

ANGUS COUNCIL

DEVELOPMENT MANAGEMENT REVIEW COMMITTEE – 23 FEBRUARY 2023

35E ST JAMES ROAD, FORFAR

REPORT BY THE DIRECTOR OF LEGAL AND DEMOCRATIC SERVICES

ABSTRACT:

The Committee is asked to consider an application for a review of the decision taken by the planning authority in respect of the refusal of planning permission for change of use to form a hot food takeaway with associated works, application No 21/00993/FULL, at 35E St James Road, Forfar.

1. RECOMMENDATIONS

It is recommended that the Committee:-

- (i) review the case submitted by the Planning Authority (**Appendix 1**);
- (ii) review the case submitted by the Applicant (**Appendix 2**); and
- (iii) consider the further lodged representations (**Appendix 3**).

2. ALIGNMENT TO THE ANGUS COUNCIL PLAN

This report contributes to the following outcomes contained within the Angus Council Plan:

- Safe, secure, vibrant and sustainable communities
- A reduced carbon footprint
- An enhanced, protected and enjoyed natural and built environment

3. CURRENT POSITION

The Development Management Review Committee is required to determine if they have sufficient information to determine the Review without further procedure. If members do not determine the review without further procedure, the Review Committee must determine the manner in which the review is to be conducted. The procedures available in terms of the regulations are: written submissions, hearing sessions or inspection of the land to which the review relates.

4. FINANCIAL IMPLICATIONS

There are no financial implications arising directly from the recommendations in the Report.

5. EQUALITY IMPACT ASSESSMENT

An Equality Impact Assessment is not required.

6. CONSULTATION

In accordance with Standing Order 48(4), this Report falls within an approved category that has been confirmed as exempt from the consultation process.

NOTE: No background papers, as defined by Section 50D of the Local Government (Scotland) Act 1973, (other than any containing confidential or exempt information) were relied on to any material extent in preparing the above Report.

Report Author: Sarah Forsyth
E-Mail: LEGDEM@angus.gov.uk

List of Appendices:

Appendix 1 – Submission by Planning Authority

Appendix 2 – Submission by Applicant

Appendix 3 – Further Lodged Representations

ANGUS COUNCIL'S SUBMISSION ON GROUNDS OF REFUSAL

APPLICATION NUMBER – 21/00993/FULL

APPLICANT- JOUP PROPERTY LIMITED

**PROPOSAL & ADDRESS – CHANGE OF USE TO FORM A HOT FOOD TAKEAWAY
WITH ASSOCIATED WORKS AT 35E ST JAMES ROAD FORFAR**

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Angus Council

Application Number:	21/00993/FULL
Description of Development:	Change of use to from a hot food takeaway with associated works
Site Address:	35E St James Road Forfar DD8 1LN
Grid Ref:	345473 : 750134
Applicant Name:	Joup Property Limited

Report of Handling

Site Description

35E St James Road is a detached single storey flat roofed building with a footprint of 86sqm which occupies a site measuring 266sqm. The building is located against the south boundary of the site with a hardstanding area to the north of the building and an external area to the east. The application form indicates that the property was most recently used as a shop. The property is located in an area which is predominantly residential in character, with housing located to the immediate south and east with housing also located to the north on the opposite side of St James Road and to the west beyond a pedestrian footway that connects St James Road to View Mount.

Proposal

Planning permission is sought for the change of use to a hot food takeaway including alterations to the building to accommodate the new use. Internally a counter and waiting area would be formed to the front of the premises with food preparation and cooking areas. To the rear of the building walk in cold and dry stores would be formed along with a wash area and w/c. A ventilation system to discharge cooking odours would also be installed within the property.

Externally, the building would be extended 2m forward in a northerly direction and four large glazing panels, along with a glazed access door would be installed in the new north elevation. The oven extract vent would also be located in the north elevation. A fresh air intake vent is proposed in the east elevation. An air conditioning unit and cold room compressor would be sited adjacent to the east elevation and an external yard area with an area of 11sqm would be formed to the east of the building and enclosed by close boarded timber fencing. Three off street parking spaces would be created to the north of the building with access to these by a new dropped kerb.

The application has not been subject of variation.

Publicity

The application was subject to normal neighbour notification procedures.

The application was advertised in the Dundee Courier on 7 January 2022 for the following reasons:

- Schedule 3 Development

The nature of the proposal did not require a site notice to be posted.

Planning History

99/00664/ADV for Erection of Illuminated Advertising Sign was determined as "approved subject to conditions" on 3 September 1999.

Applicant's Case

The following documents have been submitted in support of the application: -

Plant Noise Assessment - this document details a noise survey undertaken at the site to quantify the existing noise climate and derive atmospheric plant noise limits in accordance with the requirements of the Local Authority. An assessment of the plant noise emission levels associated with the proposed mechanical services has also been undertaken to determine if any mitigation is required to meet identified plant noise limits. The plant to be installed includes supply and extract fans that will be installed internally and ducted to terminate to the atmosphere on the eastern and northern facades, respectively. The A/C and cold room condensers will be situated externally in an enclosed yard area to the east of the site. The assessment concludes that through the inclusion of mitigation measures in the form of acoustic barriers, in-duct silencers, and acoustic enclosures (for the yard area, supply & extract fans and external condenser units, respectively) the plant noise emission criteria would be met at all times.

Risk Assessment for Odour - this document provides an assessment of odour nuisance associated with the proposed use. It indicates the dispersion rate would be high, the proximity of receptors is high, the kitchen size is medium, and the cooking type (odour and grease load) is medium, resulting in a very high level of odour control being required.

Extraction System Product Specifications - these documents provide the product and operational specifications of various elements of equipment that are required in the proposed extraction system. The elements include - attenuator; fans; filters; silencer; condensing unit; water heating battery; anti-vibration connectors; carbon discard cells and low static pressure ducts.

Consultations

Environmental Health (Forfar) - Has objected to the proposal indicating that it has not been demonstrated that the hot food takeaway could operate without significant odour impacts on neighbouring residential properties.

Community Council - There was no response from this consultee at the time of report preparation.

Roads (Traffic) - This consultee has offered no objection to the proposal but has advised that should permission be granted the footway crossing at the proposed access to the proposed parking spaces must be formed and constructed in accordance with the standards of Angus Council.

Scottish Water - There was no response from this consultee at the time of report preparation.

Representations

10 letters of representation were received, of which 2 offered comments which neither supported nor objected to the proposal, 4 objected to the proposal and 4 supported the proposal.

The following matters have been raised in objection to the application and are discussed in the assessment below: -

- Amenity impacts on adjacent residents caused by noise late in evening, cooking smells and increased antisocial behaviour and littering;
- Access, traffic and parking issues;
- Unacceptable drainage arrangements; and
- Over provision of takeaways.

The following matters have been raised in support of the application and are discussed in the assessment below: -

- Employment opportunities would be created; and

- Introduces more competition and choice between hot food takeaways.

The following general comments have been made in relation to the application: -

- Brings a vacant property back into use - the acceptability of the proposed use at the property is discussed below.
- The proposed occupant of the property is a reputable company - the applicant's reputation is not a material planning consideration.
- The submitted information does not include information that makes provision of access to 35 St James Road would be available at all times and boundary screening would be provided between the properties - any agreement between the applicant and the third party is outwith the control of this service and the planning application must be determined on the basis of the submitted information.

Development Plan Policies

Angus Local Development Plan 2016

Policy DS1 : Development Boundaries and Priorities
Policy DS3 : Design Quality and Placemaking
Policy DS4 : Amenity
Policy PV15 : Drainage Infrastructure
Policy PV18 : Waste Management in New Development

TAYplan Strategic Development Plan

The proposal is not of strategic significance and policies of TAYplan are not referred to in this report.

The full text of the relevant development plan policies can be viewed at Appendix 1 to this report.

Assessment

Sections 25 and 37(2) of the Town and Country Planning (Scotland) Act 1997 require that planning decisions be made in accordance with the development plan unless material considerations indicate otherwise.

Policy DS1 states that proposals for sites not allocated or otherwise identified for development, but within development boundaries will be supported where they are of an appropriate scale and nature and are in accordance with relevant policies of the ALDP.

In terms of location, Advice Note 2/2018 provides guidance in relation to the assessment of applications for hot food takeaways and indicates that the preferred location for a hot food takeaway is within a town centre or in a mixed-use area where there are already a significant number of properties in a non-residential use or a number of properties of a similar/related use (e.g., public house). It indicates that hot food takeaways will not normally be considered acceptable in predominantly residential areas unless located within a freestanding area which will not unduly detract from the amenity of surrounding residential properties.

The proposal relates to a vacant shop unit located outside of the town centre. The property is in a location which is residential in character, with residential property and garden ground surrounding the site immediately to the east (6m) and south (1m) and with residential properties located on the opposite side of St James Road to the north and to the west beyond a pedestrian footpath. There are no other non-residential uses close to the site and the previous use of the site as a shop, which was unlikely to be one that impacted on the residential amenity of neighbouring property to any significant degree. The proposed use would occupy a building which covers most of its curtilage and there is minimal space surrounding the site to provide a buffer between the building and neighbouring housing and garden ground. The wider surrounding area does not contain a significant number of properties in a similar use to a hot food takeaway or restaurant. The area is residential in character and the building is not located in a

freestanding area benefiting from space between it and the nearby residential property. The proposal would introduce a night-time economy related use into a predominantly residential area and the proposal does not comply with the locational guidance for hot food takeaways and restaurants set out in Advice Note 2/2018.

Policy DS4 indicates that development will not be permitted where there is an unacceptable adverse impact on the surrounding area or the amenity or environment of existing or future occupiers of adjoining or nearby property. The advice note also identifies potential issues relating to cooking smells, noise, litter, and traffic/parking.

The noise information submitted in support of the application suggests that noise levels associated with both extraction equipment and noise generated from within the premises would be within acceptable levels. The odour information indicates that taking account of the dispersion rate, the proximity of receptors, kitchen size, and the cooking type, a high level of odour control is required.

The environmental health service has considered the information submitted and advised that the proposal could potentially lead to a loss of residential amenity through odour and noise. In relation to odour the environmental health service has advised that cooking odours would be discharged at a very low level relative to the adjacent residential properties which would inevitably result in poor dispersion of the used air. The proposal incorporates a high specification extraction system, however the environmental health service has advised that because it is only possible for cooking odours to be discharged at a low level and no low discharge system will be odour free. Given the proximity and relative height of discharge to the nearest residential properties, odour impacts would inevitably still occur. Based on the above, environmental health has objected to the proposal due to unacceptable odour impacts on occupants of nearby property. In relation to noise, environmental health are satisfied that impacts would not be unacceptable when measured against established standards subject to planning conditions which could be used to regulate noise limits from plant at the premises.

In terms of parking and road safety, there is on-street parking on St James Road. The roads service has offered no objection having regard to road traffic and pedestrian safety matters. The proposed formation of the footway crossing would be required to be formed and constructed in accordance with the standards of Angus Council.

In relation to litter, the advice note recognises that the dropping of litter by customers is outwith the control of the proprietor and is controlled by other regulatory regimes. Notwithstanding this, there are litter bins in the surrounding area. Advice Note 2/2018 indicates that planning conditions will not normally be used to restrict opening hours of hot food takeaways as these can be more appropriately addressed through the licensing system.

No altered drainage or water supply arrangements would be required to accommodate the proposed change of use and refuse arrangements for the hot food takeaway use would be accommodated within the proposed secure yard area.

In terms of other material considerations, it is relevant to note that representations have been submitted in relation to the proposal. In essence the objections raised, suggest that this is not an appropriate location for a hot food takeaway by virtue of adverse impacts upon amenity, drainage and road and pedestrian safety. Those matters have been discussed above, where it is considered that the proposal would not result in an unacceptable impact upon existing drainage arrangements, littering or noise impacts subject to condition. However it has not been demonstrated that the proposed hot food takeaway could operate from the premises in a manner that would not give rise to unacceptable odour impacts. The roads service has considered impacts upon access, traffic and parking issues and has raised no objection in terms of the level of traffic likely to be generated by the proposal. parking or road traffic and pedestrian safety.

In relation to other matters raised in representations, such as the proposal contributing to an overprovision of takeaways, healthy business competition and antisocial behaviour, these would not be matters regulated by the planning regime.

In terms of potential job creation and economic benefits that could be associated with the use of the premises as a hot food takeaway, and the benefit of securing a new use for an existing vacant property.

However, there is no evidence to suggest that the economic benefits associated with a proposal of this scale or nature could not be delivered from at a different location that is otherwise compatible with relevant policy and guidance. Similarly, there is no evidence to suggest that an alternative use that is compatible with policy and guidance could not be found for the existing property.

Paragraph 33 of SPP states that where a development plan is more than five years old, the presumption in favour of development that contributes to sustainable development will be a significant material consideration. In this case TAYplan remains up to date but the ALDP is more than 5-years old as it was adopted in September 2016. The proposal would meet some of the principles identified in SPP as contributing towards sustainable development. However, the nature of the proposed use and its proximity to existing housing would not be consistent with the principle of protecting the amenity of existing development. The proposal would not, in overall terms, represent sustainable development and it would not find support from SPP. The adverse impacts of the development significantly and demonstrably outweigh the benefits of the development when assessed against wider policies in the SPP.

In conclusion, the site is located in a predominantly residential area and there are dwellings located within close proximity to the application property. The proposal is contrary to the locational guidance for hot food takeaways as detailed in Advice Note 2/2018. In addition, information submitted in support of the application does not demonstrate that the operation of the proposed business would not result in significant and unacceptable odour impacts to the detriment of those that live in the area. The proposal is not of a scale and nature appropriate for the location and is not compatible with Policies DS1 or DS4 of the development plan. There are no material considerations that justify approval of the application contrary to the provisions of the development plan.

Human Rights Implications

The decision to refuse this application has potential implications for the applicant in terms of his entitlement to peaceful enjoyment of his possessions (First Protocol, Article 1). For the reasons referred to elsewhere in this report justifying the decision in planning terms, it is considered that any actual or apprehended infringement of such Convention Rights, is justified. Any interference with the applicant's right to peaceful enjoyment of his possessions by refusal of the present application is in compliance with the Council's legal duties to determine this planning application under the Planning Acts and such refusal constitutes a justified and proportionate control of the use of property in accordance with the general interest and is necessary in the public interest with reference to the Development Plan and other material planning considerations as referred to in the report.

Decision

The application is Refused

Reason(s) for Decision:

1. The proposal does not comply with the locational guidance for the siting of hot food takeaways provided in Angus Council Advice Note 2/2018 and is likely to give rise to unacceptable adverse impacts on the amenity of those that live in the area contrary to Policies DS1 and DS4 of the Angus Local Development Plan.

2. It has not been demonstrated that the proposed hot food takeaway could operate from the premises in a manner that would not give rise to unacceptable odour impacts on the occupants of nearby residential property and as such the proposal is contrary to Policies DS1 and DS4 of the Angus Local Development Plan, and Angus Council Advice Note 2/2018.

Notes:

Case Officer: Ruari Kelly
Date: 18 October 2022

Appendix 1 - Development Plan Policies

Angus Local Development Plan 2016

Policy DS1 : Development Boundaries and Priorities

All proposals will be expected to support delivery of the Development Strategy.

The focus of development will be sites allocated or otherwise identified for development within the Angus Local Development Plan, which will be safeguarded for the use(s) set out. Proposals for alternative uses will only be acceptable if they do not undermine the provision of a range of sites to meet the development needs of the plan area.

Proposals on sites not allocated or otherwise identified for development, but within development boundaries will be supported where they are of an appropriate scale and nature and are in accordance with relevant policies of the ALDP.

Proposals for sites outwith but contiguous* with a development boundary will only be acceptable where it is in the public interest and social, economic, environmental or operational considerations confirm there is a need for the proposed development that cannot be met within a development boundary.

Outwith development boundaries proposals will be supported where they are of a scale and nature appropriate to their location and where they are in accordance with relevant policies of the ALDP.

In all locations, proposals that re-use or make better use of vacant, derelict or under-used brownfield land or buildings will be supported where they are in accordance with relevant policies of the ALDP.

Development of greenfield sites (with the exception of sites allocated, identified or considered appropriate for development by policies in the ALDP) will only be supported where there are no suitable and available brownfield sites capable of accommodating the proposed development.

Development proposals should not result in adverse impacts, either alone or in combination with other proposals or projects, on the integrity of any European designated site, in accordance with Policy PV4 Sites Designated for Natural Heritage and Biodiversity Value.

*Sharing an edge or boundary, neighbouring or adjacent

Policy DS3 : Design Quality and Placemaking

Development proposals should deliver a high design standard and draw upon those aspects of landscape or townscape that contribute positively to the character and sense of place of the area in which they are to be located. Development proposals should create buildings and places which are:

- o Distinct in Character and Identity: Where development fits with the character and pattern of development in the surrounding area, provides a coherent structure of streets, spaces and buildings and retains and sensitively integrates important townscape and landscape features.
- o Safe and Pleasant: Where all buildings, public spaces and routes are designed to be accessible, safe and attractive, where public and private spaces are clearly defined and appropriate new areas of landscaping and open space are incorporated and linked to existing green space wherever possible.
- o Well Connected: Where development connects pedestrians, cyclists and vehicles with the surrounding area and public transport, the access and parking requirements of the Roads Authority are met and the principles set out in 'Designing Streets' are addressed.
- o Adaptable: Where development is designed to support a mix of compatible uses and accommodate changing needs.
- o Resource Efficient: Where development makes good use of existing resources and is sited and designed to minimise environmental impacts and maximise the use of local climate and landform.

Supplementary guidance will set out the principles expected in all development, more detailed guidance on the design aspects of different proposals and how to achieve the qualities set out above. Further details on the type of developments requiring a design statement and the issues that should be addressed will also be set out in supplementary guidance.

Policy DS4 : Amenity

All proposed development must have full regard to opportunities for maintaining and improving environmental quality. Development will not be permitted where there is an unacceptable adverse impact on the surrounding area or the environment or amenity of existing or future occupiers of adjoining or nearby properties.

Angus Council will consider the impacts of development on:

- Air quality;
- Noise and vibration levels and times when such disturbances are likely to occur;
- Levels of light pollution;
- Levels of odours, fumes and dust;
- Suitable provision for refuse collection / storage and recycling;
- The effect and timing of traffic movement to, from and within the site, car parking and impacts on highway safety; and
- Residential amenity in relation to overlooking and loss of privacy, outlook, sunlight, daylight and overshadowing.

Angus Council may support development which is considered to have an impact on such considerations, if the use of conditions or planning obligations will ensure that appropriate mitigation and / or compensatory measures are secured.

Applicants may be required to submit detailed assessments in relation to any of the above criteria to the Council for consideration.

Where a site is known or suspected to be contaminated, applicants will be required to undertake investigation and, where appropriate, remediation measures relevant to the current or proposed use to prevent unacceptable risks to human health.

Policy TC19 : Retail and Town Centre Uses

Proposals for retail and other town centre uses* over 1000 m2 gross floorspace (including extensions) on the edge of or outside of defined town centres (including in out of town locations) will be required to submit relevant assessments (including retail/town centre impact and transport assessments) and demonstrate that the proposal:

- o has followed a sequential approach to site selection, giving priority to sites within the defined town centre before edge of centre, commercial centre or out of centre sites which are, or can be made accessible;
- o does not individually or cumulatively undermine the vibrancy, vitality and viability of any of the town centres identified in Table 2 in Angus;
- o tackles deficiencies in existing provision, in qualitative or quantitative terms; and
- o is compatible with surrounding land uses and there is no unacceptable impact on the built and natural environment, surrounding amenity, access and infrastructure.

Proposals for retail and other town centre uses⁸ under 1000 m2 gross floorspace (including extensions) on the edge of or outside of defined town centres may be required to submit relevant assessments (including retail / town centre impact, transport and sequential assessments) where it is considered that the proposal may have a significant impact on the vibrancy, vitality and viability of any of the town centres in Angus.

*Town centre uses include commercial leisure, offices, community and cultural facilities.

Policy PV15 : Drainage Infrastructure

Development proposals within Development Boundaries will be required to connect to the public sewer where available.

Where there is limited capacity at the treatment works Scottish Water will provide additional wastewater capacity to accommodate development if the Developer can meet the 5 Criteria*. Scottish Water will instigate a growth project upon receipt of the 5 Criteria and will work with the developer, SEPA and Angus

Council to identify solutions for the development to proceed.

Outwith areas served by public sewers or where there is no viable connection for economic or technical reasons private provision of waste water treatment must meet the requirements of SEPA and/or The Building Standards (Scotland) Regulations. A private drainage system will only be considered as a means towards achieving connection to the public sewer system, and when it forms part of a specific development proposal which meets the necessary criteria to trigger a Scottish Water growth project.

All new development (except single dwelling and developments that discharge directly to coastal waters) will be required to provide Sustainable Drainage Systems (SUDs) to accommodate surface water drainage and long term maintenance must be agreed with the local authority. SUDs schemes can contribute to local green networks, biodiversity and provision of amenity open space and should form an integral part of the design process.

Drainage Impact Assessment (DIA) will be required for new development where appropriate to identify potential network issues and minimise any reduction in existing levels of service.

*Enabling Development and our 5 Criteria (<http://scotland.gov.uk/Resource/0040/00409361.pdf>)

Policy PV18 : Waste Management in New Development

Proposals for new retail, residential, commercial, business and industrial development should seek to minimise the production of demolition and construction waste and incorporate recycled waste into the development.

Where appropriate, Angus Council will require the submission of a Site Waste Management Plan to demonstrate how the generation of waste will be minimised during the construction and operational phases of the development.

Development proposals that are likely to generate waste when operational will be expected to include appropriate facilities for the segregation, storage and collection of waste. This will include provision for the separate collection and storage of recyclates within the curtilage of individual houses.

TAYplan Strategic Development plan

The proposal is not of strategic significance and policies of TAYplan are not referred to in this report.

ANGUS COUNCIL

PLACE PLANNING

CONSULTATION SHEET

PLANNING APPLICATION NO

21/00993/FULL

Tick boxes as appropriate

ROADS

No Objection

Interest

(Comments to follow within 14 days)

Date

31	12	21
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**PLEASE DO NOT TAKE AWAY THE LAST SET OF PLANS WHERE POSSIBLE COPIES
WILL BE PROVIDED ON REQUEST**

ELECTRONIC SUBMISSION DRAWINGS TO BE VIEWED VIA IDOX

Ruari Kelly

From: Andy Barnes
Sent: 06 January 2022 19:03
To: Stephanie G Porter
Subject: 21/00993/FULL

Stephanie

Further to the above planning application, it is noted that the proposal includes for the provision of 3 parking spaces with dropped kerb access. Drawing No. 6715_P_303 shows the proposed spaces and includes annotation to the effect of, "hatched area denotes extent of pavement to be dropped in accordance with angus council transport department recommendations".

This does not change the consultation response of 31 December as no objections would still prevail but you may wish to add an advisory, informative note to any decision notice of approval to inform the applicant that the footway crossing at the proposed access must be formed and constructed in accordance with the standards of Angus Council. An application form can be downloaded from the Angus Council website for the purpose, however, given the drawing annotation it would appear that the agent is already aware of the requirement in terms of the alterations to the public footway.

The area in front of the former shop is already being used for parking by use of the dropped kerb leading to the west side and rear of the property.

Regards

Andrew Barnes | Team Leader - Traffic | Angus Council | Tel: 01307 491770 | Email: barnesa@angus.gov.uk
| www.angus.gov.uk

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For information on COVID-19 goto www.NHSInform.scot

Think green – please do not print this email

Ruari Kelly

From: Iain H Graham
Sent: 28 January 2022 11:49
To: Stephanie G Porter
Cc: Steven D Thomson
Subject: 21/00993/FULL - Change of use to form a hot food takeaway with associated works 35E St James Road Forfar DD8 1LN

Steph

Thank you for consulting this Service on the above application.

As you are aware I previously spoke to the agent regarding the proposed development in February last year in addition to providing a response to the corresponding pre-planning enquiry in September. On both occasions I raised concerns regarding the close proximity of residential properties and the likelihood of these properties being subjected to adverse impacts in the event of the development taking place.

Looking at the information submitted in respect of the current application it is noted that cooking odours would be discharged at a very low level relative to the adjacent residential properties which would inevitably result in poor dispersion of the used air and the only details of the proposed extraction system that have been provided is a reference to carbon blocks and bag filters on the elevation drawings. In addition the proposed drawings seem to indicate that the existing air conditioning unit on the east elevation and the condensing unit on the south elevation will be retained and having looked at the manufacturers' data I am concerned that the individual and cumulative noise emissions will exceed our relevant standard planning conditions.

This Service therefore remains concerned that the proposed development would give rise to significant odour and noise impacts that would be to the detriment of the amenity levels currently afforded to adjacent residential properties and accordingly would object to the application proceeding to consent.

I trust you find the above comments helpful but please do not hesitate to contact me if you wish to discuss anything further.

Regards

Iain

Iain Graham | Environmental Health Officer | Angus Council - Place | Housing, Regulatory and Protective Services | Angus House, Orchardbank Business Park, Forfar, DD8 1AN | ☎01307 492026

Ruari Kelly

From: Iain H Graham
Sent: 04 March 2022 11:47
To: Stephanie G Porter
Cc: Steven D Thomson
Subject: RE: 21/00993/FULL

Hi Steph

I have looked at the additional information submitted as requested. I note that a ventilation and extraction specialist has undertaken an assessment in terms of Annexes B and C of the 2005 DEFRA document "Guidance on the Control of Odour and Noise from Commercial Kitchen Exhaust Systems" which was withdrawn in 2017. Whilst the proposed extraction system is detailed its performance in terms of odour abatement is unlikely to amount to best practicable means. In any case it needs to be noted that no low discharge system will be odour free and given the proximity and relative height of the nearest residential properties odour impacts would inevitably still occur.

In addition to odour issues I raised concerns regarding potential noise impacts in my previous email and I note that equipment manufacturers' data has been provided but the assessment referred to above includes a statement to the effect that noise levels can only be ascertained once the system has been installed. Clearly this is unacceptable in terms of being able to assess the potential noise impacts as part of the planning process however I do not feel that it would be appropriate to request a noise impact assessment be undertaken as regardless of the outcome I do not think the odour impacts can be sufficiently mitigated in any case.

Accordingly this Service cannot be satisfied that the proposed development will not have a significant detrimental impact on the current amenity levels afforded to the occupants of the residential properties within close proximity of the application building and therefore would object to any consent being granted.

I trust you find the above comments acceptable but please do not hesitate to contact me if you wish to discuss anything further.

Regards

Iain

Iain Graham | Environmental Health Officer | Angus Council - Place | Housing, Regulatory and Protective Services | Angus House, Orchardbank Business Park, Forfar, DD8 1AN | 📞01307 492026

Ruari Kelly

From: Iain H Graham
Sent: 17 May 2022 12:45
To: Stephanie G Porter
Cc: Steven D Thomson
Subject: RE: Domino's, Forfar - Plant Noise Assessment - 21/00993/FULL

Hi Steph

I've looked at the further information provided and would comments as follows:

Odour – The odour risk assessment submitted is based on a DEFRA Guidance document which has been formally withdrawn. A replacement guidance document was produced by EMAQ in 2017 which is largely based on the original DEFRA document but includes a number of changes to bring the guidance up to date. This includes updating the scoring system within Appendix 3:Risk Assessment for Odour so that the impacts associated with cooking certain foods, including pizza, are now higher than were previously stated in the DEFRA document. Therefore the risk assessment submitted does not reflect current guidance. However, as with the previous guidance, the new guidance is designed to help inform the likelihood of amenity impacts in very general terms but the outcome of the risk assessment should never be relied on in isolation to determine the suitability of a development; site specific circumstances must also be taken in to account and in this case the proposed low level discharge coupled with the close proximity of sensitive receptors remains a serious concern regardless of the extraction system proposed.

Noise – a noise impact assessment report has been submitted. I have looked at the report and note that an external assessment of the predicted noise levels from the proposed mechanical plant has been undertaken in terms of BS4142:2014. The report concludes that with a scheme of mitigation measures in place compliance with stated limits relative to the existing background levels can be achieved as well as predicting an internal broadband noise level that would meet the relevant standard. I would however make the following comments at this stage:

- The measurement position for the above background noise survey is reported as being 2.5m above roof level. I would ask if this is an accurate description of the measurement position and if so that justification is given for not using the measurement height of 1.2 -1.5m contained within the standard.
- Full details of the noise calculations undertaken including the distances from each piece of plant to each receptor along with all the corrections applied to the source noise levels needs to be provided.
- Where possible manufacturer's data should be provided to demonstrate that the corrections applied for mitigating actions are achievable.
- An assessment of the internal levels against the standard condition fixed plant noise limits of NR 35 daytime and NR 25 night-time requires to be undertaken in order that internal amenity impacts can be fully considered.

In summary this Service cannot be satisfied that it has been adequately demonstrated that these proposals will not have a significant impact on the existing amenity levels afforded to neighbouring properties and therefore cannot support the application as it stands.

I trust you find the above response satisfactory but please do not hesitate to contact me if you wish to discuss anything further.

Regards

Iain

Iain Graham | Environmental Health Officer | Angus Council - Place | Housing, Regulatory and Protective Services | Angus House, Orchardbank Business Park, Forfar, DD8 1AN | ☎01307 492026

Ruari Kelly

From: Iain H Graham
Sent: 06 October 2022 15:28
To: Ruari Kelly
Cc: Steven D Thomson
Subject: RE: 21/00993/FULL - Change of use to form a hot food takeaway with associated works 35E St James Road Forfar DD8 1LN

Hi Ruari

Following my recent communications with the Acoustic Consultant regarding the background noise survey measurement position I've managed to go back out and have another look at the relative ground levels in respect of the application building and the dwellinghouse (35d St James Rd) directly behind. I think the position used is about 1m higher than it needed to be to so there will be a slight increase in the background levels obtained due to a loss of shielding from the application building. However I have also established that the external amenity area for 35d is behind the property rather than to the front so the rear garden of 35c is likely to be where compliance with any external limits would be most onerous. If required a suitable correction could be applied to the measured background levels to provide the effects of shielding by 35c and the plant noise calculations for this location would suggest that compliance with a derived limit in terms of BS4142. I am also satisfied that internal fixed plant noise rating curve limits could be achieved at the most onerous location (35d). Therefore in terms of noise only I am satisfied that adjacent residential amenity levels could be adequately protected by way of noise limits and a scheme of mitigation.

In terms of odour I would reiterate my concerns that due to the low discharge point and the proximity of residential properties cooking odours are likely to have a significant impact on existing residential properties and on this basis this Service would continue to object to the proposed development.

I trust that the above information clarifies my Service's position but please do not hesitate to contact me if you wish to discuss anything further.

Regards

Iain

Iain Graham | Environmental Health Officer | Angus Council - Place | Housing, Regulatory and Protective Services | Angus House, Orchardbank Business Park, Forfar, DD8 1AN | 📞01307 492026

Comments for Planning Application 21/00993/FULL

Application Summary

Application Number: 21/00993/FULL

Address: 35E St James Road Forfar DD8 1LN

Proposal: Change of use to form a hot food takeaway with associated works

Case Officer: Stephanie Porter

Customer Details

Name: Mr Gary Cocker

Address: 35D St James Road Forfar

Comment Details

Commenter Type: Member of Public

Stance: Customer made comments neither objecting to or supporting the Planning Application

Comment Reasons:

Comment: I live at 35D which will be directly behind proposed outlet . We were contacted by developer last year who was looking to do work to see if we had any objections to it . We were advised that they would ensure 24 access to our property for our car by the kerb being dropped at the front of our property , Also that a fence would be put up to ensure no encroachment to our property from customers of said business.

I cannot see on submitted plans any sign of these and I would like confirmation of these details before giving support to this

Comments for Planning Application 21/00993/FULL

Application Summary

Application Number: 21/00993/FULL

Address: 35E St James Road Forfar DD8 1LN

Proposal: Change of use to form a hot food takeaway with associated works

Case Officer: Stephanie Porter

Customer Details

Name: Miss Claire Henderson

Address: 3 church terrace Memus forfar

Comment Details

Commenter Type: Member of Public

Stance: Customer objects to the Planning Application

Comment Reasons:

Comment: Too many pizza shops already and that street is busy enough with traffic from asda

Comments for Planning Application 21/00993/FULL

Application Summary

Application Number: 21/00993/FULL

Address: 35E St James Road Forfar DD8 1LN

Proposal: Change of use to form a hot food takeaway with associated works

Case Officer: Stephanie Porter

Customer Details

Name: Mr Krzysztof Szymaszek

Address: 35C St James Road, Forfar DD8 1LN

Comment Details

Commenter Type: Member of Public

Stance: Customer objects to the Planning Application

Comment Reasons:

Comment: I object to the plan for several reasons:

1. Late opening hours will attract people who have left pubs increasing risk of anti social behaviour in this residential area.
2. Noise from several sources including customers within the premises, extraction fans, customers immediately outwith the premises will affect nearby properties and residents including my family, especially after 10pm, what are the proposed opening hours?
3. Smell from cooking fried food will make nearby back gardens, outdoor area unpleasant. Angus Council recognised themselves that an odour-free hot food takeaway has not yet been developed. How this can be acceptable in residential area?
4. Littering issue at nearby area, no provision of bins etc. The issue with littering in the area was reported to Angus Council on numerous occasions and takeaway will make it worse.
5. No adequate parking provisions on busy road within residential area, (only 3 spaces for staff, delivery drivers, goods delivery and clients) on the busy road already congested. No disabled parking space available. I have road safety concern over additional traffic and inconsiderate on-street parking. Excessive length of dropped kerbs will encourage people to park on the footway which is safe route to nearby primary school.
6. No provisions for servicing/delivery parking with bus stop at the other side of the road and close to the junction with Lyinghills. Parked cars or delivery trucks will block entire road/junction.
7. No drainage proposals, as our next door property flooded few times caused by upstream issues, sewer may not have sufficient capacity. Additional flows from unattenuated surface water and foul water could have a negative impact on drainage system. No SUDS proposals included for additional surface water flow from extended roof. Bin store area doesn't have any drainage or cover with rainwater it could spill over the footpath causing pollution to storm water drainage and contamination to footway surface.

Comments for Planning Application 21/00993/FULL

Application Summary

Application Number: 21/00993/FULL

Address: 35E St James Road Forfar DD8 1LN

Proposal: Change of use to form a hot food takeaway with associated works

Case Officer: Stephanie Porter

Customer Details

Name: Mr Scott Monro

Address: 35b St James Road Forfar

Comment Details

Commenter Type: Member of Public

Stance: Customer objects to the Planning Application

Comment Reasons:

Comment: This is already an excessively busy road, as traffic seems to avoid going through the town centre and utilises St James Road. The addition of a Hot Food Takeaway would only increase the traffic flow. St James Road already has issues with traffic volume and the addition of a Hot Food Takeaway could make St James Road unusable at times.

St James Road is utilised by large volume of articulated lorries and farm vehicles, at all times of the day and night. This can cause blockages on an already busy street. The addition of traffic to St James Road that a Hot Food Takeaway would bring, would only add to these blockages.

St James Road is also utilised by a large number of emergency vehicles, both Ambulance and Fire Engines, at all times of the day and night. The addition of traffic to St James Road, that a Hot Food Takeaway would bring and the congestion this would cause, could have an impact on these emergency vehicles being able to respond quickly to emergencies if the road is busy or indeed blocked.

There is not enough parking space at the location of the Hot Food Takeaway to accommodate the additional vehicles that it will attract, both customers and delivery drivers. This could lead to more blockage of St James Road and/or the utilisation of the pavement for parking. Any pavement parking will be an issue for all pedestrians, but especially those with buggies and prams, who would then be forced onto a busy road.

Having witnessed the driving habits of delivery drivers for other Hot Food Takeaway's in Forfar there is the issue of speed they drive at, which on such a busy residential road, could lead to health and safety issues.

The smell produced by the Hot Food Takeaway will be constantly present, polluting what is a residential area.

Litter is an issue around all Hot Food Takeaway's, this will affect the properties immediately adjacent to the Hot Food Takeaway.

Noise could also be an issue due to the additional customers and delivery drivers.

Comments for Planning Application 21/00993/FULL

Application Summary

Application Number: 21/00993/FULL

Address: 35E St James Road Forfar DD8 1LN

Proposal: Change of use to form a hot food takeaway with associated works

Case Officer: Stephanie Porter

Customer Details

Name: Mr Michael Stubbs

Address: 78 North Street Forfar

Comment Details

Commenter Type: Member of Public

Stance: Customer made comments in support of the Planning Application

Comment Reasons:

Comment: Great use of the space and a very central location. Yes there is competition but a lot of it is of lower quality, we need a premium option for those willing to spend more for better quality.

Comments for Planning Application 21/00993/FULL

Application Summary

Application Number: 21/00993/FULL

Address: 35E St James Road Forfar DD8 1LN

Proposal: Change of use to form a hot food takeaway with associated works

Case Officer: Stephanie Porter

Customer Details

Name: Mrs Jenna Dye

Address: 31 Lyinghills Forfar

Comment Details

Commenter Type: Member of Public

Stance: Customer made comments in support of the Planning Application

Comment Reasons:

Comment: We have been waiting patiently for this to open for a long time, very much looking forward to our town having a bit of healthy competition, a couple of the takeaways with pizza on their menus are very expensive & not a patch on Domino's pizzas. Also a great opportunity for some employment for locals.

Comments for Planning Application 21/00993/FULL

Application Summary

Application Number: 21/00993/FULL

Address: 35E St James Road Forfar DD8 1LN

Proposal: Change of use to form a hot food takeaway with associated works

Case Officer: Stephanie Porter

Customer Details

Name: Chris Noble

Address: 31 Threewells Drive Forfar

Comment Details

Commenter Type: Member of Public

Stance: Customer made comments in support of the Planning Application

Comment Reasons:

Comment:

Comments for Planning Application 21/00993/FULL

Application Summary

Application Number: 21/00993/FULL

Address: 35E St James Road Forfar DD8 1LN

Proposal: Change of use to form a hot food takeaway with associated works

Case Officer: Stephanie Porter

Customer Details

Name: Miss Danni Robertson

Address: 31 threewells drive Forfar

Comment Details

Commenter Type: Member of Public

Stance: Customer made comments in support of the Planning Application

Comment Reasons:

Comment: I think this would be great for the town, bringing more jobs and a decent pizza, instead of the usual greasy pizza

Comments for Planning Application 21/00993/FULL

Application Summary

Application Number: 21/00993/FULL

Address: 35E St James Road Forfar DD8 1LN

Proposal: Change of use to form a hot food takeaway with associated works

Case Officer: Stephanie Porter

Customer Details

Name: Ms karin Stevenson

Address: 35D St. James Road Forfar

Comment Details

Commenter Type: Member of Public

Stance: Customer made comments neither objecting to or supporting the Planning Application

Comment Reasons:

Comment:As we live in area behind proposed development am concerned about large Increase in traffic on an already congested road.

When shop was opened we had major problems in gaining access to and from our property to park due to inconsiderate parking by users of shop and am concerned of this happening again.

It is difficult enough for residents to park as it is due to cars already parking in front of shop area.

Worried also about access due to delivery drivers blocking road and as already said this road is used regularly by emergency services .

How is noise going to be controlled and ensure no anti social behaviour due to people hanging about .

Also ensuring that adequate ventilation to ensure no food smells

Comments for Planning Application 21/00993/FULL

Application Summary

Application Number: 21/00993/FULL

Address: 35E St James Road Forfar DD8 1LN

Proposal: Change of use to form a hot food takeaway with associated works

Case Officer: Stephanie Porter

Customer Details

Name: Ms Nancy Ferguson

Address: 60 Gallowshade Road Forfar Forfar

Comment Details

Commenter Type: Member of Public

Stance: Customer objects to the Planning Application

Comment Reasons:

Comment: I am a care worker who works in the community and getting parked on St James's Road Forfar is a nightmare as it is just now with a busy takeaway going ahead it would make it even more difficult for us to be able to park and take care of our clients as we have several clients in that area the road seems more busy of late with a lot of big lorries going along it

345400m

345500m

345600m

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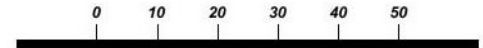
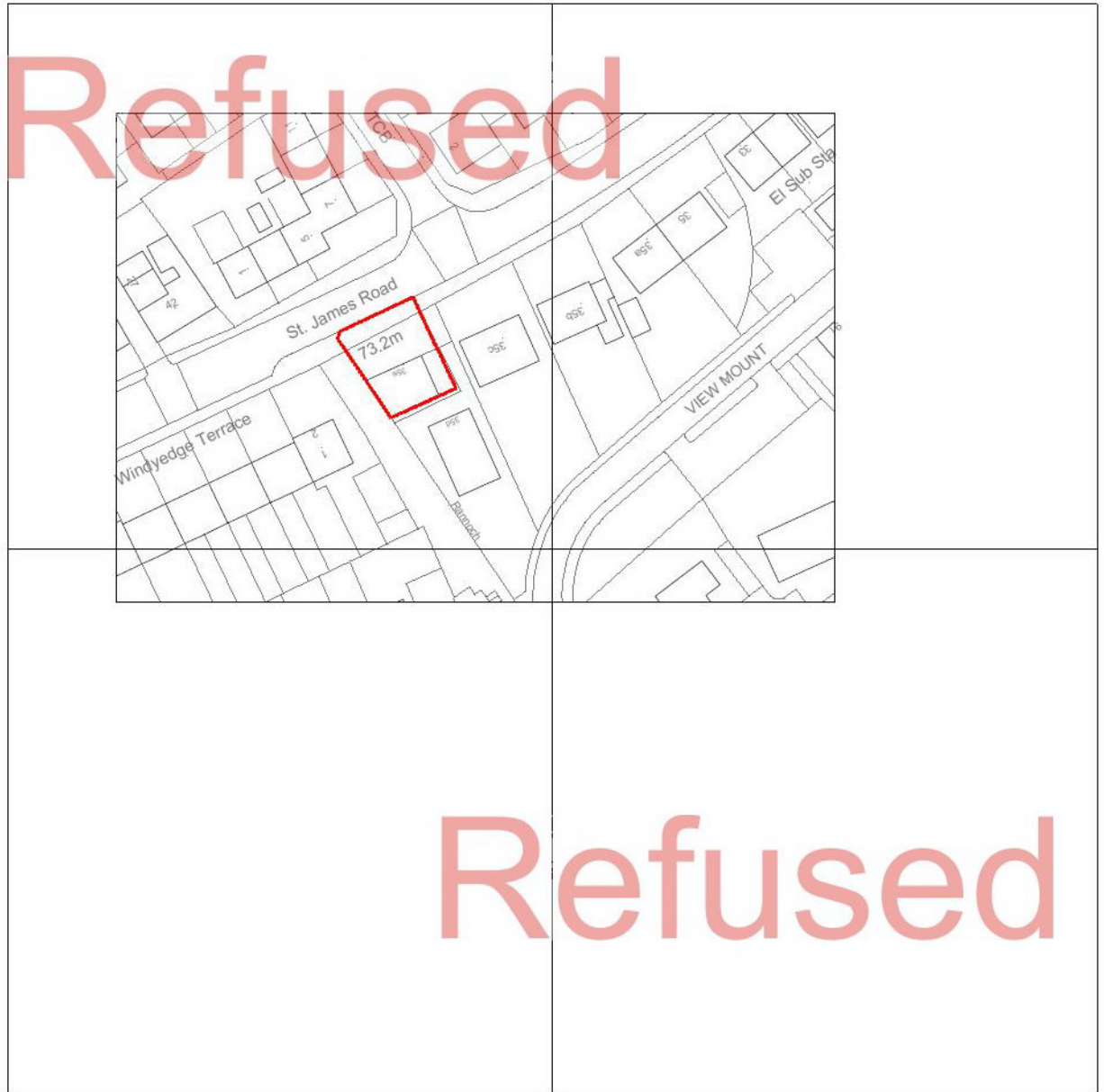
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
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SCALE 1:1250 (A4) LENGTHS SHOWN IN METRES

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 PROPOSED SITE BOUNDARY

Project Change of use		 JON FRULLANI ARCHITECT	
Client Joup Limited			
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Forfar DD8 1LN		Issue Status Planning	Drawing No. 6715_P_300
Designer DW/DS	Date Dec. 2021	Scale 1:1250 @ A4	Revision -
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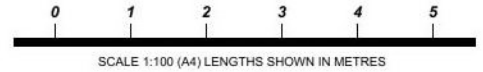
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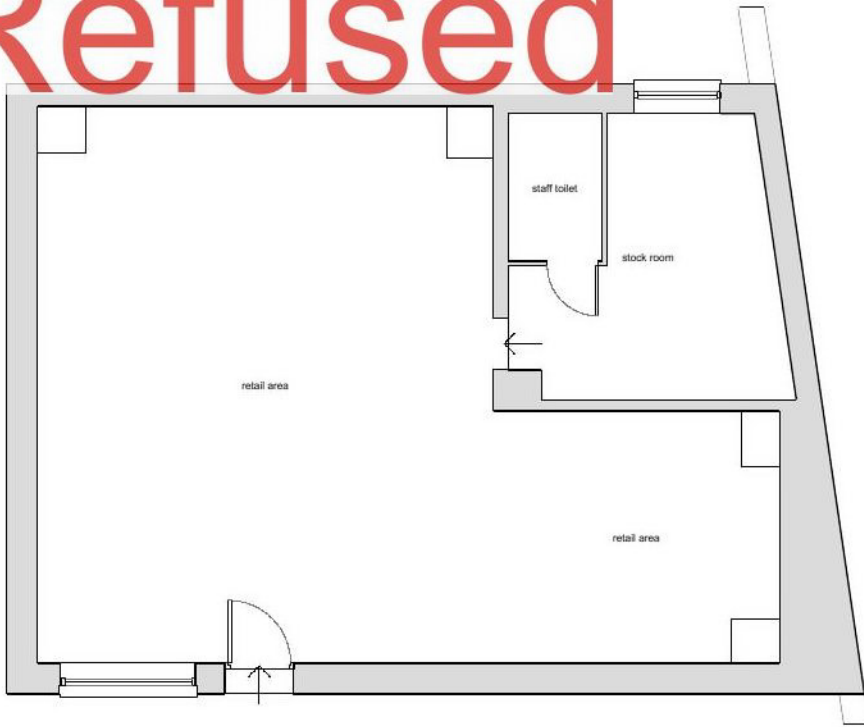
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Client Joup Limited			
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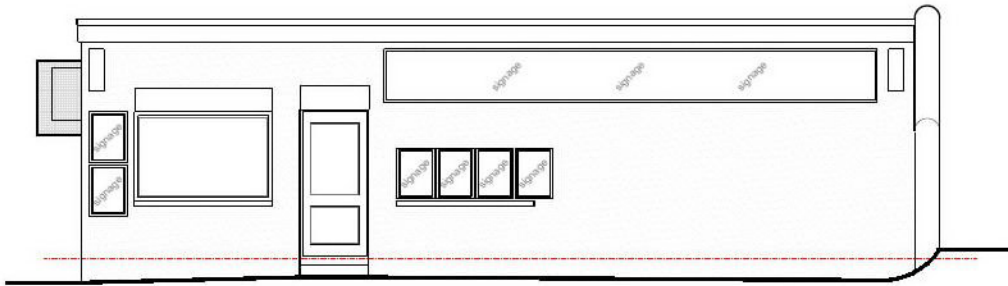
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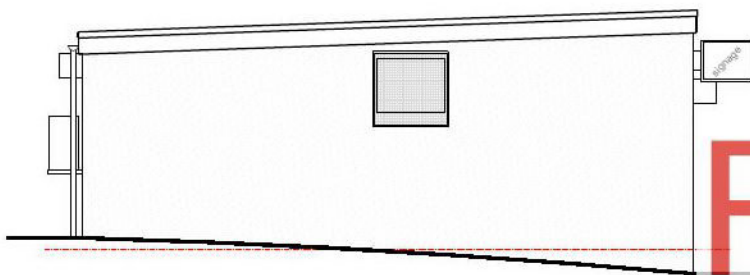
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existing floor plan

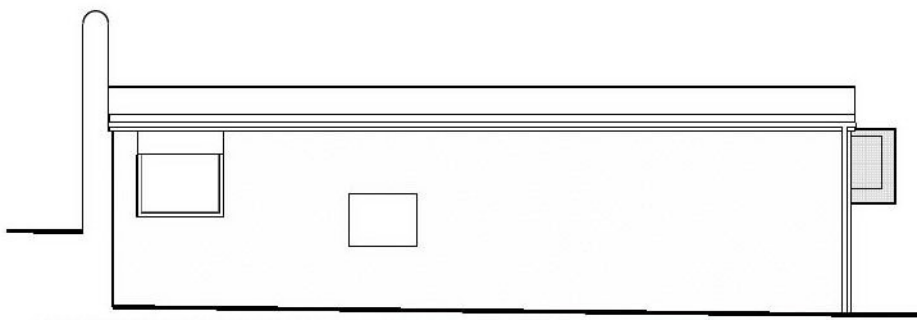


existing north elevation



existing east elevation

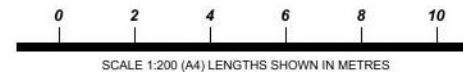
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existing south elevation

Project Change of use		 JON FRULLANI ARCHITECT	
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Forfar DD8 1LN		Issue Status Planning	Drawing No. 6715_P_302
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hatched area denotes extent of pavement to be stripped in accordance with original council transport department recommendations

35c

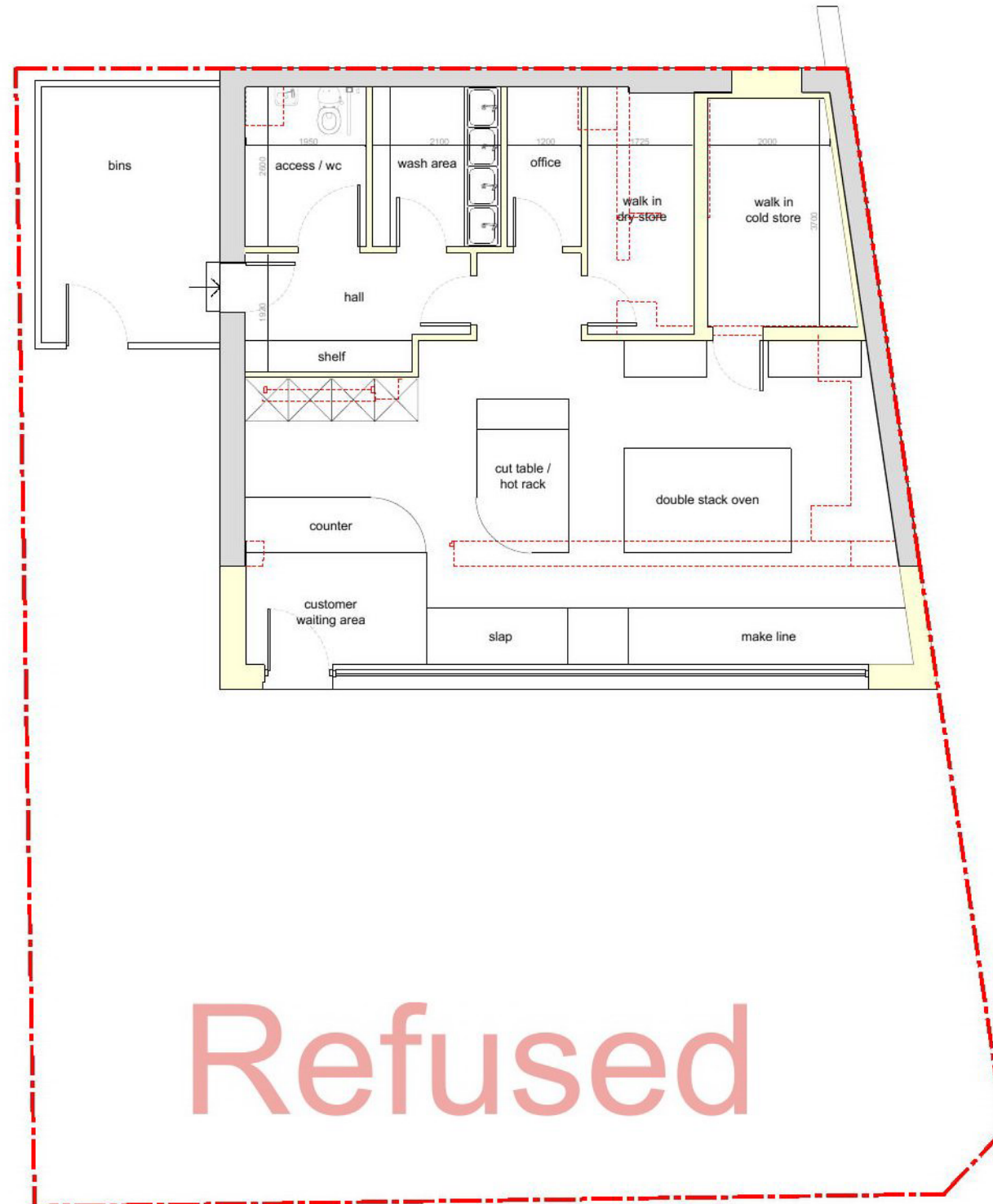
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
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Designer DW/DS		Date Dec. 2021	Scale 1:200 @ A4
		Issue Status Planning	Drawing No. 6715_P_303
		Revision -	
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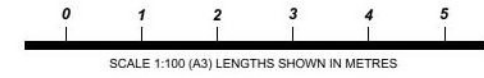
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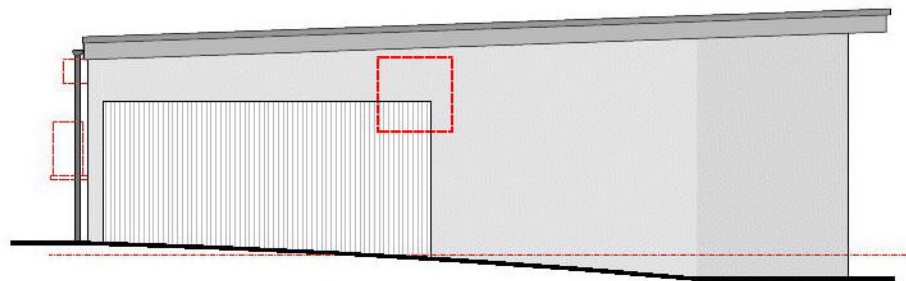
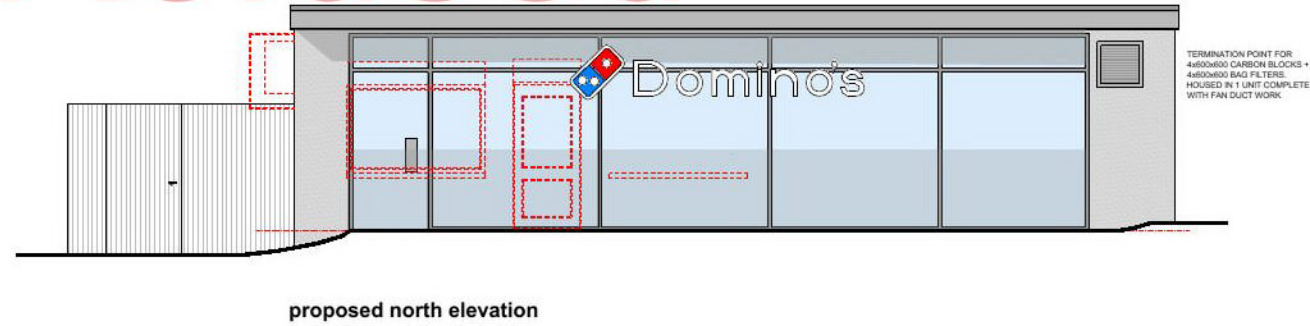
proposed ground floor plan

