

Acoustic Report

for

Valerie Newton

at

167 Brighton Road
Worthing
BN11 2EU

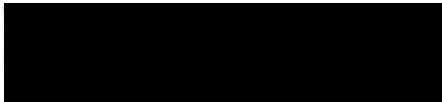
by

Environmentally Sound Limited

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Report authored by


P. A. Schmitz CEng MloA

29 September 2025

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1. Introduction

This acoustic assessment has been prepared to satisfy Condition 5 of planning approval AWDM/0758/25 for 167 Brighton Road, Worthing. The condition requires submission of an acoustic scheme to demonstrate that the proposed change of use from residential flats to a Trauma Therapy Centre achieves suitable internal acoustic conditions for therapy and consultation spaces.

The Environmental Health Officer requested that the assessment references BS8233:2014 (Guidance on sound insulation and noise reduction for buildings), the ProPG (Planning & Noise, 2017), and the Department of Health Technical Memorandum 08-01: Acoustics (HTM 08-01).

This report sets out the site context, acoustic standards to be achieved, the suitability of the existing building, and demonstrates that the property already meets the required standards without the need for further interventions.

2. Site & Proposal

The subject site is 167 Brighton Road, Worthing (BN11 2EU), a Victorian terraced property situated on the north side of Brighton Road opposite the seafront.

Planning application AWDM/0758/25 seeks permission for a change of use from two residential units (Use Class C3) to a Trauma Therapy Centre for Children (Use Class E(e)), operated by Elevate-Evolve Ltd.

As well as some north facing therapy rooms the proposed internal layout was to have therapy rooms on the south facing first and second floor rooms, with a waiting room on the north facing ground floor and a directors' office on the north facing first floor. However, it is indicated that if required, Elevate-Evolve are able to reconfigure this layout to the following:

Ground floor:

South facing room - office/reception area

North facing rooms - one therapy room and one sensory room

First floor:

South facing room - waiting area for parents/visitors

North facing rooms - 3 therapy rooms

Second floor:

Directors' office

3. Planning Context

The planning context for this assessment is as follows:

The Worthing Local Plan (2020–2036) contains relevant policies including DM1 (Housing Mix), DM8 (Community Facilities), and DM22 (Pollution). These policies collectively aim to balance community need, protect amenity, and avoid harmful noise impacts.

The National Planning Policy Framework (2024) requires that developments avoid adverse impacts on health and well-being, and that new noise-sensitive uses are protected from existing sources of environmental noise.

The Delegated Officer Report (29 September 2025) recommended approval of the application, subject to conditions including provision of an acoustic scheme.

The Environmental Health Officer noted that Brighton Road has been designated by DEFRA as an Important Area for Noise, and therefore required reference to BS8233:2014, ProPG, and HTM 08-01 in the acoustic assessment.

4. Operating Hours & Use Pattern

The centre is approved to operate 08:30–18:30, Monday to Friday.

In practice:

- Therapy sessions commence after 09:00, following a daily team meeting.
- The latest therapy sessions run from 16:30 to 17:30. After this time the building is used for administration, cleaning, and closing down.
- There are no evening or night-time therapy sessions.

This pattern ensures therapy activity only takes place during daytime hours, when BS8233:2014 and HTM 08-01 criteria are most readily achieved, and avoids peak hour traffic times.

5. Property Suitability for Conversion

The property is acoustically well-suited for therapy use:

Masonry construction: Solid brickwork provides strong baseline external noise attenuation. See Appendix A.

Setback from road: A small front garden and boundary wall offer additional distance and screening from Brighton Road traffic.

Existing glazing: The PVCu double glazing provides better façade performance than single glazing. See Appendix D.

Rear-facing therapy rooms: Therapy rooms are positioned at the rear, shielded from direct road noise. Front rooms are limited to reception/waiting functions.

Amenity: A rear enclosed courtyard provides a calm, private outdoor environment.

Previous residential conversion (2006): The property was converted to two flats under planning ref. 06/1047/FULL and upgraded to meet Building Regulations Part E requirements.

The sound insulation certificates are in Appendix B and the report in Appendix C.

These construction values ensure room-to-room confidentiality and demonstrate that the property already exceeds requirements for therapy and consultation spaces under HTM 08-01.

6. Acoustic Standards

The acoustic assessment references the following standards, which are directly applicable to the proposed therapy centre:

6.1. BS8233:2014 – Guidance on sound insulation and noise reduction for buildings

BS8233:2014 defines acceptable indoor ambient noise levels for a range of room types.

For therapy and consultation spaces, which are considered comparable to living rooms, BS8233 specifies a daytime limit of ≤ 35 dB LAeq,16hr (07:00–23:00).

BS8233 is widely used by planners and Environmental Health Officers as the benchmark for judging whether new noise-sensitive developments provide reasonable internal conditions.

6.2. ProPG: Planning & Noise (2017) – Professional Practice Guidance

ProPG provides guidance on the planning and design of noise-sensitive developments.

It requires a risk assessment of external noise levels, followed by a demonstration of how building design will ensure compliance with BS8233 internal targets.

ProPG is used to show that site layout, façade design, and internal arrangement provide suitable noise protection for future occupants.

6.3. HTM 08-01: Acoustics (2013) – Department of Health

HTM 08-01 applies to healthcare and therapy facilities, ensuring acoustic conditions support confidentiality and effective communication.

HTM 08-01 requires that intrusion noise in therapy and consultation rooms does not exceed 35–40 dB LAeq, that building services noise remains at or below NR30, and that separating walls and floors maintain confidentiality between rooms.

HTM 08-01 also requires reverberation times to be controlled so that speech remains clear and intelligible.

7. Acoustic Performance and Compliance

Assessment of the building shows:

The therapy rooms are located at the rear of the property, shielded from Brighton Road, which significantly reduces traffic noise intrusion. Internal levels in these spaces are predicted to remain below 35 dB LAeq, meeting the BS8233:2014 and HTM 08-01 daytime criteria.

The separating walls were constructed to achieve 61 dB Rw, far exceeding the Building Regulations Part E requirement of 43 dB DnT,w+Ctr. This provides strong room-to-room privacy in line with HTM 08-01 confidentiality standards.

The intermediate floors and ceilings incorporate 100 mm mineral wool insulation with 20 kg/m² plasterboard. This build-up achieves both high airborne sound reduction and low impact sound transmission, further supporting speech privacy.

Building services within the property are minimal. Any fans or small items of plant can readily be specified to achieve noise levels at or below NR30, consistent with HTM 08-01.

