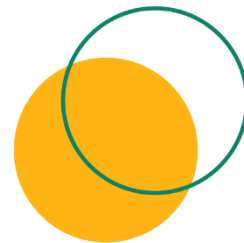




Balancing Growth with Green



Noise Impact Assessment



Galway + Derry Holdings Ltd
94-98 Fairfield Street, Manchester M1 2WR

January 2026

Project Information

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Revisions

A	An initial noise impact assessment was undertaken to determine mitigation measures required for the proposed extraction system.
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Disclaimer

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The findings, assessments, and recommendations in this report are based on the information available at the time of writing. If project details, design plans, or site conditions change, this report will require revisiting and reviewing to ensure its continued relevance and accuracy. No warranties or guarantees, express or implied, are provided regarding the conclusions drawn in this report, and it should not be considered an up-to-date assessment if project conditions evolve.

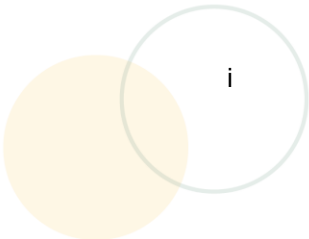


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1 Introduction

1.1 Overview

Galway + Derry Holdings Ltd ('the client') is seeking consent for the proposed development at 94-98 Fairfield Street, Manchester M1 2WR (hereafter referred to as the 'proposed development site'), which is within the jurisdiction of Manchester City Council ('MCC').

The proposed development involves changing the use of the existing café into a 'dark kitchen' dedicated to online meal preparation services. As part of this 'dark kitchen', an extraction system will be installed on-site. It should be noted that, at the time of preparing this document, a drawing of the extraction system had not yet been made available, although the client confirmed that the system would be positioned at the rear of the site. The drawing of the extraction system will be provided separately by the designated M&E supplier.

The site's operating hours are 10:00 to 22:00 every day. As the operating hours do not fall within the night-time hours of 23:00 to 07:00, a night-time assessment is deemed not be required.

The assessment includes a 24-hour continuous monitoring to determine the sound levels in the surrounding area. As per MCC requirements, monitoring was to be conducted on weekends and during the outside operating hours of nearby clubs to provide a more robust assessment. This included monitoring the residual sound level (L_{Aeq}) and background noise levels (L_{A90}).

The assessment has been informed by using the technical specifications of the proposed extraction fan and silencers, following which the specific sound level and resulting impact was determined in accordance with BS 4142:2014+A1:2019. Where appropriate, BS4142:2014 penalty corrections were applied and, where necessary, mitigation measures are outlined.

1.2 Site Location

The proposed development is located at 94-98 Fairfield Street, Manchester M1 2WR, within the administrative boundary of Manchester City Council. The current site is a single-storey building consisting of a café and a Sui Generis unit.

Considering the surrounding area, the single-storey building is situated next to a major railway line that terminates at nearby Manchester Piccadilly station. The area also features various commercial and industrial developments, although there is an educational facility (Sol Academy) and a church approximately 80m north-east of the location of the extraction system.



Figure 1.1: Site Location (Boundary Marked in Red) and Surrounding Context. Source: Google Maps.

2 Noise Regulations, Guidance & Standards

This section summarises all legislation, policy, statutory and non-statutory guidelines relevant to the proposed development.

2.1 The National Planning Policy Framework (NPPF)

The National Planning Policy Framework (NPPF) was revised in December 2024, setting out the government's planning policies for England and how these are expected to be applied.

The NPPF emphasises the importance of considering noise in planning policies and decisions. Key points include:

Paragraph 187: *“Planning policies and decisions should contribute to and enhance the natural and local environment by:*

..... e) preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability. Development should, wherever possible, help to improve local environmental conditions such as air and water quality, taking into account relevant information such as river basin management plans; and.....”

Paragraph 198a,b: *“Planning policies and decisions should also ensure that new development is appropriate for its location taking into account the likely effects (including cumulative effects) of pollution on health, living conditions and the natural environment, as well as the potential sensitivity of the site or the wider area to impacts that could arise from the development. In doing so they should:*

(a) mitigate and reduce to a minimum potential adverse impacts resulting from noise from new development – and avoid noise giving rise to significant adverse impacts on health and the quality of life...

(b) identify and protect tranquil areas which have remained relatively undisturbed by noise and are prized for their recreational and amenity value for this reason;...”

Paragraph 200: *“Planning policies and decisions should ensure that new development can be integrated effectively with existing businesses and community facilities (such as places of worship, pubs, music venues, and sports clubs). Existing businesses and facilities should not have unreasonable restrictions placed on them as a result of development permitted after they were established. Where the operation of an existing business or community facility could have a significant adverse effect on new development (including changes of use) in its vicinity, the applicant (or ‘agent of change’) should be required to provide suitable mitigation before the development has been completed.”*

In conjunction with the ‘National Planning Policy Framework (NPPF)’, ‘The Noise Policy Statement for England (NPSE)’¹, dated March 2010, states the following regarding a long-term vision of government noise policy:

“Noise Policy Statement for England Aims:

→ *The first aim of the NPSE:*

Avoid significant adverse impacts on health and quality of life from environmental, neighbour, and neighbourhood noise within the context of Government policy on sustainable development.

→ *The second aim of the NPSE:*

¹ Noise Policy Statement for England (NPSE) <https://www.gov.uk/government/publications/noise-policy-statement-for-england>

Mitigate and minimize adverse impacts on health and quality of life from environmental, neighbour, and neighbourhood noise within the context of Government policy on sustainable development.

→ *The third aim of the NPSE:*

Where possible, contribute to the improvement of health and quality of life through the effective management and control of environmental, neighbour, and neighbourhood noise within the context of Government policy on sustainable development.”

In terms of the NPSE, the impact of noise can be categorised by the following terms:

- NOEL – No Observed Effect Level – The level where no effect can be detected
- LOAEL – Lowest Observed Adverse Effect Level – The level where adverse effects on health and quality of life can be detected
- SOAEL – Significant Observed Adverse Effect Level – The level where significant adverse effects on health and quality of life may occur.

The NPSE further states that:

“It is not possible to have a single objective noise-based measure that defines SOAEL that is applicable to all sources of noise in all situations. Consequently, the SOAEL is likely to be different for different noise sources, for different receptors, and at different times.”

No specific guidance is detailed or given in the ‘National Planning Policy Framework (NPPF)’, or ‘The Noise Policy Statement for England (NPSE)’ in terms of acceptable acoustic criteria/noise criteria in order to achieve the ‘NOEL, LOAEL, or SOAEL’. Therefore, it is considered necessary to refer to alternate national guidance, preferably standardised or regulated such as an appropriate British Standard (BS), or in the absence of this, alternate World Health Organisation (WHO) guidelines, etc.

The British Standard 8223: Sound Insulation and Noise Reduction for Buildings/Code of Practice BS 8223: Sound Insulation and Noise Reduction for Buildings/Code of Practice states that for different spaces, there might be a range of noise levels that are considered acceptable.

2.2 BS4142:2014+A1:2019; Methods for rating and assessing industrial and commercial sound

In terms of industrial/commercial development, guidance is set out in British Standard BS4142:2014+A1:2019, ‘Methods for rating and assessing industrial and commercial sound’. This standard requires the noise from the process/equipment (in $L_{Aeq,T}$) to be compared with the background sound level ($L_{A90,T}$) in conjunction with the new noise source.

