Able Acoustics

HERITAGE DESIGNER HOMES LTD

VICTORIA'S CABERET CLUB, MAIDSTONE

ACOUSTIC ASSESSMENT

AUGUST 2021

Able Acoustics

HERITAGE DESIGNER HOMES LTD

VICTORIA'S CABERET CLUB, MAIDSTONE

ACOUSTIC ASSESSMENT

AUGUST 2021

P1462/01	***August 2021***	***Position***	***Signature***
Prepared By:	*Edward Crofton-Martin*	*Principal Acoustic Consultant*	
Checked By:	*Edward Crofton-Martin*	*Principal Acoustic Consultant*	
Approved By:	*Edward Crofton-Martin*	*Principal Acoustic Consultant*	

Able Acoustics Limited
Unit 20, Connect 10
Foster Road
Ashford
Kent
TN24 0FE
England
www.ableacoustics.com
info@ableacoustics.com

CONTENTS

1. INTRODUCTION

1.1 Introduction

1.1.1 Permission is being sought to redevelop the site at: Victoria's Cabaret Club, Ashford Road, Maidstone, Kent, ME17 1BL, for the following proposal: *"erection of five houses".*

1.1.2 The local planning authority has raised concerns in respect of noise and Heritage Designer Homes Ltd has commissioned Able Acoustics Ltd to carry out an acoustic assessment for the site and this report presents the monitoring undertaken, the results of the assessment and suitable suggestions for mitigation where applicable.

2. NOISE UNITS AND STANDARDS

2.1 General

2.1.1 The range of audible sound is from 0 dB to 140 dB and a range of typical levels is presented in Table 2.1 below. Noise is a subjective term and can be defined as unwanted sound.

Table 2.1 Typical Sound Levels

Sound Pressure Level dB(A)	Source	Subjective Level
130 - 140	Jet (at 10m)	Threshold of pain
120 – 130	Pneumatic Drill (at 1m)	Extremely Loud
110 – 120	Loud Car Horn (at 1m)	Very Loud
100 – 110	Alarm Bell (at 1m)	Very Loud
80 – 90	Inside General Factory	Loud
70 – 80	Average Traffic (on street corner)	Loud
60 – 70	Conversational Speech	Moderate
50 – 60	Typical Business Offices	Moderate
40 – 50	Living-room Urban Area	Quiet
30 – 40	Library	Quiet
20 – 30	Bedroom (at night)	Very Quiet
10 - 20	Broadcasting Studio	Very Quiet

2.1.2 For variable sound sources a difference of 3 dB(A) is just distinguishable. For road traffic or railway sound sources, a doubling of traffic flow will increase the overall noise by 3 dB(A). The "loudness" of a sound is a purely subjective parameter, but it is generally accepted that an increase/decrease of 10 dB(A) corresponds to a doubling/halving in perceived loudness.

2.1.3 The frequency response of the ear is usually taken to be about 20 Hz (number of oscillations per second) to 20 kHz. The ear does not respond equally to different frequencies at the same level. It is more sensitive in the mid-frequency range than the lower and higher frequencies and because of this, the low and high frequency components of a sound are reduced in importance by applying a weighting (filtering) circuit to the measuring instrument. The weighting which is most widely used and which correlates best with subjective response to sound is the dB(A) weighting. This is an internationally accepted standard for environmental sound measurements.

2.1.4 External sound levels are rarely steady, but rise and fall according to activities within an area at any given time. In an attempt to produce a figure that relates this variable sound level to subjective response, a number of indices have been developed. These include:

i) *$L_{Aeq,T}$ Sound Level*

This is the "equivalent continuous A-weighted sound pressure level, in decibels", and is defined in British Standard BS 7445 [1] as the "value of the A-weighted sound pressure level of a continuous, steady sound that, within a specified time interval, T, has the same mean square sound pressure as a sound under consideration whose level varies with time".

It is a unit commonly used to describe sound attributable to construction and

sound from industrial premises and is the most suitable unit for the description of other forms of environmental sound. In simpler terms, it is a measure of energy within the varying sound.

ii) *The L_{Amax} level*

This is the maximum level recorded over the measurement period.

2.2 Planning and Noise

2.2.1 The National Planning Policy Framework (NPPF) [2] provides guidance on noise and planning issues. The purpose of this document is to help achieve sustainable development, and replaces the previous appropriate guidance given in DoE Planning Policy Guidance: 24 - Planning and Noise PPG24 [3].

2.2.2 In Section 180, The NPPF states that:

> *"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[60];*
>
> *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; and*
>
> *c) limit the impact of light pollution from artificial light on local amenity, intrinsically dark landscapes and nature conservation."*

Footnote 60 makes reference to The Noise Policy Statement for England (NPSE) [4]. Since March 2010 NPSE applies to all forms of noise including environmental noise, neighbour noise and neighbourhood noise.

2.2.3 The NPSE sets out the long term vision for Government noise policy which is 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."

This is supported by the following aims:

"Through the effective management and control of environmental, neighbour and neighbourhood noise within the context of Government policy on sustainable development:

- *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."*

2.2.4 The first aim of the NPSE should be read in the context of Government policy on sustainable development indicating that significant adverse effects on health and quality of life should be avoided while accommodating the principles of sustainable development.

2.2.5 The second aim of the NPSE is applicable where the impact falls between LOAEL and SOAEL (see 2.2.7 below) requiring that all reasonable measures to mitigate and minimise adverse impacts on health and quality of life be implemented while accommodating the principles of sustainable development. This does not imply that any adverse effects cannot occur.

2.2.6 The third aim of the NPSE is to actively improve health and quality of life through effective management of noise within the context of Government policy on sustainable development where ever it is possible and reasonable to do so.

2.2.7 The NPSE applies the following concepts adapted from toxicology:

NOEL – No Observed Effect Level

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

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

SOAEL – Significant Observed Adverse Effect Level

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

2.2.8 It should be noted that there are no numerical values for these concepts defined in the NPSE. There is also no single objective noise-based measure that defines Observed Effect Levels that is applicable to all sources of noise in all situations and, consequently, the levels are likely to be different for different noise sources, for different receptors and at different times.

2.3 Standards and Guidance

2.3.1 Guidance on internal sound levels is provided in Table 4 of British Standard (BS) 8233 [5]. With regard to residential accommodation, the following guidance is given:

Table 2.2: Indoor Ambient Noise Levels In Spaces When They Are Unoccupied

Activity	Location	07:00 to 23:00	23:00 to 07:00
Resting	Living room	35 dB $L_{Aeq, 16hour}$	-
Dining	Dining room/area	40 dB $L_{Aeq, 16hour}$	-
Sleeping (daytime resting)	Bedroom	35 dB $L_{Aeq, 16hour}$	30 dB $L_{Aeq, 8hour}$

2.3.2 The levels shown in Table 4 of BS 8233 are based on the existing guidelines issued by the World Health Organisation (WHO) and assume normal diurnal fluctuations in external noise.

2.3.3 The World Health Organisation has produced guidance on noise limits which should prevent the onset of sleep disturbance [6]. The WHO guidelines state:

"When noise is continuous, the equivalent sound pressure level should not exceed 30 dB(A) indoors, if negative effects on sleep are to be avoided…..Indoor guideline values for bedrooms are 30 dB LAeq for continuous noise and 45 dB LAmax for single sound events."

2.3.4 The guidance given by the WHO therefore is consistent with internal noise levels as specified by BS 8233 at night and it is recommended, that internal noise levels within the proposed residential accommodation should not exceed 30 dB $L_{Aeq, 8hr}$ and 45 dB $L_{Amax, F}$ at night. During the daytime, noise levels within living rooms and bedrooms should not exceed 35 dB $L_{Aeq, 16hr.}$ However it should be noted that BS 8233:2014 also provides the following informative note:

"Where development is considered necessary or desirable, despite external noise levels above WHO guidelines, the internal target levels may be relaxed by up to 5 dB and reasonable internal conditions still achieved."

2.3.5 The internal noise level within a dwelling is dependent on the noise level arriving at the external facade of the dwelling, the sound insulation properties of the dwelling (wall and window construction) and the size and furnishings in the rooms. The prediction of internal levels is therefore a complex process, dependent upon many factors.