The combination of masonry walls, mineral wool floors, and standard room finishes already provides appropriate reverberation control. If required, small absorptive panels can be added to fine-tune acoustics, but the existing construction is sufficient.

8. Acoustic Compliance Summary

Standard / Requirement	Target Value	Achieved / Provided at 167 Brighton Road	Compliance
BS8233:2014 – Therapy/living spaces	≤ 35 dB LAeq,16hr	Rear-facing therapy rooms; masonry and double glazing maintain predicted levels below 35 dB	Compliant
ProPG Stage 2 – Acoustic design	Demonstrate internal compliance	Rear-facing layout shields therapy rooms; internal fabric exceeds Part E	Compliant
HTM 08-01 – Intrusion noise	≤ 35–40 dB LAeq	Shielded therapy rooms achieve required limits	Compliant
HTM 08-01 – Building services noise	≤ NR 30	Fans and plant easily specified below NR 30	Compliant
HTM 08-01 – Speech privacy	High separation required	Walls = 61 dB Rw; floors = mineral wool + plasterboard	Compliant
HTM 08-01 – Reverberation	Controlled for intelligibility	Existing construction and finishes provide adequate absorption	Compliant

9. Conclusion

The Trauma Therapy Centre at 167 Brighton Road is acoustically compliant with BS8233:2014, ProPG, and HTM 08-01 requirements.

The assessment confirms that the Trauma Therapy Centre at 167 Brighton Road is acoustically suitable for its intended use.

The therapy rooms are located at the rear of the property, well shielded from Brighton Road traffic, ensuring internal noise levels remain below the BS8233:2014 and HTM 08-01 limits.

The separating walls, rated at 61 dB Rw, and the floors incorporating 100 mm mineral wool with 20 kg/m² plasterboard, exceed Building Regulations Part E requirements and provide confidentiality between rooms as required by HTM 08-01.

Building services noise can be controlled to remain at or below NR30, consistent with healthcare acoustic guidance.

Room finishes and construction details provide adequate reverberation control, ensuring clear speech and comfortable acoustic conditions.

On this basis, the proposed change of use is fully compliant with BS8233:2014, ProPG and HTM 08-01, and no further acoustic interventions are required.

Appendix B – Sound insulation certificates

Association of Noise Consultants Registration Scheme (2003)

Certificate of Measured Sound Insulation of a Wall or Floor

This certificate is based on measurements made by an ANC Organisation registered under the Association of Noise Consultants Registration Scheme (2003)

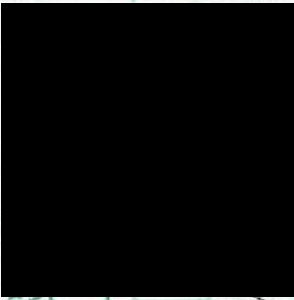
Site 167 Brighton Road Town/City Worthing Builder/Developer Occupational Testing Ltd. Floor/Wall Floor Airborne/Impact Airborne Source Room Flat 2 Lounge Receiving Room Flat 1 Lounge	Registered Organisation Acoustic Associates Sussex Ltd Test Reference Number 117/18613/1 Date of Test 18 JUL 08 Certificate Date 19 JUL 08
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Calculated Rating Value: 48dB $D_{nT,w} + C_{tr}$

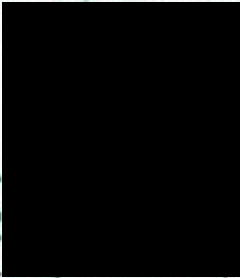
Guidance in Approved Document E (2003) of the Building Regulations 2000:
Floors in dwelling houses and flats formed by material change of use (airborne): Minimum value of $D_{nT,w} + C_{tr} = 43$ dB

This certificate should be read in conjunction with the test report by the ANC Registered Organisation, which contains details of the test method, the equipment used, the construction tested, any unusual features of the test, and a comparison of the result with the guidance in Approved Document E (2003) of the Building Regulations 2000. The Association of Noise Consultants certifies that the data submitted by the Registered Organisation named above, in relation to the sound insulation of the wall or floor separating the rooms described, results in the Calculated Rating Value shown.

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Association of Noise Consultants Registration Scheme (2003)	
Certificate of Measured Sound Insulation of a Wall or Floor	
This certificate is based on measurements made by an ANC Organisation registered under the Association of Noise Consultants Registration Scheme (2003)	
Site	167 Brighton Road
Town/City	Worthing
Builder/Developer	Occupational Testing Ltd.
Floor/Wall	Floor
Airborne/Impact	Airborne
Source Room	Flat 2 Lounge
Receiving Room	Flat 1 Lounge
Calculated Rating Value: $48\text{dB } D_{nT,w} + C_{tr}$	
<i>Guidance in Approved Document E (2003) of the Building Regulations 2000: Floors in dwellings/houses and flats formed by material change of use (airborne): Minimum value of $D_{nT,w} + C_{tr} = 43\text{ dB}$</i>	
Registered Organisation	Acoustic Associates Sussex Ltd
Test Reference Number	117/18613/1
Date of Test	18 JUL 08
Certificate Date	19 JUL 08
Test Engineer	

This certificate should be read in conjunction with the test report by the ANC Registered Organisation, which contains details of the test method, the equipment used, the construction tested, any unusual features of the test, and a comparison of the result with the guidance in Approved Document E (2003) of the Building Regulations 2000. The Association of Noise Consultants certifies that the data submitted by the Registered Organisation named above, in relation to the sound insulation of the wall or floor separating the rooms described, results in the Calculated Rating Value shown.

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<http://www.association-of-noise-consultants.co.uk>
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Association of Noise Consultants Registration Scheme (2003)

Certificate of Measured Sound Insulation of a Wall or Floor

This certificate is based on measurements made by an ANC Organisation registered under the Association of Noise Consultants Registration Scheme (2003)

Site 167 Brighton Road Town/City Worthing Builder/Developer Occupational Testing Ltd. Floor/Wall Floor Airborne/Impact Impact Source Room Flat 2 Lounge Receiving Room Flat 1 Lounge	Registered Organisation Acoustic Associates Sussex Ltd Test Reference Number 117/18613/2 Date of Test 18 JUL 08 Certificate Date 19 JUL 08 Test Engineer Peter Akhurst Beng TechnOA
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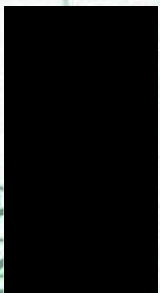
Calculated Rating Value: 52 dB L_{nT,w}

Guidance in Approved Document E (2003) of the Building Regulations 2000:
Floors in dwelling-houses and flats formed by material change of use (impact): Maximum value of L_{nT,w} = 64 dB

This certificate should be read in conjunction with the test report by the ANC Registered Organisation, which contains details of the test method, the equipment used, the construction tested, any unusual features of the test, and a comparison of the result with the guidance in Approved Document E (2003) of the Building Regulations 2000. The Association of Noise Consultants certifies that the data submitted by the Registered Organisation named above, in relation to the sound insulation of the wall or floor separating the rooms described, results in the Calculated Rating Value shown.