BS:4142:2014+A1:2019 assesses potential significant effect by comparing the source’s rating level (e.g. extractor duct vent noise) with the measured background noise level ($L_{A90,T}$) outdoors at the residential receptor. The standard provides penalties (correction factor) for acoustic features, for instance, bangs or tonal qualities that can increase the likelihood of noise complaints, and in these cases, the standard requires a correction to be added to the specific noise level. The specific sound level, along with the correction factor, is referred to as the ‘rating level’. The rating level is then compared with the background level ($L_{A90,T}$). BS 4142 advocates the use of the $L_{Aeq,T}$ parameter - a level, which is directly measurable or predictable and termed the Specific Sound Level.

BS:4142:2014+A1:2019 states that if the rating noise level exceeds the L_{A90} background sound level by around +10dB or more, then it is likely that the resultant noise may have a significant adverse impact, a difference of around +5 dB over the background sound level is likely to have an adverse impact, and where the rating level does not exceed the background sound level it is an indication that the resultant noise is likely to have a low adverse impact.

BS 4142:2014+A1:2019 provides a method for assessing whether an industrial or commercial sound source (e.g. fixed mechanical plant) is likely to cause a disturbance to persons living near to the sound source.

The standard considers three main acoustic features:

- **Tonality:** Defined as more sound in the 1/3 octave band than those nearby 1/3 octave bands or more sound in a given frequency than in those nearby frequencies. The tonality feature correction +6dB can be applied using a subjective method or an objective method using 1/3 octave bands.
- **Impulsivity:** defined as sound that increases by a rate of at least 10dB per second, regardless of its duration. The impulsivity feature correction range from 0-9 dB and can be applied using a subjective method or an objective method using a sound level meter capable of sampling sound at either once every 0.01s interval or once every 0.025s interval.
- **Intermittency:** Defined as sound that can be identified as being on/off during the measurement period in which case the correction factor that is applied to the specific sound source (e.g. fume extraction system) is +3 dB.

The BS:4142:2014+A1:2019 standard also provides the methodology for measuring equipment on-time and specifies how measurements should be taken for continuous, cyclic, and intermittent sound sources.

The result of the above numerical assessment is termed the 'initial estimate of the impact', as in some cases it's necessary to take account of the context. In such cases, the assessment result is modified to account for all pertinent factors, including the absolute level of sound, the character and level of residual sound, and the sensitivity of the receptor.

2.3 Local Authority Requirements – Manchester City Council

There is currently no standalone technical guidance document on noise from fixed mechanical plant published by Manchester City Council, nor is any available in the public domain at the time of writing. However, noise remains a material planning consideration under the Council's adopted 'Hot food takeaway Supplementary Planning Document' (2017), particularly under Policy 2, which requires development to demonstrate that adequate mitigation can be implemented to minimise noise impacts on surrounding residential or noise-sensitive receptors.

In the absence of detailed local criteria, this assessment has followed established national standards, primarily BS 4142:2014+A1:2019, which is widely accepted by planning authorities across England for assessing the impact of industrial and commercial sound.

Moreover, for this site, Manchester City Council added a requirement that the extraction system rating be 5dB below the typical background L_{A90} noise level. This is to avoid any unintentional background 'creep' due to the operation of the proposed and future extraction systems within the area.

3 Noise Survey

3.1 Overview

This section outlines the methodology adopted to characterise the prevailing external acoustic environment at 94-98 Fairfield Street, Manchester M1 2WR. The objective of the noise survey was to establish residual and background sound levels to assess their potential impact on nearby sensitive receptors, in accordance with BS 4142:2014+A1:2019.

Noise data were collected continuously for 24 hours, covering typical daytime trading hours. The survey data were then processed to derive key acoustic indicators, including $L_{Aeq,T}$ (residual sound level) and $L_{A90,T}$ (background sound level), as required under the BS 4142:2014 methodology. These values form the basis of the subsequent impact assessment presented in later sections.

The surveys were conducted in accordance with relevant British Standards, including BS 7445-1:2003, BS 7445-2:1991, and BS 4142:2014+A1:2019.

3.2 Noise Monitoring Locations

The noise monitoring was undertaken at the middle of the site. The microphone was placed through an openable window of the existing building. The location has been labelled as 'NMP1' for the purposes of the BS4142:2014 assessment.

As the microphone was positioned in close proximity to the building façade and reflective surfaces (e.g. external wall and window glazing), the recorded sound pressure levels may include façade reflections. To address this, a -3dB correction was applied to convert measured values to free-field conditions in line with standard acoustic practice. This approach is consistent with the requirements of BS 4142:2014+A1:2019, which specifies that rating levels should be assessed under free-field conditions or correction applied.

The monitoring location is representative of the worst-case sensitive-receptor exposure and enables a robust assessment of plant noise impact, accounting for both operational and contextual acoustic conditions.

All noise measurements were conducted in strict accordance with the following standards:

- BS 7445-1:2003 and BS 7445-2:1991: Description and Measurement of Environmental Noise;
- BS 4142:2014+A1:2019: Methods for Rating and Assessing Industrial and Commercial Sound.



Figure 3.1: Locations of Noise Monitoring

3.3 Noise Survey Periods

Regarding the external noise monitoring, the equipment was installed on the 9th of November 2025 and remained operational until the 10th of November 2025, continuously recording 1-second-interval data. This extended multi-day monitoring period enables detailed characterisation of the prevailing background sound levels on a typical weekend day.

The 9th of November was also chosen because there were no nearby clubs in operation, ensuring the lowest possible background levels were measured.

Table 3.1: Noise Survey Periods

Measurement Location	Start Date	Start Time	End Date	End Time
NMP1	09/11/2025	10:00	10/11/2025	10:00

3.4 Details of Noise Monitoring Equipment

The details of the equipment used for noise monitoring are listed below. Please note that all equipment is class 1 monitors and are calibrated before and after surveys.

Table 3.2: Noise Equipment Details

Equipment	Serial Number	Last Calibrated
BSWA 308 Class 1 Monitor	600266	11/09/2025
BSWA CA111 Class 1 Calibrator (UKAS)	550282	29/10/2024

3.5 Weather Conditions and Observations

The following weather conditions were recorded during the survey period.

- Wind speed(s) and direction(s):
 - Average wind speed: 3 m/s
 - Max wind speed: 5 m/s
 - Winds were predominantly westerly
- Precipitation: No precipitation
- Ground condition: Dry
- Temperature: Ranged from 11°C to 12°C
- Cloud Cover: Partly overcast throughout the survey period.
- Other conditions: No fog, no snow, no temperature inversions observed

On-site observations noted that the immediate surrounding area of the site was derelict, with buildings in poor condition. A walk around the nearby area identified Sol Academy and a church as the nearest sensitive receptors.

4 Noise Survey Results

4.1 Prevailing Noise Levels

This section summarises the measured sound levels used to inform the assessment in accordance with BS 4142:2014+A1:2019.

Noise monitoring was undertaken continuously at 94-98 Fairfield Street, Manchester M1 2WR between the 9th and 10th of November 2025, capturing representative acoustic conditions across a typical weekend day.

Table 4.1 shows the measured L_{Aeq} residual and L_{A90} background noise levels. It also includes the quietest hour during the daytime. As stated in Section 3.2, a -3dB façade correction factor was used because the microphone was less than 1m from the nearest façade.

A complete history of the L_{Aeq} and L_{A90} sound levels is shown in Figure 4.1, covering both operational periods and quieter night-time conditions. The L_{A90} noise level was calculated from the data.