 PROPOSED DOWNTAKINGS DASHED RED

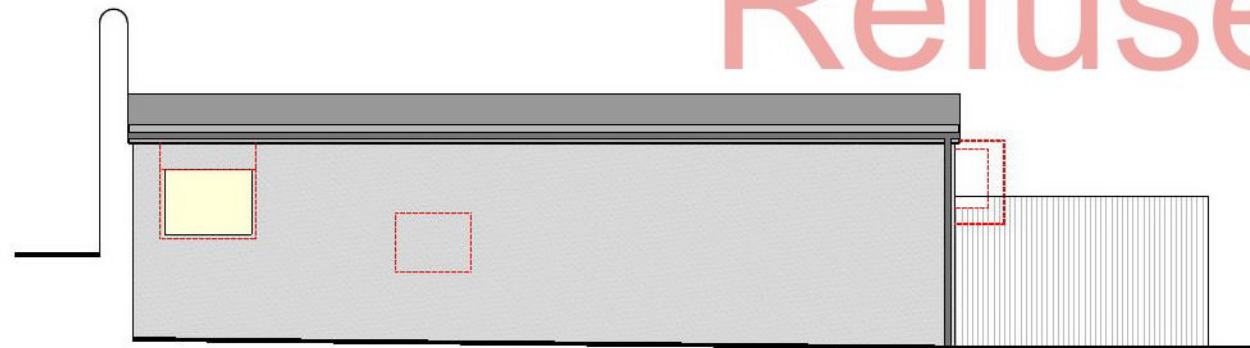
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Client Joup Limited			
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Forfar DD8 1LN		Issue Status Planning	Drawing No. 6715_P_304
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
material specification

External walls
- Existing render to be painted off white

Roof
- Sarnafil roof

Rainwater goods
- Black upvc

Windows /door
- Dark grey aluminium

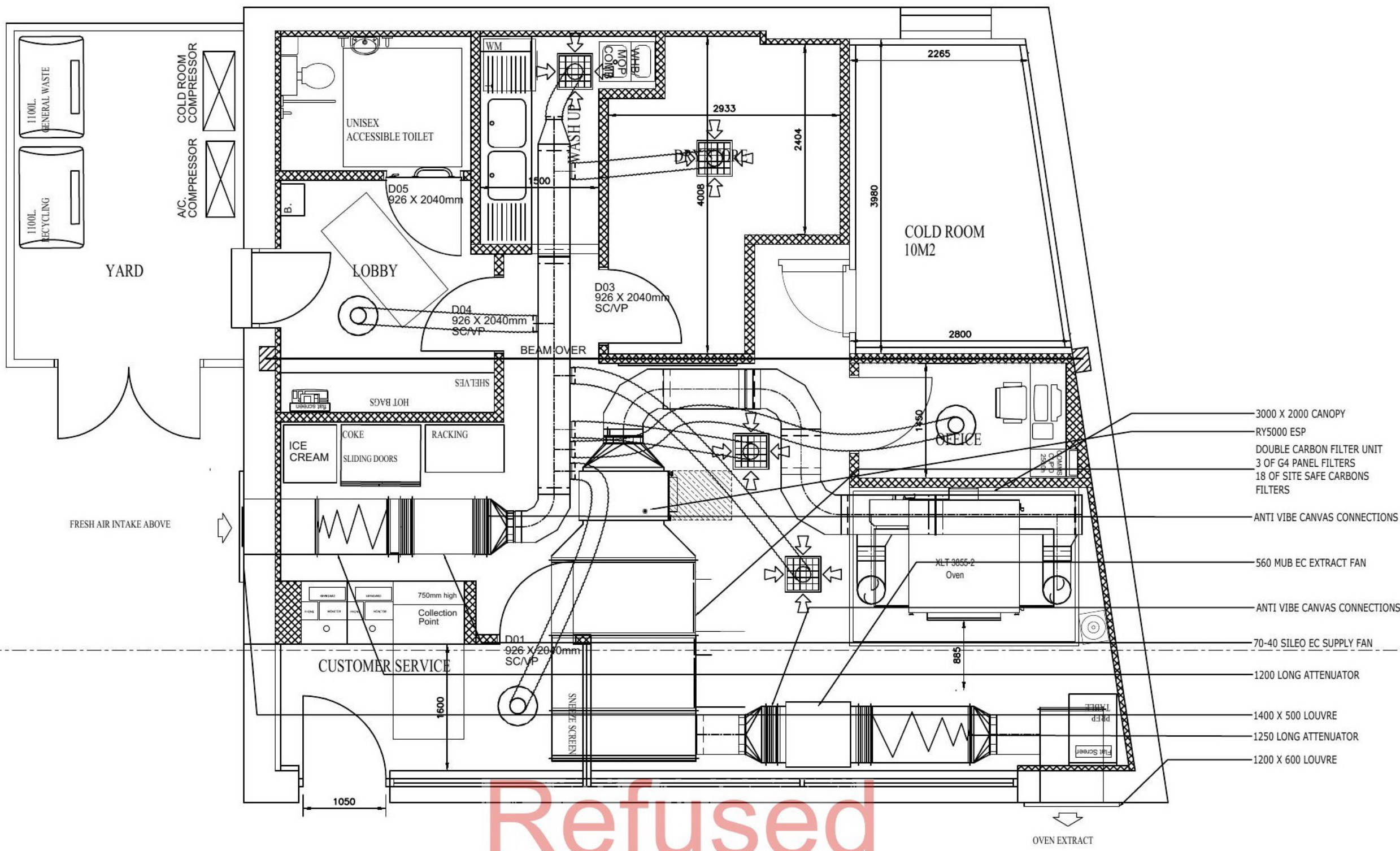
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Client Joup Limited			
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Date Dec. 2021	Scale 1:100 @ A3	Revision -	
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NOTES

CANOPY 1 3000 X 2000
EXTRACT M³S 1.5
INTAKE M³S 1.2

Notes:

Refused



- 3000 X 2000 CANOPY
- RY5000 ESP
- DOUBLE CARBON FILTER UNIT
- 3 OF G4 PANEL FILTERS
- 18 OF SITE SAFE CARBONS FILTERS
- ANTI VIBE CANVAS CONNECTIONS
- 560 MUB EC EXTRACT FAN
- ANTI VIBE CANVAS CONNECTIONS
- 70-40 SILEO EC SUPPLY FAN
- 1200 LONG ATTENUATOR
- 1400 X 500 LOUVRE
- 1250 LONG ATTENUATOR
- 1200 X 600 LOUVRE

CLIENT

Dominos

SITE ADDRESS

Dominos
35E St James Road
Forfar
PA4 8QL

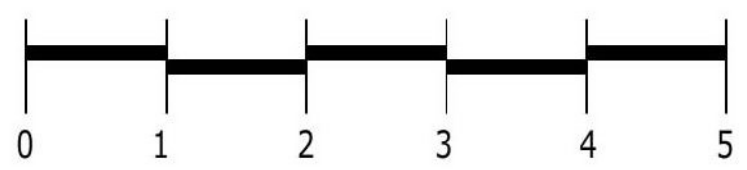
DATE:	28/07/2022
SCALE:	NTS
DRAWING NO.	01
JOB NO.	Q
DRAWN BY:	MR JJ TAYLOR



Unit 7 - Avocet Trading Estate - Victoria Gardens - Burgess Hill - West Sussex - RH15 9NB
01444 230010 • sales@ave-ltd.com • ave-ltd.com

PLAN AS PROPOSED

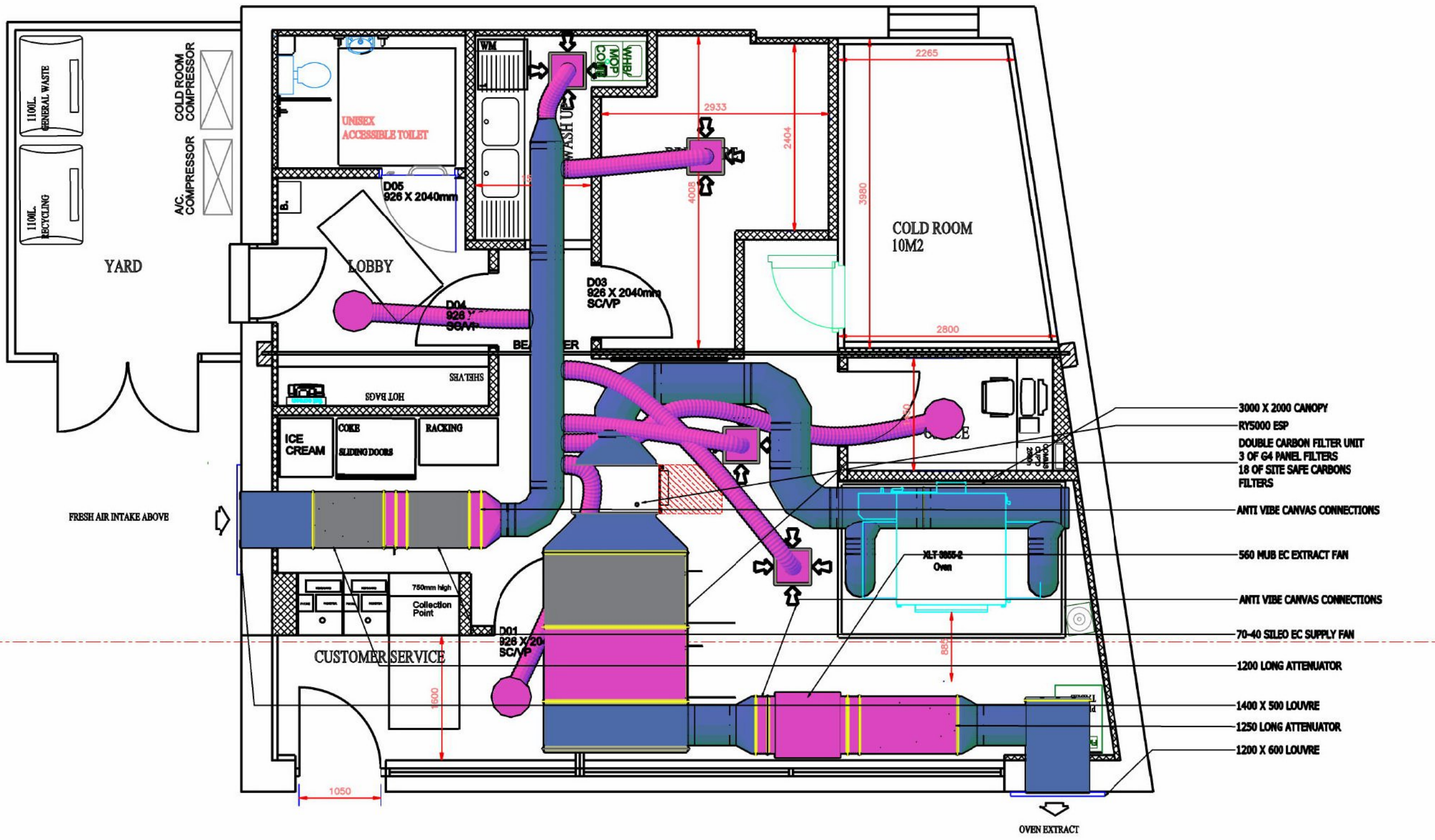
Scale



Refused

Refused

CANOPY 1 3000 X 2000
EXTRACT M³S 1.5
INTAKE M³S 1.2



- 3000 X 2000 CANOPY
- RY5000 ESP
- DOUBLE CARBON FILTER UNIT
- 3 OF G4 PANEL FILTERS
- 18 OF SITE SAFE CARBONS FILTERS
- ANTI VIBE CANVAS CONNECTIONS
- 560 MJB EC EXTRACT FAN
- ANTI VIBE CANVAS CONNECTIONS
- 70-40 SILED EC SUPPLY FAN
- 1200 LONG ATTENUATOR
- 1400 X 500 LOUVRE
- 1250 LONG ATTENUATOR
- 1200 X 600 LOUVRE

Notes:

CLIENT

Dominos

SITE ADDRESS

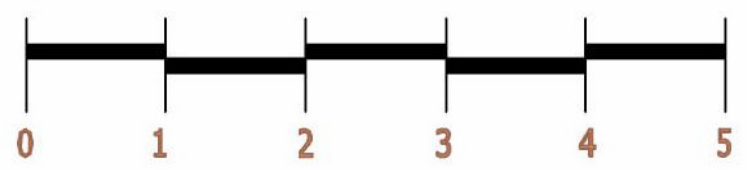
Dominos
35E St James Road
Forfar
PA4 8QL

DATE:	28/07/2022
SCALE:	NTS
DRAWING NO.	01
JOB NO.	Q
DRAWN BY:	MR JJ TAYLOR



Unit 7 - Avocet Trading Estate - Victoria Gardens - Burgess Hill - West Sussex - RH15 9NB
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Refused
Scale



PLAN AS PROPOSED



OPEN MON - SAT 9am - 8pm Sunday 10am - 6pm

St. James Convenience Store
Generalist | Newsagent | Tobacco Retailer

THE COURIER
BEST FOR LOCAL NEWS & PICTURES





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TOWN AND COUNTRY PLANNING (SCOTLAND) ACT 1997
(AS AMENDED)
TOWN AND COUNTRY PLANNING (DEVELOPMENT MANAGEMENT PROCEDURE)
(SCOTLAND)
REGULATIONS 2013

PLANNING PERMISSION REFUSAL
REFERENCE : 21/00993/FULL

To **Joup Property Limited**
c/o Jon Frullani
140 Perth Road
Dundee
DD1 4JW

With reference to your application dated 22 December 2021 for planning permission under the above mentioned Acts and Regulations for the following development, viz.:-

Change of use to from a hot food takeaway with associated works at 35E St James Road Forfar DD8 1LN for Joup Property Limited

The Angus Council in exercise of their powers under the above mentioned Acts and Regulations hereby **Refuse Planning Permission (Delegated Decision)** for the said development in accordance with the particulars given in the application and plans docketed as relative hereto in paper or identified as refused on the Public Access portal.

The reasons for the Council's decision are:-

1. The proposal does not comply with the locational guidance for the siting of hot food takeaways provided in Angus Council Advice Note 2/2018 and is likely to give rise to unacceptable adverse impacts on the amenity of those that live in the area contrary to Policies DS1 and DS4 of the Angus Local Development Plan.
2. It has not been demonstrated that the proposed hot food takeaway could operate from the premises in a manner that would not give rise to unacceptable odour impacts on the occupants of nearby residential property and as such the proposal is contrary to Policies DS1 and DS4 of the Angus Local Development Plan, and Angus Council Advice Note 2/2018.

Amendments:

The application has not been subject of variation.

Dated this **20 October 2022**
Jill Paterson
Service Lead
Planning and Sustainable Growth
Angus Council
Angus House
Orchardbank Business Park
Forfar
DD8 1AN

Planning Decisions – Guidance Note

Please retain – this guidance forms part of your Decision Notice

You have now received your Decision Notice. This guidance note sets out important information regarding appealing or reviewing your decision. There are also new requirements in terms of notifications to the Planning Authority and display notices on-site for certain types of application. You will also find details on how to vary or renew your permission.

Please read the notes carefully to ensure effective compliance with the new regulations.

DURATION

The duration of any permission granted is set out in conditions attached to the permission. Where no conditions are attached the duration of the permission will be in accordance with sections 58 and 59 of the Town and Country Planning (Scotland) Act 1997 (as amended).

PLANNING DECISIONS

Decision Types and Appeal/Review Routes

The 'decision type' as specified in your decision letter determines the appeal or review route. The route to do this is dependent on the how the application was determined. Please check your decision letter and choose the appropriate appeal/review route in accordance with the table below. Details of how to do this are included in the guidance.

Determination Type	What does this mean?	Appeal/Review Route
Development Standards Committee/Full Council	National developments, major developments and local developments determined at a meeting of the Development Standards Committee or Full Council whereby relevant parties and the applicant were given the opportunity to present their cases before a decision was reached.	DPEA (appeal to Scottish Ministers) – See details on attached Form 1
Delegated Decision	Local developments determined by the Service Manager through delegated powers under the statutory scheme of delegation. These applications may have been subject to less than five representations, minor breaches of policy or may be refusals.	Local Review Body – See details on attached Form 2
Other Decision	All decisions other than planning permission or approval of matters specified in condition. These include decisions relating to Listed Building Consent, Advertisement Consent, Conservation Area Consent and Hazardous Substances Consent.	DPEA (appeal to Scottish Ministers) – See details on attached Form 1

Notification of initiation of development (NID)

Once planning permission has been granted and the applicant has decided the date they will commence that development they must inform the Planning Authority of that date. The notice must be submitted before development commences – failure to do so would be a breach of planning control. The relevant form is included with this guidance note.

Notification of completion of development (NCD)

Once a development for which planning permission has been given has been completed the applicant must, as soon as practicable, submit a notice of completion to the planning authority. Where development is carried out in phases there is a requirement for a notice to be submitted at the conclusion of each phase. The relevant form is included with this guidance note.

Display of Notice while development is carried out

For national, major or 'bad neighbour' developments (such as public houses, hot food shops or scrap yards), the developer must, for the duration of the development, display a sign or signs containing prescribed information.

The notice must be in the prescribed form and:-

- displayed in a prominent place at or in the vicinity of the site of the development;
- readily visible to the public; and
- printed on durable material.

A display notice is included with this guidance note.

Should you have any queries in relation to any of the above, please contact:

Angus Council
Angus House
Orchardbank Business Park
Forfar
DD8 1AN

Telephone 03452 777 780
E-mail: planning@angus.gov.uk
Website: www.angus.gov.uk



TOWN AND COUNTRY PLANNING (SCOTLAND) ACT 1997 (AS AMENDED)

The Town & Country Planning (Development Management Procedure) (Scotland) Regulations 2013 – Schedule to Form 1

*Notification to be sent to applicant on refusal of planning permission
or on the grant of permission subject to conditions decided by Angus Council*

1. If the applicant is aggrieved by the decision of the planning authority-
 - a) to refuse permission for the proposed development;
 - b) to refuse approval, consent or agreement required by condition imposed on a grant of planning permission;
 - c) to grant planning permission or any approval, consent or agreement subject to conditions,

the applicant may appeal to the Scottish Ministers to review the case under section 47 of the Town and Country Planning (Scotland) Act 1997 within three months beginning with the date of this notice. The notice of appeal should be addressed to The Planning and Environmental Appeals Division, Scottish Government, Ground Floor, Hadrian House, Callendar Business Park, Callendar Road, Falkirk, FK1 1XR. Alternatively you can submit your appeal directly to DPEA using the national e-planning web site <https://eplanning.scotland.gov.uk>.

2. If permission to develop land is refused or granted subject to conditions and the owner of the land claims that the land has become incapable of reasonably beneficial use in its existing state and cannot be rendered capable of reasonably beneficial use by the carrying out of any development which has been or would be permitted, the owner of the land may serve on the planning authority a purchase notice requiring the purchase of the owner of the land's interest in the land in accordance with Part 5 of the Town and Country Planning (Scotland) Act 1997.



TOWN AND COUNTRY PLANNING (SCOTLAND) ACT 1997 (AS AMENDED)

The Town & Country Planning (Development Management Procedure) (Scotland) Regulations 2013 – Schedule to Form 2

*Notification to be sent to applicant on refusal of planning permission
or on the grant of permission subject to conditions decided through
Angus Council's Scheme of Delegation*

1. If the applicant is aggrieved by the decision of the planning authority-
 - a) to refuse permission for the proposed development;
 - b) to refuse approval, consent or agreement required by condition imposed on a grant of planning permission;
 - c) to grant planning permission or any approval, consent or agreement subject to conditions,

the applicant may require the planning authority to review the case under section 43A of the Town and Country Planning (Scotland) Act 1997 within three months beginning with the date of this notice. The notice of review should be addressed to Committee Officer, Angus Council, Resources, Legal & Democratic Services, Angus House, Orchardbank Business Park, Forfar, DD8 1AN.

A Notice of Review Form and guidance can be found on the national e-planning website <https://eplanning.scotland.gov.uk>. Alternatively you can return your Notice of Review directly to the local planning authority online on the same web site.

2. If permission to develop land is refused or granted subject to conditions and the owner of the land claims that the land has become incapable of reasonably beneficial use in its existing state and cannot be rendered capable of reasonably beneficial use by the carrying out of any development which has been or would be permitted, the owner of the land may serve on the planning authority a purchase notice requiring the purchase of the owner of the land's interest in the land in accordance with Part 5 of the Town and Country Planning (Scotland) Act 1997.

PLANNING

Your experience with Planning

Please indicate whether you agree or disagree with the following statements about your most recent experience of the Council's handling of the planning application in which you had an interest.

Q.1 I was given the advice and help I needed to submit my application/representation:-

Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree	It does not apply
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Q.2 The Council kept me informed about the progress of the application that I had an interest in:-

Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree	It does not apply
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Q.3 The Council dealt promptly with my queries:-

Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree	It does not apply
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Q.4 The Council dealt helpfully with my queries:-

Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree	It does not apply
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Q.5 I understand the reasons for the decision made on the application that I had an interest in:-

Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree	It does not apply
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Q.6 I feel that I was treated fairly and that my view point was listened to:-

Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree	It does not apply
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

OVERALL SATISFACTION: Overall satisfaction with the service:

Q.7 Setting aside whether your application was successful or not, and taking everything into account, how satisfied or dissatisfied are you with the service provided by the council in processing your application?

Very satisfied	Fairly satisfied	Neither Satisfied nor Dissatisfied	Fairly Dissatisfied	Very Dissatisfied
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

OUTCOME: Outcome of the application:

Q.8 Was the application that you had an interest in:-

Granted Permission/Consent	<input type="checkbox"/>	Refused Permission/Consent	<input type="checkbox"/>	Withdrawn	<input type="checkbox"/>
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Q.9 Were you the:- Applicant Agent Third Party objector who made a representation

Please complete the form and return in the pre-paid envelope provided.
Thank you for taking the time to complete this form.

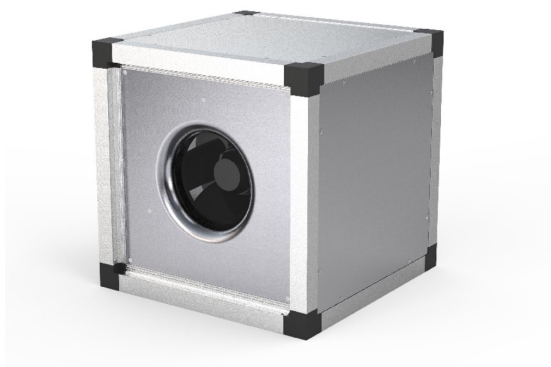
Attenuator Schedule

Ref.	Description	Type and Model Code	Dimensions (mm)			Insertion Loss (dB)								Vol (m³/s)	PL (Pa)	Qty	Features
			W	H	L	63	125	250	500	1k	2k	4k	8k				
8936	MUB042 INTAKE 012 Atmosphere side	Rectangular LG01V/3B/L/SN	546	546	1250	3	6	11	20	19	11	7	4	1.75	56	1	20mm profile flanges. Non-standard element configuration.
7945	MUB042 INTAKE 012 M Atmosphere side	Rectangular LG01V/3B/L/SMN	546	546	1250	3	6	10	17	15	8	5	3	1.75	56	1	20mm profile flanges. Melinex wrapped infill. Non-standard element configuration.
ATT/9	MUB042 INTAKE 015 Atmosphere side	Rectangular LG02V/3B/L/SN	546	546	1600	3	8	14	26	24	15	9	4	1.75	60	1	Unit delivered in 2 sections, split in length. 20mm profile flanges. Non-standard element configuration.
ATT/10	MUB042 OUTLET 060 Atmosphere side	Rectangular LG01V/3B/L/S	546	546	650	2	4	7	14	14	8	6	3	1.75	53	1	20mm profile flanges.
ATT/11	MUB042 OUTLET 090 Atmosphere side	Rectangular LG01V/3B/L/S	546	546	950	3	6	10	19	19	11	7	4	1.75	56	1	20mm profile flanges.
ATT/12	MUB042 OUTLET 012 Atmosphere side	Rectangular LG01V/3B/L/S	546	546	1250	3	8	13	25	23	14	8	4	1.75	59	1	20mm profile flanges.
ATT/13	MUB062 INTAKE 090 Atmosphere side	Rectangular LG01V/2B/L/SN	676	676	950	2	4	7	12	10	6	4	2	3.50	70	1	20mm profile flanges. Non-standard element configuration. Medium pressure rating (+1000/-750Pa).
8937	MUB062 INTAKE 012 Atmosphere side	Rectangular LG01V/2B/L/SN	676	676	1250	3	6	10	16	14	8	4	2	3.50	73	1	20mm profile flanges. Non-standard element configuration. Medium pressure rating (+1000/-750Pa).
7946	MUB062 INTAKE 012 M Atmosphere side	Rectangular LG01V/2B/L/SMN	676	676	1250	3	6	10	14	11	6	3	2	3.50	73	1	20mm profile flanges. Melinex wrapped infill. Non-standard element configuration. Medium pressure rating (+1000/-750Pa).
ATT/15	MUB062 INTAKE 015 Atmosphere side	Rectangular LG02V/2B/L/SN	676	676	1600	3	7	14	21	18	10	5	2	3.50	77	1	Unit delivered in 2 sections, split in length. 20mm profile flanges. Non-standard element configuration. Medium pressure rating (+1000/-750Pa).
ATT/16	MUB062 OUTLET 060 Atmosphere side	Rectangular LG01V/2B/L/S	676	676	650	2	4	7	12	10	6	4	2	3.50	70	1	20mm profile flanges. Medium pressure rating (+1000/-750Pa).
ATT/17	MUB062 OUTLET 090 Atmosphere side	Rectangular LG01V/2B/L/S	676	676	950	3	6	10	16	13	8	4	2	3.50	73	1	20mm profile flanges. Medium pressure rating (+1000/-750Pa).
ATT/18	MUB062 OUTLET 012 Atmosphere side	Rectangular LG01V/2B/L/S	676	676	1250	3	7	13	20	17	9	5	2	3.50	76	1	20mm profile flanges. Medium pressure rating (+1000/-750Pa).
9226	MUB 100 INLET	Rectangular SG01V/3B/L/SN	876	876	1250	4	5	12	23	23	15	11	8	3.00	24	1	20mm profile flanges. Non-standard element configuration.

MUB 062 560EC Multibox

Article Number: 230500

Variant : 400V 3~ 50/60Hz - 90° air flow



Description

- 100 % speed controllable
- Integrated electronic motor protection
- Low noise level
- Flexible airflow direction due to removable panels
- Installation in any mounting position
- Safe and maintenance free operation
- Energy-saving
- Potentiometer included for ease of commissioning
- RS-485 interfaces for networking via MODBUS RTU from size 355
- AMCA-certified performance curves

The MUB-EC fans are driven by EC-external rotor motors. These are energy saving motors with high efficiency. The power electronics are integrated in the motor housing. From size 355 all models have one potential-free terminal for error message.

All motors are suitable...

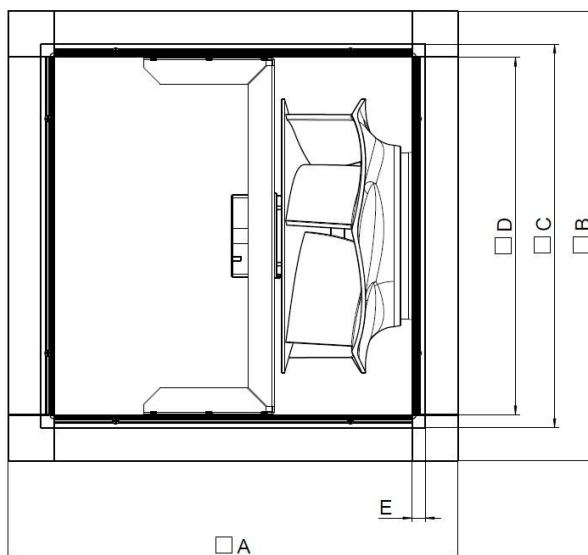
[Find more details in our online catalogue](#)

Technical parameters

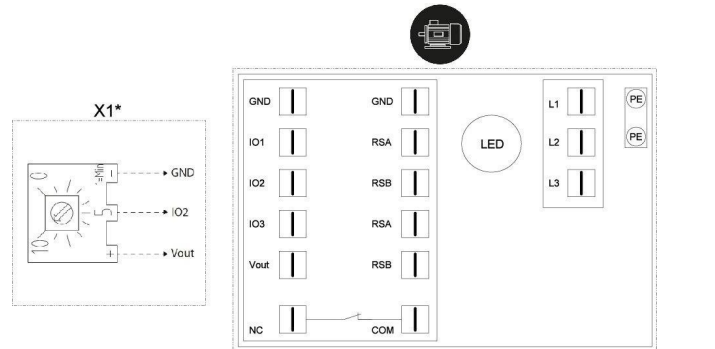
Nominal data	
Voltage (nominal)	400 V
Frequency	50; 60 Hz
Phase(s)	3~
Input power	2,662 W
Input current	3.91 A
Impeller speed	1,708 rpm
Air flow	max 3.017 m³/s
Temperature of transported air	max 60 °C
Max temperature of transported air, when speed controlled	60 °C
Protection/Classification	
Enclosure class, motor	IP55
Insulation class	F
Data according to ErP	
ErP ready	ErP 2018
Dimensions and weights	
Weight	81.5 kg
Others	
Motor type	EC

Dimension

MUB 062	A	B	C	D	E
560/630	820	820	720	678	21



Wiring



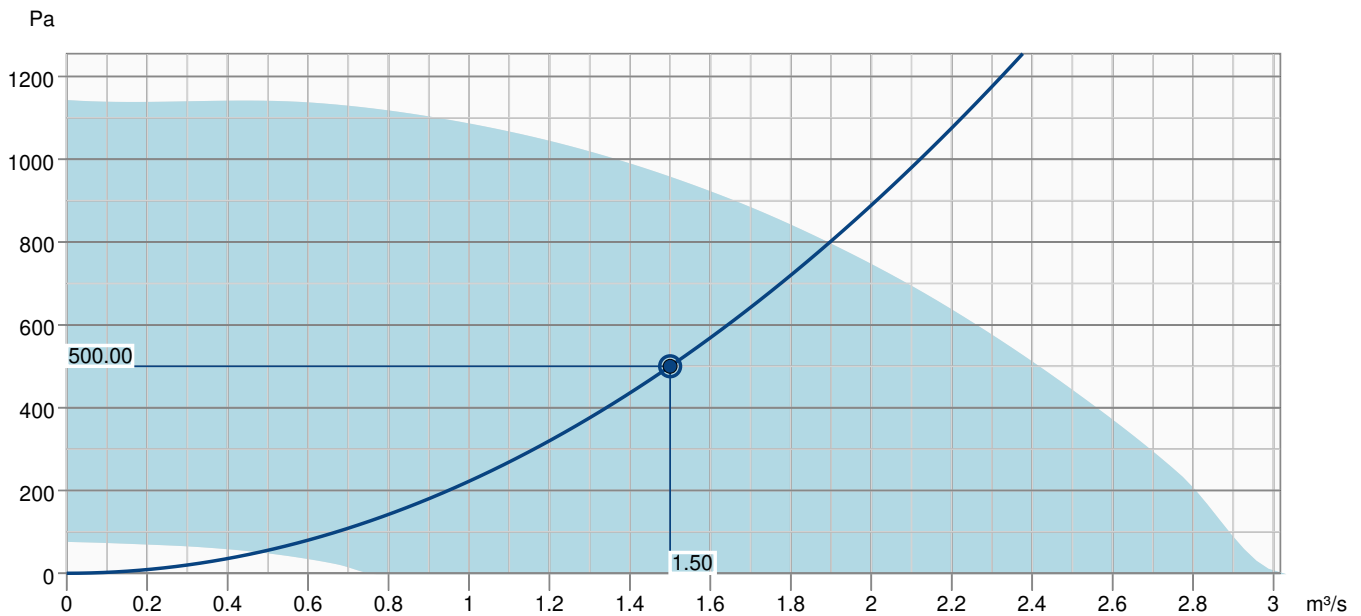
X1*

Function / assignment

L1, L2, L3	Power, supply, see name plate
PE	Protective earth
RSA	RS485 interface for MODBUS, RSA
RSB	RS485 interface for MODBUS, RSB
GND	Reference ground for control interface
IO1	Function: Disable-Input Digital Input - Inactive: Pin open or applied voltage < 1.5 VDC -> fan runs according to the set 0-10 V- setpoint (IO2) - Active: applied voltage 3.5-50 VDC -> fan stops - Reset- Function: Error - reset when the status changes from "inactive" to "active"
IO2	Function: Setpoint Analog input 0-10 V / PWM, Ri = 100kΩ
IO3	Function: Actual speed Analog output 0-10 V, max.5 mA Output is a speed proportional voltage. - 10 V corresponds max. rpm - 5 V corresponds max. rpm / 2 (n = 1.02 * nMax)
Vout	Function: Voltage output 10 VDC, short-circuit-proof (Pmax = 800 mW)
COM	Function: Status relay Status relay, floating status contact, contact rating 250 VAC / 2 A; min. 10mA
NC	Function: Status relay Status relay, floating status contact, open in the event of an error and in the de-energized state
LED	Function: Status reports - green = operational readiness - orange = warning - red = error

X1
Terminal box with connected potentiometer
* Included in the scope of delivery for fans with EC motor without external control.

Performance curve



Hydraulic data										
Required air flow										1.50 m³/s
Required static pressure										500 Pa
Working air flow										1.50 m³/s
Working static pressure										500 Pa
Air density										1.204 kg/m³
Power										1357.3 W
Fan control - RPM										1339 rpm
Current										2.15 A
SFP										0.905 kW/m³/s
Control voltage										7.9 V
Supply voltage										400 V
Sound power level		63	125	250	500	1k	2k	4k	8k	Total
Inlet	dB(A)	52	64	67	73	74	71	69	63	79
Outlet	dB(A)	54	66	69	75	76	73	70	64	80
Surrounding	dB(A)	35	54	53	46	47	47	41	31	58
Sound pressure level at 3m (20m² Sabine)	dB(A)	-	-	-	-	-	-	-	-	51
Sound pressure level at 3m free field	dB(A)	-	-	-	-	-	-	-	-	37

Accessories

CXE/AVC Modbus (37256)	DMD-C Pressure controller (15793)
EC-Basic-CO2 and temperature (24808)	EC-Basic-H humidity (24807)
EC-Basic-T temperature (24805)	EC-Basic-U universal 0-10V (24806)
EC-Vent control board (3115)	EC-Vent Room Unit (3018)
FGV 062/716-716 flex. conn. (4198)	MTP 10, 10K, Speed control (32731)
MTP 20, on/off, 3-step (310220)	MTV-1/010 Controller 0..10V+ (30650)
REV-5POL/05-7.5kW R/Y (35757)	S-5EC/FRQ (76738)
SD-MUB Vibration pad set (37324)	TUNE-AHU-DE008-062-718x718-M0 (79882)
UGS 062/630 adapter flex. (4358)	WSD 062 (860x860x70) complete (31482)
WSG 062 MUB complete (31486)	CO2RT-R-D Transmitter (6993)
HR1 Room Humidistat (215150)	Presence detector/IR24-P (6995)
RT 0-30 Room Thermostat (5151)	TFR Temp. Sensor (5158)
CCM inlet MUB062 d560 (311782)	CCM inlet MUB062 d630 (311783)
CCM outlet MUB062 d560 (311684)	CCM outlet MUB062 d630 (311681)
BMS Trickle & Boost Switch (120363)	CCMI outlet 062 d560 KIT 30mm (239095)
CCMI outlet 062 d630 KIT 30mm (239096)	GRU 062 base frame h= 100mm (276662)
KKC-DX-L 062 cooling section (277262)	KKC-DX-R 062 cooling section (277266)
KKC-W-L 062 cooling section (277270)	KKC-W-R 062 cooling section (277274)
KKF 30 062-filter-section (93312)	KKH-HW 062 heater-section (93340)
KKS 062 silencer-section (276852)	

Documents

imo_mub_all_010_en_248056
MUB_EC_AMCA_CERTIFICATE.PDF
UKCA DECLARATION OF CONFORMITY_MUB_EN_002.PDF

RS 70-40 EC sileo

Centrifugal rectangular duct fan

Item Number: 92930

Variant: 230V 1~ 50/60Hz



- EC-motors, high level of efficiency
- 100% speed controllable
- Integrated motor protection
- Can be installed in any position
- Potentiometer included for easy commissioning

The RSI models are thermally and acoustically insulated with 50mm mineral wool and perforated sheet steel on the inner surface. This gives a quiet running with many installation possibilities.

The RS/RSI EC series have impellers with backward-curved blades and are fitted to EC external rotor motors. These fans have a high capacity in relation to their compact design. The fans are delivered with a pre-wired potentiometer (0-10V) which allows you to easily find the desired working point.

EC fans are notable for their economical use of energy and excellent ease of control. They can be varied in speed to match the airflow demand, and operate at high efficiency levels. For the same air volume, they consume distinctly less energy than AC fan drives.

Motor protection is integrated in the electronics of the motor. The casing is manufactured from galvanized sheet steel.



Technical parameters

Nominal data		
Voltage (Nominal)	230	V
Frequency	50; 60	Hz
Phase(s)	1~	
Input power	653	W
Input current	2.95	A
Impeller speed	1,578	r.p.m.
Air flow	max 1.453	m ³ /s
Temperature of transported air	max 60	°C
Max temperature of transported air, when speed controlled	60	°C

Sound data

Sound pressure level at 3m (20m ² Sabin)	58 dB(A)
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Protection/Classification

Enclosure class, motor	IP54
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Insulation class	F
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Data according to ErP

ErP ready	ErP 2018
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Dimensions and weights

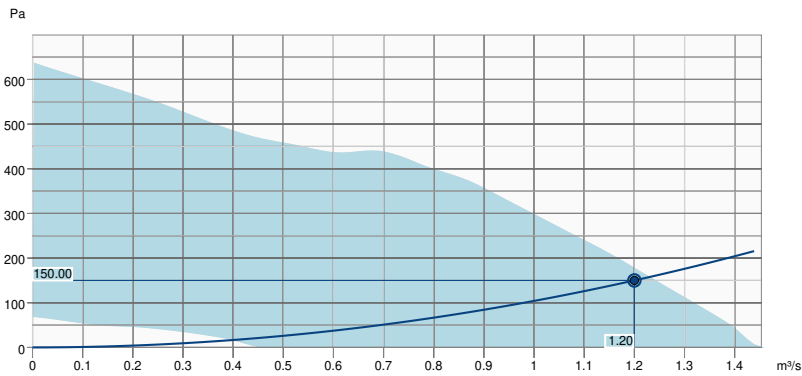
Weight	33.4 kg
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Others

Motor type	EC
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Performance

Performance curve

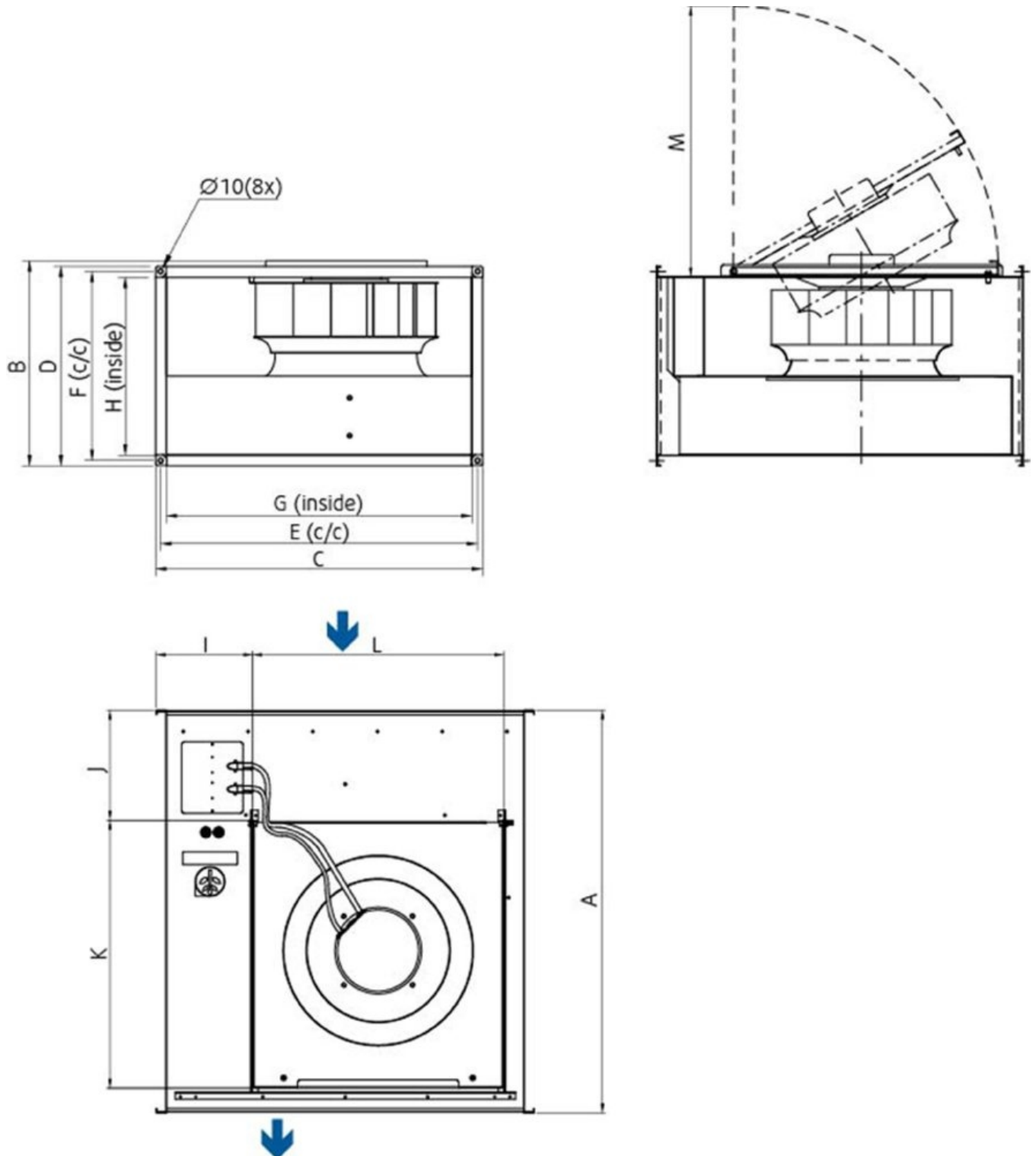


Hydraulic data

Required air flow	1.20 m³/s
Required static pressure	150 Pa
Working air flow	1.20 m³/s
Working static pressure	150 Pa
Air density	1.204 kg/m³
Power	601.3 W
Fan control - RPM	1536 rpm
Current	2.73 A
SFP	0.501 kW/m³/s
Control voltage	9.7 V
Supply voltage	230 V

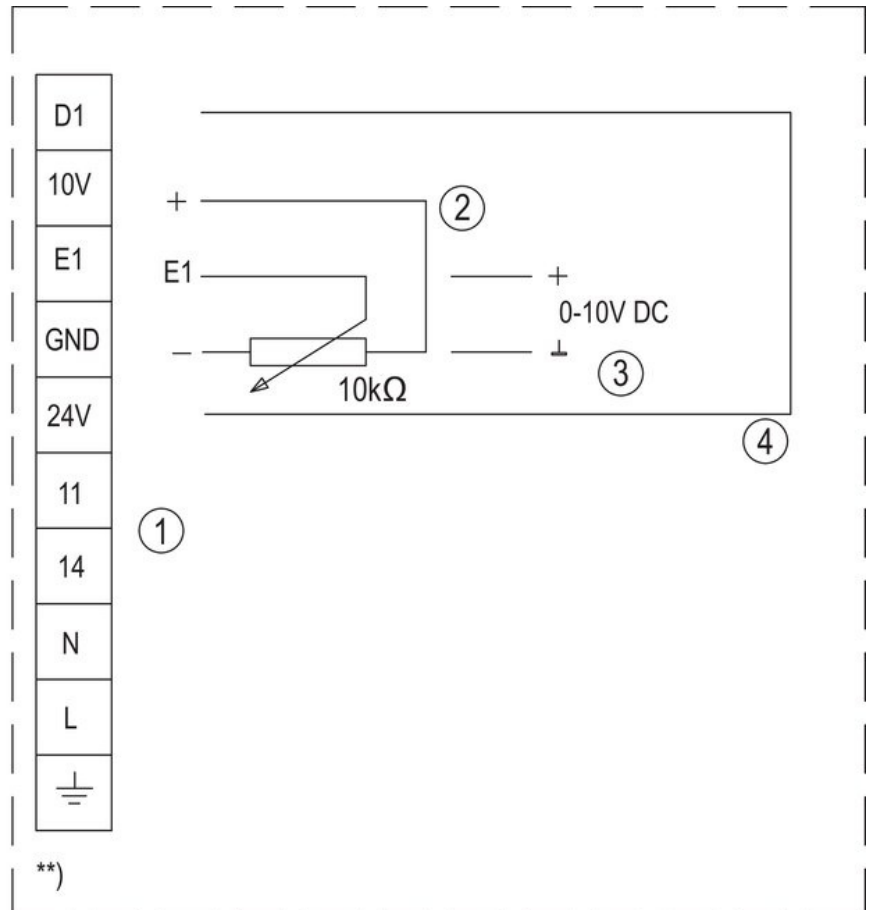
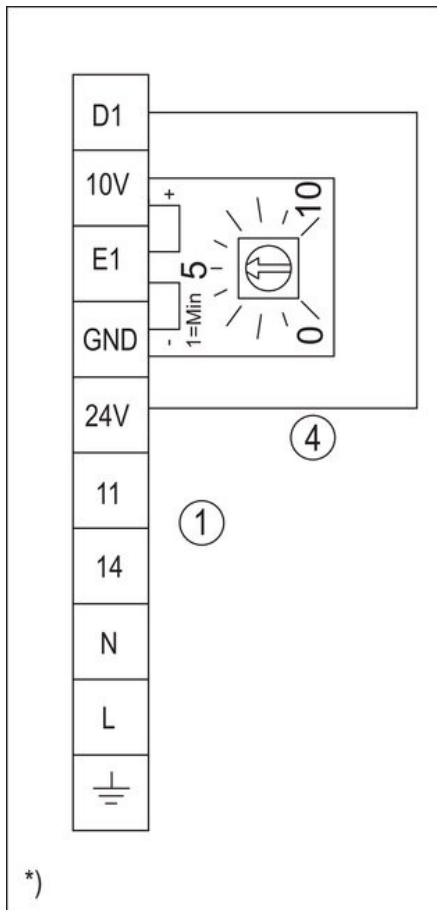
Sound power level		63	125	250	500	1k	2k	4k	8k	Total
Inlet	dB(A)	60	72	73	74	73	73	68	60	80
Outlet	dB(A)	62	74	78	79	80	78	74	65	86
Surrounding	dB(A)	45	63	62	59	58	57	50	42	68
Sound pressure level at 3m (20m² Sabine)	dB(A)	-	-	-	-	-	-	-	-	61
Sound pressure level at 3m free field	dB(A)	-	-	-	-	-	-	-	-	47

Dimension



RS EC/AC	A	B	C	D	E	F	G	H	I	J	K	L	M
70-40	787	465	740	440	720	420	698	398	189	215	524	491	518
80-50	882	580	840	541	820	520	798	498	182,5	191	644	614	638
100-50	982	580	1040	540	1020	520	998	498	287	260	684	634	678

Wiring



*) = Internal potentiometer

**) = External speed control

1 11 & 14 = Alarm

For operation the relay is energized, connections "11" and "14" are bridged.

For fault the relay is de-energized (Diagnostics/faults).

Contact rating max. AC 250V 2A.

2 External potentiometer

3 External input DC 0...10V

4 External ON / OFF control via potential free contact

Ecodesign

Product	
Trade name	Systemair
Product name	RS 70-40 EC sileo
Ecodesign	
ErP compliance	2018
Unit category	NRVU
Drive	Integrated VSD
Unit type	UVU
Heat recovery type	None
Temperature ratio (UVU)	Not applicable
qv nom	0.9192 m ³ /s
P nom	0.584 kW
Ps nom	429 Pa
Fan efficiency	53.6 %
External Leakage	5 %
Sound power level LWA	61 dB(A)



Condensing unit
Voltage Code : FZ

WINAJ4519Z-FZ

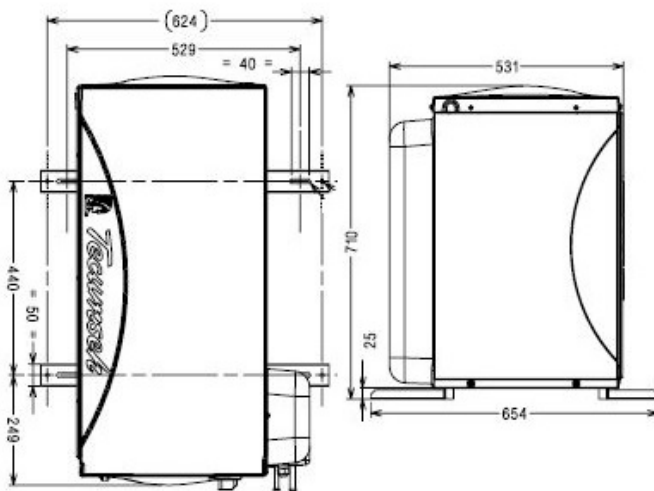
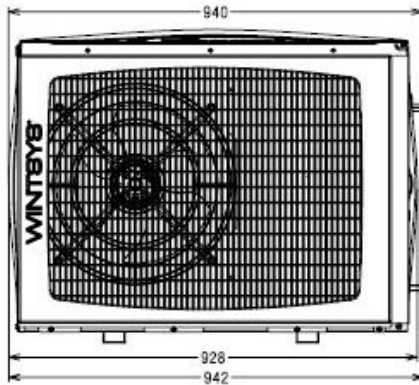
High Temp. Commercial (HP)

220 - 240V 1~ 50 Hz

R452A / R404A / R448A / R449A

WINAJ4519Z-FZ

Conditions	Frequency	Nominal Cooling Capacity		Sound Power ISO3745 / ISO 3743-1
		Watts	BTU/h	
EN13215 / R452A	50 Hz	2729	9306	63 dBA
EN13215 / R404A	50 Hz	2860	9754	63 dBA
EN13215 / R448A	50 Hz	2501	8528	63 dBA
EN13215 / R449A	50 Hz	2502	8532	63 dBA



* EN13215 : T°Ambient 32.0°C / T°Evap. -10.0°C / T°Return gas temp.. 20.0°C
T°Subcooling. 3.0K

Net Weight (Kg)	65.0
Expansion device	Expansion_Valve
Air Flow (m³/h)	1650
Compo Data Sheet	224ST-FZ
Elec Comp Type	CSR
Current (Amp)	
Load Rated Amp	10.2
Max Cont Current	15.5
Lock Rotor Amp	45
Fan	
Speed (rpm)	546
Power (W)	65.0
Diameter (mm)	360
Protection	Overload
IP Level	IP44
Condenser	360/14100
Liquid Receiver	
Capacity (L)	2.35
Maximum Pressure (Bars)	32.0
Suction Line	
Suction Type	Tube / Tube
For Tubing Out Diam	15.9 (5/8")
Suction Connection Type	Brased
Liquid Line	
Liquid Line Type	Tube
For Tubing Out Diam	9.5 (3/8")
Liquid Connecton Type	Brased
Connection Type	TT
Fan Guard	maille < à 8mm

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Tecumseh

AC21

WINAJ4519Z-FZ	Tension FZ : 220 - 240V 1~ 50 Hz
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Les performances sont données dans les conditions EN13215 :	Gaz aspirés :	20.0 °C
Condition Dew	Sous refroidissement :	3.0 K
The performance data are in EN13215 conditions :	Return gas :	20.0 °C
Dew Condition	Subcooling :	3.0 K

50 Hz R452A											
N°6435											
5 T ambience	6 T évaporation	(°C)	-25	-20	-15	-10	-5	0	5	10	15
25	1 P frigorifique	(Watt)	1550	2006	2509	3060	3659	4306	5007	5773	6622
	2 P absorbée	(W)	1136	1259	1389	1528	1676	1836	2007	2189	2381
	3 I absorbée	(A)	5.25	5.75	6.31	6.93	7.61	8.36	9.18	10.1	11.0
	4 Tc	(°C)	29.6	31.3	33.2	35.3	37.5	39.7	41.9	43.9	45.8
32	1 P frigorifique	(Watt)		1763	2228	2729	3266	3843	4467	5153	5921
	2 P absorbée	(W)		1289	1432	1584	1746	1920	2104	2299	2502
	3 I absorbée	(A)		5.81	6.44	7.14	7.89	8.71	9.59	10.5	11.5
	4 Tc	(°C)		37.2	39.2	41.2	43.3	45.5	47.5	49.4	51.0
43	1 P frigorifique	(Watt)			1775	2194	2634	3100	3605	4168	4817
	2 P absorbée	(W)			1474	1653	1842	2042	2252	2471	2696
	3 I absorbée	(A)			6.60	7.42	8.29	9.22	10.2	11.2	12.3
	4 Tc	(°C)			48.6	50.6	52.6	54.6	56.4	58.1	59.4

50 Hz R404A											
N°6377											
5 T ambience	6 T évaporation	(°C)	-25	-20	-15	-10	-5	0	5	10	15
25	1 P frigorifique	(Watt)	1685	2149	2657	3208	3801	4435	5116	5852	6662
	2 P absorbée	(W)	1198	1323	1453	1592	1739	1896	2063	2239	2423
	3 I absorbée	(A)	5.55	6.05	6.61	7.22	7.90	8.64	9.44	10.3	11.2
	4 Tc	(°C)	32.4	34.1	36.0	38.1	40.2	42.4	44.5	46.4	48.2
32	1 P frigorifique	(Watt)		1893	2362	2860	3389	3950	4550	5202	5927
	2 P absorbée	(W)		1359	1503	1654	1815	1984	2163	2350	2544
	3 I absorbée	(A)		6.13	6.77	7.46	8.20	9.01	9.87	10.8	11.7
	4 Tc	(°C)		40.0	41.8	43.8	45.9	47.9	49.8	51.6	53.2
43	1 P frigorifique	(Watt)			1887	2301	2728	3174	3649	4172	4770
	2 P absorbée	(W)			1558	1735	1921	2115	2318	2528	2741
	3 I absorbée	(A)			6.97	7.78	8.64	9.55	10.5	11.5	12.5
	4 Tc	(°C)			50.9	52.8	54.7	56.6	58.3	59.8	61.1

1 = cooling capacity 2 = power input 3 = current 4 = condensing temperature 5 = ambient temperature 6 = evaporating temperature

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Tecumseh

AC21

WINAJ4519Z-FZ	Tension FZ : 220 - 240V 1~ 50 Hz
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Les performances sont données dans les conditions EN13215 :	Gaz aspirés :	20.0 °C
Condition Dew	Sous refroidissement :	3.0 K
The performance data are in EN13215 conditions :	Return gas :	20.0 °C
Dew Condition	Subcooling :	3.0 K

50 Hz R448A (*)											
											N°7013
5 T ambience	6 T évaporation	(°C)	-25	-20	-15	-10	-5	0	5	10	15
25	1 P frigorifique	(Watt)	1314	1756	2248	2793	3394	4057	4788	5600	6511
	2 P absorbée	(W)	1074	1190	1316	1452	1600	1760	1932	2115	2307
	3 I absorbée	(A)	4.94	5.42	5.96	6.57	7.26	8.01	8.83	9.71	10.6
	4 Tc	(°C)	29.9	31.6	33.6	35.7	37.9	40.2	42.4	44.4	46.3
32	1 P frigorifique	(Watt)		1540	1999	2501	3050	3653	4319	5063	5904
	2 P absorbée	(W)		1220	1360	1510	1673	1848	2035	2233	2439
	3 I absorbée	(A)		5.49	6.11	6.79	7.55	8.38	9.27	10.2	11.2
	4 Tc	(°C)		37.7	39.6	41.7	43.8	45.9	48.0	49.9	51.5
43	1 P frigorifique	(Watt)				2040	2507	3017	3581		
	2 P absorbée	(W)				1580	1772	1978	2195		
	3 I absorbée	(A)				7.09	7.97	8.92	9.93		
	4 Tc	(°C)				51.1	53.1	55.1	56.9		

50 Hz R449A (*)											
											N°6407
5 T ambience	6 T évaporation	(°C)	-25	-20	-15	-10	-5	0	5	10	15
25	1 P frigorifique	(Watt)	1315	1757	2249	2794	3396	4059	4791	5604	6515
	2 P absorbée	(W)	1074	1190	1316	1452	1600	1760	1932	2115	2307
	3 I absorbée	(A)	4.94	5.42	5.96	6.57	7.26	8.01	8.83	9.71	10.6
	4 Tc	(°C)	29.9	31.7	33.6	35.7	37.9	40.2	42.3	44.4	46.2
32	1 P frigorifique	(Watt)		1541	2000	2502	3052	3655	4321	5065	5907
	2 P absorbée	(W)		1220	1360	1510	1673	1848	2035	2233	2439
	3 I absorbée	(A)		5.49	6.11	6.79	7.55	8.38	9.27	10.2	11.2
	4 Tc	(°C)		37.7	39.6	41.7	43.8	45.9	47.9	49.8	51.5
43	1 P frigorifique	(Watt)				2041	2509	3018	3582		
	2 P absorbée	(W)				1580	1772	1978	2195		
	3 I absorbée	(A)				7.09	7.97	8.92	9.93		
	4 Tc	(°C)				51.1	53.0	55.0	56.8		

1 = cooling capacity 2 = power input 3 = current 4 = condensing temperature 5 = ambient temperature 6 = evaporating temperature

(*) Veuillez vous référer strictement aux Recommandations d'Utilisation et Bulletins Marketing Tecumseh du fait de la température de reflux élevée pour les applications LBP.
 (*) Due to very high discharge temperature especially on LBP conditions, please strictly refer to Tecumseh Guidelines & Marketing Bulletin when using this refrigerant.