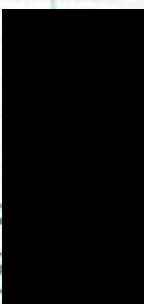


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Association of Noise Consultants Registration Scheme (2003)	
Certificate of Measured Sound Insulation of a Wall or Floor This certificate is based on measurements made by an ANC Organisation registered under the Association of Noise Consultants Registration Scheme (2003)	
Site Town/City Builder/Developer Floor/Wall Airborne/Impact	167 Brighton Road Worthing Occupational Testing Ltd. Floor Impact
Source Room Receiving Room	Flat 2 Lounge Flat 1 Lounge
Calculated Rating Value: 52 dB L_{nT,w}	
<i>Guidance in Approved Document E (2003) of the Building Regulations 2000: Floors in dwelling houses and flats formed by material change of use (impact): Maximum value of L_{nT,w} = 64 dB</i>	
This certificate should be read in conjunction with the test report by the ANC Registered Organisation, which contains details of the test method, the equipment used, the construction tested, any unusual features of the test, and a comparison of the result with the guidance in Approved Document E (2003) of the Building Regulations 2000. The Association of Noise Consultants certifies that the data submitted by the Registered Organisation named above, in relation to the sound insulation of the wall or floor separating the rooms described, results in the Calculated Rating Value shown.	
Registered Organisation Acoustic Associates Sussex Ltd Test Reference Number 117/18613/2 Date of Test 18 JUL 08 Certificate Date 19 JUL 08 Test Engineer Peter Akhurst Beng TechnOA	

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Association of Noise Consultants Registration Scheme (2003)	
Certificate of Measured Sound Insulation of a Wall or Floor	
This certificate is based on measurements made by an ANC Organisation registered under the Association of Noise Consultants Registration Scheme (2003)	
Site 167 Brighton Road Town/City Worthing Builder/Developer Occupational Testing Ltd. Floor/Wall Floor Airborne/Impact Airborne	Registered Organisation Acoustic Associates Sussex Ltd Test Reference Number 117/18613/3 Date of Test 18 JUL 08 Certificate Date 19 JUL 08 Test Engineer Peter Akhurst Beng Technica
Calculated Rating Value: 43 dB $D_{nT,w} + C_{tr}$ <i>Guidance in Approved Document E (2003) of the Building Regulations 2000: Floors in dwelling/houses and flats formed by material change of use (airborne): Minimum value of $D_{nT,w} + C_{tr} = 43$ dB</i>	
This certificate should be read in conjunction with the test report by the ANC Registered Organisation, which contains details of the test method, the equipment used, the construction tested, any unusual features of the test, and a comparison of the result with the guidance in Approved Document E (2003) of the Building Regulations 2000. The Association of Noise Consultants certifies that the data submitted by the Registered Organisation named above, in relation to the sound insulation of the wall or floor separating the rooms described, results in the Calculated Rating Value shown.	

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Association of Noise Consultants Registration Scheme (2003)

Certificate of Measured Sound Insulation of a Wall or Floor

This certificate is based on measurements made by an ANC Organisation registered under the Association of Noise Consultants Registration Scheme (2003)

Site 167 Brighton Road Town/City Worthing Builder/Developer Occupational Testing Ltd. Floor/Wall Floor Airborne/Impact Airborne Source Room Flat 2 Bedroom 1 Receiving Room Flat 1 Bedroom 1	Registered Organisation Acoustic Associates Sussex Ltd Test Reference Number 117/18613/3 Date of Test 18 JUL 08 Certificate Date 19 JUL 08
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Calculated Rating Value: 43dB $D_{nT,w} + C_{tr}$

Guidance in Approved Document E (2003) of the Building Regulations 2000:
Floors in dwelling/houses and flats formed by material change of use (airborne): Minimum value of $D_{nT,w} + C_{tr} = 43$ dB

Test Engineer
Peter Akhurst Beng TechnOA

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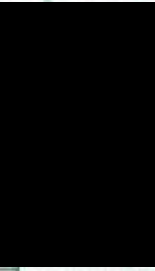
This certificate should be read in conjunction with the test report by the ANC Registered Organisation, which contains details of the test method, the equipment used, the construction tested, any unusual features of the test, and a comparison of the result with the guidance in Approved Document E (2003) of the Building Regulations 2000. The Association of Noise Consultants certifies that the data submitted by the Registered Organisation named above, in relation to the sound insulation of the wall or floor separating the rooms described, results in the Calculated Rating Value shown.

Association of Noise Consultants Registration Scheme (2003)			
Certificate of Measured Sound Insulation of a Wall or Floor This certificate is based on measurements made by an ANC Organisation registered under the Association of Noise Consultants Registration Scheme (2003)			
Site	167 Brighton Road	Registered Organisation	Acoustic Associates Sussex Ltd
Town/City	Worthing	Test Reference Number	117/18613/4
Builder/Developer	Occupational Testing Ltd.	Date of Test	18 JUL 08
Floor/Wall	Floor	Certificate Date	19 JUL 08
Airborne/Impact	Impact	Test Engineer	[Redacted]
Source Room	Flat 2 Bedroom 1	ANC Logo	THE ASSOCIATION OF NOISE CONSULTANTS
Receiving Room	Flat 1 Bedroom 1		
Calculated Rating Value: 59 dB L'nT,w Guidance in Approved Document E (2003) of the Building Regulations 2000: Floors in dwelling houses and flats formed by material change of use (impact): Maximum Value of L'nT,w = 64 dB This certificate should be read in conjunction with the test report by the ANC Registered Organisation, which contains details of the test method, the equipment used, the construction tested, any unusual features of the test, and a comparison of the result with the guidance in Approved Document E (2003) of the Building Regulations 2000. The Association of Noise Consultants certifies that the data submitted by the Registered Organisation named above, in relation to the sound insulation of the wall or floor separating the rooms described, results in the Calculated Rating Value shown.			

