1.113 m³/s	120.0 Pa	2	360	300	5.300 m/s				
SUPPLY AIR VOLUME										
Item Number	Supply Air Volume	Supply Air Pressure Drop	No of Supply Air Spigots	Supply Air Spigot Width	Supply Air Spigot Depth	Supply Air Spigot Velocity				
IFESW 1	0.946 m³/s	80.0 Pa	2	360	300	4.505 m/s				
LIGHTS										
Item Number	Light Manufacturer	Light Model	Number of Lights	Lights Volts	Lights Watts	Lights Amps	Lights Notes			
IFESW 1	Sosinore	Nano Incaptor	6	230 V	29 W	3.000 A	Pre-wired to single connection point			
FILTERS										
Item Number	Filter Manufacturer	Type of Filter	No of Filters	Filter Size						
IFESW 1	Longer	Baffle Filter	6	500mm x 400mm						
CLADDING SCHEDULE										
Item Number	Manufacturer	Cladding Length	Cladding Height	Cladding Floor Offset	Number of Cladding Sheets Required	Cladding Notes				
IC_SSWC	Innox	4400	2000	100	4.4	Edge and flatten edges				

VENTILATION CANOPY FLOW RATE CALCULATION SHEET		
Project: CAMBERWELL SCHOOL		
	Job No:	5945
	Rev:	
Drawing: KITCHENQUIP KE1964-IFS REV B		
Ref:		

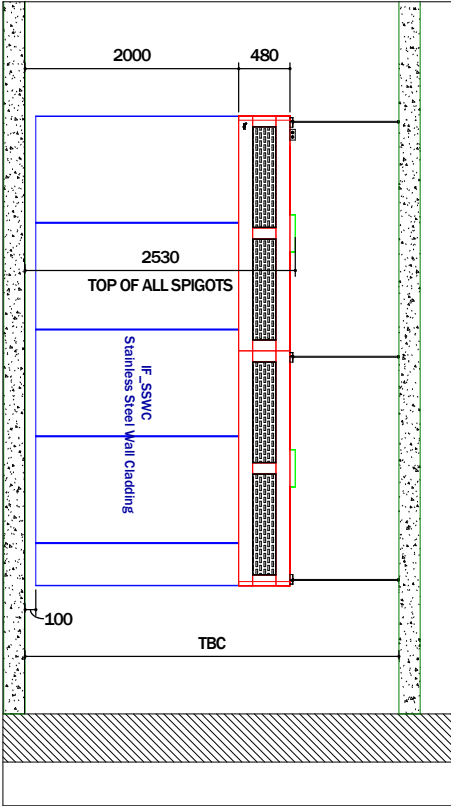
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The above calculation is to allow ventilation of equipment under the canopy only, it does not allow for general ventilation to the kitchen, and is based on DW/172 Extract Flow Rate Calculation Method 1.

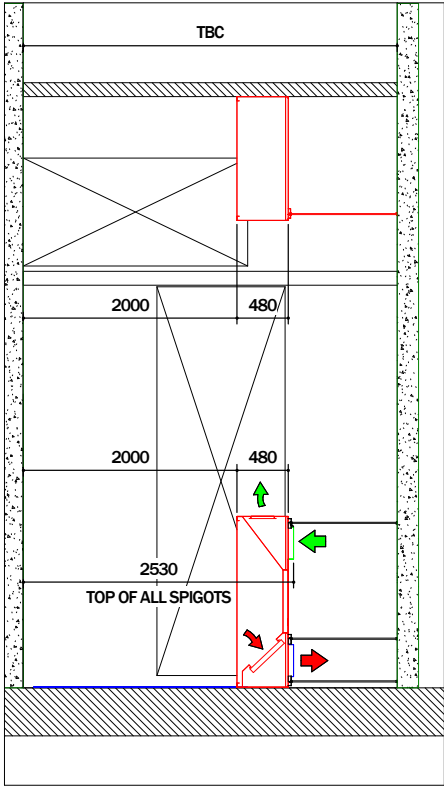
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The logos for the exhibitors are displayed in a row. From left to right: the **inox** logo in white on a blue background; the **ceda** logo in black with 'SILVER PARTNER' in smaller text below it, accompanied by a colorful circular graphic; and the **FEA Association** logo in orange and blue, with the text 'Foodservice Equipment Association' below it.

