



Client: Doux Chanton
Project: 265-267 Deansgate Terrace, Manchester, M3 4EW

Date: 10.03.25
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 Image 2: Present Basement Interior view, rear of unit 265
 Image 3: Present Ground Floor Interior view, rear of unit 265

Reference Documents:

9140-1A Doux Chaton, Manchester - ODOUR RISK ASSESSMENT
 9140-2B Doux Chaton, Manchester - Layout of proposed extraction system
 Ecovery CMS400 System Principles

1 Introduction

This report sets out the odour risk assessment for the proposals of the new kitchen extract system at Doux Chaton, units 265-267 Deansgate, Manchester.

This odour risk assessment identifies the potential for impacts (such as annoyance) resulting from odours released from extraction systems at the proposed kitchen.

The report describes the methodology and findings of the odour risk assessment, and identifies the level of odour abatement that will be required to minimise the risk of odour impacts resulting from the operation of the proposed kitchen.

The report also gives consideration and recommendations for maintenance, minimising noise impact and fire suppression duties.

2 Odour Assessment

EMAQ Risk Assessment for the proposed ventilation system contains an assessment procedure for identifying the potential risk of odour impacts from commercial kitchen operations.

The results of this risk assessment can be used to determine a suitable level of odour abatement to be installed into a commercial kitchen.

The impact risk assessment for odours is split into four parts:

- dispersion;
- proximity to receptors;
- size of kitchen; and
- cooking type and grease loading.

Each part is given a risk rating score and the total risk rating denotes the level of odour abatement which is likely to be required to prevent the kitchens from causing odour nuisance impacts.

Table 1. Risk Rating Score

Impact Risk	Odour Control Requirement	Significance Score
Low / Medium	Low Level Odour Control	Less than 20
High	High Level Odour Control	20-35
Very High	Very High Level Odour Control	More than 20

The following sections of this report outline each part of the risk assessment in relation to the proposed restaurant.

It should be noted that where assumptions have been made these are clearly stated in the risk assessment and are based on professional experience.

3 Dispersion

The risk rating for dispersion relates to the conditions under which kitchen extraction emissions are discharged. The relevant risk ratings described in the guidance are shown below. The risk score is shown in parentheses.

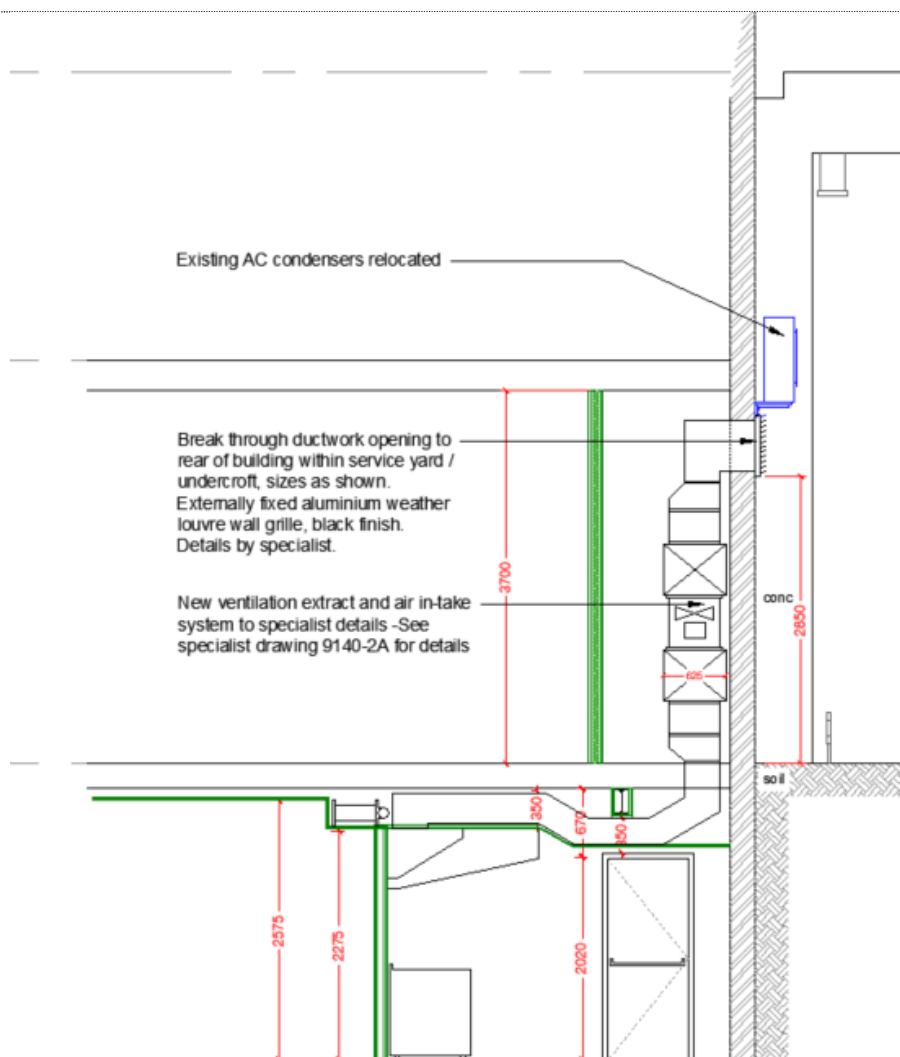
- **VERY POOR (20)** – Low level discharge, discharge into courtyard, or restriction on stack;
- **POOR (15)** – Discharge not low level, but below eaves, or discharge rate below 10 m/s;
- **MODERATE (10)** – Discharging 1 m above eaves at a rate of 10-15 m/s;
- **GOOD (5)** – Discharging 1 m above ridge at a rate of 15 m/s or more.