2.3.6 In the absence of specific guidance on L_{Amax} levels during the night in BS 8233:2014 supplementary guidance on night time L_{AMax} events is given in the ANC[1], IOA[2] and CIEH[3] joint issue document: Professional Practice Guidance on Planning & Noise (ProPG) [7] which is aimed at new residential development. The guidance recommends that in most circumstances in noise sensitive rooms at night (e.g. bedrooms) good acoustic design can be used to ensure that individual noise events do not normally exceed 45dB $L_{Amax,F}$ more than 10 times a night. However, where it is not reasonably practicable to achieve this guideline then the judgement of acceptability will depend not only on the maximum noise levels but also on factors

[1] Association of Noise Consultants
[2] Institute of Acoustics
[3] Chartered Institute of Environmental Health

such as the source, number, distribution, predictability and regularity of noise events. It is further noted that Appendix A of the ProPG guidance notes that physiological awakenings (as distinct from behavioural awakenings) of which the individual may neither be aware at the time nor recall the next day, may occur where events of 55dB L_{AMax} were present.

2.3.7 BS 8233:2014 is consistent with the WHO guidelines and also states the following:

*"**Design criteria for external noise***

For traditional external areas that are used for amenity space, such as gardens and patios, it is desirable that the external noise level does not exceed 50 dB $L_{Aeq,T,}$ with an upper guideline value of 55 dB $L_{Aeq,T}$ which would be acceptable in noisier environments. However, it is also recognized that these guideline values are not achievable in all circumstances where development might be desirable. In higher noise areas, such as city centres or urban areas adjoining the strategic transport network, a compromise between elevated noise levels and other factors, such as the convenience of living in these locations or making efficient use of land resources to ensure development needs can be met, might be warranted. In such a situation, development should be designed to achieve the lowest practicable levels in these external amenity spaces, but should not be prohibited. Other locations, such as balconies, roof gardens and terraces, are also important in residential buildings where normal external amenity space might be limited or not available, i.e. in flats, apartment blocks, etc. In these locations, specification of noise limits is not necessarily appropriate. Small balconies may be included for uses such as drying washing or growing pot plants, and noise limits should not be necessary for these uses. However, the general guidance on noise in amenity space is still appropriate for larger balconies, roof gardens and terraces, which might be intended to be used for relaxation. In high-noise areas, consideration should be given to protecting these areas by screening or building design to achieve the lowest practicable levels. Achieving levels of 55 dB $L_{Aeq,T}$ or less might not be possible at the outer edge of these areas, but should be achievable in some areas of the space."

2.3.8 It is considered that if the development can be designed to meet the acoustic design requirements of BS 8233 and the WHO guidelines then the first and second aims of the NPSE can be achieved.

2.4 SITE LAYOUT

2.5 Overview

2.5.1 The application site is located at: Victoria's Cabaret Club, Ashford Road, Maidstone, ME17 1BL and is shown in Figure 01.

2.5.2 The proposed layout is shown in Figure 02.

2.5.3 The site is primarily flat and is currently comprises an unoccupied building with an area of hard standing to the front.

2.5.4 The site is bounded by residential premises on Dickley Lane to the north, residential premises at Innisfree on Ashford Road (A20) to the east, Ashford Road (A20) itself to the south and an open area of land to the west.

3. MEASUREMENTS

3.1 General

3.1.2 To establish the existing levels at site unattended monitoring has been undertaken at one location.

3.2 Unattended Monitoring

3.2.1 An unattended measurement survey was undertaken at the adjacent property to the application site (Innisfree) from 14:30 hours on Thursday 05th August until 14:45 hours on Friday 06th August 2021.

3.2.2 The microphone was attached to tripod in the free field with a direct line of sight to vehicles passing on the A20. The monitoring location is also shown in Figure 01.

3.2.3 The following instrumentation was used for the unattended noise survey:

- Rion type NL-52 Sound Level Meter (Serial No. 00843175)
- Rion type NH-25 Pre-amplifier (Serial No. 31989)
- Rion type UC-59 Microphone (Serial No.06717)
- Brüel & Kjær type 4231 Sound Level Calibrator (Serial No 2263404)

All equipment was within current periods of calibration and calibration certificates are provided in Appendix A.

3.2.4 The meter was set to record the following metrics automatically over 15 minute periods:

- L_{eq}
- L_{max}

The meter was additionally set to record the above metrics in 1/1 Octave centre frequency bands.

3.2.5 The frequency response of the meter was set to "A" and the time response was set to "Fast".

3.2.6 At the start of the unattended measurement survey the meteorological conditions were noted to be dry, 24° Celsius with 40% cloud cover and a light breeze of 0.3m/s from the north west breeze.

3.2.7 At the start of the unattended measurement survey the acoustic environment was subjectively considered to be primarily attributable to road traffic sound from Ashford Road (A20).

3.2.8 At the end of the unattended measurement survey the acoustic environment was subjectively noted to remain primarily attributable to road traffic sound from Ashford Road (A20).

3.2.9 Before the measurement survey was started the instrumentation was field calibrated using a reference sound calibrator to a level of 94.0dB. The instrumentation was then checked using the same reference sound calibrator when the measurement survey was stopped and a value of 94.0dB was also recorded.

3.2.10 The measured $L_{Aeq,\ 15min}$ levels have been combined to give the $L_{Aeq,\ 16hr\ daytime}$ & $L_{Aeq,\ 8hr\ night\ time}$ levels and also the maximum noise level measured during these periods. The period levels have been converted to free field levels while the L_{AMax} levels have not on the basis it is not possible to determine the point of origin for a discrete sound event from one measurement position. Full measurement results are provided in tabular form in Appendix B. The period L_{Aeq} values are summarised in Table 3.1 below.

Table 3.1: Summary of Measurement Results

Period Commencing	$L_{Aeq,\ T}$	L_{AMax}
05/08/2021 14:30[4]	63.4	86.4
05/08/2021 23:00	59.0	80.9
06/08/2021 07:00[5]	64.9	91.2

[4] Not a complete 16 hour period
[5] Not a complete 16 hour period

4. ASSESSMENT

4.1 General

4.1.1 The highest measured L_{Aeq} and L_{AMax} levels have been used to form the basis of the calculations and to determine any glazing and ventilation requirements as well as any mitigation requirements for external amenity areas.

4.1.2 BS 8233 indicates that the good design range level for sleeping conditions in bedrooms should not exceed 30dB $L_{Aeq,\ 8Hour}$. It continues to suggest that the reasonable design range level for sleeping conditions in bedrooms should not exceed 35dB $L_{Aeq,\ 16Hour}$. The standard continues to recognise that regular individual noise events may cause sleep disturbance.

4.1.3 The guidance presented in the WHO guidelines on community noise and the ProPG document indicate that if negative effects on sleep are to be avoided individual noise levels within bedrooms at night should not normally exceed 45dB L_{Amax} 10 times a night.

4.1.4 The highest $L_{Amax,F}$ value measured during the night was 80.9dB $L_{Amax,F}$. An evaluation of the remaining highest 10 measured values during the night was undertaken and in the absence of these a value of 73.9dB $L_{Amax,F}$ at the monitoring location has been determined. This is less than 10dB below the highest measured typical $L_{Amax,F}$ value of 80.9dB L_{Amax} and any mitigation that will sufficiently mitigate this level to 45dB $L_{Amax,F}$ will also ensure that the highest values will not exceed an upper limit of 55dB $L_{Amax,F}$ at which there is potential for physiological awakenings of which the individual may neither be aware at the time nor recall the next day.

4.2 Glazing and Ventilation Requirements

4.2.1 The internal noise level within a dwelling is dependent on the level arriving at the external façade, the sound insulation properties of the dwelling, (wall, window, roof/ceiling construction) the volume of the room and any furnishings present. The weakest part of the building envelope is typically the glazing and to meet the internal requirements the glazing specification should be capable of reducing the external noise levels by at least 29.0dB. It is recommended a minimum glazing specification of at least R_{TRA} 29dB[6], be applied to all habitable rooms.