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Flexible anti-vibration connectors

EVA

for rectangular ducts

Use

- For damping of vibration generated by fans or ventilation equipment and transferred to air ducts for ventilation systems installed in various premises.
- For partial temperature distortion compensation in the ductworks.
- Compatible with rectangular 400x200 up to 1000x500 mm air ducts.

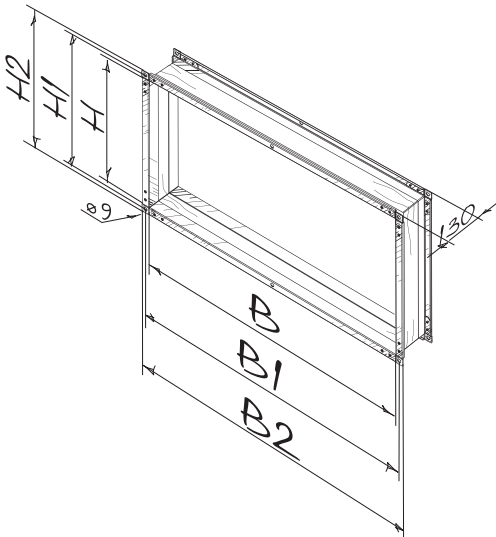
Design

- Two galvanized steel flanges.
- Connecting vibration-isolating material is made of nylon reinforced polyethylene fabric.
- Not designed for mechanical load and cannot be used as a load-carrying structure.

Mounting

- Mounting with galvanized bolts and clamps that fix the end flanges of the connector to the mating flanges of the air ducts or any other ventilation system components.

Overall dimensions



Type	Dimensions [mm]						Weight [kg]
	B	B1	B2	H	H1	H2	
EVA 40x20	400	420	440	200	220	240	1.1
EVA 50x25	500	520	540	250	270	290	1.4
EVA 50x30	500	520	540	300	320	340	1.6
EVA 60x30	600	620	640	300	320	340	1.82
EVA 60x35	600	620	640	350	370	390	1.95
EVA 70x40	700	720	740	400	420	440	2.4
EVA 80x50	800	820	840	500	520	540	2.8
EVA 90x50	900	920	940	500	520	540	3.0
EVA 100x50	1000	1020	1040	500	520	540	3.2

FP-G4 Lofted Synthetic Bag Filter

APPLICATIONS

The FP Lofted G4 Synthetic is suitable for use as a pre-filter for higher grades of air filtration, or for use as a simple filter for general applications.

CONSTRUCTION

The pockets are produced from progressively flame retardant that complies with CP413. The structured thermally bonded polyester fibres are specifically designed for use in air filtration. Each pocket is fitted with a U profile capping strip to ensure no leakage between pockets. The sets of pockets are retained in a rigid galvanised steel channel, which features a specially roll formed safety edge.



- High dust holding capacity at low resistance
- Lofted Synthetic product
- Low replacement cost
- Robust construction
- Available in standard and bespoke sizes
- Made in Britain

Rated Velocity m/s	Average Arrestance 5µm	Max Temp °C	Max Humidity	Initial Resistance at RV (pa)	Rated Final Resistance (pa)
Dependent on pocket length	<95%	60	100%RH	55	250
Standard Pocket No.s	Standard Pocket lengths			Standard Header Depths	Flammability
4 or 6	225mm 305mm 381mm 530mm			20, 25 or 30mm	Complies with CP413 & BS5588
3 or 4					
2 or 3					



Standard Sizes & Capacities

FP-G4 Lofted Synthetic Bag Filter

Header HxW (mm)	No. Pockets	Pocket length	Capacity (m ³ /hr)	Initial Resistance (Pa)
592x592	4	225	1,908	55
592x592	6	225	2,862	55
592x592	4	305	2,556	55
592x592	6	305	3,834	55
592x592	4	381	3,384	55
592x592	6	381	5,076	55
592x592	4	530	4,500	55
592x592	6	530	6,750	55
592x490	3	225	1,431	55
592x490	4	225	1,909	55
592x490	3	305	1,917	55
592x490	4	305	2,557	55
592x490	3	381	2,538	55
592x490	4	381	3,386	55
592x490	3	530	3,375	55
592x490	4	530	4,502	55
592x292	2	225	954	55
592x292	3	225	1,431	55
592x292	2	305	1,278	55
592x292	3	305	1,917	55
592x292	2	381	1,692	55
592x292	3	381	2,538	55
592x292	2	530	2,250	55
592x292	3	530	3,375	55



FDUM100VNAWVH

10.0 (4.0 ~ 11.2)

Indoor Unit : FDUM100VH

Outdoor Unit : FDC100VNA-W

Specifications

R32

Indoor unit			FDUM100VH
Outdoor unit			FDC100VNA-W
Power source			1 Phase 220-240V, 50Hz / 220V, 60Hz
Nominal cooling capacity (Min~Max)		kW	10.0 (4.0 ~ 11.2)
Nominal heating capacity (Min~Max)		kW	11.2 (4.0 ~ 12.5)
Power consumption	Cooling/Heating	kW	2.99 / 2.66
EER/COP	Cooling/Heating		3.35 / 4.21
Inrush current		A	5
Max. running current		A	26
Sound power level*1	Indoor *3	Cooling/Heating	65 / 65
	Outdoor	Cooling/Heating	69 / 70
Sound pressure level*1	Indoor *3	Cooling (Hi/Me/Lo/Ulo)	44 / 38 / 36 / 30
		Heating (Hi/Me/Lo/Ulo)	44 / 38 / 36 / 30
	Outdoor	Cooling/Heating	54 / 55
Air flow	Indoor *3	Cooling (Hi/Me/Lo/Ulo)	36 / 28 / 25 / 19
		Heating (Hi/Me/Lo/Ulo)	36 / 28 / 25 / 19
	Outdoor	Cooling/Heating	75 / 73
Available external static pressure		Pa	Standard:60 Max:100
Exterior Dimensions	Indoor	Height x Width x Depth	280 x 1,370 x 740
	Outdoor		845 x 970 x 370
Net weight	Indoor / Outdoor	kg	54 / 77
Refrigerant	Type/GWP		R32/675
Refrigerant	Charge	kg/TCO2Eq	3.3/7.934
Refrigerant piping size	Liquid/Gas	ø mm	9.52(3/8") / 15.88(5/8")
Refrigerant line (one way) length		m	Max.50
Vertical height differences	Outdoor is higher/lower	m	Max.50 / Max.15
Outdoor operating temperature range	Cooling*2	°C	-15~50
	Heating		-20~20
Air filter quantity			(Option) Filter kit : UM-FL3EF
Remote control (option)			wired:RC-EX3A, RC-E5, RCH-E3 wireless:RCN-KIT4-E2
Energy Class (Cooling/Heating)			A+ /A+
SEER			6.11
SCOP (Average climate)			4.19
Pdesign (cooling/heating@-10°C)		kW	10.0/8.5
Annual Electricity Consumption (cooling/heating)		kWh/a	574/2843
Designated Heating Season			Average

The data is measured under the following conditions(ISO-T1).

Cooling: Indoor temp. of 27°CDB, 19°CWB, and outdoor temp. of 35°CDB. Heating: Indoor temp. of 20°CDB, and outdoor temp. of 7°CDB, 6°CWB.

*1 : Indicates the value in an anechoic chamber. During operation these values are somewhat higher due to ambient conditions.

*2 : If a cooling operation is conducted when the outdoor air temperature is -5°C or lower, the outdoor unit should be installed at a place where it is not influenced by natural wind. If wind blows, the low pressure will drop and compressor frequency will increase, this will cause the capacity to drop and may cause the unit to break down.

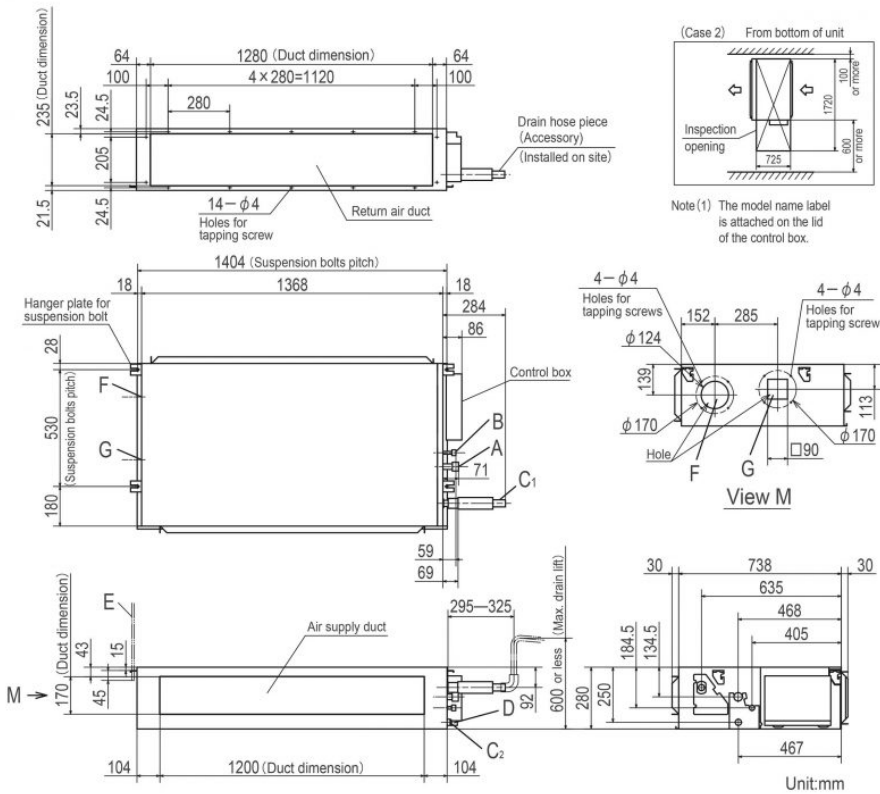
*3 The values are for one indoor unit operation. (Multi system only)

External static pressure is changeable to be set by the remote control. MAX external static pressure is 'High static pressure' setting. The values of sound pressure level become 5dB(A) higher at external static pressure of 200Pa for FDU indoor models and 100Pa for FDUM indoor models



Schematics

Models FDUM100VH,125VH,140VH

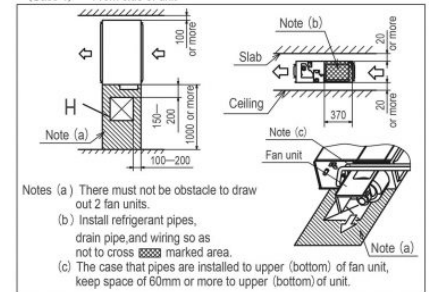


Note(1) The model name label is attached on the lid of the control box.

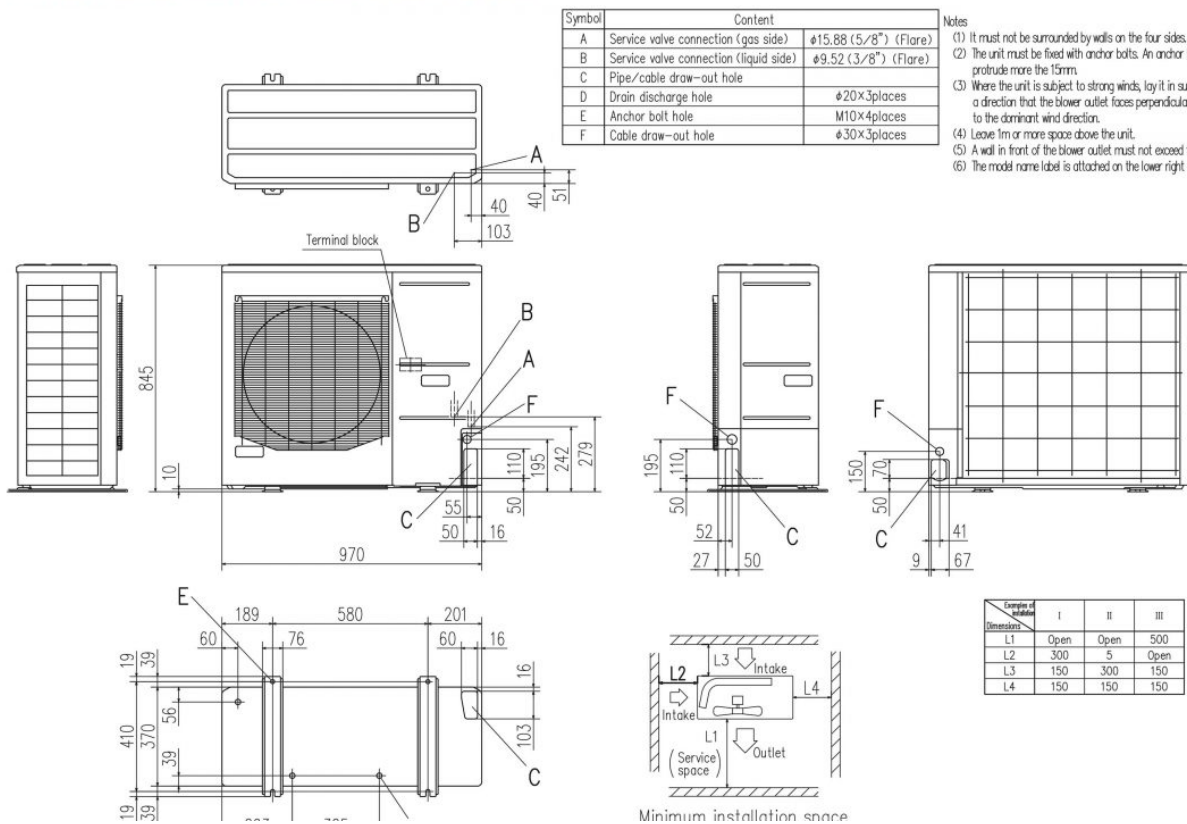
Symbol	Content
A	Gas piping $\phi 15.88 (5/8")$ (Flare)
B	Liquid piping $\phi 9.52 (3/8")$ (Flare)
C	Drain piping VP25 (O.D.32)
C ₂	Drain piping (Gravity drainage) VP20
D	Hole for wiring
E	Suspension bolts (M10)
F	Outside air opening for ducting ($\phi 150$) (Knock out)
G	Air outlet opening for ducting ($\phi 125$) (Knock out)
H	Inspection opening (450×450)

Space for installation and service

Select either of two cases to keep space for installation and services.
(Case 1) From side of unit



FDC100VNA, 125VNA, 140VNA, 100VSA, 125VSA, 140VSA



Symbol	Content
A	Service valve connection (gas side) $\phi 15.88 (5/8")$ (Flare)
B	Service valve connection (liquid side) $\phi 9.52 (3/8")$ (Flare)
C	Pipe/cable draw-out hole
D	Drain discharge hole $\phi 20 \times 3$ places
E	Anchor bolt hole M10 $\times 4$ places
F	Cable draw-out hole $\phi 30 \times 3$ places

- Notes
- (1) It must not be surrounded by walls on the four sides.
 - (2) The unit must be fixed with anchor bolts. An anchor bolt must not protrude more than 15mm.
 - (3) Where the unit is subject to strong winds, lay it in such a direction that the blower outlet faces perpendicularly to the dominant wind direction.
 - (4) Leave 1m or more space above the unit.
 - (5) A wall in front of the blower outlet must not exceed the units height.
 - (6) The model name label is attached on the lower right corner of the front panel.

Example of minimum installation space	I	II	III
L1	Open	Open	500
L2	300	5	Open
L3	150	300	150
L4	150	150	150

Domino's, 35E James Street, Forfar

Plant Noise Assessment

Report 206/1003/R1

Domino's, 35E James Street, Forfar

Plant Noise Assessment

Report 206/1003/R1

Domino's Pizza UK & Ireland

1 Thornbury
West Ashland
Milton Keynes
MK6 4BB

Revision	Description	Date	Prepared	Approved
0	First Issue	19 th April 2022	Alex Stronach	Adam Sharpe
1	First Revision	26 th July 2022	Adam Sharpe	Matthew Heyes

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Plant Noise Assessment

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Plant Noise Assessment

Attachments

Glossary of Acoustic Terms

206/1003/SP1

Site plan showing measurement and assessment positions.

206/1003/TH01

Time history graph showing the results of the unattended noise survey.

206/1003/PNS1

Schedule of manufacturers' noise data.

206/1003/CS1 to 206/1003/CS6

Calculation summary sheets.

206/1003/CS7 to 206/1003/CS21

Individual plant noise calculation sheets.

■ End of Section



Plant Noise Assessment

1 Introduction

- 1.1 Planning permission is being sought for the change of use of a vacant shop (*Sui Generis*) at 35E St James Road, Forfar to a hot food takeaway (*Sui Generis*). As part of the development, it is proposed to install new mechanical services items which will terminate atmospherically and emit noise externally.
- 1.2 This report details a noise survey undertaken at the site to quantify the existing noise climate and derive atmospheric plant noise limits in accordance with the requirements of the Local Authority. A subsequent assessment of the plant noise emission levels of the proposed installation has been undertaken to determine if any mitigation is required to meet the plant noise limits.

2 Site Description

- 2.1 The site is situated at 35E St James Road, Forfar, DD8 1LN and is a single storey building that has historically been used as convenience store.
- 2.2 St James Road (A932) is predominantly residential road containing a small number of commercial outlets and a primary school.
- 2.3 The areas to the north, south, and east of the site are predominantly residential with a small number of commercial properties and food outlets. There are two park spaces situated to the south of the site.
- 2.4 A large superstore is situated to the east of the site, as well as a number of other commercial properties and a school. There is a small industrial area situated further to the north-east of the site, with the area containing a large number commercial and residential properties.
- 2.5 Traffic around the site was deemed to be of a moderate level with many cars travelling along Dundee Road (A932) to the west.
- 2.6 The site falls under the jurisdiction of Angus Council.

3 Environmental Noise Survey

3.1 Methodology & Instrumentation

- 3.1.1 An unattended noise survey was undertaken at the site commencing at 17h30 on Friday 8th April and concluding at 11h30 on Sunday 10th April 2022.
- 3.1.2 Measurements were undertaken at a single location as indicated as MP1 on the attached site plan 206/1003/SP1 and described as follows.



Plant Noise Assessment

- MP1: Free-field measurement position approximately 2.5 metres above roof level to the rear of the property.
- 3.1.3 The height of the measurement position being approximately 2.5 metres above roof level (as opposed to a measurement height of 1.2 – 1.5 metres) was chosen in part due to an installation at roof level being the only suitably secure option for obtaining a full night time period worth of unattended noise data. This position is deemed to be representative of the nearest noise sensitive receivers for the purposes of deriving suitable background noise limits.
- 3.1.4 Measurements of the L_{Aeq} , L_{A90} and L_{Amax} indices were recorded over consecutive 15-minute periods (see Glossary of Acoustic Terms for an explanation of the noise units used) for the duration of the survey using the equipment listed within table T1 below.

Item	Manufacturer	Type
Sound Level Analyser	Rion	NL-52
Acoustic Calibrator	Rion	NC-74
Weatherproof Windshield	Rion	WS-15

T1 Equipment used during unattended noise survey.

- 3.1.5 The microphone was fitted within a weatherproof windshield and the sound level meter was calibrated before and after the survey to confirm an acceptable level of accuracy. No significant drift was noted to have occurred.
- 3.1.6 The weather conditions when installing and collecting the equipment were cool, sunny, and still, with wind speeds noted to be less than 5 m/s. Publicly available historical weather data indicate that these conditions prevailed throughout the survey period.
- 3.1.7 It was noted whilst on site that the noise climate is dominated by distant traffic noise on St James Road and other surrounding roads.

3.2 Results

- 3.2.1 The results of the unattended noise survey are presented in the attached time history graph 206/1003/TH01.
- 3.2.2 We understand that the proposed food outlet is to operate between the hours of 11h00-23h00 only. Section 8.1.3 of BS 4142:2014+A1:2019 states the following:

“... the background sound level used for the assessment should be representative of the period being assessed”

- 3.2.3 A representative background noise level has thus been derived for the operational hours of the store, as well as the night-time period. This level should account for a range of background



Plant Noise Assessment

sound levels and should not automatically be assumed to be either the minimum or modal value.

- 3.2.4 Based on the above, the representative noise level is derived as the highest single figure value where the cumulative total of the $L_{A90,15min}$ levels for the relevant period is less than or equal to 20%.
- 3.2.5 The representative background noise levels, as derived in accordance with the guidance outlined in BS 4142:2014+A1:2019, during the proposed operating period are given in table T2 below.

Location	Representative Background Noise Level, $L_{A90,15min}$ (dB)	
	Proposed Operating Hours (11h00-23h00)	Proposed Closed Hours (23h00-11h00)
MP1 – Free-field position approximately 2.5m above roof level.	39	29

T2 Measured representative background noise levels.

4 Plant Noise Criteria

4.1 Overview & Local Authority Liaison

- 4.1.1 A review of Local Authority planning guidance yields no quantitative guidance regarding plant noise emission limits.
- 4.1.2 As a result, plant noise limits have been derived from the measured L_{A90} background noise levels with reference to BS 4142:2014+A1:2019. A brief summary of this standard is provided in the following section.
- 4.1.3 Following the submission of the original version of this report, the Angus Council Environmental Health department requested the following supplementary assessment of noise emissions from the proposed mechanical services scheme to be undertaken in addition to an assessment against background noise limits derived with reference to BS 4142:2014+A1:2019 as set out in section 4.2.
- 4.1.4 The request for a supplementary assessment is transcribed as follows.



Plant Noise Assessment

'An assessment of the internal levels against the standard condition fixed plant noise limits of NR 35 daytime and NR 25 night-time requires to be undertaken in order that internal amenity impacts can be fully considered.'

4.2 **BS 4142:2014+A1:2019**

- 4.2.1 When considering noise emission from plant, it is normal to follow guidance in BS 4142:2014+A1:2019¹, section 1.1 of this standard states the following:

"This British Standard describes methods for rating and assessing sound of an industrial and/or commercial nature, which includes:

- a) sound from industrial and manufacturing processes;*
- b) sound from fixed installations which comprise mechanical and electrical plant and equipment*
- c) sound from the loading and unloading of goods and materials at industrial and/or commercial premises; and*
- d) sound from mobile plant and vehicles that is an intrinsic part of the overall sound emanating from premises or processes, such as that from forklift trucks, or that from train or ship movements on or around an industrial and/or commercial site."*

- 4.2.2 The methodology in the standard compares the measured or calculated rating level of the noise from the source and compares it to the representative existing measured L_{A90} background noise level for the period concerned.

- 4.2.3 The higher the excess of rating level over background noise level, the greater the likelihood of an adverse noise impact. BS 4142:2014+A1:2019 gives the following guidance:

"Typically, the greater this difference, the greater the magnitude of the impact.

A difference of around +10dB or more is likely to be an indication of a significant adverse impact, depending on the context.

A difference of around +5dB is likely to be an indication of an adverse impact, depending on the context.

The lower the rating level is relative to the measured background sound level, the less likely it is that the specific sound source will have an adverse impact or a significant adverse impact. Where the rating level does not exceed the background sound level, this is an indication of the specific sound source having a low impact, depending on the context."

¹ British Standard 4142:2014+A1:2019 - Methods for rating and assessing industrial and commercial sound.



Plant Noise Assessment

4.2.4 Additionally, Section 11(1) of BS 4142:2014+A1:2019 states:

“Where background sound levels and rating levels are low, absolute levels might be as, or more, relevant than the margin by which the rating level exceeds the background. This is especially true at night.”

4.2.5 The measured noise levels during the store’s closing period are particularly low [i.e. below 30dB(A)] and, thus, it is more pragmatic to refer to absolute noise levels as opposed to limits derived relative to the measured background noise level during the night-time period.

4.2.6 As a result, we recommend a plant noise limit of 30 dB(A) to be met whilst the store is not in operation. This limit should apply to 1 m from the façade of any affected residential building.

4.2.7 Context may be applied to this limit by allowing for a typical 12 dB(A) loss associated with that of a partially open window. This loss applied to a plant noise emission level of 30 dB(A) yields an internal noise level of 18 dB(A) which is 12 dB(A) below the internal $L_{Aeq,8h}$ 30 dB noise level outlined in BS 8233:2014² as being appropriate for bedrooms to provide suitable conditions for sleeping.

4.2.8 Based on the guidance outlined in section 3, the noise limits in table T3 are to apply here:

Location	Plant Noise Emission Limits, $L_{Ar,Tr}$ (dB)	
	<i>(for plant with no distinguishing feature)</i>	
	Proposed Operating Hours (11h00-23h00)	Proposed Closed Hours (23h00-11h00)
Nearby Residential Receivers	39	30

T3 Plant noise emission limits at the nearest residential receivers.

4.2.9 The noise limits are to apply at 1 m from the nearby residential windows. Any plant with a tonal component would be subject to a further penalty, in line with BS 4142:2014+A1:2019. These limits apply to all mechanical services items being installed when running at duty with all items running concurrently during the relevant period.

² British Standard 8233:2014 - Guidance and sound insulation and noise reduction for buildings



Plant Noise Assessment

5 Plant Noise Assessment

5.1 Proposed Installation

5.1.1 The proposed plant items emitting noise to the atmosphere are listed in table T4 below.

Reference	Unit	Model
SF-01	Supply Fan	Systemair RS 70-40 EC Sileo
EF-01	Extract Fan	Systemair MUB 042 500EC Multibox
CU-01	A/C Condenser	Mitsubishi FDC100VNA-W
CU-02	Cold Room Condenser	Tecumseh WINAJ4519Z-FZ

T4 Proposed equipment installation.

5.1.2 The supply and extract fans will be installed internally and ducted to terminate to the atmosphere on the eastern and northern facades, respectively. The A/C and cold room condensers will be situated externally in an enclosed yard area to the east of the site. The plant locations have been obtained from the following drawing provided to us:

- *Dominos_Forfar_001-A3.pdf* – Mechanical Services Layout (dated 08/02/2022)

5.1.3 We understand that the supply and extract fans, as well as the A/C condenser will only operate during the store's operational hours (11h00-23h00). The cold room condenser will be in operation during 24-hours a day and thus it is the limit set for the store's closing period which is to apply to this unit.

5.1.4 Manufacturers' noise data has been used in this assessed and can be found on the attached schedule 206/1003/PNS1. Only a single figure sound pressure level has been provided by the manufacturer for the cold room condenser unit. As a result, spectral noise sound power data for a similar cold room unit has been scaled to match that of the proposed unit.

5.2 Methodology

5.2.1 Noise levels have been calculated at three assessment positions labelled as AP1 to AP3 on the attached site plan 206/1003/SP1, and described below:

- AP1: 1 metre from ground floor windows of 35D St James Road;
- AP2: 1 metre from ground floor windows of 35C St James Road;
- AP3: 1 metre from ground floor windows of 5 St James Road.

5.2.2 This assessment has taken into account radiation and distance losses, and façade reflections, where each is appropriate. We have also included the insertion loss data for the proposed silencers provided to us by the mechanical services engineers. Calculation summaries for the calculated day and night-time noise levels at each assessment position provided on the



Plant Noise Assessment

attached sheets 206/1003/CS1 to 206/1003/CS6. Full calculation sheets are included as the attached 206/1003/CS7 to 206/1003/CS21.

- 5.2.3 An assessment of spectral noise data for the proposed units suggests that no acoustic character corrections need be applied.

5.3 Results

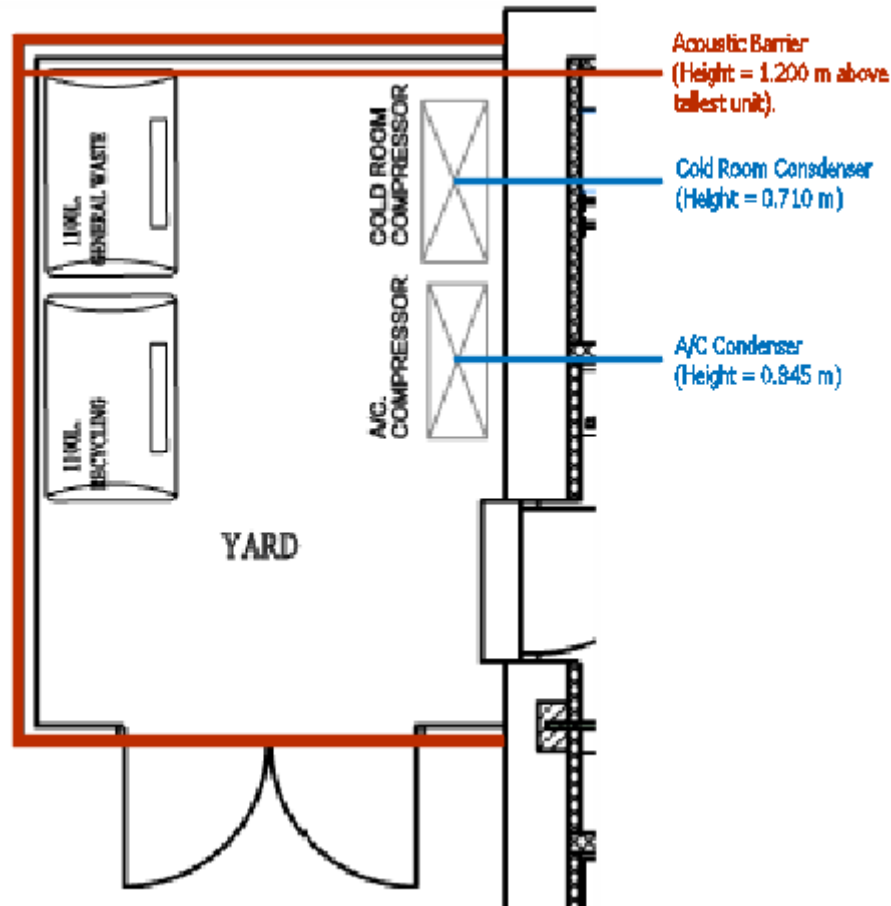
- 5.3.1 The results of our assessment indicate that mitigation measures will be required to meet the plant noise emission limits. These measures will take the form of a solid screen around the external yard area, in-duct silencers for the supply and extract fans, and acoustic enclosures around the condenser units.

Acoustic Barrier

- 5.3.2 Solidifying the barrier around the external yard area, within which the condenser units will be situated, will minimise noise transmission to the surroundings.
- 5.3.3 The barrier should have a minimum height which is 1.2 metres greater than the height of the tallest unit. It shall achieve a minimum of 10 kg/m² uniform mass per unit area over the full area of the barrier (i.e. 19 mm thick plywood, suitably waterproofed) for the duration of its design life. It is recommended that the solid panels be lined with a suitably weatherproof absorbent lining (e.g 50 mm thick mineral wool held in place by expanded metal) on the plant area side to minimise any potential transmission through the enclosure wall and to minimise reflections within the enclosure that may escape through the open top. The following figure demonstrates where this barrier will be required.



Plant Noise Assessment



Extent of required external yard acoustic barrier.

- 5.3.4 The barrier should be of imperforate construction over the full area and remain so for the design life of the barrier. It is essential, particularly for barriers with butting or overlapping components, that the joints are well sealed to prevent sound leakage. Gravel boards of equivalent density are to be used to prevent gaps between screen structure and ground if necessary.
- 5.3.5 The barrier structure is to be suitably designed and engineered with appropriate consideration for wind loading and aerodynamic forces.

In-duct Attenuators

- 5.3.6 Our assessment has shown that the proposed attenuator for the kitchen extract fan provides sufficient attenuation to the noise incident upon nearby residential receivers. However, the supply fan attenuators will require a higher performance to meet the plant noise emission criteria. Specifications for both silencers are provided in table T5.



Plant Noise Assessment

Silencer Specification <i>Location</i>	Insertion Loss (dB) at Octave Band Centre Frequency (Hz)							
	63	125	250	500	1k	2k	4k	8k
SIL01 <i>Supply Intake</i>	5	11	21	33	37	36	27	18
SIL02 <i>Kitchen Extract Discharge*</i>	3	8	13	25	23	14	8	4

T5 Required silencer specifications.

*Obtained from manufacturer's data provided by mechanical services engineer.

5.3.7 We would expect the performance SIL01 to be provided by a silencer with a length of 1500mm and 45% free area, however it is the full octave band performance which must be achieved, and the proposed silencer is provided for reference only. The performance of SIL02 is achievable using the *Caice LG01V/3B/L/S* attenuator proposed by the mechanical services engineers.

5.3.8 Both silencers should be mounted as close to the fans as possible so that noise breakout from associated ductwork is reduced as far as practicable. The fans should be mounted on anti-vibration mounts and have flexible connections to rigid ductwork to minimise structure-borne sound transmission.

Acoustic Enclosure

5.3.9 Both external condenser units will require acoustic enclosures. The specification of these enclosures is provided in table T6 below.

Enclosure <i>Location</i>	Insertion Loss (dB) at Octave Band Centre Frequency (Hz)							
	63	125	250	500	1k	2k	4k	8k
EN01 <i>A/C Condenser & Cold Room Condensers</i>	12	14	17	19	21	23	20	19

T6 Required enclosure specification.



Plant Noise Assessment

- 5.3.10 We would expect the insertion losses for EN01 around the external condenser units to be achieved with a bespoke acoustic enclosure available from companies including *Environ Technologies Ltd*³ and *Sound Planning Ltd*⁴.
- 5.3.11 Enclosures must be sized to allow adequate airflow to the equipment.

5.4 Results

- 5.4.1 Employing the proposed mitigation strategy outlined above results in the following predicted noise levels at the nearest noise-sensitive receptors:

Location	Rating Noise Level, dB(A)	
	Operational Period (11h00 – 23h00)	Closed Period (23h00-11h00)
AP1: 35D St James Road	39 (39)	27 (30)
AP2: 35C St James Road	32 (39)	13 (30)
AP3: 5 St James Road	34 (39)	N/A* (30)

T7 Predicted plant noise emission levels at the nearest residential receivers.

*Predicted noise level less than 0 dB

- 5.4.2 Per the request of Angus Council Environmental Health as set out previously within Section 4.1, the resultant break-in noise levels to each assessment position during both the day and night time periods have been calculated to the NR 35 and NR 25 limits.
- 5.4.3 In order to provide a robust assessment methodology, a 10 dB loss for noise break-in through a partially open window has been adopted within the calculations to provide a reasonable worst-case internal noise level.
- 5.4.4 The calculated internal noise levels (expressed in terms of a noise rating, NR, level) are set out within table T8 below against internal noise limits proposed by Angus Council.

³ <http://www.environ.co.uk>

⁴ <http://www.soundplanning.co.uk>



Plant Noise Assessment

Location	Internal Noise Level, dB NR	
	Internal Noise Limit, dB NR	
	Daytime (07h00 – 23h00)	Night time (23h00-07h00)
AP1: 35D St James Road	24 (30)	12 (25)
AP2: 35C St James Road	17 (30)	0 (25)
AP3: 5 St James Road	24 (30)	0 (25)

T8 Predicted internal noise levels due to noise break-in from mechanical services noise at the nearest residential receivers.

- 5.4.5 Based on the results set out within both tables T7 and T8 above, the assessment has shown that provided the mitigation measures specified above are implemented, the noise emission levels of the proposed plant strategy meet the plant noise emission limits at all times.

6 Conclusions

- 6.1 Planning permission is being sought for the change of use of a vacant shop (*Sui Generis*) at 35E St James Road, Forfar to a hot food takeaway (*Sui Generis*). As part of the development, it is proposed to install new mechanical services items which will terminate atmospherically and emit noise externally.
- 6.2 A noise survey has been undertaken at the site to quantify the existing noise climate and set noise limits with reference to the guidance in BS 4142:2014+A1:2019. An assessment of noise emission levels from the plant items has been undertaken for the proposed installation.
- 6.3 Our assessment has shown that mitigation measures in the form of acoustic barriers, in-duct silencers, and acoustic enclosures (for the yard area, supply & extract fans and external condenser units, respectively) will be required to meet the plant noise emission criteria. Full specifications are provided within this report.
- 6.4 Provided all specified mitigation measures are adopted, the plant noise emission criteria will be met at all times.

■ End of Section



Plant Noise Assessment

Glossary of Acoustic Terms

L_{Aeq} :

The notional steady sound level (in dB) which over a stated period of time, would have the same A-weighted acoustic energy as the A-weighted fluctuating noise measurement over that period. Values are sometimes written using the alternative expression dB(A) L_{eq} .

L_{Amax} :

The maximum A-weighted sound pressure level recorded over the period stated. L_{Amax} is sometimes used in assessing environmental noise when occasional loud noises occur, which may have little effect on the L_{Aeq} noise level. Unless described otherwise, L_{Amax} is measured using the “fast” sound level meter response.

L_{A10} & L_{A90} :

If non-steady noise is to be described, it is necessary to know both its level and degree of fluctuation. The L_{An} indices are used for this purpose. The term refers to the A-weighted level (in dB) exceeded for n% of the time specified. L_{A10} is the level exceeded for 10% of the time and as such gives an indication of the upper limit of fluctuating noise. Similarly, L_{A90} gives an indication of the lower levels of fluctuating noise. It is often used to define the background noise.

L_{A10} is commonly used to describe traffic noise. Values of dB L_{An} are sometimes written using the alternative expression dB(A) L_n .

L_{AX} , L_{AE} or SEL

The single event noise exposure level which, when maintained for 1 second, contains the same quantity of sound energy as the actual time varying level of one noise event. L_{AX} values for contributing noise sources can be considered as individual building blocks in the construction of a calculated value of L_{Aeq} for the total noise. The L_{AX} term can sometimes be referred to as Exposure Level (L_{AE}) or Single Event Level (SEL).




■ End of Section

Figure 206/1003/SP1

Title:

Site plan showing measurement and assessment positions.

Key:

-  MP Measurement Position
-  AP Assessment Position
-  Site Outline



Project:

Domino's, 35E St James Road, Forfar

Date:

April 2022

Revision:

-

Scale:

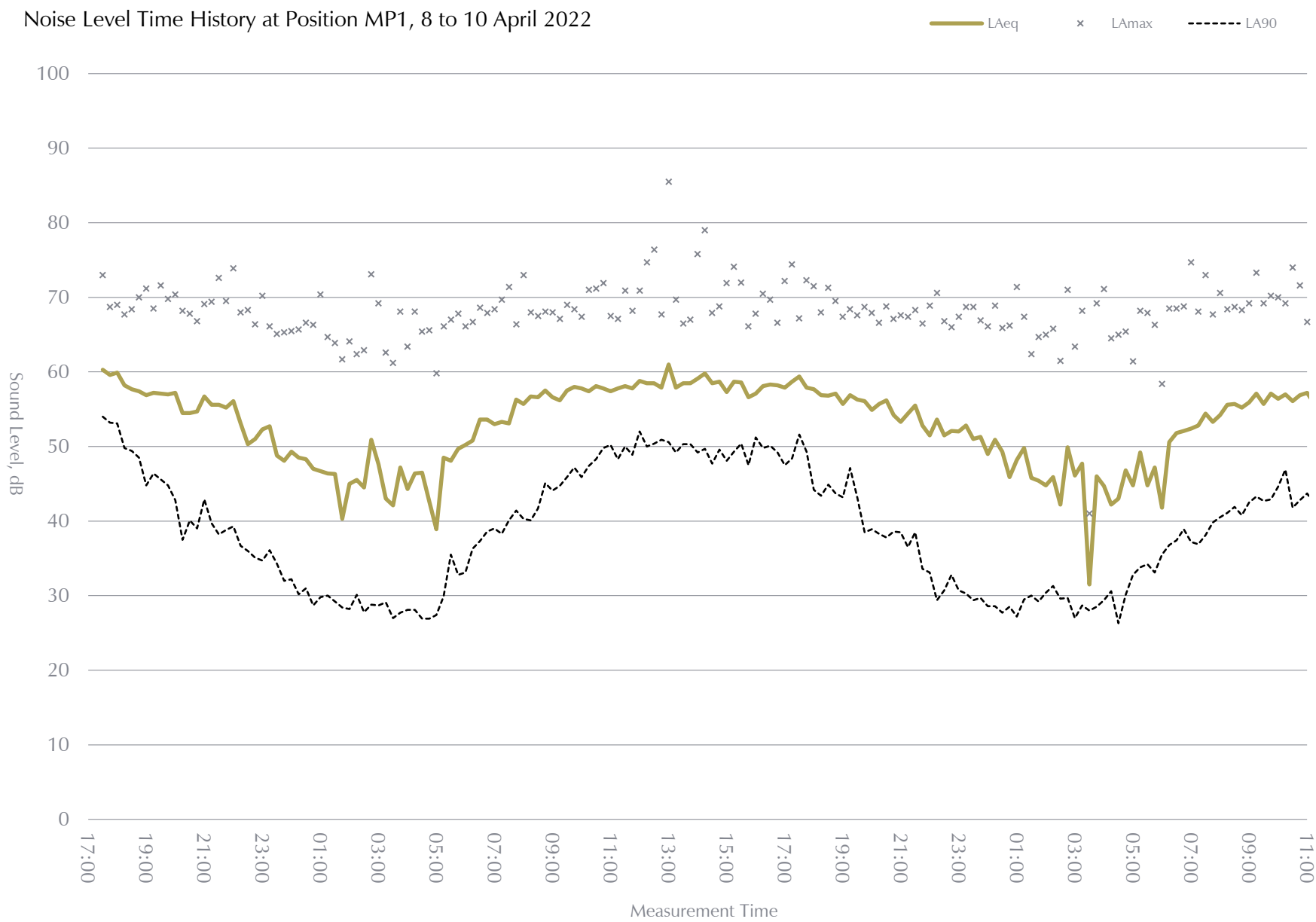
Not to scale





Figure 206/1003/TH01

Domino's, 35E St Jame Road, Forfar





Schedule of Plant and Air Handling Equipment Sound Levels, dB

Reference	Description	Data Source ¹	Noise Level Type	Noise Levels (dB)							
				63	125	250	500	1k	2k	4k	8k
SF-01 Inlet	Systemair RS 70-40 EC Sileo	Man	Sound Power, Lw	86.2	88.1	81.6	77.2	73.0	71.8	67.0	61.1
EF-01 Outlet	Systemair MUB 042 500EC Multibox	Man	Sound Power, Lw	79.2	70.0	70.0	74.0	75.0	72.0	68.0	62.0
CU-01	Mitsubishi Heavy Industries FDC100VNA-W	Man	Sound Pressure, Lp @ 1m	61.2	57.2	55.7	52.2	51.2	42.2	40.2	37.2
CU-02	Tecumseh WINAJ4519Z-FZ	Man	Sound Power, Lw	62.0	59.5	59.5	61.0	57.4	55.3	52.1	44.9

Notes

1 - Man refers to data supplied by the equipment manufacturer or supplier, Emp refers to data calculated using empirical formulae, and Meas refers to data measured by RSK Acoustics.



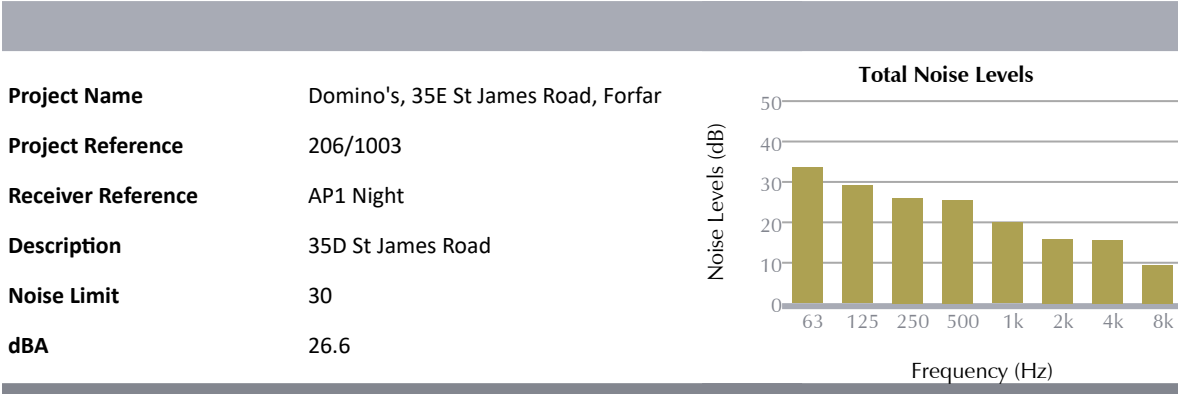
<p>Project Name Domino's, 35E St James Road, Forfar</p> <p>Project Reference 206/1003</p> <p>Receiver Reference AP1 Day</p> <p>Description 35D St James Road</p> <p>Noise Limit 39</p> <p>dba 38.9</p>	<p>Total Noise Levels</p> <table border="1"> <caption>Total Noise Levels Data</caption> <thead> <tr> <th>Frequency (Hz)</th> <th>Noise Levels (dB)</th> </tr> </thead> <tbody> <tr><td>63</td><td>52</td></tr> <tr><td>125</td><td>53</td></tr> <tr><td>250</td><td>40</td></tr> <tr><td>500</td><td>31</td></tr> <tr><td>1k</td><td>27</td></tr> <tr><td>2k</td><td>20</td></tr> <tr><td>4k</td><td>21</td></tr> <tr><td>8k</td><td>22</td></tr> </tbody> </table>	Frequency (Hz)	Noise Levels (dB)	63	52	125	53	250	40	500	31	1k	27	2k	20	4k	21	8k	22
Frequency (Hz)	Noise Levels (dB)																		
63	52																		
125	53																		
250	40																		
500	31																		
1k	27																		
2k	20																		
4k	21																		
8k	22																		

Reference	Noise Levels (dB)							
	63	125	250	500	1k	2k	4k	8k
SF-01 Inlet	51.7	52.7	37.7	21.5	13.8	12.6	16.8	19.9
EF-01 Outlet	31.8	22.1	16.6	6.2	1.6	1.4	0.5	-1.6
CU-01	43.8	37.8	33.3	27.8	24.8	13.8	14.8	12.8
CU-02	33.5	29.0	26.0	25.5	19.9	15.8	15.6	9.4



External Receiver Summary

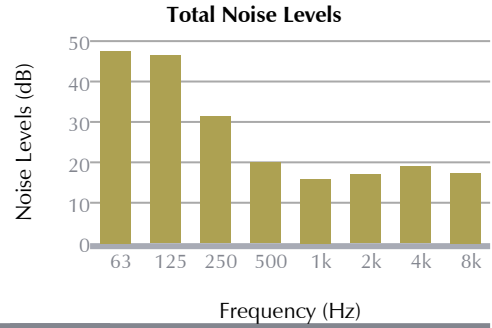
206/1003/CS2



Reference	Noise Levels (dB)							
	63	125	250	500	1k	2k	4k	8k
CU-02	33.5	29.0	26.0	25.5	19.9	15.8	15.6	9.4



Project Name Domino's, 35E St James Road, Forfar
Project Reference 206/1003
Receiver Reference AP2 Day
Description 35C St James Road
Noise Limit 39
dba 32.3

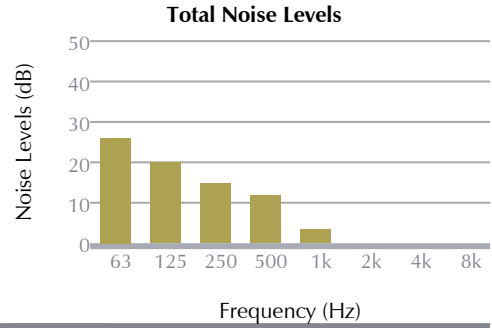


Reference	Noise Levels (dB)							
	63	125	250	500	1k	2k	4k	8k
SF-01 Inlet	46.8	46.2	29.3	10.8	0.8	0.1	4.3	7.4
EF-01 Outlet	36.3	27.8	24.6	16.4	14.4	16.9	18.9	16.9
CU-01	36.6	29.1	22.5	14.6	8.9	-4.9	-5.2	-7.2
CU-02	26.0	19.9	14.8	11.8	3.4	-3.5	-4.4	-10.6





Project Name Domino's, 35E St James Road, Forfar
Project Reference 206/1003
Receiver Reference AP2 Night
Description 35C St James Road
Noise Limit 30
dba 12.5



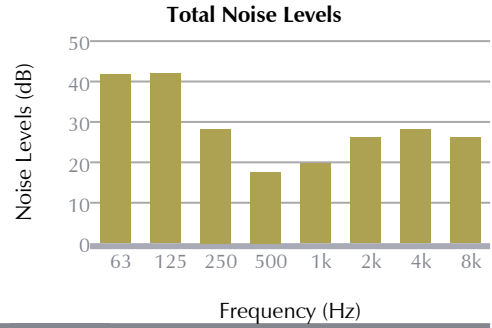
Reference	Noise Levels (dB)							
	63	125	250	500	1k	2k	4k	8k
CU-02	26.0	19.9	14.8	11.8	3.4	-3.5	-4.4	-10.6





External Receiver Summary

Project Name Domino's, 35E St James Road, Forfar
Project Reference 206/1003
Receiver Reference AP3 Day
Description 5 St James Road
Noise Limit 39
dB(A) 33.7



Reference	Noise Levels (dB)							
	63	125	250	500	1k	2k	4k	8k
SF-01 Inlet	41.0	41.8	26.3	9.8	-2.4	-6.1	-1.9	1.2
EF-01 Outlet	33.6	25.9	23.6	16.7	19.7	26.2	28.2	26.2
CU-01	22.4	15.2	8.9	1.1	-4.4	-18.2	-20.0	-22.0
CU-02	9.7	3.8	-1.1	-4.0	-12.2	-19.1	-21.3	-27.5



External Receiver Summary

206/1003/CS6



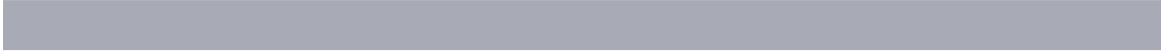
Reference	Noise Levels (dB)							
	63	125	250	500	1k	2k	4k	8k
CU-02	9.7	3.8	-1.1	-4.0	-12.2	-19.1	-21.3	-27.5



Calculation Sheet

206/1003/CS7

CU-01 to AP1 Day



	Octave Band Centre Frequency (Hz)							
	63	125	250	500	1k	2k	4k	8k

Noise Source

Noise Source - CU-01

Sound Pressure Levels @ 1m	61	57	56	52	51	42	40	37	55 dBA
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Full Conformal Area

Distance (m) 1

Type - Semi-anechoic

	13	13	13	13	13	13	13	13
--	----	----	----	----	----	----	----	----

Silencer

Silencer - ENC-01

	-12	-14	-17	-19	-21	-23	-20	-19
--	-----	-----	-----	-----	-----	-----	-----	-----

Point Source Radiation Loss

Radiation - Quarterspherical

Single Figure Read 5

	-5	-5	-5	-5	-5	-5	-5	-5
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Point Source Distance Loss

Start Distance (m) 1

End Distance (m) 6

	-16	-16	-16	-16	-16	-16	-16	-16
--	-----	-----	-----	-----	-----	-----	-----	-----

Maekawa Screening Loss

Path Difference (m) -1

	0	0	0	0	0	0	0	0
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Facade Reflection

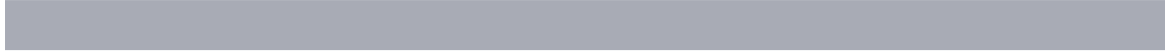
Reflection (dB) 3

	3	3	3	3	3	3	3	3
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206/1003/CS7



	Octave Band Centre Frequency (Hz)								
	63	125	250	500	1k	2k	4k	8k	
External Receiver									
External Receiver - AP1 Day									
Sound Pressure, Lp	44	38	33	28	25	14	15	13	31 dBA



Calculation Sheet

206/1003/CS8

CU-02 to AP1 Day



	Octave Band Centre Frequency (Hz)								
	63	125	250	500	1k	2k	4k	8k	
Noise Source									
Noise Source - CU-02									
Sound Power Levels	62	60	60	61	57	55	52	45	63 dBA

Silencer									
Silencer - ENC-01									
	-12	-14	-17	-19	-21	-23	-20	-19	

Point Source Radiation Loss									
Radiation - Quarterspherical									
Single Figure Read	5								
	-5	-5	-5	-5	-5	-5	-5	-5	

Point Source Distance Loss									
Start Distance (m)	1								
End Distance (m)	5								
	-14	-14	-14	-14	-14	-14	-14	-14	

Maekawa Screening Loss									
Path Difference (m)	-1								
	0	0	0	0	0	0	0	0	

Facade Reflection									
Reflection (dB)	2.5								
	3	3	3	3	3	3	3	3	

External Receiver									
External Receiver - AP1 Day									
Sound Pressure, Lp	34	29	26	26	20	16	16	9	27 dBA

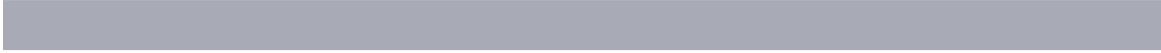




Calculation Sheet

206/1003/CS9

SF-01 Inlet to AP1 Day



	Octave Band Centre Frequency (Hz)								
	63	125	250	500	1k	2k	4k	8k	
Noise Source									
Noise Source - SF-01 Inlet									
Sound Power Levels	86	88	82	77	73	72	67	61	80 dBA

Silencer

Silencer - ATT-01

	-5	-11	-21	-33	-37	-36	-27	-18
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Rect Unlined Duct Losses CJ

Width (mm)	700							
Height (mm)	500							
Length (m)	1							
	-1	-1	0	0	0	0	0	0

End Reflection

Width/Diameter (m)	1.4							
Length (m)	0.5							
Rec or Circ - Rectangular								
Free or Flush - Flush								
	-5	-1	0	0	0	0	0	0

Point Source Radiation Loss

Radiation - Hemispherical								
Single Figure Read	8							
	-8	-8	-8	-8	-8	-8	-8	-8





206/1003/CS9

	Octave Band Centre Frequency (Hz)							
	63	125	250	500	1k	2k	4k	8k
External Grille Directivity								
Width (m)	1.4							
Height (m)	0.5							
Vertical (°)	10							
Horizontal (°)	75							
	1	2	2	2	3	2	1	2
Point Source Distance Loss								
Start Distance (m)	1							
End Distance (m)	9							
	-19	-19	-19	-19	-19	-19	-19	-19
Maekawa Screening Loss								
Path Difference (m)	-1							
	0	0	0	0	0	0	0	0
Facade Reflection								
Reflection (dB)	3							
	3	3	3	3	3	3	3	3
External Receiver								
External Receiver - AP1 Day								
Sound Pressure, Lp	52	53	38	21	14	13	17	20 38 dBA