The risk ratings for dispersion for the kitchen is detailed in Table 1. The extract systems have been designed so that the flue will exit out of the roof and extend to be 1m above ridge height.

Table 2. Dispersion Risk Ratings

Kitchen	Efflux Velocity (m/s)	Discharge Location	Approximate Height of Discharge (m)	Risk Rating
Main	25	Low level discharge, discharge into courtyard	2850mm above ground floor level	Moderate

Based upon the criteria stipulated in the guidance, the risk ratings for dispersion for the proposed extract system is Moderate.



This drawing shows where the proposed Duct from basement up to ground and dispersing 2850mm above external finished ground level.

4 Proximity to Receptors

The closest sensitive receptor is more than 100 meters from the kitchen discharge.

Table 3. Proximity of Receptors

Kitchen	Score	Location	Proximity of Receptors (m)	Risk Rating
Main	1	Low level discharge, discharge into courtyard	100m from kitchen discharge	Far

5 Size of Kitchen

The risk rating for size of kitchen relates to the volume of food prepared by the kitchen and is described in terms of the capacity of the restaurant or take-away. The relevant risk ratings described in the guidance are shown below. The risk score is shown in parentheses.

- LARGE (5) – More than 100 covers or a large-sized take-away;
- MEDIUM (3) – Between 30 and 100 covers or a medium-sized take-away;
- SMALL (1) – Less than 30 covers or a small take-away.

The proposed hospitality area will cater for 40+ covers at any one time. All of the hospitality areas are thus judged to be MEDIUM in terms of the size of the kitchen.

6 Cooking Type and Grease Loading

Cooking Type and Grease Loading The risk rating for cooking type and grease loading relates to the type of cooking methods employed in the kitchen and the type of food prepared. The relevant risk ratings described in the guidance are shown below. The risk score is shown in parentheses.

- VERY HIGH (10) – Pubs (those serving a 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.

The proposed kitchen will serve mainly Vietnamese and Bakery type food, however, the high-quality food on offer, coupled with a focus on utilising high-quality raw ingredients to serve mostly traditional Vietnamese food, suggests that the grease loading in the kitchen will be HIGH.

7 Risk Assessment Summary

The odour risk assessment summary is shown in Table 2 for the proposed kitchen.

Table 4. Restaurant Kitchen Odour Risk Assessment Summary

Criteria	Risk Rating	Risk Score ¹	Details
Dispersion	Moderate	25	Low level discharge, discharge into courtyard or restriction on stack
Proximity to Receptors	Far	1	The closest sensitive receptor is more than 100 meters from the kitchen discharge
Size of Kitchen	Medium	3	Restaurant Dining 40+ covers
Cooking Type (Odour / Grease loading)	Medium	4	Kebab, Vietnamese, Thai or Indian Cooking.
<u>TOTAL RATING</u>		<u>33</u>	<u>High Level Odour Control</u>

Total Risk Score of <20 = Low to Medium Risk, 20-35 = High Risk, and >35 = Very High Risk.

Please note that we would calculate the odour risk impact as high level with the position of the high velocity jet cowl being sited at low level discharging into a courtyard.

The overall odour risk rating for the proposed kitchen is 'High Level'. This denotes that it would require a High Level of odour control to eliminate the risk of odour impact.

8 Recommended Odour Abatement System

This section of the report briefly outlines the odour control measures that would need to be installed on the kitchen extract systems to provide optimal odour abatement and minimise the risk of odour impacts at surrounding properties.

The odour control measures suggested are those recommended within EMAQ+ guidance on The Control of Odour and Noise from Commercial Kitchen Exhaust Systems for odours from commercial kitchens for kitchens with a 'High level odour risk assessment score.

