

Noise impact assessment of a proposed fitness gym

Unit B, Aberfan Shopping Centre, Port Talbot, SA13 1PB



Client: ET Planning Limited

Report Reference: 250805-R001A

Date: 9th September 2025

Revision:	Date:	Author:	Checked:
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0 SUMMARY

- 0.1 A new fitness gym is being proposed to be developed at first floor level within the previous Wilko's retail premises at Unit B, Aberfan Shopping Centre, Port Talbot.
- 0.2 ACA Acoustics Limited has been commissioned by the client to assess the noise impact of the proposed gym on surrounding residential and commercial properties, and where necessary to provide recommendations for a mitigation scheme to ensure no loss of amenity for occupants of these properties. The assessment is required to support a planning application to the Local Authority for this development.
- 0.3 The sound insulation performance of the existing separating floor between the gym and adjoining residential dwellings has been tested. A scheme of noise mitigation measures has been developed to control airborne sound transmission from the gym to achieve appropriate criteria.
- 0.4 In addition, a test of structure-borne transmission paths has been undertaken between the gym and adjoining residential properties. An outline scheme of impact sound mitigation measures has been recommended to control impact sound transmission from the gym to adjoining receptors.
- 0.5 The ground floor of the former Wilko's store is to be separated from the first floor and retained as retail or other similar use. Airborne sound insulation and structure-borne transmission tests have been carried out and scheme of noise mitigation measures have been provided.
- 0.6 Finally, it is anticipated that the future operator of the gym will require new mechanical equipment such as air conditioning and/or ventilation plant. Design of the scheme is at an early stage and selection of plant items and locations is yet to be finalised. As such, a background sound level survey has been carried out and a maximum permissible cumulative rating level has been proposed for any future plant to ensure there are no adverse impacts on nearby residents.
- 0.7 In conclusion, allowing for the proposed mitigation measures set out in this report, the proposed development should not have an adverse impact on nearby residential or commercial occupants, and it is recommended that the site is suitable for the proposed gym development.

1 INTRODUCTION

The first-floor level of a vacant retail unit at Unit B, Aberfan Shopping Centre, Port Talbot is proposed to be redeveloped into a fitness gym.

ACA Acoustics Limited has been commissioned to assess the potential impact of the gym on surrounding receptors and, where necessary, to devise a sound insulation strategy that will ensure that noise emissions from the proposed gym do not cause loss of amenity to the occupants.

This report presents results of airborne sound insulation and impact transmission tests on the existing structure, proposes appropriate criteria to protect the amenity of adjoining residential and commercial occupants, and sets out a noise mitigation scheme to comply with these noise limits. Furthermore, a maximum permissible rating level is proposed to control noise from any future mechanical services equipment which may be installed to serve the new gym.

2 ACOUSTIC CRITERIA

2.1 Operational Noise Transfer to Adjoining Receptors

2.1.1 Planning Policy Wales (PPW)

Planning Policy Wales (Revision 12, dated February 2024) sets out the Welsh Government's planning policies and provides guidance on how these are expected to be applied, providing a framework within which Local Authorities can produce their own distinctive local plans, which reflect the needs and priorities of their communities.

Paragraph 6.7.1 of the PPW states,

"Clean air and an appropriate soundscape, contribute to a positive experience of place as well as being necessary for public health, amenity and well-being. They are indicators of local environmental quality and integral qualities of place which should be protected through preventative or proactive action through the planning system. Conversely, air, noise and light pollution can have negative effects on people, biodiversity and the resilience of ecosystems and should be reduced as far as possible."

Paragraph 6.7.6 also talks specifically about noise and advises,

"In proposing new development, planning authorities and developers must, therefore:

- Address any implication arising as a result of its association with, or location within, air quality management areas, noise action planning priority areas or areas where there are sensitive receptors,
- Not create areas of poor air quality or inappropriate soundscapes; and
- Seek to incorporate measures which reduce overall exposure to air and noise pollution and create appropriate soundscapes.

In accordance with PPW, all reasonable steps should be taken to mitigate and minimise adverse effects of noise and achieve appropriate soundscapes.

PPW does not include any numerical criteria, and as such it is necessary to consider guidance provided in other documents to determine suitable limits to ensure noise emissions from the development do not create an inappropriate soundscape for nearby receptors.