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Association of Noise Consultants Registration Scheme (2003)	
Certificate of Measured Sound Insulation of a Wall or Floor This certificate is based on measurements made by an ANC Organisation registered under the Association of Noise Consultants Registration Scheme (2003)	
Site Town/City Builder/Developer Floor/Wall Airborne/Impact	167 Brighton Road Worthing Occupational Testing Ltd. Floor Impact
Source Room Receiving Room	Flat 2 Bedroom 1 Flat 1 Bedroom 1
Calculated Rating Value: 59 dB L'nT,w	
<i>Guidance in Approved Document E (2003) of the Building Regulations 2000: Floors in dwelling/houses and flats formed by material change of use (impact): Maximum value of L'nT,w = 64 dB</i>	
This certificate should be read in conjunction with the test report by the ANC Registered Organisation, which contains details of the test method, the equipment used, the construction tested, any unusual features of the test, and a comparison of the result with the guidance in Approved Document E (2003) of the Building Regulations 2000. The Association of Noise Consultants certifies that the data submitted by the Registered Organisation named above, in relation to the sound insulation of the wall or floor separating the rooms described, results in the Calculated Rating Value shown.	
Registered Organisation Acoustic Associates Sussex Ltd Test Reference Number 117/13613/4 Date of Test 18 JUL 08 Certificate Date 19 JUL 08 Test Engineer Peter Akhurst Beng TechnoA	

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Appendix C – Acoustic Performance Report

**FIELD TESTS FOR COMPLIANCE WITH
AIRBORNE & IMPACT SOUND INSULATION REQUIREMENTS
FOR FLOORS
AT
167 BRIGHTON ROAD, WORTHING, WEST SUSSEX**

REPORT

Prepared by:

Checked by:

Peter Akhurst BEng(Hons) AMIOA MIDiagE

Date: 18/07/2008

Reference No: OCC/1632/11718613

ANC Reg. No: 117

Report No: 18613



Acoustic Associates

Part of the Acoustic Associates Group of companies
DEVON HUMBERSIDE LEICESTERSHIRE NOTTINGHAMSHIRE PETERBOROUGH SUSSEX WESSEX WORCESTERSHIRE

Acoustic Associates Sussex Ltd., 8 Highdown House, Shoreham Airport, Shoreham-by-Sea, West Sussex BN43 5PB
Tel: (01273) 455074 Fax: (01273) 455075 e-mail: info@aasussex.co.uk www.aasussex.co.uk

Location: 167 Brighton Road, Worthing, West Sussex

Test date: 18/07/2008

ANC Registration No: 117

REPORT No: 18613

Field measurements of
sound insulation

Acoustic Associates Sussex Ltd

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	Graphical & Tabular Presentation of Results	
	Calibration Certificate	

Location: 167 Brighton Road, Worthing, West Sussex

Test date: 18/07/2008

ANC Registration No: 117

REPORT No: 18613

Field measurements of
sound insulation

Acoustic Associates Sussex Ltd

1.0 Summary

The tests detailed in this report were carried out on 18th July 2008 to check the acoustic performance of party floors at 167 Brighton Road, Worthing.

The tests detailed in this report have been carried out in full accordance with ISO 140-4 and ISO 140-7 [1,2].

The report also compares the results achieved with the levels prescribed in Approved Document E of The Building Regulations 2003 [5] in order to check for compliance. All the procedures in Annex B of Approved Document E of The Building Regulations have been followed. The following test types were carried out:

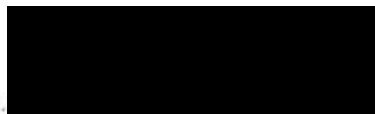
Test Type:	No. of Room Pair Tests
Vertical Impact (Floors)	2
Vertical Airborne (Floors)	2

Approved Document E states that the individual value of airborne insulation achieved should be not less than $D_{nTw} + C_{tr} = 43$ dB for floors. The values achieved for impact insulation should not be more than L_{nTw} 64 dB.

The results show that the room pairs tested meet the requirements of Approved Document E.



Michael Weed MEng(Hons) AMIOA



Peter Akhurst BEng(Hons) AMIOA MIDiagE

Location: 167 Brighton Road, Worthing, West Sussex

Test date: 18/07/2008

ANC Registration No: 117

REPORT No: 18613

Field measurements of
sound insulation

Acoustic Associates Sussex Ltd

2.0 Test Report

2.1 General

Client Name: Occupational Testing

Address: 269 Brighton Road, Worthing BN11 2HG

Site: 167 Brighton Road, Worthing

Type of Property: Converted Flats

Test conducted by: Peter Akhurst BEng(Hons) AMIOA MIDiagE
Michael Wood MEng(Hons) AMIOA
Acoustic Associates Sussex Ltd
8 Highdown House
Shoreham Airport
Shoreham-by-Sea
West Sussex BN43 5PB

Date of tests: 18/07/2008

2.2 Room Dimensions & Element Construction

Test Reference	Source Room & Volume (m ³) Approx.		Receiving Room & Volume (m ³) Approx.		Common Area (m ²) Approx.
OCC/1632/11718613/1	Flat 2 Lounge	89	Flat 1 Lounge	70	28
OCC/1632/11718613/2	Flat 2 Lounge	89	Flat 1 Lounge	70	28
OCC/1632/11718613/3	Flat 2 Bedroom 1	39	Flat 1 Bedroom 1	35	14
OCC/1632/11718613/4	Flat 2 Bedroom 1	39	Flat 1 Bedroom 1	35	14

Party floor construction consisted of the following:

21mm Timber Floor
Existing Joists
Existing Lath and Plaster Ceiling
200mm Mineral Fibre
19mm Plasterboard Plank (Independently Joisted)
12mm Plasterboard
3mm Plaster Skim

Location: 167 Brighton Road, Worthing, West Sussex

Test date: 18/07/2008

ANC Registration No: 117

REPORT No: 18613

Field measurements of

sound insulation

Acoustic Associates Sussex Ltd

2.3 Test Method

Before any measurements were taken, the meter was calibrated. The calibration procedure was repeated at the end of the tests to check for any calibration 'drift'. No significant drift occurred.

Resistance to airborne sound

The loudspeakers were placed facing into the corners, separated from each other, at different heights in the source room and angled across the room to create a diffuse sound field. The spectrum shape of the reverberant noise was checked to ensure that each 1/3 octave band was within 6 dB of its neighbouring bands. The spectrum shape was adjusted if necessary to comply with this criterion.

Measurements were taken in the source room at each 1/3 octave band centre frequency between 100 Hz and 3.15 kHz using six individual microphone positions (over 6 seconds each). Further measurements were then taken in the same way in the receiving room on the other side of the test element. The reverberation time was also obtained for each 1/3 octave centre frequency in the receiving room. This was spatially averaged over 6 positions in the room.