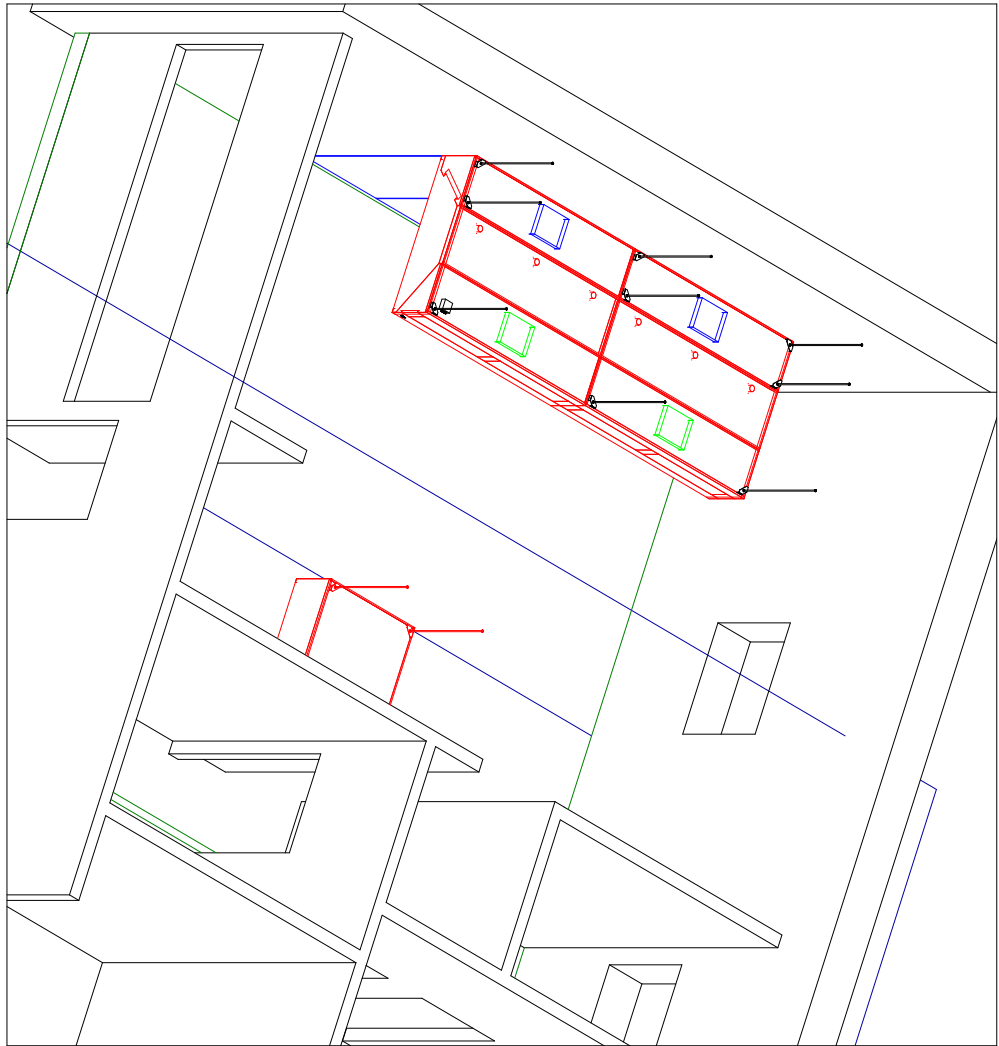
PROJECT NAME	
CAMBERWELL SCHOOL	
PROJECT ADDRESS	
BROOKSIDE ROAD MOSTON MANCHESTER M40 9GJ	
TITLE	
KITCHEN HOOD PLAN	
CLIENT	
KITCHENQUIP	
PROJECT NUMBER	REV
5945	P01
DRAWING NUMBER	SCALE (@ A1)
001	As Indicated
DRAWN BY	CHECKED BY
MP	LP
	DATE
	06/05/20