4.2.2 The indicative glazing specifications are based on windows being closed in order to maintain the required internal noise levels. This introduces the issue of ventilation, which must be assessed separately to comply with Building Regulations. An open window is expected to provide approximately 13dB of façade attenuation, and an external level of 80.9dB(A) would correspond to an internal level of 67.9dB(A).

4.2.3 To retain the acoustic performance of any bedroom windows any ventilation method to be installed must not increase the internal level of noise above the ambient noise level guideline values from Section 2.3.

4.2.4 It is recommended (subject to confirmation of acceptability from a qualified air quality practitioner) that either passive or powered acoustically screened ventilators be fitted to habitable rooms or that a mechanical system that corresponds to System 4[7] of

[6] Value taken for 8mm pane /6-16mm air gap /4mm pane from Table 4 of BS 12758:2011 [8]

[7] Continuous mechanical supply and extract with heat recovery (MVHR)

Approved Document F of the Building Regulations [9] be installed in the event it is not possible to fit ventilators to each of the habitable rooms. Where an option that does not provide cooling further advice may need to be sought from a competent heating, ventilation, and air conditioning engineer as it is possible that a need for thermal comfort may govern whether or not individual windows are likely to be opened for cooling. Detailed comment on air quality and thermal comfort falls outside the scope of this report.

4.2.5 Any ventilation method to be installed must not increase the internal level of noise above the ambient noise level guideline values provided in Table 4 at paragraph 7.7.2 of BS 8233:2014. Companies which supply alternative ventilation solutions include Greenwood, Titon and Xpelair[8] and example product brochures of mechanical ventilation and heat recovery systems are presented in Appendix C.

4.3 Software Calculations

4.3.1 To establish the level of road traffic noise across site a computer noise model has been built using the industry software package SoundPlan. The calculations have been undertaken using a software implementation of The Department of Transport document: Calculation of Road Traffic Noise (CRTN) [10].

4.3.2 The software model was constructed using the following information:

- Google Earth scaled aerial photography import;
- Photogrammetric LiDAR digital terrain data;
- Site layout information;
- Measurement data measured on site and
- Department for Transport, Traffic flow data.

4.3.3 The road was inserted into the model as a road source and the software model was calibrated by checking the predicted levels against the measured levels for the for a receiver at the same location as the microphone.

4.3.4 Receivers were placed in currently proposed external amenity areas and the model was then run for a situation with the proposed houses (and any boundary screening) present.

4.4 External Amenity Areas

4.4.1 The calculations indicate that with the presence of a 1.8m boundary fence around the perimeter of the site (and between the houses that share a boundary) the levels in the centre of all rear external amenity areas will be below 55dB $L_{Aeq,T,}$ with the exception of Plot 5 where the levels will be 51.7dB $L_{Aeq,T.}$

4.4.2 A level of 51.7dB $L_{Aeq,T.}$ exceeds the 'desirable' levels from BS 8233 by 1.7dB but will still be at least 3dB below the 'upper guideline limit' value of 55dB $L_{Aeq,T}$.

[8] Able Acoustics Ltd makes no representations or guarantees in respect of 3rd party products or workmanship.

5. CONCLUSIONS

5.1 Suitability

5.1.1 It is considered, that development of the site may be acceptable in terms of noise, provided that the following issues are considered:

- The glazing specification (minimum R_{TRA} 29dB) will be required to ensure that the internal noise levels detailed in Section 2.3 are not exceeded.
- Alternative ventilation will need to be installed either in the form of individual powered ventilators to each of the habitable rooms or a whole house system/other specialist system, to provide adequate rapid ventilation. The installed unit/units must not give rise to an increase in internal noise levels over the desired internal noise level values.
- Details of the specific glazing and ventilation measures[9] to be installed must be submitted to the local planning authority in advance.
- A 1.8m boundary fence around the perimeter of the site and between houses that share a boundary will be required to ensure levels in the centre of all rear external amenity areas will be below 55dB $L_{Aeq,T}$ with the exception of Plot 5 where the levels will be 51.7dB $L_{Aeq,T.}$ This is above the desirable guideline value but still below the guideline limit level from BS 8233 by at least 3dB and it is recommended the local planning authority form an individual view on the acceptability of this, taking into account the guidance in BS 8233 and individual site specific circumstances.

5.2 Summary of Conclusions

5.2.1 The results of the assessment indicate that: provided suitable attention is paid to the glazing specification and ventilation strategy, there are no further reasons on noise grounds why permission should not be granted.

[9] Details include make, model and acoustic performance data to be obtained from the product provider.

6. REFERENCES

1. British Standard 7445: Description and Measurement of Environmental Noise, Part 1. Guide to Quantities and Procedures, 1991.

2. National Planning Policy Framework. UK Department for Communities and Local Government. March, 2012.

3. Department of the Environment. Planning Policy Guidance (PPG) 24, Planning and Noise, September 1994.

4. Noise Policy Statement for England (NPSE). DEFRA. March 2010.

5. British Standards Institution. British Standard 8233: Guidance on sound insulation and noise reduction for buildings, 2014.

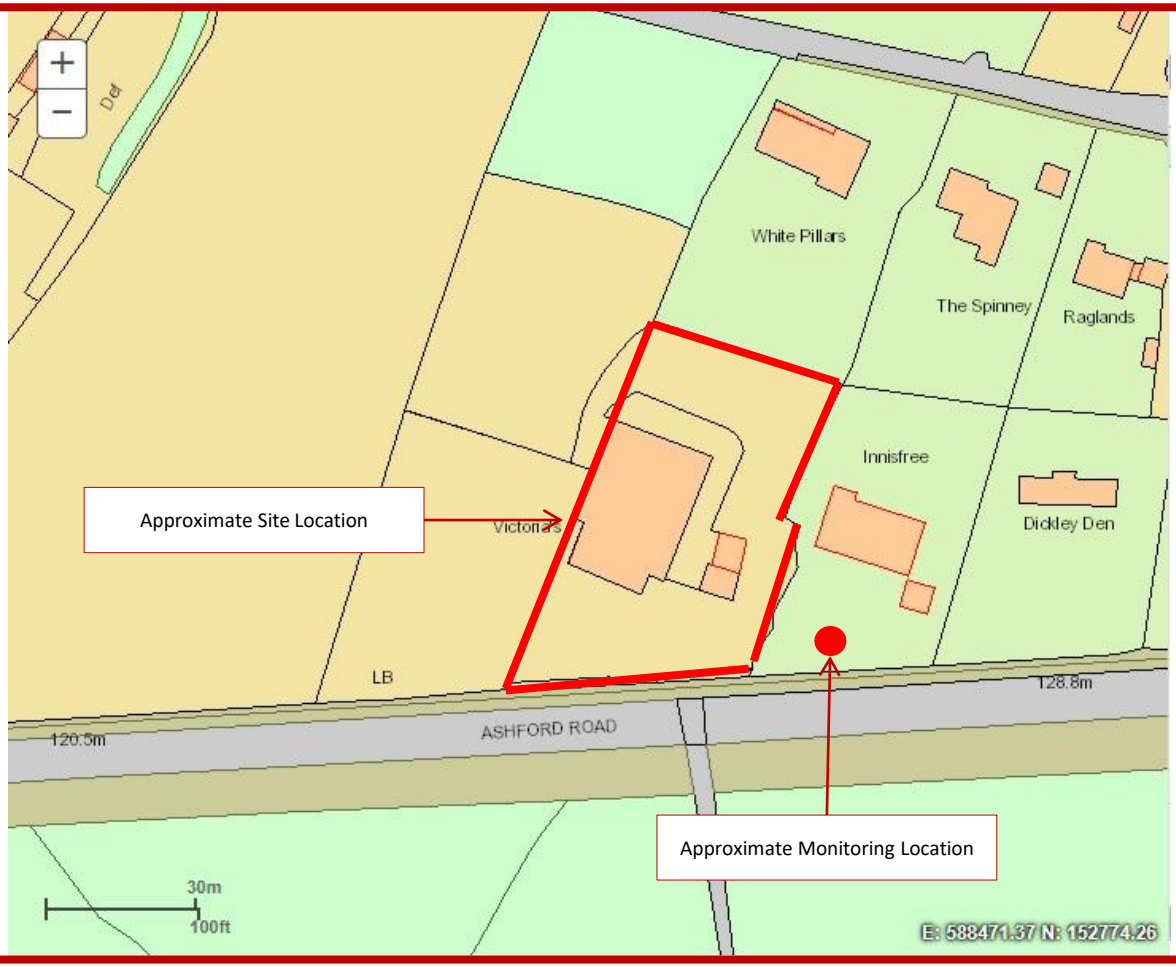
6. World Health Organisation. Guidelines for Community Noise. 2000.

