NOISE IMPACT ASSESSMENT

Oxford House Hotel, Tavistsock Place, London, WC1H 9RE

25th July 2022

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This report has been compiled by Deane Austin Ltd (DAA) with all reasonable skill, care and diligence in accordance with generally accepted acoustic consultancy principles. Information contained in this document contains confidential and commercially sensitive information and shall not be disclosed to third parties.

1.0 INTRODUCTION

DAA Group has been appointed to carry out a BS4142:2014 Noise Impact Assessment at Oxford House Hotel, Tavistsock Place, London, WC1H 9RE to support a Planning Application for the installation of two heat pumps in accordance with the provisions of:

- The National Planning Policy Framework
- The Noise Policy Statement for England (NPSE)
- The World Health Organisation Guidelines for Community Noise 1999 (WHO)
- The London Plan 2021
- Camden Local Plan 2017

The technical content of this assessment has been provided by a Tech member of the Institute of Acoustics.

The Institute of Acoustics is the UK's professional body for those working in acoustics, noise and vibration.

2.0 NOISE CRITERIA

2.1 NATIONAL PLANNING POLICY FRAMEWORK (NPPF)

The Department for Communities and Local Government introduced the National Planning Policy Framework (NPPF) in March 2012. The latest revision of the NPPF is dated July 2021.

The NPPF sets out the Government's planning policies for England and how these are expected to be applied. It provides a framework where local Councils can produce their own local and neighbourhood plans which reflect the needs of their communities.

In conserving and enhancing the natural environment, the planning system should prevent both new and existing development from contributing to, or being put at, unacceptable risk from environmental factors including noise.

Planning policies and decisions should aim to avoid noise giving rise to significant adverse impacts on health and quality of life as a result of new development. Conditions may be used to mitigate and reduce noise to a minimum so that adverse impacts on health and quality of life are minimised. It must be recognised that development will often create some noise and existing businesses wanting to develop in continuance of their business should not have unreasonable restrictions put on them. Reference is made within NPPF to the Noise Policy Statement for England (NPSE) as published by DEFRA in March 2010.

2.2 NOISE POLICY STATEMENT FOR ENGLAND (NPSE)

The long-term vision of the NPSE is stated within the documents scope, to 'promote good health and a good quality of life through the effective management of noise within the context of Government policy on sustainable development'. The policy aims are stated to:

- avoid significant adverse impacts on health and quality of life;
- mitigate and minimise adverse impacts on health and quality of life; and
- where possible, contribute to the improvement of health and quality of life.

The application of NPSE should mean that noise is properly taken into account at the appropriate time (for example in planning applications or appeals) where it must be considered alongside other relevant issues. The guiding principles of Government policy on sustainable development should be used to assist in the implementation of the NPSE.

The NPSE should apply to all types of noise apart from occupational noise in the workplace. The types of noises defined in the NPSE includes:

- Environmental noise from transportation sources;
- Neighbourhood noise which includes noise arising from within the community; industrial premises, trade and business premises, construction sites and noise in the street

The Noise Policy Statement England (NPSE) outlines observed effect levels relating to the

above, as follows:

- **NOEL – No Observed Effect Level**

o This is the level below which no effect can be detected. In simple terms, below

this level, there is no detectable effect on health and quality of life due to the noise.

- **LOAEL – Lowest Observed Adverse Effect Level**

o This is the level above which adverse effects on health and quality of life can be detected.

- **SOAEL – Significant Observed Adverse Effect Level**

o This is the level above which significant adverse effects on health and quality of life occur.

As stated in The Noise Policy Statement England (NPSE), it is not currently possible to have a single objective based measure that defines SOAEL that is applicable to all sources of noise in all situations. Specific noise levels are not stated within the guidance for this reason, and allow flexibility in the policy until further guidance is available.

2.3 ProPG: PLANNING AND NOISE

As outlined above, the National Planning Policy Framework encourages improved standards of design, although it provides no specific noise levels which should be achieved on site for varying standards of acoustic acceptability, or a prescriptive method for the assessment of noise.
ProPG: Planning and Noise was published in May 2017 in order to encourage better acoustic design for new residential schemes in order to protect future residents from the harmful effects of noise. This guidance can be seen as the missing link between the current NPPF and

its predecessor, PPG24 (Planning Policy Guidance 24: Planning and Noise), which provided a prescriptive method for assessing sites for residential development, but without the nuance of 'good acoustic design' as outlined in ProPG.
ProPG allows the assessor to take a holistic approach to consider the site's suitability, taking into consideration numerous design factors which previously may not have been considered alongside the noise level measured on site, for example the orientation of the building in relation to the main source of noise incident upon it.
It should be noted this document is not an official government code of practice, and neither replaces nor provides an authoritative interpretation of the law or government policy, and therefore should be seen as a good practice document only.