Table 4.1: Residual Sound Level ($L_{Aeq,1hr}$) and Background Noise Levels ($L_{A90,1hr}$)

Noise Parameters (dB)	Daytime Noise Level (07:00 to 23:00)	Night-Time Noise Level (23:00 to 07:00)	Quietest Daytime Noise Level (22:00 to 23:00)
Residual Level L_{Aeq}	57.0	54.0	56.0
Background Noise Level L_{A90}	47.0	39.0	45.0

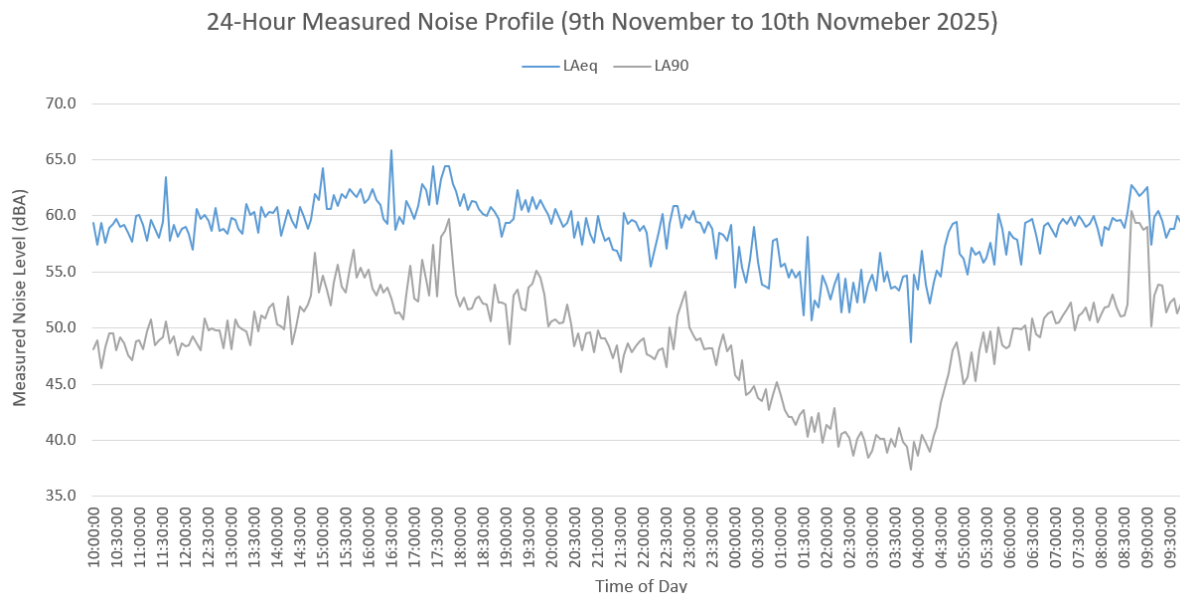


Figure 4.1: Prevailing Noise Levels

As can be seen in Table 4.1 and Figure 4.1, the noise levels during a Sunday are generally lower when compared to the following day, which is a weekday. Moreover, given the site context (railway lines to the rear), the measured noise levels are generally as expected. The results indicate that the prevailing acoustic environment is influenced by intermittent rail movements, with typical urban background levels during non-rail periods.

4.2 Noise Levels from the Proposed Extraction System

As mentioned in Section 1.1, no drawings of the extraction system were made available, and therefore, no information was provided by the client regarding the extraction fan and any acoustic reducing features such as silencers, etc. Therefore, based on our experiences, the following extraction fan and silencers were recommended to the client:

- Helios GBW EC 250 Centrifugal Fan
- 2x Spigot 068-0250-JF1 Silencers

The specific sound pressure level of the fan was calculated to be 61dB(A) at a distance of 1m without any silencers.

It was also recommended to the client to install one silencer at the inlet of the fan and a second silencer at the outlet of the fan. This ensures that noise levels from the exhaust fan are adequately attenuated, therefore reducing any potential impact to the nearby receptors.

Appendix C includes the technical specifications of the above-mentioned extraction fan and silencer.

5 Noise Impact Assessment – BS4142:2014

The potential noise impact on nearby residential receptors has been assessed in accordance with BS 4142:2014+A1:2019: Methods for rating and assessing industrial and commercial sound.

As mentioned in Section 1.2, the nearest noise sensitive receptors are the Sol Academy and the church located 80m north-east from the site. Therefore, the BS4142:2014 impact assessment will be in relation to these receptors.

The assessment is based on the data provided by the manufacturer of the extraction fan and silencer. The specific sound level emitted by the system was calculated in relation to the NSR, and is compared with the prevailing background sound levels (L_{A90}) identified during the quietest hour.

As mentioned in Section 2.3, MCC requires the rating levels of the system to be no more than 5dB below L_{A90} background noise levels. In other words, the maximum L_{A90} noise level allowed to be used was 40dB(A).

In accordance with the methodology set out in BS 4142, the assessment includes appropriate corrections for the character of the noise (e.g. tonality, intermittency), and evaluates the rating level at the nearest sensitive receptor (NSR). The outcome provides an objective indication of the likelihood of adverse noise impact arising from the continued operation of the extraction system, particularly in the context of the proposed extension of operating hours.

5.1 Noise Impact of Proposed Extraction System

The potential noise impact from the proposed extraction system has been assessed in accordance with the methodology outlined in BS 4142:2014+A1:2019, which involves comparing the rating level of the specific sound at the nearest sensitive receptor (NSR) with the representative background sound level (L_{A90}) during the relevant time period.

As an extraction fan would be in use, appropriate penalties would need to be added due to the operation of the fan, in particular with the intermittent use of the fan depending on the workloads. Fans also have a tonal feature within its lower octave band frequencies and therefore, they would also need to be considered

In accordance with BS 4142, the following acoustic feature corrections are therefore applied:

- +2 dB for potential tonality (e.g. low-frequency hum from the fan motor)
- +3 dB for potential intermittency (on/off cycling)

Table 5.1 below shows the resulting impact at the Sol Academy/Church as a result of the proposed extraction system during daytime hours only. As mentioned in Section 1.1, the site is not in operation during night-time hours of 23:00 to 07:00 and therefore, a night-time assessment has been scoped out.

Table 5.1: Summary of Day-time Impact at Residential Receptor

Parameters	Sound Pressure Levels	Relevant clause within BS4142:2014	Commentary
Residual Sound Level ($L_{Aeq, 1hr}$)	56 dB	-	Taken from Table 4.1
Assessment time interval	1 hour	7.2	Night-time reference period (23:00–07:00)
Specific Sound Level at Receptor $L_{Aeq, Tr}$	8 dB	7.3.4/ 7.3.5	Specific Sound Level of Fan was 61dBA at 1m. With inclusion of silencers and distance correction factor of 80m to NSR, specific sound level reduces to 46dB at 1m, 8dB at NSR
Acoustic feature correction	+5 dB	9.2	+2 dB for tonality, +3 dB for intermittency
Rating Level ($L_{Ar, Tr}$)	13 dB	9.2	Specific sound level + feature corrections
Target Background Sound Level ($L_{A90, 1hr}$)	40 dB	8.1.3/ 8.3	Measured L_{A90} noise level was 45dB, MCC requirement of 5dB below measured background level included.
Excess of Rating over Background	(13 - 40) = -27 dB	11	-27dB indicates no impact onto NSR
Uncertainty of the Assessment	Low	10	Based on manufacturer specifications and conservative corrections applied

The predicted rating level of 13dB is well below the target background level of 40dB L_{A90} and therefore, as per BS4142:2014, there would not be any impact to the NSRs of Sol Academy and the Church.