Calculation Sheet

206/1003/CS10

EF-01 Outlet to AP1 Day



	Octave Band Centre Frequency (Hz)							
	63	125	250	500	1k	2k	4k	8k

Noise Source

Noise Source - EF-01 Outlet

Sound Power Levels	79	70	70	74	75	72	68	62	79 dBA
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Silencer

Silencer - ATT-02

	-3	-8	-13	-25	-23	-14	-8	-4
--	----	----	-----	-----	-----	-----	----	----

Rect Unlined Duct Losses CJ

Width (mm)	600							
Height (mm)	600							
Length (m)	7							
	-5	-4	-2	-1	-1	-1	-1	-1

Bend Loss CJ

Dimension (mm)	600							
No. of Bends (no.)	1							
Type - Radiussed Bend - With Vanes								
	0	0	-1	-2	-3	-3	-3	-3

End Reflection

Width/Diameter (m)	1.2							
Length (m)	0.6							
Rec or Circ - Rectangular								
Free or Flush - Flush								
	-5	-1	0	0	0	0	0	0





206/1003/CS10

	Octave Band Centre Frequency (Hz)								
	63	125	250	500	1k	2k	4k	8k	
Point Source Radiation Loss									
Radiation - Hemispherical									
Single Figure Read	8								
	-8	-8	-8	-8	-8	-8	-8	-8	
External Grille Directivity									
Width (m)	1.2								
Height (m)	0.6								
Vertical (°)	20								
Horizontal (°)	90								
	1	1	0	0	-4	-8	-8	-8	
Point Source Distance Loss									
Start Distance (m)	1								
End Distance (m)	13.5								
	-23	-23	-23	-23	-23	-23	-23	-23	
Maekawa Screening Loss									
Path Difference (m)	0.2015								
	-7	-8	-9	-12	-14	-17	-20	-20	
Facade Reflection									
Reflection (dB)	3								
	3	3	2	3	3	3	3	3	
External Receiver									
External Receiver - AP1 Day									
Sound Pressure, Lp	32	22	17	6	2	1	0	-2	13 dBA



Calculation Sheet

206/1003/CS11

CU-02 to AP1 Night



	Octave Band Centre Frequency (Hz)							
	63	125	250	500	1k	2k	4k	8k

Noise Source

Noise Source - CU-02

Sound Power Levels	62	60	60	61	57	55	52	45	63 dBA
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Silencer

Silencer - ENC-01

	-12	-14	-17	-19	-21	-23	-20	-19	
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Point Source Radiation Loss

Radiation - Quarterspherical

Single Figure Read	5								
	-5	-5	-5	-5	-5	-5	-5	-5	

Point Source Distance Loss

Start Distance (m)

1

End Distance (m)

5

	-14	-14	-14	-14	-14	-14	-14	-14	
--	-----	-----	-----	-----	-----	-----	-----	-----	--

Maekawa Screening Loss

Path Difference (m)

-1

	0	0	0	0	0	0	0	0	
--	---	---	---	---	---	---	---	---	--

Facade Reflection

Reflection (dB)

3

	3	3	3	3	3	3	3	3	
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External Receiver

External Receiver - AP1 Night

Sound Pressure, Lp	34	29	26	26	20	16	16	9	27 dBA
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Calculation Sheet

206/1003/CS12

CU-01 to AP2 Day



	Octave Band Centre Frequency (Hz)							
	63	125	250	500	1k	2k	4k	8k

Noise Source

Noise Source - CU-01

Sound Pressure Levels @ 1m	61	57	56	52	51	42	40	37	55 dBA
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Full Conformal Area

Distance (m) 1

Type - Semi-anechoic

	13	13	13	13	13	13	13	13
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Silencer

Silencer - ENC-01

	-12	-14	-17	-19	-21	-23	-20	-19
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Point Source Radiation Loss

Radiation - Quarterspherical

Single Figure Read 5

	-5	-5	-5	-5	-5	-5	-5	-5
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Point Source Distance Loss

Start Distance (m) 1

End Distance (m) 6

	-16	-16	-16	-16	-16	-16	-16	-16
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Maekawa Screening Loss

Path Difference (m) 0.308

	-7	-9	-11	-13	-16	-19	-20	-20
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Facade Reflection

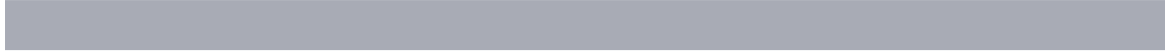
Reflection (dB) 3

	3	3	3	3	3	3	3	3
--	---	---	---	---	---	---	---	---





206/1003/CS12



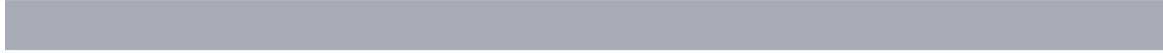
	Octave Band Centre Frequency (Hz)								
	63	125	250	500	1k	2k	4k	8k	
External Receiver									
External Receiver - AP2 Day									
Sound Pressure, Lp	37	29	23	15	9	-5	-5	-7	19 dBA



Calculation Sheet

206/1003/CS13

CU-02 to AP2 Day



	Octave Band Centre Frequency (Hz)							
	63	125	250	500	1k	2k	4k	8k

Noise Source

Noise Source - CU-02

Sound Power Levels	62	60	60	61	57	55	52	45	63 dBA
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Silencer

Silencer - ENC-01

	-12	-14	-17	-19	-21	-23	-20	-19	
--	-----	-----	-----	-----	-----	-----	-----	-----	--

Point Source Radiation Loss

Radiation - Quarterspherical

Single Figure Read	5								
	-5	-5	-5	-5	-5	-5	-5	-5	

Point Source Distance Loss

Start Distance (m)

1

End Distance (m)

5

	-14	-14	-14	-14	-14	-14	-14	-14	
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Maekawa Screening Loss

Path Difference (m)

0.359

	-8	-9	-11	-14	-17	-19	-20	-20	
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Facade Reflection

Reflection (dB)

3

	3	3	3	3	3	3	3	3	
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External Receiver

External Receiver - AP2 Day

Sound Pressure, Lp	26	20	15	12	3	-4	-4	-11	13 dBA
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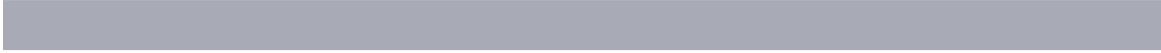




Calculation Sheet

206/1003/CS14

SF-01 Inlet to AP2 Day



	Octave Band Centre Frequency (Hz)								
	63	125	250	500	1k	2k	4k	8k	
Noise Source									
Noise Source - SF-01 Inlet									
Sound Power Levels	86	88	82	77	73	72	67	61	80 dBA

Silencer

Silencer - ATT-01

	-5	-11	-21	-33	-37	-36	-27	-18
--	----	-----	-----	-----	-----	-----	-----	-----

Rect Unlined Duct Losses CJ

Width (mm)	700							
Height (mm)	500							
Length (m)	1							
	-1	-1	0	0	0	0	0	0

End Reflection

Width/Diameter (m)	1.4							
Length (m)	0.5							
Rec or Circ - Rectangular								
Free or Flush - Flush								
	-5	-1	0	0	0	0	0	0

Point Source Radiation Loss

Radiation - Hemispherical								
Single Figure Read	8							
	-8	-8	-8	-8	-8	-8	-8	-8





206/1003/CS14

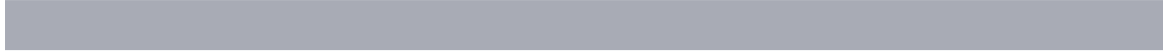
		Octave Band Centre Frequency (Hz)								
		63	125	250	500	1k	2k	4k	8k	
External Grille Directivity										
Width (m)	1.4									
Height (m)	0.5									
Vertical (°)	15									
Horizontal (°)	30									
		2	3	4	4	5	5	5	6	
Point Source Distance Loss										
Start Distance (m)	1									
End Distance (m)	6									
		-16	-16	-16	-16	-16	-16	-16	-16	
Maekawa Screening Loss										
Path Difference (m)	0.664									
		-9	-11	-13	-16	-19	-20	-20	-20	
Facade Reflection										
Reflection (dB)	3									
		3	3	3	3	3	3	3	3	
External Receiver										
External Receiver - AP2 Day										
Sound Pressure, Lp		47	46	29	11	1	0	4	7	31 dBA



Calculation Sheet

206/1003/CS15

EF-01 Outlet to AP2 Day



	Octave Band Centre Frequency (Hz)							
	63	125	250	500	1k	2k	4k	8k

Noise Source

Noise Source - EF-01 Outlet

Sound Power Levels	79	70	70	74	75	72	68	62	79 dBA
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Silencer

Silencer - ATT-02

	-3	-8	-13	-25	-23	-14	-8	-4
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Rect Unlined Duct Losses CJ

Width (mm)	600							
Height (mm)	600							
Length (m)	7							
	-5	-4	-2	-1	-1	-1	-1	-1

Bend Loss CJ

Dimension (mm)	600							
No. of Bends (no.)	1							
Type - Radiussed Bend - With Vanes								
	0	0	-1	-2	-3	-3	-3	-3

End Reflection

Width/Diameter (m)	1.2							
Length (m)	0.6							
Rec or Circ - Rectangular								
Free or Flush - Flush								
	-5	-1	0	0	0	0	0	0





206/1003/CS15

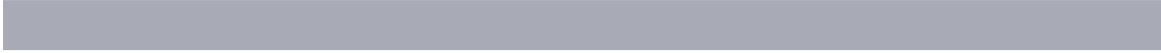
	Octave Band Centre Frequency (Hz)							
	63	125	250	500	1k	2k	4k	8k
Point Source Radiation Loss								
Radiation - Hemispherical								
Single Figure Read	8							
	-8	-8	-8	-8	-8	-8	-8	-8
External Grille Directivity								
Width (m)	1.2							
Height (m)	0.6							
Vertical (°)	0							
Horizontal (°)	90							
	1	1	1	1	-4	-7	-7	-7
Point Source Distance Loss								
Start Distance (m)	1							
End Distance (m)	17							
	-25	-25	-25	-25	-25	-25	-25	-25
Maekawa Screening Loss								
Path Difference (m)	-1							
	0	0	0	0	0	0	0	0
Facade Reflection								
Reflection (dB)	3							
	3	3	3	3	3	3	3	3
External Receiver								
External Receiver - AP2 Day								
Sound Pressure, Lp	36	28	25	16	14	17	19	17 25 dBA



Calculation Sheet

206/1003/CS16

CU-02 to AP2 Night



	Octave Band Centre Frequency (Hz)							
	63	125	250	500	1k	2k	4k	8k

Noise Source

Noise Source - CU-02

Sound Power Levels	62	60	60	61	57	55	52	45	63 dBA
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Silencer

Silencer - ENC-01

	-12	-14	-17	-19	-21	-23	-20	-19	
--	-----	-----	-----	-----	-----	-----	-----	-----	--

Point Source Radiation Loss

Radiation - Quarterspherical

Single Figure Read	5								
	-5	-5	-5	-5	-5	-5	-5	-5	

Point Source Distance Loss

Start Distance (m)

1

End Distance (m)

5

	-14	-14	-14	-14	-14	-14	-14	-14	
--	-----	-----	-----	-----	-----	-----	-----	-----	--

Maekawa Screening Loss

Path Difference (m)

0.359

	-8	-9	-11	-14	-17	-19	-20	-20	
--	----	----	-----	-----	-----	-----	-----	-----	--

Facade Reflection

Reflection (dB)

3

	3	3	3	3	3	3	3	3	
--	---	---	---	---	---	---	---	---	--

External Receiver

External Receiver - AP2 Night

Sound Pressure, Lp	26	20	15	12	3	-4	-4	-11	13 dBA
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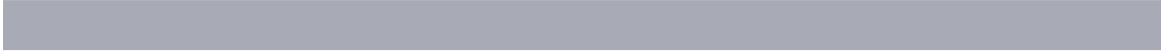




Calculation Sheet

206/1003/CS17

CU-01 to AP3 Day



	Octave Band Centre Frequency (Hz)							
	63	125	250	500	1k	2k	4k	8k

Noise Source

Noise Source - CU-01

Sound Pressure Levels @ 1m	61	57	56	52	51	42	40	37	55 dBA
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Full Conformal Area

Distance (m) 1

Type - Semi-anechoic

	13	13	13	13	13	13	13	13
--	----	----	----	----	----	----	----	----

Silencer

Silencer - ENC-01

	-12	-14	-17	-19	-21	-23	-20	-19
--	-----	-----	-----	-----	-----	-----	-----	-----

Point Source Radiation Loss

Radiation - Quarterspherical

Single Figure Read 5

	-5	-5	-5	-5	-5	-5	-5	-5
--	----	----	----	----	----	----	----	----

Point Source Distance Loss

Start Distance (m) 1

End Distance (m) 33

	-30	-30	-30	-30	-30	-30	-30	-30
--	-----	-----	-----	-----	-----	-----	-----	-----

Maekawa Screening Loss

Path Difference (m) 0.212

	-7	-8	-10	-12	-14	-17	-20	-20
--	----	----	-----	-----	-----	-----	-----	-----

Facade Reflection

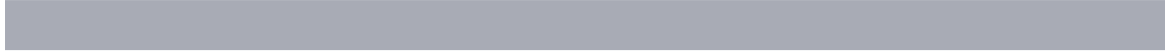
Reflection (dB) 3

	3	3	3	3	3	3	3	3
--	---	---	---	---	---	---	---	---





206/1003/CS17



	Octave Band Centre Frequency (Hz)								
	63	125	250	500	1k	2k	4k	8k	
External Receiver									
External Receiver - AP3 Day									
Sound Pressure, Lp	22	15	9	1	-4	-18	-20	-22	5 dBA



Calculation Sheet

206/1003/CS18

CU-02 to AP3 Day



	Octave Band Centre Frequency (Hz)							
	63	125	250	500	1k	2k	4k	8k

Noise Source

Noise Source - CU-02

Sound Power Levels	62	60	60	61	57	55	52	45	63 dBA
---------------------------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	---------------

Silencer

Silencer - ENC-01

	-12	-14	-17	-19	-21	-23	-20	-19	
--	-----	-----	-----	-----	-----	-----	-----	-----	--

Point Source Radiation Loss

Radiation - Quarterspherical

Single Figure Read	5								
	-5	-5	-5	-5	-5	-5	-5	-5	

Point Source Distance Loss

Start Distance (m)	1								
End Distance (m)	35								
	-31	-31	-31	-31	-31	-31	-31	-31	

Maekawa Screening Loss

Path Difference (m)	0.261								
	-7	-8	-10	-13	-15	-18	-20	-20	

Facade Reflection

Reflection (dB)	3								
	3	3	3	3	3	3	3	3	

External Receiver

External Receiver - AP3 Day

Sound Pressure, Lp	10	4	-1	-4	-12	-19	-21	-27	-3 dBA
---------------------------	-----------	----------	-----------	-----------	------------	------------	------------	------------	---------------

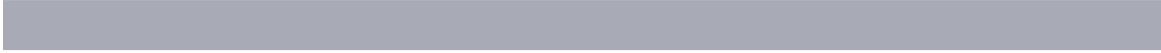




Calculation Sheet

206/1003/CS19

SF-01 Inlet to AP3 Day



	Octave Band Centre Frequency (Hz)							
	63	125	250	500	1k	2k	4k	8k

Noise Source

Noise Source - SF-01 Inlet

Sound Power Levels	86	88	82	77	73	72	67	61	80 dBA
---------------------------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	---------------

Silencer

Silencer - ATT-01

	-5	-11	-21	-33	-37	-36	-27	-18
--	----	-----	-----	-----	-----	-----	-----	-----

Rect Unlined Duct Losses CJ

Width (mm)	700							
Height (mm)	500							
Length (m)	1							
	-1	-1	0	0	0	0	0	0

End Reflection

Width/Diameter (m)	1.4							
Length (m)	0.5							
Rec or Circ - Rectangular								
Free or Flush - Flush								
	-5	-1	0	0	0	0	0	0

Point Source Radiation Loss

Radiation - Hemispherical								
Single Figure Read	8							
	-8	-8	-8	-8	-8	-8	-8	-8





206/1003/CS19

		Octave Band Centre Frequency (Hz)							
		63	125	250	500	1k	2k	4k	8k
External Grille Directivity									
Width (m)	1.4								
Height (m)	0.5								
Vertical (°)	0								
Horizontal (°)	90								
		1	1	1	1	-4	-7	-7	-7
Point Source Distance Loss									
Start Distance (m)	1								
End Distance (m)	29								
		-29	-29	-29	-29	-29	-29	-29	-29
Maekawa Screening Loss									
Path Difference (m)	-1								
		0	0	0	0	0	0	0	0
Facade Reflection									
Reflection (dB)	3								
		3	3	3	3	3	3	3	3
External Receiver									
External Receiver - AP3 Day									
Sound Pressure, Lp		41	42	26	10	-2	-6	-2	1 27 dBA



Calculation Sheet

206/1003/CS20

EF-01 Outlet to AP3 Day



	Octave Band Centre Frequency (Hz)							
	63	125	250	500	1k	2k	4k	8k

Noise Source

Noise Source - EF-01 Outlet

Sound Power Levels	79	70	70	74	75	72	68	62	79 dBA
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Silencer

Silencer - ATT-02

	-3	-8	-13	-25	-23	-14	-8	-4
--	----	----	-----	-----	-----	-----	----	----

Rect Unlined Duct Losses CJ

Width (mm)	600							
Height (mm)	600							
Length (m)	7							
	-5	-4	-2	-1	-1	-1	-1	-1

Bend Loss CJ

Dimension (mm)	600							
No. of Bends (no.)	1							
Type - Radiussed Bend - With Vanes								
	0	0	-1	-2	-3	-3	-3	-3

End Reflection

Width/Diameter (m)	1.2							
Length (m)	0.6							
Rec or Circ - Rectangular								
Free or Flush - Flush								
	-5	-1	0	0	0	0	0	0





206/1003/CS20

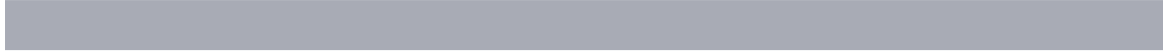
	Octave Band Centre Frequency (Hz)							
	63	125	250	500	1k	2k	4k	8k
Point Source Radiation Loss								
Radiation - Hemispherical								
Single Figure Read	8							
	-8	-8	-8	-8	-8	-8	-8	-8
External Grille Directivity								
Width (m)	1.2							
Height (m)	0.6							
Vertical (°)	10							
Horizontal (°)	0							
	2	3	4	5	6	6	6	6
Point Source Distance Loss								
Start Distance (m)	1							
End Distance (m)	26							
	-28	-28	-28	-28	-28	-28	-28	-28
Maekawa Screening Loss								
Path Difference (m)	-1							
	0	0	0	0	0	0	0	0
Facade Reflection								
Reflection (dB)	3							
	2	3	3	3	3	3	3	3
External Receiver								
External Receiver - AP3 Day								
Sound Pressure, Lp	34	26	24	17	20	26	28	26 33 dBA



Calculation Sheet

206/1003/CS21

CU-02 to AP3 Night



	Octave Band Centre Frequency (Hz)							
	63	125	250	500	1k	2k	4k	8k

Noise Source

Noise Source - CU-02

Sound Power Levels	62	60	60	61	57	55	52	45	63 dBA
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Silencer

Silencer - ENC-01

	-12	-14	-17	-19	-21	-23	-20	-19	
--	-----	-----	-----	-----	-----	-----	-----	-----	--

Point Source Radiation Loss

Radiation - Quarterspherical

Single Figure Read	5								
	-5	-5	-5	-5	-5	-5	-5	-5	

Point Source Distance Loss

Start Distance (m)

1

End Distance (m)

35

	-31	-31	-31	-31	-31	-31	-31	-31	
--	-----	-----	-----	-----	-----	-----	-----	-----	--

Maekawa Screening Loss

Path Difference (m)

0.261

	-7	-8	-10	-13	-15	-18	-20	-20	
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Facade Reflection

Reflection (dB)

3

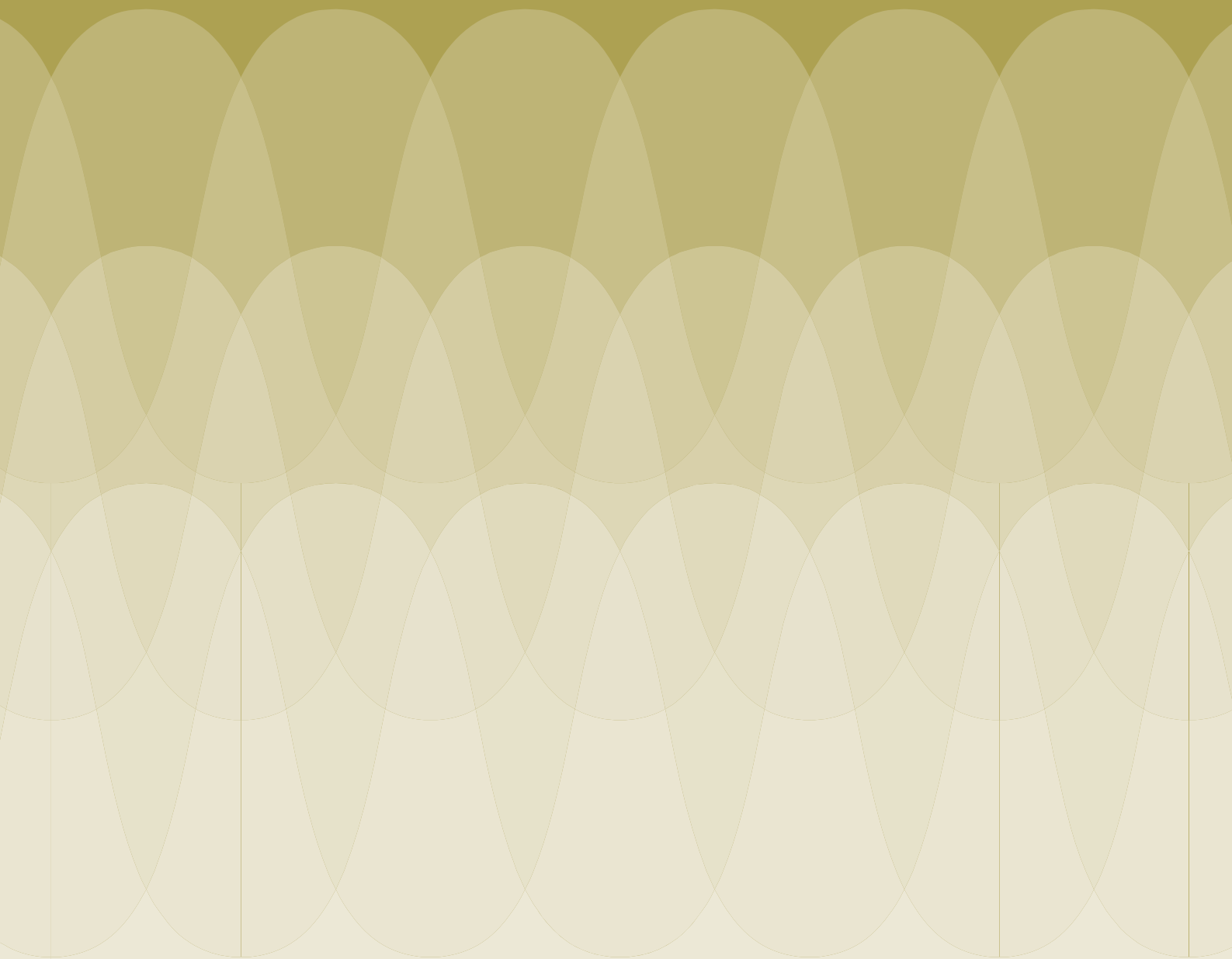
	3	3	3	3	3	3	3	3	
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External Receiver

External Receiver - AP3 Night

Sound Pressure, Lp	10	4	-1	-4	-12	-19	-21	-27	-3 dBA
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FP Pleated G4 Panel Filter

APPLICATIONS

The FP Pleated Panel is suitable for use as a pre-filter for higher grades of air filtration or for use as a simple filter for general use within air handling systems where the use of glass-fibre is unacceptable.

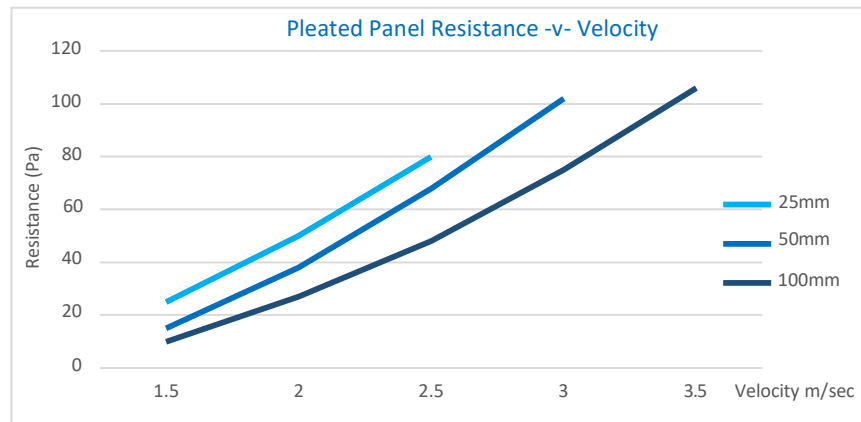
CONSTRUCTION

The FP Pleated Panel contains a core of pleated non-hygroscopic and hydrophobic fibrous media designed specifically for use in air filtration. The media is manufactured with a graded fibre density to ensure optimum and even dust retention combined with low initial resistance and is thermally bonded onto a galvanised steel support mesh for maximum physical stability. The aerodynamic pack is then fully bonded into a moisture resistant rigid white lined card frame and fitted with an airflow indicator.



- Pre-filtration with low air resistance yet maximum protection
- Available in a vast range of sizes
- Bespoke sizes readily available
- Long life and robust construction
- Fully incinerable for easy disposal
- Economical
- Made in Britain

Filter Reference	Nominal size (mm)	Rated Velocity (m/sec)	Efficiency rating (EN779)	Initial resistance at rated Velocity (pa)	Rated final resistance (pa)	Maximum Humidity	Maximum temp (°C)
FP-PL1	25	1.5	G3	25	250	80% RH	80
FP-PL2	50	2.0	G4	38	250	80% RH	80
FP-PL4	100	3.2	G4	78	250	80% RH	80



Standard Sizes & Capacities

FP Pleated G4 Panel Filter

Nominal Imperial Dimensions (inches)	Actual Metric Dimensions (mm)			Capacity (m ³ /hr)	Initial Resistance (Pa)
	H	W	D		
10x10x1	245	245	22	324	25
12x12x1	295	295	22	470	25
15x15x1	378	378	22	772	25
18x18x1	445	445	22	1,069	25
20x10x1	496	240	22	643	25
20x15x1	497	375	22	1,006	25
20x16x1	496	394	22	1,055	25
20x20x1	496	496	22	1,328	25
24x12x1	592	298	22	953	25
24x20x1	594	496	22	1,591	25
24x24x1	596	596	22	1,918	25
25x16x1	623	395	22	1,329	25
25x20x1	622	495	22	1,663	25
10x10x2	245	245	48	432	38
12x12x2	295	295	47	627	38
15x15x2	378	378	47	1,029	38
18x18x2	445	445	47	1,426	38
20x10x2	496	240	47	857	38
20x15x2	497	375	47	1,342	38
20x16x2	496	394	47	1,407	38
20x20x2	495	495	47	1,764	38
24x12x2	592	298	47	1,270	38
24x20x2	594	495	47	2,117	38
24x24x2	596	596	47	2,558	38
25x16x2	623	395	47	1,772	38
25x20x2	622	495	47	2,217	38
10x10x4	245	245	97	691	78
12x12x4	295	295	97	1,003	78
15x15x4	378	378	97	1,646	78
18x18x4	445	445	97	2,281	78
20x10x4	496	240	97	1,371	78
20x15x4	497	375	97	2,147	78
20x16x4	495	393	97	2,241	78
20x20x4	495	495	97	2,823	78
24x12x4	594	295	97	2,019	78
24x20x4	598	495	97	3,410	78
24x24x4	594	594	97	4,065	78
25x16x4	622	396	97	2,838	78
25x20x4	622	494	97	3,540	78



28/07/2022

PROPOSED VENTILATION SYSTEM AT Forfar

CONTENTS:

1.0 INTRODUCTION

2.0 PREAMBLE

3.0 INFORMATION ON PREMISES & TYPE OF OPERATION

4.0 PLANS AND DRAWINGS

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5.1 Pre-filters

5.2 Electrostatic precipitators

5.3 Odour counteracting or neutralising system

5.4 Cooker Hood details

5.5 System operation

5.6 Flue design

5.7 Noise

5.8 Maintenance

5.9 Carbon Filters

6.0 ADDITIONAL NOTES FOR GUIDANCE

APPENDIX 1 – Cold Room and Air Conditioning compressor data sheets

APPENDIX 2 – Supporting Data sheets

1.0 INTRODUCTION:

The information contained within this document should be used as supporting information when applying for Change of Use Planning Approval and is based on the 'EMAQ Annex B – Guidance on the control of odour and noise from Commercial Kitchen Exhaust system – Jan 05'. This follows feedback from various Local Authorities who use Annex B as a guide when referring to the extract system as part of the application process.

Annex B advises that the aim of any ventilation/extraction is to ensure that no nuisance, disturbance or loss of amenity is caused by odour, fumes, food droplets or noise, to nearby properties.

Additionally, the visual appearance of the flue may be important and the flue itself may require a separate planning permission. Enquiries should be made to the Local Authority Planning Department regarding this matter.

A suitably qualified and experienced person with specialist knowledge of

ventilation schemes should undertake the design and installation of a ventilation system.

Designing and installing appropriate ventilation systems may involve considerable expense.

In circumstances where the end user of the premises is unknown, or where the specific type of food to be cooked is unknown, the installation should be designed to achieve the highest level of odour control in order to cater for a worst case scenario.

There are many different types of odour abatement available (carbon filters, electrostatic precipitation, high dilution and high velocity extraction) however not all types are suitable for all cooking methods. In each case, grease filters must be installed.

2.0 PREAMBLE

All work is carried out in accordance with the latest relevant British (or Irish regulations where applicable) and European Standards, statutory Regulation and ByeLaws together with the following publications:

- CIBSE Codes and guides to current practice
- Water Authority Bye Laws
- HVCA – DW143 Practical Guide to Ductwork Leakage Testing
- HVCA DW144 Specification for Sheet Metal Ductwork
- HVCA DW172 Guide to Good Practice for Kitchen Ventilation Systems
- HVCA – RUAG70 Guide to Good Practice Refrigeration
- TR19 – Duct & Kitchen extract cleaning systems
- The Building Regulations
- Gas Safety (Installation and Use) Regulations 1998

All plant, ducts, pipe cables etc. shall be adequately protected against accidental damage corrosion and external environment and shall be capable of safe decontamination and removal in the future without disturbing other services. Pipes and ducts shall be adequately sized, kept as short as practicable, leak-proof with a minimum number of joints and have provision for routine maintenance. All facilities shall be designed to prevent the ingress or egress of rodents, vermin, and insects.

The duct will be fixed to the shell of the unit using anti-vibration fixing mounts and under no circumstances will flexible ductwork be used other than the fan connections

The HVAC contractor shall supply the client with system design drawings, prior to manufacture and installation

For projects in England and Wales, the HVAC contractor shall also demonstrate compliance with Building Regulations Approved documents L2A & L2B. This will include:

- (a) Provision of details of the efficiency and controls of heating , cooling and ventilation systems in accordance with Non-Domestic Heating, Cooling and Ventilation compliance Guide (2006)
- (b) Provision of commissioning certificates including air leakage tests on the ductwork

Fire/smoke dampers shall be installed in all fire compartment walls to Building Control requirements

The HVAC contractor shall ensure that externally, the ductwork conforms to the supplied drawings in terms of its route, height and termination. These drawings will have formed part of the planning permission and must not be deviated from without prior consultation with the Project Manager / Architect.

Upon completion of the installation, all shall be fully tested and proved including airflows. The Contractor shall produce an Operating and Maintenance Manual which shall contain details of all equipment supplied; a record drawing of the complete mechanical services installation and copies of all Test Certificates. It shall contain a Maintenance Schedule based on the manufacturer's recommendations.

3.0 INFORMATION ON TYPE OF OPERATION

The proposed operation will produce approximately 100 meals on average per day.

The proposed hours of operation of the business and ventilation plant will be in accordance with the hours stated in the approved Change of Use

4.0 PLANS AND DRAWINGS

Please refer to drawing **Dominos - Houghton Regis_01-A3** of the proposed premises which shows the indicative internal arrangement and location of the ventilation system.

A schematic drawing produced by the HVAC Designer will be provided at a later date.

5.0 DETAILED DESIGN OF VENTILATION SYSTEM

5.1 Pre-filters (fresh air system)

A copy of the manufacturer's product data sheet should be supplied clearly showing:

- Manufacturer's name: **Ace Filtration**
- Filter name and product code: **Type 90 and VL2 Panel Filter**
- Dimensions of the pre-filter: **45mm thick (rated airflow 2.0m/s) see data sheets**
- Nature of the filter media: **Disposable glass fibre media**
- Manufacturer's recommendations on the frequency and type of maintenance of the pre-filter having regard to the conditions that it will be used under: **3 monthly maintenance**

5.2 Electrostatic precipitators

Ry5000

5.3 Odour counteracting or neutralising system

3 of G4 Panel Filters

18 of Site Safe Carbons

5.4 Cooker hood

The following information on the characteristics of the cooker hood should be supplied that clearly shows:

- The hood will be made of: **Stainless Steel construction with all visible joints to be welded, ground and polished and to incorporate a gutter around all edges with a plugged drain connection at lowest point.**
- Length that the cooker hood overhangs the appliances: **300mm all round**
- Face velocity at the cooker hood (metres per second): **0.25cu/m/s**
- Dimensions of the opening of the cooker hood= **2m x 3m**

The hood will include 6 no. baffle type grease filters, aluminium frame.

- Manufacturer's name: **Ace Filtration**
- Filter name and product code: **Model AF111 450x450mm Baffle type filters**

The extract system is predominantly removing heat and gas combustion fumes. Mesh filters are much more efficient at removing any fine particles which may be caught in the air flow.

There is not barrier to flame within the filter, and it is accepted that mesh filters cannot therefore be used on their own in applications where there is appreciable risk of fire. However this does not apply in this operation.

5.5 System Operation

In addition to the specification of the components the following must be provided about the system:

- Proposed extract rate (expressed as m³/second): **1.5m³/s**
- Dwell time of the gases in the carbon filtration zone: **0.4s**
- Volume of the kitchen: **based on average prep area size of 100 - 150cu/m**
- Efflux velocity: **11m/s**

Note: The system performance is dependant upon the extract rate of the air. Where the rate can be adjusted by the use of dampers or a variable speed fan, then the conditions under which the extract rate can be achieved must be described.

5.6 Flue Design

The height and velocity of the final discharge are the two important factors. Generally, the greater the flue height, the better the dispersion and dilution of odours. The discharge of air should be at a minimum height of 1m above the roof ridge, especially if there are buildings nearby that may affect odour dispersion and dilution.

Where this is not possible (e.g. because of ownership or structural constraints), additional techniques will be required in order to reduce odours, such as an increase in efflux velocity and additional filters, etc. The final discharge should be vertically upwards, unimpeded by flue terminals. The number of bends in the ducting should be minimised and the ducting should have a smooth internal surface.

Details of proposal: **Proposed new 500mm dia. galvanised oven extract duct**



to run internally above suspended ceiling onto ESP Unit. Followed by a carbon filter unit complete with 3 of g4 panel filters & 18 of site safe carbons. Extract system to be fitted with atmospheric side silencers with extract fan fixed to anti-vibration mounts to M&E specialist sub-contractor's design and detail. Extract system to be fitted with fine ESP, filtration and carbon filters in accordance with AVE Ltd EMAQ report reference.

5.7 Noise

Data on the noise produced by the system as a whole should be provided including:

- Sound power levels or sound pressure levels at given distances (the assumptions to this calculation must be clearly stated);
- An octave band analysis of the noise produced by the system should also be provided, where possible; and
- Hours of operation of the ventilation system (where this differs from the hours of opening).

This information is site dependent and can only be achieved once the system is designed and installed. Please refer to Appendix 1 for data sheets regarding the fans for more information.

5.8 Maintenance

A schedule of maintenance must be provided including details for:

- Cleaning of washable grease filters: **Weekly**
- Removal & replacement of ESP filters: **6 monthly**
- Frequency of inspection and replacement of all filters (grease filters, prefilters where proposed): **Monthly**
- Frequency of replacement of carbon filters where proposed): **6 Monthly**
- Inspection and servicing of fans: **Bi-annually**

Please note that the HVAC contractor will provide 12 months spare filters at each new store.

5.9 Carbon Filters

Please refer to AVE risk assessment and specification document reference **Dominos - Forfar_EMAQ Risk Assessment** dated **28/07/2022**. Please contact AVE Ltd directly for any additional information with regards to oven extract filtration details / specification. Contact details as follows:

Contract: Josh

Telephone: 01444 230010

6.0 Additional notes for guidance

The air inlets must not permit pests to enter the kitchen. Fly screens are an example of how this can be achieved.

Sufficient air must be permitted into the premises to replace air extracted. The method for supplying this make-up air should be detailed. The route of the air into the kitchen must not result in its contamination, for example passage through a toilet. Separate provision must be made for ventilation of a toilet.



There must be sufficient access points to permit adequate cleaning of all the ductwork.

Fresh air is introduced via a dedicated air handling unit to supply 80% of the extracted air, fresh air filtered to EU4 – tempered via a low pressure hot water coil - is introduced via ceiling mounted diffusers to the preparation / office and wash-up areas.

APPENDIX 1

COLDROOM AND AIR CONDITIONING COMPRESSORS

AIR CONDITIONING

COLD ROOM

Model

(typical unit)

Mitsubishi H.I.

FDC 100VNX

Model

(typical unit)

Karbox 2464

Dimensions W 970mm

D 350mm

H 1300mm

Dimensions

W 890

D 560

H 500

Weight 105 kg **Weight** 78 kg

Airflow 1620 cu.m/h **Compressor** Model CAJ2464

34.5cm³

9.7 MRA

38 LRA

Current Start N/A

Max running

current 11.1A

Refrigerant

Connections

Suction

15.9mm

Liquid

9.5mm

Capacity Cool 10.0 kW

Heat 11.2 kW

Condenser Fan



AC27
All Ventilation & Extraction Ltd

Unit 7 – Avocet Trading Estate

Victoria Gardens

Burgess Hill, West Sussex

RH15 9NH

Tel: 01444 230010

sales@ave-ltd.com | www.ave-ltd.com

Motor

220-1

Volts/Phase

0.6 Amps each

2800 m³/hr Air

Flow

Noise 50 dBA @ 1m **Watts** 4-6kW

Electrical Details 16 MRA

38 LRA

Noise 34dBA @ 10m

APPENDIX 2

PRODUCT DATA SHEETS

- RY5000 ESP
- G4 Panel (Extract pre filter)
- G4 Bag Filter (Extract pre filter)
- Site Safe Carbons (Extract Odour control)
- System Air – Water heated air handling unit (Fresh Air Intake)
- System Air – Attenuator for fresh air intake
- System Air – Attenuator for extract air intake
- Ace Filtration – Model AF111 394x394mm Baffle type filters (Canopy Filters)
- Systemair – 560 EC acoustic box fan (Extract Fan)
- AVE Ltd – Square flexible anti vibe connections for both extract and Fresh air intake fans



28/07/2022

Forfar

Job Reference: Dominos - Forfar

Risk Assessment for Odour

The following 'Risk Assessment for Odour' has derived from criteria outlined by EMAQ, Guidance on the Control of Odour and Noise from Commercial Kitchen Exhaust Systems Appendix C. The assessment has been undertaken by Plasma Clean to accurately score the site to EMAQ standards.

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/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

Based on the sum of contributions from dispersion, proximity of receptors, size of kitchen and cooking type:

Criteria	Rating	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	Moderate 10 Discharging 1m above eaves at 10 -15m/s
	Good	5	5 Discharging 1m 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/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, Chinese or Pizza
	Low	1	Most pubs, Italian, French, Pizza or Steakhouse

Below is an evaluation for the site based on the criteria on the previous page. Please fill out 'Score' column sign and date at the bottom of the document and send back to us.

Criteria	Rating	Score	Details/ Comments
Dispersion	High	20	
Proximity of Receptors	High	10	
Size of Kitchen	Medium	3	
Cooking Type	Medium	4	

Impact Risk	Odour Control Requirement	Significance Score
VERY HIGH	3 Stage filtration; ESP, Panel filters, carbon filters	37

Notes:	
---------------	--

**All Ventilation & Extraction Ltd
Representative:**

Josh Taylor
.....

Signature:

Josh Taylor
.....

Date:

28/07/2022
.....

Customer:

.....

Signature:

.....

Date:

.....

LDR 70-40 Silencer

Item Number: 5074

Silencer

Easily-fitted silencer immediately before or after the KE, KT, RS and RSI rectangular duct fans. Effectively suppresses noise transmitted to the duct. The silencer should be used together with an insulated fan where there is a requirement for noise suppression both in the duct and in the surroundings as a whole. All silencers are supplied with a universal flange suitable for PG flange or Metu profile.

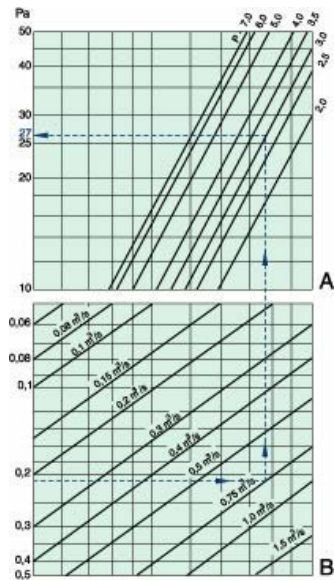


Technical parameters

Dimensions and weights		
Rectangular, height, inlet	400 x 700	mm
Rectangular, width, inlet	400 x 700	mm
Rectangular, height, outlet	400 x 700	mm
Rectangular, width, outlet	400 x 700	mm
Weight	25.1	kg

Others	
Duct connection type	Rectangular

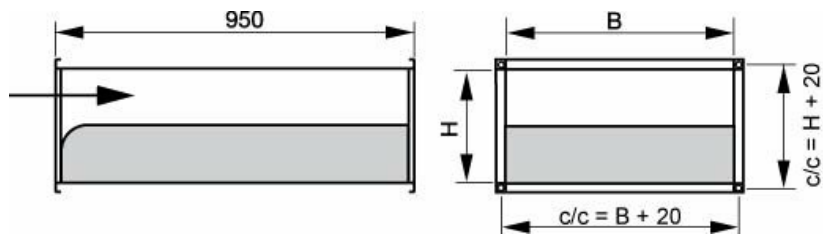
Performances



Front area m ²	P
LDR 30-15	0.045 3.5
LDR 40-20	0.08 3.6
LDR 50-25	0.125 3.7
LDR 50-30	0.15 3.3
LDR 60-30	0.18 3.3
LDR 60-35	0.21 3.0
LDR 70-40	0.28 3.1
LDR 80-50	0.40 3.6
LDR 100-50	0.50 3.6

Pressure drop calculation for rectangular silencers These calculations apply only if the silencer is connected to a duct at both ends. Example: Calculation of pressure drop for the LDR 60-35 (with dan model RSI 60-35 M3~) using the diagram to the right. 1. Start by defining the front area, see the table below. 2. Move horizontally to the right until you reach the designated air flow in diagram B. 3. Go up vertically to diagram A and the correct p value (see the table). 4. Then continue horizontally to the left and read off the pressure drop. In this example, the pressure drop is 27 Pa.

Dimension



	B	H	
LDR 30-15	300	150	10 kg
LDR 40-20	400	200	13 kg
LDR 50-25	500	250	17 kg
LDR 50-30	500	300	19 kg
LDR 60-30	600	300	21 kg
LDR 60-35	600	350	23 kg
LDR 70-40	700	400	27 kg
LDR 80-50	800	500	34 kg
LDR 100-50	1000	500	41 kg

Acoustic

Noise suppression dB (mid-frequency Hz)

	125	250	500	1k	2k	4k	8k
LDR 30-15	7	15	18	25	25	19	19
LDR 40-20	5	9	15	23	16	12	10
LDR 50-25	10	15	25	25	20	15	12
LDR 50-30	8	15	20	31	17	14	11
LDR 60-30	8	15	20	31	17	14	11
LDR 60-35	7	13	17	18	13	10	8
LDR 70-40	7	11	14	14	10	8	6
LDR 80-50	6	8	10	11	8	6	3
LDR 100-50	6	8	10	11	8	6	3

Site-safe Discarb cells

APPLICATIONS

Suitable for most gas-phase filtration applications including:

- Catering
- Museums
- Archives
- Airport buildings
- Ozone reduction
- VOC removal
- Mortuary
- Medical
- Pharmaceuticals
- Micro-electronics
- Sewerage Plants
- General odour removal

CONSTRUCTION

The integral activated bonded carbon panels are manufactured in high grade carbon granules using a unique bonding technique that removes the necessity for post carbon filters. Each internal panel is housed in its own surrounding frame and then bonded into the main outer case in a multiple 'V' formation. The individual outer casings can be simply slid together on site to form a leak free efficient Discarb cell.



- Gas Phase modular filtration
- Safe weight & size for site handling
- Retrofits heavy single Discarb cells
- Wide range of sizes & types
- Suits numerous applications
- High adsorption
- Non-dusting robust construction
- Made in Britain

Our Ref (Full set)	Full sized Discarb dimensions HxWxD (mm)	Tri-safe cell Dimensions HxWxD (mm)	No. of cells to construct full sized Discarb	Individual cell Carbon Weight (kg)	Individual Cell Total Weight (kg)	Cell Rated Capacity (m ³ /hr) at 0.1 secs dwell time *	Discarb Rated Capacity (m ³ /hr) at 0.1 secs dwell time*
Site-safe 18x18x12	445x445x297	445x222x297	2	6.5	7.85	495	990
Site-safe 24x12x12	594x295x297	594x147x297	2	6.5	7.85	990	1980
Site-safe 24x24x12	594x594x297	594x198x297	3	8.4	9.70	633	1900
Site-safe 18x18x18	445x445x451	445x222x451	2	9.5	10.85	722	1444
Site-safe 24x12x18	594x295x451	594x147x451	2	9.0	10.35	685	1370
Site-safe 24x24x18	594x594x451	594x198x451	3	12.0	13.35	915	2745
Site-safe 18x18x24	445x445x597	445x222x597	2	12.5	13.85	950	1700
Site-safe 24x12x24	594x295x597	594x147x597	2	12.5	13.85	950	1700
Site-safe 24x24x24	594x594x597	594x198x597	3	16.9	19.45	1266	3800

Note * Dwell time is the contact time that the air is within the carbon matrix

Application	Recommended Dwell Time	Grade	Ref
Cooking - Spicy, Indian	0.2 < 0.4 Seconds	General Purpose Activated Carbon	-7C
Reduction of Kerosene Exhaust fumes	0.1 < 0.2 Seconds	General Purpose Activated Carbon	-7C
Reduction of Ozone	0.1 < 0.2 Seconds	General Purpose Activated Carbon	-7C
Reduction of Diesel Fumes	0.2 Seconds	5% Copper Treated Carbon	-9M
Reduction of H ₂ S, SO ₂ , NO ₂ , HCl	0.2 Seconds	5% Copper Treated Carbon	-9M
Museum and Archives protection	0.2 Seconds	5% Copper Treated Carbon	-9M
Mortuary / formaldehyde reduction	0.4 Seconds	Mortuary Grade	-MO
Ammonia Neutralisation	0.3 seconds	Ammonia Grade	-AM

Maximum Operating Temperature 40°C Maximum Humidity 80%RH

VBR 70-40-3 WATER HEATING BATT

Item no. 5476

Document type: **Product card**
 Document date: **2019-03-12**
 Generated by: **Systemair Online Catalogue**

Description

Water-heating battery

Water-heating battery for heating air in ventilation systems with rectangular ducts. Hot-zinc-coated casing, heat transmission element with copper tubes and aluminium fins. In cold conditions, a frost protection device with sensor should be fitted to reduce the risk of damage from freezing. The water-heating battery can be installed in a horizontal or vertical duct with an optional direction.



Technical parameters

Max. operating temperature	150	°C
Max. operating pressure, at water temp. 100°C	1600000 (16bar)	Pa
Max. operating pressure, at water temp. 150°C	1000000 (10bar)	Pa

Accessories

Electric accessories

- [AQUA 24TF Heat Regulator \(5136\)](#)
- [TG-A130 Surface sensor 0-30°C \(5159\)](#)
- [TG-K330 Duct Sensor 0-30°C \(5160\)](#)
- [TG-D1/PT1000 Immersion sensor \(6773\)](#)
- [RVAZ4-24 Actuator 3points \(9798\)](#)
- [RVAZ4 24A Actuator 0-10V \(9862\)](#)

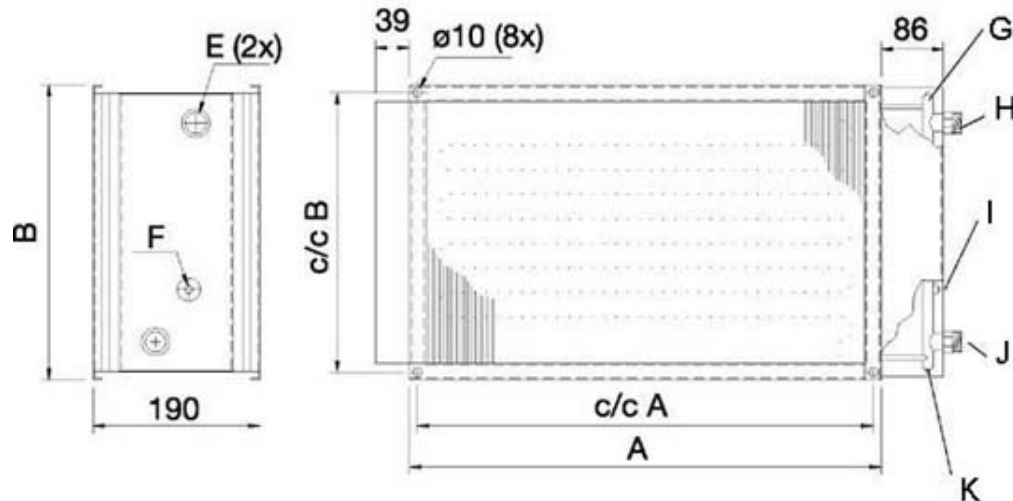
Accessories

- [ZTV 20-6,0 2-way valve \(9827\)](#)
- [ZTR 20-6,0 valve 3-way \(9679\)](#)

Dimensions

VBR XX-XX-2 = Two pipe rows
 VBR XX-XX-4 = Four pipe rows
 VBR XX-XX-3 = Three pipe rows

F= Thread G 1/4
 G= Airing
 H= Water out
 I= Connection for immersion sensor
 J= Water in
 K= Draining




	A	c/c A	B	c/c B	E	
VBR 40-20-2	438	420	238	220	R ^{3/4} "	5.5 kg
VBR 50-25-2	538	520	288	270	R ^{3/4} "	7 kg
VBR 50-30-2	538	520	338	320	R ^{3/4} "	8 kg
VBR 60-30-2	638	620	338	320	R ^{3/4} "	9 kg
VBR 60-35-2	638	620	388	370	R ^{3/4} "	10 kg
VBR 70-40-2	738	720	438	420	R 1"	12.5 kg
VBR 80-50-2	838	820	538	520	R 1"	16 kg
VBR 100-50-2	1038	1020	538	520	R 1"	18.5 kg

	A	c/c A	B	c/c B	E	
VBR 40-20-4	438	420	238	220	R ^{3/4} "	7 kg
VBR 50-25-4	538	520	288	270	R ^{3/4} "	9 kg
VBR 50-30-4	538	520	338	320	R 1"	10.5 kg
VBR 60-30-4	638	620	338	320	R 1"	11.5 kg
VBR 60-35-4	638	620	388	370	R 1"	13 kg

	A	c/c A	B	c/c B	E	
VBR 70-40-3	738	720	438	420	R 1"	15.5 kg
VBR 80-50-3	838	820	538	520	R 1"	19 kg
VBR 100-50-3	1038	1020	538	520	R 1"	22.5 kg

Documentation

 VBR_172010.PDF (503,91kB)

 Conformity_decl. PGK_VBR(PGV)_VBC(CWW)_CWK.pdf (17,06kB)

Coil calculation

DEVELOPMENT MANAGEMENT REVIEW COMMITTEE
APPLICATION FOR REVIEW – 35E ST JAMES ROAD, FORFAR
APPLICATION NO 21/00993/FULL
APPLICANT’S SUBMISSION

Page No

ITEM 1	Notice of Review
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ITEM 4	Site Plan
ITEM 5	Existing Plan and Elevations
ITEM 6	Proposed Site Plan
ITEM 7	Proposed Plan
ITEM 8	Proposed Elevations
ITEM 9	Plant Noise Assessment
ITEM 10	EMAQ Risk Assessment
ITEM 11	Proposed Ventilation System and Appendices



Angus House Orchardbank Business Park Forfar DD8 1AN Tel: 01307 473360 Fax: 01307 461 895 Email: plnprocessing@angus.gov.uk

Applications cannot be validated until all the necessary documentation has been submitted and the required fee has been paid.

Thank you for completing this application form:

ONLINE REFERENCE 100517525-005

The online reference is the unique reference for your online form only. The Planning Authority will allocate an Application Number when your form is validated. Please quote this reference if you need to contact the planning Authority about this application.

Applicant or Agent Details

Are you an applicant or an agent? * (An agent is an architect, consultant or someone else acting on behalf of the applicant in connection with this application)

Applicant Agent

Agent Details

Please enter Agent details

Company/Organisation:	JON FRULLANI ARCHITECT		
Ref. Number:		You must enter a Building Name or Number, or both: *	
First Name: *	JON	Building Name:	
Last Name: *	FRULLANI	Building Number:	140
Telephone Number: *	01382224828	Address 1 (Street): *	Perth Road
Extension Number:		Address 2:	
Mobile Number:		Town/City: *	Dundee
Fax Number:		Country: *	United Kingdom
		Postcode: *	DD1 4JW
Email Address: *	jon@jfarchitect.co.uk		

Is the applicant an individual or an organisation/corporate entity? *

Individual Organisation/Corporate entity

Applicant Details

Please enter Applicant details

Title:	<input type="text" value="Other"/>	You must enter a Building Name or Number, or both: *	
Other Title:	<input type="text"/>	Building Name:	<input type="text"/>
First Name: *	<input type="text"/>	Building Number:	<input type="text" value="110"/>
Last Name: *	<input type="text"/>	Address 1 (Street): *	<input type="text" value="West George Street"/>
Company/Organisation	<input type="text" value="Joup Property Limited"/>	Address 2:	<input type="text"/>
Telephone Number: *	<input type="text"/>	Town/City: *	<input type="text" value="Glasgow"/>
Extension Number:	<input type="text"/>	Country: *	<input type="text" value="Scotland"/>
Mobile Number:	<input type="text"/>	Postcode: *	<input type="text" value="G2 1QJ"/>
Fax Number:	<input type="text"/>		
Email Address: *	<input type="text" value="jon@jfarchitect.co.uk"/>		

Site Address Details

Planning Authority:	<input type="text" value="Angus Council"/>
Full postal address of the site (including postcode where available):	
Address 1:	<input type="text" value="35E ST JAMES ROAD"/>
Address 2:	<input type="text"/>
Address 3:	<input type="text"/>
Address 4:	<input type="text"/>
Address 5:	<input type="text"/>
Town/City/Settlement:	<input type="text" value="FORFAR"/>
Post Code:	<input type="text" value="DD8 1LN"/>

Please identify/describe the location of the site or sites

Northing	<input type="text" value="750129"/>	Easting	<input type="text" value="345471"/>
----------	-------------------------------------	---------	-------------------------------------

Description of Proposal

Please provide a description of your proposal to which your review relates. The description should be the same as given in the application form, or as amended with the agreement of the planning authority: *
(Max 500 characters)

Change of use to from a hot food takeaway with associated works

Type of Application

What type of application did you submit to the planning authority? *

- Application for planning permission (including householder application but excluding application to work minerals).
- Application for planning permission in principle.
- Further application.
- Application for approval of matters specified in conditions.