The guidance outlines that abatement systems that offer a 'High Level' odour control may include:

1. Fine Filtrations or ESP followed by carbon filtration (carbon filters rated with a 0.2 – 0.4 second residence time)
2. Fin Filtration or ESP followed by UV Ozone system to achieve the same level of control as 1.

In addition to this, the guidance states that the stack shall:

1. Discharge the extracted air not less than 1 m above the roof ridge of any building within 15 m of the vent serving the commercial kitchen.
2. If 1 cannot be complied with for planning reasons, then the extracted air shall be discharged not less than 1 m above the roof eaves or dormer window of the building housing the commercial kitchen.
3. If 1 or 2 cannot be complied with for planning reasons, then higher level odour control measures may be required.

9 Odour Abatement System

In accordance with the recommended odour abatement systems identified, and following discussions with the client, the following odour abatement system has been identified as the most effective and feasible option that will be installed.

It is judged that the system identified in Table 5 will offer a suitable level of odour abatement to minimise the potential for odour impacts at nearby sensitive locations.

It should be noted that the odour abatement system should be specified, designed and installed by a suitably qualified contractor. It is imperative that, following commissioning, the system manufacturer/supplier provides comprehensive information regarding the maintenance of the system to ensure that optimal odour abatement performance is maintained during each restaurant's operation.

Table 5. Recommended Odour Abatement System

Abatement Stage	System	Comment
Odour Removal	UV Ozone	Residual gaseous odours will be removed using a UV ozone system. The system will be installed in an accessible location to facilitate maintenance.
Emissions Discharge	High Level Discharge	The current design of the extraction discharge point (see Figure 1) is considered sufficient in this case due to discharge distance from, and the relative height.

Based upon extensive experience in the assessment and removal of odours from commercial kitchen outlets, are convinced that high level discharge coupled with UV will be sufficient.

10 Odour Abatement System Maintenance Procedure

In order to ensure the proposed odour abatement systems work efficiently and effectively, it is important to adhere to a stringent service and maintenance regime. The maintenance procedures for different components of the kitchen extraction system are set out below, and a summary of the maintenance schedule is presented in Table 6.

Kitchen Canopy

The kitchen canopies should be inspected and cleaned on a daily basis. Thorough internal and external cleaning of the whole kitchen canopy should be carried out on a twice-weekly basis. Kitchen canopies can be cleaned with a mild detergent or specific stainless-steel cleaner.

Particulate/Grease Filter

The particulate/grease filters should be checked on a 3-monthly basis and replaced as necessary (or as per manufacturer recommendations).

Extract Ductwork and Fans

General best-practice maintenance for kitchen extract systems is as follows. It should be noted, however, that any system-specific maintenance procedures provided by the manufacturer should be used in preference:

- The first few meters of the extraction ductwork above the kitchen extract hoods will need to be cleaned in the traditional method of scraping the ductwork clean to remove the fat and grease. Appropriate hatches will be installed to ensure adequate access.
- The remaining ductwork should be cleaned using a mechanical rotary brush to spin, dislodge and move the contaminant within the ductwork to allow an air vacuum unit to collect it. This will result in fewer access panels being needed that will restrict access for a visual verification of cleaning being completed.

Extract ductwork should be checked and cleaned on an annual basis, or as required. Any damaged sections of ductwork will be replaced.

The fans should be checked approximately every 3 months (or as per manufacturer recommendations) and cleaned to remove any grease deposits that have accumulated on the fans. Table 6 provides a tabulated, best-practice summary of the kitchen extraction system cleaning and maintenance schedule for the proposed restaurants.

Table 6. Kitchen Extraction System Maintenance Schedule Summary

System Component	Maintenance Required	Frequency
Kitchen Canopy	Check and clean external surfaces	Daily
	Clean internal and external surfaces.	Twice-weekly
Extract Ductwork	First few meters scraped to remove fat and grease, remaining ductwork cleaned using rotary brush and vacuum unit.	12-monthly
Fans	Check and clean.	3-monthly
UV Filtration	Check Lamps.	3-monthly
	Replace Lamps	Every 10,000 hrs
	Inspect and clean Lamps.	12-monthly
	Check safety system.	12-monthly

The cleaning frequencies set out in Table 6 will be periodically reviewed once the kitchens are in operation. Cleaning frequencies may be increased or decreased accordingly. All inspection, cleaning and maintenance carried out on the kitchen extraction systems should be recorded in a maintenance record log.

The infrequent maintenance tasks should be recorded on a separate log. In order to assist with the long-term system maintenance, a diary/calendar should be kept to remind kitchen staff of key dates for component cleaning and replacement, or a date for next inspection.

