The Treehouse MCR Kitchen Filtration Strategy

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Issue History Record

Revision	Date	Description	Author	Checked	Approved
001	12/03/24	Kitchen Filtration Strategy	MB	HR	HR
002	10/05/24	Revised Kitchen Filtration Strategy	MB	HR	DMC
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1.0 / Introduction

The following report provides an overview of the components integral to the efficient operation and maintenance of the building's air filtration and odour/fume abatement systems. Included within this document are datasheets outlining the specifications of all filters to be installed, along with detailed drawings illustrating the precise locations of filtration units, fans, odour/fume abatement control equipment, and inspection hatches.

Level 14 air conditioning and ventilation layouts have been provided to delineate the number and positioning of fans, electrostatic precipitators (ESP), and UV-O units within the building structure.

Thermal convection airflow calculations and catering / kitchen equipment details for the GF, Mezz and 13th floor have been provided to justify risk scores submitted kitchen extraction risk assessment.

2.0 / Details of Filters

ESP & UV-O units shall be installed in the highlighted locations on figure 1 and figure 2 at L14:

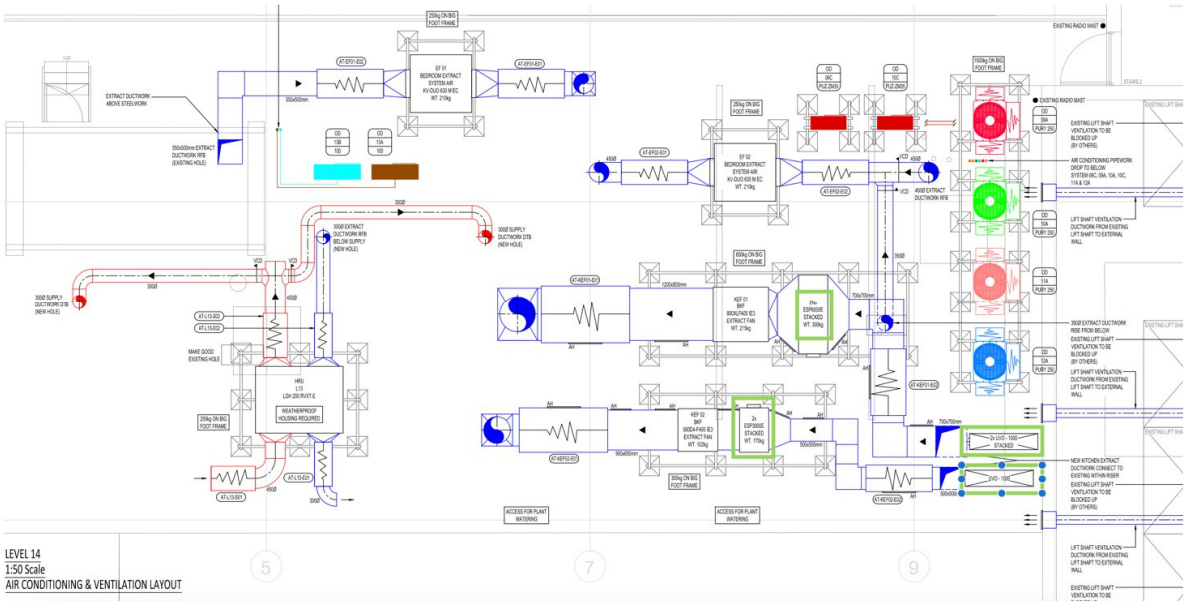


Figure 1 L14 AC & Ventilation Layout

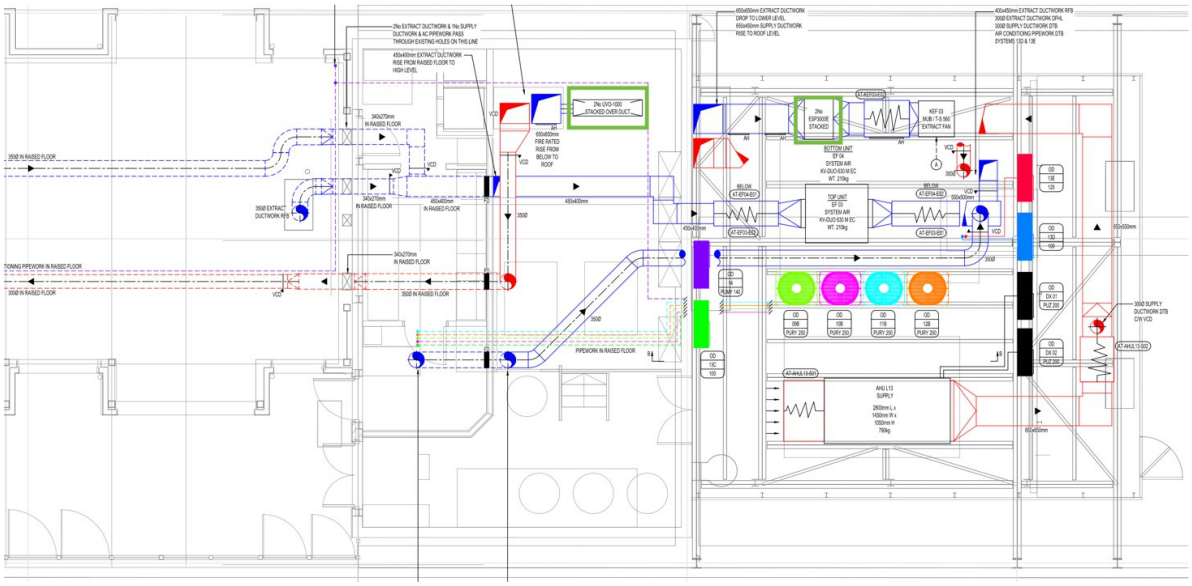


Figure 2 L14 AC & Ventilation Layout

Electrostatic Precipitation Filter Unit (ESP), models ESP 3000 EI / ESP 6000 EI.

Model	**ESP 3000 EI**	**ESP 6000 EI**
Power consumption	30 Watts	50 Watts
Maximum air handling capacity	Up to 1.4m3/sec	Up to 2.8m3/sec
Dimensions	900 x 630 x 640 mm	1800 x 630 x 640 mm
Weight	85 kg	153 kg
Power supply	220/240 V 50 Hz 1 ph	220/240 V 50 Hz 1 ph
Filter efficiency	Up to 98%	Up to 98%
Housing	Epoxy-coated galvanised steel.	Epoxy-coated galvanised steel.
Quantity	4	2