What does your review relate to? *

- Refusal Notice.
- Grant of permission with Conditions imposed.
- No decision reached within the prescribed period (two months after validation date or any agreed extension) – deemed refusal.

Statement of reasons for seeking review

You must state in full, why you are seeking a review of the planning authority's decision (or failure to make a decision). Your statement must set out all matters you consider require to be taken into account in determining your review. If necessary this can be provided as a separate document in the 'Supporting Documents' section: * (Max 500 characters)

Note: you are unlikely to have a further opportunity to add to your statement of appeal at a later date, so it is essential that you produce all of the information you want the decision-maker to take into account.

You should not however raise any new matter which was not before the planning authority at the time it decided your application (or at the time expiry of the period of determination), unless you can demonstrate that the new matter could not have been raised before that time or that it not being raised before that time is a consequence of exceptional circumstances.

Please see attached supporting appeal statement, ref: 6715_P_Appeal Statement_A4

Have you raised any matters which were not before the appointed officer at the time the Determination on your application was made? *

Yes No

If yes, you should explain in the box below, why you are raising the new matter, why it was not raised with the appointed officer before your application was determined and why you consider it should be considered in your review: * (Max 500 characters)

Please provide a list of all supporting documents, materials and evidence which you wish to submit with your notice of review and intend to rely on in support of your review. You can attach these documents electronically later in the process: * (Max 500 characters)

206-1003 R1-1 22.07.26 Plant Noise Assessment 6715_P_300_-_Location Plan_A4 6715_P_301_-_Site Plan_A4 6715_P_302_-_Existing Plan and Elevations_A4 6715_P_303_-_Proposed Site Plan_A4 6715_P_303_a_Proposed Site Plan_A4 6715_P_304_-_Proposed Plan_A3 6715_P_305_-_Proposed Elevations_A3 6715_P_Appeal Statement_A4 Anti Vibe - Canvas Connection Carbon Discarb Cells Dominos - Forfar_DEFRA_Risk Assessment Dominos - Forfar_EMAQ_Risk Assessment Dominos Forfar 001-A3 Plus further info.

Application Details

Please provide the application reference no. given to you by your planning authority for your previous application.

21/00993/FULL

What date was the application submitted to the planning authority? *

22/12/2021

What date was the decision issued by the planning authority? *

20/10/2022

Review Procedure

The Local Review Body will decide on the procedure to be used to determine your review and may at any time during the review process require that further information or representations be made to enable them to determine the review. Further information may be required by one or a combination of procedures, such as: written submissions; the holding of one or more hearing sessions and/or inspecting the land which is the subject of the review case.

Can this review continue to a conclusion, in your opinion, based on a review of the relevant information provided by yourself and other parties only, without any further procedures? For example, written submission, hearing session, site inspection. *

Yes No

In the event that the Local Review Body appointed to consider your application decides to inspect the site, in your opinion:

Can the site be clearly seen from a road or public land? *

Yes No

Is it possible for the site to be accessed safely and without barriers to entry? *

Yes No

Checklist – Application for Notice of Review

Please complete the following checklist to make sure you have provided all the necessary information in support of your appeal. Failure to submit all this information may result in your appeal being deemed invalid.

Have you provided the name and address of the applicant?. *

Yes No

Have you provided the date and reference number of the application which is the subject of this review? *

Yes No

If you are the agent, acting on behalf of the applicant, have you provided details of your name and address and indicated whether any notice or correspondence required in connection with the review should be sent to you or the applicant? *

Yes No N/A

Have you provided a statement setting out your reasons for requiring a review and by what procedure (or combination of procedures) you wish the review to be conducted? *

Yes No

Note: You must state, in full, why you are seeking a review on your application. Your statement must set out all matters you consider require to be taken into account in determining your review. You may not have a further opportunity to add to your statement of review at a later date. It is therefore essential that you submit with your notice of review, all necessary information and evidence that you rely on and wish the Local Review Body to consider as part of your review.

Please attach a copy of all documents, material and evidence which you intend to rely on (e.g. plans and Drawings) which are now the subject of this review *

Yes No

Note: Where the review relates to a further application e.g. renewal of planning permission or modification, variation or removal of a planning condition or where it relates to an application for approval of matters specified in conditions, it is advisable to provide the application reference number, approved plans and decision notice (if any) from the earlier consent.

Declare – Notice of Review

I/We the applicant/agent certify that this is an application for review on the grounds stated.

Declaration Name: Mr JON FRULLANI

Declaration Date: 28/11/2022



CHANGE OF USE TO FORM A HOT FOOD TAKEAWAY WITH ASSOCIATED WORKS AT 35E ST JAMES ROAD, FORFAR DD81LN

REVIEW STATEMENT

Town and Country Planning(Scotland) Act 1997 as amended
Planning Application Ref: 21/00993/FULL
Appellant: Joup Property Ltd
Date: November 2022

Contents

- 1.0 Introduction
- 2.0 Review Site
- 3.0 Proposal
- 4.0 Public Participation
- 5.0 Policy Framework
- 6.0 Evaluation of Reasons for Refusal
- 7.0 Conclusion

t: 01382 224 828

e: jon@jfarchitect.co.uk

w: jfarchitect.co.uk

f: facebook.com/jfarchitect

a: 140 Perth Road, Dundee, DD1 4JW

1.0 INTRODUCTION

Joup PropertyLtd (“the Appellants”) submitted a planning application to Angus Council (“the Council”) seeking planning permission for the change of use to form a hot food takeaway with associated works at 35E St James Road, Forfar (“Review Site”).

The application was received and validated on 22 December 2021. The application was refused planning permission under delegation on 20 October 2022.

The decision notice for planning application ref: 21/00993/FULL cites the following reasons for refusal:

- 1. The proposal does not comply with the locational guidance for the siting of hot food takeaways provided in Angus Council Advice Note 2/2018 and is likely to give rise to unacceptable adverse impacts on the amenity of those that live in the area contrary to Policies DS1 and DS4 of the Angus Local Development Plan.*
- 2. It has not been demonstrated that the proposed hot food takeaway could operate from the premises in a manner that would not give rise to unacceptable odour impacts on the occupants of nearby residential property and as such the proposal is contrary to Policies DS1 and DS4 of the Angus Local Development Plan, and Angus Council Advice Note 2/2018.*

The Appellants submit that there is no evidence to support refusal of the application on the grounds of a breach of the Angus Local Development Plan (2016) and that planning permission ought to be granted for the reasons set out within this ReviewStatement.

2.0 REVIEW SITE

The review site comprises 35E St James Road which is a detached single storey flat roofed building.

The building has a footprint of 86sqm and occupies a site measuring 266sqm in area. The building is located against the south boundary of the site with a hardstanding area to the north of the building and an external area to the east as illustrated by the Site Location Plan in Figure 1.

The review site was most recently used as a Class 1 Retail shop selling convenience goods. The shop operated from early in the morning till late at night without restriction. The property is located in an area which is predominantly residential in character, with housing located to the immediate south and east with housing also located to the north on the opposite side of St James Road and to the west beyond a pedestrian footway that connects St James Road to View Mount. In close proximity to the review site are hot food takeaways, a public house and Asda superstore as well as a textile fabrication company and associated haulage yard. While the predominant land use surrounding the site is residential there are significant commercial uses interspersed through out the area that sit cheek by jowl with housing.

t: 01382 224 828  e: jon@jfarchitect.co.uk

w: jfarchitect.co.uk f: facebook.com/jfarchitect a: 140 Perth Road, Dundee, DD1 4JW

3.0 PROPOSAL

Planning permission is sought for the change of use to a hot food takeaway including alterations to the building to enable the operation of the new use. Internally a counter and waiting area would be formed to the front of the premises with food preparation and cooking areas. To the rear of the building walk in cold and dry stores would be formed along with a wash area and w/c. A ventilation system to discharge cooking odours would also be installed within the property.

Externally, the building would be extended 2m forward in a northerly direction and four large glazing panels, along with a glazed access door would be installed in the new north elevation.

The oven extract vent would also be located in the north (front) elevation. A fresh air intake vent is proposed in the east elevation. An air conditioning unit and cold room compressor would be sited adjacent to the east elevation and an external yard area with an area of 11sqm would be formed to the east of the building and enclosed by close boarded timber fencing. Three off street parking spaces would be created to the north of the building with access to these by a new dropped kerb from the public road.

4.0 PUBLIC PARTICIPATION

In assessing planning application ref: 21/00993/FULL the Council followed the statutory neighbour notification procedure. The application was also advertised in the Dundee Courier on 7 January 2022 as a Schedule 3 Bad Neighbour development.

10 letters of representation were received by the Council, of which 2 offered comments which neither supported nor objected to the proposal, 4 objected to the proposal and 4 supported the proposal.

5.0 POLICY FRAMEWORK

Development Plan

The Development Plan for the area comprises the TAYplan Strategic Development Plan 2016-2036 and the Angus Local Development Plan 2019.

TAYplan Strategic Development Plan 2016-2036

TAYplan sets out a vision for how the region will be in 2036 and what must occur to bring about change to achieve this vision. The vision for the area as set out in the plans states that:

“By 2036 the TAYplan area will be sustainable, more attractive, competitive and vibrant without creating an unacceptable burden on our planet. The quality of life will make it a place of first choice where more people choose to live, work, study and visit, and where businesses choose to invest and create jobs.”

t: 01382 224 828

e: jon@jfarchitect.co.uk

w: jfarchitect.co.uk

f: facebook.com/jfarchitect

a: 140 Perth Road, Dundee, DD1 4JW

Angus Local Development Plan (ALDP) (2016)

The principal relevant policies are, in summary;

- Policy DS1 : Development Boundaries and Priorities
- Policy DS4 : Amenity

Other Policies

Planning Advice Note 2/2018 Hot Food Takeaways

6.0 EVALUATION OF REASONS FOR REFUSAL

On 20 October 2022 the Council refused planning application ref: 20/00993/FULL on grounds that the proposal is contrary to the Angus Local Development Plan(2016) Policies DS1 and DS4 as articulated by Reasons for Refusal 1 and 2 below.

- 1. The proposal does not comply with the locational guidance for the siting of hot food takeaways provided in Angus Council Advice Note 2/2018 and is likely to give rise to unacceptable adverse impacts on the amenity of those that live in the area contrary to Policies DS1 and DS4 of the Angus Local Development Plan.*
- 2. It has not been demonstrated that the proposed hot food takeaway could operate from the premises in a manner that would not give rise to unacceptable odour impacts on the occupants of nearby residential property and as such the proposal is contrary to Policies DS1 and DS4 of the Angus Local Development Plan, and Angus Council Advice Note 2/2018.*

The determining issues in this application for review are whether the proposed hot food takeaway and associated works comply with the requirements of Policies DS1 and DS4 of the Angus Local Development Plan 2016.

Policy DS1 states that proposals for sites not allocated or otherwise identified for development, but within development boundaries will be supported where they are of an appropriate scale and nature and are in accordance with relevant policies of the ALDP.

In terms of location, Planning Advice Note 2/2018 provides guidance in relation to the assessment of applications for hot food takeaways and indicates that the preferred location for a hot food takeaway is within a town centre or in a mixed-use area where there are already a significant number of properties in a non-residential use or a number of properties of a similar/related use (e.g., public house). It indicates that hot food takeaways will not normally be considered acceptable in predominantly residential areas unless located within a freestanding area which will not unduly detract from the amenity of surrounding residential properties.

The Report of Handling incorrectly identifies the site as not being freestanding and also states that the site is not close to similar uses.

t: 01382 224 828  e: jon@jfarchitect.co.uk

w: jfarchitect.co.uk f: facebook.com/jfarchitect a: 140 Perth Road, Dundee, DD1 4JW



JON FRULLANI
ARCHITECT

The Review Site comprises of a detached building in a freestanding area on St James Road as demonstrated by the site location plan forming part of planning application ref: 21/00993/FULL. Although the site is bound by residential properties to the south and east there is a distance of no less than 25m between the review site and properties on the northern side St James Road. While the immediate surroundings of the site are mainly residential there are a variety of commercial uses interspersed within the housing and close to the Review Site. Examples include the Victoria Bar, Frank's Chip Shop and Strathmore Chip Shop on Dundee Road to the west of the site and Don & Low on St James Road to the east of the site. All of which are within 400m of the Review Site.

Policy DS4 indicates that development will not be permitted where there is an unacceptable adverse impact on the surrounding area or the amenity or environment of existing or future occupiers of adjoining or nearby property. Advice Note 2/2018 also identifies potential issues relating to cooking smells, noise, litter, and traffic/parking.

In the assessment of planning application ref: 21/00993/FULL the Council's Environmental Health Service concluded that the proposal would not impact on the amenity of neighbouring residential properties by virtue of noise and disturbance but would impact on the amenity of neighbouring residential properties in terms of smell nuisance.

In assessing the ventilation and extraction system proposed to serve the new hot food takeaway the Council's Environmental Health Service concluded that despite venting to the front (north) of the building there is a requirement for high level extraction to ensure dispersal of cooking odours. In this regard the Report of Handling states:

In relation to odour the environmental health service has advised that cooking odours would be discharged at a very low level relative to the adjacent residential properties which would inevitably result in poor dispersion of the used air.

However, given the freestanding location of the review site and that there are no obstructions within 25m of the front elevation of the building with the surrounding properties to the north, south and east being single storey it is unclear as to how the Environmental Health Service has reached the conclusion that the proposed form of extraction is not suitable. The unobstructed distance between the extraction vent in the front elevation of the building and the low ridge heights of neighbouring properties as well as the window opening levels mean that the hot air exhausting through the extraction vent will disperse without impact on the amenity of neighbouring properties. The position of the extraction vent combined with the width of St James Road as well as the position, scale and massing of neighbouring properties means that there will be no canyoning effect whereby the hot air extracted from the proposed hot food takeaway will be trapped by high buildings and a lack of clean air blowing through the street (for the avoidance of doubt St James Road has a south western orientation with the predominant wind direction being south westerly). In addition and to further prevent any impact on the amenity of neighbouring residential properties the Appellant is agreeable to planning conditions controlling the maintenance and frequency of cleaning of the odour control measures and fans incorporated into the proposed extraction system in accordance with manufacturers instruction. This would prevent any instance of odour nuisance from occurring due to the failure to maintain the extraction system in working order.

t: 01382 224 828 [REDACTED] e: jon@jfarchitect.co.uk

w: jfarchitect.co.uk f: facebook.com/jfarchitect a: 140 Perth Road, Dundee, DD1 4JW

Taking the above matters into consideration it has been clearly demonstrated that the form of odour control and extraction proposed is sufficient to safeguard the amenity of the surrounding residential properties. As such, the Appellant contends that the proposed hot food takeaway will not adversely impact on the amenity of neighbouring residential properties by virtue of odour nuisance.

In terms of parking and road safety, there is on-street parking on St James Road. The Roads Service has offered no objection having regard to road traffic and pedestrian safety matters. The proposed formation of the footway crossing would be required to be formed and constructed in accordance with the standards of Angus Council. The Appellant is agreeable to this matter being controlled by planning condition.

In relation to litter, the Advice Note recognises that the dropping of litter by customers is outwith the control of the proprietor and is controlled by other regulatory regimes. Notwithstanding this, there are litter bins in the surrounding area.

Advice Note 2/2018 indicates that planning conditions will not normally be used to restrict opening hours of hot food takeaways as these can be more appropriately addressed through the licensing system.

In terms of noise, the Council's Environmental Health Service in assessing planning application ref: 21/00993/FULL is satisfied that impacts would not be unacceptable when measured against established standards subject to planning conditions which could be used to regulate noise limits from plant at the premises should planning permission be granted. In this regard the Appellant is agreeable to noise from plant and machinery being controlled by planning condition.

In summarising the evaluation of the proposed development against the requirements of Policies DS1 and DS4 of the Angus Local Development Plan (2016) there is clear and irrefutable evidence of the proposal does indeed comply with Policies DS1 and DS4 and as such there is no justifiable reason to prevent the planning permission from being granted.

7.0 CONCLUSION

The Review proposals seek planning permission for the change of use to form a hot food takeaway with associated works at 35E St James Road, Forfar.

This Review Statement demonstrates clear reasoning and justification as to the proposed development's compliance with Policies DS1 and DS4 of the Angus Local Development Plan (2016).

The Appellants respectfully request that on the basis of there being no justifiable reasons for refusing planning permission, this Appeal is upheld and planning permission granted.

t: 01382 224 828

e: jon@jfarchitect.co.uk

w: jfarchitect.co.uk

f: facebook.com/jfarchitect

a: 140 Perth Road, Dundee, DD1 4JW

Extechnology Ltd

Odour Control Equipment Specification

35E St. James Road, Forfar,

DD8 1LN

Ref: 21/00993/FUL

Proposal For: Joup Property Ltd

Site: 35E St. James Road

Prepared By: Daniel Clark

Prepared For: Joup Property Ltd

Document Date: 24/11/2022

Equipment Specification – 1.5 m³s

Type of Unit: RY5000B ESP
No of Units: 1
Size: H 540 x W 1254 x D 620mm
Weight: 90 kg each
Static Pressure: 50 Pa.

Type and Size of Unit: Carbon Filters @ 0.4s Dwell Time
No of Units: 18
Size: H1200 x W1800 x D900mm
Weight: 400kg

For details please see spec sheets attached.

Describing the system

The Extechnology odour control application specified for **35E St. James Road** has been designed in line with EMAQ+ guidance on the control of odour and noise from kitchen exhaust systems.

The specification contained in this document is compliant with EMAQ+ guidelines and all agreements have been put in place to ensure that the system is maintained in accordance with the manufactures specification and the EMAQ+ guidance.

The specified system will comprise of three layers of filtration and should be considered above and beyond compliant with point two detailed on page 11 of EMAQ+ guidance under the subheading “High level of odour control”:

- Stage One: Baffle Filters
- Stage Two: Electrostatic Precipitator
- Stage Three: Carbon Filters

Anticipated relative cost effectiveness based on a well-maintained system details the level of odour abatement expected to be achieved relative to the equipment installed. Cross referenced against this table the specification outlined in this document would result in a High level of odour abatement being achieved at **35E St. James Road**.

Electrostatic Filtration

Contaminated air is drawn by the fan through a washable metal mesh pre-filter which traps large particles. The remaining particles, some as small as 0.01 microns, pass through a strong electrical field (ionizing section) where the particulates receive an electrical charge. The charged particles then pass onto the collector plates section made up of equally spaced parallel plates. Each alternate plate is charged with the same polarity as the particles, which

repel, while the interleaving plates are grounded, which attract and collect the contaminants. The contaminants are held on these plates until they are washed off.

Activated Carbon

Activated Carbon Discarb Cells can be used for the reduction of odour or for gas control.

Activated Carbon Discarb Cells offer a compact and convenient method to housing bonded carbon panels ready for mounting in a range of filter housings. Typical applications for Activated Carbon Cells include Kitchen Extract Odour Control, Commercial Food Manufacture, Laboratory supply and extract systems, Office Air Supply, and VOC control.

Activated Carbon Discarbs offer a practical solution for controlling gases and odours in airflows from 0.1m³/s up to 10m³/s +.

Description The metal cased 'Discarb' cells have the highest carbon loading in our range, and have standard or heavy-duty carbon panels permanently sealed into a galvanised sheet steel casing. This construction gives a very strong unit capable of handling large air volumes or where conditions dictate, increased contact time. The advantage of this unit is that with panels sealed in, there is no possibility of air leakage. Activated Carbon Discarb Filter Units can be manufactured to almost any reasonable size, the limiting factors being the overall weight for handling purposes and the size of individual panels. When the unit has finished its useful life it is discarded and replaced with a complete new cell.

Technical Carbon Filters must be selected based on system duty airflows, and required contact times (dwell / residence). Contact times must be selected based on concentration and specific gases / odours that need to be removed. The following tables on the next page offer selections for Activated Carbon Discarbs of all styles based on 0.1 second contact times. For 0.2 second contact times reduce the airflows in the 0.1 second tables by 50%, pressure drops will reduce to 50%. For 0.3 second contact times reduce the airflows in the 0.1 second tables to 33.3%, pressure drops will reduce to 33.3%. For 0.4 second contact times reduce the airflows in the 0.1 second

tables to 25%, pressure drops will reduce to 25%. Pre filtration of grade M5 to EN779 is recommended prior to Activated Carbon Filters to aid effective gas removal. Max allowable air on conditions to the unit are 40 Degree Centigrade and 80% Relative Humidity, if these conditions are exceeded then the activated carbon filter will be ineffective.

ACTIVATED CARBON DISCARB FILTERS - EXTRA DUTY

H	W	D	m ³ s	Pa.
293	293	293	0.13	125
293	293	445	0.20	175
293	293	597	0.27	250
445	445	293	0.30	95
445	445	445	0.41	125
445	445	597	0.54	185
597	597	293	0.54	125
597	597	445	0.80	150
597	597	597	1.06	225
597	293	597	0.53	225
597	196	597	0.35	225

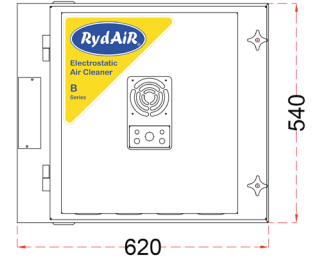


RY 5000B

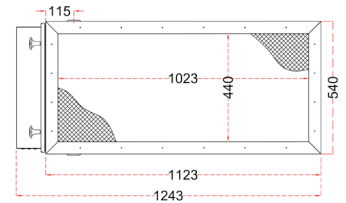
Electrostatic Air Cleaner (Without Blower)



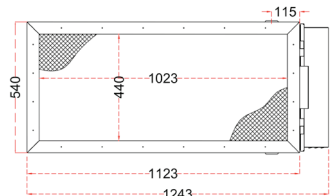
Industrial grade Electrostatic Air Cleaners for collection of dry and wet particulates like dust, oil mist, cooking fumes and various pollutants. Typical application include commercial kitchen exhausts, Air Handling Units (AHUs), factories, workshops, CNC machine shops and many other premises.



Front View



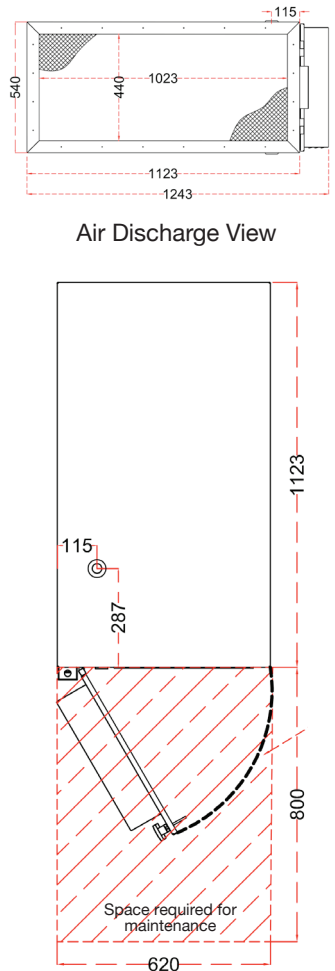
Air Intake View



Air Discharge View

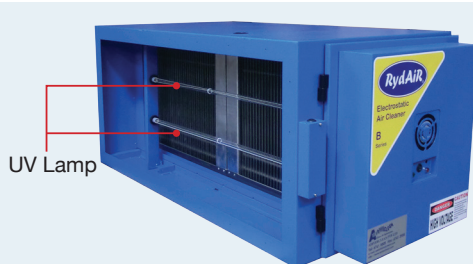
SPECIFICATIONS

Dimensions/Weight	H:540 x W:1243 x L:620mm / 90Kg
Cabinet	Galvanized Steel, 1.4mm / 16 Gauge
Finishing	Powder Coated, Dark Blue
Air Volume (Rated-Max)#	CFM: 3000 – 4100; CMH: 5000-7000; L/s: 1400-1900
Static Pressure	50 pa / 0.2"
Voltage & Power	230 VAC +/-10%, 50/60Hz, 75Watts
Ionising Voltages	High Voltage: 12KVdc, Low Voltage: 6KVdc
Power Supply	High Frequency solid state and self regulating design
Air Flow Direction	Default : Right to Left; Reversible : Left to Right
Features	*Short circuit, arc protection and auto restore power supply *BMS (Building Management System) terminals provided *Auto power cut-off when door is opened *Indicator LEDs for normal or wash indicator *Set of Terminals for remote LED normal or wash indicator
Particle size	From 0.01 microns - 10 microns
Efficiency	DOP Test, up to 95% single pass, up to 99% double pass, calculated. ASHRAE 52.2-2012, up to 96% single pass, up to 99% double pass, calculated. NIOSH 5026 OIL MIST FIELD TEST : UP TO 96%
MERV Ratings	Meets MERV 15 at velocity of 2.5m/s to 3.8m/s
Pre-Filter	Aluminum wire mesh, Washable x 2
Electrostatic Cell	H: 472mm, W: 550mm, L: 340mm
No of Cells / Weight	2/16.5Kg
No Of Plates per Cell	59
Total Collecting Area	12.14 Sq meters
Post Filter (Optional)	Aluminum Wire Mesh, Washable x 2
Installation	Ceiling Suspended; Wall or Frame Mounted, Multiple Units Stack



Top View

RY5000B with UV Ozone Lamp



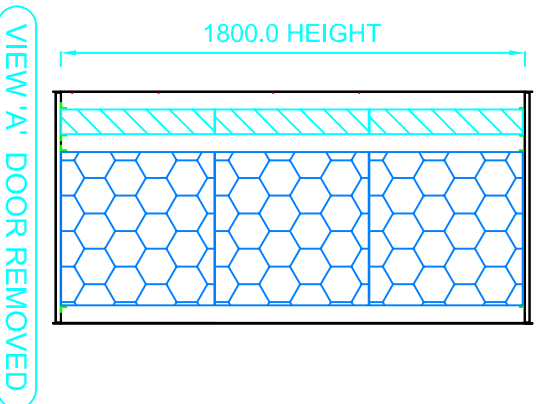
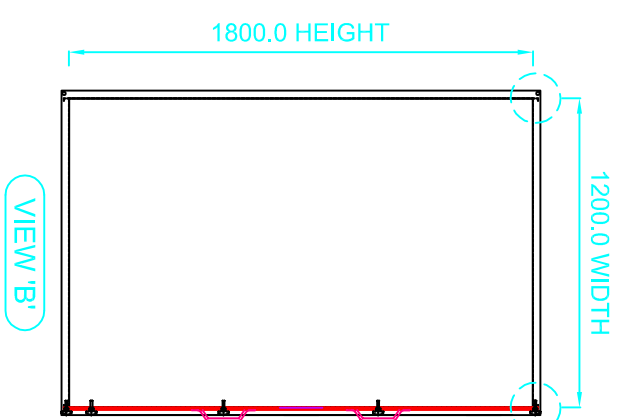
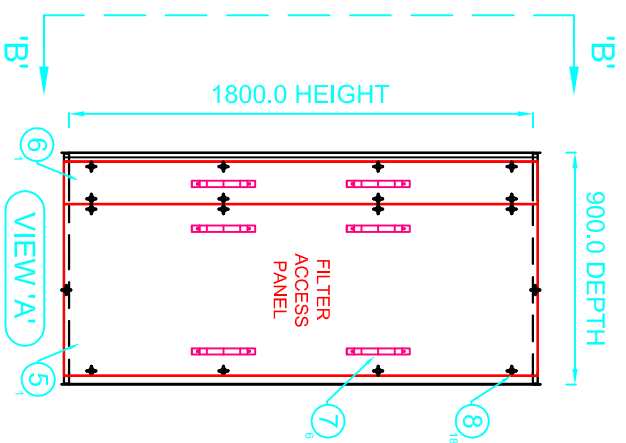
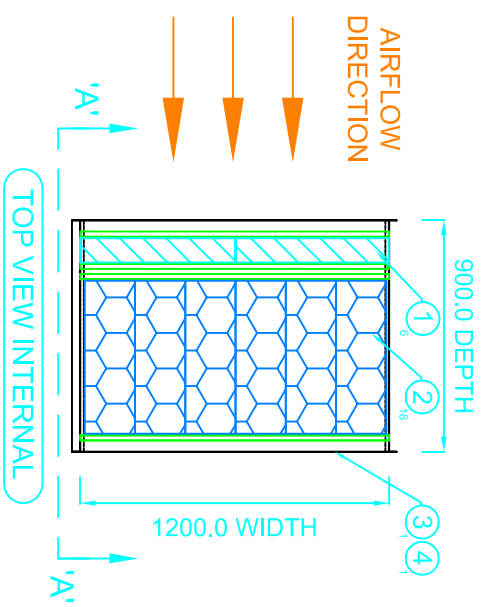
RY5000B-UV03

ODOUR CONTROL OPTION:

- UV ozone Lamp fitted after electrostatic cell
- Lamp Wattage : 150 watts (75 W x 2 lamps)
- Ozone output : 14 Grams/Hour
- Lamp Life : 13,000 Hours
- Lamp Operation Blue LEDs on Unit's Panel
- All accessories are contained in RY Unit


CARBON HOUSING CASE MATERIAL
1.2m GALVANISED STEEL

NOTE: ALL FLANGES ARE:- MEZ 30



ITEM	DESCRIPTION	QTY	NOTES
1	G4 PRE-FILTER 594H 594W 97D	6	
2	CARBON FILTER 597H 196W 597D	18	
3	CARBON FILTER UNIT BODY	1	
4	AIR FLOW DIRECTION LABEL	2	
5	CARBON FILTER ACCESS PANEL	1	
6	PRE-FILTER ACCESS PANEL	1	
7	ACCESS PANEL REMOVAL HANDLES	6	
8	HAND SCREW - BAKELITE WITH STEEL SCREW. M6X30	18	TO FIT ITEM 5 + 6
9	FOAM - V020.1030/SA18 - ACOUSTIC CLASS O ROLL - 20MM THICK	1	FIT TO ITEM 5 (17.5mm) TO FILL AIR GAP BEHIND

PARTS LIST

04/04/2019	A	Released for approval
 <small>next generation in odour control technology</small>		
CUSTOMER		

TITLE		CARBON HOUSING UNIT
		1800H 1200W X 900D
DRAWN BY	OFFICE APPROVAL	
EVJ		
DATE		
04/04/2019	CLIENT APPROVAL	
SCALE		
NTS		
PROJECT		

DRG NO	PB0102	REV	A
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345400m

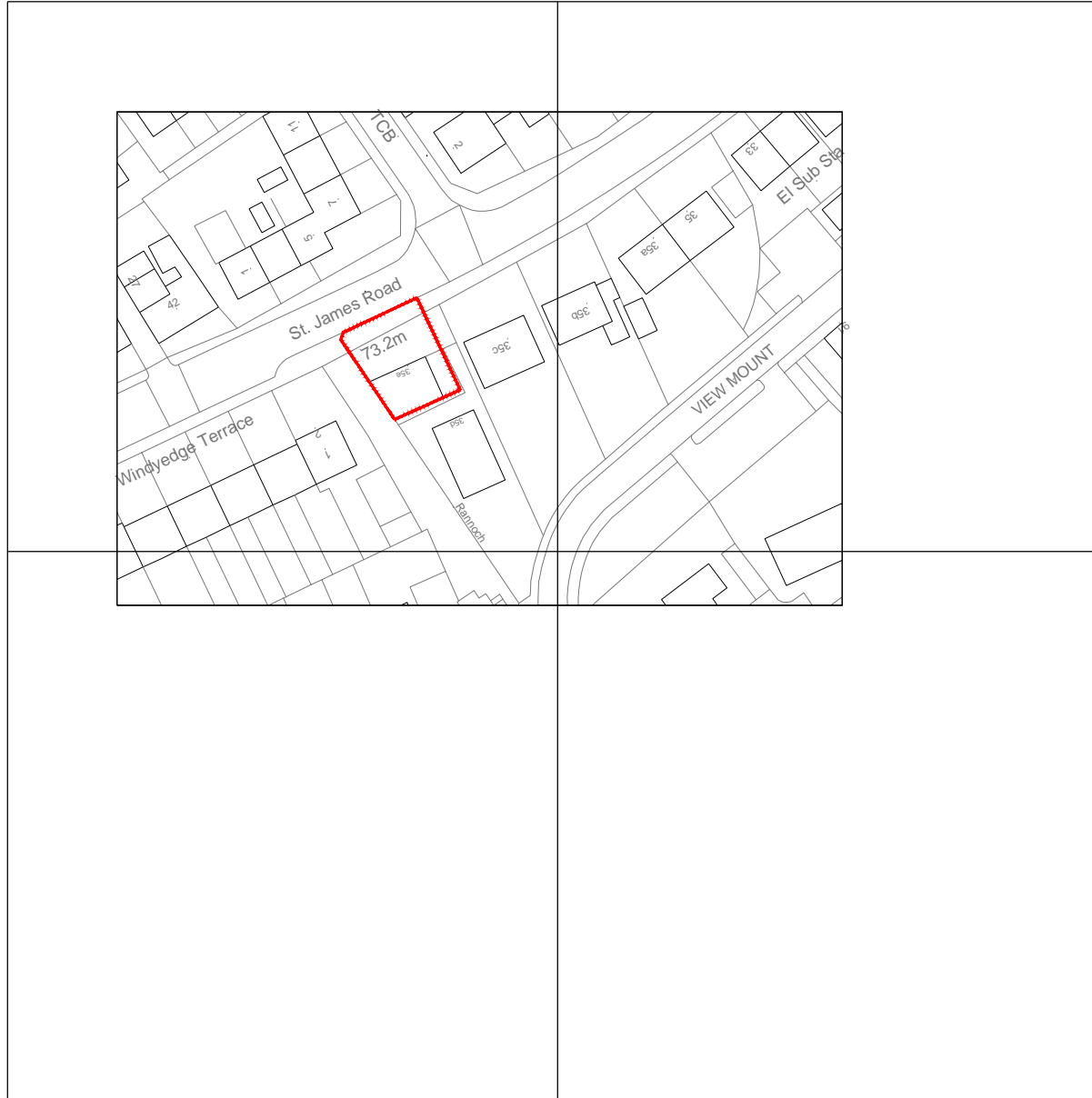
345500m

345600m

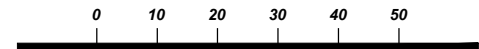
750200m

750100m

750000m



item 3




SCALE 1:1250 (A4) LENGTHS SHOWN IN METRES

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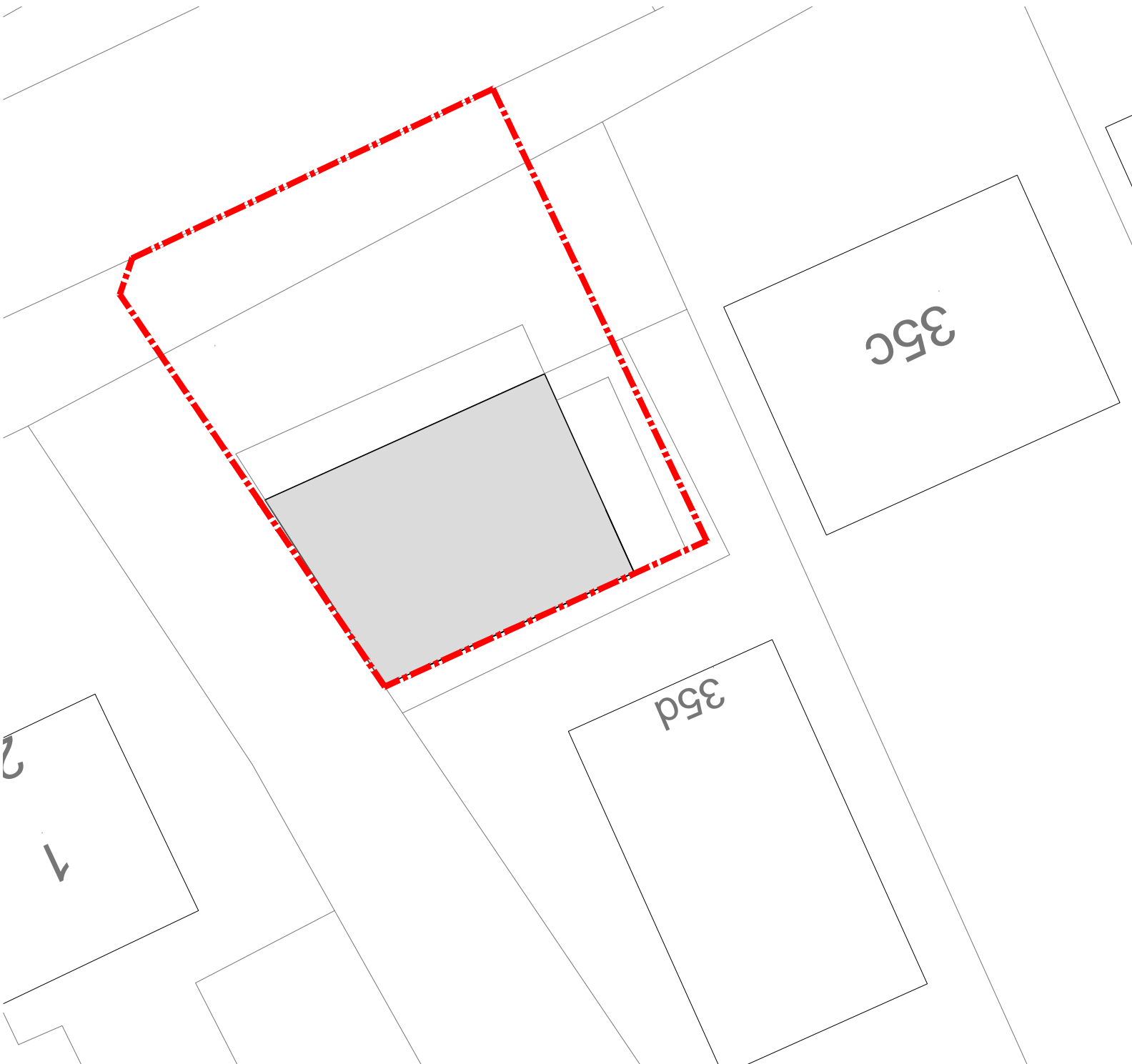
PROPOSED SITE BOUNDARY


Project Change of use		 JON FRULLANI ARCHITECT	
Client Joup Limited			
Address 35e St. James Road		Drawing Title Location Plan	
Forfar DD8 1LN		Issue Status Planning	Drawing No. 6715_P_300
Designer DW/DS	Date Dec. 2021	Scale 1:1250 @ A4	Revision -
<small>t: 01382 224828 m: [redacted] e: jon@jfarthitect.co.uk w: jfarthitect.co.uk f: facebook.com/jfarthitect a: unit 5, district 10, greenmarket, dundee, dd1 4qb</small> <small>this drawing is protected by copyright. it may not be reproduced in any form or by any means for any purpose, without gaining prior written permission from jon frullani architect ltd</small>			




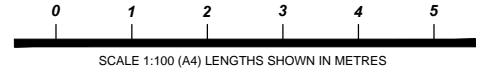
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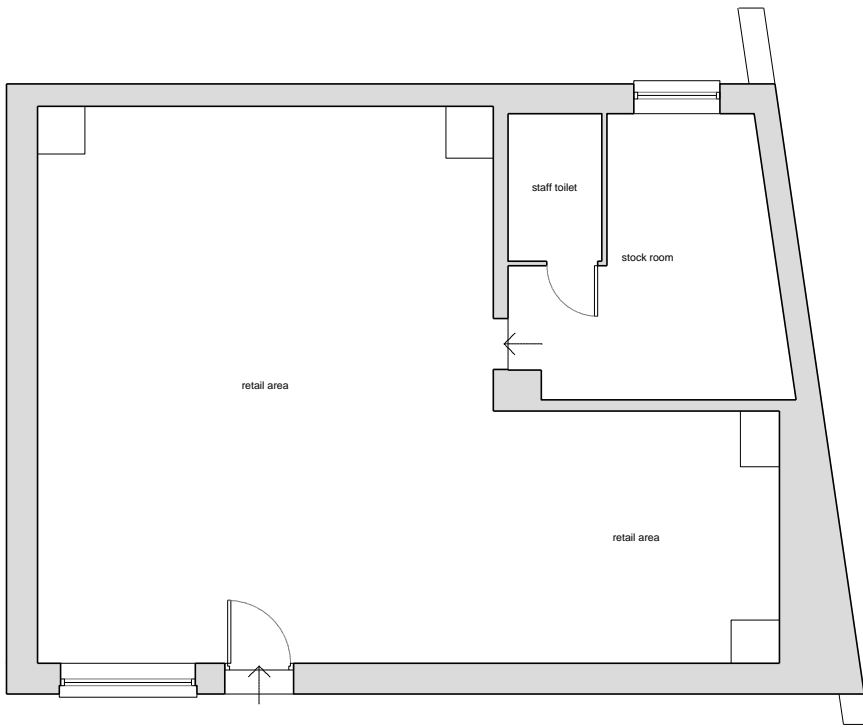


 PROPOSED SITE BOUNDARY

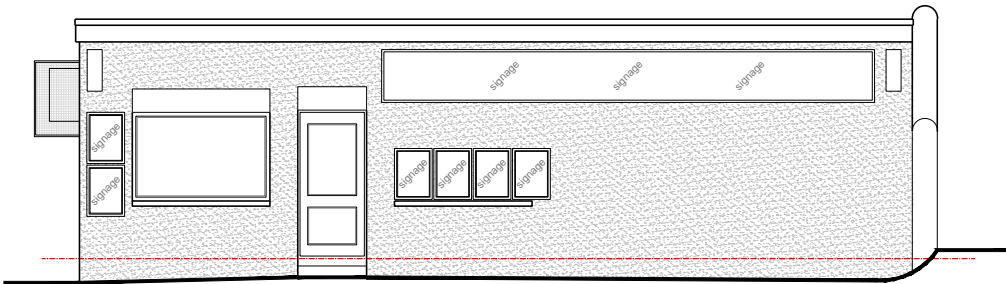
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Client Joup Limited			
Address 35e St. James Road Forfar DD8 1LN		Drawing Title Existing Site Plan	
		Issue Status Planning	Drawing No. 6715_P_301
Designer DW/DS	Date Dec. 2021	Scale 1:200 @ A4	Revision -
t: 01382 224828 m: [redacted] e: jon@jfararchitect.co.uk w: jfararchitect.co.uk f: facebook.com/jfararchitect a: unit 5, district 10, greenmarket, dundee, dd1 4qb <small>this drawing is protected by copyright. it may not be reproduced in any form or by any means for any purpose, without getting prior written permission from jon frullani architect ltd</small>			



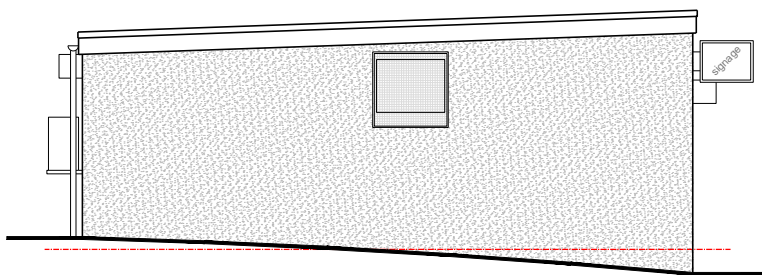
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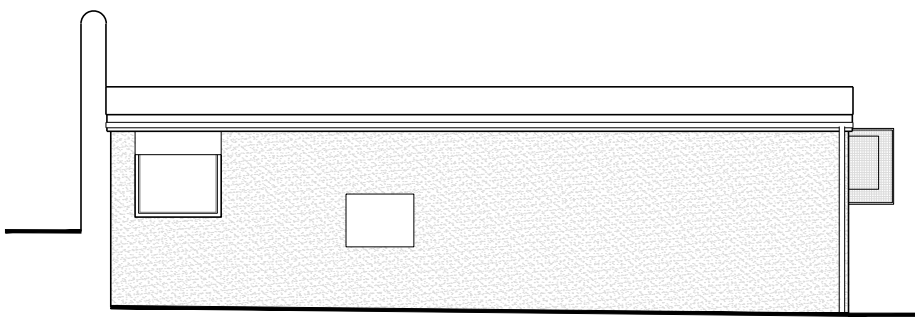
existing floor plan




existing north elevation



existing east elevation



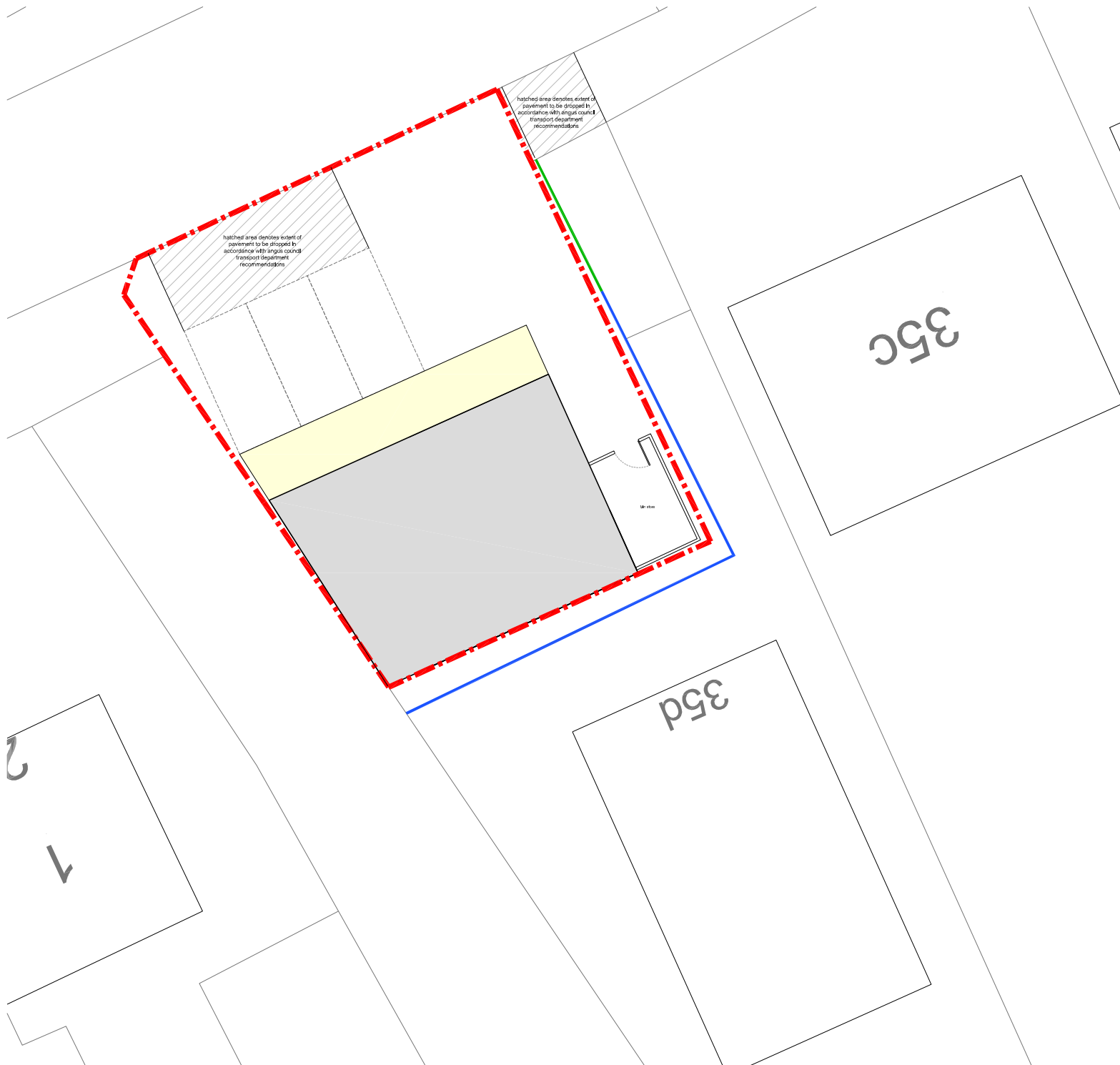
existing south elevation

Project Change of use		 JON FRULLANI ARCHITECT	
Client Joup Limited			
Address 35e St. James Road Forfar DD8 1LN		Drawing Title Existing Plan & Elevations	
Designer DW/DS		Date Dec. 2021	Scale 1:100 @ A4
		Issue Status Planning	Drawing No. 6715_P_302
		Revision -	
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- PROPOSED SITE BOUNDARY
- PROPOSED 1M HIGH FENCE
- PROPOSED 1.8M HIGH FENCE

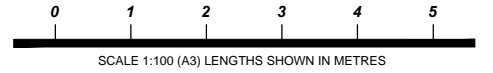
Revisions :

a

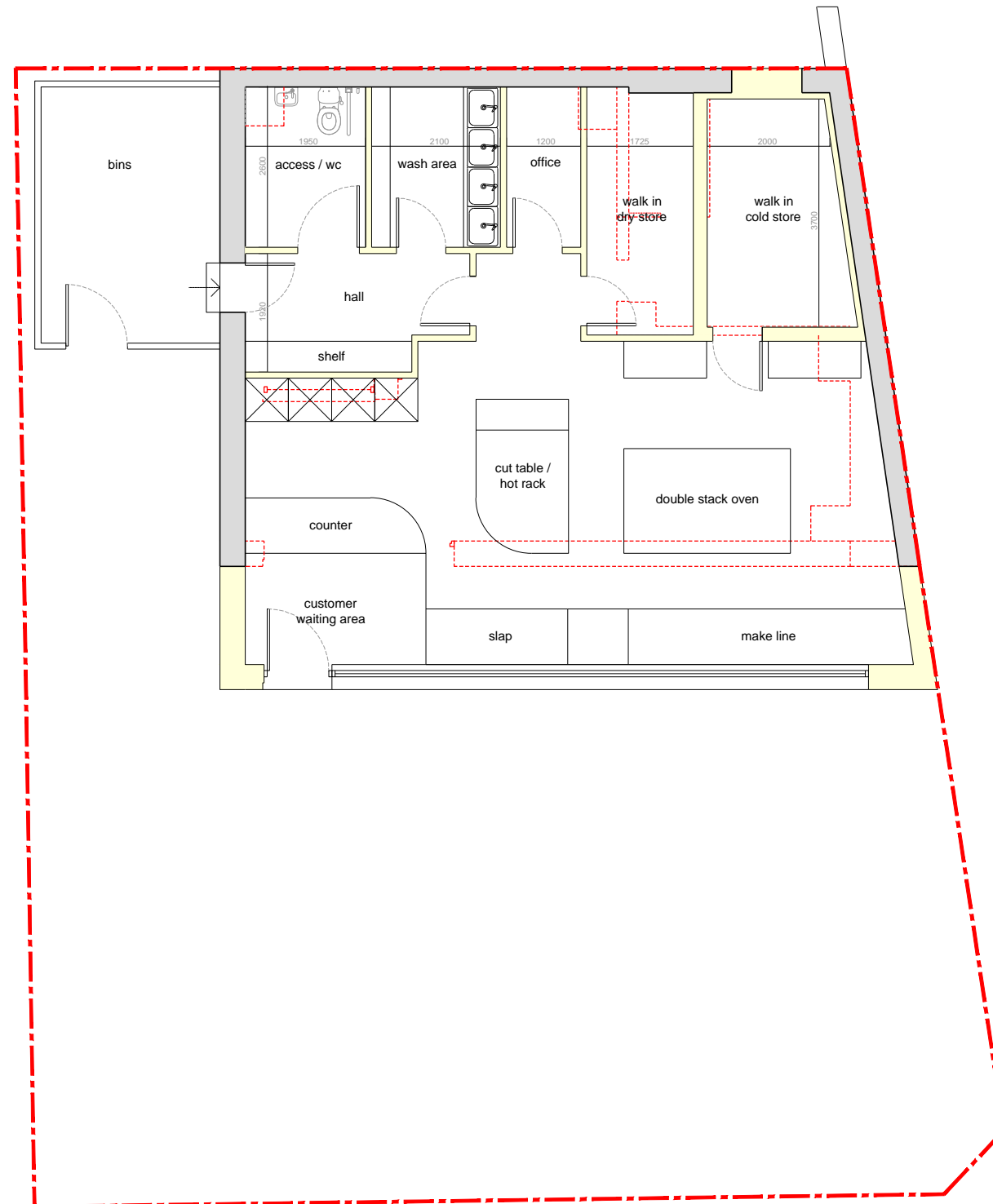
Notes :

n/a

Project Change of use		 JON FRULLANI ARCHITECT	
Client Joup Limited			
Address 35e St. James Road Forfar DD8 1LN			
Drawing Title Proposed Site Plan		Drawing No. 6715_P_303	
Issue Status Planning		Revision a	
Designer DW/DS	Date Dec. 2021	Scale 1:200 @ A4	Revision a
t: 01382 224828 m: [REDACTED] e: jon@jfarhitect.co.uk w: jfarhitect.co.uk f: facebook.com/jfarhitect a: unit 5, district 10, greenmarket, dundee, dd1 4qb <small>This drawing is protected by copyright. It may not be reproduced in any form or by any means for any purpose, without getting prior written permission from Jon Frullani Architect Ltd.</small>			




ITEM 7

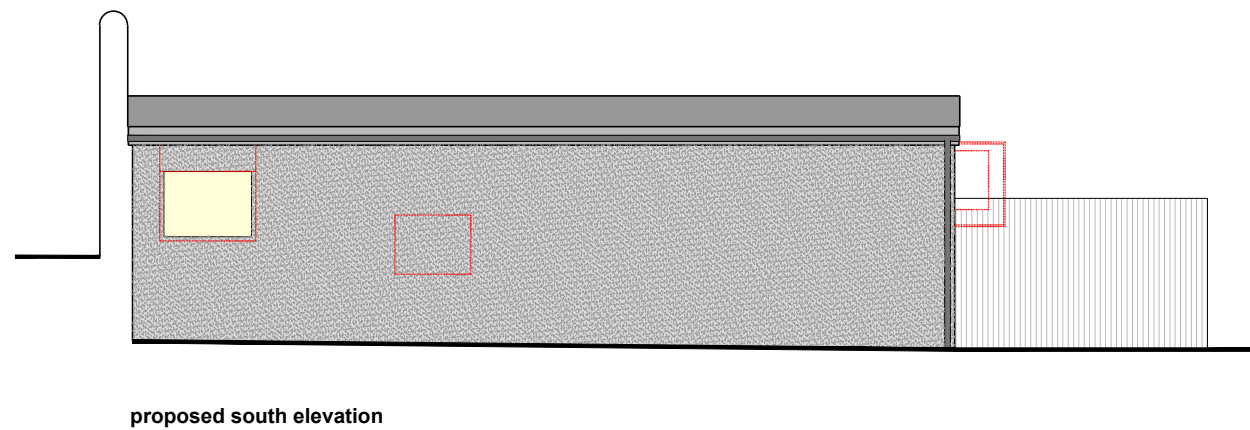
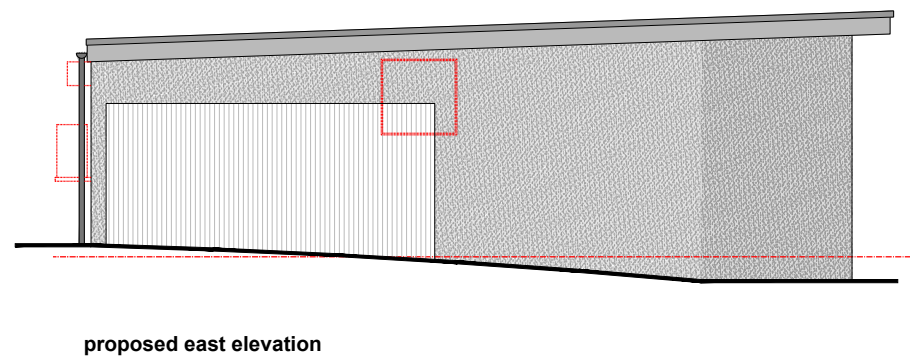
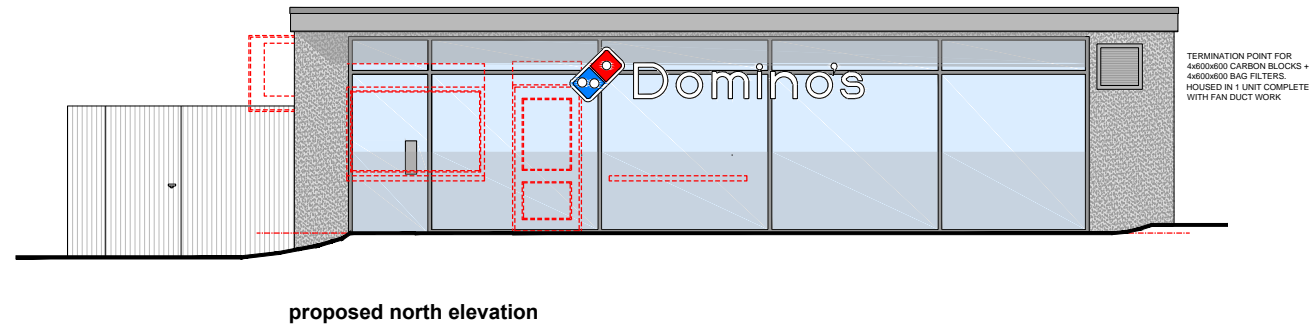


proposed ground floor plan

 PROPOSED DOWNTAKINGS DASHED RED

Project Change of use		 JON FRULLANI ARCHITECT	
Client Joup Limited			
Address 35e St. James Road		Drawing Title Proposed Plan	
Forfar DD8 1LN		Issue Status Planning	Drawing No. 6715_P_304
Designer DW/DS	Date Dec. 2021	Scale 1:100 @ A3	Revision -
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ITEM 8



material specification

External walls
- Existing render to be painted off white

Roof
- Sarnafil roof

Rainwater goods
- Black upvc

Windows /door
- Dark grey aluminium

Project Change of use		 JON FRULLANI ARCHITECT	
Client Joup Limited			
Address 35e St. James Road		Drawing Title Proposed Elevations	
Forfar DD8 1LN		Issue Status Planning	Drawing No. 6715_P_305
Designer DW/DS	Date Dec. 2021	Scale 1:100 @ A3	Revision -
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Domino's, 35E James Street, Forfar

Plant Noise Assessment

Report 206/1003/R1

Domino's, 35E James Street, Forfar

Plant Noise Assessment

Report 206/1003/R1

Domino's Pizza UK & Ireland

1 Thornbury
West Ashland
Milton Keynes
MK6 4BB

Revision	Description	Date	Prepared	Approved
0	First Issue	19 th April 2022	Alex Stronach	Adam Sharpe
1	First Revision	26 th July 2022	Adam Sharpe	Matthew Heyes

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Plant Noise Assessment

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Plant Noise Assessment

Attachments

Glossary of Acoustic Terms

206/1003/SP1

Site plan showing measurement and assessment positions.