2.4 BRITISH STANDARD 4142: 2014

British Standard (BS) 4142:2014 "Methods for rating and assessing industrial and commercial sound" describes methods for assessing the likely effects of sound on premises used for residential purposes.
It includes the assessment of sound from industrial and manufacturing processes, M&E plant and equipment, loading and unloading of goods and materials, and mobile plant/vehicles on the site. It can be used to assess sound from proposed, new, modified or additional industrial/commercial sources, at existing or new premises used for residential purposes.
The method described in BS4142: 2014 use outdoor sound levels to assess the likely effects of sound on people who might be inside or outside a dwelling or premises used for residential purposes upon which sound is incident.
The standard describes methods to measure and determine ambient, background and residual sound levels, and the rating levels of industrial/commercial sound. BS 4142: 2014 requires consideration of the level of uncertainty in the data and associated calculations.
BS 4142 is not intended to be used for the derivation or assessment of internal sound levels, or for the assessment of non-industrial / commercial sources such as recreational activities, motorsport, music and entertainment, shooting grounds, construction and demolition, domestic animals, people, and public address systems for speech.
The Reference Time Interval, T, is defined in the standard as the "specified interval over which the specific sound level is determined", which is 1 hour during the daytime (07:00 to 23:00 hours) and 15 minutes during the night (23:00 to 07:00 hours).
Ambient sound is defined in BS 4142: 2014 as "totally encompassing sound in a given situation at a given time, usually composed of sound from many sources near and far". It comprises the residual sound and the specific sound when present.
Residual sound is defined in BS 4142: 2014 as "ambient sound remaining at the assessment location when the specific sound source is suppressed to such a degree that it does not contribute to the ambient sound".
The background sound level is the LA90, T of the residual sound level, and is the underlying level of sound. Measurements of background sound level should be undertaken at the assessment location where possible or at a comparable location.
The measurement time interval should be sufficient to obtain a representative value (normally not less than 15 minutes) and the monitoring duration should reflect the range of background sound levels across the assessment period. The background sound level used for the assessment should be representative of the period being assessed.
The specific sound level is the LAeq,T of the sound source being assessed over the reference time interval, Tr. BS 4142: 2014 advises that Tr should be 1 hour during the day and 15 minutes at night.

The rating level is the specific sound level plus any adjustment for the characteristics of the sound (tone, impulse, intermittent or other acoustic feature). The standard describes subjective and objective methods to establish the appropriate adjustment. The adjustments for the different features and assessment methods are summarised in the table below.

Acoustic Feature Corrections in BS4142: 2014

Acoustic Feature	Adjustment for Acoustic Feature		
	Subjective Methods	Objective Methods	
Tonality	+2 dB if just perceptible +4 dB if clearly perceptible +6 dB if highly perceptible	Third Octave Analysis	Narrow Band Analysis
		+6 dB if tones identified	Sliding scale of 0 to +6 dB depending on audibility of tone
Impulsivity	+3 dB if just perceptible +6 dB if clearly perceptible +9 dB if highly perceptible	Sliding scale of 0 to +9 dB depending on prominence of impulsive sound	
Intermittency	+ 3 dB if intermittency is readily distinctive	n/a	
Other	+ 3 dB if neither tonal nor impulsive, but otherwise readily distinctive	n/a	

Where tonal and impulsive characters are present in the specific sound within the same reference period then these two corrections can both be taken into account. If one feature is dominant, it might be appropriate to apply a single correction. The rating level is equal to the specific sound level if there are no features present.
The level of impact is assessed by comparing the rating level of the specific sound source with the background sound level. Typically the greater the difference the greater the magnitude of the impact, depending on the context.
Other factors that may require consideration include the absolute level of sound, the character and level of the residual sound compared to the specific sound, and the sensitivity of the receptor and scope for mitigation.
When the rating level is above the background sound level, a difference of around +5 dB is likely to indicate an adverse impact and a difference of around +10 dB or more is likely to indicate a significant adverse impact, depending on the context.
The lower the rating level with respect to the background sound level, the less likely it is that the specific sound source will have an 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.