6 Mitigation

As mentioned in Section 4.2, it was recommended to include silencers before and after the extraction fan. The silences were considered as part of the assessment which concluded there would be no impact onto the NSR.

Therefore, apart from the installation of the recommended silencers, no further mitigation measures would be required.

7 Conclusion

This report provides an assessment of the potential noise impact associated with the proposed kitchen extraction system 94-98 Fairfield Street, Manchester M1 2WR, in support of a planning application seeking for the change of use from the existing café into a dark kitchen.

Noise monitoring was undertaken on-site to determine prevailing residual and background sound levels. A detailed noise impact assessment was then carried out in accordance with BS 4142:2014+A1:2019, based on the technical specifications of the extraction fan and silencers and identification of the quietest night-time background levels.

It should be noted that the site will not operate between the hours of 23:00 to 07:00 and therefore, a night-time assessment has not been undertaken.

The results indicate that, when considering the nearest sensitive receptors in the form of Sol Academy and a Church located 80m north-east of the site, the proposed extraction system would not cause any impact onto the NSRs.

It is therefore recommended to include the selected extraction fan and silencers within the system, with one silencer placed before and another silencer placed after the extraction fan.

Provided that these design-based measures are approved by MCC, no further noise control measures are expected to be necessary. The extraction system could then operate without causing adverse noise impact to nearby receptors or conflict with relevant planning policies.

Appendix A: Noise Indicators

Decibel scale - dB

In practice, when sound intensity or sound pressure is measured, a logarithmic scale is used in which the unit is the 'decibel', dB. This is derived from the human auditory system, where the dynamic range of human hearing is so large, in the order of 10^{13} units, that only a logarithmic scale is the sensible solution for displaying such a range.

Decibel scale, 'A' weighted - dB(A)

The human ear is less sensitive at frequency extremes, below 125Hz and above 16Khz. A sound level meter models the ears variable sensitivity to sound at different frequencies. This is achieved by building a filter into the Sound Level Meter with a similar frequency response to that of the ear, an A-weighted filter where the unit is dB(A).

Octave Bands

In order to completely determine the composition of a sound it is necessary to determine the sound level at each frequency individually. Usually, values are stated in octave bands. The audible frequency region is divided into 11 such octave bands whose centre frequencies are defined in accordance with international standards. These centre frequencies are: 16, 31.5, 63, 125, 250, 500, 1000, 2000, 4000, 8000 and 16000 Hertz.

Reference Time Interval, T

The specified time interval over which an equivalent continuous A-weighted sound pressure level is determined.

$L_{Aeq,T}$

The A-weighted equivalent continuous sound level. This is the sound level of a notionally steady sound having the same energy as the fluctuating sound over a specified measurement period, T.

$L_{A10,T}$

The A-weighted sound level exceeded for 10% of the specified measurement period, T.

L_{Amax}

The highest short duration A-weighted sound level recorded during a noise event.

L_{A90}

The A-weighted sound pressure level of the residual noise at the assessment position that is exceeded for 90 % of a given time interval, T.

Addition of noise from several sources

Noise from different sound sources combines to produce a sound level higher than that from any individual source. Two equally intense sound sources operating together produce a sound level which is 3dB higher than a single source and 4 sources produce a 6dB higher sound level.

Attenuation by distance

Sound which propagates from a point source in free air attenuates by 6dB for each doubling of distance from the noise source. Sound energy from line sources (e.g. stream of cars) drops off by 3dB for each doubling of distance.

Subjective impression of noise

Hearing perception is highly individualised. Sensitivity to noise also depends on frequency content, time of occurrence, duration of sound and psychological factors such as emotion and expectations. The following table is a guide to explain increases or decreases in sound levels for many scenarios.

Change in sound level (dB)	Change in perceived loudness
1	Imperceptible
3	Just barely perceptible
6	Clearly noticeable
10	About twice as loud

Transmission path(s)

The transmission path is the path the sound takes from the source to the receiver. Where multiple paths exist in parallel, the reduction in each path should be calculated and summed at the receiving point. Outdoor barriers can block transmission paths, for example traffic noise. The effectiveness of barriers is dependent on factors such as its distance from the noise source and the receiver, its height and construction.

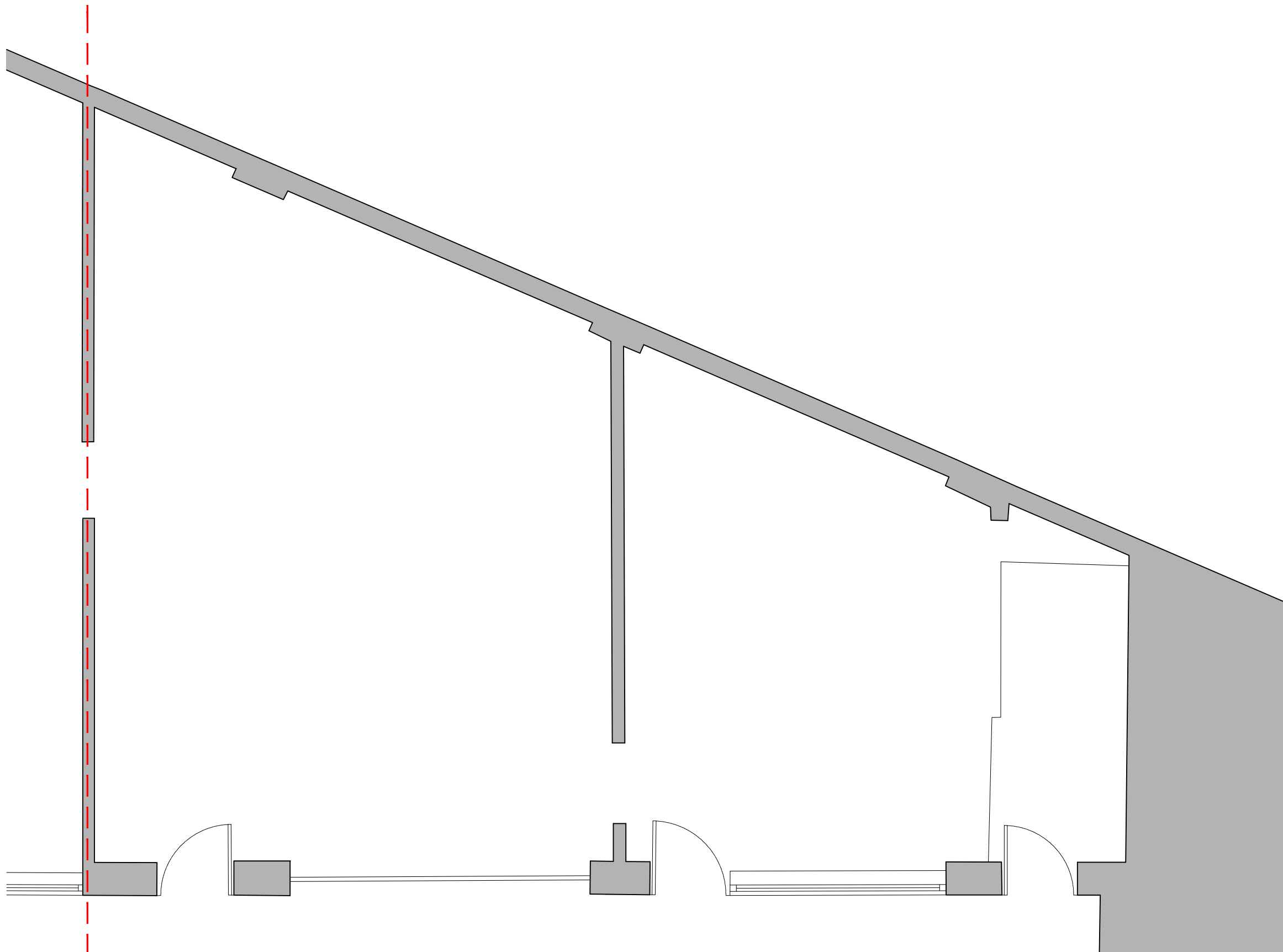
Ground-borne vibration

In addition to airborne noise levels caused by transportation, construction, and industrial sources there is also the generation of ground-borne vibration to consider. This can lead to structure-borne noise, perceptible vibration, or in rare cases, building damage.