206/1003/TH01

Time history graph showing the results of the unattended noise survey.

206/1003/PNS1

Schedule of manufacturers' noise data.

206/1003/CS1 to 206/1003/CS6

Calculation summary sheets.

206/1003/CS7 to 206/1003/CS21

Individual plant noise calculation sheets.

■ End of Section



Plant Noise Assessment

1 Introduction

- 1.1 Planning permission is being sought for the change of use of a vacant shop (*Sui Generis*) at 35E St James Road, Forfar to a hot food takeaway (*Sui Generis*). As part of the development, it is proposed to install new mechanical services items which will terminate atmospherically and emit noise externally.
- 1.2 This report details a noise survey undertaken at the site to quantify the existing noise climate and derive atmospheric plant noise limits in accordance with the requirements of the Local Authority. A subsequent assessment of the plant noise emission levels of the proposed installation has been undertaken to determine if any mitigation is required to meet the plant noise limits.

2 Site Description

- 2.1 The site is situated at 35E St James Road, Forfar, DD8 1LN and is a single storey building that has historically been used as convenience store.
- 2.2 St James Road (A932) is predominantly residential road containing a small number of commercial outlets and a primary school.
- 2.3 The areas to the north, south, and east of the site are predominantly residential with a small number of commercial properties and food outlets. There are two park spaces situated to the south of the site.
- 2.4 A large superstore is situated to the east of the site, as well as a number of other commercial properties and a school. There is a small industrial area situated further to the north-east of the site, with the area containing a large number commercial and residential properties.
- 2.5 Traffic around the site was deemed to be of a moderate level with many cars travelling along Dundee Road (A932) to the west.
- 2.6 The site falls under the jurisdiction of Angus Council.

3 Environmental Noise Survey

3.1 Methodology & Instrumentation

- 3.1.1 An unattended noise survey was undertaken at the site commencing at 17h30 on Friday 8th April and concluding at 11h30 on Sunday 10th April 2022.
- 3.1.2 Measurements were undertaken at a single location as indicated as MP1 on the attached site plan 206/1003/SP1 and described as follows.



Plant Noise Assessment

- MP1: Free-field measurement position approximately 2.5 metres above roof level to the rear of the property.

3.1.3 The height of the measurement position being approximately 2.5 metres above roof level (as opposed to a measurement height of 1.2 – 1.5 metres) was chosen in part due to an installation at roof level being the only suitably secure option for obtaining a full night time period worth of unattended noise data. This position is deemed to be representative of the nearest noise sensitive receivers for the purposes of deriving suitable background noise limits.

3.1.4 Measurements of the L_{Aeq} , L_{A90} and L_{Amax} indices were recorded over consecutive 15-minute periods (see Glossary of Acoustic Terms for an explanation of the noise units used) for the duration of the survey using the equipment listed within table T1 below.

Item	Manufacturer	Type
Sound Level Analyser	Rion	NL-52
Acoustic Calibrator	Rion	NC-74
Weatherproof Windshield	Rion	WS-15

T1 Equipment used during unattended noise survey.

3.1.5 The microphone was fitted within a weatherproof windshield and the sound level meter was calibrated before and after the survey to confirm an acceptable level of accuracy. No significant drift was noted to have occurred.

3.1.6 The weather conditions when installing and collecting the equipment were cool, sunny, and still, with wind speeds noted to be less than 5 m/s. Publicly available historical weather data indicate that these conditions prevailed throughout the survey period.

3.1.7 It was noted whilst on site that the noise climate is dominated by distant traffic noise on St James Road and other surrounding roads.

3.2 Results

3.2.1 The results of the unattended noise survey are presented in the attached time history graph 206/1003/TH01.

3.2.2 We understand that the proposed food outlet is to operate between the hours of 11h00-23h00 only. Section 8.1.3 of BS 4142:2014+A1:2019 states the following:

“... the background sound level used for the assessment should be representative of the period being assessed”

3.2.3 A representative background noise level has thus been derived for the operational hours of the store, as well as the night-time period. This level should account for a range of background



Plant Noise Assessment

sound levels and should not automatically be assumed to be either the minimum or modal value.

- 3.2.4 Based on the above, the representative noise level is derived as the highest single figure value where the cumulative total of the $L_{A90,15min}$ levels for the relevant period is less than or equal to 20%.
- 3.2.5 The representative background noise levels, as derived in accordance with the guidance outlined in BS 4142:2014+A1:2019, during the proposed operating period are given in table T2 below.

Location	Representative Background Noise Level, $L_{A90,15min}$ (dB)	
	Proposed Operating Hours (11h00-23h00)	Proposed Closed Hours (23h00-11h00)
MP1 – Free-field position approximately 2.5m above roof level.	39	29

T2 Measured representative background noise levels.

4 Plant Noise Criteria

4.1 Overview & Local Authority Liaison

- 4.1.1 A review of Local Authority planning guidance yields no quantitative guidance regarding plant noise emission limits.
- 4.1.2 As a result, plant noise limits have been derived from the measured L_{A90} background noise levels with reference to BS 4142:2014+A1:2019. A brief summary of this standard is provided in the following section.
- 4.1.3 Following the submission of the original version of this report, the Angus Council Environmental Health department requested the following supplementary assessment of noise emissions from the proposed mechanical services scheme to be undertaken in addition to an assessment against background noise limits derived with reference to BS 4142:2014+A1:2019 as set out in section 4.2.
- 4.1.4 The request for a supplementary assessment is transcribed as follows.



Plant Noise Assessment

'An assessment of the internal levels against the standard condition fixed plant noise limits of NR 35 daytime and NR 25 night-time requires to be undertaken in order that internal amenity impacts can be fully considered.'

4.2 **BS 4142:2014+A1:2019**

4.2.1 When considering noise emission from plant, it is normal to follow guidance in BS 4142:2014+A1:2019¹, section 1.1 of this standard states the following:

"This British Standard describes methods for rating and assessing sound of an industrial and/or commercial nature, which includes:

a) sound from industrial and manufacturing processes;

b) sound from fixed installations which comprise mechanical and electrical plant and equipment

c) sound from the loading and unloading of goods and materials at industrial and/or commercial premises; and

d) sound from mobile plant and vehicles that is an intrinsic part of the overall sound emanating from premises or processes, such as that from forklift trucks, or that from train or ship movements on or around an industrial and/or commercial site."

4.2.2 The methodology in the standard compares the measured or calculated rating level of the noise from the source and compares it to the representative existing measured L_{A90} background noise level for the period concerned.

4.2.3 The higher the excess of rating level over background noise level, the greater the likelihood of an adverse noise impact. BS 4142:2014+A1:2019 gives the following guidance:

"Typically, the greater this difference, the greater the magnitude of the impact.

A difference of around +10dB or more is likely to be an indication of a significant adverse impact, depending on the context.

A difference of around +5dB is likely to be an indication of an adverse impact, depending on the context.

The lower the rating level is relative to the measured background sound level, the less likely it is that the specific sound source will have an adverse impact or a significant adverse impact. Where the rating level does not exceed the background sound level, this is an indication of the specific sound source having a low impact, depending on the context."

¹ British Standard 4142:2014+A1:2019 - Methods for rating and assessing industrial and commercial sound.



Plant Noise Assessment

4.2.4 Additionally, Section 11(1) of BS 4142:2014+A1:2019 states:

“Where background sound levels and rating levels are low, absolute levels might be as, or more, relevant than the margin by which the rating level exceeds the background. This is especially true at night.”

4.2.5 The measured noise levels during the store’s closing period are particularly low [i.e. below 30dB(A)] and, thus, it is more pragmatic to refer to absolute noise levels as opposed to limits derived relative to the measured background noise level during the night-time period.

4.2.6 As a result, we recommend a plant noise limit of 30 dB(A) to be met whilst the store is not in operation. This limit should apply to 1 m from the façade of any affected residential building.

4.2.7 Context may be applied to this limit by allowing for a typical 12 dB(A) loss associated with that of a partially open window. This loss applied to a plant noise emission level of 30 dB(A) yields an internal noise level of 18 dB(A) which is 12 dB(A) below the internal $L_{Aeq,8h}$ 30 dB noise level outlined in BS 8233:2014² as being appropriate for bedrooms to provide suitable conditions for sleeping.

4.2.8 Based on the guidance outlined in section 3, the noise limits in table T3 are to apply here:

Location	Plant Noise Emission Limits, $L_{Ar,Tr}$ (dB)	
	<i>(for plant with no distinguishing feature)</i>	
	Proposed Operating Hours (11h00-23h00)	Proposed Closed Hours (23h00-11h00)
Nearby Residential Receivers	39	30

T3 Plant noise emission limits at the nearest residential receivers.

4.2.9 The noise limits are to apply at 1 m from the nearby residential windows. Any plant with a tonal component would be subject to a further penalty, in line with BS 4142:2014+A1:2019. These limits apply to all mechanical services items being installed when running at duty with all items running concurrently during the relevant period.

² British Standard 8233:2014 - Guidance and sound insulation and noise reduction for buildings



Plant Noise Assessment

5 Plant Noise Assessment

5.1 Proposed Installation

5.1.1 The proposed plant items emitting noise to the atmosphere are listed in table T4 below.

Reference	Unit	Model
SF-01	Supply Fan	Systemair RS 70-40 EC Sileo
EF-01	Extract Fan	Systemair MUB 042 500EC Multibox
CU-01	A/C Condenser	Mitsubishi FDC100VNA-W
CU-02	Cold Room Condenser	Tecumseh WINAJ4519Z-FZ

T4 Proposed equipment installation.

5.1.2 The supply and extract fans will be installed internally and ducted to terminate to the atmosphere on the eastern and northern facades, respectively. The A/C and cold room condensers will be situated externally in an enclosed yard area to the east of the site. The plant locations have been obtained from the following drawing provided to us:

- *Dominos_Forfar_001-A3.pdf* – Mechanical Services Layout (dated 08/02/2022)

5.1.3 We understand that the supply and extract fans, as well as the A/C condenser will only operate during the store's operational hours (11h00-23h00). The cold room condenser will be in operation during 24-hours a day and thus it is the limit set for the store's closing period which is to apply to this unit.

5.1.4 Manufacturers' noise data has been used in this assessed and can be found on the attached schedule 206/1003/PNS1. Only a single figure sound pressure level has been provided by the manufacturer for the cold room condenser unit. As a result, spectral noise sound power data for a similar cold room unit has been scaled to match that of the proposed unit.

5.2 Methodology

5.2.1 Noise levels have been calculated at three assessment positions labelled as AP1 to AP3 on the attached site plan 206/1003/SP1, and described below:

- AP1: 1 metre from ground floor windows of 35D St James Road;
- AP2: 1 metre from ground floor windows of 35C St James Road;
- AP3: 1 metre from ground floor windows of 5 St James Road.

5.2.2 This assessment has taken into account radiation and distance losses, and façade reflections, where each is appropriate. We have also included the insertion loss data for the proposed silencers provided to us by the mechanical services engineers. Calculation summaries for the calculated day and night-time noise levels at each assessment position provided on the



Plant Noise Assessment

attached sheets 206/1003/CS1 to 206/1003/CS6. Full calculation sheets are included as the attached 206/1003/CS7 to 206/1003/CS21.

- 5.2.3 An assessment of spectral noise data for the proposed units suggests that no acoustic character corrections need be applied.

5.3 Results

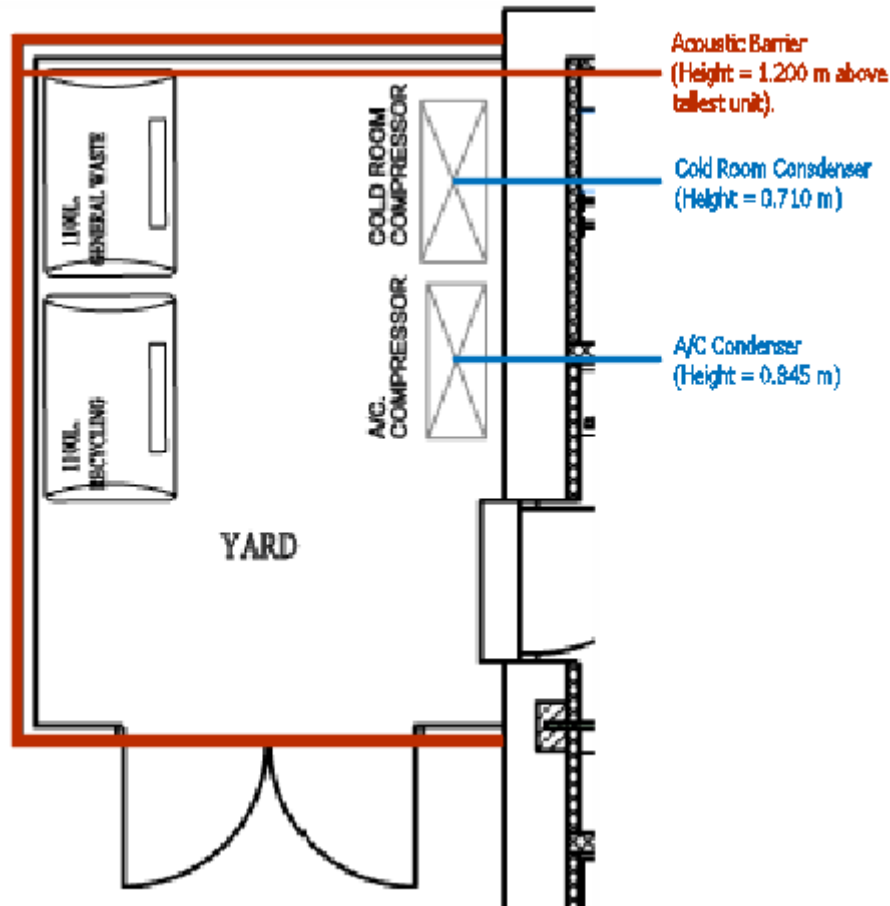
- 5.3.1 The results of our assessment indicate that mitigation measures will be required to meet the plant noise emission limits. These measures will take the form of a solid screen around the external yard area, in-duct silencers for the supply and extract fans, and acoustic enclosures around the condenser units.

Acoustic Barrier

- 5.3.2 Solidifying the barrier around the external yard area, within which the condenser units will be situated, will minimise noise transmission to the surroundings.
- 5.3.3 The barrier should have a minimum height which is 1.2 metres greater than the height of the tallest unit. It shall achieve a minimum of 10 kg/m² uniform mass per unit area over the full area of the barrier (i.e. 19 mm thick plywood, suitably waterproofed) for the duration of its design life. It is recommended that the solid panels be lined with a suitably weatherproof absorbent lining (e.g 50 mm thick mineral wool held in place by expanded metal) on the plant area side to minimise any potential transmission through the enclosure wall and to minimise reflections within the enclosure that may escape through the open top. The following figure demonstrates where this barrier will be required.



Plant Noise Assessment



Extent of required external yard acoustic barrier.

- 5.3.4 The barrier should be of imperforate construction over the full area and remain so for the design life of the barrier. It is essential, particularly for barriers with butting or overlapping components, that the joints are well sealed to prevent sound leakage. Gravel boards of equivalent density are to be used to prevent gaps between screen structure and ground if necessary.
- 5.3.5 The barrier structure is to be suitably designed and engineered with appropriate consideration for wind loading and aerodynamic forces.

In-duct Attenuators

- 5.3.6 Our assessment has shown that the proposed attenuator for the kitchen extract fan provides sufficient attenuation to the noise incident upon nearby residential receivers. However, the supply fan attenuators will require a higher performance to meet the plant noise emission criteria. Specifications for both silencers are provided in table T5.



Plant Noise Assessment

Silencer Specification	Insertion Loss (dB) at							
	Octave Band Centre Frequency (Hz)							
<i>Location</i>	63	125	250	500	1k	2k	4k	8k
SIL01	5	11	21	33	37	36	27	18
<i>Supply Intake</i>								
SIL02	3	8	13	25	23	14	8	4
<i>Kitchen Extract Discharge*</i>								

T5 Required silencer specifications.

*Obtained from manufacturer's data provided by mechanical services engineer.

5.3.7 We would expect the performance SIL01 to be provided by a silencer with a length of 1500mm and 45% free area, however it is the full octave band performance which must be achieved, and the proposed silencer is provided for reference only. The performance of SIL02 is achievable using the *Caice LG01V/3B/L/S* attenuator proposed by the mechanical services engineers.

5.3.8 Both silencers should be mounted as close to the fans as possible so that noise breakout from associated ductwork is reduced as far as practicable. The fans should be mounted on anti-vibration mounts and have flexible connections to rigid ductwork to minimise structure-borne sound transmission.

Acoustic Enclosure

5.3.9 Both external condenser units will require acoustic enclosures. The specification of these enclosures is provided in table T6 below.

Enclosure	Insertion Loss (dB) at							
	Octave Band Centre Frequency (Hz)							
<i>Location</i>	63	125	250	500	1k	2k	4k	8k
EN01	12	14	17	19	21	23	20	19
<i>A/C Condenser & Cold Room</i>								
<i>Condensers</i>								

T6 Required enclosure specification.



Plant Noise Assessment

- 5.3.10 We would expect the insertion losses for EN01 around the external condenser units to be achieved with a bespoke acoustic enclosure available from companies including *Environ Technologies Ltd*³ and *Sound Planning Ltd*⁴.
- 5.3.11 Enclosures must be sized to allow adequate airflow to the equipment.

5.4 Results

- 5.4.1 Employing the proposed mitigation strategy outlined above results in the following predicted noise levels at the nearest noise-sensitive receptors:

Location	Rating Noise Level, dB(A)	
	Operational Period (11h00 – 23h00)	Closed Period (23h00-11h00)
AP1: 35D St James Road	39 (39)	27 (30)
AP2: 35C St James Road	32 (39)	13 (30)
AP3: 5 St James Road	34 (39)	N/A* (30)

T7 Predicted plant noise emission levels at the nearest residential receivers.

*Predicted noise level less than 0 dB

- 5.4.2 Per the request of Angus Council Environmental Health as set out previously within Section 4.1, the resultant break-in noise levels to each assessment position during both the day and night time periods have been calculated to the NR 35 and NR 25 limits.
- 5.4.3 In order to provide a robust assessment methodology, a 10 dB loss for noise break-in through a partially open window has been adopted within the calculations to provide a reasonable worst-case internal noise level.
- 5.4.4 The calculated internal noise levels (expressed in terms of a noise rating, NR, level) are set out within table T8 below against internal noise limits proposed by Angus Council.

³ <http://www.environ.co.uk>

⁴ <http://www.soundplanning.co.uk>



Plant Noise Assessment

Location	Internal Noise Level, dB NR	
	Internal Noise Limit, dB NR	
	Daytime (07h00 – 23h00)	Night time (23h00-07h00)
AP1: 35D St James Road	24 (30)	12 (25)
AP2: 35C St James Road	17 (30)	0 (25)
AP3: 5 St James Road	24 (30)	0 (25)

T8 Predicted internal noise levels due to noise break-in from mechanical services noise at the nearest residential receivers.

- 5.4.5 Based on the results set out within both tables T7 and T8 above, the assessment has shown that provided the mitigation measures specified above are implemented, the noise emission levels of the proposed plant strategy meet the plant noise emission limits at all times.

6 Conclusions

- 6.1 Planning permission is being sought for the change of use of a vacant shop (*Sui Generis*) at 35E St James Road, Forfar to a hot food takeaway (*Sui Generis*). As part of the development, it is proposed to install new mechanical services items which will terminate atmospherically and emit noise externally.
- 6.2 A noise survey has been undertaken at the site to quantify the existing noise climate and set noise limits with reference to the guidance in BS 4142:2014+A1:2019. An assessment of noise emission levels from the plant items has been undertaken for the proposed installation.
- 6.3 Our assessment has shown that mitigation measures in the form of acoustic barriers, in-duct silencers, and acoustic enclosures (for the yard area, supply & extract fans and external condenser units, respectively) will be required to meet the plant noise emission criteria. Full specifications are provided within this report.
- 6.4 Provided all specified mitigation measures are adopted, the plant noise emission criteria will be met at all times.

■ End of Section



Plant Noise Assessment

Glossary of Acoustic Terms

L_{Aeq} :

The notional steady sound level (in dB) which over a stated period of time, would have the same A-weighted acoustic energy as the A-weighted fluctuating noise measurement over that period. Values are sometimes written using the alternative expression dB(A) L_{eq} .

L_{Amax} :

The maximum A-weighted sound pressure level recorded over the period stated. L_{Amax} is sometimes used in assessing environmental noise when occasional loud noises occur, which may have little effect on the L_{Aeq} noise level. Unless described otherwise, L_{Amax} is measured using the “fast” sound level meter response.

L_{A10} & L_{A90} :

If non-steady noise is to be described, it is necessary to know both its level and degree of fluctuation. The L_{An} indices are used for this purpose. The term refers to the A-weighted level (in dB) exceeded for n% of the time specified. L_{A10} is the level exceeded for 10% of the time and as such gives an indication of the upper limit of fluctuating noise. Similarly, L_{A90} gives an indication of the lower levels of fluctuating noise. It is often used to define the background noise.

L_{A10} is commonly used to describe traffic noise. Values of dB L_{An} are sometimes written using the alternative expression dB(A) L_n .

L_{AX} , L_{AE} or SEL

The single event noise exposure level which, when maintained for 1 second, contains the same quantity of sound energy as the actual time varying level of one noise event. L_{AX} values for contributing noise sources can be considered as individual building blocks in the construction of a calculated value of L_{Aeq} for the total noise. The L_{AX} term can sometimes be referred to as Exposure Level (L_{AE}) or Single Event Level (SEL).




■ End of Section

Figure 206/1003/SP1

Title:

Site plan showing measurement and assessment positions.

Key:

-  MP Measurement Position
-  AP Assessment Position
-  Site Outline



Project:

Domino's, 35E St James Road, Forfar

Date:

April 2022

Revision:

-

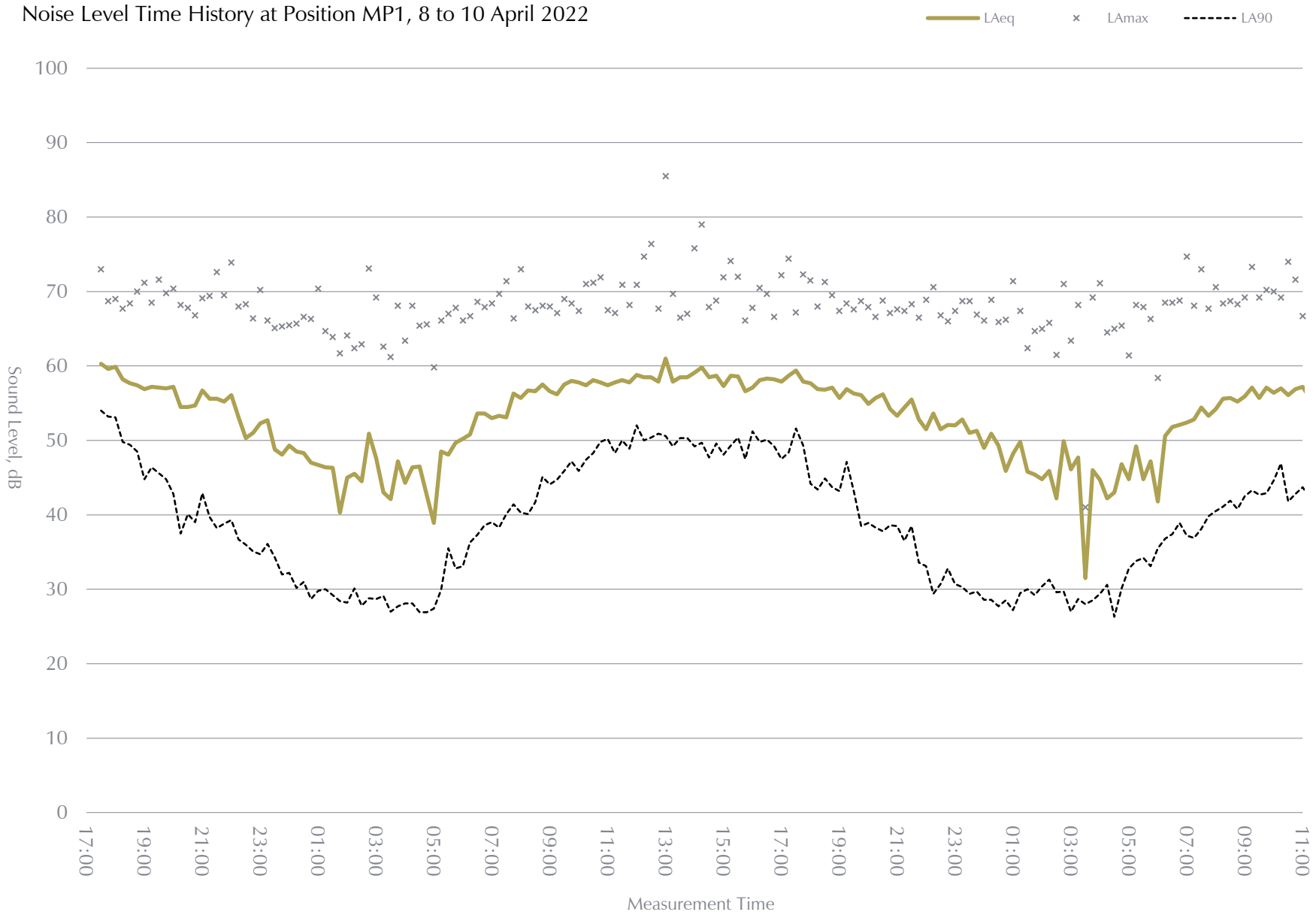
Scale:

Not to scale





Figure 206/1003/TH01





Schedule of Plant and Air Handling Equipment Sound Levels, dB

Reference	Description	Data Source ¹	Noise Level Type	Noise Levels (dB)							
				63	125	250	500	1k	2k	4k	8k
SF-01 Inlet	Systemair RS 70-40 EC Sileo	Man	Sound Power, Lw	86.2	88.1	81.6	77.2	73.0	71.8	67.0	61.1
EF-01 Outlet	Systemair MUB 042 500EC Multibox	Man	Sound Power, Lw	79.2	70.0	70.0	74.0	75.0	72.0	68.0	62.0
CU-01	Mitsubishi Heavy Industries FDC100VNA-W	Man	Sound Pressure, Lp @ 1m	61.2	57.2	55.7	52.2	51.2	42.2	40.2	37.2
CU-02	Tecumseh WINAJ4519Z-FZ	Man	Sound Power, Lw	62.0	59.5	59.5	61.0	57.4	55.3	52.1	44.9

Notes

1 - Man refers to data supplied by the equipment manufacturer or supplier, Emp refers to data calculated using empirical formulae, and Meas refers to data measured by RSK Acoustics.

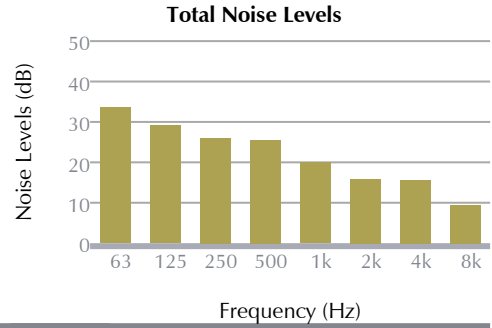


<p>Project Name Domino's, 35E St James Road, Forfar</p> <p>Project Reference 206/1003</p> <p>Receiver Reference AP1 Day</p> <p>Description 35D St James Road</p> <p>Noise Limit 39</p> <p>dB(A) 38.9</p>	<p>Total Noise Levels</p> <table border="1"> <caption>Total Noise Levels Data</caption> <thead> <tr> <th>Frequency (Hz)</th> <th>Noise Levels (dB)</th> </tr> </thead> <tbody> <tr><td>63</td><td>52</td></tr> <tr><td>125</td><td>52</td></tr> <tr><td>250</td><td>40</td></tr> <tr><td>500</td><td>31</td></tr> <tr><td>1k</td><td>27</td></tr> <tr><td>2k</td><td>20</td></tr> <tr><td>4k</td><td>21</td></tr> <tr><td>8k</td><td>22</td></tr> </tbody> </table>	Frequency (Hz)	Noise Levels (dB)	63	52	125	52	250	40	500	31	1k	27	2k	20	4k	21	8k	22
Frequency (Hz)	Noise Levels (dB)																		
63	52																		
125	52																		
250	40																		
500	31																		
1k	27																		
2k	20																		
4k	21																		
8k	22																		

Reference	Noise Levels (dB)							
	63	125	250	500	1k	2k	4k	8k
SF-01 Inlet	51.7	52.7	37.7	21.5	13.8	12.6	16.8	19.9
EF-01 Outlet	31.8	22.1	16.6	6.2	1.6	1.4	0.5	-1.6
CU-01	43.8	37.8	33.3	27.8	24.8	13.8	14.8	12.8
CU-02	33.5	29.0	26.0	25.5	19.9	15.8	15.6	9.4



Project Name Domino's, 35E St James Road, Forfar
Project Reference 206/1003
Receiver Reference AP1 Night
Description 35D St James Road
Noise Limit 30
dba 26.6



Reference	Noise Levels (dB)							
	63	125	250	500	1k	2k	4k	8k
CU-02	33.5	29.0	26.0	25.5	19.9	15.8	15.6	9.4



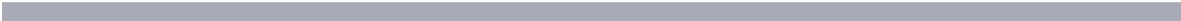
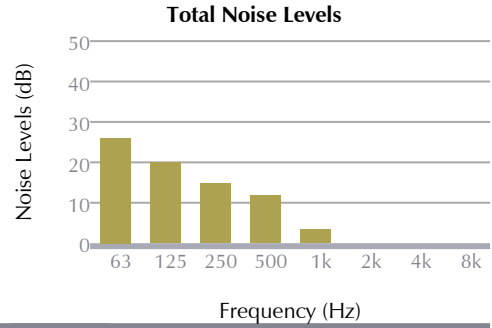


<p>Project Name Domino's, 35E St James Road, Forfar</p> <p>Project Reference 206/1003</p> <p>Receiver Reference AP2 Day</p> <p>Description 35C St James Road</p> <p>Noise Limit 39</p> <p>dBA 32.3</p>	<p>Total Noise Levels</p> <table border="1"> <caption>Total Noise Levels Data</caption> <thead> <tr> <th>Frequency (Hz)</th> <th>Noise Levels (dB)</th> </tr> </thead> <tbody> <tr><td>63</td><td>48</td></tr> <tr><td>125</td><td>47</td></tr> <tr><td>250</td><td>32</td></tr> <tr><td>500</td><td>21</td></tr> <tr><td>1k</td><td>16</td></tr> <tr><td>2k</td><td>18</td></tr> <tr><td>4k</td><td>20</td></tr> <tr><td>8k</td><td>18</td></tr> </tbody> </table>	Frequency (Hz)	Noise Levels (dB)	63	48	125	47	250	32	500	21	1k	16	2k	18	4k	20	8k	18
Frequency (Hz)	Noise Levels (dB)																		
63	48																		
125	47																		
250	32																		
500	21																		
1k	16																		
2k	18																		
4k	20																		
8k	18																		

Reference	Noise Levels (dB)							
	63	125	250	500	1k	2k	4k	8k
SF-01 Inlet	46.8	46.2	29.3	10.8	0.8	0.1	4.3	7.4
EF-01 Outlet	36.3	27.8	24.6	16.4	14.4	16.9	18.9	16.9
CU-01	36.6	29.1	22.5	14.6	8.9	-4.9	-5.2	-7.2
CU-02	26.0	19.9	14.8	11.8	3.4	-3.5	-4.4	-10.6



Project Name Domino's, 35E St James Road, Forfar
Project Reference 206/1003
Receiver Reference AP2 Night
Description 35C St James Road
Noise Limit 30
dba 12.5



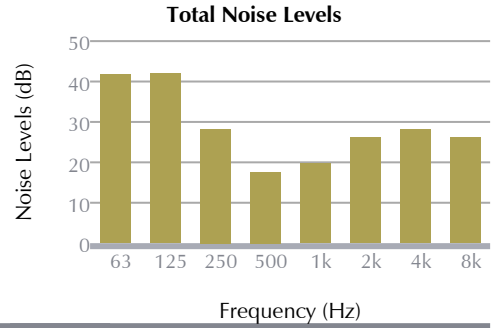
Reference	Noise Levels (dB)							
	63	125	250	500	1k	2k	4k	8k
CU-02	26.0	19.9	14.8	11.8	3.4	-3.5	-4.4	-10.6





External Receiver Summary

Project Name Domino's, 35E St James Road, Forfar
Project Reference 206/1003
Receiver Reference AP3 Day
Description 5 St James Road
Noise Limit 39
dB(A) 33.7



Reference	Noise Levels (dB)							
	63	125	250	500	1k	2k	4k	8k
SF-01 Inlet	41.0	41.8	26.3	9.8	-2.4	-6.1	-1.9	1.2
EF-01 Outlet	33.6	25.9	23.6	16.7	19.7	26.2	28.2	26.2
CU-01	22.4	15.2	8.9	1.1	-4.4	-18.2	-20.0	-22.0
CU-02	9.7	3.8	-1.1	-4.0	-12.2	-19.1	-21.3	-27.5

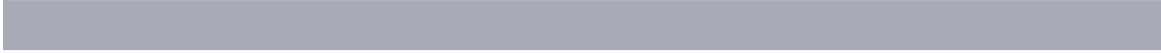


Project Name	Domino's, 35E St James Road, Forfar	<p style="text-align: center;">Total Noise Levels</p>
Project Reference	206/1003	
Receiver Reference	AP3 Night	
Description	5 St James Road	
Noise Limit	30	
dBA	-3.3	

Reference	Noise Levels (dB)							
	63	125	250	500	1k	2k	4k	8k
CU-02	9.7	3.8	-1.1	-4.0	-12.2	-19.1	-21.3	-27.5



CU-01 to AP1 Day



	Octave Band Centre Frequency (Hz)							
	63	125	250	500	1k	2k	4k	8k

Noise Source

Noise Source - CU-01

Sound Pressure Levels @ 1m	61	57	56	52	51	42	40	37	55 dBA
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Full Conformal Area

Distance (m) 1

Type - Semi-anechoic

	13	13	13	13	13	13	13	13	
--	----	----	----	----	----	----	----	----	--

Silencer

Silencer - ENC-01

	-12	-14	-17	-19	-21	-23	-20	-19	
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Point Source Radiation Loss

Radiation - Quarterspherical

Single Figure Read 5

	-5	-5	-5	-5	-5	-5	-5	-5	
--	----	----	----	----	----	----	----	----	--

Point Source Distance Loss

Start Distance (m) 1

End Distance (m) 6

	-16	-16	-16	-16	-16	-16	-16	-16	
--	-----	-----	-----	-----	-----	-----	-----	-----	--

Maekawa Screening Loss

Path Difference (m) -1

	0	0	0	0	0	0	0	0	
--	---	---	---	---	---	---	---	---	--

Facade Reflection

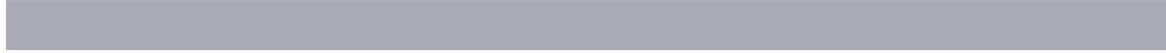
Reflection (dB) 3

	3	3	3	3	3	3	3	3	
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206/1003/CS7



	Octave Band Centre Frequency (Hz)								
	63	125	250	500	1k	2k	4k	8k	
External Receiver									
External Receiver - AP1 Day									
Sound Pressure, Lp	44	38	33	28	25	14	15	13	31 dBA



Calculation Sheet

206/1003/CS8

CU-02 to AP1 Day



	Octave Band Centre Frequency (Hz)							
	63	125	250	500	1k	2k	4k	8k

Noise Source

Noise Source - CU-02

Sound Power Levels	62	60	60	61	57	55	52	45	63 dBA
---------------------------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	---------------

Silencer

Silencer - ENC-01

	-12	-14	-17	-19	-21	-23	-20	-19	
--	-----	-----	-----	-----	-----	-----	-----	-----	--

Point Source Radiation Loss

Radiation - Quarterspherical

Single Figure Read	5								
	-5	-5	-5	-5	-5	-5	-5	-5	

Point Source Distance Loss

Start Distance (m)

1

End Distance (m)

5

	-14	-14	-14	-14	-14	-14	-14	-14	
--	-----	-----	-----	-----	-----	-----	-----	-----	--

Maekawa Screening Loss

Path Difference (m)

-1

	0	0	0	0	0	0	0	0	
--	---	---	---	---	---	---	---	---	--

Facade Reflection

Reflection (dB)

2.5

	3	3	3	3	3	3	3	3	
--	---	---	---	---	---	---	---	---	--

External Receiver

External Receiver - AP1 Day

Sound Pressure, Lp	34	29	26	26	20	16	16	9	27 dBA
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SF-01 Inlet to AP1 Day



	Octave Band Centre Frequency (Hz)								
	63	125	250	500	1k	2k	4k	8k	
Noise Source									
Noise Source - SF-01 Inlet									
Sound Power Levels	86	88	82	77	73	72	67	61	80 dBA

Silencer								
Silencer - ATT-01								
	-5	-11	-21	-33	-37	-36	-27	-18

Rect Unlined Duct Losses CJ								
Width (mm)	700							
Height (mm)	500							
Length (m)	1							
	-1	-1	0	0	0	0	0	0

End Reflection								
Width/Diameter (m)	1.4							
Length (m)	0.5							
Rec or Circ - Rectangular								
Free or Flush - Flush								
	-5	-1	0	0	0	0	0	0

Point Source Radiation Loss								
Radiation - Hemispherical								
Single Figure Read	8							
	-8	-8	-8	-8	-8	-8	-8	-8



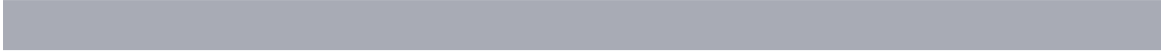


206/1003/CS9

		Octave Band Centre Frequency (Hz)							
		63	125	250	500	1k	2k	4k	8k
External Grille Directivity									
Width (m)	1.4								
Height (m)	0.5								
Vertical (°)	10								
Horizontal (°)	75								
		1	2	2	2	3	2	1	2
Point Source Distance Loss									
Start Distance (m)	1								
End Distance (m)	9								
		-19	-19	-19	-19	-19	-19	-19	-19
Maekawa Screening Loss									
Path Difference (m)	-1								
		0	0	0	0	0	0	0	0
Facade Reflection									
Reflection (dB)	3								
		3	3	3	3	3	3	3	3
External Receiver									
External Receiver - AP1 Day									
Sound Pressure, Lp		52	53	38	21	14	13	17	20 38 dBA



EF-01 Outlet to AP1 Day



	Octave Band Centre Frequency (Hz)							
	63	125	250	500	1k	2k	4k	8k

Noise Source

Noise Source - EF-01 Outlet

Sound Power Levels	79	70	70	74	75	72	68	62	79 dBA
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Silencer

Silencer - ATT-02

	-3	-8	-13	-25	-23	-14	-8	-4
--	----	----	-----	-----	-----	-----	----	----

Rect Unlined Duct Losses CJ

Width (mm)	600							
Height (mm)	600							
Length (m)	7							
	-5	-4	-2	-1	-1	-1	-1	-1

Bend Loss CJ

Dimension (mm)	600							
No. of Bends (no.)	1							
Type - Radiussed Bend - With Vanes								
	0	0	-1	-2	-3	-3	-3	-3

End Reflection

Width/Diameter (m)	1.2							
Length (m)	0.6							
Rec or Circ - Rectangular								
Free or Flush - Flush								
	-5	-1	0	0	0	0	0	0



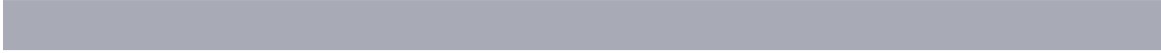


206/1003/CS10

		Octave Band Centre Frequency (Hz)							
		63	125	250	500	1k	2k	4k	8k
Point Source Radiation Loss									
Radiation - Hemispherical									
Single Figure Read	8								
		-8	-8	-8	-8	-8	-8	-8	-8
External Grille Directivity									
Width (m)	1.2								
Height (m)	0.6								
Vertical (°)	20								
Horizontal (°)	90								
		1	1	0	0	-4	-8	-8	-8
Point Source Distance Loss									
Start Distance (m)	1								
End Distance (m)	13.5								
		-23	-23	-23	-23	-23	-23	-23	-23
Maekawa Screening Loss									
Path Difference (m)	0.2015								
		-7	-8	-9	-12	-14	-17	-20	-20
Facade Reflection									
Reflection (dB)	3								
		3	3	2	3	3	3	3	3
External Receiver									
External Receiver - AP1 Day									
Sound Pressure, Lp		32	22	17	6	2	1	0	-2
									13 dBA



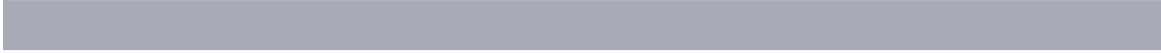
CU-02 to AP1 Night



	Octave Band Centre Frequency (Hz)								
	63	125	250	500	1k	2k	4k	8k	
Noise Source									
Noise Source - CU-02									
Sound Power Levels	62	60	60	61	57	55	52	45	63 dBA
Silencer									
Silencer - ENC-01									
	-12	-14	-17	-19	-21	-23	-20	-19	
Point Source Radiation Loss									
Radiation - Quarterspherical									
Single Figure Read	5								
	-5	-5	-5	-5	-5	-5	-5	-5	
Point Source Distance Loss									
Start Distance (m)	1								
End Distance (m)	5								
	-14	-14	-14	-14	-14	-14	-14	-14	
Maekawa Screening Loss									
Path Difference (m)	-1								
	0	0	0	0	0	0	0	0	
Facade Reflection									
Reflection (dB)	3								
	3	3	3	3	3	3	3	3	
External Receiver									
External Receiver - AP1 Night									
Sound Pressure, Lp	34	29	26	26	20	16	16	9	27 dBA



CU-01 to AP2 Day



	Octave Band Centre Frequency (Hz)							
	63	125	250	500	1k	2k	4k	8k

Noise Source

Noise Source - CU-01

Sound Pressure Levels @ 1m	61	57	56	52	51	42	40	37	55 dBA
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Full Conformal Area

Distance (m) 1

Type - Semi-anechoic

	13	13	13	13	13	13	13	13	
--	----	----	----	----	----	----	----	----	--

Silencer

Silencer - ENC-01

	-12	-14	-17	-19	-21	-23	-20	-19	
--	-----	-----	-----	-----	-----	-----	-----	-----	--

Point Source Radiation Loss

Radiation - Quarterspherical

Single Figure Read 5

	-5	-5	-5	-5	-5	-5	-5	-5	
--	----	----	----	----	----	----	----	----	--

Point Source Distance Loss

Start Distance (m) 1

End Distance (m) 6

	-16	-16	-16	-16	-16	-16	-16	-16	
--	-----	-----	-----	-----	-----	-----	-----	-----	--

Maekawa Screening Loss

Path Difference (m) 0.308

	-7	-9	-11	-13	-16	-19	-20	-20	
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Facade Reflection

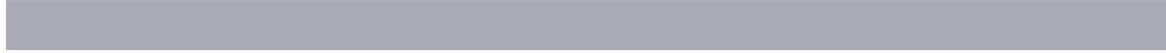
Reflection (dB) 3

	3	3	3	3	3	3	3	3	
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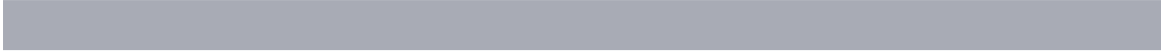
206/1003/CS12



	Octave Band Centre Frequency (Hz)								
	63	125	250	500	1k	2k	4k	8k	
External Receiver									
External Receiver - AP2 Day									
Sound Pressure, Lp	37	29	23	15	9	-5	-5	-7	19 dBA



CU-02 to AP2 Day



	Octave Band Centre Frequency (Hz)							
	63	125	250	500	1k	2k	4k	8k

Noise Source

Noise Source - CU-02

Sound Power Levels	62	60	60	61	57	55	52	45	63 dBA
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Silencer

Silencer - ENC-01

	-12	-14	-17	-19	-21	-23	-20	-19	
--	-----	-----	-----	-----	-----	-----	-----	-----	--

Point Source Radiation Loss

Radiation - Quarterspherical

Single Figure Read	5								
	-5	-5	-5	-5	-5	-5	-5	-5	

Point Source Distance Loss

Start Distance (m)

1

End Distance (m)

5

	-14	-14	-14	-14	-14	-14	-14	-14	
--	-----	-----	-----	-----	-----	-----	-----	-----	--

Maekawa Screening Loss

Path Difference (m)

0.359

	-8	-9	-11	-14	-17	-19	-20	-20	
--	----	----	-----	-----	-----	-----	-----	-----	--

Facade Reflection

Reflection (dB)

3

	3	3	3	3	3	3	3	3	
--	---	---	---	---	---	---	---	---	--

External Receiver

External Receiver - AP2 Day

Sound Pressure, Lp	26	20	15	12	3	-4	-4	-11	13 dBA
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SF-01 Inlet to AP2 Day



	Octave Band Centre Frequency (Hz)							
	63	125	250	500	1k	2k	4k	8k

Noise Source

Noise Source - SF-01 Inlet

Sound Power Levels	86	88	82	77	73	72	67	61	80 dBA
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Silencer

Silencer - ATT-01

	-5	-11	-21	-33	-37	-36	-27	-18
--	----	-----	-----	-----	-----	-----	-----	-----

Rect Unlined Duct Losses CJ

Width (mm)	700							
Height (mm)	500							
Length (m)	1							
	-1	-1	0	0	0	0	0	0

End Reflection

Width/Diameter (m)	1.4							
Length (m)	0.5							
Rec or Circ - Rectangular								
Free or Flush - Flush								
	-5	-1	0	0	0	0	0	0

Point Source Radiation Loss

Radiation - Hemispherical								
Single Figure Read	8							
	-8	-8	-8	-8	-8	-8	-8	-8



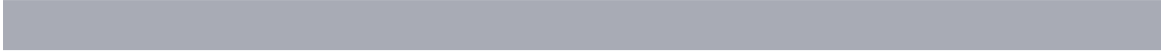


206/1003/CS14

		Octave Band Centre Frequency (Hz)								
		63	125	250	500	1k	2k	4k	8k	
External Grille Directivity										
Width (m)	1.4									
Height (m)	0.5									
Vertical (°)	15									
Horizontal (°)	30									
		2	3	4	4	5	5	5	6	
Point Source Distance Loss										
Start Distance (m)	1									
End Distance (m)	6									
		-16	-16	-16	-16	-16	-16	-16	-16	
Maekawa Screening Loss										
Path Difference (m)	0.664									
		-9	-11	-13	-16	-19	-20	-20	-20	
Facade Reflection										
Reflection (dB)	3									
		3	3	3	3	3	3	3	3	
External Receiver										
External Receiver - AP2 Day										
Sound Pressure, Lp		47	46	29	11	1	0	4	7	31 dBA



EF-01 Outlet to AP2 Day



	Octave Band Centre Frequency (Hz)							
	63	125	250	500	1k	2k	4k	8k

Noise Source

Noise Source - EF-01 Outlet

Sound Power Levels	79	70	70	74	75	72	68	62	79 dBA
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Silencer

Silencer - ATT-02

	-3	-8	-13	-25	-23	-14	-8	-4	
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Rect Unlined Duct Losses CJ

Width (mm)	600								
Height (mm)	600								
Length (m)	7								
	-5	-4	-2	-1	-1	-1	-1	-1	

Bend Loss CJ

Dimension (mm)	600								
No. of Bends (no.)	1								
Type - Radiussed Bend - With Vanes									
	0	0	-1	-2	-3	-3	-3	-3	

End Reflection

Width/Diameter (m)	1.2								
Length (m)	0.6								
Rec or Circ - Rectangular									
Free or Flush - Flush									
	-5	-1	0	0	0	0	0	0	



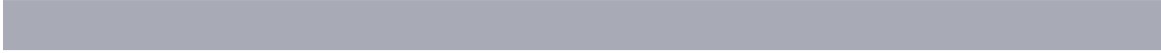


206/1003/CS15

		Octave Band Centre Frequency (Hz)							
		63	125	250	500	1k	2k	4k	8k
Point Source Radiation Loss									
Radiation - Hemispherical									
Single Figure Read	8								
		-8	-8	-8	-8	-8	-8	-8	-8
External Grille Directivity									
Width (m)	1.2								
Height (m)	0.6								
Vertical (°)	0								
Horizontal (°)	90								
		1	1	1	1	-4	-7	-7	-7
Point Source Distance Loss									
Start Distance (m)	1								
End Distance (m)	17								
		-25	-25	-25	-25	-25	-25	-25	-25
Maekawa Screening Loss									
Path Difference (m)	-1								
		0	0	0	0	0	0	0	0
Facade Reflection									
Reflection (dB)	3								
		3	3	3	3	3	3	3	3
External Receiver									
External Receiver - AP2 Day									
Sound Pressure, Lp		36	28	25	16	14	17	19	17 25 dBA



CU-02 to AP2 Night



	Octave Band Centre Frequency (Hz)							
	63	125	250	500	1k	2k	4k	8k

Noise Source

Noise Source - CU-02

Sound Power Levels	62	60	60	61	57	55	52	45	63 dBA
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Silencer

Silencer - ENC-01

	-12	-14	-17	-19	-21	-23	-20	-19	
--	-----	-----	-----	-----	-----	-----	-----	-----	--

Point Source Radiation Loss

Radiation - Quarterspherical

Single Figure Read	5								
	-5	-5	-5	-5	-5	-5	-5	-5	

Point Source Distance Loss

Start Distance (m)

1

End Distance (m)

5

	-14	-14	-14	-14	-14	-14	-14	-14	
--	-----	-----	-----	-----	-----	-----	-----	-----	--

Maekawa Screening Loss

Path Difference (m)

0.359

	-8	-9	-11	-14	-17	-19	-20	-20	
--	----	----	-----	-----	-----	-----	-----	-----	--

Facade Reflection

Reflection (dB)

3

	3	3	3	3	3	3	3	3	
--	---	---	---	---	---	---	---	---	--

External Receiver

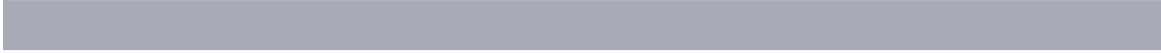
External Receiver - AP2 Night

Sound Pressure, Lp	26	20	15	12	3	-4	-4	-11	13 dBA
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CU-01 to AP3 Day



	Octave Band Centre Frequency (Hz)							
	63	125	250	500	1k	2k	4k	8k

Noise Source

Noise Source - CU-01

Sound Pressure Levels @ 1m	61	57	56	52	51	42	40	37	55 dBA
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Full Conformal Area

Distance (m) 1

Type - Semi-anechoic

	13	13	13	13	13	13	13	13	
--	----	----	----	----	----	----	----	----	--

Silencer

Silencer - ENC-01

	-12	-14	-17	-19	-21	-23	-20	-19	
--	-----	-----	-----	-----	-----	-----	-----	-----	--

Point Source Radiation Loss

Radiation - Quarterspherical

Single Figure Read 5

	-5	-5	-5	-5	-5	-5	-5	-5	
--	----	----	----	----	----	----	----	----	--

Point Source Distance Loss

Start Distance (m) 1

End Distance (m) 33

	-30	-30	-30	-30	-30	-30	-30	-30	
--	-----	-----	-----	-----	-----	-----	-----	-----	--

Maekawa Screening Loss

Path Difference (m) 0.212

	-7	-8	-10	-12	-14	-17	-20	-20	
--	----	----	-----	-----	-----	-----	-----	-----	--

Facade Reflection

Reflection (dB) 3

	3	3	3	3	3	3	3	3	
--	---	---	---	---	---	---	---	---	--





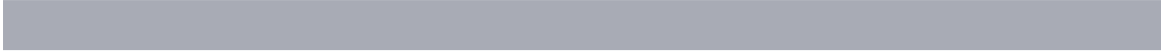
206/1003/CS17



	Octave Band Centre Frequency (Hz)								
	63	125	250	500	1k	2k	4k	8k	
External Receiver									
External Receiver - AP3 Day									
Sound Pressure, Lp	22	15	9	1	-4	-18	-20	-22	5 dBA



CU-02 to AP3 Day



	Octave Band Centre Frequency (Hz)							
	63	125	250	500	1k	2k	4k	8k

Noise Source

Noise Source - CU-02

Sound Power Levels	62	60	60	61	57	55	52	45	63 dBA
---------------------------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	---------------