2.1.2 ProPG Gym Acoustic Guidance

A working group of The Association of Noise Consultants, Institute of Acoustics, and Chartered Institute of Environmental Health formed a Good Practice Working Group, which published ProPG: Gym Acoustics Guidance (GAG).

The document aims to standardise an approach on assessing acoustics from gyms, which previously had largely relied on the acoustic consultant repurposing guidance intended for other types of buildings and noise sources.

Section 2 of the GAG provides guideline criterion curves called “G” curves. These provide a $1/3^{\text{rd}}$ octave equivalent to NR curves. Use of the G curves will provide control against adverse noise transmission, including controlling low frequency noise, which has potential to create greater degree of adverse impact.

Table 2 of the GAG provides guideline internal G curve values for sensitive spaces and recommends that sound transmission from a gym to adjoining or nearby commercial areas should not exceed criteria set out in the table below.

Receptor Type	Guide Criteria	
	Airborne Sound (e.g., music) Leq,T (31 .5Hz to 8kHz)	Heavy Impact Sound Lmax,F (31 .5Hz to 8kHz)
Commercial Offices	G25-G35	G35-G45
Retail Areas	G30-G45	G35-G50
Residential Areas	G15-G25 (day) G10-G20 (night)	G20-G25 (day) G15-G20 (night)

Table 1: GAG Table 2: Guidance Internal Sound Target Criteria for Gym Activity - Residential & Other Areas

Within the GAG, notes to Table 2 detail that the outcome of the assessment is heavily dependent on context. As shown in Table 1 above, sound levels from airborne sources (e.g. music) to within residential properties should not exceed the range of G15-G25 during daytime hours (07:00-23:00) and G10-G20 overnight. Noise from impact sound (e.g. weights) should not exceed G20-G25 during the daytime and G15-G30 at night.

Ground floor level of the existing retail unit is to be separated from the gym and retained as retail or other similar use. Appropriate criteria to these areas from airborne sources is G30-G45 and from impact sources is G35-G50. The author understands that there is potential that part of the ground floor area may be converted to a cinema. However, designing mitigation to control noise emissions to an appropriate criteria for a cinema would be excessive when this is a speculative potential future use. Instead it is recommended that noise emissions to the ground floor retail space is designed to achieve an appropriate standard for retail use and any incoming tenant requiring a higher standard of sound insulation would be required to implement any appropriate further mitigation works as part of their own fit-out.

Note that the criteria for heavy impact noise are appropriate for normal/reasonable events within the fitness gym. Repeatedly dropping weights or dropping weights from a height would constitute unreasonable behaviour and policies should be put into place by the gym operator to ensure gym users would receive a warning should this behaviour occur.

2.2 Noise from Mechanical Services Equipment

BS 4142:2014+A1:2019 is commonly used to assess the potential for loss of amenity due to noise from mechanical services equipment and is considered appropriate for this application.

The scope of BS 4142:2014+A1:2019 advises that *“this British Standard describes methods for rating and assessing sound of an industrial and/or commercial nature ... to assess the likely effects of sound on people who might be inside or outside a dwelling or premises used for residential purposes upon which sound is incident”*.

The assessment method of BS 4142:2014+A1:2019 corrects the specific sound level from the source under investigation to account for characteristics that could make the sound more obtrusive to obtain a rating level. This rating level is compared against the prevailing background noise outside the noise-sensitive property. Section 11 provides a commentary of the assessment result and advises that:

- a) *Typically the greater this difference [between the rating level and background sound level], the greater the magnitude of the impact;*
- b) *A difference of around +10dB or more is likely to be an indication of a significant adverse impact, depending on the context;*
- c) *A difference of around +5dB is likely to be an indication of an adverse impact, depending on the context;*

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

The development is at an early stage and design of any HVAC plant is yet to be finalised.

The existing Wilko's unit incorporated mechanical plant, installed on the flat roof of the retail unit and overlooked by nearby residential windows. It is assumed that this existing plant will be removed and replaced with new equipment designed appropriately for the gym use. Therefore the context would be the replacement of existing equipment and would not alter the existing soundscape.