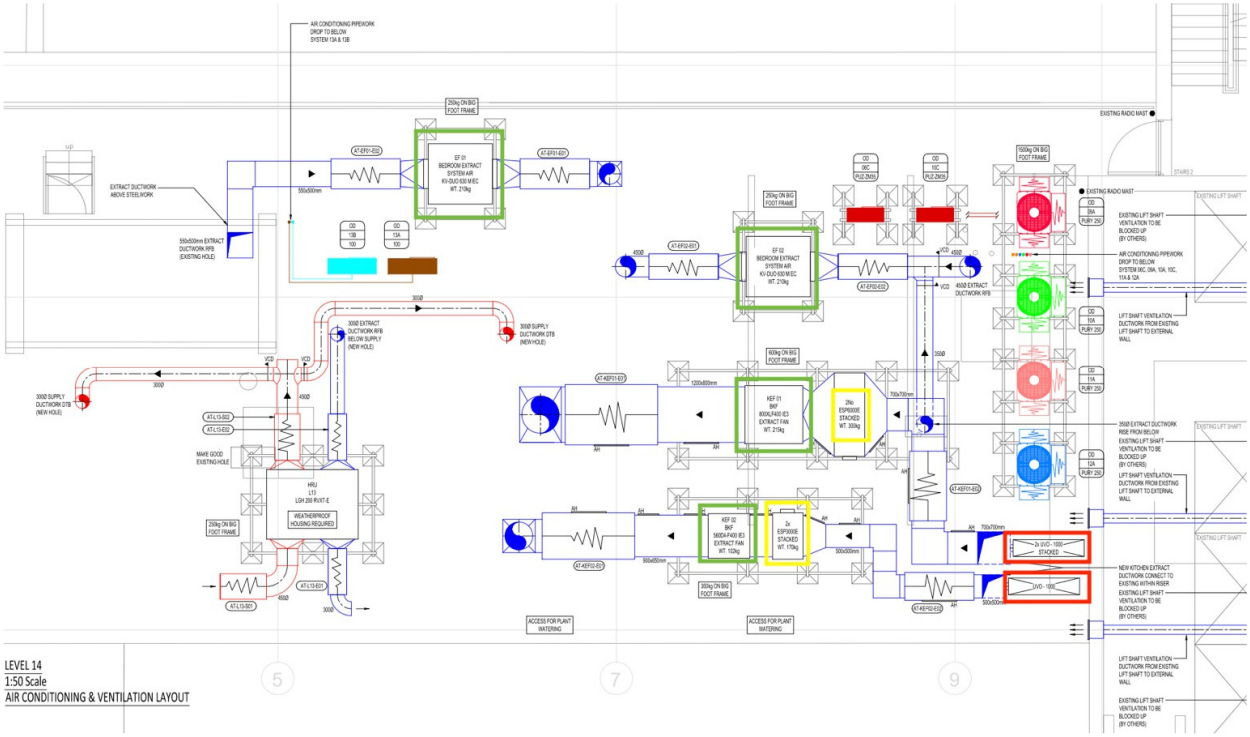
Odour Control Unit (UV-O), model UV-O 1000.

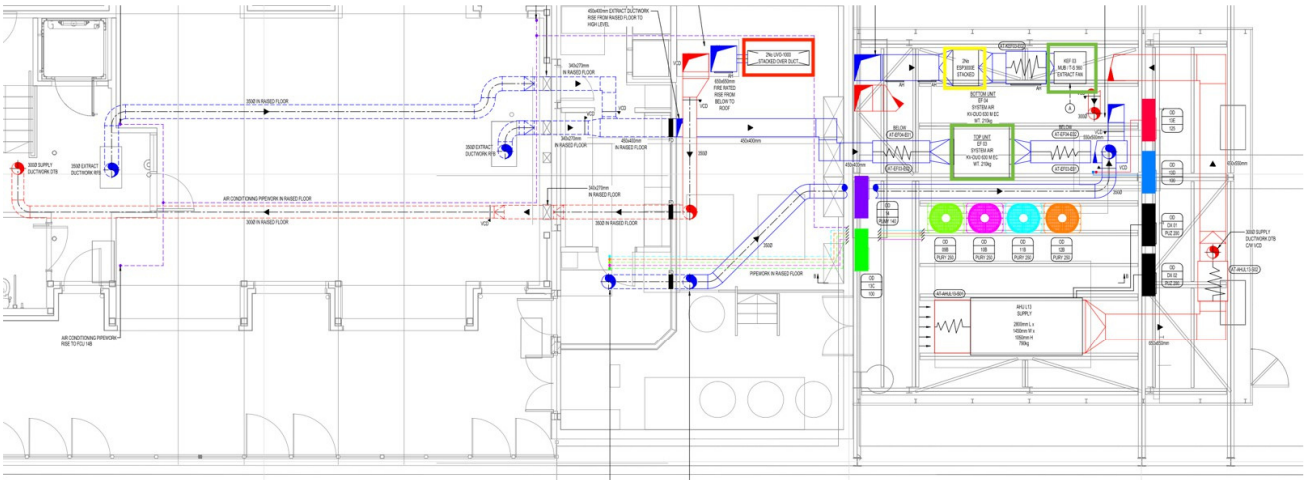
Model	**UVO1000**
Electrical supply	220/240 V 50 Hz
Max power consumption	700 Watts
Max air volume	2m3/sec
Weight	50 Kg
Dimensions	1521 x 350 x 404 mm
Quantity	5

The catering kitchens located at Ground floor, Mezzanine and 13th Floor are each fitted with dedicated stainless extraction canopies for removal of vitiated air produced during the food preparation process. The stainless steel canopies are each fitted with a number of individual baffle filters that meet Class G2 and UL classification to act as a pre filter for the systems as a whole. Once the air has passed through the canopy system, this will be extracted through the roof mounted fans via a series of ductwork running through the building. At roof level each extract system is fitted with a UVO and ESP system to reduce the grease and odour levels within the extract air to an acceptable level before this is discharged into the atmosphere.

3.0 / Location(s) of Equipment Components and Access Hatches

Level 14 drawing attached showing number & location of the Fans, ESP & UV-O units. Fans are highlighted in green, UV-O units are highlighted in red and ESP units are highlighted in yellow. Access hatches are located at every highlighted filter unit or fan.





LEVEL 14 GRILLE SCHEDULE

REF	GRILLE MODEL/TYPE	DUTY (L/S)	THROW (M)	VELOCITY (M/S)	NOMINAL NECK SIZE (MM)	OVERALL SIZE (MM)	COLOUR
WL1	WL38	400	n/a	3	500 x 500	550 x 550	TBC
WL2	WL38	400	n/a	3	500 x 500	550 x 550	TBC
WL3	WL38	120	n/a	4	250 x 250	300 x 300	TBC
RG1	ECG	250	n/a	1	550 x 550	595 x 595	TBC
RG2	0 DEG LINEAR	180	n/a	0.5	850 x 200	900 x 250	TBC
RG3	0 DEG LINEAR	180	n/a	0.5	850 x 200	900 x 250	TBC
SG1	0 DEG LINEAR	125	4.6	0.75	800 x 150	850 x 200	TBC
SG2	0 DEG LINEAR	125	4.6	0.75	800 x 150	850 x 200	TBC
SG3	0 DEG LINEAR	180	4.5	0.5	850 x 200	900 x 250	TBC
SG4	0 DEG LINEAR	180	4.5	0.5	850 x 200	900 x 250	TBC

4.0 / Maintenance and Cleaning Strategy of Filter Units

Electrostatic Precipitation Filter Unit (ESP), models ESP 3000 EI / ESP 6000 EI.

Basic maintenance activities can be carried out by the user. Please see the table below for the optimum frequency for such activities.

Note: Other activities are strictly reserved for qualified personnel. Clean

the outside of the Unit with mild detergent Every 6 months.

Basic Maintenance Activities	Frequency
Check the door sealing material (see 7.3.2 on page 27 of Purified Air, *ESP Filter Unit Technical and Operations Manual* 2016)	Every 12 months
Clean the inside of the Unit and remove dust/ grease from the filter compartment (see 7.3.2 on page 27 of Purified Air, *ESP Filter Unit Technical and Operations Manual* 2016)	From once a week to once every 3 months depending on the degree of pollution.
Clean the Mesh Pre-filter, ESP Collector Cell and the Mesh Post-filter and check for damage (see 7.3.3 on page 28 and 7.3.4 on page 28 of Purified Air, *ESP Filter Unit Technical and Operations Manual* 2016)	From once a week to once every 3 months depending on the degree of pollution.

Clean or replace the Mesh Filters and Collector Cell and clean the Main Chassis at the prescribed intervals mentioned in Maintenance and Cleaning Schedule on page 26 or:

- If the Mesh Filters and/or Collector Cell are damaged.
- When the Collector Cell starts to make a crackling sound (arcing).
- When the filtering and extraction performance of the Unit starts to decline.