The maintenance log should be kept either electronically, in hard copy, or both. Once a task is completed a date for the next completion will be determined and recorded on the log, as well as in the diary/calendar for completion.

11 Noise Control Requirements

For premises covered by planning conditions restricting the impact of noise the system shall be designed to prevent an acoustic impact on the external environment and therefore harm the amenity, as well as ensuring that noise exposure of kitchen staff does not constitute an occupational problem (to also comply with Control of Noise at Work Regulations 2005).

To achieve these objectives the noise control system shall include:

- Control of noise at source to the greatest extent possible: and
- Control noise to the environment by taking acoustic considerations into account within the duct, grille and termination design.

In order to ensure the impact of noise is minimised to both in external and internal environments, both 'extraction' and 'air in-take' systems have been designed with 1D silencers at either end of the extract fans so as not to cause harm to neighbouring amenities, employees or diners.

12 Fire Suppression

The proprietors of this establishment, i.e. of the commercial kitchens, are under a duty to ensure that the fire precautions meet the requirements of The Regulatory Reform (Fire Safety) Order 2005.

APPENDIX



Image 1: Present Rear Elevation, Service Road



Image 2: Present Basement Interior view, rear of unit 265



Image 3: Present Ground Floor Interior view, rear of unit 265

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EMAQ RISK ASSESSMENT

To: Mint Studio	From: Chris Aspden
Att: Louise Grimes	Pages: 2
Fax:	Date: 5 th November 2024
Re: Doux Chaton, Manchester	Ref: ORA9140-1A
EMAQ Risk Assessment	

Hi Louise

Further to your recent email, we now have pleasure in submitting our EMAQ Risk Assessment for the proposed ventilation system at the above site :-

DOUX CHATON, MANCHESTER – EMAQ RISK ASSESSMENT

The impact risk is determined based on the following factors :-

<u>Impact Risk</u>	<u>Odour Control Requirement</u>	<u>Significance Score</u>
Low / Medium	Low Level Odour Control	Less than 20
High	High Level Odour Control	20 - 35
Very High	Very High Level Odour Control	More than 35

<u>Criteria</u>	<u>Rating</u>	<u>Score</u>	<u>Details</u>
Dispersion	Moderate	25	Low level discharge, discharge into courtyard or restriction on stack
Proximity of Receptors	Far	1	Closest sensitive receptor is more than 100 metres from the kitchen discharge
Size of kitchen	Medium	3	The pub has 50 covers

Cooking Type (Odour / grease loading)	Medium	4	Kebab, Vietnamese, Thai or Indian Cooking.
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33 **TOTAL SCORE – HIGH LEVEL ODOUR CONTROL**

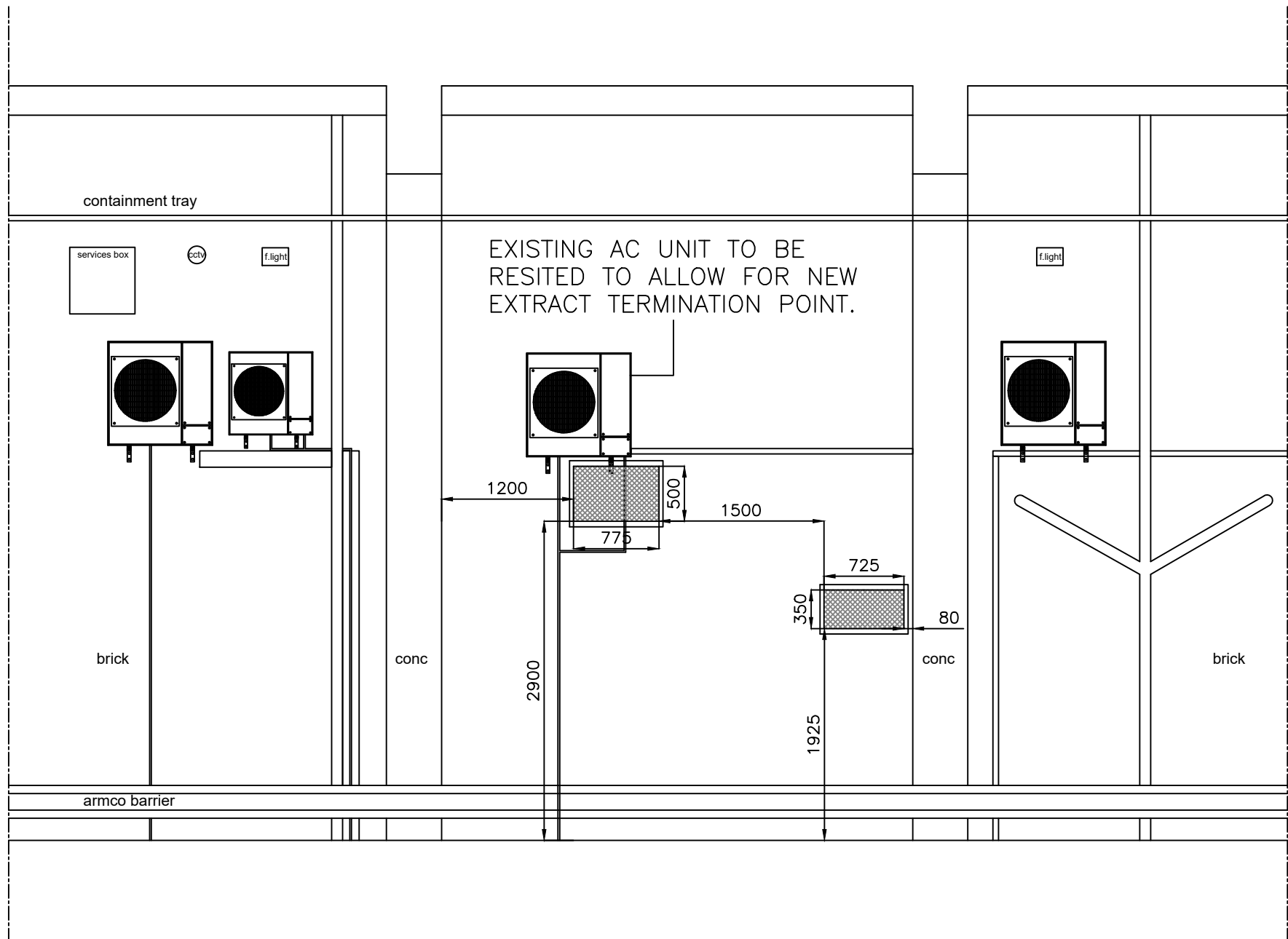
Please note that we would calculate the odour risk impact as high level with the position of the high velocity jet cowl being sited at low level discharging into a courtyard.