Ambient sound pressure levels (without the source operating) were also taken at each frequency in the receiving rooms to check that ambient noise levels were at least 10 dB below the measured levels due to generated noise and thus did not contribute to the measured levels. These too were spatially-averaged. Dominant sources of background noise were as follows: **Road Traffic Noise**

Type of noise radiated: Broadband pink noise

Resistance to impact sound

The tapping machine was set up in the upper room at least 0.5m from any floor boundary and at an angle of 45° to the direction of the floor joists. Measurements of the noise at each 1/3 octave band centre frequency between 100 Hz and 3.15 kHz were taken in the room below using at least two individual microphone positions (over 6 seconds each). The tapping machine was then moved to a new location on the upper floor and the test repeated using a different set of measurement positions in the room below. This was repeated for a total of 4 tapping machine positions in each pair of rooms.

The reverberation time was then obtained for each relevant 1/3 octave centre frequency in the receiving room. This was spatially averaged over 6 positions in the room.

Ambient sound pressure levels (without the source operating) were also taken at each centre frequency in the receiving rooms to check that ambient noise levels were at least 10 dB below the measured levels due to generated noise and thus did not contribute to the measured levels. Dominant sources of background noise were as follows: **Road Traffic Noise**

Equipment used:

Description	Type/No.	Manufacturer	Date of expiration of calibration	Calibration Cert. No.
Integrating sound level meter	Type 1 Nor118 S/N 31460	Norsonic	March 2009	9845
Calibrator	Type 1 040430	Castle GA 607	01/09/09	040430/49429
Sound Source		Neutrik/Behringer/D.A.S./Phonic		
Mic.	Type 1225	Norsonic	March 2009	9846
Tapping machine	TP02010	Sound Solutions	16/01/2010	120/02010/01/08

N.B. for calibration certificates and details see appendix.

Location: 167 Brighton Road, Worthing, West Sussex

Test date: 18/07/2008

ANC Registration No: 117

REPORT No: 18613

Field measurements of
sound insulation

Acoustic Associates Sussex Ltd

3.0 Results

3.1 General

Results of the measurements, in terms of single-figure ratings, are provided below. They are provided as Weighted Standardised Level Differences $D_{nTW} + C_w$ (for airborne sound) as required by BS EN ISO 140-4 [1] and Weighted Standardised Impact Sound Pressure Levels L_{nTW} (for impact sound) as required by BS EN ISO 140-7 [2]. They are also defined in ISO 717-1&2 [3,4], which deal with airborne and impact insulation respectively.

On the following pages, the graphical results are presented, together with the underlying data from which the single-figure ratings are calculated. Adverse deviations that occurred in excess of 8 dB are also recorded in accordance with BS EN ISO 140-4&7.

Approved Document E of The Building Regulations: *Resistance to the passage of sound* [5] sets out the following requirements for dwellings formed by a material change of use:

Airborne Sound Insulation

The insulation values for airborne insulation for floors shall not be less than $D_{nTW} + C_w = 43$ dB

Impact Sound Insulation

The insulation values for impact sound shall not be more than $L_{nTW} = 64$ dB

Location: 167 Brighton Road, Worthing, West Sussex

Test date: 18/07/2008

ANC Registration No: 117

REPORT No: 18613

Field measurements of

sound insulation

Acoustic Associates Sussex Ltd

3.2 Separating floors (airborne sound):

Source Room	Rec'g Room	DnT w (dB)	DnTw +Ctr (dB)	Minimum Pass Criterion DnTw+Ctr (dB)	Pass/ Fail	Reference No.
Flat 2 Lounge	Flat 1 Lounge	53	48	43	P	OCC/1632/11718613/1
Flat 2 Bedroom 1	Flat 1 Bedroom 1	51	43	43	P	OCC/1632/11718613/3

3.3 Separating floors (impact sound):

Receiving Room	LnTw (dB)	Maximum Pass Criterion LnTw (dB)	Pass/Fail	Reference No.
Flat 1 Lounge	52	64	P	OCC/1632/11718613/2
Flat 1 Bedroom 1	59	64	P	OCC/1632/11718613/4

N.B. For the purposes of interpretation of the tabulated data above, with airborne sound insulation it is the level difference that is being measured between rooms and the higher the result the better the insulation. With impact sound insulation it is the actual sound pressure level in the receiving room that is measured, and therefore the lower results, the better the insulation

Location: 167 Brighton Road, Worthing, West Sussex

Test date: 18/07/2008

ANC Registration No: 117

REPORT No: 18613

Field measurements of
sound insulation

Acoustic Associates Sussex Ltd

4.0 References

1. BS EN ISO 140-4:1998: *Field measurements of airborne sound insulation between rooms*
2. BS EN ISO 140-7: 1998: *Field measurements of impact insulation between rooms.*
3. BS EN ISO 717-1: 1997: *Rating of sound insulation in buildings and of building elements. Part 1: Airborne Sound Insulation.*
4. BS EN ISO 717-2: 1997: *Rating of sound insulation in buildings and of building elements. Part 2: Impact Sound Insulation.*
5. The Building Regulations 2000 (as amended 2003). *Approved Document E: Resistance to the Passage of Sound.*

5.0 Glossary of Terms

$D_{nT,w}$ **Weighted Standardised Level Difference.** A single-figure value of airborne sound insulation performance, derived according to procedures in BS EN ISO 717-1, based on the D_{nT} values at different frequencies (100-3150 Hz third octave bands).

D_{nT} **Standardised Level Difference.** A frequency-dependent measurement of airborne sound insulation, calculated using the following formula:

$$D_{nT} = L_1 - L_2 + 10\log(T/T_0) \quad \text{dB}$$

Where:

- L_1 is the energy-averaged sound pressure level due to the pink noise source measured in the source room using a sweep technique.
- L_2 is the energy-averaged sound pressure level measured in the receiving room using a sweep technique.
- T is the mean receiving room reverberation time (derived from T_{30} measured in seconds).
- T_0 is the reference reverberation time (= 0.5s for dwellings).

C_{tr} **Spectrum Adaptation Term** calculated in accordance with BS EN ISO 717-1, to characterise airborne sound insulation with respect to typical outdoor noise sources (A-weighted urban traffic noise).

$L_{nT,w}$ **Weighted Standardised Impact Sound Pressure Level.** A single-figure value (@ 500 Hz) of impact sound insulation, performance, derived according to BS EN ISO 717-2, based on the L_{nT} values at different frequencies (100Hz- 3150 Hz third octave bands).