It is a matter of experience to determine when the Unit needs to be cleaned, since the nature and the degree of pollution depends strongly on factors such as the location, humidity, and intensity of use etc.
Nevertheless, the filters and Main Chassis should be cleaned regularly at intervals ranging from once a week to once every 3 months using the procedures outlined in the sections below:

Removing the Mesh Filters and Collector Cell

Start the cleaning procedure by removing the Mesh Filters and Collector Cell from the Main Chassis:

a. Isolate the Unit from the mains power supply by turning the Rotary Mains Isolator Switch to the 'Off' position.
b. Allow at least 60 seconds for any static electrical charge to dissipate.
c. Double check that the mains power supply has been isolated.
d. Unscrew the top and bottom Star Knobs on the main Door Assembly anti-clockwise and open it.
e. Remove the Mesh Pre-Filter, Collector Cell and the Mesh Post-Filter in this order.
f. Remove the Filter Carrier.

Cleaning the Main Chassis

Having removed the Mesh Filters (pre and post) and the Collector Cell:

a. Remove any accumulated grease from the sump; depending on its viscosity, either via the Drain Plug (see Figure 5 - Electrostatic Precipitator Unit - Main Chassis Components on page 10) or by scooping and scraping it out.
b. Spray the sump with a high-quality degreaser and wipe over the sump's surfaces with a suitable cloth or paper towels.
c. Clean the electrical contact points on the inside of the Door Assembly, using a high-quality degreaser and a suitable cloth or paper towels, ensuring that they are free of contaminants/grease.
d. Ensure that the rubber door seal is undamaged and free from contaminants/grease, cleaning with warm soapy water if necessary.
e. Clean the Filter Carrier and Backplate, using a high-quality degreaser and a cloth, and replace in the

Cleaning the Mesh Filters (pre and post)

Clean the Mesh Filters as follows:

a. Clean the Mesh Filters (pre and post) in hot water (at approx. 60°C) to which a detergent solution has been added. This treatment can be repeated several times. A pressure washer can also be used to clean the filters.
b. Allow the Mesh Filters to dry completely after cleaning before re-inserting into the Unit.

Cleaning the Collector Cell

Clean the Collector Cell as follows:

a. Clean the Collector Cell in hot water (approx. 60°C) to which a detergent solution has been added.
b. Check the Ioniser during washing for broken Ionisation Wires.
    i. **Note:** If fitted, broken ionisation wires can simply be replaced by hooking the sprung end of the new wire over the support post, pulling the wire against the spring's tension and attaching the other end of the wire to the opposite post, having first removed the broken wire.
c. Whilst washing the Collector Cell, check to see if any of the Collector Cell's plates have been bent.
    i. **Note:** If a bent plate is found, it can normally be straightened by either carefully applying pressure with a screwdriver or by using a pair of long nosed pliers.
    ii. If the Collector Cell is beyond repair, please contact Purified Air to purchase a new one.
d. Allow the Collector Cell to dry completely after cleaning before re-inserting into the Unit.

Replacing the Collector Cell and Pre and Post Mesh Filters

Replace the Collector Cell and pre and post Mesh Filters as follows:

a. Replace the Collector Cell. **Note:** If the Unit has more than one Collector Cell, ensure that the electrical connections between them are making contact.
b. Slide the Mesh Filters (pre and post) into their previous positions in the Collector Cell and Filter Carrier.

Odour Control Unit (UV-O), model UV-O 1000.

Basic Maintenance Activities	Frequency
Clean UV Lamps See paragraph 6.2.1. Cleaning the UV-O 500 lamps on page 34 and paragraph 6.3.1. Cleaning the UV-O 1000 Lamps on page 37 of Purified Air, *UV-O Odour Control Units Technical and Operations Manual* 2017.	Every 2 months (depending on degree of pollution)
Replace UV Lamps paragraph 6.2.2. Replacing the UV-O 500 Lamps on page 35 and paragraph 6.3.2. Replacing the UV-O 1000 Lamps on page 37 of Purified Air, *UV-O Odour Control Units Technical and Operations Manual* 2017.	Every 12 months
Replace Filter See paragraph 6.3.3. Replacing the UV-O 1000 Filter on page 38 of Purified Air, *UV- O Odour Control Units Technical and Operations Manual* 2017.	Every 2 months (Depending on degree of pollution)
Clean the inside of the Unit and remove dust/ grease. See paragraph 6.2.4. Cleaning the Inside of the UV-O 500 on page 36 and paragraph 6.3.4. Cleaning the Inside of the UV-O 1000 on page 39 of Purified Air, *UV-O Odour Control Units Technical and Operations Manual* 2017.	Every 3 months

It is a matter of experience to determine when your UV-O 1000 Unit needs to be cleaned as the nature and degree of any pollution depends strongly on factors such as the location, humidity and the intensity of use etc. Nevertheless, the UV lamps should be cleaned and the inside of the Units cleaned regularly, at intervals not exceeding 3 months, using the procedures outlined in the sections below:

Cleaning the UV-O 1000 Lamps

To clean the UV-O 1000 lamps:

a. Isolate the Unit from the mains power supply by turning the Rotary Mains Isolator Switch to the 'Off' position.
b. Double check that the mains power supply has been isolated.
c. Undo the lock, unscrew the four star knobs anti-clockwise on the Front Panel and open it.
d. Slide out the UV Lamp Holder on the Runner System (See Figure 28- Lamp Holder and Runner System on page 27 of Purified Air, *UV-O Odour Control Units Technical and Operations Manual* 2017.).
e. Carefully remove plugs from the end of the lamps (See Figure 28 - Lamp Holder and Runner System on page 27).
f. Remove the lamps from their clips (See Figure 28 - Lamp Holder and Runner System on page 27 of Purified Air, *UV-O Odour Control Units Technical and Operations Manual* 2017).
g. Clean the lamps by wiping them with alcohol wipes or a lint free cloth soaked in isopropyl alcohol and dried with a lint free cloth. **Note:** Natural oily deposits left by fingers and palms create an opaque mark on the lamp thereby reducing the UV transmission. These marks also cause the quartz to break down, causing premature lamp failure. Use caution when cleaning near the ends of the lamps excessive pressure may remove or smear the coating protecting the lamp electrodes.

Replacing the UV-O 1000 Lamps

a. Replace the lamps in their clips (See Figure 29 - Lamp Clips on page 28 of Purified Air, *UV-O Odour Control Units Technical and Operations Manual* 2017).
b. Replace the plugs on the end of the lamps (See Figure 30 - Lamp Plugs on page 28 of Purified Air, *UV-O Odour Control Units Technical and Operations Manual* 2017).
c. Slide in the UV Lamp Holder on the Runner System (See Figure 28 - Lamp Holder and Runner System on page 27 of Purified Air, *UV-O Odour Control Units Technical and Operations Manual* 2017).
d. Close the Front Panel, screw the four star knobs clockwise to tighten them and fasten the lock.
e. Switch on the mains power supply to the Unit by turning the Rotary Mains Isolator

Replacing the UV-O 1000 Filter

a. Isolate the Unit from the mains power supply by turning the Rotary Mains Isolator Switch to the 'Off' position.
b. Double check that the mains power supply has been isolated.
c. Undo the lock, unscrew the four star knobs anti-clockwise on the Front Panel and open it.
d. Remove the old filter element by sliding it out of its housing inside the Unit's main body, on the left-hand side.
e. Spray the filter housing and mounting with a high quality degreaser and wipe down with a suitable cloth or paper towel.
f. Insert the new filter element by sliding it into the housing inside the Unit's main body. **Note:** Ensure that the filter element is inserted in the correct orientation, with the arrows printed on the end of the filter's frame pointing in the direction of the airflow through the Unit.
g. Close the Front Panel, screw the four star knobs clockwise to tighten them and then fasten the lock.
h. Switch on the mains power supply to the Unit by turning the Rotary Mains Isolator Switch to the 'On' position.