As such, ACA Acoustics propose to recommend a maximum permissible rating level for future plant to not exceed the representative background sound level at a position 1m outside any nearby residential properties. This will provide a cumulative design criteria for any future plant and ensure that the new plant will have a low impact on nearby residents.

3 REVIEW OF SITE LOCATION & DEVELOPMENT PROPOSALS

The fitness gym is to be located on the first-floor of the former Wilko's retail unit at Unit B, Aberfan Shopping Centre, Port Talbot. Upper floors of the shopping centre above the unit are to residential flats.

The existing store is formed over two levels. The proposals are to split the ground floor from the first floor, retaining ground floor level to retail or other similar uses.

The author understands that the proposals are for the gym to be open over a full 24-hour period.

4 SOUND LEVEL SURVEYS

Sound insulation testing of the existing building structure was carried out on 18th August 2025 by Rob Cant of ACA Acoustics Limited.

The following equipment was used for the survey. The sound level meter was calibrated before and checked after the testing with no change noted.

Equipment	Serial Number
NTi Audio Class 1 sound level meter type XL2-TA	A2A-16877-E0
Svantek calibrator type SV33B. Compliant to IEC 60942:2003	83826
Yamaha DSR112 loudspeaker	BFYJ01026
NTi Audio Minirator MR-PRO pink noise generator	G2P-RAEVK-G0

Table 2: Equipment used

4.1 Airborne Sound Insulation Tests

Airborne sound insulation tests were carried out in accordance with BS EN ISO 16283-1:2014 *Acoustics – Field measurements of sound insulation in buildings and of building elements – Part 1: Airborne Sound Insulation*. Rating of airborne test results has been carried out in accordance with BS EN ISO 717-1:1997 *‘Acoustics – Rating of sound insulation in buildings and of building elements. Part 1. Airborne sound insulation’*.

High volume ‘pink’ noise was generated by the loudspeaker in the source room, positioned to obtain a diffuse sound field in the room. The spatial energy average of the one-third octave band noise levels was obtained within the source room from measurements using the 30-second sweeping method. This measurement procedure was then repeated in the receiver room.

The level difference (D,w) was determined in accordance with BS EN ISO 717-1. Results of the sound insulation tests are shown in Table 3 below. Detailed test result graphs are included in Appendix A.

Test Reference	Source Room	Receiving Room	Measured D,w (C’tr)
AF01	1 st Floor, Proposed Gym	2 nd Floor, Residential Flat	57dB; (-5)
AF02	1 st Floor, Proposed Gym	Ground Floor, Retail Unit	63dB; (-7)
AW01	1 st Floor, Proposed Gym	1 st Floor, Concourse	31dB; (-2)

Table 3: Airborne sound insulation test results

4.2 Impact Sound Transmission Tests

While on site ACA Acoustics also undertook impact sound transmission tests on the existing concrete floor along with several options for gym flooring buildups. ProPG GAG provides two methodologies for testing. The method used within this assessment is Method 1, wherein a

consistent weight of approved mass – in this case, 23kg – is dropped from a fixed height on the existing construction and flooring, and then additional resilient flooring layers tested. The method included 6 weight drops from a height of 0.5m.

In addition, a further test was conducted using Pliteq’s predictive methodology, where a shot-putt type weighted ball is dropped through a tube onto a single thin rubber mat layer. This is then used by Pliteq to assist in determining the required resilient flooring build-up.

A fine time history was recorded within the receiving room above as short-term (0.1 second) instantaneous sound pressure levels over the duration of the weight-drops, to allow the rate of change and peak sound level achieved to be determined.

The tests were carried out in 3 drop locations and measured to a 2nd floor residential flat, a 2nd floor communal residential corridor, ground floor retail unit, and to the 1st floor shopping centre concourse. Tests were undertaken using various different flooring samples provided by Pliteq.

4.3 Background Sound Level Survey

Separately to the sound insulation and impact tests, an unattended background level survey was carried out to establish existing external sound levels in the vicinity of the proposed gym unit.

The measurements took place between the 18th and 19th August 2025.

The following equipment was used for the survey. The sound level meter was calibrated before and checked after the testing with no change noted.