2.5 THE LONDON PLAN (2021)

The New London Plan was formally published on the 2nd of March 2021 and replaces the previous London Plan.
The London Place notes that noise is an integral part of development planning. When designing developments, it notes that “measures to design out exposure to poor air quality and noise from both external and internal sources should be integral to development proposals and be considered early in the design process.

Characteristics that increase pollutant or noise levels, such as poorly-located emission sources, street canyons and noise sources should also be designed out wherever possible. Optimising site layout and building design can also reduce the risk of overheating as well as minimising carbon emissions by reducing energy demand" (para 3.3.9).

Policy D13 Agent of Change formalises the Agent of Change principle in London's planning policy in relation to
noise. The policy notes:

"For a long time, the responsibility for managing and mitigating the impact of noise and other nuisances on neighbouring residents and businesses has been placed on the business or activity making the noise or other nuisance, regardless of how long the business or activity has been operating in the area. In many cases, this has led to newly-arrived residents complaining about noise and other nuisances from existing businesses or activities, sometimes forcing the businesses or other activities to close" (para 3.13.1).

"The Agent of Change principle places the responsibility for mitigating the impact of noise and other nuisances firmly on the new development. This means that where new developments are proposed close to existing noise-generating uses, for example, applicants will need to design them in a more sensitive way to protect the new occupiers, such as residents, businesses, schools and religious institutions, from noise and other impacts.

This could include paying for soundproofing for an existing use, such as a music venue. The Agent of Change principle works both ways. For example, if a new noise-generating use is proposed close to existing noisesensitive uses, such as residential development or businesses, the onus is on the new use to ensure its building or activity is designed to protect existing users or residents from noise impacts" (para 3.13.2).

Policy D13 states:

A. "The Agent of Change principle places the responsibility for mitigating impacts from existing noise and other nuisance-generating activities or uses on the proposed new noise-sensitive development. Boroughs should ensure that Development Plans and planning decisions reflect the Agent of Change principle and take account of existing noise and other nuisance-generating uses in a sensitive manner when new development is proposed nearby.
B. Development should be designed to ensure that established noise and other nuisance-generating uses remain viable and can continue or grow without unreasonable restrictions being placed on them.
C. New noise and other nuisance-generating development proposed close to residential and other noisesensitive uses should put in place measures to mitigate and manage any noise impacts for neighbouring residents and businesses.
D. Development proposals should manage noise and other potential nuisances by:
   1) ensuring good design mitigates and minimises existing and potential nuisances generated by existing uses and activities located in the area
   2) exploring mitigation measures early in the design stage, with necessary and appropriate provisions including ongoing and future management of mitigation measures secured through planning obligations
   3) separating new noise-sensitive development where possible from existing noise-generating businesses and uses through distance, screening, internal layout, sound-proofing, insulation and other acoustic design measures.
E. Boroughs should not normally permit development proposals that have not clearly demonstrated how noise and other nuisances will be mitigated and managed".

Policy D14 Noise goes on to state:

F. "In order to reduce, manage and mitigate noise to improve health and quality of life, residential and other non-aviation development proposals should manage noise by:

1) avoiding significant adverse noise impacts on health and quality of life
2) reflecting the Agent of Change principle as set out in Policy D13 Agent of Change
3) mitigating and minimising the existing and potential adverse impacts of noise on, from, within, as a result of, or in the vicinity of new development without placing unreasonable restrictions on existing noise-generating uses
4) improving and enhancing the acoustic environment and promoting appropriate soundscapes (including Quiet Areas and spaces of relative tranquillity)
5) separating new noise-sensitive development from major noise sources (such as road, rail, air transport and some types of industrial use) through the use of distance, screening, layout, orientation, uses and materials – in preference to sole reliance on sound insulation
6) where it is not possible to achieve separation of noise-sensitive development and noise sources without undue impact on other sustainable development objectives, then any potential adverse effects should be controlled and mitigated through applying good acoustic design principles
7) promoting new technologies and improved practices to reduce noise at source, and on the transmission path from source to receiver.

G. Boroughs, and others with relevant responsibilities, should identify and nominate new Quiet Areas and protect existing Quiet Areas in line with the procedure in Defra's Noise Action Plan for Agglomerations".

Policy D14 notes that "the management of noise should be an integral part of development proposals and considered as early as possible" (para 3.14.1)

It notes that "The management of noise also includes promoting good acoustic design of the inside of buildings.