L_{nT} **Standardised Impact Sound Pressure Level.** A frequency dependent measurement of impact sound insulation, calculated using the following formula:

$$L_{nT} = L_1 + 10\log(T/T_0) \quad \text{dB}$$

Where:

- L_1 is the mean sound pressure level due to the tapping machine measured in the receiving room using a sweep technique.
- T is the mean receiving room reverberation time (derived from T_{30} measured in seconds).
- T_0 is the reference reverberation time (= 0.5s for dwellings).

APPENDICES

INCLUDING

**GRAPHICAL AND TABULAR PRESENTATION OF
RESULTS**

AND

CALIBRATION CERTIFICATE

Graphical and Tabular Presentation of Results

On the following pages, the graphical results are presented, together with the underlying data from which the single-figure ratings are calculated. Please note that, in accordance with BS EN ISO 140-4 & 7, any adverse deviations in excess of 8 dB should be reported. These occurred:

No adverse deviations greater than 8dB were observed.

Michael Wood MEng(Hons) AMIOA
Acoustic Associates Sussex Ltd

Standardized level difference according to ISO 140-4

Field measurements of airborne sound insulation between rooms

Client: Occupational Testing
Description: 167 Brighton Road, Worthing, West Sussex

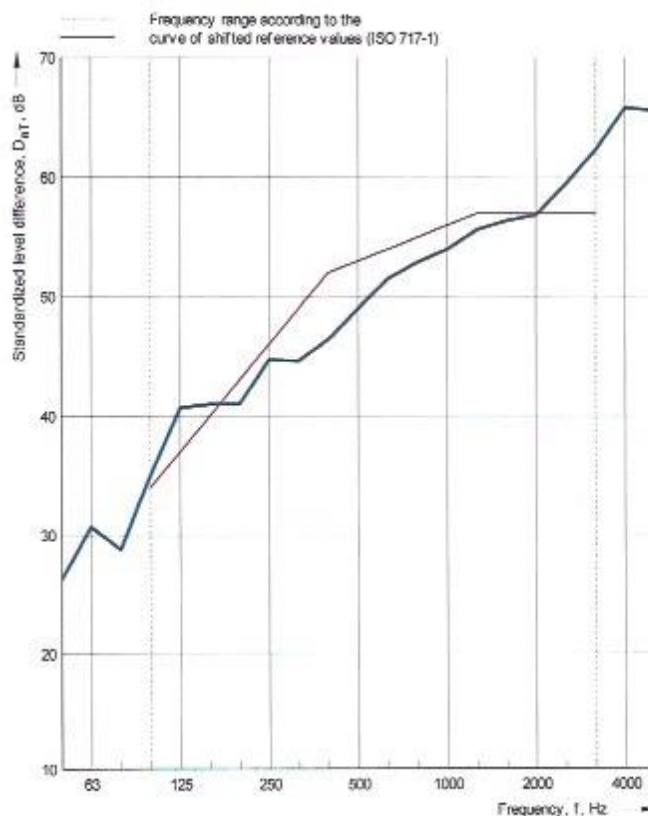
Date of test: 18/07/2008

Object: Flat 2 Lounge - Flat 1 Lounge (Vertical)

Source room volume: 89.0 m³
Receiving room volume: 70.0 m³

Frequency f [Hz]	D _{nT} 1/3 octave [dB]
50	26.3 [†]
63	30.7
80	28.8
100	35.0
125	40.7
160	41.0
200	41.0
250	44.7
315	44.6
400	46.4
500	49.0
630	51.5
800	52.9
1,000	54.0
1,250	55.6
1,600	56.4
2,000	56.9
2,500	59.5
3,150	62.3
4,000	65.8 [†]
5,000	65.6 [†]

[†] Background noise too high



Rating according to ISO 717-1

$D_{nT,W}/(C_1/C_2) = 53$ (-1; -5) dB

Evaluation based on field measurement results obtained in one-third-octave bands by an engineering method.

$C_{50-3150} = -2$ dB

$C_{F,50-3150} = -9$ dB

$C_{50-5000} = -1$ dB

$C_{F,50-5000} = -9$ dB

$C_{100-5000} = 0$ dB

$C_{F,100-5000} = -5$ dB

Acoustic Associates Sussex Ltd

No. of test report: OCC/1632/11718613/1

Date: 18/07/2008

Signature: [Redacted]

Standardized impact sound pressure levels according to ISO 140-7

Field measurements of impact sound insulation of floors

Client: Occupational Testing
Description: 167 Brighton Road, Worthing, West Sussex

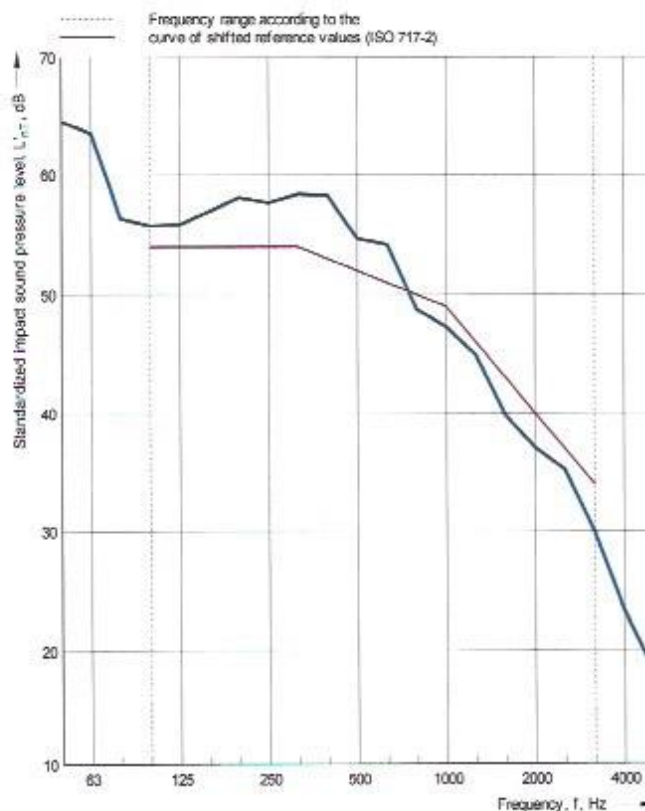
Date of test: 18/07/2008

Object: Flat 2 Lounge - Flat 1 Lounge (Vertical)

Source room volume: 89.0 m³
Receiving room volume: 70.0 m³

Frequency f [Hz]	L _{nT} 1/3 octave [dB]
50	64.5
63	63.5
80	58.4
100	55.8
125	55.9
160	57.0
200	58.1
250	57.7
315	58.4
400	58.3
500	54.7
630	54.2
800	48.8
1,000	47.3
1,250	44.9
1,600	39.8
2,000	37.1
2,500	35.2
3,150	29.9
4,000	23.3
5,000	18.1

* Background noise too high



Rating according to ISO 717-2

L_{nT}(C₁) = 52 (0) dB

Evaluation based on field measurement results obtained in one-third-octave bands by an engineering method.