Equipment	Serial Number
Svantek Class 1 sound level meter type SVAN971 complete with MOLES weather protection kit	84045
Svantek calibrator type SV33B. Compliant to IEC 60942:2003	83826

Table 4: Equipment used

Location of the measurement position, likely plant location and closest residential receptors is shown on a marked-up aerial photograph below. The measurement position was selected as being the closest available position to the receptors where the sound level meter could be secured to be left unattended. The existing plant is not operating and the dominant noise source is high-volume traffic on the nearby M4 motorway and A48 dual carriageway. The measurement position is screened from the M4 motorway and therefore sound levels measured at this location are likely to be slightly lower than those that will occur at the receptors. This ensures that the proposed criteria is likely to be lower, providing a worst case scenario and a better standard of amenity for nearby residents.

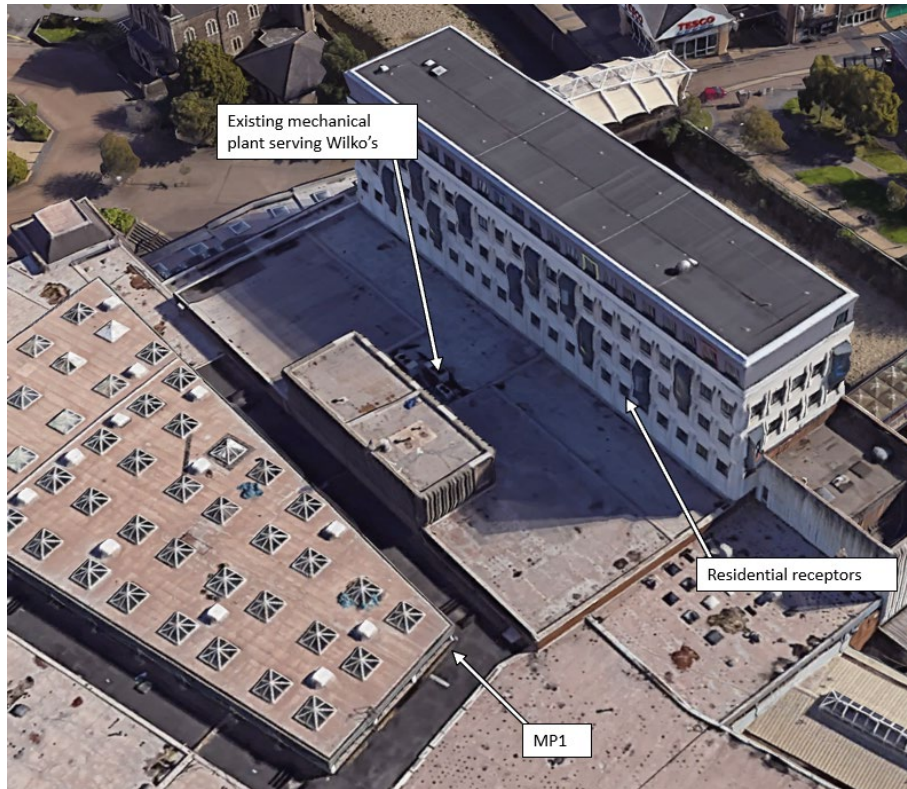


Figure 1: Site location showing likely equipment position, receptors and measurement position (available at www.google.com/maps)

Weather conditions at the time of setting up the surveys were warm and dry with 100% cloud cover and a light breeze. Meteorological conditions are considered acceptable and will not have adversely impacted the survey results.

Results of the survey are shown in graphical form in Figure 2 below.