1
Section 1
1 : 25



2
Section 2
1 : 25



3
(3D)



Rev	Description	Date
P01	FOR COMMENT / APPROVAL	2001-21

PROJECT NAME
**CAMBERWELL
SCHOOL**

PROJECT ADDRESS
**BROOKSIDE
ROAD
MOSTON
MANCHESTER
M40 9GJ**

TITLE
SECTIONS AND 3D

CLIENT
KITCHEQUIP

PROJECT NUMBER
5945

REV
P01

DRAWING NUMBER
002

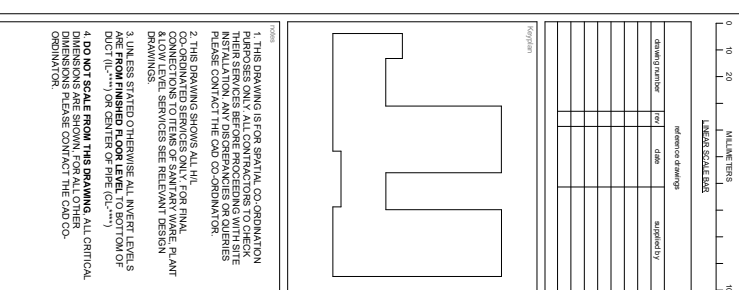
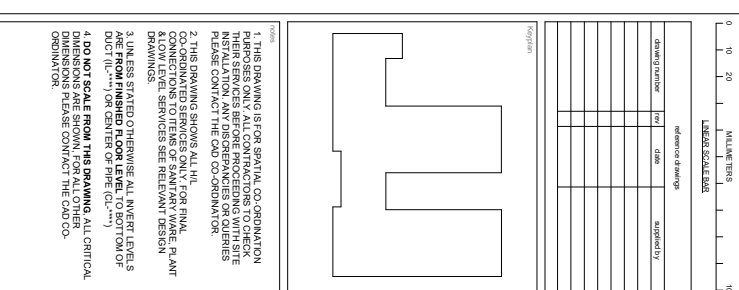
SCALE (@ A1)
1 : 25

DRAWN BY
Author

CHECKED BY
Checker

DATE
01/20/21

Appendix C - External Extract Fan Layout



0 10 20

FEET

SCALE

0 10 20

METERS

DATE: _____

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OWNER: _____

DESIGNER: _____

PROJECT: _____

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0 10 20

FEET

SCALE

0 10 20

METERS

REFERENCE TO DRAWING

drawing number	rev	date	applied by

THIS DRAWING IS FOR SPITAL CO. ORIGINATOR PURPOSES ONLY. ALL CONTRACTORS TO CHECK THEIR SERVICES BEFORE PROCEEDING WITH SITE RELEASE. CONTACT THE CAD CO-ORDINATOR.

THIS DRAWING SHOWS ALL LI, CO-ORDINATED SERVICES ONLY. FOR INAL CONNECTIONS TO ITEMS OF SANITARY WARE, PLANT AND SERVICES SEE RELEVANT DESIGN DRAWINGS.

THIS LINE ESS STATES OTHERWISE ALL INVERT LEVELS ARE FROM FINISHED FLOOR LEVEL TO BOTTOM OF DUCT (IL-****) OR CENTER OF PIPE (CL-****)

4. DO NOT SCALE FROM THIS DRAWING. ALL CRITICAL DIMENSIONS ARE SHOWN. FOR ALL OTHER DIMENSIONS PLEASE CONTACT THE CAD CO-ORDINATOR.