Trusting the above is satisfactory, however should you require any further information please do not hesitate to contact me.

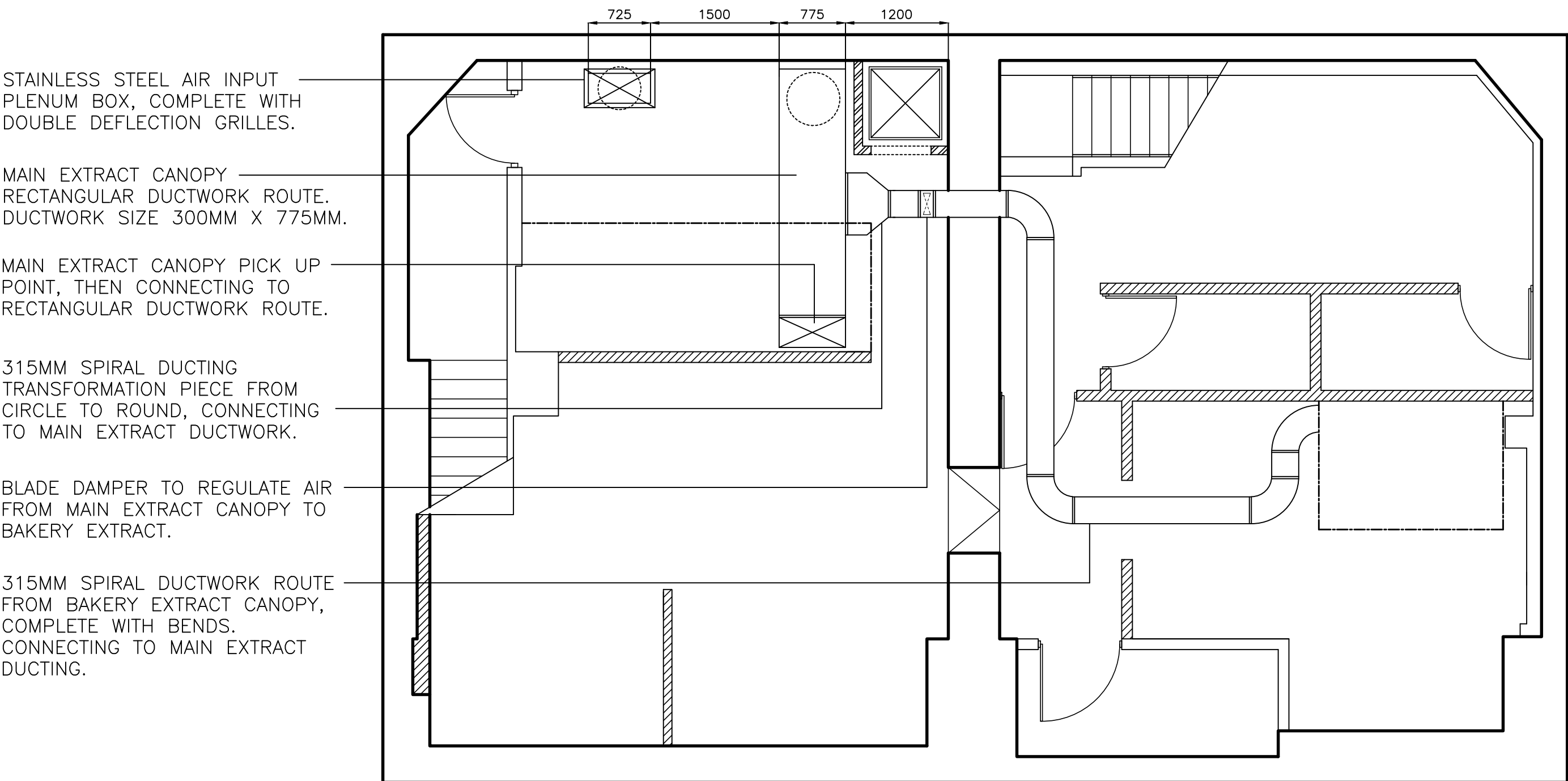
Regards,

Chris Aspden

FRONT ELEVATION OF EXTRACT / VENTILATION IN REAR STORE YARD.



PLAN VIEW OF EXTRACT / VENTILATION SCHEME.



COOKING EQUIPMENT LIST.

- ELECTRIC HEATED STOCK POT = 500MM X 600MM
- INFILL BENCH = 525MM X 600MM
- GAS HEATED WOK COOKER = 1500MM X 900MM
- ELECTRIC HEATED TWIN TANK FRYER = 600MM X 600MM
- GAS HEATED SIX BURNER OVEN RANGE = 900MM X 800MM
- DW172 AIR FLOW CALCULATION = 2.79m3/s
- THE VELOCITY ACROSS THE CANOPY FACE

MAIN EXTRACT CANOPY

- STAINLESS STEEL EXTRACT CANOPY – 4075MM X 1500MM X 300MM HIGH
- 7 OF 500MM X 500MM STAINLESS STEEL BAFFLE FILTERS
- 300MM X 775MM RECTANGULAR FIRE RATED EXTRACT DUCTWORK AND TERMINATING WITH A FIXED LOURVE.
- 560MM DIAMETER AXIAL FLOW MAX FAN, COMPLETE WITH FLANGES.