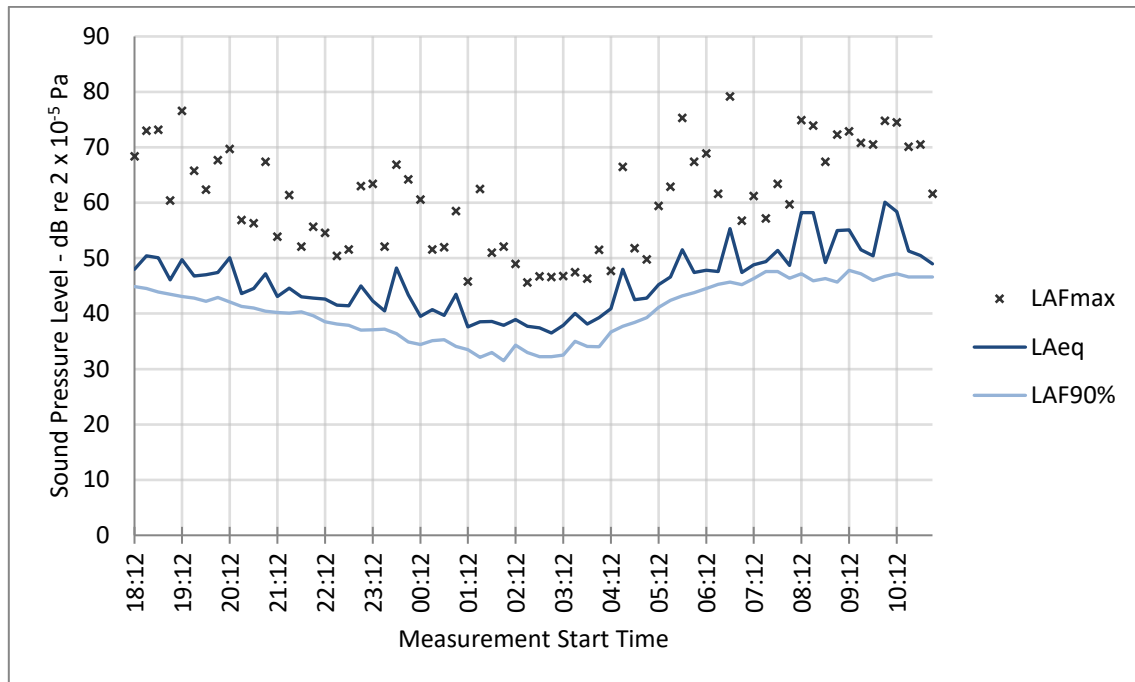


Figure 2: Sound level survey results at MP1 (18th-19th August 2025)

In accordance with the methodology set out in BS 4142:2014+A1:2019, the background sound level is not necessarily the lowest recorded value. Instead, the background sound level should be a level which is representative of the underlying soundscape at the receptor location.

A statistical analysis of the measured LA90 results during the most-sensitive night-time operating hours is shown in Figure 3 below, following guidance set out in the Standard

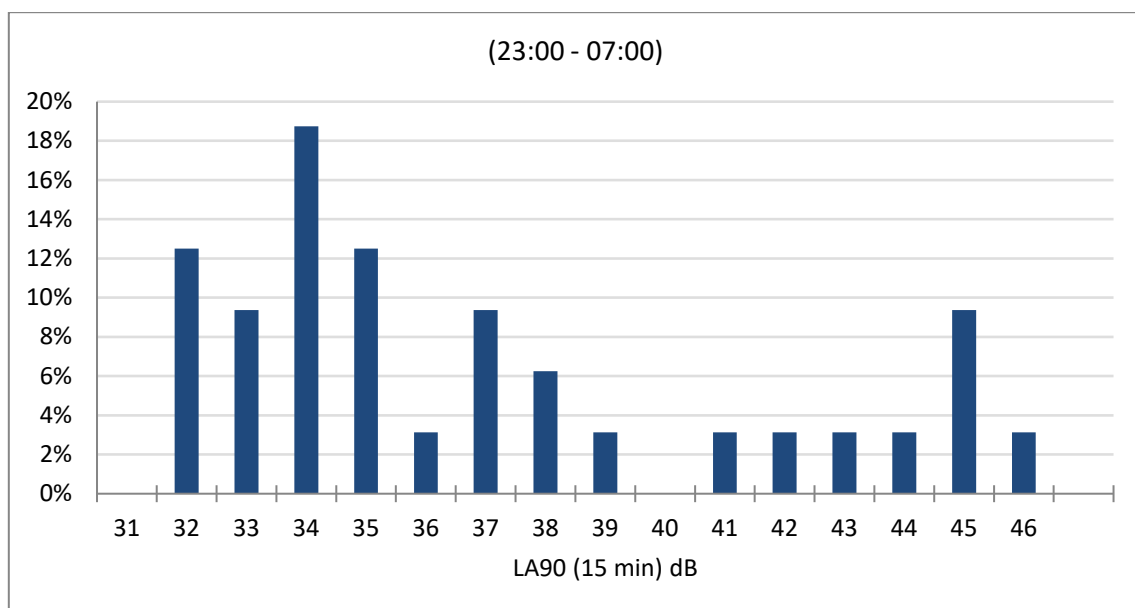


Figure 3: Statistical analysis of measured LA90 background sound levels

Based on the survey results, the author considers a level of LA90 34dB is representative of the background sound level in the vicinity and should be used as basis for setting the criteria for any future mechanical plant.