Figure 3 UV-O 1000 Air Filter

Cleaning the Inside of the UV-O 1000

a. Isolate the Unit from the mains power supply by turning the Rotary Mains Isolator Switch to the 'Off' position.
b. Double check that the mains power supply has been isolated.
c. Undo the lock, unscrew the four star knobs anti-clockwise on the Front Panel and open it.
d. Remove the UV lamps (See 6.3.1 Cleaning the UV-O 1000 Lamps on page 37 of Purified Air, *UV-O Odour Control Units Technical and Operations Manual* 2017) and filter (See 6.3.3 Replacing the UV-O 1000 Filter on page 38 of Purified Air, *UV-O Odour Control Units Technical and Operations Manual* 2017).
e. Spray a suitable cloth or paper towel with a high-quality degreaser and wipe over the Unit's internal surfaces.

    - Ensure that the lamp holders and plugs are free from contaminants/grease.

    - Ensure that the rubber door seal is undamaged and free from contaminants/ grease, cleaning it with warm soapy water if necessary.

f. Replace the UV lamps (See 6.3.2 Replacing the UV-O 1000 Lamps on page 37 of Purified Air, *UV-O Odour Control Units Technical and Operations Manual* 2017) and filter (See 6.3.3 Replacing the UV-O 1000 Filter on page 38 of Purified Air, *UV-O Odour Control Units Technical and Operations Manual* 2017).
g. Close the Front Panel, screw the four star knobs clockwise to tighten them and fasten the lock.
h. Switch on the mains power supply to the Unit by turning the Rotary Mains Isolator Switch to the 'On' position.

5.0 / Details of Flue Termination

The flue termination on L14 kitchen is highlighted in green on Figure 4

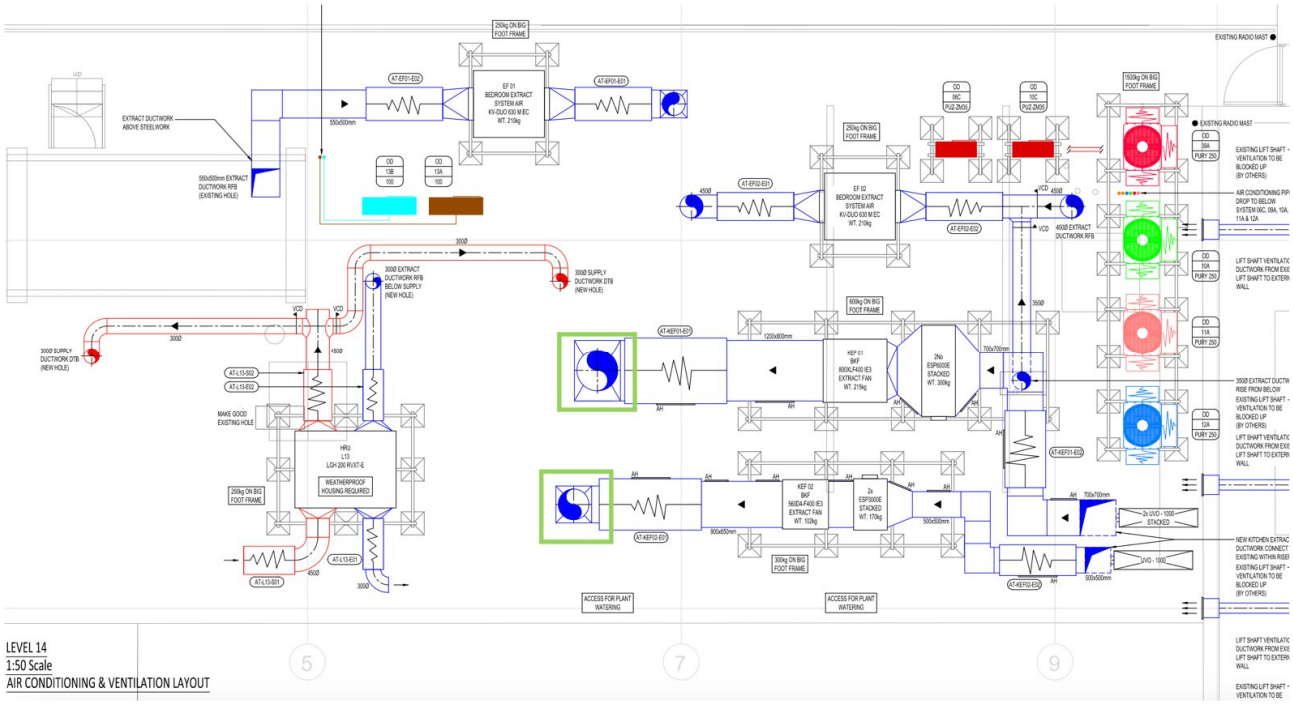


Figure 4 Flue Termination



Figure 5 L14 A/C and Ventilation Layout (not to scale)

6.0 / Kitchen Canopies

Canopy Information (Main Kitchen)

Extract & supply canopy (induction) 3500 x 3000 x 500.

2000 underside of canopy from finished floor level.

Extract flow rate 3.88 m3/S at 100 Pa

Supply flow rate 3.30 m3/S at 40 Pa

Spigots are 80 mm tall with 20mm mez connection

x2 extract spigots @ 550x550
x4 supply spigots @ 650 x250
x4 4ft LED lights. Each LED light requires 240V supply and will be supplied with a 5m tail. Final connection of canopy lights to lighting circuit to be completed by electrical contractor.

Cladding: N/A
Infills: To top of canopy 350mm tall (all sides)

Condense canopy 1000 x 1000 x 500

2000 underside of canopy from finished floor level.

Cladding: N/A
Infills: N/A

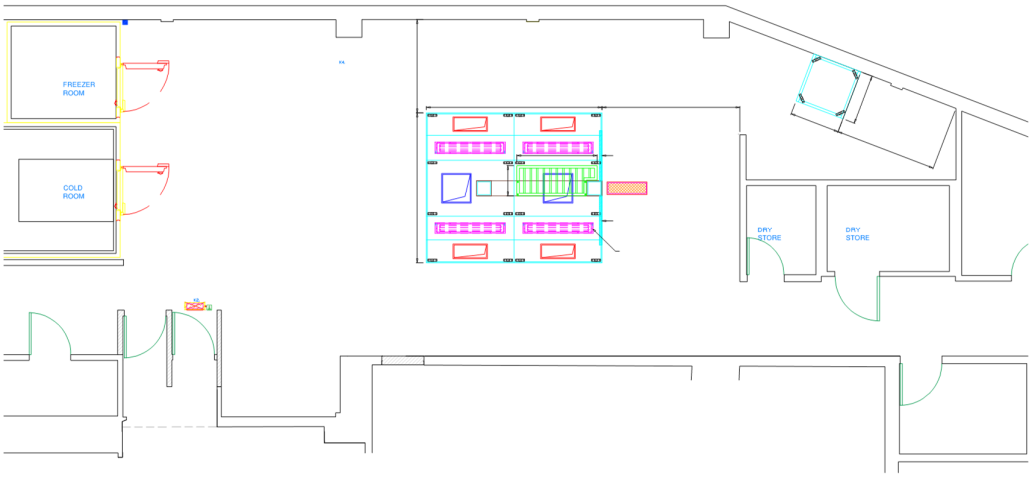


Figure 6 Canopy Layout (Main Kitchen)