Silencer

Silencer - ENC-01

	-12	-14	-17	-19	-21	-23	-20	-19	
--	-----	-----	-----	-----	-----	-----	-----	-----	--

Point Source Radiation Loss

Radiation - Quarterspherical

Single Figure Read	5								
	-5	-5	-5	-5	-5	-5	-5	-5	

Point Source Distance Loss

Start Distance (m)

1

End Distance (m)

35

	-31	-31	-31	-31	-31	-31	-31	-31	
--	-----	-----	-----	-----	-----	-----	-----	-----	--

Maekawa Screening Loss

Path Difference (m)

0.261

	-7	-8	-10	-13	-15	-18	-20	-20	
--	----	----	-----	-----	-----	-----	-----	-----	--

Facade Reflection

Reflection (dB)

3

	3	3	3	3	3	3	3	3	
--	---	---	---	---	---	---	---	---	--

External Receiver

External Receiver - AP3 Day

Sound Pressure, Lp	10	4	-1	-4	-12	-19	-21	-27	-3 dBA
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SF-01 Inlet to AP3 Day



	Octave Band Centre Frequency (Hz)								
	63	125	250	500	1k	2k	4k	8k	
Noise Source									
Noise Source - SF-01 Inlet									
Sound Power Levels	86	88	82	77	73	72	67	61	80 dBA

Silencer									
Silencer - ATT-01									
	-5	-11	-21	-33	-37	-36	-27	-18	

Rect Unlined Duct Losses CJ								
Width (mm)	700							
Height (mm)	500							
Length (m)	1							
	-1	-1	0	0	0	0	0	0

End Reflection								
Width/Diameter (m)	1.4							
Length (m)	0.5							
Rec or Circ - Rectangular								
Free or Flush - Flush								
	-5	-1	0	0	0	0	0	0

Point Source Radiation Loss								
Radiation - Hemispherical								
Single Figure Read	8							
	-8	-8	-8	-8	-8	-8	-8	-8



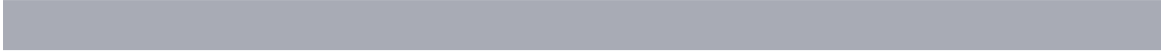


206/1003/CS19

		Octave Band Centre Frequency (Hz)							
		63	125	250	500	1k	2k	4k	8k
External Grille Directivity									
Width (m)	1.4								
Height (m)	0.5								
Vertical (°)	0								
Horizontal (°)	90								
		1	1	1	1	-4	-7	-7	-7
Point Source Distance Loss									
Start Distance (m)	1								
End Distance (m)	29								
		-29	-29	-29	-29	-29	-29	-29	-29
Maekawa Screening Loss									
Path Difference (m)	-1								
		0	0	0	0	0	0	0	0
Facade Reflection									
Reflection (dB)	3								
		3	3	3	3	3	3	3	3
External Receiver									
External Receiver - AP3 Day									
Sound Pressure, Lp		41	42	26	10	-2	-6	-2	1 27 dBA



EF-01 Outlet to AP3 Day



	Octave Band Centre Frequency (Hz)							
	63	125	250	500	1k	2k	4k	8k

Noise Source

Noise Source - EF-01 Outlet

Sound Power Levels	79	70	70	74	75	72	68	62	79 dBA
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Silencer

Silencer - ATT-02

	-3	-8	-13	-25	-23	-14	-8	-4
--	----	----	-----	-----	-----	-----	----	----

Rect Unlined Duct Losses CJ

Width (mm)	600							
Height (mm)	600							
Length (m)	7							
	-5	-4	-2	-1	-1	-1	-1	-1

Bend Loss CJ

Dimension (mm)	600							
No. of Bends (no.)	1							
Type - Radiussed Bend - With Vanes								
	0	0	-1	-2	-3	-3	-3	-3

End Reflection

Width/Diameter (m)	1.2							
Length (m)	0.6							
Rec or Circ - Rectangular								
Free or Flush - Flush								
	-5	-1	0	0	0	0	0	0



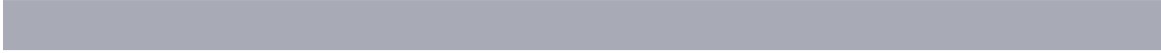


206/1003/CS20

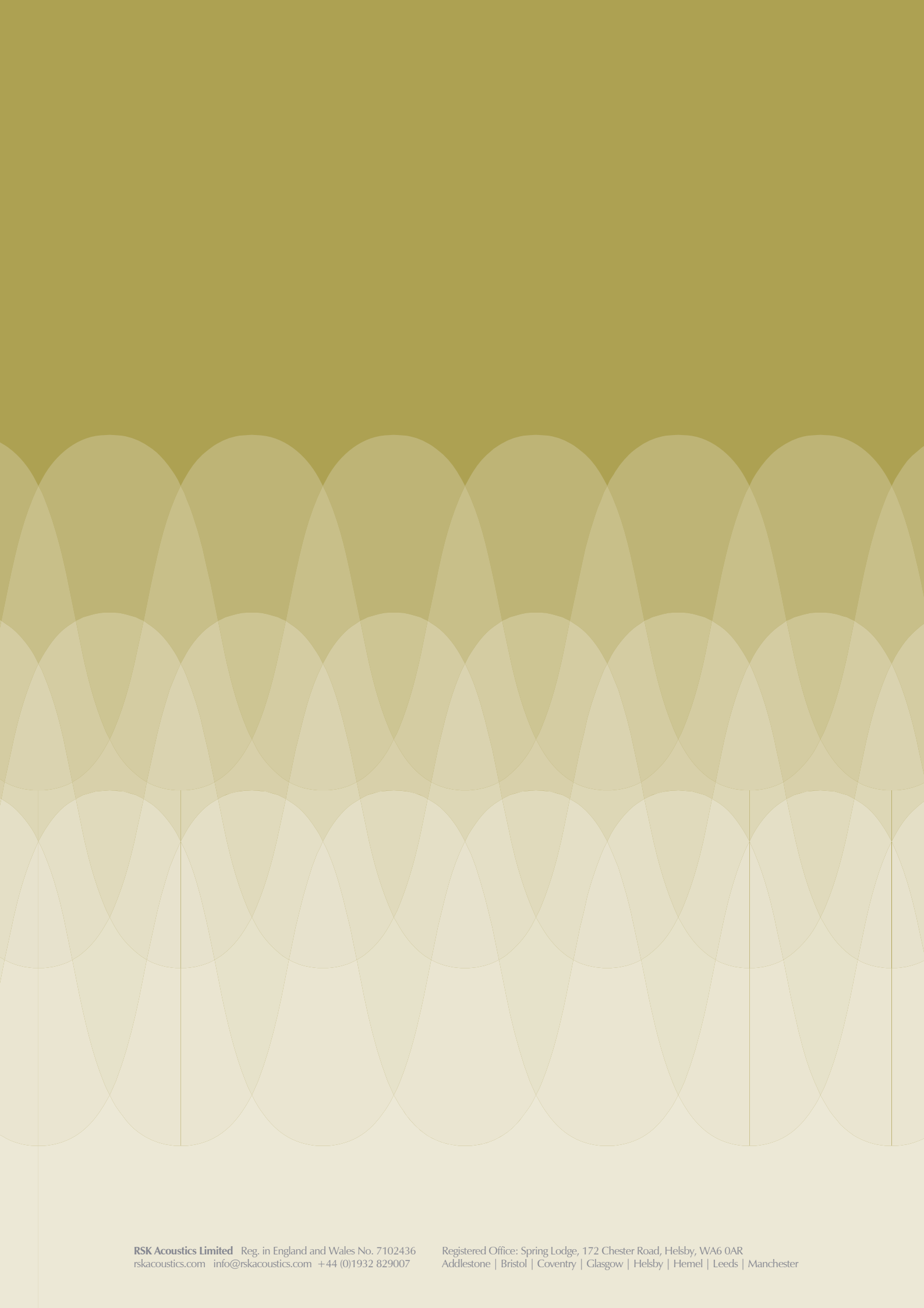
	Octave Band Centre Frequency (Hz)							
	63	125	250	500	1k	2k	4k	8k
Point Source Radiation Loss								
Radiation - Hemispherical								
Single Figure Read	8							
	-8	-8	-8	-8	-8	-8	-8	-8
External Grille Directivity								
Width (m)	1.2							
Height (m)	0.6							
Vertical (°)	10							
Horizontal (°)	0							
	2	3	4	5	6	6	6	6
Point Source Distance Loss								
Start Distance (m)	1							
End Distance (m)	26							
	-28	-28	-28	-28	-28	-28	-28	-28
Maekawa Screening Loss								
Path Difference (m)	-1							
	0	0	0	0	0	0	0	0
Facade Reflection								
Reflection (dB)	3							
	2	3	3	3	3	3	3	3
External Receiver								
External Receiver - AP3 Day								
Sound Pressure, Lp	34	26	24	17	20	26	28	26 33 dBA



CU-02 to AP3 Night



	Octave Band Centre Frequency (Hz)								
	63	125	250	500	1k	2k	4k	8k	
Noise Source									
Noise Source - CU-02									
Sound Power Levels	62	60	60	61	57	55	52	45	63 dBA
Silencer									
Silencer - ENC-01									
	-12	-14	-17	-19	-21	-23	-20	-19	
Point Source Radiation Loss									
Radiation - Quarterspherical									
Single Figure Read	5								
	-5	-5	-5	-5	-5	-5	-5	-5	
Point Source Distance Loss									
Start Distance (m)	1								
End Distance (m)	35								
	-31	-31	-31	-31	-31	-31	-31	-31	
Maekawa Screening Loss									
Path Difference (m)	0.261								
	-7	-8	-10	-13	-15	-18	-20	-20	
Facade Reflection									
Reflection (dB)	3								
	3	3	3	3	3	3	3	3	
External Receiver									
External Receiver - AP3 Night									
Sound Pressure, Lp	10	4	-1	-4	-12	-19	-21	-27	-3 dBA





28/07/2022

Forfar

Job Reference: Dominos - Forfar

Risk Assessment for Odour

The following 'Risk Assessment for Odour' has derived from criteria outlined by EMAQ, Guidance on the Control of Odour and Noise from Commercial Kitchen Exhaust Systems Appendix C. The assessment has been undertaken by Plasma Clean to accurately score the site to EMAQ standards.

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/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

Based on the sum of contributions from dispersion, proximity of receptors, size of kitchen and cooking type:

Criteria	Rating	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	Moderate 10 Discharging 1m above eaves at 10 -15m/s
	Good	5	5 Discharging 1m 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/grease loading)	Very High	10	Pub (high level of fried food), fried chicken, burgers or fish & chips



All Ventilation & Extraction Ltd

Unit 7 – Avocet Trading Estate

Victoria Gardens

Burgess Hill, West Sussex

RH15 9NH

Tel: 01444 230010

sales@ave-ltd.com | www.ave-ltd.com

	High	7	Kebab, Vietnamese, Thai or Indian.
	Medium	4	Cantonese, Japanese, Chinese or Pizza
	Low	1	Most pubs, Italian, French, Pizza or Steakhouse

Below is an evaluation for the site based on the criteria on the previous page. Please fill out 'Score' column sign and date at the bottom of the document and send back to us.

Criteria	Rating	Score	Details/ Comments
Dispersion	High	20	
Proximity of Receptors	High	10	
Size of Kitchen	Medium	3	
Cooking Type	Medium	4	

Impact Risk	Odour Control Requirement	Significance Score
VERY HIGH	3 Stage filtration; ESP, Panel filters, carbon filters	37

Notes:	
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**All Ventilation & Extraction Ltd
Representative:**

Josh Taylor
.....

Signature:

Josh Taylor
.....

Date:

28/07/2022
.....

Customer:

.....

Signature:

.....

Date:

.....

**All Ventilation & Extraction Ltd**

Unit 7 – Avocet Trading Estate

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Burgess Hill, West Sussex

RH15 9NH

Tel: 01444 230010

sales@ave-ltd.com | www.ave-ltd.com

28/07/2022

PROPOSED VENTILATION SYSTEM AT **Forfar**

CONTENTS:

1.0 INTRODUCTION

2.0 PREAMBLE

3.0 INFORMATION ON PREMISES & TYPE OF OPERATION

4.0 PLANS AND DRAWINGS

5.0 DETAILED DESIGN OF VENTILATION SYSTEM

- 5.1 Pre-filters
- 5.2 Electrostatic precipitators
- 5.3 Odour counteracting or neutralising system
- 5.4 Cooker Hood details
- 5.5 System operation
- 5.6 Flue design
- 5.7 Noise
- 5.8 Maintenance
- 5.9 Carbon Filters

6.0 ADDITIONAL NOTES FOR GUIDANCE

APPENDIX 1 – Cold Room and Air Conditioning compressor data sheets

APPENDIX 2 – Supporting Data sheets

1.0 INTRODUCTION:

The information contained within this document should be used as supporting information when applying for Change of Use Planning Approval and is based on the 'EMAQ Annex B – Guidance on the control of odour and noise from Commercial Kitchen Exhaust system – Jan 05'. This follows feedback from various Local Authorities who use Annex B as a guide when referring to the extract system as part of the application process.

Annex B advises that the aim of any ventilation/extraction is to ensure that no nuisance, disturbance or loss of amenity is caused by odour, fumes, food droplets or noise, to nearby properties.

Additionally, the visual appearance of the flue may be important and the flue itself may require a separate planning permission. Enquiries should be made to the Local Authority Planning Department regarding this matter.

A suitably qualified and experienced person with specialist knowledge of



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Victoria Gardens

Burgess Hill, West Sussex

RH15 9NH

Tel: 01444 230010

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ventilation schemes should undertake the design and installation of a ventilation system.

Designing and installing appropriate ventilation systems may involve considerable expense.

In circumstances where the end user of the premises is unknown, or where the specific type of food to be cooked is unknown, the installation should be designed to achieve the highest level of odour control in order to cater for a worst case scenario.

There are many different types of odour abatement available (carbon filters, electrostatic precipitation, high dilution and high velocity extraction) however not all types are suitable for all cooking methods. In each case, grease filters must be installed.

2.0 PREAMBLE

All work is carried out in accordance with the latest relevant British (or Irish regulations where applicable) and European Standards, statutory Regulation and Byelaws together with the following publications:

- CIBSE Codes and guides to current practice
- Water Authority Byelaws
- HVCA – DW143 Practical Guide to Ductwork Leakage Testing
- HVCA DW144 Specification for Sheet Metal Ductwork
- HVCA DW172 Guide to Good Practice for Kitchen Ventilation Systems
- HVCA – RUAG70 Guide to Good Practice Refrigeration
- TR19 – Duct & Kitchen extract cleaning systems
- The Building Regulations
- Gas Safety (Installation and Use) Regulations 1998

All plant, ducts, pipe cables etc. shall be adequately protected against accidental damage corrosion and external environment and shall be capable of safe decontamination and removal in the future without disturbing other services. Pipes and ducts shall be adequately sized, kept as short as practicable, leak-proof with a minimum number of joints and have provision for routine maintenance. All facilities shall be designed to prevent the ingress or egress of rodents, vermin, and insects.

The duct will be fixed to the shell of the unit using anti-vibration fixing mounts and under no circumstances will flexible ductwork be used other than the fan connections

The HVAC contractor shall supply the client with system design drawings, prior to manufacture and installation

For projects in England and Wales, the HVAC contractor shall also demonstrate compliance with Building Regulations Approved documents L2A & L2B. This will include:

- (a) Provision of details of the efficiency and controls of heating, cooling and ventilation systems in accordance with Non-Domestic Heating, Cooling and Ventilation compliance Guide (2006)
- (b) Provision of commissioning certificates including air leakage tests on the ductwork



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Fire/smoke dampers shall be installed in all fire compartment walls to Building Control requirements

The HVAC contractor shall ensure that externally, the ductwork conforms to the supplied drawings in terms of its route, height and termination. These drawings will have formed part of the planning permission and must not be deviated from without prior consultation with the Project Manager / Architect.

Upon completion of the installation, all shall be fully tested and proved including airflows. The Contractor shall produce an Operating and Maintenance Manual which shall contain details of all equipment supplied; a record drawing of the complete mechanical services installation and copies of all Test Certificates. It shall contain a Maintenance Schedule based on the manufacturer's recommendations.

3.0 INFORMATION ON TYPE OF OPERATION

The proposed operation will produce approximately 100 meals on average per day.

The proposed hours of operation of the business and ventilation plant will be in accordance with the hours stated in the approved Change of Use

4.0 PLANS AND DRAWINGS

Please refer to drawing **Dominos - Houghton Regis_01-A3** of the proposed premises which shows the indicative internal arrangement and location of the ventilation system.

A schematic drawing produced by the HVAC Designer will be provided at a later date.

5.0 DETAILED DESIGN OF VENTILATION SYSTEM

5.1 Pre-filters (fresh air system)

A copy of the manufacturer's product data sheet should be supplied clearly showing:

- Manufacturer's name: **Ace Filtration**
- Filter name and product code: **Type 90 and VL2 Panel Filter**
- Dimensions of the pre-filter: **45mm thick (rated airflow 2.0m/s) see data sheets**
- Nature of the filter media: **Disposable glass fibre media**
- Manufacturer's recommendations on the frequency and type of maintenance of the pre-filter having regard to the conditions that it will be used under: **3 monthly maintenance**

5.2 Electrostatic precipitators

Ry5000

5.3 Odour counteracting or neutralising system

3 of G4 Panel Filters

18 of Site Safe Carbons



5.4 Cooker hood

The following information on the characteristics of the cooker hood should be supplied that clearly shows:

- The hood will be made of: **Stainless Steel construction with all visible joints to be welded, ground and polished and to incorporate a gutter around all edges with a plugged drain connection at lowest point.**
- Length that the cooker hood overhangs the appliances: **300mm all round**
- Face velocity at the cooker hood (metres per second): **0.25cu/m/s**
- Dimensions of the opening of the cooker hood= **2m x 3m**

The hood will include 6 no. baffle type grease filters, aluminium frame.

- Manufacturer's name: **Ace Filtration**
- Filter name and product code: **Model AF111 450x450mm Baffle type filters**

The extract system is predominantly removing heat and gas combustion fumes. Mesh filters are much more efficient at removing any fine particles which may be caught in the air flow.

There is not barrier to flame within the filter, and it is accepted that mesh filters cannot therefore be used on their own in applications where there is appreciable risk of fire. However this does not apply in this operation.

5.5 System Operation

In addition to the specification of the components the following must be provided about the system:

- Proposed extract rate (expressed as m³/second): **1.5m³/s**
- Dwell time of the gases in the carbon filtration zone: **0.4s**
- Volume of the kitchen: **based on average prep area size of 100 - 150cu/m**
- Efflux velocity: **11m/s**

Note: The system performance is dependant upon the extract rate of the air. Where the rate can be adjusted by the use of dampers or a variable speed fan, then the conditions under which the extract rate can be achieved must be described.

5.6 Flue Design

The height and velocity of the final discharge are the two important factors. Generally, the greater the flue height, the better the dispersion and dilution of odours. The discharge of air should be at a minimum height of 1m above the roof ridge, especially if there are buildings nearby that may affect odour dispersion and dilution.

Where this is not possible (e.g. because of ownership or structural constraints), additional techniques will be required in order to reduce odours, such as an increase in efflux velocity and additional filters, etc. The final discharge should be vertically upwards, unimpeded by flue terminals. The number of bends in the ducting should be minimised and the ducting should have a smooth internal surface.

Details of proposal: **Proposed new 500mm dia. galvanised oven extract duct**



All Ventilation & Extraction Ltd

Unit 7 – Avocet Trading Estate

Victoria Gardens

Burgess Hill, West Sussex

RH15 9NH

Tel: 01444 230010

sales@ave-ltd.com | www.ave-ltd.com

to run internally above suspended ceiling onto ESP Unit. Followed by a carbon filter unit complete with 3 of g4 panel filters & 18 of site safe carbons. Extract system to be fitted with atmospheric side silencers with extract fan fixed to anti-vibration mounts to M&E specialist sub-contractor's design and detail. Extract system to be fitted with fine ESP, filtration and carbon filters in accordance with AVE Ltd EMAQ report reference.

5.7 Noise

Data on the noise produced by the system as a whole should be provided including:

- Sound power levels or sound pressure levels at given distances (the assumptions to this calculation must be clearly stated);
- An octave band analysis of the noise produced by the system should also be provided, where possible; and
- Hours of operation of the ventilation system (where this differs from the hours of opening).

This information is site dependent and can only be achieved once the system is designed and installed. Please refer to Appendix 1 for data sheets regarding the fans for more information.

5.8 Maintenance

A schedule of maintenance must be provided including details for:

- Cleaning of washable grease filters: **Weekly**
- Removal & replacement of ESP filters: **6 monthly**
- Frequency of inspection and replacement of all filters (grease filters, prefilters where proposed): **Monthly**
- Frequency of replacement of carbon filters where proposed): **6 Monthly**
- Inspection and servicing of fans: **Bi-annually**

Please note that the HVAC contractor will provide 12 months spare filters at each new store.

5.9 Carbon Filters

Please refer to AVE risk assessment and specification document reference **Dominos - Forfar_EMAQ Risk Assessment** dated **28/07/2022**. Please contact AVE Ltd directly for any additional information with regards to oven extract filtration details / specification. Contact details as follows:

Contract: Josh

Telephone: 01444 230010

6.0 Additional notes for guidance

The air inlets must not permit pests to enter the kitchen. Fly screens are an example of how this can be achieved.

Sufficient air must be permitted into the premises to replace air extracted. The method for supplying this make-up air should be detailed. The route of the air into the kitchen must not result in its contamination, for example passage through a toilet. Separate provision must be made for ventilation of a toilet.



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There must be sufficient access points to permit adequate cleaning of all the ductwork.

Fresh air is introduced via a dedicated air handling unit to supply 80% of the extracted air, fresh air filtered to EU4 – tempered via a low pressure hot water coil - is introduced via ceiling mounted diffusers to the preparation / office and wash-up areas.

APPENDIX 1

COLDROOM AND AIR CONDITIONING COMPRESSORS

AIR CONDITIONING

COLD ROOM

Model

(typical unit)

Mitsubishi H.I.

FDC 100VNX

Model

(typical unit)

Karbox 2464

Dimensions W 970mm

D 350mm

H 1300mm

Dimensions

W 890

D 560

H 500

Weight 105 kg **Weight** 78 kg

Airflow 1620 cu.m/h **Compressor** Model CAJ2464

34.5cm³

9.7 MRA

38 LRA

Current Start N/A

Max running

current 11.1A

Refrigerant

Connections

Suction

15.9mm

Liquid

9.5mm

Capacity Cool 10.0 kW

Heat 11.2 kW

Condenser Fan



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Motor

220-1

Volts/Phase

0.6 Amps each

2800 m³/hr Air

Flow

Noise 50 dBA @ 1m **Watts** 4-6kW

Electrical Details 16 MRA

38 LRA

Noise 34dBA @ 10m

APPENDIX 2

PRODUCT DATA SHEETS

- RY5000 ESP
- G4 Panel (Extract pre filter)
- G4 Bag Filter (Extract pre filter)
- Site Safe Carbons (Extract Odour control)
- System Air – Water heated air handling unit (Fresh Air Intake)
- System Air – Attenuator for fresh air intake
- System Air – Attenuator for extract air intake
- Ace Filtration – Model AF111 394x394mm Baffle type filters (Canopy Filters)
- Systemair – 560 EC acoustic box fan (Extract Fan)
- AVE Ltd – Square flexible anti vibe connections for both extract and Fresh air intake fans

Product Data Sheet

FP Pleated G4 Panel Filter

APPLICATIONS

The FP Pleated Panel is suitable for use as a pre-filter for higher grades of air filtration or for use as a simple filter for general use within air handling systems where the use of glass-fibre is unacceptable.

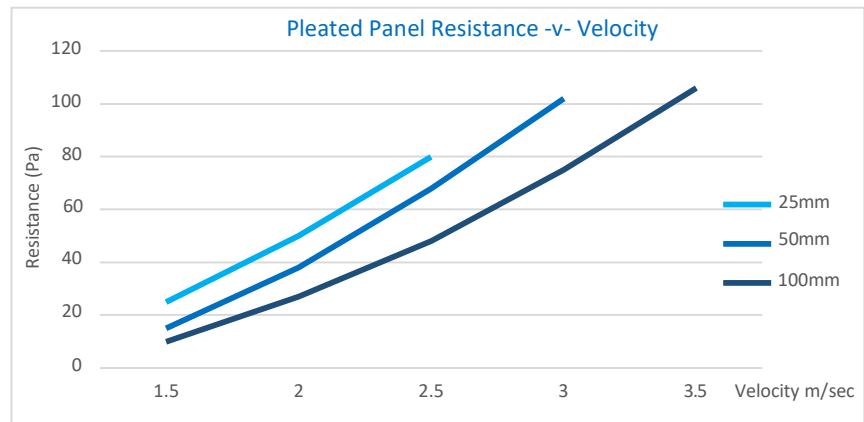
CONSTRUCTION

The FP Pleated Panel contains a core of pleated non-hygroscopic and hydrophobic fibrous media designed specifically for use in air filtration. The media is manufactured with a graded fibre density to ensure optimum and even dust retention combined with low initial resistance and is thermally bonded onto a galvanised steel support mesh for maximum physical stability. The aerodynamic pack is then fully bonded into a moisture resistant rigid white lined card frame and fitted with an airflow indicator.



- Pre-filtration with low air resistance yet maximum protection
- Available in a vast range of sizes
- Bespoke sizes readily available
- Long life and robust construction
- Fully incinerable for easy disposal
- Economical
- Made in Britain

Filter Reference	Nominal size (mm)	Rated Velocity (m/sec)	Efficiency rating (EN779)	Initial resistance at rated Velocity (pa)	Rated final resistance (pa)	Maximum Humidity	Maximum temp (°C)
FP-PL1	25	1.5	G3	25	250	80% RH	80
FP-PL2	50	2.0	G4	38	250	80% RH	80
FP-PL4	100	3.2	G4	78	250	80% RH	80





Standard Sizes & Capacities

FP Pleated G4 Panel Filter					
Nominal Imperial Dimensions (inches)	Actual Metric Dimensions (mm)			Capacity (m ³ /hr)	Initial Resistance (Pa)
	H	W	D		
10x10x1	245	245	22	324	25
12x12x1	295	295	22	470	25
15x15x1	378	378	22	772	25
18x18x1	445	445	22	1,069	25
20x10x1	496	240	22	643	25
20x15x1	497	375	22	1,006	25
20x16x1	496	394	22	1,055	25
20x20x1	496	496	22	1,328	25
24x12x1	592	298	22	953	25
24x20x1	594	496	22	1,591	25
24x24x1	596	596	22	1,918	25
25x16x1	623	395	22	1,329	25
25x20x1	622	495	22	1,663	25
10x10x2	245	245	48	432	38
12x12x2	295	295	47	627	38
15x15x2	378	378	47	1,029	38
18x18x2	445	445	47	1,426	38
20x10x2	496	240	47	857	38
20x15x2	497	375	47	1,342	38
20x16x2	496	394	47	1,407	38
20x20x2	495	495	47	1,764	38
24x12x2	592	298	47	1,270	38
24x20x2	594	495	47	2,117	38
24x24x2	596	596	47	2,558	38
25x16x2	623	395	47	1,772	38
25x20x2	622	495	47	2,217	38
10x10x4	245	245	97	691	78
12x12x4	295	295	97	1,003	78
15x15x4	378	378	97	1,646	78
18x18x4	445	445	97	2,281	78
20x10x4	496	240	97	1,371	78
20x15x4	497	375	97	2,147	78
20x16x4	495	393	97	2,241	78
20x20x4	495	495	97	2,823	78
24x12x4	594	295	97	2,019	78
24x20x4	598	495	97	3,410	78
24x24x4	594	594	97	4,065	78
25x16x4	622	396	97	2,838	78
25x20x4	622	494	97	3,540	78



Product Data Sheet

FP-G4 Lofted Synthetic Bag Filter

APPLICATIONS

The FP Lofted G4 Synthetic is suitable for use as a pre-filter for higher grades of air filtration, or for use as a simple filter for general applications.

CONSTRUCTION

The pockets are produced from progressively flame retardant that complies with CP413. The structured thermally bonded polyester fibres are specifically designed for use in air filtration. Each pocket is fitted with a U profile capping strip to ensure no leakage between pockets. The sets of pockets are retained in a rigid galvanised steel channel, which features a specially roll formed safety edge.



- High dust holding capacity at low resistance
- Lofted Synthetic product
- Low replacement cost
- Robust construction
- Available in standard and bespoke sizes
- Made in Britain

Rated Velocity m/s	Average Arrestance 5µm	Max Temp °C	Max Humidity	Initial Resistance at RV (pa)	Rated Final Resistance (pa)
Dependent on pocket length	<95%	60	100%RH	55	250
Standard Pocket No.s	Standard Pocket lengths			Standard Header Depths	Flammability
4 or 6	225mm 305mm 381mm 530mm			20, 25 or 30mm	Complies with CP413 & BS5588
3 or 4					
2 or 3					



Standard Sizes & Capacities

FP-G4 Lofted Synthetic Bag Filter

Header HxW (mm)	No. Pockets	Pocket length	Capacity (m ³ /hr)	Initial Resistance (Pa)
592x592	4	225	1,908	55
592x592	6	225	2,862	55
592x592	4	305	2,556	55
592x592	6	305	3,834	55
592x592	4	381	3,384	55
592x592	6	381	5,076	55
592x592	4	530	4,500	55
592x592	6	530	6,750	55
592x490	3	225	1,431	55
592x490	4	225	1,909	55
592x490	3	305	1,917	55
592x490	4	305	2,557	55
592x490	3	381	2,538	55
592x490	4	381	3,386	55
592x490	3	530	3,375	55
592x490	4	530	4,502	55
592x292	2	225	954	55
592x292	3	225	1,431	55
592x292	2	305	1,278	55
592x292	3	305	1,917	55
592x292	2	381	1,692	55
592x292	3	381	2,538	55
592x292	2	530	2,250	55
592x292	3	530	3,375	55

Product Data Sheet

Site-safe Discarb cells

APPLICATIONS

Suitable for most gas-phase filtration applications including:

- Catering
- Museums
- Archives
- Airport buildings
- Ozone reduction
- VOC removal
- Mortuary
- Medical
- Pharmaceuticals
- Micro-electronics
- Sewerage Plants
- General odour removal

CONSTRUCTION

The integral activated bonded carbon panels are manufactured in high grade carbon granules using a unique bonding technique that removes the necessity for post carbon filters. Each internal panel is housed in its own surrounding frame and then bonded into the main outer case in a multiple 'V' formation. The individual outer casings can be simply slid together on site to form a leak free efficient Discarb cell.



- Gas Phase modular filtration
- Safe weight & size for site handling
- Retrofits heavy single Discarb cells
- Wide range of sizes & types
- Suits numerous applications
- High adsorption
- Non-dusting robust construction
- Made in Britain

Our Ref (Full set)	Full sized Discarb dimensions HxWxD (mm)	Tri-safe cell Dimensions HxWxD (mm)	No. of cells to construct full sized Discarb	Individual cell Carbon Weight (kg)	Individual Cell Total Weight (kg)	Cell Rated Capacity (m ³ /hr) at 0.1 secs dwell time *	Discarb Rated Capacity (m ³ /hr) at 0.1 secs dwell time*
Site-safe 18x18x12	445x445x297	445x222x297	2	6.5	7.85	495	990
Site-safe 24x12x12	594x295x297	594x147x297	2	6.5	7.85	990	1980
Site-safe 24x24x12	594x594x297	594x198x297	3	8.4	9.70	633	1900
Site-safe 18x18x18	445x445x451	445x222x451	2	9.5	10.85	722	1444
Site-safe 24x12x18	594x295x451	594x147x451	2	9.0	10.35	685	1370
Site-safe 24x24x18	594x594x451	594x198x451	3	12.0	13.35	915	2745
Site-safe 18x18x24	445x445x597	445x222x597	2	12.5	13.85	950	1700
Site-safe 24x12x24	594x295x597	594x147x597	2	12.5	13.85	950	1700
Site-safe 24x24x24	594x594x597	594x198x597	3	16.9	19.45	1266	3800

Note * Dwell time is the contact time that the air is within the carbon matrix

Application	Recommended Dwell Time	Grade	Ref
Cooking - Spicy, Indian	0.2 < 0.4 Seconds	General Purpose Activated Carbon	-7C
Reduction of Kerosene Exhaust fumes	0.1 < 0.2 Seconds	General Purpose Activated Carbon	-7C
Reduction of Ozone	0.1 < 0.2 Seconds	General Purpose Activated Carbon	-7C
Reduction of Diesel Fumes	0.2 Seconds	5% Copper Treated Carbon	-9M
Reduction of H ₂ S, SO ₂ , NO ₂ , HCl	0.2 Seconds	5% Copper Treated Carbon	-9M
Museum and Archives protection	0.2 Seconds	5% Copper Treated Carbon	-9M
Mortuary / formaldehyde reduction	0.4 Seconds	Mortuary Grade	-MO
Ammonia Neutralisation	0.3 seconds	Ammonia Grade	-AM

Maximum Operating Temperature 40°C Maximum Humidity 80%RH

VBR 70-40-3 WATER HEATING BATT

Item no. **5476**

Document type: **Product card**
 Document date: **2019-03-12**
 Generated by: **Systemair Online Catalogue**

Description

Water-heating battery

Water-heating battery for heating air in ventilation systems with rectangular ducts. Hot-zinc-coated casing, heat transmission element with copper tubes and aluminium fins. In cold conditions, a frost protection device with sensor should be fitted to reduce the risk of damage from freezing. The water-heating battery can be installed in a horizontal or vertical duct with an optional direction.



Technical parameters

Max. operating temperature	150	°C
Max. operating pressure, at water temp. 100°C	1600000 (16bar)	Pa
Max. operating pressure, at water temp. 150°C	1000000 (10bar)	Pa

Accessories

Electric accessories

- [AQUA 24TF Heat Regulator \(5136\)](#)
- [TG-A130 Surface sensor 0-30°C \(5159\)](#)
- [TG-K330 Duct Sensor 0-30°C \(5160\)](#)
- [TG-D1/PT1000 Immersion sensor \(6773\)](#)
- [RVAZ4-24 Actuator 3points \(9798\)](#)
- [RVAZ4 24A Actuator 0-10V \(9862\)](#)

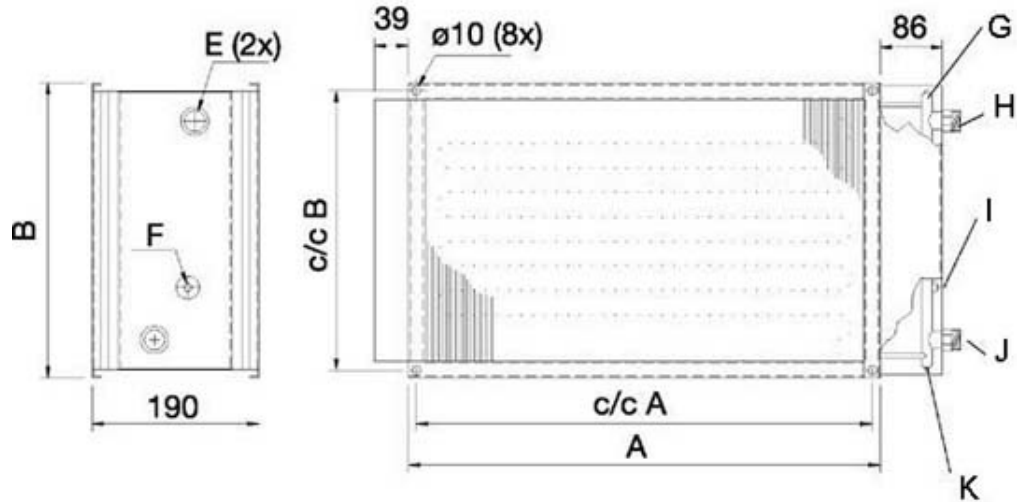
Accessories

- [ZTV 20-6,0 2-way valve \(9827\)](#)
- [ZTR 20-6,0 valve 3-way \(9679\)](#)

Dimensions

VBR XX-XX-2 = Two pipe rows
 VBR XX-XX-4 = Four pipe rows
 VBR XX-XX-3 = Three pipe rows

F= Thread G 1/4
 G= Airing
 H= Water out
 I= Connection for immersion sensor
 J= Water in
 K= Draining





	A	c/c A	B	c/c B	E	
VBR 40-20-2	438	420	238	220	R 3/4"	5.5 kg
VBR 50-25-2	538	520	288	270	R 3/4"	7 kg
VBR 50-30-2	538	520	338	320	R 3/4"	8 kg
VBR 60-30-2	638	620	338	320	R 3/4"	9 kg
VBR 60-35-2	638	620	388	370	R 3/4"	10 kg
VBR 70-40-2	738	720	438	420	R 1"	12.5 kg
VBR 80-50-2	838	820	538	520	R 1"	16 kg
VBR 100-50-2	1038	1020	538	520	R 1"	18.5 kg

	A	c/c A	B	c/c B	E	
VBR 40-20-4	438	420	238	220	R 3/4"	7 kg
VBR 50-25-4	538	520	288	270	R 3/4"	9 kg
VBR 50-30-4	538	520	338	320	R 1"	10.5 kg
VBR 60-30-4	638	620	338	320	R 1"	11.5 kg
VBR 60-35-4	638	620	388	370	R 1"	13 kg

	A	c/c A	B	c/c B	E	
VBR 70-40-3	738	720	438	420	R 1"	15.5 kg
VBR 80-50-3	838	820	538	520	R 1"	19 kg
VBR 100-50-3	1038	1020	538	520	R 1"	22.5 kg

Documentation

 VBR_172010.PDF (503,91kB)

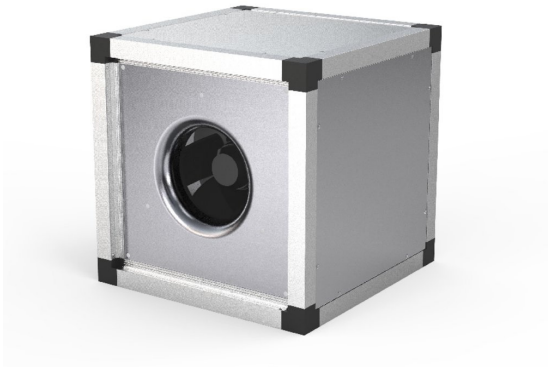
 Conformity_decl. PGK_VBR(PGV)_VBC(CWW)_CWK.pdf (17,06kB)

Coil calculation

MUB 062 560EC Multibox

Article Number: 230500

Variant : 400V 3~ 50/60Hz - 90° air flow



Description

- 100 % speed controllable
- Integrated electronic motor protection
- Low noise level
- Flexible airflow direction due to removable panels
- Installation in any mounting position
- Safe and maintenance free operation
- Energy-saving
- Potentiometer included for ease of commissioning
- RS-485 interfaces for networking via MODBUS RTU from size 355
- AMCA-certified performance curves

The MUB-EC fans are driven by EC-external rotor motors. These are energy saving motors with high efficiency. The power electronics are integrated in the motor housing. From size 355 all models have one potential-free terminal for error message.

All motors are suitable...

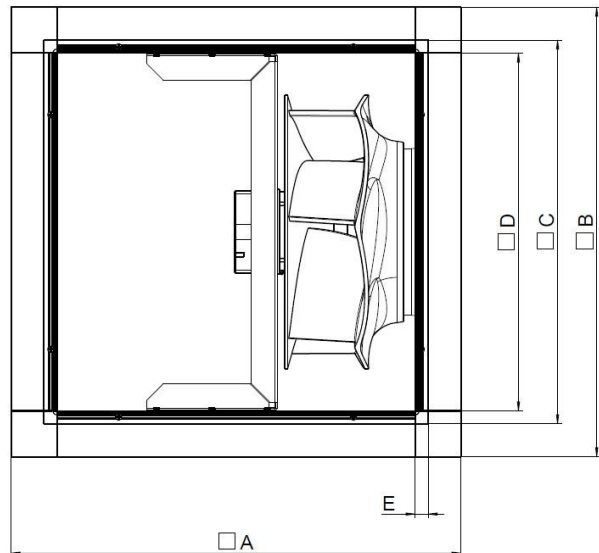
[Find more details in our online catalogue](#)

Technical parameters

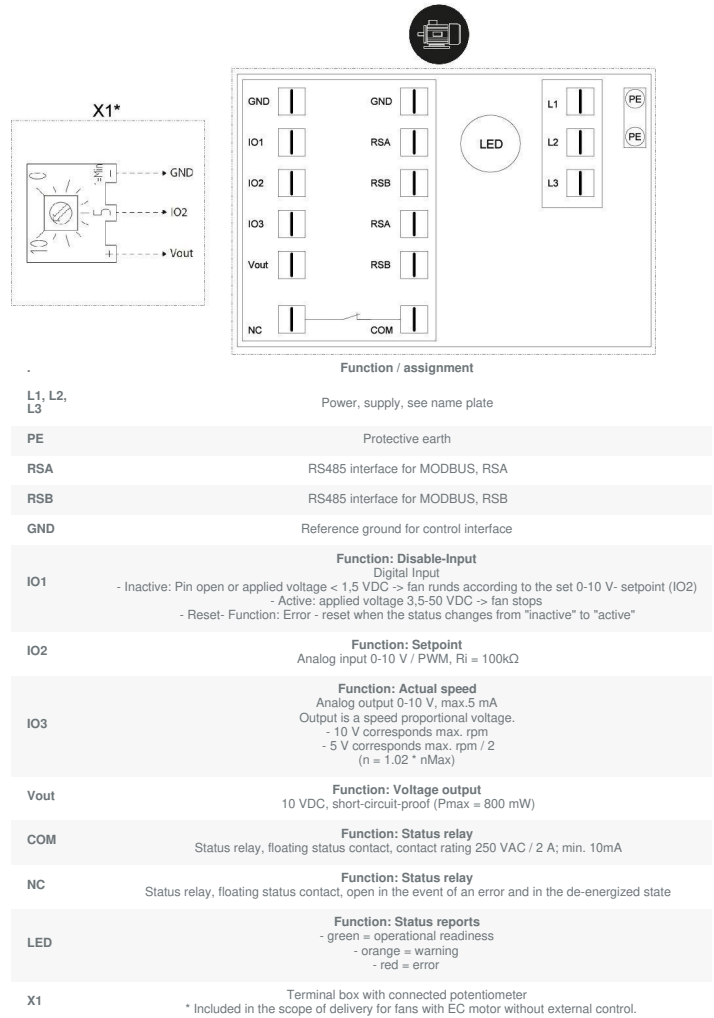
Nominal data	
Voltage (nominal)	400 V
Frequency	50; 60 Hz
Phase(s)	3~
Input power	2,662 W
Input current	3.91 A
Impeller speed	1,708 rpm
Air flow	max 3.017 m ³ /s
Temperature of transported air	max 60 °C
Max temperature of transported air, when speed controlled	60 °C
Protection/Classification	
Enclosure class, motor	IP55
Insulation class	F
Data according to ErP	
ErP ready	ErP 2018
Dimensions and weights	
Weight	81.5 kg
Others	
Motor type	EC

Dimension

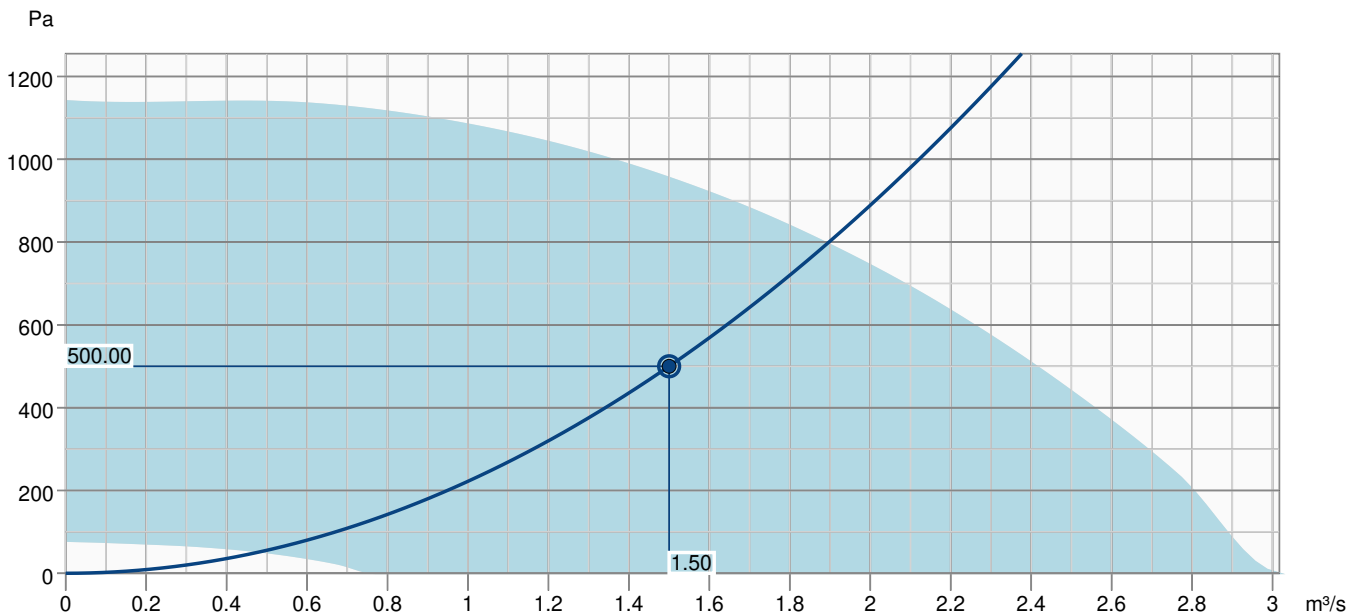
MUB 062	□A	□B	□C	□D	E
560/630	820	820	720	678	21



Wiring



Performance curve



Hydraulic data										
Required air flow										1.50 m³/s
Required static pressure										500 Pa
Working air flow										1.50 m³/s
Working static pressure										500 Pa
Air density										1.204 kg/m³
Power										1357.3 W
Fan control - RPM										1339 rpm
Current										2.15 A
SFP										0.905 kW/m³/s
Control voltage										7.9 V
Supply voltage										400 V
Sound power level		63	125	250	500	1k	2k	4k	8k	Total
Inlet	dB(A)	52	64	67	73	74	71	69	63	79
Outlet	dB(A)	54	66	69	75	76	73	70	64	80
Surrounding	dB(A)	35	54	53	46	47	47	41	31	58
Sound pressure level at 3m (20m² Sabine)	dB(A)	-	-	-	-	-	-	-	-	51
Sound pressure level at 3m free field	dB(A)	-	-	-	-	-	-	-	-	37

Accessories

CXE/AVC Modbus (37256)

EC-Basic-CO2 and temperature (24808)

EC-Basic-T temperature (24805)

EC-Vent control board (3115)

FGV 062/716-716 flex. conn. (4198)

MTP 20, on/off, 3-step (310220)

REV-5POL/05-7.5kW R/Y (35757)

SD-MUB Vibration pad set (37324)

UGS 062/630 adapter flex. (4358)

WSG 062 MUB complete (31486)

HR1 Room Humidistat (215150)

RT 0-30 Room Thermostat (5151)

CCM inlet MUB062 d560 (311782)

CCM outlet MUB062 d560 (311684)

BMS Trickle & Boost Switch (120363)

CCMI outlet 062 d630 KIT 30mm (239096)

KKC-DX-L 062 cooling section (277262)

KKC-W-L 062 cooling section (277270)

KKF 30 062-filter-section (93312)

KKS 062 silencer-section (276852)

DMD-C Pressure controller (15793)

EC-Basic-H humidity (24807)

EC-Basic-U universal 0-10V (24806)

EC-Vent Room Unit (3018)

MTP 10, 10K, Speed control (32731)

MTV-1/010 Controller 0..10V+ (30650)

S-5EC/FRQ (76738)

TUNE-AHU-DE008-062-718x718-M0 (79882)

WSD 062 (860x860x70) complete (31482)

CO2RT-R-D Transmitter (6993)

Presence detector/IR24-P (6995)

TFR Temp. Sensor (5158)

CCM inlet MUB062 d630 (311783)

CCM outlet MUB062 d630 (311681)

CCMI outlet 062 d560 KIT 30mm (239095)

GRU 062 base frame h= 100mm (276662)

KKC-DX-R 062 cooling section (277266)

KKC-W-R 062 cooling section (277274)

KKH-HW 062 heater-section (93340)

Documents

imo_mub_all_010_en_248056

MUB_EC_AMCA_CERTIFICATE.PDF

UKCA DECLARATION OF CONFORMITY_MUB_EN_002.PDF

RS 70-40 EC sileo

Centrifugal rectangular duct fan

Item Number: 92930

Variant: 230V 1~ 50/60Hz



- EC-motors, high level of efficiency
- 100% speed controllable
- Integrated motor protection
- Can be installed in any position
- Potentiometer included for easy commissioning

The RSI models are thermally and acoustically insulated with 50mm mineral wool and perforated sheet steel on the inner surface. This gives a quiet running with many installation possibilities.

The RS/RSI EC series have impellers with backward-curved blades and are fitted to EC external rotor motors. These fans have a high capacity in relation to their compact design. The fans are delivered with a pre-wired potentiometer (0-10V) which allows you to easily find the desired working point.

EC fans are notable for their economical use of energy and excellent ease of control. They can be varied in speed to match the airflow demand, and operate at high efficiency levels. For the same air volume, they consume distinctly less energy than AC fan drives.

Motor protection is integrated in the electronics of the motor. The casing is manufactured from galvanized sheet steel.



Technical parameters

Nominal data		
Voltage (Nominal)	230	V
Frequency	50; 60	Hz
Phase(s)	1~	
Input power	653	W
Input current	2.95	A
Impeller speed	1,578	r.p.m.
Air flow	max 1.453	m ³ /s
Temperature of transported air	max 60	°C
Max temperature of transported air, when speed controlled	60	°C

Sound data

Sound pressure level at 3m (20m² Sabin)	58 dB(A)
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Protection/Classification

Enclosure class, motor	IP54
------------------------	------

Insulation class	F
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Data according to ErP

ErP ready	ErP 2018
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Dimensions and weights

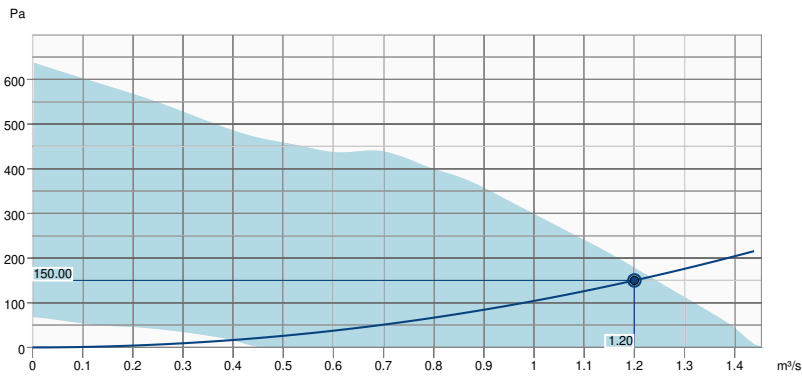
Weight	33.4 kg
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Others

Motor type	EC
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Performance

Performance curve

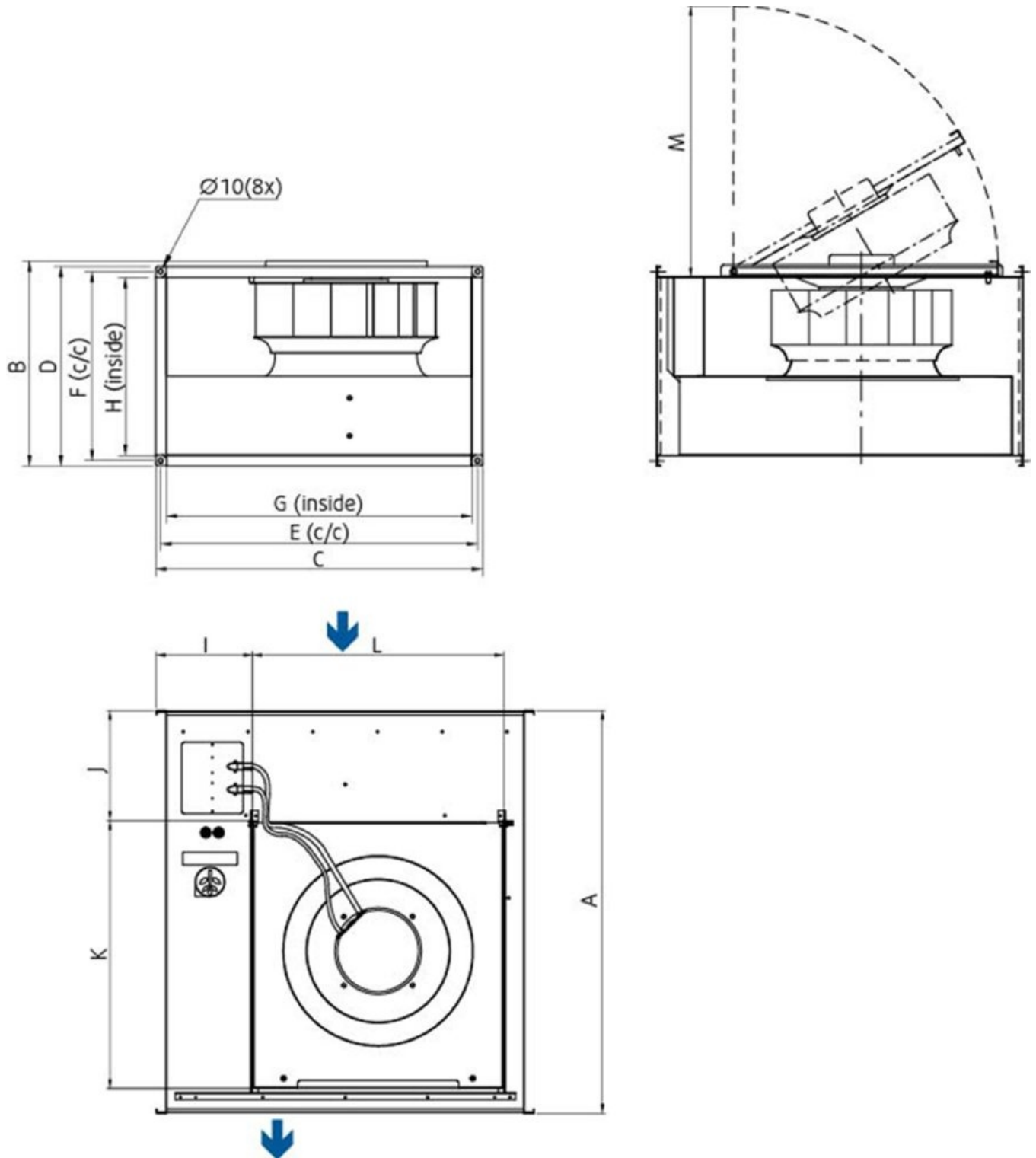


Hydraulic data

Required air flow	1.20 m³/s
Required static pressure	150 Pa
Working air flow	1.20 m³/s
Working static pressure	150 Pa
Air density	1.204 kg/m³
Power	601.3 W
Fan control - RPM	1536 rpm
Current	2.73 A
SFP	0.501 kW/m³/s
Control voltage	9.7 V
Supply voltage	230 V

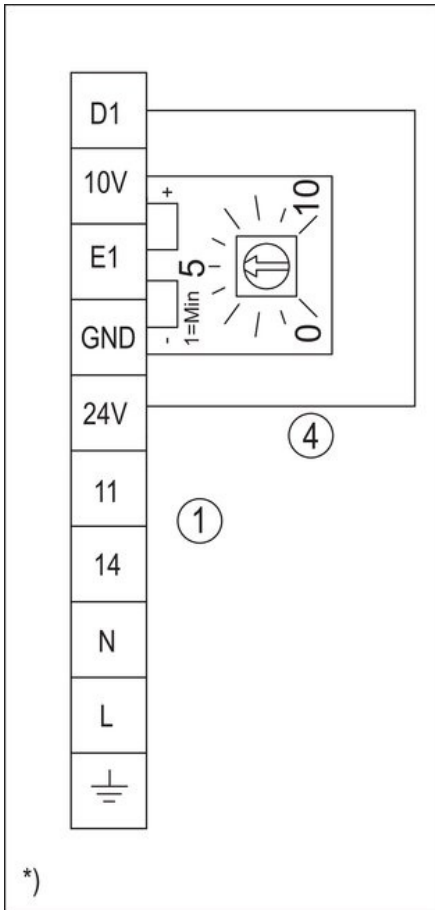
Sound power level		63	125	250	500	1k	2k	4k	8k	Total
Inlet	dB(A)	60	72	73	74	73	73	68	60	80
Outlet	dB(A)	62	74	78	79	80	78	74	65	86
Surrounding	dB(A)	45	63	62	59	58	57	50	42	68
Sound pressure level at 3m (20m² Sabine)	dB(A)	-	-	-	-	-	-	-	-	61
Sound pressure level at 3m free field	dB(A)	-	-	-	-	-	-	-	-	47

Dimension



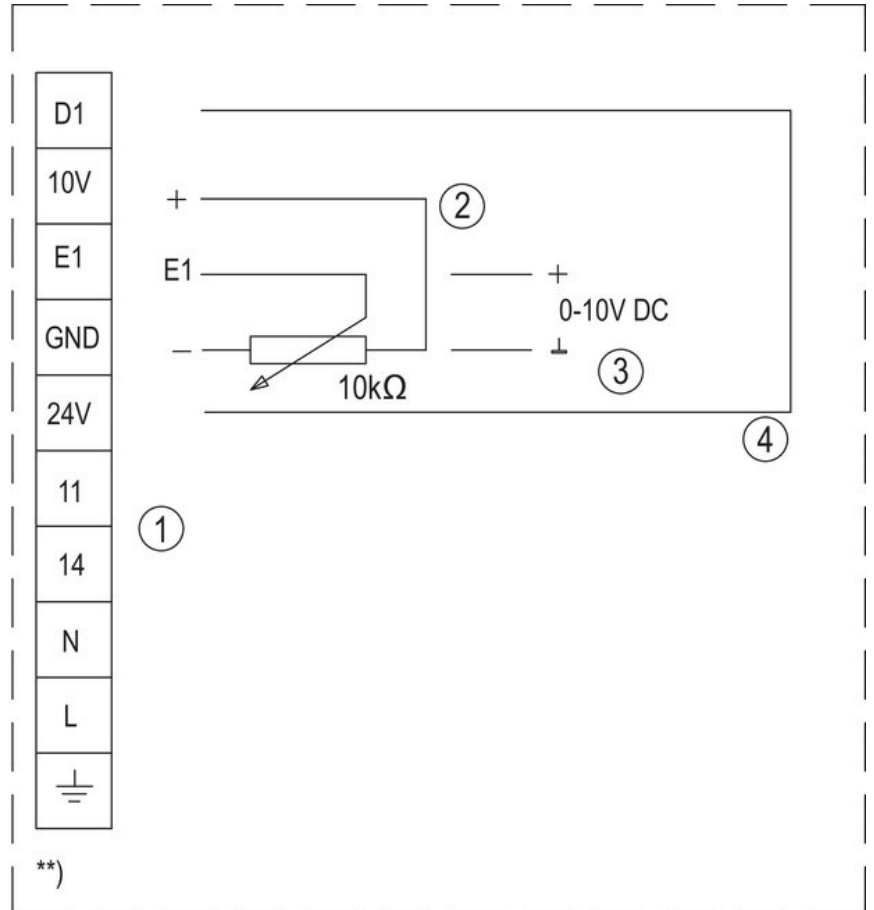
RS EC/AC	A	B	C	D	E	F	G	H	I	J	K	L	M
70-40	787	465	740	440	720	420	698	398	189	215	524	491	518
80-50	882	580	840	541	820	520	798	498	182,5	191	644	614	638
100-50	982	580	1040	540	1020	520	998	498	287	260	684	634	678

Wiring



*)

= Internal potentiometer



**)

= External speed control

1 11 & 14 = Alarm

For operation the relay is energized, connections "11" and "14" are bridged.