Appendix D - Kitchen Extract Fan Details

Nuaire, Western Industrial Estate, Caerphilly, CF83 1NA, United Kingdom. email:info@nuaire.co.uk

UK Commercial enquiries T:029 2085 8200 UK Residential enquiries T:029 2085 8500 International enquiries T:+44.29 2085 8497

Whilst the information given on this data sheet is fan specific, it is in summary and reference to the product selection catalogue and installation & maintenance documents is recommended.

This data sheet produced on 18 Feb 2021 13:34 using software version 4.7.3785.0

Project Details

Location: EF 11 - Kitchen Extract - External

Technical Data

SQF - Squif Single In-line Fans

Fan Code: **SQFA43-3ES**
Installation Manual Links: 671175

Required duty: 1.113 m³/s at 250 Pa
Addition for ancillaries: +37.78 Pa
Actual duty: 1.355 m³/s at 427 Pa
Actual at required flow: 1.113 m³/s at 499 Pa

When speed controlled to required duty (82.12%):

Fan Input Power: **0.565 kW**
Motor Input Power: **0.763 kW**
Specific Fan Power: **0.7 W/(l/s)**
Velocity at required duty: 2.283 m/s
Fan Total Efficiency: 57%

At full speed:

Fan Input Power: 1.021 kW
Maximum Fan Input Power: 1.043 kW
Motor Input Power: 1.356 kW
Specific Fan Power: 1.0 W/(l/s)
Fan Total Efficiency: 39%

Maximum Fan Speed: 4 pole, 1,450 RPM
Electrical Supply: 400V 3 Phase 50 Hz
Nominal Motor Rating: 1.1 kW
Motor current (flc): 2.5 A
Motor starting current (sc): 2.5 A
Motor Efficiency: IE2 / High Efficiency

Max. operating temp: 90°C
Weight: 102 kg
Starting currents are nominal for D.O.L. starting.

Sound Data

Acoustic performance to ISO 13347 and AMCA 300.

Noise calculated speed controlled to required duty (82.12%)

Sound Power Levels re 1 pWatts (Hz):								
Hz	63	125	250	500	1k	2k	4k	8k
Induct Inlet	87	93	80	76	72	73	73	66
Induct Outlet	84	94	76	74	77	78	74	68
Breakout	81	87	72	68	63	64	58	44
For 100% speed:	+2	+2	+3	+3	+5	+5	+5	+5

dBA is spherical at 3 metres. For hemi-spherical add 3 dBA.

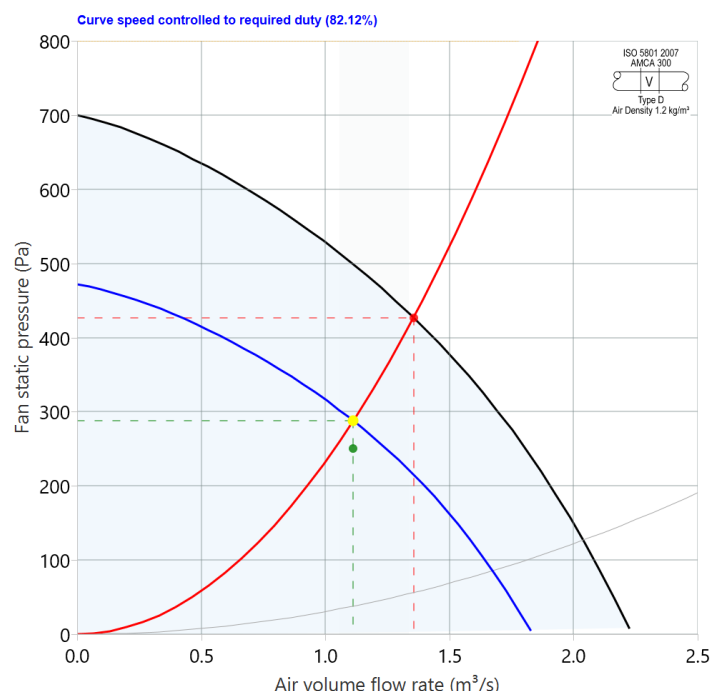
Values shown are for inlet Lw, outlet Lw sound power & breakout levels for Installation Type D: ducted inlet, ducted outlet. Ratings include the effects of duct end correction.