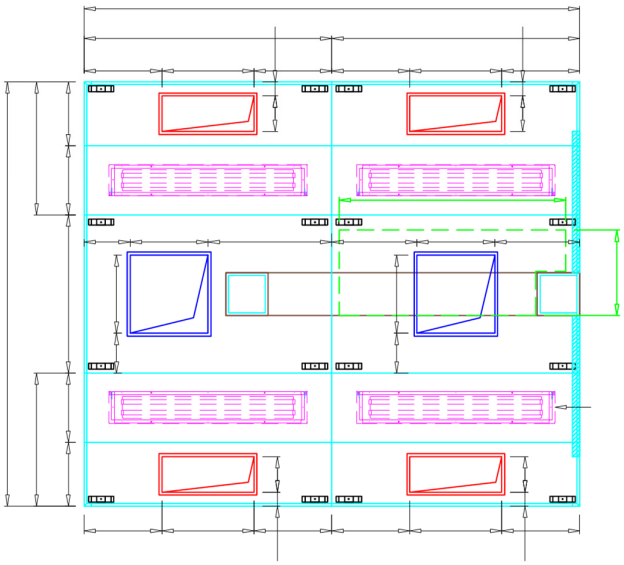


Figure 7 Canopy / Spigot Dimensions (Main Kitchen)

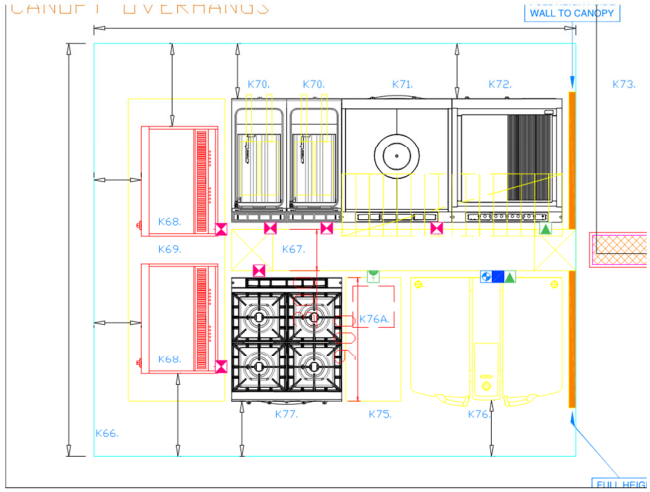


Figure 8 Canopy Overhangs (Main Kitchen)

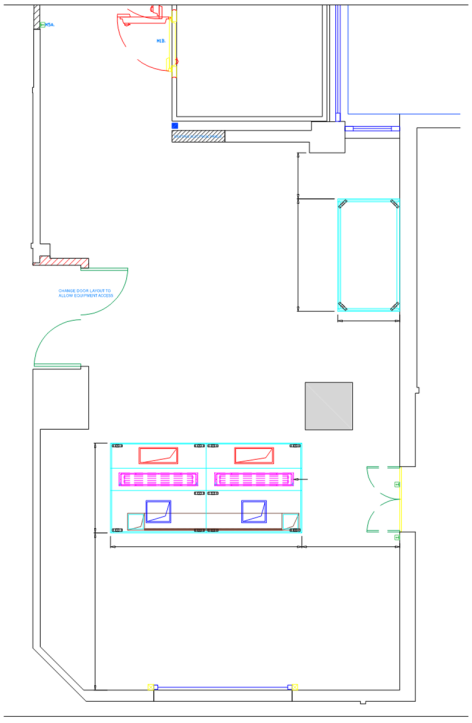


Figure 9 Canopy Layout (Function Kitchen)

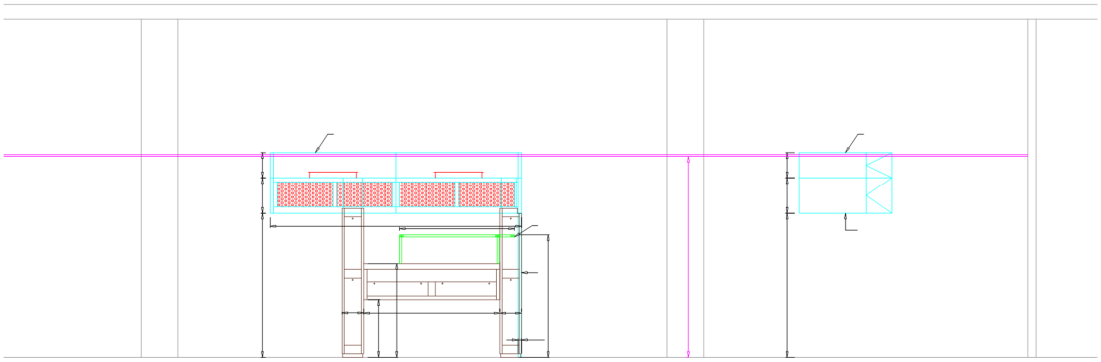


Figure 10 Front Elevation (Function Kitchen)

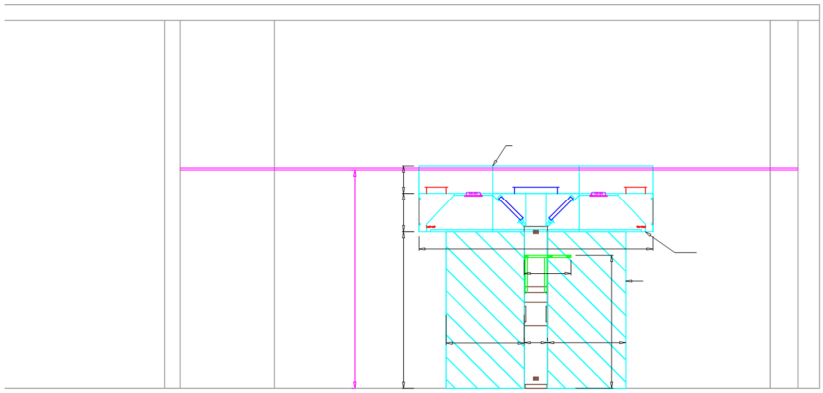


Figure 11 Canopy Cross Section (Function Kitchen)

Canopy airflow calculations

Treehouse - Main Kitchen	
Safety Factor	5%
Extract Volume	4.22 M3/S
Supply Volume	3.59 M3/S
Model	Island - Open Both Ends

Description	Width	Depth	Power	Coefficient	Gas kW	Sub total
Deep Fat Fryer	400	900	Gas	0.5	0	0.18
Deep Fat Fryer	400	900	Gas	0.5	0	0.18
Solid Top Oven Range	800	900	Gas	0.6	0	0.432
Chrome Griddle / Plancha	800	900	Gas	0.45	0	0.324
Salamander Grill	800	556	Gas	0.75	0	0.3336
Salamander Grill	800	556	Gas	0.75	0	0.3336
Open-Top Range & Oven	800	900	Gas	0.4	0	0.288
Heavy Duty Multi/Bulk Cooking Pan	1100	900	Electric	0.9	0	0.891
Bench / Worktops	500	900	N/A	0.03	0	0.0135

Treehouse - Function Kitchen	
Safety Factor	5%
Extract Volume	2.06 M3/S
Supply Volume	1.75 M3/S
Model	Wall Island Mounted - Open Both Ends