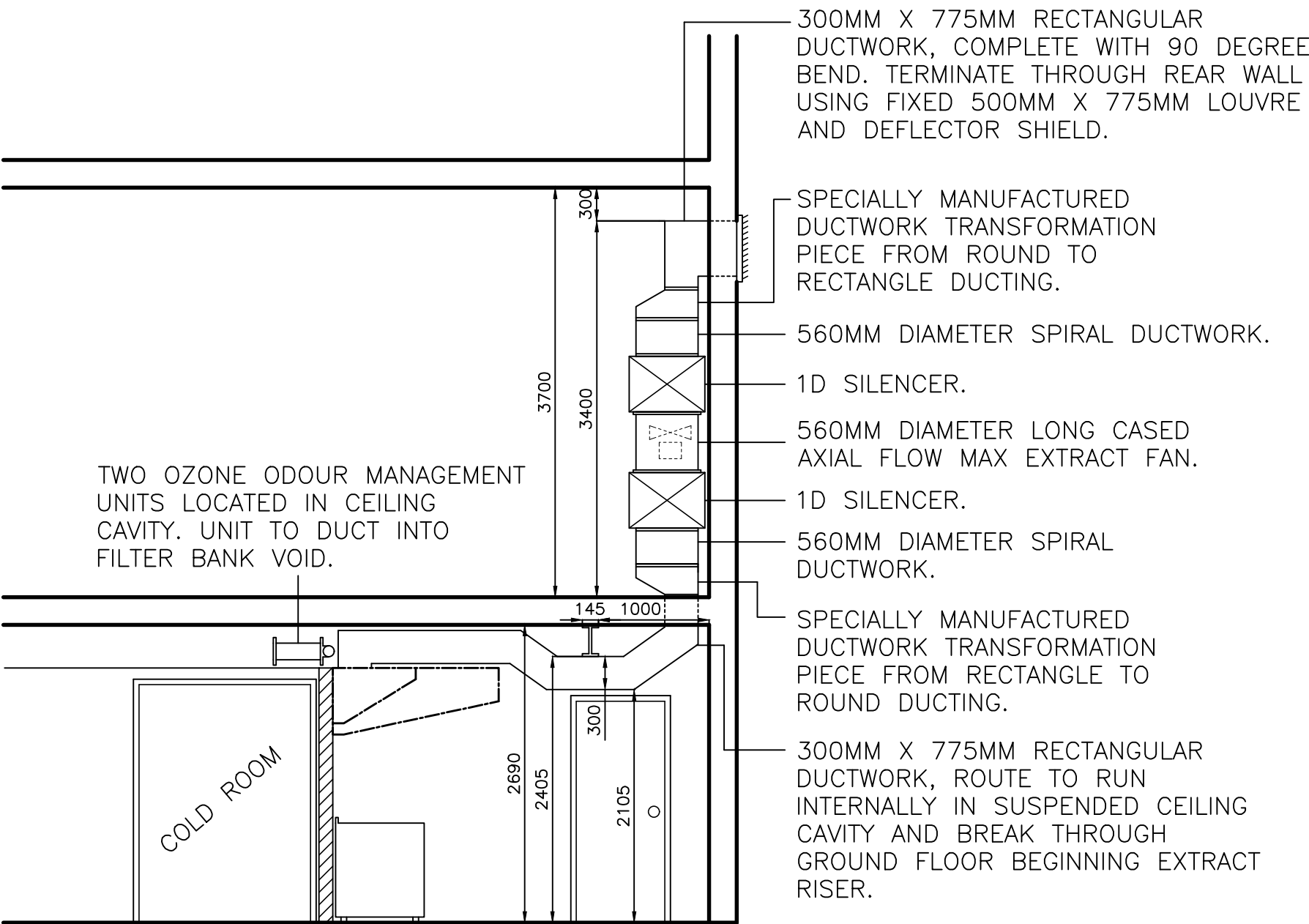
BAKERY EXTRACT CANOPY

- STAINLESS STEEL EXTRACT CANOPY – 2150MM X 1500MM X 300MM HIGH
- 4 OF 500MM X 500MM STAINLESS STEEL BAFFLE FILTERS
- 315MM DIAMETER SPIRAL FIRE RATED EXTRACT DUCTWORK AND CONNECTING TO MAIN EXTRACT.

AIR INPUT SYSTEM