7. Association of Noise Consultants, Institute of Acoustics and Chartered Institute of Environmental Health, Professional Practice Guidance on Planning & Noise (ProPG), 2017.

8. British Standards Institution. British Standard 12758: Glass in building - Glazing and airborne sound insulation - Product descriptions and determination of properties, 2011.

9. The Building Regulations 2010. Approved Document F - Ventilation 2010 edition (incorporating 2010 and 2013 amendments). October 2015.

FIGURES



Not To Scale Resized From Original Image

Project	No.	Drawing	No.	File	Date
Victoria's, Ashford Road	P1462	Site Location	Figure 01	P1462/Figures.ppt	09/08/2021

Indicative 1.8m Boundary Fence Location Shown in Blue

Not To Scale Resized From Original Image

Project	No.	Drawing	No.	File	Date
Victoria's, Ashford Road	P1462	Proposed Layout	Figure 01	P1462/Figures.ppt	09/08/2021

APPENDIX A

Calibration Certificates

CERTIFICATE OF CALIBRATION

Date of Issue: 29 May 2020

Certificate Number: TCRT20/1254

Issued by:
ANV Measurement Systems
Beaufort Court
17 Roebuck Way
Milton Keynes MK5 8HL
Telephone 01908 642846 Fax 01908 642814
E-Mail: info@noise-and-vibration.co.uk
Web: www.noise-and-vibration.co.uk
Acoustics Noise and Vibration Ltd trading as ANV Measurement Systems

Approved Signatory

K. Mistry

Customer	Able Acoustics Ltd Unit 20 Connect 10 Business Park Ashford TN24 0FE			
Order No.	P1000			
Description	Sound Level Meter / Pre-amp / Microphone / Associated Calibrator			
Identification	*Manufacturer*	*Instrument*	*Type*	*Serial No. / Version*
	Rion	Sound Level Meter	NL-52	00843175
	Rion	Firmware		2.0
	Rion	Pre Amplifier	NH-25	31989
	Rion	Microphone	UC-59	06717
	Brüel & Kjær	Calibrator	4231	2263404
		Calibrator adaptor type if applicable		UC 0210
Performance Class	1			
Test Procedure	TP 2.SLM 61672-3 TPS-49 *Procedures from IEC 61672-3:2006 were used to perform the periodic tests.*			
Type Approved to IEC 61672-1:2002	YES	Approval Number	21.21 / 13.02	
	If YES above there is public evidence that the SLM has successfully completed the applicable pattern evaluation tests of IEC 61672-2:2003			
Date Received	28 May 2020	ANV Job No.	TRAC20/05154	
Date Calibrated	29 May 2020			

The sound level meter submitted for testing has successfully completed the class 1 periodic tests of IEC 61672-3:2006, for the environmental conditions under which the tests were performed. As public evidence was available, from an independent testing organisation responsible for approving the results of pattern evaluation tests performed in accordance with IEC 61672-2:2003, to demonstrate that the model of sound level meter fully conformed to the requirements in IEC 61672-1:2002, the sound level meter submitted for testing conforms to the class 1 requirements of IEC 61672-1:2002.

Previous Certificate	*Dated*	*Certificate No.*	*Laboratory*
	19 April 2018	TCRT18/1347	ANV Measurement Systems

CERTIFICATE OF CALIBRATION

0653

Date of Issue: 11 June 2021

Certificate Number: UCRT21/1725

Calibrated at & Certificate issued by:
ANV Measurement Systems
Beaufort Court
17 Roebuck Way
Milton Keynes MK5 8HL
Telephone 01908 642846 Fax 01908 642814
E-Mail: info@noise-and-vibration.co.uk
Web: www.noise-and-vibration.co.uk
Acoustics Noise and Vibration Ltd trading as ANV Measurement Systems

Page 1 of 2 Pages

Approved Signatory

K. Mistry

Customer	Able Acoustics Ltd Unit 20 Connect 10 Business Park Ashford TN24 0FE			
Order No.	P1000			
Test Procedure	Procedure TP 1 Calibration of Sound Calibrators			
Description	Acoustic Calibrator			
Identification	*Manufacturer*	*Instrument*	*Model*	*Serial No.*
	Brüel & Kjær	Calibrator	4231	2263404

The calibrator has been tested as specified in Annex B of IEC 60942:2003. As public evidence was available from a testing organisation (PTB) responsible for approving the results of pattern evaluation tests, to demonstrate that the model of sound calibrator fully conformed to the requirements for pattern evaluation described in Annex A of IEC 60942:2003, the sound calibrator tested is considered to conform to all the class 1 requirements of IEC 60942:2003.

ANV Job No.	UKAS21/06377	
Date Received	09 June 2021	
Date Calibrated	11 June 2021	
Previous Certificate	*Dated*	29 May 2020
	Certificate No.	UCRT20/1456
	Laboratory	0653

APPENDIX B

Measurement Results

Appendix B: Measurement Results

Project Number: P1462
Client: Heritage Designer Homes Ltd
Site Location: Victoria's Cabaret Club

Instrumentation	Serial No.
Rion NL-52 Sound Level Meter	00843175
Rion NH-25 Pre-amp	31989
Rion UC-59 Microphone	06717
Brüel & Kjær Type 4231 Calibrator	2263404

Calibration prior to survey:	94.0 dB (re 94.0)
Calibration after survey:	94.0 dB (re 94.0)