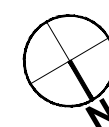
Sound insulation - Absorption within porous materials

Upon encountering a porous material, sound energy is absorbed. Porous materials which are intended to absorb sound are known as absorbents, and usually absorb 50 to 90% of the energy and are frequency dependent. Some are designed to absorb low frequencies, some for high frequencies and more exotic designs being able to absorb very wide ranges of frequencies. The energy is converted into both mechanical movement and heat within the material; both the stiffness and mass of panels affect the sound insulation performance.

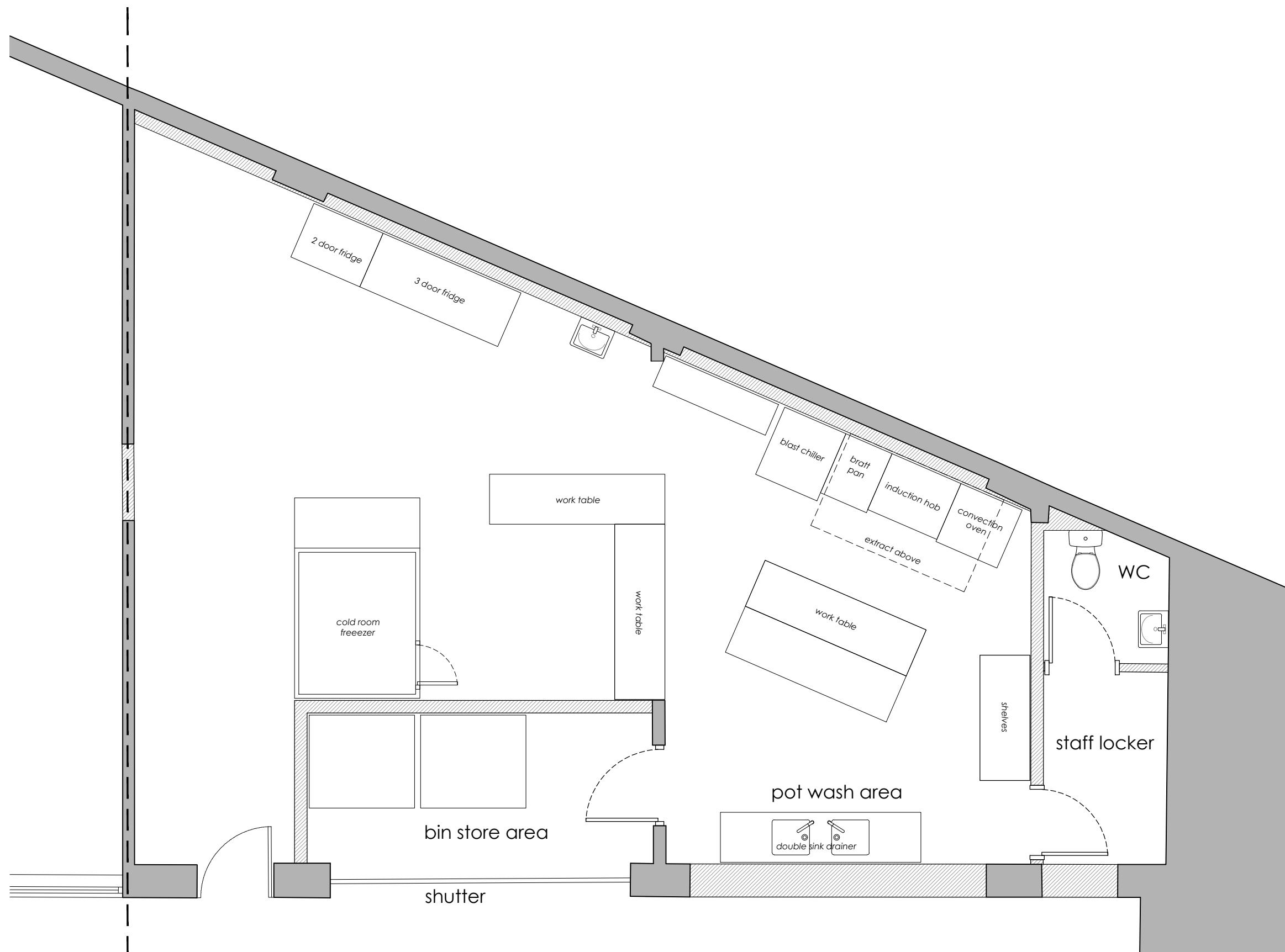
Appendix B: Site Drawings



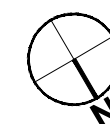
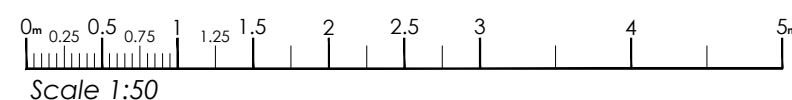
Existing - Floor Plan
Scale: 1:50 @ A3



PLANNING	Project 98 Fairfield Street, Manchester, M1 2WR	
	Title Existing Floor Plan	
	DWG Number NP-087-PL-001	Revision A