5 ASSESSMENT OF AIRBORNE SOUND TRANSMISSION TO ADJOINING UNITS

5.1 Source Sound Levels

Airborne sound transmission from use of the proposed fitness gym to within the adjoining receptors, has been calculated using previously measured source sound levels within equivalent gyms. The source sound levels were measured for two different operating conditions.

The first was during a spin class which featured high level amplified music with significant bass content as well as amplified voice, which is expected to be representative of the noise types during classes in studios within the proposed gym. The second set of data were measured within open areas of a gym, including resistance machines, cardio areas and free weights areas with lower levels of background amplified music.

Source Type	Octave Band Frequency (Hz), Leq dB								dBA
	63Hz	125Hz	250Hz	500Hz	1Hz	2Hz	4Hz	8Hz	
Studios/classes	99	98	90	87	84	80	73	66	90
Open areas (e.g. cardio & free weights)	73	70	72	73	72	69	64	59	76

Table 5: Source sound levels within the gym

Based on experience over previous gym projects, the author considers it likely that classes with high-volume music are likely to be held during daytime hours (07:00-23:00) only. The assessment is undertaken on this basis. Should a future operator choose to hold classes overnight then additional mitigation will be required and the design would need to be updated accordingly.

Similarly, should the operator propose to play higher volume music to the main gym space, exceeding the levels in Table 5, then the mitigation scheme will need to be updated.

5.2 Recommendations for Noise Mitigation Measures

It is recommended that studios within the gym which will accommodate classes should be formed with an independent acoustic ceiling. If these incorporate existing walls of the building then acoustic wall linings should be installed to these common flanking walls.

If high-volume amplified music (above levels for open areas in Table 5) is proposed for the main gym space then the above recommendations would be incorporated throughout the gym.

A suitable acoustic ceiling would be formed using minimum two layers 15mm SoundBloc plasterboard supported on acoustic hangers such as Mason UK Limited's HDQF or HDQF-X, forming minimum 250mm void with 100mm thick dense Rockwool insulation laid in the cavity.

Acoustic wall linings would be formed using two layers 15mm SoundBloc plasterboard on independent studs or fixed back to the structure using resilient fixings such as Pliteq's Genie Clips or Mason UK Limited's CWC-50 Acoustic Wall Clip. Nominally 50mm Rockwool insulation should be hung in the cavity.

It is recommended that studios are not located immediately adjacent to the glazed shopfront façade facing the shopping centre concourse. If this is desired then higher-acoustic performance glazing or secondary glazing will be required to the shopfront.

It is understood that to the southern end of the unit the area extending to the goods lifts, below residential flats, is to be separated from the new gym with a new wall formed. This wall can be using two layers 12.5mm plasterboard either side of a timber or steel stud with mineral wool insulation in the cavity. Any doors in this partition should incorporate acoustic seals to the frame, including drop-down seals at the threshold.

5.3 Assessment of Airborne Operational Noise Emissions through the Separating Floor

Based on the anticipated source sound level and measured sound insulation of the bare unit shell, along with mitigation measures discussed above, resultant sound levels are shown below and compared against the relevant G curve criteria.

Receptor	Source	Calculated Level of Gym Operational Sound Transmission	Recommended Criteria
2 nd Floor Residential Receptors	Studios playing high volume music (daytime)	<G20	G15 – G25
2 nd Floor Residential Receptors	Main gym open area (overnight)	G20	G10 – G20

Receptor	Source	Calculated Level of Gym Operational Sound Transmission	Recommended Criteria
Ground Floor Retail Units	Studios playing high volume music	G45	G35 – G45
Ground Floor Retail Units	Main gym open area	G20	G35 – G45
1 st Floor Shopping Centre Concourse	Main gym open area	G45	G35 – G45

Table 6: Calculated sound emissions from the gym unit to adjoining spaces

Table 6 confirms that allowing for the mitigation shown in Section 5.2, operational noise emissions from the proposed gym complies with guideline criteria set out in ProPG: Gym Acoustic Guidance.