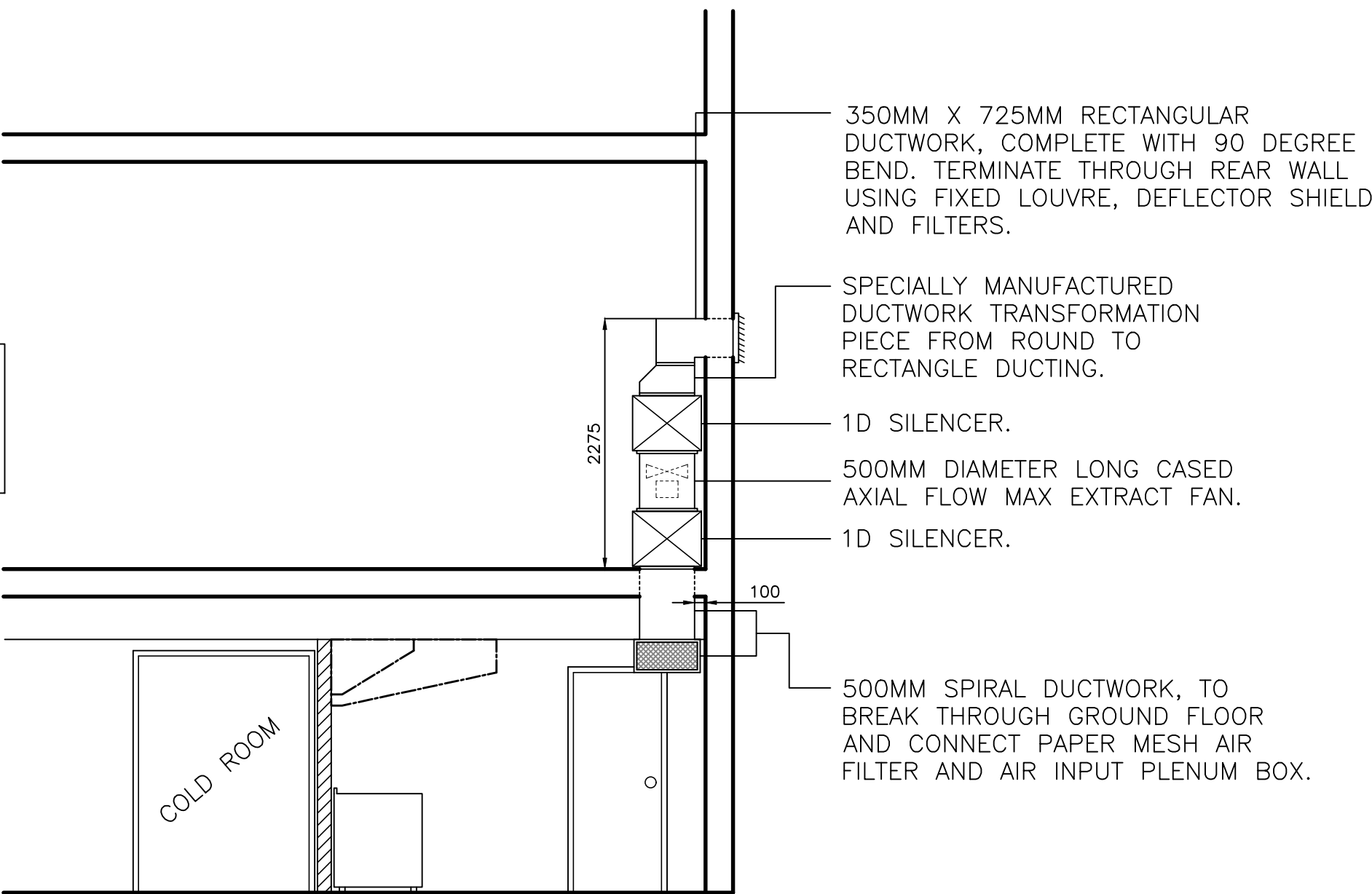
- STAINLESS STEEL AIR INPUT PLENUM WITH DOUBLE DEFLECTION GRILLES
- 500MM DIAMETER AXIAL FLOW MAX FAN, COMPLETE WITH FLANGES
- AIR INPUT TO TERMINATE WITH A FIXED LOURVE.
- DW172 AIR VOLUME CALCULATION BASED ON 85% OF EXTRACT VOLUME