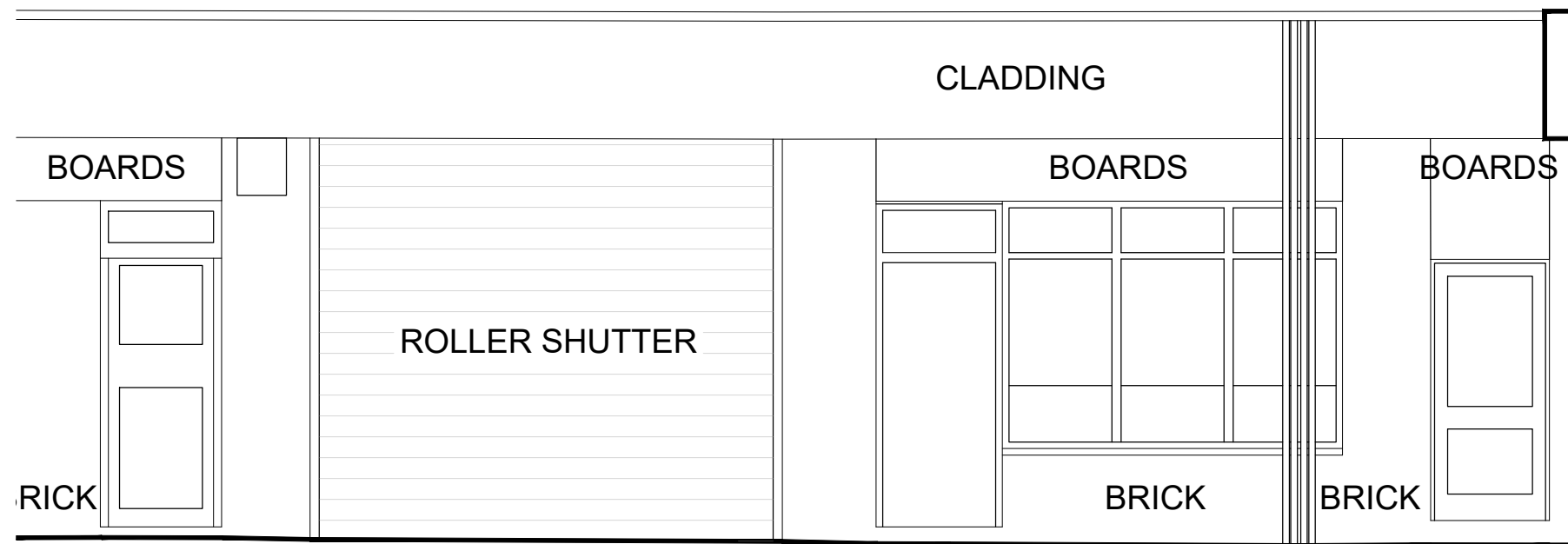


Proposed - Floor Plan
Scale: 1:50 @ A3



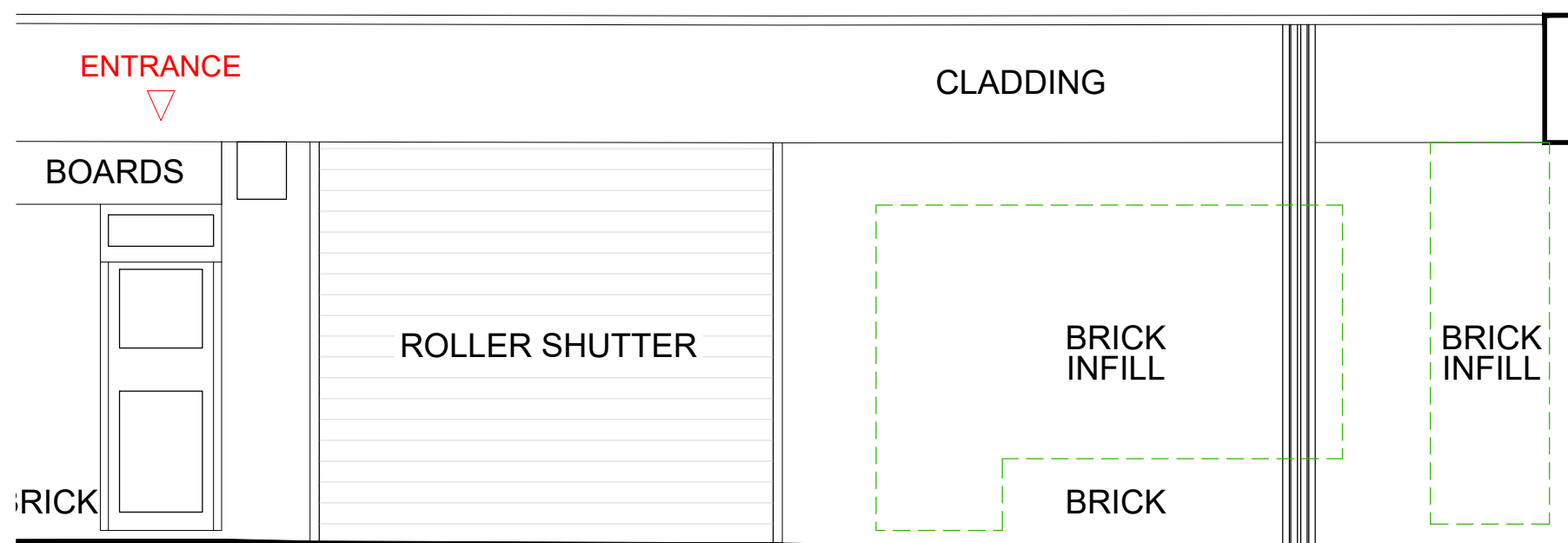
PLANNING

Project 98 Fairfield Street, Manchester, M1 2WR	
Title Proposed Floor Plan	
DWG Number NP-087-PL-002	Revision A



EXISTING FRONT ELEVATION (FACING NORTH)

Scale: 1:50 @ A3



PROPOSED FRONT ELEVATION (FACING NORTH)

Scale: 1:50 @ A3

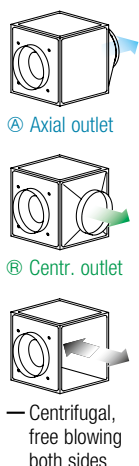


PLANNING

Project 98 Fairfield Street, Manchester, M1 2WR	
Title Existing & Proposed Elevations	
DWG Number NP-087-PL-003	Revision A

Appendix C: Specifications of Recommended Extraction Fan and Silencer

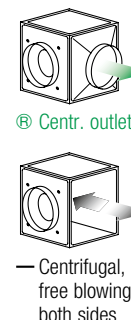
GB EC 250



Any installation position and location due to five possible outlet directions.



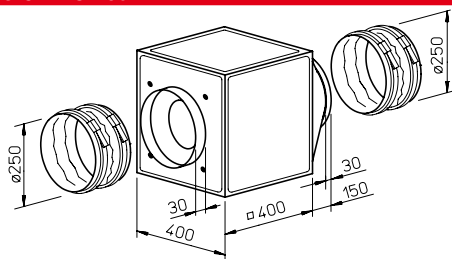
GB EC 250 T120



For the delivery of contaminated, humid and hot air up to max. 120 °C. Motor located outside of air flow.

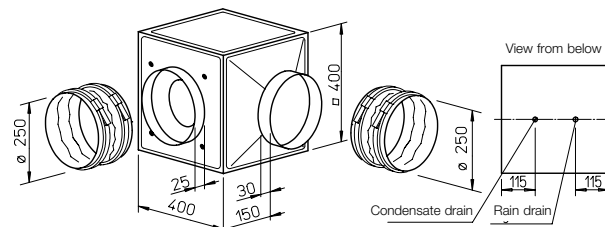


Dimensions GB EC 250



Dim. in mm

Dimensions GB EC 250 T120



Dim. in mm

Special features of the GB EC T120 series

- Designed for the delivery of contaminated, humid and hot air up to max. 120 °C, e.g. as an extract air fan in commercial kitchens and many process technology applications.
- Motor located outside of air flow.
- Thermally insulated partition between motor and impeller, made of galvanised steel sheet, with 20 mm thick, non-flammable mineral wool.
- Complete motor-impeller unit can be removed without dismantling the system components.
- Inspection cover with handle, easily removable for cleaning and maintenance.
- Condensate tray with condensate drain as standard. Hole provided for rain drain (accessories) for outdoor installation.

Installation

Installation position with condensate drain below. Flexible installation due to three possible centrifugal outlet directions of the outlet fitting. Protected outdoor installation possible with weather protection cover and grille (accessories).

Electrical connection

Standard terminal box (IP54) directly to the commutation electronics.

Special features of the GB EC series

Any installation position and flexible installation due to five possible outlet directions of the outlet fitting. The wall bracket (accessories) must be used for wall installation. Protected outdoor installation possible with weather protection cover and grille (accessories).

Electrical connection

Standard terminal box (IP54) mounted to external cable.