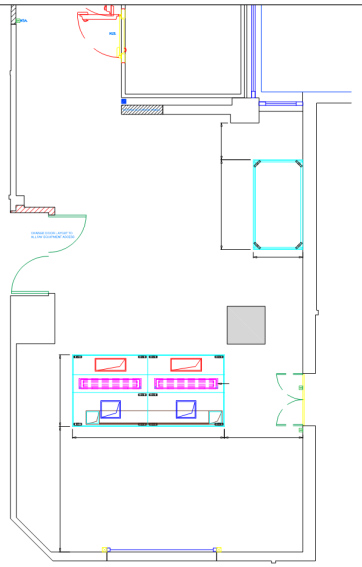
Description	Width	Depth	Power	Coefficient	Gas kW	Sub total
Solid Top Oven Range	900	812	Gas	0.6	0	0.43848
Salamander Grill	900	450	Gas	0.75	0	0.30375
Open-Top Range & Oven	900	812	Gas	0.4	0	0.29232
Deep Fat Fryer	450	812	Gas	0.5	0	0.1827
Bench / Worktops	450	812	N/A	0.03	0	0.010962

Treehouse - Mezz Kitchen	
Canopy Ref	Hobart C815-A
Safety Factor	5%
Extract Volume	0.55 M_3/S
Supply Volume	0.47 M_3/S
Model	Wall - Open Both Ends

Description	Width	Depth	Power	Coefficient	Gas kW	Sub total
Rack & Flight Dishwasher	1350	775	Electric	0.4	0	0.4185

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CANOPY LAYOUT
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CANOPY INFORMATION

EXTRACT & SUPPLY CANOPY (INDUCTION)
3400 X 1500 X 500

2000 UNDERSIDE OF CANOPY FROM FINISHED FLOOR LEVEL.

EXTRACT FLOW RATE 1.61 M^3/S AT 100 PA
SUPPLY FLOW RATE 1.37 M^3/S AT 40 PA
SPIGOTS ARE 80MM TALL WITH 20MM MEZ CONNECTION

2 EXTRACT SPIGOT(S) @ 400x350
2 SUPPLY SPIGOT(S) @ 650x250

SPIGOTS FIXED IN FACTORY- YES

NUMBER OF BAFFLE FILTERS-8

LIGHTING- 2 OFF 4 FOOT LED LIGHTS.

EACH LED LIGHT REQUIRES 240V SUPPLY AND WILL BE SUPPLIED WITH A 5M TAIL

FINAL CONNECTION OF CANOPY LIGHTS TO LIGHTING CIRCUIT TO BE DONE BY ELECTRICAL CONTRACTOR 240V REQUIRED.

CLADDING-N/A

INFILLS- TO TOP OF CANOPY 350MM TALL (ALL SIDES)

CANOPY APPROVED- YES...../NO.....

COMMENTS.....

SIGNED.....

DATE.....

CANOPY INFORMATION

EXTRACT CONDENSE CANOPY
2000 X 1100 X 500

2000 UNDERSIDE OF CANOPY FROM FINISHED FLOOR LEVEL.

CLADDING- NO

INFILLS- YES TO FRONT AND BOTH SIDES 350MM TALL

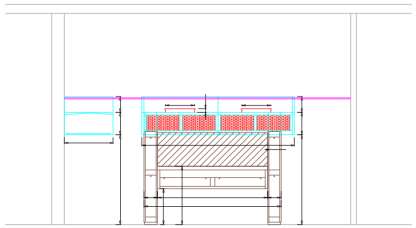
CANOPY APPROVED- YES...../NO.....

COMMENTS.....

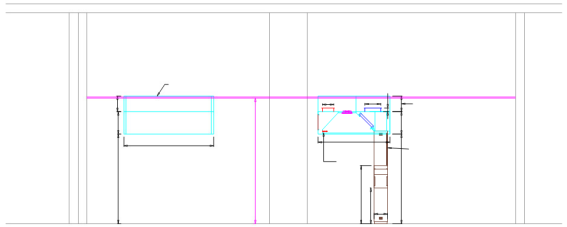
SIGNED.....

DATE.....

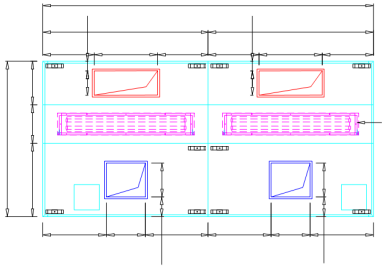
FRONT ELEVATION
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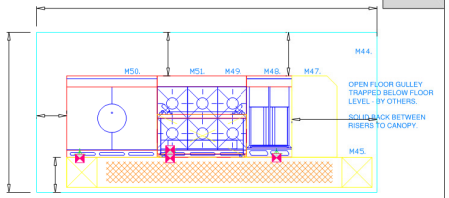
CANOPY CROSS SECTION
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CANOPY/SPIGOT DIMENSIONS



CANOPY OVERHANGS



CANOPY AIRFLOW CALCS

Leightec Thermal Convection Airflow Calculation
In Accordance With BESA Specification DW/172-2018

Project	TREEHOUSE (FUNCTION KITCHEN)	Date	25/07/2023
Drawing	Rev C	Canopy Ref	N/A
Model	Wall - Open Both Ends	Safety Factor	5%
		Extract Volume	1.61 M^3/S
		Supply Volume	1.37 M^3/S

Item	Description	Width	Depth	Power	Coefficient	Gas kW	Sub total
6	Solid Top Oven Range	900	813	Gas	0.6	0	0.43902
6	Salamander Grill	900	450	Gas	0.75	0	0.30375
	Open-Top Range & Oven	900	813	Gas	0.4	0	0.29268
	Deep Fat Fryer	450	813	Gas	0.5	0	0.182925
	Bench / Worktops	450	812	N/A	0.03	0	0.010962

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ALL DIMENSIONS ARE IN mm UNLESS OTHERWISE STATED

BS6173 was introduced in May 2001. It is a standard requirement to have the extract and supply fans interlocked with the gas valve where gas appliances are installed within the kitchen.

DUCTWORK

PROVIDED BY OTHERS
DUCTWORK TO WHERE POSSIBLE ACCORD WITH DW144. 20MM DOBY TYPE FLANGES ARE USED A" SPIGOT CONNECTIONS UNLESS OTHERWISE STATED. WHERE DUCTING BREAKS FIRE COMPARTMENTATION FIRE RATED DUCTWORK MUST BE USED. FIRE DAMPERS MUST NOT BE USED ON EXTRACT DUCT.

SUPPLY AIR

IF NOT INCLUDED WITHIN THE KITCHEN VENTILATION PACKAGE, TO BE PROVIDED BY OTHERS, TO ACHIEVE ADEQUATE COMBUSTION AIR IN ACCORDANCE WITH GAS SAFE REQUIREMENTS.
IF THE AIR IS NOT TEMPERED DRAUGHTS AND DISCOMFORT MAY BE CAUSED IN COLD WEATHER
GAS APPLIANCES LIKE HEATING BOILERS LOCATED IN THE KITCHEN VICINITY ARE TO BE ISOLATED FROM THE KITCHENS NEGATIVE AIR PRESSURE BY OTHERS.