Section 5 of BS 8223:2014 provides guidance on how best to achieve this. The Institute of Acoustics has produced advice, Pro:PG Planning and Noise (May 2017), that may assist with the implementation of residential developments. BS4214 provides guidance on monitoring noise issues in mixed residential/industrial areas" (para 3.14.3).

3.0 SITE SURVEYS

3.1 SITE DESCRIPTION

The site is located on Tavistock Place. The area is a mix of residential and commercial units, typical of an urban city environment. The dominant noise source is road traffic noise from the surrounding roads. (See Figure 3.1)

Figure 3.1 – Site Location

3.2 ENVIRONMENTAL SITE SURVEY PROCEDURE

Noise measurements were logged over a 24hr period from 21st to 22nd July 2022.
The weather was dry and sunny and suitable conditions to carry out the noise survey.

4.0 NOISE SURVEY

The lowest LA90. These have been summarised in table 4.1 below.

Period	Lowest Recored $L_{A90, 15}$
07.00 – 23.00	41dB
23:00 – 07:00	39dB

Table 4.1 Lowest recorded Background Noise Level

5.0 NOISE IMPACT ASSESSMENT

5.1 PROPOSED PLANT

It is understood that the proposed plant is comprised of the following units:

•2 x Mitsubishi QAHV-N560YA-HPB – Heat pump units

Proposed Plant	SPL (dB(A))
QAHV-N560YA-HPB	56

Table 5.1 – Manufacturer supplied Sound Pressure level

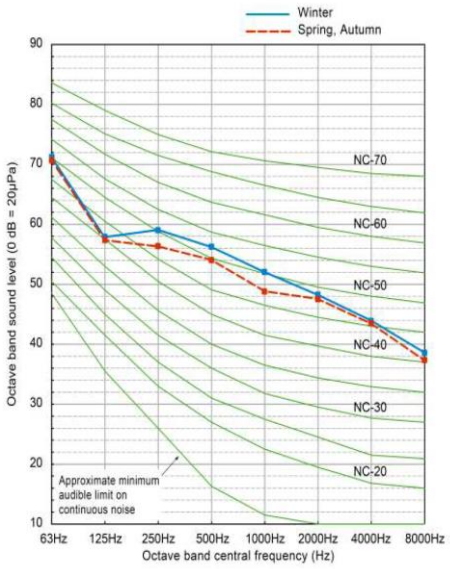


Table 5.1.1 – Manufacturer data

5.2 CLOSEST NOISE SENSITIVE RECEIVER

The closest noise sensitive receiver to the proposed heat pump has been identified as being a residential window located approximately 2 meters away as shown in Figure 5.2.

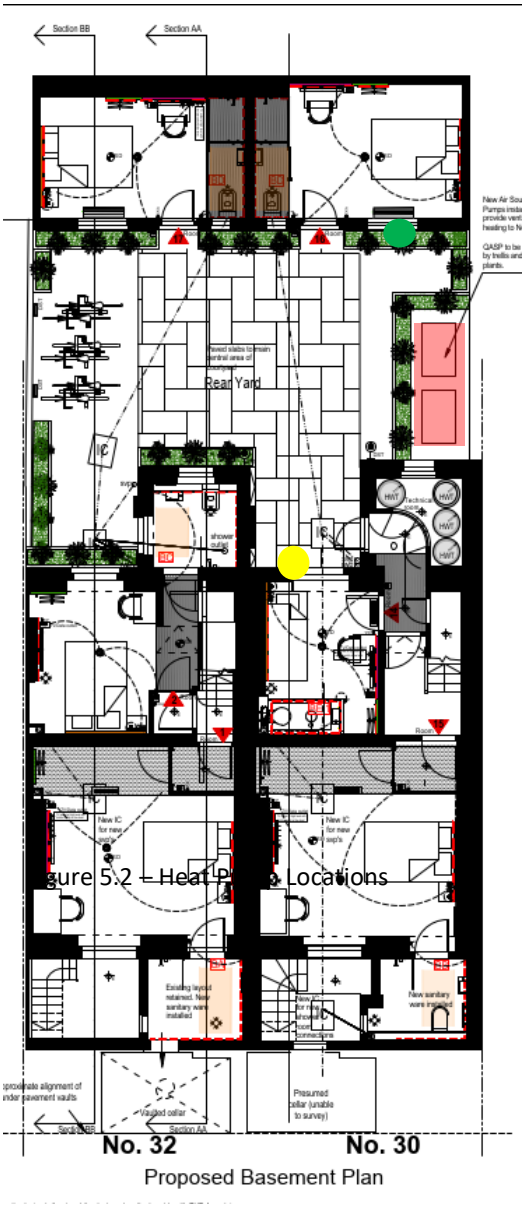


Figure 5.2 – Heat Pump Locations

	Proposed Location of Heat Pumps
	Nearest Residential Noise Sensitive Receptor
	Measurement Location