For fault the relay is de-energized (Diagnostics/faults).

Contact rating max. AC 250V 2A.

2 External potentiometer

3 External input DC 0...10V

4 External ON / OFF control via potential free contact

Ecodesign

Product	
Trade name	Systemair
Product name	RS 70-40 EC sileo
Ecodesign	
ErP compliance	2018
Unit category	NRVU
Drive	Integrated VSD
Unit type	UVU
Heat recovery type	None
Temperature ratio (UVU)	Not applicable
qv nom	0.9192 m ³ /s
P nom	0.584 kW
Ps nom	429 Pa
Fan efficiency	53.6 %
External Leakage	5 %
Sound power level LWA	61 dB(A)

LDR 70-40 Silencer

Item Number: 5074

Silencer

Easily-fitted silencer immediately before or after the KE, KT, RS and RSI rectangular duct fans. Effectively suppresses noise transmitted to the duct. The silencer should be used together with an insulated fan where there is a requirement for noise suppression both in the duct and in the surroundings as a whole. All silencers are supplied with a universal flange suitable for PG flange or Metu profile.

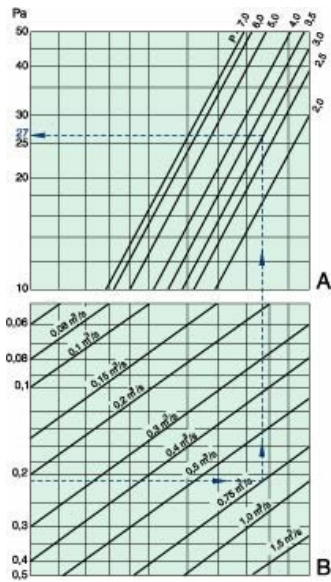


Technical parameters

Dimensions and weights		
Rectangular, height, inlet	400 x 700	mm
Rectangular, width, inlet	400 x 700	mm
Rectangular, height, outlet	400 x 700	mm
Rectangular, width, outlet	400 x 700	mm
Weight	25.1	kg

Others	
Duct connection type	Rectangular

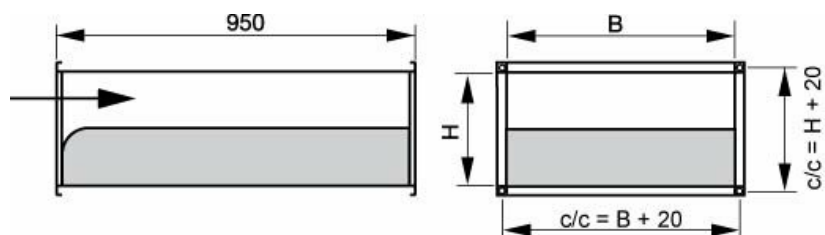
Performances



Front area m2	P
LDR 30-15	0.045 3.5
LDR 40-20	0.08 3.6
LDR 50-25	0.125 3.7
LDR 50-30	0.15 3.3
LDR 60-30	0.18 3.3
LDR 60-35	0.21 3.0
LDR 70-40	0.28 3.1
LDR 80-50	0.40 3.6
LDR 100-50	0.50 3.6

Pressure drop calculation for rectangular silencers These calculations apply only if the silencer is connected to a duct at both ends. Example: Calculation of pressure drop for the LDR 60-35 (with dan model RSI 60-35 M3~) using the diagram to the right. 1. Start by defining the front area, see the table below. 2. Move horizontally to the right until you reach the designated air flow in diagram B. 3. Go up vertically to diagram A and the correct p value (see the table). 4. Then continue horizontally to the left and read off the pressure drop. In this example, the pressure drop is 27 Pa.

Dimension



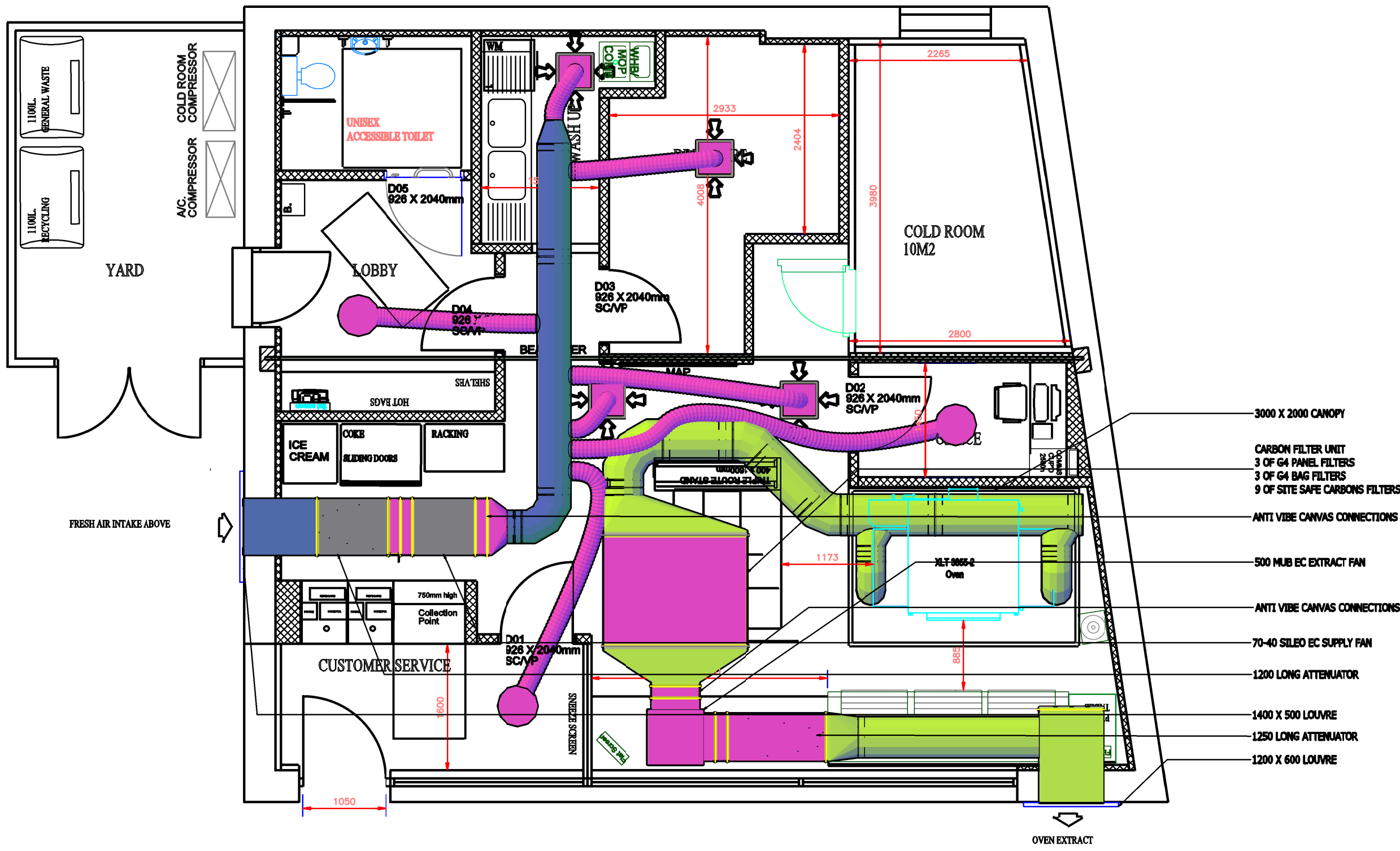
	B	H	
LDR 30-15	300	150	10 kg
LDR 40-20	400	200	13 kg
LDR 50-25	500	250	17 kg
LDR 50-30	500	300	19 kg
LDR 60-30	600	300	21 kg
LDR 60-35	600	350	23 kg
LDR 70-40	700	400	27 kg
LDR 80-50	800	500	34 kg
LDR 100-50	1000	500	41 kg

Acoustic

Noise suppression dB (mid-frequency Hz)

	125	250	500	1k	2k	4k	8k
LDR 30-15	7	15	18	25	25	19	19
LDR 40-20	5	9	15	23	16	12	10
LDR 50-25	10	15	25	25	20	15	12
LDR 50-30	8	15	20	31	17	14	11
LDR 60-30	8	15	20	31	17	14	11
LDR 60-35	7	13	17	18	13	10	8
LDR 70-40	7	11	14	14	10	8	6
LDR 80-50	6	8	10	11	8	6	3
LDR 100-50	6	8	10	11	8	6	3

ITEM 11h



NOTES
 CANOPY 1 3000 X 2000
 EXTRACT M³S 1.5
 INTAKE M³S 1.2

Notes:

CLIENT
 Dominos

SITE ADDRESS
 Dominos
 35E St James Road
 Forfar
 PA4 8QL

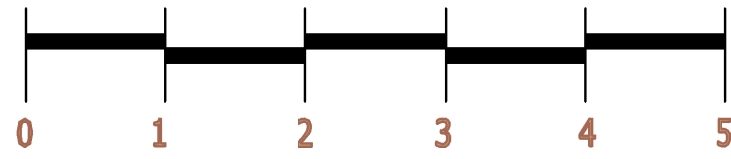
DATE:	08/02/2022
SCALE:	NTS
DRAWING NO.	01
JOB NO.	Q
DRAWN BY:	MR JJ TAYLOR



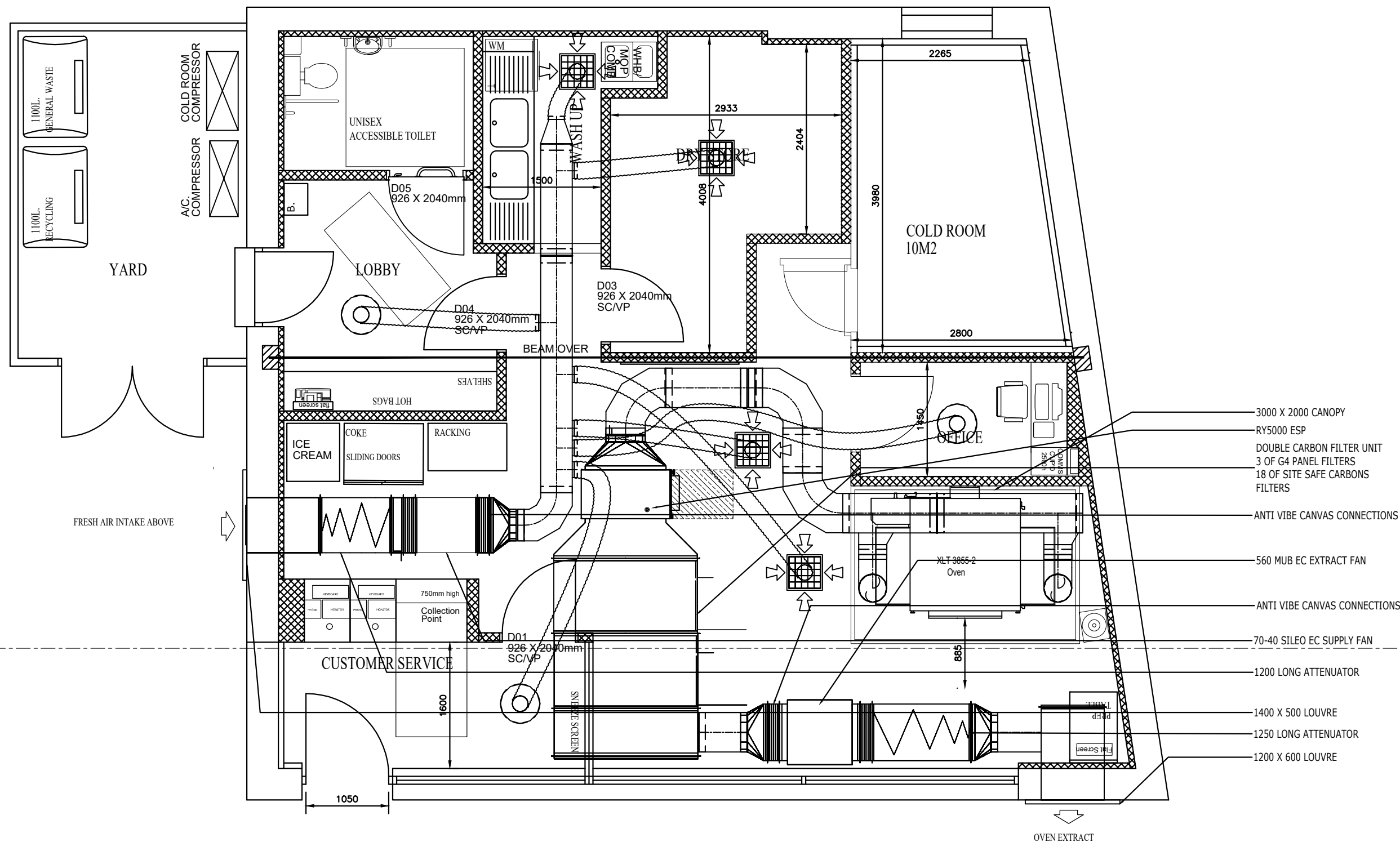
Unit 7 - Avocet Trading Estate • Victoria Gardens • Burgess Hill • West Sussex • RH15 9NB
 01444 230010 • sales@ave-ltd.com • ave-ltd.com

PLAN AS PROPOSED

Scale



ITEM 11i



NOTES
 CANOPY 1 3000 X 2000
 EXTRACT M³S 1.5
 INTAKE M³S 1.2

Notes:

- 3000 X 2000 CANOPY
- RY5000 ESP
- DOUBLE CARBON FILTER UNIT
- 3 OF G4 PANEL FILTERS
- 18 OF SITE SAFE CARBONS FILTERS
- ANTI VIBE CANVAS CONNECTIONS
- 560 MUB EC EXTRACT FAN
- ANTI VIBE CANVAS CONNECTIONS
- 70-40 SILEO EC SUPPLY FAN
- 1200 LONG ATTENUATOR
- 1400 X 500 LOUVRE
- 1250 LONG ATTENUATOR
- 1200 X 600 LOUVRE

CLIENT
 Dominos

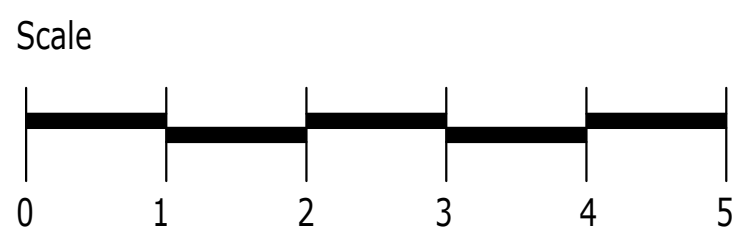
SITE ADDRESS
 Dominos
 35E St James Road
 Forfar
 PA4 8QL

DATE:	28/07/2022
SCALE:	NTS
DRAWING NO.	01
JOB NO.	Q
DRAWN BY:	MR JJ TAYLOR

AVE LTD

Unit 7 - Avocet Trading Estate • Victoria Gardens • Burgess Hill • West Sussex • RH15 9NB
 01444 230010 • sales@ave-ltd.com • ave-ltd.com

PLAN AS PROPOSED



ITEM 11j

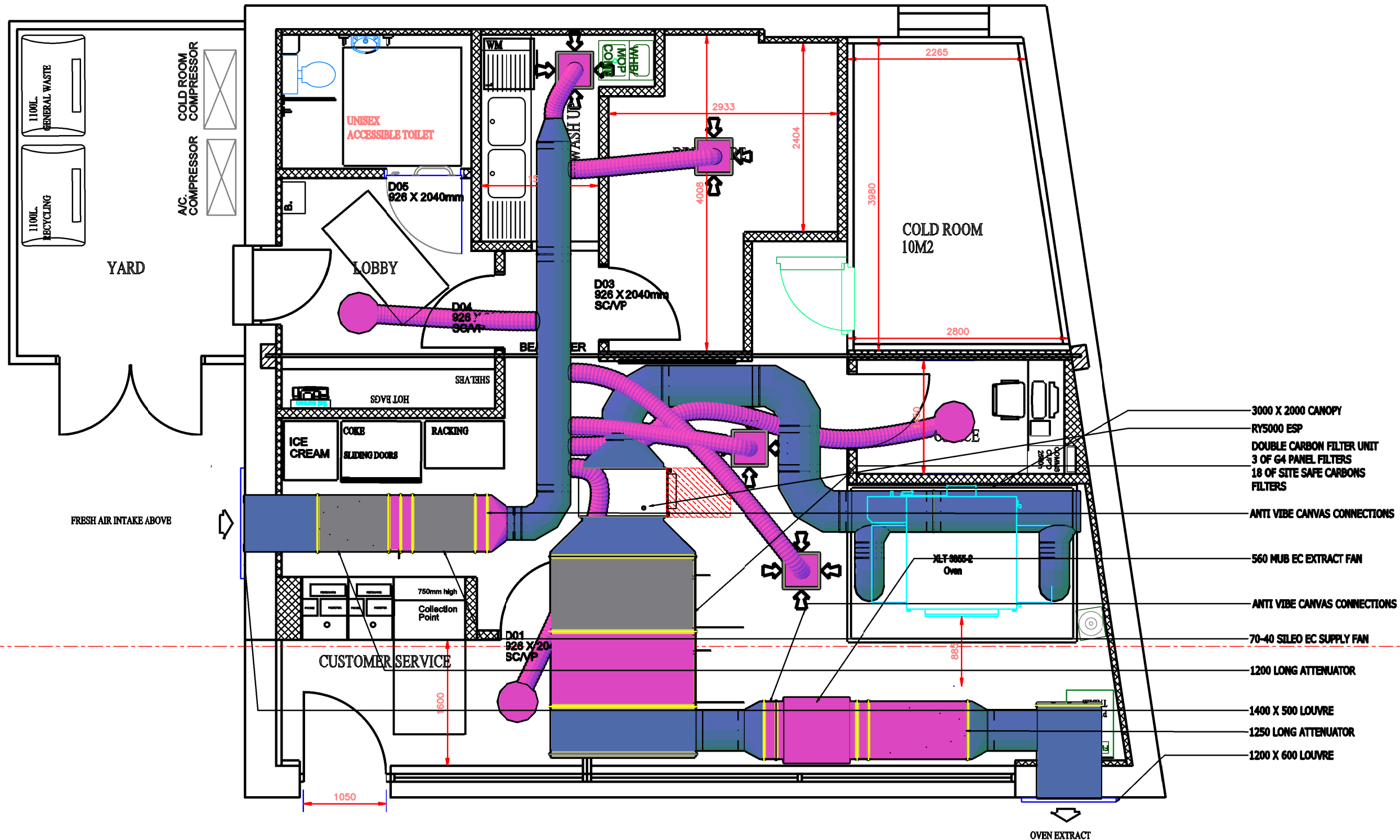
NOTES

CANOPY 1 3000 X 2000

EXTRACT M³S 1.5

INTAKE M³S 1.2

Notes:



- 3000 X 2000 CANOPY
- RY5000 ESP
- DOUBLE CARBON FILTER UNIT
- 3 OF G4 PANEL FILTERS
- 18 OF SITE SAFE CARBONS FILTERS
- ANTI VIBE CANVAS CONNECTIONS
- 560 MUB EC EXTRACT FAN
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- 70-40 SILEO EC SUPPLY FAN
- 1200 LONG ATTENUATOR
- 1400 X 500 LOUVRE
- 1250 LONG ATTENUATOR
- 1200 X 600 LOUVRE

CLIENT

Dominos

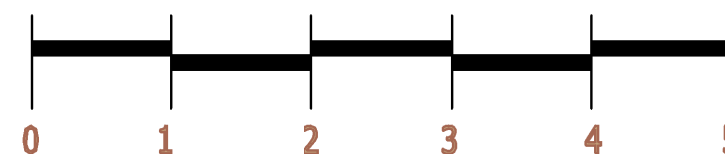
SITE ADDRESS

Dominos
35E St James Road
Forfar
PA4 8QL

DATE:	28/07/2022
SCALE:	NTS
DRAWING NO.	01
JOB NO.	Q
DRAWN BY:	MR JJ TAYLOR

PLAN AS PROPOSED

Scale



Unit 7 - Avocet Trading Estate - Victoria Gardens - Burgess Hill - West Sussex - RH15 9NB
01444 230010 - sales@ave-ltd.com - ave-ltd.com

Attenuator Schedule

Ref.	Description	Type and Model Code	Dimensions (mm)			Insertion Loss (dB)								Vol (m³/s)	PL (Pa)	Qty	Features
			W	H	L	63	125	250	500	1k	2k	4k	8k				
8936	MUB042 INTAKE 012 Atmosphere side	Rectangular LG01V/3B/L/SN	546	546	1250	3	6	11	20	19	11	7	4	1.75	56	1	20mm profile flanges. Non-standard element configuration.
7945	MUB042 INTAKE 012 M Atmosphere side	Rectangular LG01V/3B/L/SMN	546	546	1250	3	6	10	17	15	8	5	3	1.75	56	1	20mm profile flanges. Melinex wrapped infill. Non-standard element configuration.
ATT/9	MUB042 INTAKE 015 Atmosphere side	Rectangular LG02V/3B/L/SN	546	546	1600	3	8	14	26	24	15	9	4	1.75	60	1	Unit delivered in 2 sections, split in length. 20mm profile flanges. Non-standard element configuration.
ATT/10	MUB042 OUTLET 060 Atmosphere side	Rectangular LG01V/3B/L/S	546	546	650	2	4	7	14	14	8	6	3	1.75	53	1	20mm profile flanges.
ATT/11	MUB042 OUTLET 090 Atmosphere side	Rectangular LG01V/3B/L/S	546	546	950	3	6	10	19	19	11	7	4	1.75	56	1	20mm profile flanges.
ATT/12	MUB042 OUTLET 012 Atmosphere side	Rectangular LG01V/3B/L/S	546	546	1250	3	8	13	25	23	14	8	4	1.75	59	1	20mm profile flanges.
ATT/13	MUB062 INTAKE 090 Atmosphere side	Rectangular LG01V/2B/L/SN	676	676	950	2	4	7	12	10	6	4	2	3.50	70	1	20mm profile flanges. Non-standard element configuration. Medium pressure rating (+1000/-750Pa).
8937	MUB062 INTAKE 012 Atmosphere side	Rectangular LG01V/2B/L/SN	676	676	1250	3	6	10	16	14	8	4	2	3.50	73	1	20mm profile flanges. Non-standard element configuration. Medium pressure rating (+1000/-750Pa).
7946	MUB062 INTAKE 012 M Atmosphere side	Rectangular LG01V/2B/L/SMN	676	676	1250	3	6	10	14	11	6	3	2	3.50	73	1	20mm profile flanges. Melinex wrapped infill. Non-standard element configuration. Medium pressure rating (+1000/-750Pa).
ATT/15	MUB062 INTAKE 015 Atmosphere side	Rectangular LG02V/2B/L/SN	676	676	1600	3	7	14	21	18	10	5	2	3.50	77	1	Unit delivered in 2 sections, split in length. 20mm profile flanges. Non-standard element configuration. Medium pressure rating (+1000/-750Pa).
ATT/16	MUB062 OUTLET 060 Atmosphere side	Rectangular LG01V/2B/L/S	676	676	650	2	4	7	12	10	6	4	2	3.50	70	1	20mm profile flanges. Medium pressure rating (+1000/-750Pa).
ATT/17	MUB062 OUTLET 090 Atmosphere side	Rectangular LG01V/2B/L/S	676	676	950	3	6	10	16	13	8	4	2	3.50	73	1	20mm profile flanges. Medium pressure rating (+1000/-750Pa).
ATT/18	MUB062 OUTLET 012 Atmosphere side	Rectangular LG01V/2B/L/S	676	676	1250	3	7	13	20	17	9	5	2	3.50	76	1	20mm profile flanges. Medium pressure rating (+1000/-750Pa).
9226	MUB 100 INLET	Rectangular SG01V/3B/L/SN	876	876	1250	4	5	12	23	23	15	11	8	3.00	24	1	20mm profile flanges. Non-standard element configuration.





ITEM 111

FDUM100VNAWVH

10.0 (4.0 ~ 11.2)

Indoor Unit : FDUM100VH

Outdoor Unit : FDC100VNA-W

Specifications

R32

Indoor unit			FDUM100VH
Outdoor unit			FDC100VNA-W
Power source			1 Phase 220-240V, 50Hz / 220V, 60Hz
Nominal cooling capacity (Min~Max)		kW	10.0 (4.0 ~ 11.2)
Nominal heating capacity (Min~Max)		kW	11.2 (4.0 ~ 12.5)
Power consumption	Cooling/Heating	kW	2.99 / 2.66
EER/COP	Cooling/Heating		3.35 / 4.21
Inrush current		A	5
Max. running current		A	26
Sound power level*1	Indoor *3	Cooling/Heating	65 / 65
	Outdoor	Cooling/Heating	69 / 70
Sound pressure level*1	Indoor *3	Cooling (Hi/Me/Lo/Ulo)	44 / 38 / 36 / 30
		Heating (Hi/Me/Lo/Ulo)	44 / 38 / 36 / 30
	Outdoor	Cooling/Heating	54 / 55
Air flow	Indoor *3	Cooling (Hi/Me/Lo/Ulo)	36 / 28 / 25 / 19
		Heating (Hi/Me/Lo/Ulo)	36 / 28 / 25 / 19
	Outdoor	Cooling/Heating	75 / 73
Available external static pressure		Pa	Standard:60 Max:100
Exterior Dimensions	Indoor	Height x Width x Depth	280 x 1,370 x 740
	Outdoor		845 x 970 x 370
Net weight	Indoor / Outdoor	kg	54 / 77
Refrigerant	Type/GWP		R32/675
Refrigerant	Charge	kg/TCO2Eq	3.3/7.934
Refrigerant piping size	Liquid/Gas	ø mm	9.52(3/8") / 15.88(5/8")
Refrigerant line (one way) length		m	Max.50
Vertical height differences	Outdoor is higher/lower	m	Max.50 / Max.15
Outdoor operating temperature range	Cooling*2	°C	-15~50
	Heating		-20~20
Air filter quantity			(Option) Filter kit : UM-FL3EF
Remote control (option)			wired:RC-EX3A, RC-E5, RCH-E3 wireless:RCN-KIT4-E2
Energy Class (Cooling/Heating)			A+ /A+
SEER			6.11
SCOP (Average climate)			4.19
Pdesign (cooling/heating@-10°C)		kW	10.0/8.5
Annual Electricity Consumption (cooling/heating)		kWh/a	574/2843
Designated Heating Season			Average

The data is measured under the following conditions(ISO-T1).

Cooling: Indoor temp. of 27°CDB, 19°CWB, and outdoor temp. of 35°CDB. Heating: Indoor temp. of 20°CDB, and outdoor temp. of 7°CDB, 6°CWB.

*1 : Indicates the value in an anechoic chamber. During operation these values are somewhat higher due to ambient conditions.

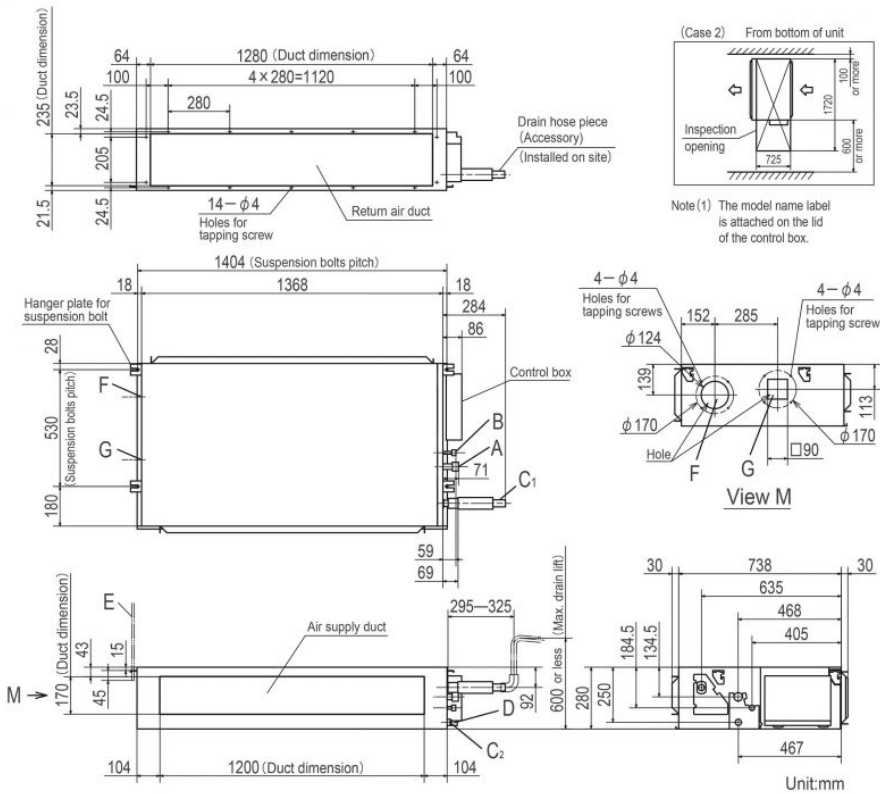
*2 : If a cooling operation is conducted when the outdoor air temperature is -5°C or lower, the outdoor unit should be installed at a place where it is not influenced by natural wind. If wind blows, the low pressure will drop and compressor frequency will increase, this will cause the capacity to drop and may cause the unit to break down.

*3 The values are for one indoor unit operation. (Multi system only)

External static pressure is changeable to be set by the remote control. MAX external static pressure is 'High static pressure' setting. The values of sound pressure level become 5dB(A) higher at external static pressure of 200Pa for FDU indoor models and 100Pa for FDUM indoor models

Schematics

Models FDUM100VH,125VH,140VH

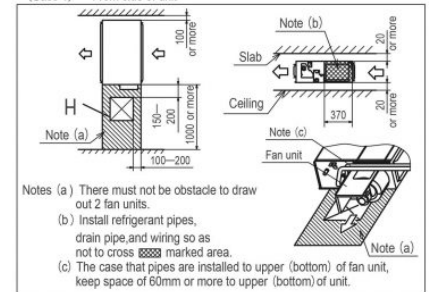


Note(1) The model name label is attached on the lid of the control box.

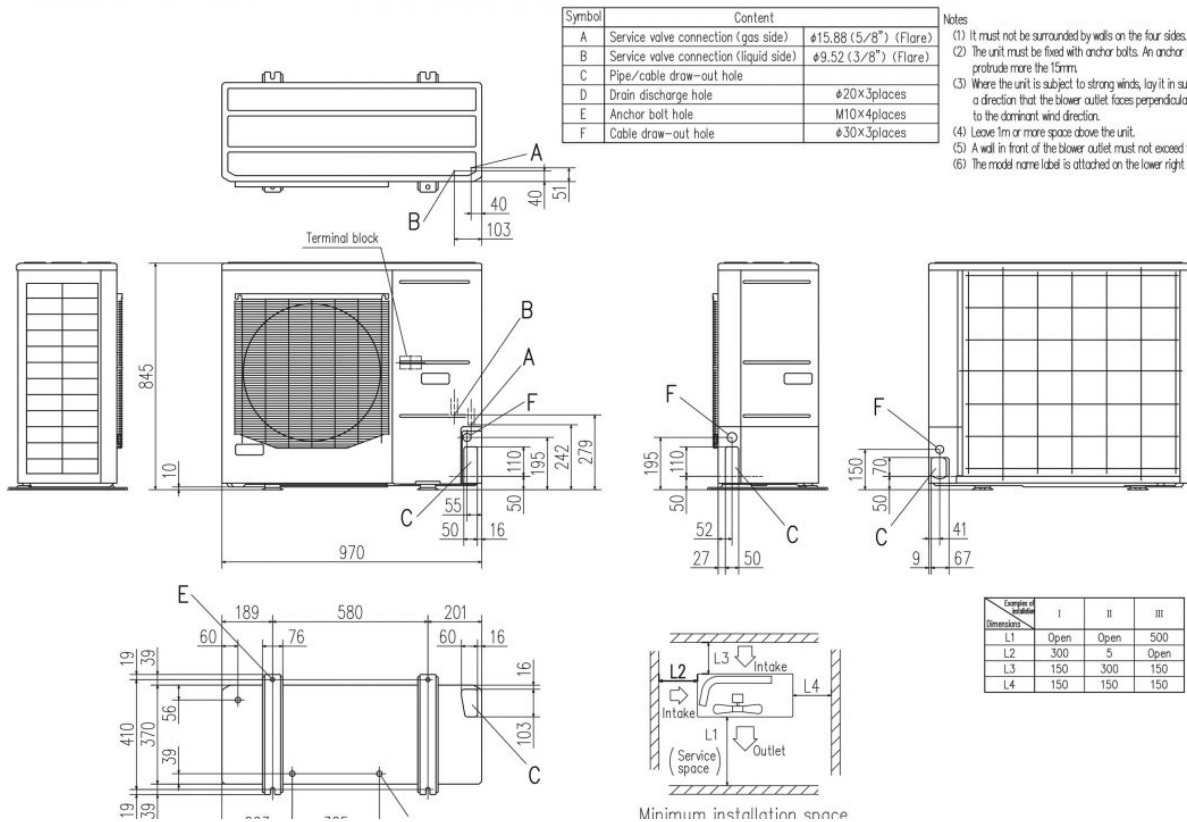
Symbol	Content
A	Gas piping $\phi 15.88 (5/8")$ (Flare)
B	Liquid piping $\phi 9.52 (3/8")$ (Flare)
C	Drain piping VP25 (O.D.32)
C ₂	Drain piping (Gravity drainage) VP20
D	Hole for wiring
E	Suspension bolts (M10)
F	Outside air opening for ducting ($\phi 150$) (Knock out)
G	Air outlet opening for ducting ($\phi 125$) (Knock out)
H	Inspection opening (450×450)

Space for installation and service

Select either of two cases to keep space for installation and services.
(Case 1) From side of unit



FDC100VNA, 125VNA, 140VNA, 100VSA, 125VSA, 140VSA



Symbol	Content
A	Service valve connection (gas side) $\phi 15.88 (5/8")$ (Flare)
B	Service valve connection (liquid side) $\phi 9.52 (3/8")$ (Flare)
C	Pipe/cable draw-out hole
D	Drain discharge hole $\phi 20 \times 3$ places
E	Anchor bolt hole M10×4 places
F	Cable draw-out hole $\phi 30 \times 3$ places

Notes

- (1) It must not be surrounded by walls on the four sides.
- (2) The unit must be fixed with anchor bolts. An anchor bolt must not protrude more than 15mm.
- (3) Where the unit is subject to strong winds, lay it in such a direction that the blower outlet faces perpendicularly to the dominant wind direction.
- (4) Leave 1m or more space above the unit.
- (5) A wall in front of the blower outlet must not exceed the units height.
- (6) The model name label is attached on the lower right corner of the front panel.

Example of Dimensions	I	II	III
L1	Open	Open	500
L2	300	5	Open
L3	150	300	150
L4	150	150	150

Minimum installation space



Condensing unit
Voltage Code : FZ

WINAJ4519Z-FZ

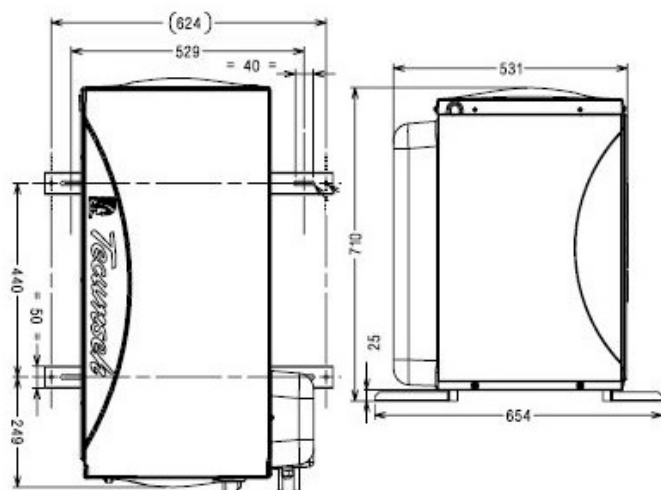
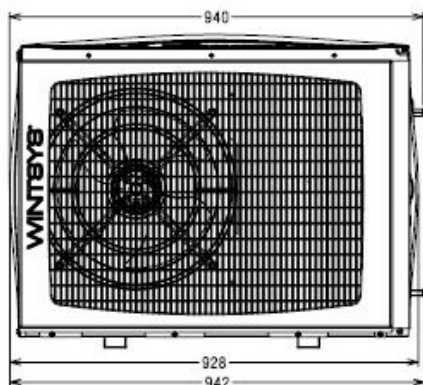
High Temp. Commercial (HP)

220 - 240V 1~ 50 Hz

R452A / R404A / R448A / R449A

WINAJ4519Z-FZ

Conditions	Frequency	Nominal Cooling Capacity		Sound Power ISO3745 / ISO 3743-1
		Watts	BTU/h	
EN13215 / R452A	50 Hz	2729	9306	63 dBA
EN13215 / R404A	50 Hz	2860	9754	63 dBA
EN13215 / R448A	50 Hz	2501	8528	63 dBA
EN13215 / R449A	50 Hz	2502	8532	63 dBA



* EN13215 : T°Ambient 32.0°C / T°Evap. -10.0°C / T°Return gas temp.. 20.0°C
T°Subcooling. 3.0K

Net Weight (Kg)	65.0
Expansion device	Expansion_Valve
Air Flow (m³/h)	1650
Compo Data Sheet	224ST-FZ
Elec Comp Type	CSR
Current (Amp)	
Load Rated Amp	10.2
Max Cont Current	15.5
Lock Rotor Amp	45
Fan	
Speed (rpm)	546
Power (W)	65.0
Diameter (mm)	360
Protection	Overload
IP Level	IP44
Condenser	360/14100
Liquid Receiver	
Capacity (L)	2.35
Maximum Pressure (Bars)	32.0
Suction Line	
Suction Type	Tube / Tube
For Tubing Out Diam	15.9 (5/8")
Suction Connection Type	Brased
Liquid Line	
Liquid Line Type	Tube
For Tubing Out Diam	9.5 (3/8")
Liquid Connecton Type	Brased
Connection Type	TT
Fan Guard	maille < à 8mm

Note : Tecumseh reserves the right to change information contained in this document without notification.



Tecumseh

WINAJ4519Z-FZ	Tension FZ : 220 - 240V 1~ 50 Hz
----------------------	---

Les performances sont données dans les conditions EN13215 :	Gaz aspirés :	20.0 °C
Condition Dew	Sous refroidissement :	3.0 K
The performance data are in EN13215 conditions :	Return gas :	20.0 °C
Dew Condition	Subcooling :	3.0 K

50 Hz R452A											
N°6435											
5 T ambience	6 T évaporation	(°C)	-25	-20	-15	-10	-5	0	5	10	15
25	1 P frigorifique	(Watt)	1550	2006	2509	3060	3659	4306	5007	5773	6622
	2 P absorbée	(W)	1136	1259	1389	1528	1676	1836	2007	2189	2381
	3 I absorbée	(A)	5.25	5.75	6.31	6.93	7.61	8.36	9.18	10.1	11.0
	4 Tc	(°C)	29.6	31.3	33.2	35.3	37.5	39.7	41.9	43.9	45.8
32	1 P frigorifique	(Watt)		1763	2228	2729	3266	3843	4467	5153	5921
	2 P absorbée	(W)		1289	1432	1584	1746	1920	2104	2299	2502
	3 I absorbée	(A)		5.81	6.44	7.14	7.89	8.71	9.59	10.5	11.5
	4 Tc	(°C)		37.2	39.2	41.2	43.3	45.5	47.5	49.4	51.0
43	1 P frigorifique	(Watt)			1775	2194	2634	3100	3605	4168	4817
	2 P absorbée	(W)			1474	1653	1842	2042	2252	2471	2696
	3 I absorbée	(A)			6.60	7.42	8.29	9.22	10.2	11.2	12.3
	4 Tc	(°C)			48.6	50.6	52.6	54.6	56.4	58.1	59.4

50 Hz R404A											
N°6377											
5 T ambience	6 T évaporation	(°C)	-25	-20	-15	-10	-5	0	5	10	15
25	1 P frigorifique	(Watt)	1685	2149	2657	3208	3801	4435	5116	5852	6662
	2 P absorbée	(W)	1198	1323	1453	1592	1739	1896	2063	2239	2423
	3 I absorbée	(A)	5.55	6.05	6.61	7.22	7.90	8.64	9.44	10.3	11.2
	4 Tc	(°C)	32.4	34.1	36.0	38.1	40.2	42.4	44.5	46.4	48.2
32	1 P frigorifique	(Watt)		1893	2362	2860	3389	3950	4550	5202	5927
	2 P absorbée	(W)		1359	1503	1654	1815	1984	2163	2350	2544
	3 I absorbée	(A)		6.13	6.77	7.46	8.20	9.01	9.87	10.8	11.7
	4 Tc	(°C)		40.0	41.8	43.8	45.9	47.9	49.8	51.6	53.2
43	1 P frigorifique	(Watt)			1887	2301	2728	3174	3649	4172	4770
	2 P absorbée	(W)			1558	1735	1921	2115	2318	2528	2741
	3 I absorbée	(A)			6.97	7.78	8.64	9.55	10.5	11.5	12.5
	4 Tc	(°C)			50.9	52.8	54.7	56.6	58.3	59.8	61.1

1 = cooling capacity 2 = power input 3 = current 4 = condensing temperature 5 = ambient temperature 6 = evaporating temperature

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WINAJ4519Z-FZ	Tension FZ : 220 - 240V 1~ 50 Hz
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Les performances sont données dans les conditions EN13215 :	Gaz aspirés :	20.0 °C
Condition Dew	Sous refroidissement :	3.0 K
The performance data are in EN13215 conditions :	Return gas :	20.0 °C
Dew Condition	Subcooling :	3.0 K

50 Hz R448A (*)											
											N°7013
5 T ambience	6 T évaporation	(°C)	-25	-20	-15	-10	-5	0	5	10	15
25	1 P frigorifique	(Watt)	1314	1756	2248	2793	3394	4057	4788	5600	6511
	2 P absorbée	(W)	1074	1190	1316	1452	1600	1760	1932	2115	2307
	3 I absorbée	(A)	4.94	5.42	5.96	6.57	7.26	8.01	8.83	9.71	10.6
	4 Tc	(°C)	29.9	31.6	33.6	35.7	37.9	40.2	42.4	44.4	46.3
32	1 P frigorifique	(Watt)		1540	1999	2501	3050	3653	4319	5063	5904
	2 P absorbée	(W)		1220	1360	1510	1673	1848	2035	2233	2439
	3 I absorbée	(A)		5.49	6.11	6.79	7.55	8.38	9.27	10.2	11.2
	4 Tc	(°C)		37.7	39.6	41.7	43.8	45.9	48.0	49.9	51.5
43	1 P frigorifique	(Watt)				2040	2507	3017	3581		
	2 P absorbée	(W)				1580	1772	1978	2195		
	3 I absorbée	(A)				7.09	7.97	8.92	9.93		
	4 Tc	(°C)				51.1	53.1	55.1	56.9		

50 Hz R449A (*)											
											N°6407
5 T ambience	6 T évaporation	(°C)	-25	-20	-15	-10	-5	0	5	10	15
25	1 P frigorifique	(Watt)	1315	1757	2249	2794	3396	4059	4791	5604	6515
	2 P absorbée	(W)	1074	1190	1316	1452	1600	1760	1932	2115	2307
	3 I absorbée	(A)	4.94	5.42	5.96	6.57	7.26	8.01	8.83	9.71	10.6
	4 Tc	(°C)	29.9	31.7	33.6	35.7	37.9	40.2	42.3	44.4	46.2
32	1 P frigorifique	(Watt)		1541	2000	2502	3052	3655	4321	5065	5907
	2 P absorbée	(W)		1220	1360	1510	1673	1848	2035	2233	2439
	3 I absorbée	(A)		5.49	6.11	6.79	7.55	8.38	9.27	10.2	11.2
	4 Tc	(°C)		37.7	39.6	41.7	43.8	45.9	47.9	49.8	51.5
43	1 P frigorifique	(Watt)				2041	2509	3018	3582		
	2 P absorbée	(W)				1580	1772	1978	2195		
	3 I absorbée	(A)				7.09	7.97	8.92	9.93		
	4 Tc	(°C)				51.1	53.0	55.0	56.8		

1 = cooling capacity 2 = power input 3 = current 4 = condensing temperature 5 = ambient temperature 6 = evaporating temperature

(*) Veuillez vous référer strictement aux Recommandations d'Utilisation et Bulletins Marketing Tecumseh du fait de la température de reflux élevée pour les applications LBP.

(*) Due to very high discharge temperature especially on LBP conditions, please strictly refer to Tecumseh Guidelines & Marketing Bulletin when using this refrigerant.

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Flexible anti-vibration connectors

EVA

for rectangular ducts

Use

- For damping of vibration generated by fans or ventilation equipment and transferred to air ducts for ventilation systems installed in various premises.
- For partial temperature distortion compensation in the ductworks.
- Compatible with rectangular 400x200 up to 1000x500 mm air ducts.

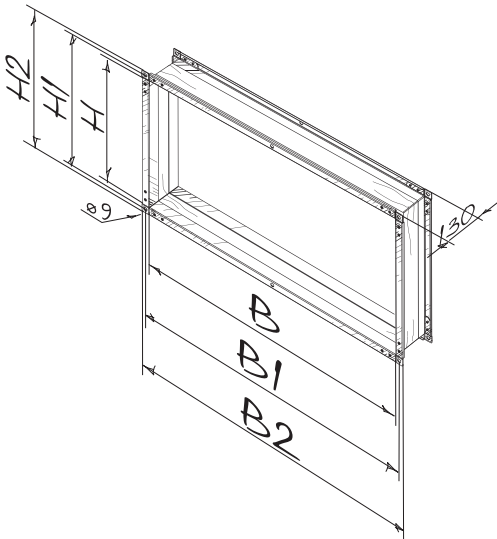
Design

- Two galvanized steel flanges.
- Connecting vibration-isolating material is made of nylon reinforced polyethylene fabric.
- Not designed for mechanical load and cannot be used as a load-carrying structure.

Mounting

- Mounting with galvanized bolts and clamps that fix the end flanges of the connector to the mating flanges of the air ducts or any other ventilation system components.

Overall dimensions



Type	Dimensions [mm]						Weight [kg]
	B	B1	B2	H	H1	H2	
EVA 40x20	400	420	440	200	220	240	1.1
EVA 50x25	500	520	540	250	270	290	1.4
EVA 50x30	500	520	540	300	320	340	1.6
EVA 60x30	600	620	640	300	320	340	1.82
EVA 60x35	600	620	640	350	370	390	1.95
EVA 70x40	700	720	740	400	420	440	2.4
EVA 80x50	800	820	840	500	520	540	2.8
EVA 90x50	900	920	940	500	520	540	3.0
EVA 100x50	1000	1020	1040	500	520	540	3.2

APPENDIX 3

FURTHER LODGED REPRESENTATIONS

From: [REDACTED]
To: [Sarah Forsyth](#)
Subject: Re: Application for Review - 35E St James Road Forfar
Date: 07 December 2022 11:34:48

Dear Sarah,

Thanks for your email. My name is Krzysztof Szymaszek and I'm living at property adjacent to 35E St James Road.

I've made comments through the portal, which are still valid, although it appears that some consultees do not see a traffic/parking and other issues as a problem, regardless of local residents view and experience.

I'm not sure how the system works in terms of appeals and review process, however I would like to make further comment regarding supporting information submitted by the applicant.

In terms of the plant noise issue, the applicant tested and provided some assessment/evidence that it will not exceed a limit, I don't know the procedures for testing, limits ect, however I haven't noticed anything in the vicinity of my property/boundary and we have not been approached by the applicant at all. It may have been done without permission or access to adjacent properties and gardens? Report itself is a bit sketchy and not describing even the site boundaries and situation accurately, no commercial properties or food outlets nearby unless the radius is 500m or more (item 2.3 of the report). The measuring position was adjusted, would this give us accurate results ? (item 3.1.3)

The second observation and comment relates to Odour Assessment, which seems underestimated in the first place, chancing to push it through the planning, revised to VERY HIGH impact risk, but still assuming 30 to 100 covers. In my opinion this seems rather not realistic for this type of hot food takeaway/pizza.

Obviously I fully support Angus Council decision on planning permission refusal, the risk assessments could be easily manipulated (as already seen in revised odour assessment or testing regime adjustments) and not even convinced if we can rely on plant noise tests in relation to my property.

Kind Regards,
Krzysztof Szymaszek

35C St James Road
Frofar
DD8 1LN

On Monday, 5 December 2022 at 14:40:25 GMT, Sarah Forsyth <forsythsl@angus.gov.uk> wrote:

Dear Sir/Madam

Town and Country Planning (Schemes of Delegation and Local Review Procedure) (Scotland) Regulations 2013
Application for Review – Refusal of Planning Permission for Change of Use to Form a Hot Food Takeaway with Associated Works at 35E St James Road, Forfar – Joup Property Limited
Application No 21/00993/FULL - DMRC-14-22

I refer to the above planning application and your lodged representations to that application.

I write to advise you that the applicant has made an application for a review of the decision taken by the Service Lead – Planning and Sustainable Growth. This is a process brought in by the above legislation to enable applicants dissatisfied with a decision of the Planning Authority to ask for it to be reviewed. This review will be considered by Angus Council's Development Management Review Committee. A copy of the Council's Decision Notice is attached for your information.

In accordance with the above Regulations, I am required to ask you if you wish to make any further representations. The Review Committee will be given copies of your original representation. If you do wish to do so, you have 14 days from the date of receipt of this email to make such representations. **These should be sent directly to me.**

The applicant will then be sent a copy of these representations and the applicant will be entitled to make comments on them. These comments will also be placed before the Review Committee when it considers the review.

I can also advise that a copy of the Notice of Review and other documents related to the review can be viewed by contacting me directly.

In the meantime, should you have any queries please do not hesitate to contact me.

Kind regards

Sarah

Sarah Forsyth | Committee Officer | Angus Council | T: 01307 491985| ForsythSL@angus.gov.uk
|www.angus.gov.uk
Work pattern: Mon, Tues (am) & Thurs

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Think green – please do not print this email

From: [REDACTED]
To: [Sarah Forsyth](#)
Subject: 21/00993/FULL-DMRC-14-22
Date: 10 December 2022 13:13:59

Further to the decision to appeal the refusal of a Hot Food takeaway licence for 35E St James Road I would like to make the following comments :

Further to the decision to refuse on the grounds of point 1 having adverse impacts on the amenity of those who live in the area .

I live at 35D St James Road directly behind the proposed development , I can see no reason to change the original decision to reject as there will be major issues in the takeaway being approved .

St James Road is a very busy commuter Road used by many to avoid going through the Town centre it is used by cars, delivery vans , Artic Lorries and Emergency Service vehicles .The additional traffic using the road to access the takeaway will make this worse . It can be very difficult to navigate safely along this road at the moment and the addition of delivery vehicles stopping at this site will add to that

In addition customers using the Takeaway will stop on the Road and or pavement to collect their food causing more congestion , this will defiantly happen with customers saying they only going to be 5 minutes as picking up Pizza, and I presume they will have delivery drivers again parking up whilst collect Food for delivery this will also lead to access and egress to and from my property being blocked .

The additional odour impacts would be significant for my property as the rear of the shop is approx one foot from my property line less than 10 foot from one of my bedroom windows with the proposed opening times of up to 11pm will mean significant increase in noise and anti social behaviour by people hanging around the shop and noise from customers, as well as staff using the bin area to put refuse and food waste at the end of their shifts .

I would ask that you stick by your original decision and refuse the application for the reasons stated above and as already stated that the development goes against Policies DS1 and DS4 or your Angus Local Development Plans and Angus Council Advise Note 2/2018

Regards

Gary Cocker