Start Time	L_{Aeq}	L_{AMax}	L_{A90}	12.5 Hz	16 Hz	20 Hz	25 Hz	31.5 Hz	40 Hz	50 Hz	63 Hz	80 Hz	100 Hz	125 Hz	160 Hz	200 Hz	250 Hz	315 Hz	400 Hz	500 Hz	630 Hz	800 Hz	1 kHz	1.25 kHz	1.6 kHz	2 kHz	2.5 kHz	3.15 kHz	4 kHz	5 kHz	6.3 kHz	8 kHz	10 kHz	12.5 kHz	16 kHz	20 kHz
05/08/2021 14:30	63	78	50	59	61	61	60	60	62	67	66	63	62	61	57	56	55	52	53	55	55	56	57	54	51	48	46	44	44	44	43	43	41	33	26	23
05/08/2021 14:45	64	80	53	61	62	60	61	61	61	64	67	68	68	63	61	57	54	53	53	55	56	56	57	54	51	48	46	44	43	43	43	43	41	34	26	23
05/08/2021 15:00	65	81	54	59	62	59	59	60	62	65	67	64	62	61	59	57	55	54	54	56	56	57	58	55	52	50	48	47	49	47	46	49	48	42	32	26
05/08/2021 15:15	64	75	54	66	65	62	62	64	62	67	66	64	64	61	58	56	54	53	53	55	56	57	57	54	51	49	46	45	45	44	44	45	43	37	29	24
05/08/2021 15:30	64	79	53	55	59	59	57	59	60	64	64	62	63	60	60	57	54	54	55	55	55	57	57	55	52	49	46	44	44	45	44	44	42	35	27	24
05/08/2021 15:45	64	81	52	60	61	60	59	60	60	65	64	64	64	63	59	56	57	53	54	56	56	57	57	55	52	49	46	44	43	43	43	44	43	35	27	23
05/08/2021 16:00	65	75	56	60	62	60	59	63	61	66	66	64	62	61	59	57	55	55	54	56	57	58	58	56	53	50	47	45	44	43	43	44	42	35	27	23
05/08/2021 16:15	65	74	58	59	59	59	58	59	61	64	65	63	64	62	58	57	55	53	54	55	56	58	59	56	54	51	48	45	45	44	44	45	43	36	28	24
05/08/2021 16:30	65	72	56	57	59	59	59	59	61	66	66	62	61	60	58	56	55	54	53	55	56	58	59	56	53	50	47	44	43	42	42	42	41	33	25	23
05/08/2021 16:45	64	72	55	58	59	58	59	59	61	64	65	63	62	61	58	56	54	53	53	55	56	57	58	56	53	50	46	44	43	42	42	42	40	33	25	22
05/08/2021 17:00	65	73	57	56	58	59	60	60	60	65	66	63	62	60	58	56	54	53	54	55	56	58	59	56	53	50	47	44	43	43	42	43	40	34	25	23
05/08/2021 17:15	64	74	53	55	57	57	56	58	59	62	62	63	63	61	57	55	54	52	53	54	55	57	58	56	53	49	46	43	42	41	41	41	39	31	24	22
05/08/2021 17:30	64	79	53	57	58	58	58	59	60	64	64	62	62	61	57	56	54	53	53	55	56	57	58	56	53	49	46	46	43	43	43	43	41	33	25	23
05/08/2021 17:45	63	72	53	54	55	55	56	57	58	60	63	60	60	59	56	54	53	51	53	54	54	56	57	55	52	49	46	43	43	42	44	45	44	37	29	24
05/08/2021 18:00	65	75	53	55	59	57	57	58	60	64	64	61	60	59	55	55	53	52	52	54	55	57	58	55	53	51	49	48	48	48	49	50	48	40	33	27
05/08/2021 18:15	66	76	53	56	56	57	57	57	58	62	64	63	59	59	58	54	53	52	53	54	55	57	57	55	54	52	51	51	52	52	53	54	51	43	35	28
05/08/2021 18:30	66	79	56	53	55	56	55	55	57	61	65	63	59	58	58	55	52	53	53	54	55	56	56	55	53	53	52	52	53	53	54	55	53	45	37	31
05/08/2021 18:45	65	74	53	53	54	55	54	54	57	60	61	64	59	56	54	52	51	50	51	53	54	56	57	55	53	51	51	51	52	52	53	54	51	44	36	29
05/08/2021 19:00	64	75	52	54	55	55	56	56	59	62	62	59	59	60	56	53	51	51	51	53	54	55	56	54	53	51	50	50	51	51	52	53	50	42	34	28
05/08/2021 19:15	63	76	50	51	53	53	51	53	55	61	62	57	56	54	52	51	50	49	50	51	52	54	55	53	51	50	48	48	48	49	50	50	48	41	32	27
05/08/2021 19:30	63	76	50	53	54	55	56	56	57	60	61	60	57	55	53	51	50	49	49	51	52	54	54	53	51	50	49	49	50	50	51	52	49	42	34	28
05/08/2021 19:45	64	74	52	57	55	54	54	54	59	59	61	57	56	55	52	51	50	49	50	51	53	55	56	54	52	50	49	49	50	50	51	52	49	42	34	28
05/08/2021 20:00	63	72	52	51	54	53	53	54	56	61	58	56	56	54	51	50	49	48	49	50	51	54	54	53	51	49	48	48	49	49	50	51	49	42	34	29
05/08/2021 20:15	63	75	50	58	60	58	57	56	57	62	61	57	58	55	52	51	50	49	49	51	53	54	55	53	52	50	49	49	49	50	51	51	49	42	33	28
05/08/2021 20:30	62	74	47	50	52	53	53	54	54	57	58	56	55	55	51	50	49	48	48	50	51	53	54	52	50	48	46	46	47	47	48	49	47	40	31	26
05/08/2021 20:45	61	73	46	55	55	55	54	54	55	58	60	59	55	54	51	50	49	48	49	50	51	53	54	52	50	48	46	45	46	47	47	48	46	38	30	25
05/08/2021 21:00	60	72	46	51	53	53	53	54	56	57	57	58	59	56	53	51	48	47	48	49	50	52	53	51	49	47	44	43	44	45	45	46	44	36	28	24
05/08/2021 21:15	61	73	48	53	55	55	54	55	55	59	59	56	61	56	51	49	48	48	48	50	51	52	53	51	49	47	46	45	47	47	48	48	46	39	31	26
05/08/2021 21:30	60	74	45	53	55	53	52	52	54	62	59	56	56	54	51	50	48	47	47	49	50	52	53	51	49	47	45	45	46	46	47	48	45	38	29	25
05/08/2021 21:45	62	75	45	57	56	55	55	56	57	62	61	62	58	57	53	51	50	49	50	52	52	53	53	51	49	48	47	46	47	48	48	49	48	39	31	25
05/08/2021 22:00	61	77	45	64	59	56	56	56	56	61	61	57	56	54	51	49	48	47	48	49	51	52	54	52	50	47	45	44	44	45	46	47	45	38	29	24
05/08/2021 22:15	62	86	45	60	59	59	58	58	58	62	59	58	57	58	58	52	54	49	51	53	54	54	54	52	50	48	46	45	45	46	47	47	45	37	29	24
05/08/2021 22:30	59	71	43	51	52	53	52	52	53	56	57	54	54	52	49	48	47	46	46	48	49	51	52	50	48	45	43	41	42	42	43	43	41	33	25	23
05/08/2021 22:45	58	73	42	52	52	52	51	50	53	56	54	52	52	51	48	47	46	45	45	47	49	51	52	49	47	45	42	41	41	41	42	43	40	33	25	22
05/08/2021 23:00	56	68	43	51	52	51	49	48	49	53	53	53	53	49	46	45	44	43	43	45	47	49	50	47	45	42	39	38	38	38	39	39	37	29	22	22
05/08/2021 23:15	55	72	43	50	52	50	47	49	49	54	52	50	50	49	45	46	45	43	44	45	46	48	48	46	44	42	39	38	39	39	40	40	38	30	23	22
05/08/2021 23:30	56	74	43	50	52	51	49	48	50	56	54	51	51	50	47	45	44	44	45	46	47	49	50	48	46	43	40	38	38	38	39	40	38	31	23	22
05/08/2021 23:45	56	74	41	48	50	51	53	53	50	53	55	52	52	51	48	46	44	44	46	46	48	48	48	46	44	42	40	39	41	41	42	43	40	33	25	22
06/08/2021 00:00	56	73	41	51	53	53	52	51	51	56	55	53	52	51	48	46	44	44	44	46	48	48	49	46	44	42	39	39	40	40	40	41	38	30	23	22
06/08/2021 00:15	55	72	41	48	50	50	47	47	48	57	54	53	49	48	45	44	43	42	42	44	45	46	48	46	44	41	38	37	37	36	37	38	36	29	22	22
06/08/2021 00:30	58	75	41	50	52	50	49	50	50	53	58	56	54	52	50	48	50	49	46	48	48	49	51	49	46	44	42	41	41	41	42	42	40	33	25	22
06/08/2021 00:45	57	75	42	52	54	52	52	52	50	56	55	54	53	52	49	49	48	46	46	48	49	49	48	46	44	43	42	42	43	44	45	45	43	35	27	23
06/08/2021 01:00	55	74	42	50	53	50	50	47	49	53	54	51	51	50	47	46	44	42	43	45	46	46	46	45	43	41	40	40	41	41	42	43	40	33	25	23
06/08/2021 01:15	52	73	41	48	51	48	45	57	48	47	48	46	47	45	43	44	42	40	40	43	43	43	44	41	40	38	36	36	37	37	38	38	36	29	22	22
06/08/2021 01:30	55	74	41	51	52	51	51	52	53	55	59	51	50	50	46	46	44	43	43	46	46	46	44	43	42	40	40	41	41	42	43	41	33	26	23	
06/08/2021 01:45	53	73	45	47	49	48	48	45	47	47	49	47	46	45	43	42	41	42	41	43	43	43	41	40	40	39	39	40	40	41	42	42	40	33	27	24
06/08/2021 02:00	57	75	44	54	54	52	52	50	50	57	54	53	52	51	48	45	43	44	45	46	48	48	47	45	44	43	42	42	43	44	45	46	43	36	29	25
06/08/2021 02:15	55	73	43	47	50	47	47	46	47	54	51	48	49	48	45	45	43	43	42	44	45	46	46	44	43	41	40	40	41	41	42	42	40	33	25	23
06/08/2021 02:30	56	71	43	48	50	50	45	45	49	52	50	50	50	48	45	44	44	42	43	45	46	48	50	47	45	43	41	40	41	41	42	43	40	33	25	23
06/08/2021 02:45	56	74	44	51	52	50	50	50	48	55	56	52	51	50	46	45	42	43	43	45	47	46	47	45	43	42	41	41	43	43	44	45	43	35	27	24
06/08/2021 03:00	53	74	44	50	50	48	46	46	46	48	52	47	47	46	43	43	42	41	41	43	44	44	45	43	42	40	38	38	39	39	40	40	38	31	24	23
06/08/2021 03:15	54	73	43	51	52	50	46	46	47	49	51	49	49	47	44	45	43	42	41	43	44	45	46	44	42	41	39	39	40	40	41	41	39	31	24	23
06/08/2021 03:30	54	73	43	52	52	51	50	50	51	52	54	51	49	49	47	44	42	41	42	44	45	46	46	44	42	40	38	38	39	39	40	41	39	31	24	22
06/08/2021 03:45	58	74	42	60	61	57	55	56	54	58	58	56	55	53	49	47	44	45	46	48	49	49	50	48	46	44	42	42	43	43	44	45	42	34	26	23
06/08/2021 04:00	55	73	43	51	53	53	50	53	50	52	55	51	52	50	47	46	44	44	43	46	47	47	46	44	43	42	40	40	41	41	42	43	40	33	25	22
06/08/2021 04:15	59	76	44	55	56	56	56	56	55	59	59	56	55	55	51	49	47	48	48	50	51	51	51	49	47	45	43	43	44	45	46	46	44	38	30	25
06/08/2021 04:30	58	73	46	52	53	53	52	51	53	55	55	53	53	55	51	47	46	46	45	47	49	49	50	48	46	44	41	40	41	41	43	43	40	33	25	22
06/08/2021 04:45	59	76	45	57	57	55	54	54	55	60	58	55	56	54	51	49	47	47	48	50	51	51	51	49	47	45	43	43	44	45	45	43	36	28	23	
06/08/2021 05:00	57	72	45	52	55	53	53	52	51	58	55	53	54	53	48	47	45	45	45	47	48	50	51	49	46	44	41	39	40	40	41	41	38	31	23	22
06/08/2021 05:15	61	74	46	54	55	55	55	54	55	59	60	58	57	56	52	51	50	46	45	47	49	47	47	44	43	42	41	41	43	43	44	45	43	35	27	24
06/08/2021 05:30	63	75	49	61	59	59	58	58	57	60	63	63	58	57	57	54	52	51	50	51	52	53	54	54	51	49	46	45	45	46	47	47	45	38	29	24
06/08/2021 05:45	62	73	49	57	61	58	58	59	58	62	63	60	58	57	54	53	51	50	51	53	54	54	54	53	50	48	46	45	46	47	47	48	45	38	29	24
06/08/2021 06:00	63	81	50	56	57	57	58	58	59	61	62	60	59	58	55	54	52	52	57	53	54	55	56	54	52	50	47	46	46	45	47	47	45	37	28	23
06/08/2021 06:15	64	73	50	56	57	57	57	60	57	61	62	60	60	58	55	53	52	52	52	54	55	55	56	54	52	50	47	46	47	47	48	49	46	39	30	24
06/08/2021 06:30	65	77	52	60	61	60	60	60	60	63	64	60	60	58	56	54	53	52	53	54	55	57	57	56	54	52	49	49	50	50	51	52	51	44	37	29
06/08/2021 06:45	65	73	53	58	58	59	58	60	61	64	65	61	60	58	56	54	53	52	53	54	55	57	58	56	54	51	49	48	49	49	50	50	48	40	32	25
06/08/2021 07:00	66	75	54	58	62	59	59	59	60	65	64	61	61	60	57	55	53	52	53	55	56	57	58	56	54	53	51	51	52	52	53	53	51	43	35	28
06/08/2021 07:15	66	76	55	58	59	60	59	60	62	67	71	62	63	61	59	56	54	54	54	55	56	57	58	56	54	53	51	51	52	52	53	53	51	43	34	27
06/08/2021 07:30	66	79	57	57	59	59	58	59	61	67	66	63	64	60	58	57	56	54	54	56	56	58	59	57	55	53	51	50	50	51	52	52	50	42	33	26
06/08/2021 07:45	66	75	53	60	62	60	60	60	61	64	65	63	61	60	57	55	54	53	53	55	56	57	58	56	54	52	50	49	50	50	51	51	49	41	32	26
06/08/2021 08:00	65	75	53	58	58	59	60	59	59	63	64	61	60	59	55	54	53	52	53	54	56	57	58	56	54	51	49	48	48	48	49	50	48	40	32	26
06/08/2021 08:15	65	75	52	57	59	59	59	60	60	66	66	63	62	60	57	55	54	53	53	55	56	57	58	56	54	52	50	48	49	49	50	51	48	41	32	25
06/08/2021 08:30	66	91	55	60	58	58	62	59	60	63	64	60	60	59	55	55	53	52	53	54	56	57	58	57	55	53	51	49	48	48	48	49	49	47	39	31
06/08/2021 08:45	66	75	55	60	59	59	60	61	62	65	65	63	61	60	58	57	54	54	54	56	57	58	58	56	54	52	49	48	49	49	50	50	48	41	32	26
06/08/2021 09:00	64	74	53	57	59	58	60	61	63	64	66	61	60	59	57	57	54	53	53	55	55	57	57	55	53	50	48	46	46	46	47	48	46	39	30	24
06/08/2021 09:15	66	86	55	58	60	60	59	61	61	66	66	62	61	59	57	55	55	53	53	55	56	58	59	57	55	52	49	52	50	50	49	51	48	40	31	26
06/08/2021 09:30	64	74	53	63	63	59	59	61	63	66	64	63	62	60	57	55	54	53	53	55	56	57	58	56	53	50	47	46	46	45	46	47	45	38	30	24
06/08/2021 09:45	65	75	56	57	60	59	58	60	62	66	65	63	62	60	57	57	55	54	54	56	56	58	59	56	54	51	48	46	45	45	45	46	44	38	30	26
06/08/2021 10:00	64	73	56	61	61	60	60	60	62	65	67	63	61	60	57	55	54	53	53	55	55	57	58	55	53	50	47	45	45	45	45	46	44	38	31	26
06/08/2021 10:15	64	73	56	61	60	61	61	61	62	65	65	62	62	60	57	56	55	53	53	55	56	57	58	55	53	50	47	45	45	44	45	46	45	40	32	28
06/08/2021 10:30	65	75	56	60	59	59	58	60	61	65	65	61	61	60	56	56	55	54	55	55	55	56	57	58	56	53	50	47	45	45	44	45	45	44	38	32
06/08/2021 10:45	64	73	56	58	59	59	58	60	61	64	64	63	61	60	58	56	55	54	54	56	56	57	58	55	53	50	47	45	44	44	44	45	44	39	31	27
06/08/2021 11:00	64	75	53	60	60	60	59	60	63	65	64	64	61	61	59	57	56	54	53	53	55	55	57	57	55	52	49	47	45	44	44	44	44	38	32	27
06/08/2021 11:15	64	72	56	58	59	59	58	59	60	65	66	61	60	59	56	56	54	53	53	55	56	57	58	55	52	49	46	44	44	44	44	46	44	38	31	27
06/08/2021 11:30	65	73	56	65	66	61	60	61	62	65	65	62	63	60	57	56	54	53	53	54	56	56	58	58	56	53	50	47	45	45	44	45	45	40	33	29
06/08/2021 11:45	64	75	54	60	60	60	59	60	61	64	66	63	61	61	58	55	54	53	53	55	56	57	58	55	52	49	46	44	44	44	45	45	44	39	32	28
06/08/2021 12:00	64	75	56	65	62	62	61	61	62	66	65	64	64	62	59	56	55	53	54	55	56	57	57	55	52	49	46	44	44	43	44	44	43	37	30	26
06/08/2021 12:15	64	73	54	60	60	59	59	61	61	65	66	63	62	60	57	57	54	53	53	55	56	57	58	55	52	49	46	44	43	43	43	44	43	36	30	27
06/08/2021 12:30	64	74	55	60	60	61	61	61	62	64	65	63	61	60	57	56	54	53	53	55	56	57	57	55	52	49	46	45	44	44	45	46	45	40	33	28
06/08/2021 12:45	64	74	55	60	60	60	59	60	61	64	66	62	61	60	57	56	55	53	53	55	56	57	58	55	52	49	46	44	44	44	45	46	45	39	32	29
06/08/2021 13:00	64	82	54	59	58	59	60	60	60	64	64	61	61	60	56	56	54	52	53	55	56	57	58	55	53	49	47	48	44	45	45	45	43	37	30	26
06/08/2021 13:15	64	72	55	63	63	61	61	61	61	65	66	62	62	60	57	56	55	53	54	56	56	57	58	55	52	50	47	45	45	45	46	48	47	41	35	31
06/08/2021 13:30	65	73	56	59	60	60	58	59	60	65	65	62	62	60	57	55	54	53	53	55	56	57	58	56	53	50	48	46	46	46	47	48	46	41	34	30