Description for both series

Casing

Self-supporting frame construction made of aluminium hollow profiles. Double-walled, 20 mm thick side panels made of galvanised steel sheet, sound and heat insulated by non-flammable mineral wool lining. Nozzle on inlet side for optimal inflow as well as connectors and flexible connecting sleeve (for the respective max. permissible air flow temperature) for duct connection. Moulded part (square to round) on outlet side for low-loss outflow and flexible connecting sleeve to prevent structure-borne noise transmission. Simple positioning with standard crane hook.

Impeller

Free-running high performance centrifugal impeller made of plastic (Type 120 made of aluminium), directly driven. Energy-efficient with low noise emission. Dynamically balanced together with the motor in accordance with DIN ISO 21940-11 – quality grade 2.5.

Drive

Energy-saving, speed-control-lable EC external rotor motor in protection category IP54 with the highest level of efficiency. Maintenance-free and radio interference-free, ball bearing mounted.

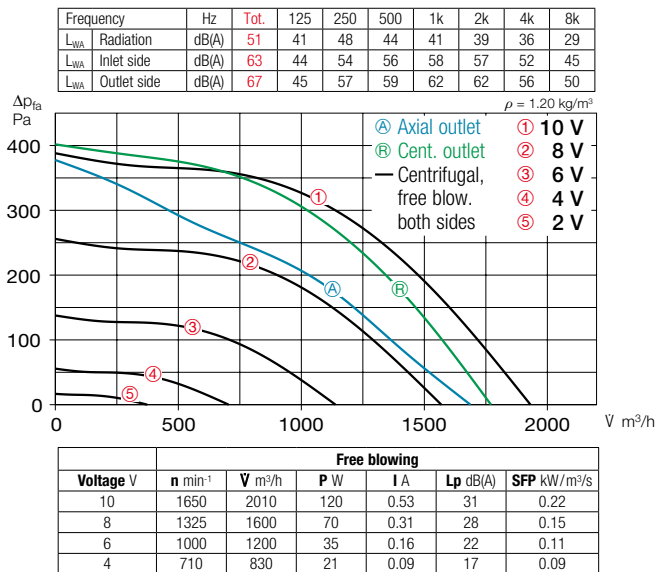
Motor protection

Integrated electronic temperature monitoring system for EC motor and electronics.

Type	Ref. no.	Connection Ø	Flow rate free blowing	Rated speed	Case-rad. sound pressure	Power consumption	Current con- sumption	Wiring dia- gram	Max. air flow temp.	Weight net aprx.	Universal control system		Speed potentiometer			
													Flush-mounted	Surface-mounted		
		mm	ṽ m³/h	min ⁻¹	dB(A) in 4m	kW	A	No.	+ °C	kg	Type	Ref. no.	Type	Ref. no.	Type	Ref. no.
Alternating current, 1~, 230 V, 50/60 Hz, EC motor, protection category IP44																
GBW EC 250	05807	250	1930	2190	33	0.18	0.78	1354	60	20.0	EUR EC ^{1) 2)}	01347	PU 24 ¹⁾	01736	PA 24 ¹⁾	01737
⚡ T120 Alternating current, 1~, 230 V, 50/60 Hz, EC motor, protection category IP54																
GBW EC 250 T120	06371	250	2335	2200	40	0.27	1.20	1354	120	27.0	EUR EC ^{1) 2)}	01347	PU 10 ¹⁾	01734	PA 10 ¹⁾	01735

1) Multiple EC fans can normally be connected. 2) Alternative electronic diff. pressure/temperature controller (EDR/ETR, No. 01437/01438) or three level speed switch (SU/SA, No. 04266/04267).

Performance curves GBW EC 250



Power control

Continuously variable speed control with internal (delivery) or external potentiometer or continuously variable speed regulation with universal control system (see table). Performance levels are shown in the performance curve as an example.

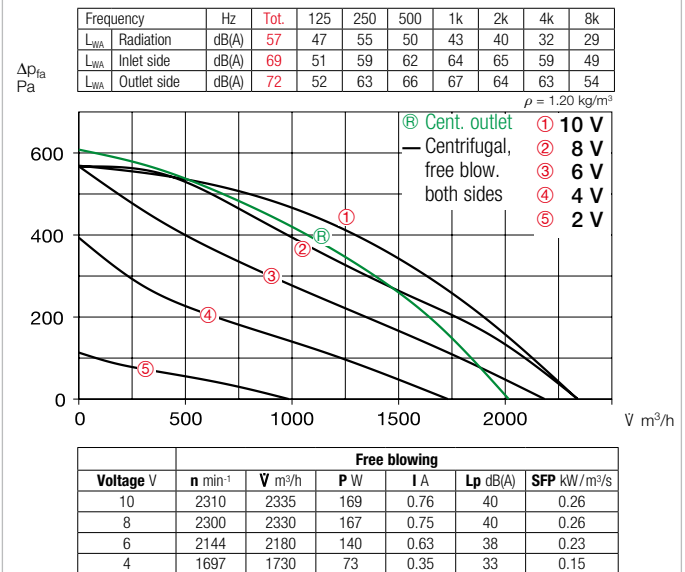
Noise

The total level and range are specified above the performance diagram for:

- ☐ Case-radiated sound power
- ☐ Inlet side sound power
- ☐ Outlet side sound power

The case-radiated noise as sound pressure at 4 m (free field conditions) is also specified in the type table and the table below the performance curve.

Performance curves GBW EC 250 T120



Accessories for both series

Vibration dampers for indoor installation. 1 set = 4 pcs.

SDD-U Ref. no. 05627

Wall bracket for wall installation.

GB-WK 250 Ref. no. 05625

Weather protection grille for outlet-side coverage.

GB-WSG 250 Ref. no. 05637

Weather protection cover for protected outdoor installation.

GB-WSD 250 Ref. no. 05746

Special accessories

☐ for GB EC series

Condensate tray with drain connectors (central) for duct/hose connection.

GB-KW 250 Ref. no. 05642

(a condensate tray with condensate drain is included in delivery for GB EC T120).

☐ for GB EC T120 series

Rain drain for outdoor installation (Hole in casing base already provided).

GB-RA Ref. no. 09418

References	Page
Planning information	14 ff.
General techn. information, power control	19 ff.
Accessory details	Page
Universal control system, electronic controllers, speed potentiometer	613 ff.



SPIGOT SILENCER

SPIGOT SILENCER

Overview

- Small metric range of attenuators with spigot connection
- Ideal for small fans
- Ideal for cross talk elimination
- Ideal for flexible or spiral ducting



Construction

Both types are rigidly constructed in galvanised sheet steel, with a highly absorbent sound attenuating lining between the outer casing and the inner perforated steel lining. The end faces of the silencer do not have threaded holes for fixings, but has a steel spigot for ease of mounting.

Melinex lined silencers must be used to prevent grease impregnation into the acoustic media for kitchen extract applications as prescribed in DW/172 HVAC Specification For Kitchen Ventilation Systems. For Melinex insertion losses, please contact Elta Fans. Silencers can be provided with differing lengths: 300, 600, 900 and 1200mm.

Silencer Attenuation

To determine the sound level of a fan fitted with a silencer, the dynamic insertion loss should be subtracted from the sound power level spectrum (dBW) of the fan. This should be done for the entire octave band mid-frequency spectrum. The fan dBW ratings and silencer attenuation apply equally to in duct applications, with a silencer connected between the fan and the duct system.