Figure 5.2 – Nearest NSR

Figure 5.2.1 – Measurement Location

5.3 NOISE EMMISSION CRITERION

It is understood that the proposed operating hours is 24hrs.
It is determined that the proposed heat pumps are not considered to contain tones. In addition, the proposed operation of the equipment is also unlikely to be sufficiently intermittent to attract attention at the nearest noise sensitive property.

"When the new source does not attract the +5dB correction of Para 8 of BS4142 the rating level shall be 10dBA below the measured background noise level LA90. Where the new source would attract the +5dB correction the difference shall be -15dB. These requirements will be a positive indication that complaints are unlikely. It should be recognised that the planning system is a proactive means of controlling the increase in ambient background noise within the Borough and these requirements will assist in these aims."

The criterion has been set as shown in Table 5.3 in order to comply with the Local Authority requirements.

Time Period	Noise Criterion at Nearest Residential Receiver
07:00 – 23:00	**29**

Table 5.3 - Proposed noise emissions criterion

5.4 BS4142 ASSESSMENT – Nearest Residential Window

BS4142:2014 Assessment	
Source Operating Period	Heat Pumps 24hrs
Reference Time Interval (Tr) Element	15 minutes Level (dB)
Specific Sound Level	53
Representative Background Noise Level (LA90)	39
Correction	3
Rating Level	56
Excess of Rating over Background Sound Level	+17

Detailed calculations are shown in Appendix B.

5.5 MITIGATION MEASURES

5.5.1 – Noise Emissions

The 'Rating' excesses (over background) for the proposed heat pumps is +17dB. In accordance with BS4142:2014 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.

To meet the noise Criteria DAA Group recommend fully enclosing the heat pmps in an acoustic enclosure with an insertion loss (sound reduction) of 27dB (A) or greater.
Suitable acoustic enclosure suppliers:
www.nendle.co.uk
www.enclosures-uk.com

To mitigate vibration, DAA Group recommend mounting the units on suitable isolation systems; suitable systems include the Kinetics Model AC (supplied by CMS Acoustics) and Mini Split Kits (supplied by Big Foot Systems).
See Appendix D for more details.

6.0 SUMMARY AND CONCLUSIONS

DAA Group has been appointed to carry out a Noise Impact Assessment at Oxford House Hotel, Tavistsock Place, London, WC1H 9RE. The purpose of the survey was to assess the level of noise emanating from the proposed heat pumps to the nearest noise sensitive residential window and to advise on the level and type of mitigation that will be required.

Manufacturer's noise data of proposed heat pumps has been used to obtain Specific and Rated Noise Level at the nearest noise sensitive receiver in accordance with British Standard BS4142:2014 for compliance with Local Authority requirements.

The rating level was compared with the representative background noise level to assess the likelihood of impact considering the environmental noise context of the area as per the requirements of BS4142:2014. The rating Level is +17db over the background noise and mitigation in the form of an acoustic enclosure has been proposed.

It has been concluded that noise emissions from the proposed plant would not have an adverse impact on the nearest residential receivers provided that the mitigation measures presented in 5.5 is followed.

APPENDIX A ACOUSTIC TERMINOLOGY

B.1 WEIGHTED DECIBEL, dB(A)

The unit generally used for measuring environmental, traffic or industrial noise is the A-weighted sound pressure level in decibels, denoted dB(A). The weighting is based on the frequency response of the human ear and has been found to correlate well with human subjective reactions to various sounds. An increase or decrease of approximately 10 dB corresponds to a subjective doubling or halving of the loudness of a noise, and a change of 2 to 3 dB is subjectively barely perceptible.

B.2 EQUIVALENT CONTINUOUS SOUND LEVEL, LAeq

Another index for assessment for overall noise exposure is the equivalent continuous sound level, L_{Aeq}. This is a notional steady level which would, over a given period, deliver the same sound energy as the actual time-varying sound over the same period.