Start Time	L_{Aeq}	L_{AMax}	L_{A90}	12.5 Hz	16 Hz	20 Hz	25 Hz	31.5 Hz	40 Hz	50 Hz	63 Hz	80 Hz	100 Hz	125 Hz	160 Hz	200 Hz	250 Hz	315 Hz	400 Hz	500 Hz	630 Hz	800 Hz	1 kHz	1.25 kHz	1.6 kHz	2 kHz	2.5 kHz	3.15 kHz	4 kHz	5 kHz	6.3 kHz	8 kHz	10 kHz	12.5 kHz	16 kHz	20 kHz
06/08/2021 13:45	65	73	56	63	62	60	61	61	62	65	65	63	61	60	57	56	55	53	54	55	56	57	58	56	53	51	48	47	47	47	48	49	47	41	35	30
06/08/2021 14:00	65	74	57	60	62	60	60	61	63	64	67	63	63	60	57	56	55	53	54	56	56	58	58	56	54	51	49	48	48	48	49	50	48	41	33	27
06/08/2021 14:15	65	74	55	61	61	61	60	61	61	64	66	63	61	60	57	56	55	54	54	56	56	57	58	56	53	51	48	47	46	46	47	48	46	40	34	29
06/08/2021 14:30	65	74	56	61	62	61	60	61	62	65	66	62	62	60	57	56	55	53	54	56	56	57	58	56	53	51	48	46	45	45	45	46	45	39	32	28