C_{150 2500} = 3 dB

Acoustic Associates Sussex Ltd

No. of test report: OCC/1632/11718613/

Date: 18/07/2008

Signature: [Redacted]

Standardized level difference according to ISO 140-4

Field measurements of airborne sound insulation between rooms

Client: Occupational Testing
 Description: 18/7 Brighton Road, Worthing, West Sussex

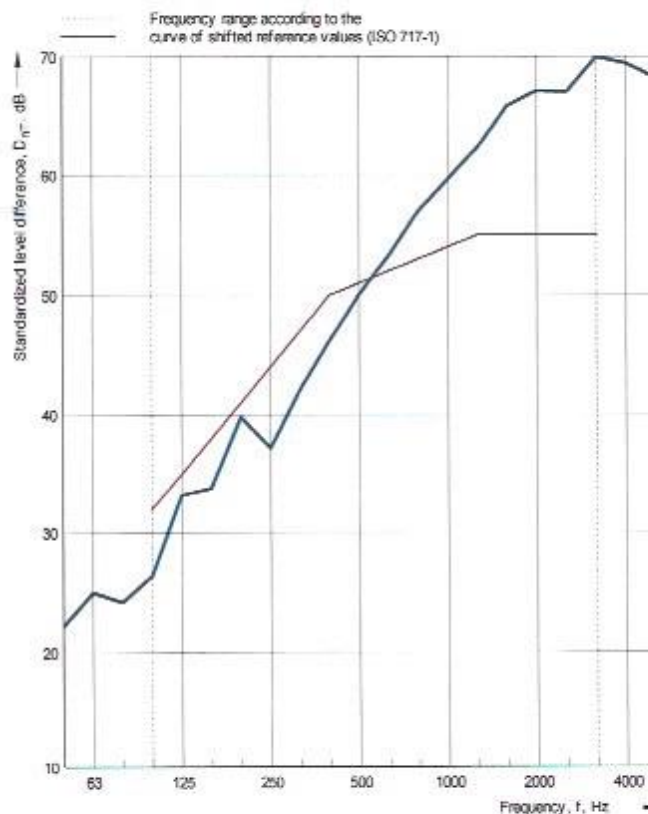
Date of test: 18/07/2008

Object: Flat 2 Bedroom 1 - Flat 1 Bedroom 1 (Vertical)

Source room volume: 39.0 m³
 Receiving room volume: 35.0 m³

Frequency f [Hz]	D _{nT} 1/3 octave [dB]
50	22.2
63	25.0
80	24.2
100	28.4
125	33.2
160	33.8
200	39.8
250	37.2
315	42.1
400	46.2
500	50.1
630	53.3
800	57.0
1,000	59.7
1,250	62.4
1,600	65.9
2,000	67.2
2,500	67.1
3,150	70.0
4,000	69.5
5,000	68.3

[†] Background noise too high



Rating according to ISO 717-1

$D_{nT,w}(C,C_p) = 51 (-2; -8) \text{ dB}$

Evaluation based on field measurement results obtained in one-third-octave bands by an engineering method.

$C_{50-3150} = -3 \text{ dB}$

$C_{e,50-3150} = -12 \text{ dB}$

$C_{50-5000} = -2 \text{ dB}$

$C_{e,50-5000} = -12 \text{ dB}$

$C_{100-5000} = -1 \text{ dB}$

$C_{e,100-5000} = -8 \text{ dB}$

Acoustic Associates Sussex Ltd

No. of test report: OCC/1632/11718613/3

Date: 18/07/2008

Signature: 

Standardized impact sound pressure levels according to ISO 140-7

Field measurements of impact sound insulation of floors

Client: Occupational Testing
 Description: 167 Brighton Road, Worthing, West Sussex

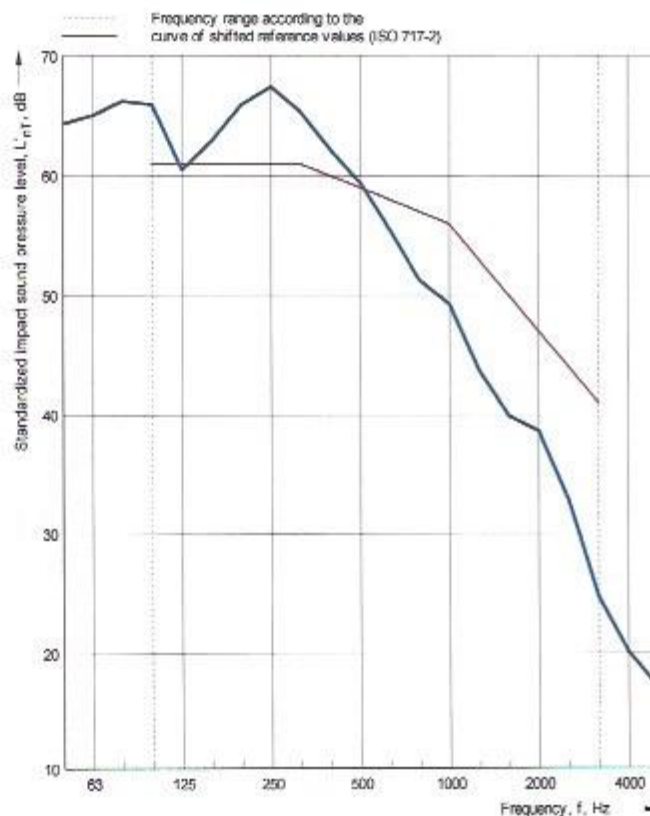
Date of test: 18/07/2008

Object: Flat 2 Bedroom 1 - Flat 1 Bedroom 1 (Vertical)

Source room volume: 39.0 m³
 Receiving room volume: 35.0 m³

Frequency f [Hz]	L _{nT} 1/3 octave [dB]
50	64.3
63	65.0
80	66.2
100	65.9
125	60.5
160	62.9
200	65.9
250	67.4
315	65.3
400	62.2
500	59.4
630	55.5
800	51.3
1,000	49.3
1,250	43.7
1,600	39.9
2,000	38.7
2,500	32.8
3,150	24.7 ¹
4,000	20.1 ¹
5,000	17.0 ¹

¹ Background noise too high



Rating according to ISO 717-2

$$L'_{nT,w}(C) = 59 (0) \text{ dB}$$

Evaluation based on field measurement results obtained in one-third-octave bands by an engineering method.