CANOPY

CANOPY CONSTRUCTED FROM 0.9MM 304 GRADE STAINLESS STEEL, COMPLETE WITH BAFFLE FILTERS AND COOL WHITE LED LIGHTS RATED AT IP 54 TO UNDERSIDE UNLESS STATED OTHERWISE. CANOPIES TO BE SEALED WITH FOOD SAFE SILICONE. ALL BUILDER WORK OPENINGS TO BE FORMED PRIOR TO INSTALLATION. SUSPENDED CEILINGS WHERE FITTED TO BE INSTALLED FOLLOWING CANOPY INSTALLATION

- ALL OPENINGS TO BE FORMED BY MAIN CONTRACTOR INCLUDING ALL BUILDERS WORKS FOR VENTILATION SYSTEMS
- MAIN CONTRACTOR TO ENSURE THE REAR WALL OF THE COOK LINE EQUIPMENT IS CLEAR OF ALL LOOSE PLASTER WORK, TIMBER, TILES AND SERVICES TO ENABLE STAINLESS STEEL WALL CLADDING TO BE FITTED
- WALLS TO THE REAR OF COOK LINES TO BE OF A NON-COMBUSTABLE/FIRE RATED MATERIAL PRIOR TO STAINLESS STEEL WALL CLADDING BEING FITTED.
- ALL EXISTING CANOPIES AND DUCTING NOT TO BE REUSED ARE TO BE STRIPPED OUT BY OTHERS OR LTS CAN PROVIDE THIS SERVICE
- MAIN CONTRACTOR TO PROVIDE & FIT ALL FLASHING & SEALING MATERIALS FOR DUCTING THROUGH ROOF.
- WHERE ANY APPLIANCE IS SHOWN THAT IS NOT UNDERNEATH A CANOPY, ROOM VENTILATION IS TO BE CALCULATED AND INSTALLED TO THESE AREAS

RevNo	Revision note	Date	Signature	Checked
A	PRELIMINARY ISSUE FOR APPROVAL	27/09/2023	CDJ	
B	FUNCTION POTWASH CANOPY NOW CONDENSE ONLY, LIGHT LEAD 5M TAIL	29/09/2023	CDJ	

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Client: SCOMAC

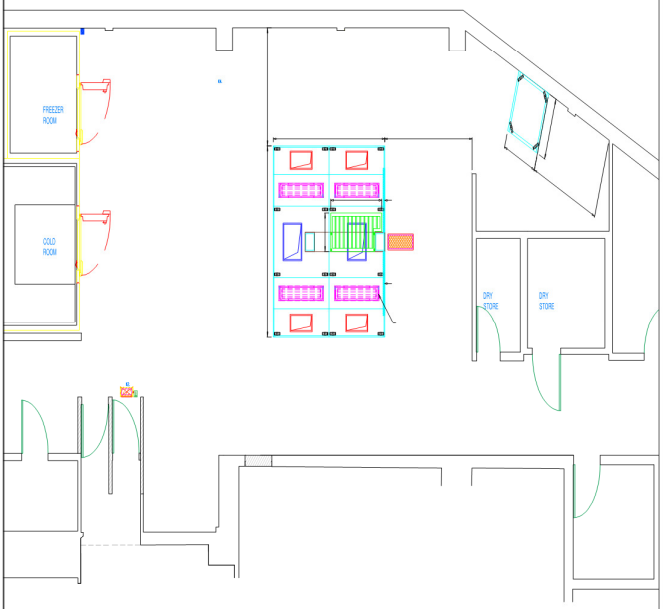
Project: TREE HOUSE, MANCHESTER

Title: CANOPY LAYOUT FUNCTION KITCHEN

Scale	Drawn	Date	Drawing Number	Revision
1:50@A1	CDJ	27/09/2023	3228	B

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CANOPY LAYOUT
1:50@A1



CANOPY INFORMATION

EXTRACT & SUPPLY CANOPY (INDUCTION)
3500 X 3000 X 500

2000 UNDERSIDE OF CANOPY FROM FINISHED FLOOR LEVEL.

EXTRACT FLOW RATE 3.88 M³/S AT 100 PA
SUPPLY FLOW RATE 3.30 M³/S AT 40 PA
SPIGOTS ARE 80MM TALL WITH 20MM MEZ CONNECTION

2 EXTRACT SPIGOT(S) @ 550x550
4 SUPPLY SPIGOT(S) @ 650x250

SPIGOTS FIXED IN FACTORY- YES

NUMBER OF BAFFLE FILTERS-16

LIGHTING- 4 OFF 4 FOOT LED LIGHTS.

EACH LED LIGHT REQUIRES 240V SUPPLY AND WILL BE SUPPLIED WITH A 5M TAIL

FINAL CONNECTION OF CANOPY LIGHTS TO LIGHTING CIRCUIT TO BE DONE BY ELECTRICAL CONTRACTOR 240V REQUIRED.

CLADDING-N/A

INFILLS- TO TOP OF CANOPY 350MM TALL (ALL SIDES)

CANOPY APPROVED- YES...../NO.....

COMMENTS.....

SIGNED.....

DATE.....

CANOPY INFORMATION

CONDENSE CANOPY
1000 X 1000 X 500

2000 UNDERSIDE OF CANOPY FROM FINISHED FLOOR LEVEL.

CLADDING- NO

INFILLS- NO

CANOPY APPROVED- YES...../NO.....

COMMENTS.....

SIGNED.....

DATE.....

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ALL DIMENSIONS ARE IN mm UNLESS OTHERWISE STATED

BS6173 was introduced in May 2001. It is a standard requirement to have the extract and supply fans interlocked with the gas valve where gas appliances are installed within the kitchen.

DUCTWORK

PROVIDED BY OTHERS
DUCTWORK TO WHERE POSSIBLE ACCORD WITH DW144. 20MM DOBY TYPE FLANGES ARE USED AT SPIGOT CONNECTIONS UNLESS OTHERWISE STATED. WHERE DUCTING BREAKS FIRE COMPARTMENTATION FIRE RATED DUCTWORK MUST BE USED. FIRE DAMPERS MUST NOT BE USED ON EXTRACT DUCT.

SUPPLY AIR

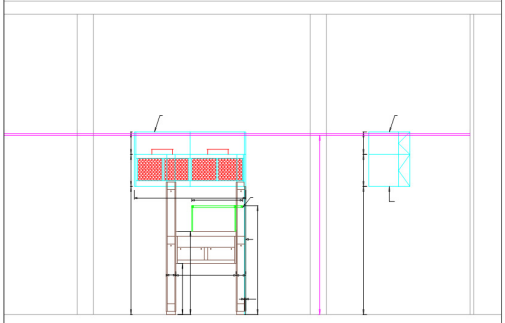
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CANOPY

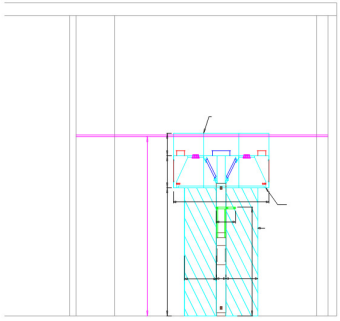
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FRONT ELEVATION
1:50@A1

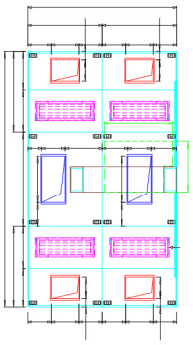


CANOPY CROSS SECTION
1:50@A1

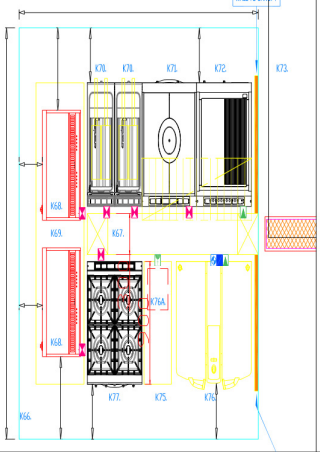


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CANOPY/SPIGOT DIMENSIONS



CANOPY OVERHANGS



CANOPY AIRFLOW CALCS

Leightec Thermal Convection Airflow Calculation

In Accordance With BESA Specification DW/172-2018

Project	TREEHOUSE (MAIN KITCHEN)	Date	25/07/2023
Drawing	Rev C	Canopy Ref	N/A
Model	Island - Open One End	Safety Factor	5%
		Extract Volume	3.88 M³/S
		Supply Volume	3.30 M³/S

Item	Description	Width	Depth	Power	Coefficient	Gas kW	Sub total
	Deep Fat Fryer	400	900	Gas	0.5	0	0.18
	Deep Fat Fryer	400	900	Gas	0.5	0	0.18
	Solid Top Oven Range	800	900	Gas	0.6	0	0.432
	Chrome Griddle / Plancha	800	900	Gas	0.45	0	0.324
	Salamander Grill	800	556	Gas	0.75	0	0.3336
	Salamander Grill	800	556	Gas	0.75	0	0.3336
	Open-Top Range & Oven	800	900	Gas	0.4	0	0.288
	Heavy Duty Multi/Bulk Cooking Pan	1100	894	Electric	0.9	0	0.88596

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Web: www.leightec.com

SCUMAC	TREE HOUSE, MANCHESTER
Client	Project

CANOPY LAYOUT
MAIN KITCHEN

Title

1:50@A1	CDJ	27/09/2023	3228	B
Scale	Drawn	Date	Drawing Number	Revision

7.0 / 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 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 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.
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 loading)	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 steakhouse.