APPENDIX C

Product Brochures for Acoustically Screened Ventilation Systems

UKAS INDEPENDENTLY ACCREDITED TEST INFORMATION

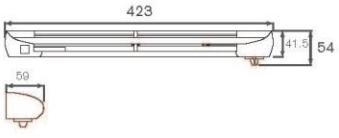
EAR42W

Acoustic window ventilator

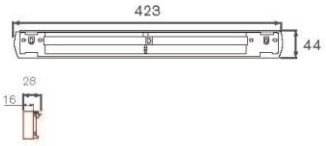
Physical specification

All measurements in millimetres unless otherwise indicated

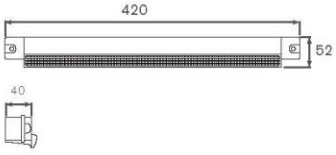
Materials: ABS



Internal



Acoustic spacer



External

Features and benefits

- One of the best performing acoustic window ventilators available in the UK
- Provides an outstanding Dn,e,w; 42dB(A) for areas with high external noise transmission
- Humidity control to regulate supply of fresh air effectively throughout the day in response to changing indoor humidity levels
- Manual override control option for occupants to ensure a comfortable environment at all times
- Upward air deflection to eliminate replacement air causing draughts
- Manufactured from ABS – available in white as standard
- May require add on section in some window installations

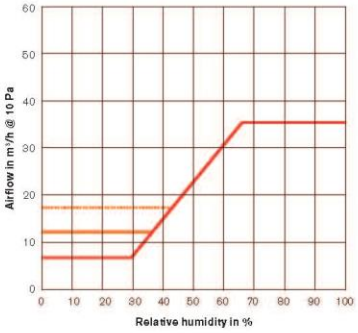
Slot size

Height: 12mm

Length	Central gap	Length
172mm	10mm	172mm

Route slot in window frame as required and screw ventilator over holes.

Performance



Key

EAR² 5-35m³/h

EAR² 17-35m³/h

EAR² 11-35m³/h

Acoustic performance

Dn,e,w: Average weighted performance across frequency range

C: Pink noise

Ctr: Road noise

Models, control options and key data

		Acoustic performance				
Product code	**Controls**	**Dn,e,w**	**Dn,e,w (C)**	**Dn,e,w (Ctr)**	**Equivalent area mm²**	**Colour**
EAR42W *	Bottom	42dB(A)	42dB	42dB	3912	White

* Pricing is variable depending on quantity ordered - please call for details

Sonair

Acoustic (sound attenuating) filtered air supply units

For use fitted through walls

Sonair is for use in buildings where noise or air pollution is a major problem. The units are mechanical input ventilators that can also provide background ventilation as an alternative to trickle vents.

Sonair is a wall mounted input fan featuring touch control with an LCD display. Sonair can be individually operated or used as a part of the unique Air Comfort Control (ACC) system.

- Sonair F+ ventilates and cleans the air
- Sonair A+ ventilates, re-circulates and cleans the air
- Independently tested by the BRE
- Exceptional sound attenuation (up to 56dB*)
- Air cleaning
- Low energy

Sonair

Details

Product	Product Code
Sonair A+ including G2 Filter	S101SAUK
Sonair F+ including G2 Filter	S103SAUK
Sonair A+ including G2 Filter ACC	ACCS101UK
Sonair F+ including G2 Filter ACC	ACCS103UK
Central Exhaust	ACCCA
Central Display Controller	ACCCB
Back Box for Controller	62061
CO^2 Sensor	ACCC02
Phase Connector	ACCFK
Back Box for Phase Controller	68120
Sonair Filter G2	F211
Sonair Filter F6	F209

Performance

(Full test details available on request)
Input air flow rate (m^3/h) – 30-140
Acoustic $D_{n,e,w}$ (+/-) – 52 (Sonair A+), 55/56* (Sonair F+).
*depends on filter
Tested to the 'Noise Insulation Regulations'.

More information

www.titon.co.uk or 01206 814879

Xcell 150QVW and 200QVW

Mechanical Ventilation with Heat Recovery Units

The Xcell 150QVW and 200QVW feature a high-efficiency counterflow heat exchanger, providing up to 90% heat recovery efficiency. These units are purpose-designed for modern, airtight apartments and houses, where less natural leakage can cause increased condensation and mould problems.

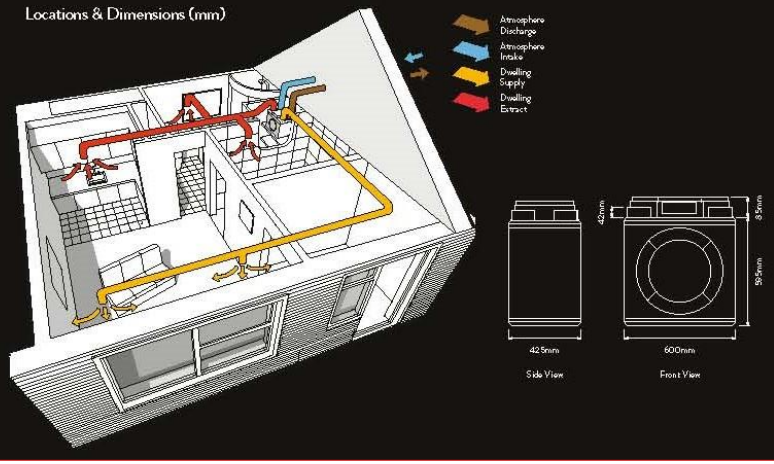
Both models have lightweight EPP construction and may be floor or wall-mounted in loft space. Low-energy EC motors ensure low annual running costs, while the long-life G4 filters can be inspected with ease – simply remove the front access panel for effortless maintenance.