Dynamic Insertion Loss

The silencer attenuation is defined as the “dynamic insertion loss”. The values quoted in the tables represent the difference between the sound power level of a fan and silencer combination (dBW) and that of the fan alone (dBW). The dynamic insertion losses shown are the attenuations recorded under ideal working conditions. The achieved attenuation will vary according to the air velocity and flow pattern in the airways. Noise regeneration can occur at higher velocities, especially in EP silencers.

Square / Rectangular Silencers

In highly noise sensitive areas, where the circular silencers cannot achieve the necessary attenuation levels, Elta Fans can design and build optional splitter silencers for greater effect.

SPIGOT SILENCER

Dynamic Insertion Loss

Spigot Ø100-500

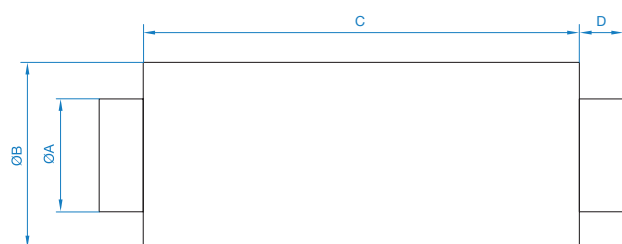
Product Code	Length	Insertion Loss @ Octave band (Hz)							
		63	125	250	500	1K	2K	4K	8K
068-0100-JF1	300mm	-3	-4	-9	-17	-23	-26	-25	-14
068-0100-JF2	600mm	-5	-8	-15	-33	-39	-40	-36	-20
068-0100-JF3	900mm	-10	-13	-21	-40	-45	-40	-36	-24
068-0100-JF4	1200mm	-12	-15	-23	-42	-47	-42	-38	-26
068-0125-JF1	300mm	-3	-3	-8	-16	-21	-24	-22	-12
068-0125-JF2	600mm	-4	-8	-13	-30	-35	-35	-31	-15
068-0125-JF3	900mm	-9	-12	-18	-37	-41	-38	-34	-20
068-0125-JF4	1200mm	-11	-15	-21	-40	-46	-41	-36	-23
068-0150-JF1	300mm	-3	-3	-6	-14	-19	-23	-22	-11
068-0150-JF2	600mm	-4	-7	-12	-23	-30	-36	-31	-15
068-0150-JF3	900mm	-8	-9	-15	-31	-37	-37	-34	-18
068-0150-JF4	1200mm	-10	-14	-17	-34	-41	-40	-36	-20
068-0160-JF1	300mm	-3	-3	-6	-14	-19	-23	-22	-11
068-0160-JF2	600mm	-4	-7	-12	-23	-29	-35	-30	-15
068-0160-JF3	900mm	-8	-9	-15	-31	-37	-37	-34	-18
068-0160-JF4	1200mm	-10	-14	-18	-33	-40	-39	-35	-18
068-0200-JF1	300mm	-2	-3	-6	-13	-17	-20	-18	-9
068-0200-JF2	600mm	-4	-6	-10	-20	-27	-32	-20	-11
068-0200-JF3	900mm	-7	-9	-14	-32	-39	-36	-26	-15
068-0200-JF4	1200mm	-10	-12	-17	-35	-41	-44	-28	-16
068-0250-JF1	300mm	-2	-3	-6	-12	-16	-19	-17	-8
068-0250-JF2	600mm	-3	-6	-10	-19	-25	-29	-18	-10
068-0250-JF3	900mm	-5	-8	-12	-24	-30	-30	-22	-14
068-0250-JF4	1200mm	-7	-10	-15	-31	-37	-38	-26	-15
068-0315-JF1	300mm	-1	-3	-6	-12	-15	-18	-16	-8
068-0315-JF2	600mm	-3	-5	-8	-16	-21	-22	-16	-14
068-0315-JF3	900mm	-4	-7	-10	-20	-31	-28	-17	-14
068-0315-JF4	1200mm	-6	-9	-14	-23	-32	-32	-18	-15
068-0355-JF1	300mm	-1	-3	-6	-12	-15	-18	-16	-8
068-0355-JF2	600mm	-3	-4	-7	-15	-19	-20	-15	-13
068-0355-JF3	900mm	-4	-7	-9	-19	-28	-25	-16	-13
068-0355-JF4	1200mm	-5	-8	-13	-22	-31	-29	-17	-14
068-0400-JF1	300mm	-1	-2	-4	-11	-15	-15	-12	-8
068-0400-JF2	600mm	-2	-4	-7	-14	-17	-18	-14	-11
068-0400-JF3	900mm	-3	-6	-9	-18	-26	-23	-15	-12
068-0400-JF4	1200mm	-5	-8	-13	-22	-30	-27	-17	-12
068-0500-JF1	300mm	-1	-1	-3	-10	-14	-14	-11	-7
068-0500-JF2	600mm	-2	-4	-6	-14	-16	-16	-13	-11
068-0500-JF3	900mm	-3	-6	-8	-17	-24	-21	-15	-11
068-0500-JF4	1200mm	-4	-8	-12	-19	-28	-23	-16	-12

For sizes 560-710, please contact Elta Fans.

SPIGOT SILENCER

Dimensional Data

Product Code	Fan Dia.	A	B	C	D	Weight kg
068-0100-JF1	100	98	204	300	40	2.5
068-0100-JF2	100	98	204	600	40	4.6
068-0100-JF3	100	98	204	900	40	6.7
068-0100-JF4	100	98	204	1200	40	8.7
068-0125-JF1	125	123	230	300	40	2.9
068-0125-JF2	125	123	230	600	40	5.4
068-0125-JF3	125	123	230	900	40	7.8
068-0125-JF4	125	123	230	900	40	10.2
068-0150-JF1	150	148	255	300	40	3.4
068-0150-JF2	150	148	255	600	40	6.1
068-0150-JF3	150	148	255	900	40	8.9
068-0150-JF4	150	148	255	1200	40	11.6
068-0160-JF1	160	158	265	300	40	3.5
068-0160-JF2	160	158	265	600	40	6.4
068-0160-JF3	160	158	265	900	40	9.3
068-0160-JF4	160	158	265	1200	40	12.2
068-0200-JF1	200	198	305	300	40	4.2
068-0200-JF2	200	198	305	600	40	7.6
068-0200-JF3	200	198	305	900	40	11.0
068-0200-JF4	200	198	305	1200	40	14.5
068-0250-JF1	250	248	355	300	40	5.0
068-0250-JF2	250	248	355	600	40	9.1
068-0250-JF3	250	248	355	900	40	13.2
068-0250-JF4	250	248	355	1200	40	17.3
068-0315-JF1	315	313	420	300	40	6.1
068-0315-JF2	315	313	420	600	40	11.1
068-0315-JF3	315	313	420	900	40	16.1
068-0315-JF4	315	313	420	1200	40	21.0
068-0355-JF1	355	353	460	300	40	6.8
068-0355-JF2	355	353	460	600	40	12.3
068-0355-JF3	355	353	460	900	40	17.8
068-0355-JF4	355	353	460	1200	40	23.3
068-0400-JF1	400	398	505	300	40	7.5
068-0400-JF2	400	398	505	600	40	13.6
068-0400-JF3	400	398	505	900	40	19.8
068-0400-JF4	400	398	505	1200	40	25.9
068-0500-JF1	500	498	654	300	40	13.2
068-0500-JF2	500	498	654	600	40	26.4
068-0500-JF3	500	498	654	900	40	39.6
068-0500-JF4	500	498	654	1200	40	52.8



For sizes 500-710, please contact Elta Fans.
Dimensions are in mm.

SPIGOT SILENCER

Notes

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Notes

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Notes

[illegible]

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