B.3 MAXIMUM NOISE LEVEL, LAmax

The maximum noise level identified during a measurement period. Experimental data has shown that the human ear does not generally register the full loudness of transient sound events of less than 125 ms in duration.

B.4 NOISE RATING, NR

Noise ratings are used as a single figure criterion for specifying services noise in buildings. Each noise rating value has an associated spectrum of defined values in each third or octave frequency band. To determine the noise rating of a room the measured spectrum is compared to a set of noise rating curves. The highest NR curve that crosses any single frequency band of the measurement determines the noise rating for the room. The single figure noise rating is read at the 1 kHz band.

B.5 SOUND LEVEL DIFFERENCE (D)

The sound insulation required between two spaces may be determined by the sound level difference needed between them. A single figure descriptor which characterises a range of frequencies, the weighted sound level difference, D, is sometimes used (BS EN ISO 717-1). This parameter is not adjusted to reference conditions.

The standardized level difference, Dn, T is a measure of the difference in sound level between two rooms, in each frequency band, where the reverberation time in the receiving room has been normalised to 0.5 s. This parameter measures all transmission paths, including flanking paths.

The weighted standardized level difference, DnTw, is a measure of the difference in sound level between two rooms, which characterises a range of frequencies and is normalised to a reference reverberation time

B.6 SOUND REDUCTION INDEX (R)

The sound reduction index (or transmission loss) of a building element is a measure of the loss of sound through the material, i.e. its attenuation properties. It is a property of the component, unlike the sound level difference which is affected by the common area between the rooms and the acoustic of the receiving room. The weighted sound reduction index, Rw, is a single figure description of sound reduction index characterising a range of frequencies, which is defined in BS EN ISO 717-1: 1997. The Rw is calculated from measurements in an acoustic laboratory

B.7 STATISTICAL NOISE LEVELS (L_{A90}, (T) L_{A1}, (T) L_{A10}, (T) etc.)

For levels of noise that vary widely with time, for example road traffic noise, it is necessary to employ an index which allows for this variation. The L_{A10} is the level exceeded for ten per cent of the time under consideration, has historically been
adopted in the UK for the assessment of road traffic noise. The LA90 is the level exceeded for ninety per cent of the time, has been adopted to represent the background noise level. The L_{A1} the level exceeded for one per cent of the time, is representative of the maximum levels recorded during the sample period. A weighted statistical noise levels are denoted LA10, dB LA90, dB. etc. The reference time (T) is normally included, e.g. LA10, (5min), & LA90, (8hr).

B.8 TYPICAL NOISE LEVELS

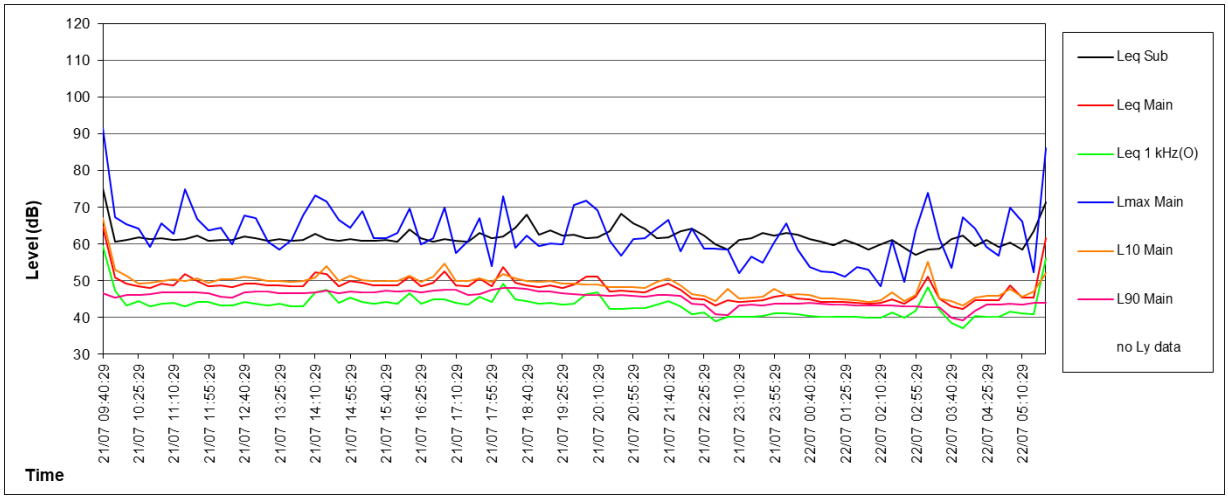
Typical noise levels are given in the following table.