The Xcell 150 with summer bypass provides the added benefit of a summer bypass facility. This stops the heat exchanger warming incoming fresh air during the summer months, for year-round comfort.

Key Features

- Highly efficient unit with EC motors and 90% efficient counterflow heat recovery cell.
- SAP Appendix Q listed and Part L and EST Best Practice compliant.
- Four 125mm Ø top entry connection spigots.
- Highly insulated, lightweight EPP construction.
- Installer-adjustable speed settings to suit dwelling size.
- G4 filters – recommended replacement every six months.
- Supplied with 1m length of 20mm Ø (O/D) plastic condensate tubing.

Locations & Dimensions (mm)

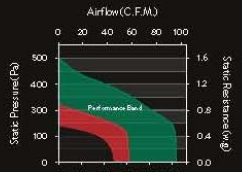


Specification

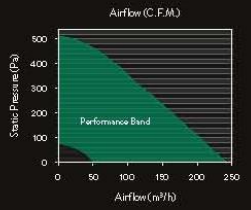
	Xcell 150QVW	Xcell 200QVW	Xcell 150QVW SB
Reference Number	92460AW	92462AW	93189AW
Motor type	EC	EC	EC
Maximum supply / extract performance (FID, m³/h)	160	240	160
Maximum supply / extract performance (m³/h @100Pa)	182	205	182
Maximum system pressure (Pa)	160	250	160
Power usage maximum (W) 220-240V AC 50-60 Hz	85	80	85
Specific fan power (W/l/s)	0.74	0.74	0.74
Efficiency (%)	90	90	90
Speeds	3	3	3
Speed control type	Remote variable DC	Remote variable DC	Remote variable DC
Noise (dB (A)@3m) Low / Medium / Max	20 / 22.5 / 29.5	20 / 24.5 / 34.5	20 / 22.5 / 29.5
Spigot diameter (mm)	125	125	125
Installation orientation	Vertical	Vertical	Vertical
Weight (kg)	17.5	17.5	17.5
UK Guarantee (years)	5*	5*	5*

*Motor only.

Performance (150QVW)



Performance (200QVW)



Pa	Max Speed (m³/h)
0	240
50	221
100	205
150	183
200	163
250	145
300	124

Speed 1 (Holiday/Absent) Speed 3 (Boost)
Speed 2 (Normal)

	S.F.P. (W/l/s)		Heat Recovery Efficiency		
KITCHEN	Xcell 150QVW	Xcell 200QVW	Xcell 150QVW	Xcell 200QVW	Xcell 200QVW
+1 Additional Wet Room	1.33	0.66	88%	91%	E.S.T. Best Performance Compliant
+2 Additional Wet Room	1.08	0.65	87%	91%	
+3 Additional Wet Room	1.17	0.68	86%	90%	
+4 Additional Wet Room	1.30	0.81	86%	89%	
+5 Additional Wet Room	1.53	0.89	85%	88%	

100% Variable

Controller Options

	Reference	Q8 SP Automatic 3 Speed	QC02 CO_2 Sensor	QHS Humidity Sensor
Xcell 150 QVW		96005AA	96003AA	96040AA
Xcell 200 QVW		✓	✓	✓
		✓	✓	✓

Xcell 300QVI and 400QVI

Mechanical Ventilation with Heat Recovery Units

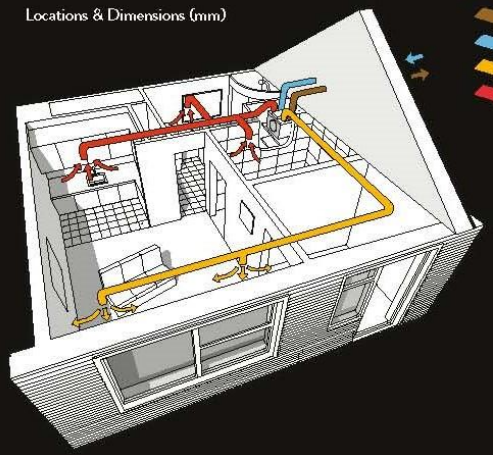
The Xcell 300QVI and 400QVI have been purpose-designed for modern, airtight houses with 3-4 bedrooms, or large apartments. With a counterflow heat exchanger capable of recovering up to 91% of the extracted heat, plus energy-efficient EC motors, they're a cost-effective solution. Both models may be wall or loft-mounted, feature long-life G4 filters, and are SAP Appendix Q listed and Passivhaus approved.

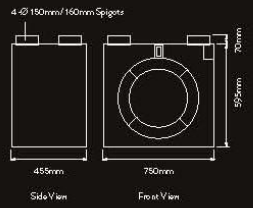
Every QVI unit benefits from a winter defrost cycle and cold home guard. Plus, a summer bypass facility ensures comfortable temperatures all year round. Filter and motor inspection alerts make maintenance simple.

Key Features

- Highly efficient unit with EC motors and 91% efficient counterflow heat recovery cell.
- SAP Appendix Q listed and Part L and EST Best Practice compliant.
- Four 150-160mm Ø top entry connection spigots.
- Highly insulated, lightweight EPP construction.
- Installer-adjustable speed settings to suit dwelling size.
- Winter defrost and summer bypass.
- G4 filters – recommended replacement every six months.
- Supplied with 1m length of 20mm Ø (O/D) plastic condensate tubing

Locations & Dimensions (mm)



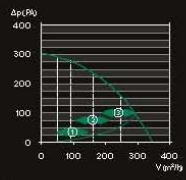


Specification

	Xcell 300 QVI	Xcell 400QVI
Reference Number	92465AW	92478AW
Maximum Extract Performance (FID, m³/h)	290	380
Extract Performance (m³/h @ 100Pa)	265	460
Maximum System Pressure (Pa)	350	410
Speeds	3	3
Speed Control Type	Remote DC	Remote DC
Noise Level (dBA @ 3m)	20.5/24.5/35.5	29/34/44
Power Usage @ 220-240V 50-60Hz (W)	136	338
Specific Fan Power (W/l/s)	0.73	
Weight (kg)	33	35
UK Guarantee (years)	5*	5*
Kg Carbon Saving (per year)	1520†	1520†

†Based on comparison with 3 standard intermittent AC fans on a 557m² detached 6 wet room house, gas heated, build 2006 using SAP 2006 software using best practice (3) tightness.
*Motor only.

Performance (300QVW)



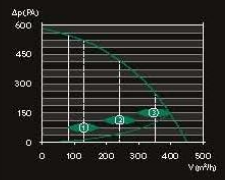
Pa	Max Speed (m³/h)
0	310
50	221
100	205
150	183
200	168
250	145
300	124

1 Speed 1 (default setting*)
2 Speed 2 (default setting*)
3 Speed 3 (default setting*)
*Freely programmable

V Volume flow rate
Δp External pressure loss
Δp ext,min Minimum pressure reserve for the air-duct system

KITCHEN		S.F.P.(W/l/s)	Heat Recovery Efficiency	
+1 Additional Wet Room	100% Variable	0.65	91%	EST Best Performance Compliant
+2 Additional Wet Room		0.60	91%	
+3 Additional Wet Room		0.61	90%	
+4 Additional Wet Room		0.68	89%	
+5 Additional Wet Room		0.76	88%	
+6 Additional Wet Room		0.84	87%	
+7 Additional Wet Room		1	87%	

Performance (400QVW)



1 Speed 1 (default setting*)
2 Speed 2 (default setting*)
3 Speed 3 (default setting*)
*Freely programmable

V Volume flow rate
Δp External pressure loss
Δp ext,min Minimum pressure reserve for the air-duct system

92951AA QVI Controller
- Wired operation from a distance of up to 10m
- 3 speeds plus auto
- Indicates when heat recovery filters need changing

Controller Options


Q3SP Automatic 3 Speed


QC02 CO_2 Sensor


QHS Humidity Sensor

Reference	96005AA	96003AA	96040AA
Xcell 300QVI	✓	✓	✓
Xcell 400QVI	✓	✓	✓