$$C_{150-2500} = 1 \text{ dB}$$

Acoustic Associates Sussex Ltd

No. of test report:

OCC/1632/11718613/4

Date: 18/07/2008

Signature: 

MTS Consultancy

Certificate of Calibration

Certificate Number: 9845

Norsonic Type 118 Sound Level Meter

Client: Sound Solutions
8 Highdown House, Shoreham Airport
Shoreham-by-Sea
West Sussex BN43 5PB

Instrument Make: Norsonic
Instrument Model: 118
Serial Number: 31460

Microphone Make: Norsonic
Microphone Model: 1225
Serial Number: 52313

Preamplifier Make: Norsonic
Preamplifier Model: 1206
Serial Number: 30496

Calibrator: not supplied

Calibrator Make:
Calibrator Model:
Calibrator Serial Number:
Calibrator Adaptor:
Calibrator Certification Ref:

Filter Set: analog filter built into 118
Assessed to: BS EN 61260: 1996 Class 1

This is to certify that the above instrument, whose calibration records are enclosed in this file, has been tested in accordance with MTS Consultancy Work Procedures. The instrument as configured above has been found to be in compliance with the appropriate sections of BS EN 60651: 1994 (Type 1) except as reported below. The measurements were carried out using equipment whose calibrations are traceable to UK National Standards. The management controls of MTS Consultancy are registered in its Quality Manual Issue C/2, December 2005, which are designed to be in conformity with BS EN ISO 9001:2000 and BS EN ISO/IEC 17025: 2000. Test procedures and test results and details of the traceability of test equipment to National Standards are filed with MTS Consultancy and relevant extracts are available on request.

This instrument was tested in accordance with the recommendations of BS 7580: Part 1 1997 (not all tests were performed) with the following results relative to BS EN 60651:1994 Type 1

Self-Generated Noise:	no specification – see Dynamic linearity chart
Dynamic Linearity – electrical response:	complies – see Dynamic linearity chart
Frequency Weightings A and Lin – electrical response:	complies
Frequency Weighting A – acoustic response:	complies
RMS Accuracy	complies
Time Weightings F and S	complies
Filter Set	see assessment table and graph

The instrument was within the above specification as received

Calibrated at 113.91 dB re 20µPa, 250 Hz

Test Equipment:

Equipment	Manufacturer	Model	Serial No.	Traceability Ref.	Cal. Due
Condenser Microphone	Larson Davis	2541	4295	TE 102	October 2007
Acoustic Calibrator 250Hz	Larson Davis	CA250	2807	TE 104	September 2007
Real-Time Frequency Analyser	Larson Davis	2900	0604	TE 138	July 2007
Signal Generator	Hewlett Packard	33120A	US36016577	TE 111	November 2007

Date of Receipt: 12th March 2007
Date of Calibration: 15th to 21st March 2007
Date of Certificate: 21st March 2007

Authorised signatory:

Tony Sherris

Page 1 of 10

MTS Consultancy
The Grange Business Centre, Belasis Avenue, Billingham TS23 1LG
Telephone: 01642 876410 Fax: 01642 876411 E-Mail: dmars@mtscal.co.uk or tsherris@mtscal.co.uk

Appendix D: Retrospective application for replacement uPVC Windows


Awarded for excellence

Portland House
Richmond Road
Worthing BN11 1LF

APPLICATION NO. WB/08/1030/FULL

TOWN AND COUNTRY PLANNING ACT 1990
TOWN AND COUNTRY PLANNING GENERAL DEVELOPMENT PROCEDURE
ORDER 1995

Mrs Valerie Newton
167 Brighton Road
Worthing
West Sussex
BN11 2EU

PROPOSAL: Retrospective application for replacement PVCu windows.

LOCATION : 167 Brighton Road Worthing

DATE REGISTERED 1st May 2009

APPLICANT : Mrs Valerie Newton

WORTHING BOROUGH COUNCIL, under the above Act and Order, gives you notice that its decision upon your application described above and in Drawings 'Change of use - offices to two self contained flats' No. 7806:1B and 'Replacement windows' No. 7806:3 Apr. 09 which accompanied the application, or as subsequently amended prior to consideration, is to

GRANT PERMISSION

INFORMATIVES

1. The loss of the traditional front bay windows is regrettable because there has been a resultant dilution in the architectural integrity of the building itself, and of the terrace it sits within. However, based on the particular design merits of this development, that detrimental impact has been mitigated to an extent that what residue adverse impact remains is not sufficiently detrimental to justify withholding permission, or that approval would set an undesirable or indefensible precedent for similar development in the locality. To this extent, the proposal complies with Saved Policy BE1 of the Worthing Local Plan as well as policies BE1 and CC6 of The South East Plan.

Dated : 22nd June 2009


Executive Head of Planning,
Regeneration and Wellbeing

Note: Your attention is drawn to the notes and advice overleaf.



Awarded for excellence

Portland House
Richmond Road
Worthing BN11 1LF

APPLICATION NO. WB/08/1030/FULL

**TOWN AND COUNTRY PLANNING ACT 1990
TOWN AND COUNTRY PLANNING GENERAL DEVELOPMENT PROCEDURE
ORDER 1995**

Mrs Valerie Newton
167 Brighton Road
Worthing
West Sussex
BN11 2EU

PROPOSAL: Retrospective application for replacement PVCu windows.

LOCATION : 167 Brighton Road Worthing

DATE 1st May 2009
REGISTERED

APPLICANT : Mrs Valerie Newton

WORTHING BOROUGH COUNCIL, under the above Act and Order, gives you notice that its decision upon your application described above and in Drawings 'Change of use - offices to two self contained flats' No. 7806:1B and 'Replacement windows' No. 7806:3 Apr. 09 which accompanied the application, or as subsequently amended prior to consideration, is to

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Cont.

Dated : 22nd June 2009

Exe
Regeneration and Wellbeing

Note: Your attention is drawn to the notes and advice overleaf.

WB/08/1030/FULL

2. The decision to grant planning permission has been taken having regard to the saved policies and proposals in the Worthing Local Plan 2003 and the South East Plan 2009 set out below, and to all relevant material considerations, including Supplementary Planning Guidance:

Saved Worthing Local Plan Policies 2003

BE1 - Design Quality

South East Plan

BE1 - Management for an Urban Renaissance

CC6 - Sustainable Communities and Character of the Environment

This information is only intended as a summary of the reasons for grant of planning permission. For further details on the decision please see the application report which is available from the Planning Reception at Portland House, Richmond Road, Worthing.