SIDE ELEVATION OF EXTRACT SYSTEM.



PLEASE NOTE: ALL DUCTWORK TO BE FIRED RATED, DUE TO BOXING IN OF SYSTEM, SERVICES HATCH TO BE INSTALLED FOR SERVICING AND MAINTENANCE.

SIDE ELEVATION OF AIR INPUT SYSTEM.



B	13.02.25	Extract spec and layout amended to suit proposed lift hoist beam.	HK
A	28.01.25	Layout amended following teams meeting.	HK
Rev.	Date.	Revision.	By.

MAINLAND CATERING
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Client. MINT STUDIO			
Job Title. DOUX CHATON, MANCHESTER			
Drawing Title. PROPOSED EXTRACTION SYSTEM SCHEME			Scale. 1:50
Drawn by. H. KINGHAM	Drg No. 9140-2		B
Date. 03-09-2024			

The CMS400 System

The “Controlled Ozone” CMS400 System is a twin monitored odour control system that safely capitalises on the benefits of gaseous ozone to destroy cooking odours. The CMS400 is unique because it monitors the air to ozone concentration levels within the extraction ducts and the ozone levels on discharge from the extract. Using the information from this monitoring the optimum gaseous ozone concentration level is maintained to break down the odour particulate, whilst ensuring the level of ozone discharged to the atmosphere does not exceed permitted guidelines.

Gaseous ozone has been used to neutralise bacteria and odours for a very long time in both air and water.

Gaseous ozone generators (reactors) are used to produce Ozone (O_3) from Oxygen (O_2) for commercial or industrial applications using a method known as Corona.

Gaseous Ozone neutralises cooking odour when the Oxygen atom is split to form Elemental Oxygen (O) atoms. These atoms attach themselves to other Oxygen atoms to form Ozone atoms and in doing so they destroy the organic particulate that is carrying the cooking odours. The cooking odour organic particulate being destroyed in this process ensures the odour will not reappear further down the airflow unlike many odour masking methods that are commonly used.

As Ozone cannot be stored due to it quickly reverting back to molecular Oxygen once in contact with atmosphere, it must be produced on-site and on-demand. This makes the ozone generator the most important component of any successful ozone system.

Ozone is produced from electrical discharge, commonly referred to as a spark. A great deal of Ozone is produced from lightening during a thunderstorm, this is one of the reasons you smell the “fresh” smell after a thunderstorm.

Any electrical discharge, or spark will create Ozone. The spark will split the Oxygen molecule found in ambient air into Elemental Oxygen. These Oxygen atoms will quickly bind to another Oxygen molecule to form Ozone.

In a corona discharge ozone generator, the electrical discharge will take place in an air gap within the corona cell designed specifically to split the Oxygen molecule and produce Ozone. In this air gap a dielectric is used to distribute the electron flow evenly across the gap to spread the electron flow to as great a volume of oxygen as possible.

The CMS400 System is fully warranted for twelve months following registered installation and commissioning.

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