SQFS3S

At all volumes 0 -4 -8 -18 -24 -19 -16 -11

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.

Performance Chart



Additional Notes

Selected Ancillaries

1 x NAV5	Anti-vibration mounting kit
1 x ES-LCD	Ecosmart LCD Touch Screen User Control (White)
1 x SQFS3S	Standard silencer
2 x SQFF3	Square flexible connector double flanged
SQFS3S - Standard silencer	
Resistance at required duty	37.78 Pa @ 1.11 m³/s
Size:	900 mm (L) 810 mm (W) 710 mm (H)
Weight:	32.0 kg

Specification

In-line centrifugal fan suitable for both vertical & horizontal mounting. The unit casing shall be heavy gauge galvanised steel. The fans shall be of high efficiency backward curved centrifugal design, manufactured in galvanised steel. Fans shall be direct drive with IE2 high efficiency motors to BS5000 as standard, where appropriate. The unit motor shall be positioned outside the ventilation airflow path. The unit shall be capable of continuous operation at 90°C.

Unit fitted with full Ecosmart controls, BMS interfaces and commissioning controls. Ecosmart fans incorporate (in a convenient separate enclosure) a control package providing full Ecosmart functionality. The fan shall have the following energy saving functions integrally mounted within the fan unit on a purpose made PCB, all components pre-wired by the manufacturer: integral maximum and minimum speed adjustment/setting; integral adjustable run on timer; integral BMS interfaces, 0-10v and volt free failure indication.

NAV5

Resilient rubber anti-vibration mountings, supplied as a set of 4.

ES-LCD

LCD touch screen ventilation user control panel in white compatible with Ecosmart system. Control has built in time clock. Supplied with pre-plugged 10m length of communication cable.

SQFF3

Double flanged flexible connector manufactured from flame proof material. Heat resistant to 400°C with excellent resistance to chemicals, ozone, oil and grease. The connector is air-tight, waterproof and tested to BS476 Part 7.



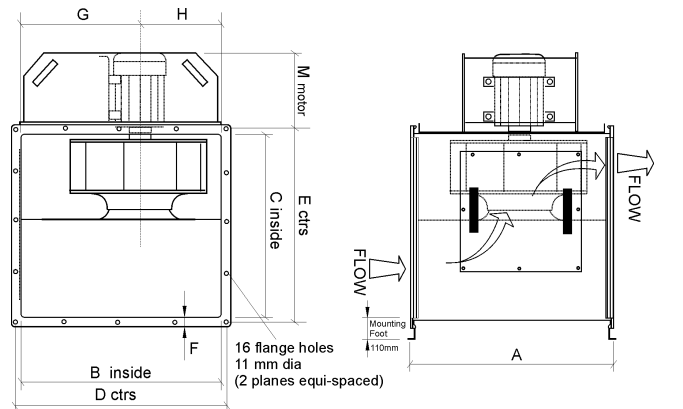
SUMMARY FAN DATA SHEET

Nuaire, Western Industrial Estate, Caerphilly, CF83 1NA, United Kingdom. email:info@nuaire.co.uk

UK Commercial enquiries T:029 2085 8200 UK Residential enquiries T:029 2085 8500 International enquiries T:+44.29 2085 8497

Whilst the information given on this data sheet is fan specific, it is in summary and reference to the product selection catalogue and installation & maintenance documents is recommended.
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Fan Dimensions



A	B	C	D	E	F	G	H	M
750	750	650	780	680	32	412	338	231

kg

102.0

Length: Width: Height:

750 780 911

Drawing is for dimensional purposes only. Dimensions in mm.