Dispersion
The Treehouse Hotel consists of 3 kitchen extract outlets. Figure 12 shows the outlets discharging over 1m above the eaves at 10 m/s.



Figure 12 Kitchen Extract Outlet

Size of Kitchen
The Ground Floor Kitchen shall serve a cover of 100+.

The Mezzanine Kitchen shall serve a cover of 100+.

The L13 restaurant shall serve a cover of 100+.

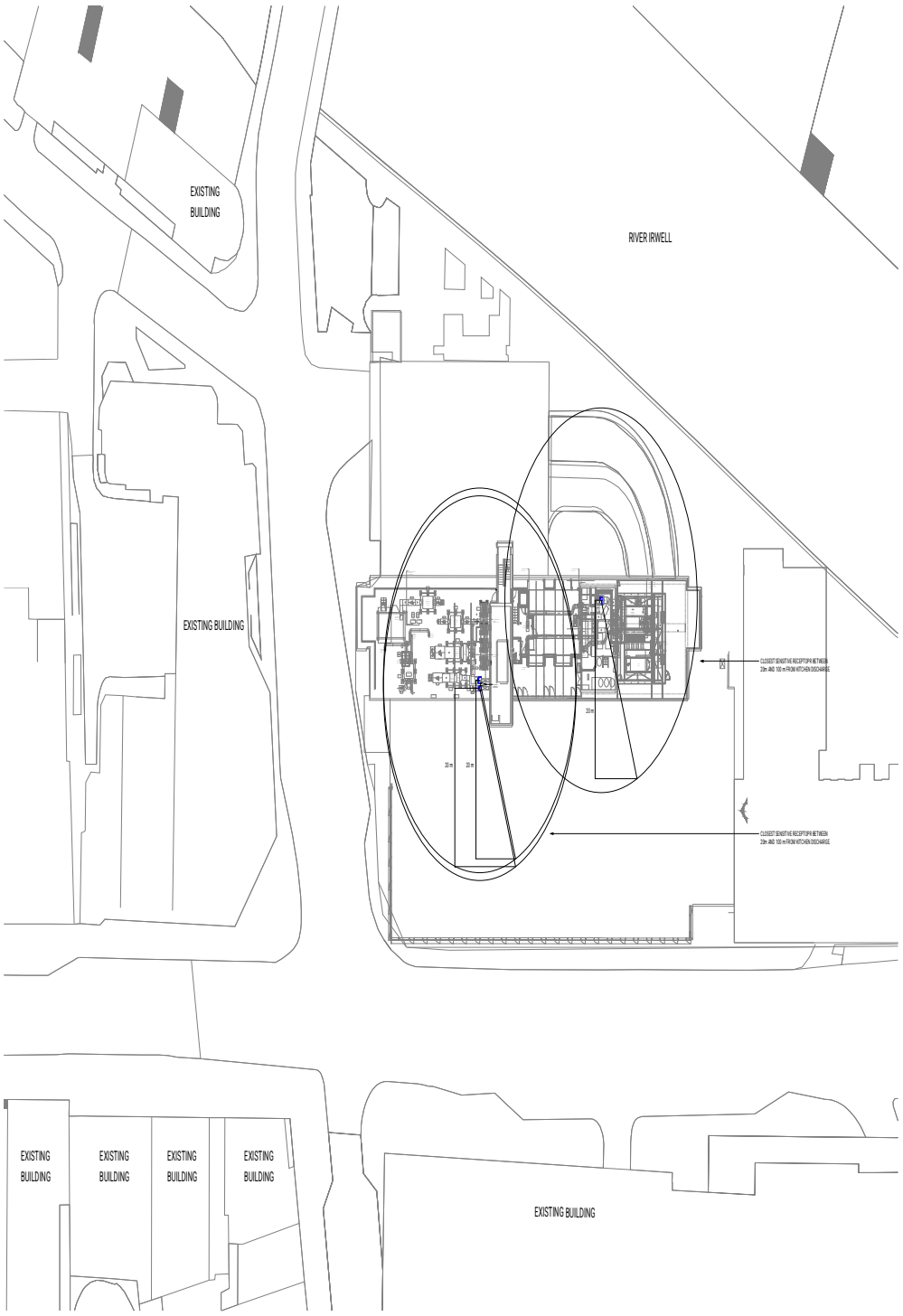
Cooking type (odour and grease loading)

The Ground Floor Kitchen shall serve contemporary British cuisine.

The Mezzanine Kitchen shall serve primarily BQTs service and function as a prep kitchen.

The L13 restaurant shall serve Southeast Asian cuisine, heavily Thai influenced using primarily a gas range with charcoal fired josper oven and robata grill.

Proximity of Receptors
The closest sensitive receptor between 20 and 100m from kitchen discharge, see Figure 13.



PROXIMITY OF RECEPTORS

GENERAL NOTES

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR FULLY CO-ORDINATING ANY SERVICES INSTALLED WITH THE BUILDING FABRIC AND SERVICES INSTALLED BY OTHERS
2. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH ALL DRAWINGS, CONTRACT DOCUMENTATION AND SPECIFICATION FOR THE WORKS. THIS DRAWING FORMS PART OF THE SPECIFICATION AND CONTRACT
3. ALL DIMENSIONS SHOWN ARE IN MILLIMETRES UNLESS OTHERWISE STATED

Revision P1 07.05.24
Project
Trailhouse Hotel
Drawn
MB
Date
May 24
Scale
1:200 @A3
Client
Stained
Status
Preliminary
Sheet Title
Kitchen Filtration Strategy
Proximity of Receptors
Project No.
P1007
Rev
P1
Drwg No.
P1007-MCK-XX-XX-DR-ME-5003-A01

McKee Associates
WIGAN HALL, HOH MARKET STREET, WIGAN, WN1 1HH
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Figure 13 Proximity of Receptors

Risk Assessment Results

Ground Floor Kitchen

Dispersion	Proximity to receptors	Size of Kitchen	Cooking Type	Total Score	Verdict
5	5	5	10	25	High level odour control required

Mezz Floor Kitchen

Dispersion	Proximity to receptors	Size of Kitchen	Cooking Type	Total Score	Verdict
5	5	5	1	16	Low level odour control required

13th Floor Kitchen

Dispersion	Proximity to receptors	Size of Kitchen	Cooking Type	Total Score	Verdict
5	5	5	7	22	High level odour control required

8.0 / References

Purified Air. (2016) *Electrostatic Precipitation (ESP) Filter Unit Technical and Operations Manual For Models: ESP 1500EI ESP 3000EI ESP 4500EI ESP 6000EI*.

Purified Air (2017) *UV-O Odour Control Units Technical and Operations Manual Models Covered: UV-O 500 UV- O 1000* [Preprint].