Noise Level dB(A)	Example
130	Threshold of pain
120	Jet aircraft take-offs at 100 m
110	Chain saw at 1 m
100	Inside disco
90	Heavy lorries at 5 m
80	Kerbside of busy street
70	Loud radio (in typical domestic room)
60	Office or restaurant
50	Domestic fan heaters at 1m
40	Living room
30	Ventilation Noise in Theatre
20	Remote countryside on still night
10	Sound insulated test chamber
0	Threshold of hearing.

APPENDIX B CALCULATIONS

NOISE EMISSION CALCULATION														
ITEM	**PARAMETER**			**HZ**		**63**	**125**	**250**	**500**	**1K**	**2K**	**4K**	**8K**	**dBA**
1	**Schedule of Plant**	Qty												
2	**Mitsubishi**													
3	QAHV-N560YA-HPB	1	Spl	dB	+	70	56	54	53	51	48	44	39	56
	QAHV-N560YA-HPB	1	Spl	dB	+	70	56	54	53	51	48	44	39	56
4														
5														
6	Revised Spl:	1	Spl	dB	+	73	59	57	56	54	51	47	42	59
7														
8														
9														
10														
11	Distance to nearest receptor Metres:	2		dB	-	**-6**	**-6**	**-6**	**-6**	**-6**	**-6**	**-6**	**-6**	**-6**
12	SPL=L1-20log$_{10}$(r2/r1)	1												
13														
14														
15														
16	Spl at receptor			dB	+	67	53	51	50	48	45	41	36	53
17														
18														
19	Façade correction	3.0		dB	+	3	3	3	3	3	3	3	3	3
20	Intermittant noise correction	0		dB	+	0	0	0	0	0	0	0	0	0
21														
22														
23	Specific noise level at receptor			dB	+	70	56	54	53	51	48	44	39	56
24	(1m outside noise sensitive window)													
25	**Lowest Background Noise Levels:(L_{A90})**													
26	**Night Time (23:00-07:00)**													**39**
27	**Difference:** (Assessment level)			dB	-									**17**
28														
29	**Daytime (07:00-23:00)**													**41**
30	**Difference:** (Assessment level)			dB	-									**15**
	E&OE													

APPENDIX C - MEASUREMENTS



Vibration Isolation

CMS – Kinetics Model AC[13]

KINETICS™
Fiberglass
Isolators
Model AC

Description

Model AC Fiberglass isolators consist of a molded inorganic fiberglass isolation pad bonded to a steel load transfer plate and to a formed steel bolt-down bracket and include an equipment anchor bolt with a neoprene grommet to prevent metal-to-metal contact. Fiberglass pads are fine (0.00027"/6.8 microns diameter) bonded annealed glass fibers which are stabilized by pre-compressing the material during manufacture and then coated with a flexible moisture-impervious elastomeric membrane. Fiberglass is unique in that the natural frequency is constant over a wide operating load range and the stiffness increases proportionately with load applied. Model AC Fiberglass isolators are available in sizes with capacities from 40 to 900 lbs. (18 kg-409 kg) and deflections of 0.18" to 0.70" (4mm-18mm). Kinetics Model AC isolators are recommended for the isolation of vibration produced by utility ventilating fans, vane axial fans, high speed motors, roof-mounted exhaust fans, and similar mechanical equipment.

Features

- Inorganic fiberglass media
- Flexible elastomeric coating
- Constant natural frequency over a wide load range
- Predictable dynamic response
- High energy dissipation
- Controlled viscous damping
- Load capacities 40 lbs. to 900 lbs. (18kg-409kg)
- Rated static deflection 0.18" to 0.70" (4mm-18mm)
- Steel load transfer plate
- Steel bolt and hold-down support bracket

Application

Kinetics Model AC Fiberglass Isolators can be used for any application requiring isolation of audible frequency vibration, or noise, or for vibration isolation of mechanical equipment with lowest operating speeds of 1750 RPM when mounted on a grade-supported slab or pier.

Model AC isolators are typically used when the predictable dynamic response and permanent load support characteristics of fiberglass are desired in conjunction with a bolt-down and vertical lift control feature.

Typical uses of Model AC isolators include the support and isolation of utility ventilating fans, vane axial fans, motors, roof-mounted exhaust fans, and similar mechanical equipment.

Special application of Model AC isolators have included use as both an isolator and wind lift hold-down support for isolated precast concrete roof systems used to reduce transmitted noise from fly-over aircraft.

Use Model AC mounts when Kinetics fiberglass isolators are recommended and it is desirable to bolt equipment to supporting structures.

[13] Supplied by CMS Acoustics (UK).

CMS – Kinetics Model AC

Specifications

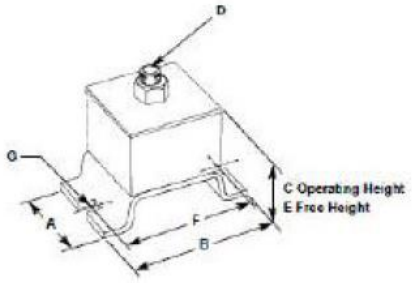
Vibration isolators shall be precompressed molded fiberglass pads individually coated with flexible, moisture-impervious elastomeric membrane. Vibration isolation pads shall be molded from glass fibers with fiber diameters not exceeding 0.00027" (6.8 microns) and with a modulus of elasticity of 10.5 million PSI (750,00 kg per sq. cm).

Natural frequency of fiberglass vibration isolators shall be essentially constant for the operating load range of the supported equipment.

Vibration isolators shall be bonded to a steel load transfer plate and a formed steel bolt-down bracket and shall also include an equipment mounting bolt with a neoprene grommet to prevent metal-to-metal contact.

Vibration isolators shall be selected by the manufacturer for each specific application to comply with deflection requirements as shown on the Vibration Isolation Schedule or as indicated on the project documents.

Vibration isolators shall be model AC, as manufactured by Kinetics Noise Control, Inc.



Isolator Type	Capacity Range	Maximum Deflection	Dimensions A	B	C*	D	E	F	G
AC-221L	40-200 lbs.	0.27"	2.50"	4.75"	1.98"	0.38"	2.25"	3.75"	0.44"
AC-221Q	100-400 lbs.	0.16"	2.50"	4.75"	2.07"	0.38"	2.25"	3.75"	0.44"
AC-331L	90-450 lbs.	0.35"	3.00"	4.75"	1.90"	0.38"	2.25"	3.75"	0.44"
AC-331Q	225-900 lbs.	0.27"	3.00"	4.75"	1.98"	0.38"	2.25"	3.75"	0.44"
AC-222Q	20-100 lbs.	0.65"	2.50"	4.75"	2.56"	0.38"	3.25"	3.75"	0.44"
AC-222L	40-200 lbs.	0.56"	2.50"	4.75"	2.71"	0.38"	3.25"	3.75"	0.44"
AC-222Q	100-400 lbs.	0.36"	2.50"	4.75"	2.69"	0.38"	3.25"	3.75"	0.44"
AC-332-L	90-450 lbs.	0.70"	3.00"	4.75"	2.56"	0.38"	3.25"	3.75"	0.44"
AC-332Q	225-900 lbs.	0.56"	3.00"	4.75"	2.71"	0.38"	3.25"	3.75"	0.44"
AC-221L	18-91 kg	6 mm	63 mm	121 mm	50 mm	9.6 mm	57 mm	95 mm	11 mm
AC-221Q	46-182 kg	4 mm	63 mm	121 mm	52 mm	9.6 mm	57 mm	95 mm	11 mm
AC-331L	41-205 kg	9 mm	75 mm	121 mm	48 mm	9.6 mm	57 mm	95 mm	11 mm
AC-331Q	102-409 kg	6 mm	75 mm	121 mm	50 mm	9.6 mm	57 mm	95 mm	11 mm
AC-222Q	9-46 kg	17 mm	63 mm	121 mm	65 mm	9.6 mm	83 mm	95 mm	11 mm
AC-222L	18-91 kg	14 mm	63 mm	121 mm	69 mm	9.6 mm	83 mm	95 mm	11 mm
AC-222Q	46-182 kg	9 mm	63 mm	121 mm	73 mm	9.6 mm	83 mm	95 mm	11 mm
AC-332-L	41-205 kg	18 mm	75 mm	121 mm	65 mm	9.6 mm	83 mm	95 mm	11 mm
AC-332Q	102-409 kg	14 mm	75 mm	121 mm	69 mm	9.6 mm	83 mm	95 mm	11 mm

*Operating height varies with applied load.

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Big Foot Systems[14]

Mini Split Kit

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