Should the client desire, lower levels of sound transmission could be achieved through incorporating a ceiling within the main gym space and/or forming a floating platform floor on resilient battens with a mass layer (e.g. cement particle board) above and mineral wool insulation in the formed void between the battens.

6 ASSESSMENT OF STRUCTURE BORNE SOUND TRANSMISSION

Impact sound transmission results are provided in Table 7 below.

Results have been corrected for the measured L_{fmax} sound levels. As discussed in Section 4.2, 6 weight drops were repeated for each test and the values shown are the highest measured for the applicable scenario.

Some measurements were inaudible, especially to the communal area where background sound levels were higher due to noise from adjoining residential apartments (e.g. talking, TV/radio, etc.). These situations have been omitted from the reported results for clarity.

Receptor	Test Method & Flooring Material	Measured LA _{fmax} dBA	Measured G Curve	Criteria G curve
2 nd Floor Apartment	Pliteq Predictive Method on rubber layer	61dB	>G50	-

Receptor	Test Method & Flooring Material	Measured LAfmax dBA	Measured G Curve	Criteria G curve
2 nd Floor Apartment	Kettlebell on Fit 70 & 1 x GenieMat FF25	34dB	G30	G15 – G20
2 nd Floor Apartment	Kettlebell on Fit 70 & 2 x GenieMat FF25	33dB	G30	G15 – G20
Ground Floor Retail Unit	Pliteq Predictive Method on rubber layer	67dB	>G50	-
Ground Floor Retail Unit	Kettlebell on Fit 70 & 2 x GenieMat FF25	40dB	G35	G35 – G50
1 st Floor Shopping Centre Concourse	Pliteq Predictive Method on rubber layer	65dB	>G50	-

Table 7: Impact sound transmission to residential apartment

Measured results indicate that there is significant impact sound transmission through the existing building.

Utilising a high-performance multi-layer resilient flooring system, comprising Pliteq's Fit 70 and two layers of their GenieMat FF25 achieved a resultant sound level in the residential apartment of G30. This exceeds the required criteria by up to 10dB based on 24-hour usage of the gym.

It is recommended that any areas where there is potential for heavy impacts (including free weights, slam balls, tractor tyres, pin-loaded resistance machines, etc.) are likely to require a jacked-up floating floor system with resilient layer above. Companies such as Mason-UK will be able to provide guidance based on their specific product line.

It is recommended that a further test is conducted using a test rig of a jacked-up floor along with additional resilient layers above to develop a final design for the appropriate flooring system. This test would be carried out as the development design is progressed once planning consent has been granted.

The Fit 70 and 2 x GenieMat FF25 system already achieved impact sound transmission levels within the required range of criteria to the adjoining retail units and therefore any slightly higher performance floor options developed to achieve acceptable levels in the residential apartments will ensure even better levels of sound transmission to the commercial receptors accordingly.

Areas of the gym where there is no potential for heavy impacts, such as low impact cardio areas (e.g. rowing machines/exercise bikes) could reduce the flooring build-up to a simple gym rubber top layer flooring. Detailed design of the flooring is beyond the scope of this report and should be developed once the final gym layout has been agreed.

If desired a planning condition may be included, ensuring that impact sound transmission during operation of the gym does not exceed the range of criteria set out in ProPG: Gym Acoustic Guidance, thereby protecting the amenity of adjoining residents.

7 NOISE FROM MECHANICAL SERVICES EQUIPMENT

The development is at an early stage and selection of equipment is yet to be finalised. However, it is assumed that new/replacement HVAC equipment items will be installed during the fit out of the new gym.

Based on results of the background sound level survey, shown in Section 4.3, it is recommended that the cumulative sound level of the equipment should be designed to achieve a rating level of **LAr 34dB** to outside the closest noise-sensitive receptor.

A minimum of 3dB character correction should be applied the specific sound level to account for the change in character of mechanical equipment compared to the current soundscape which is dominated by vehicle traffic. Any additional character corrections for tonality/impulsivity would be applied as necessary in accordance with the methodology in BS 4142.

It should be noted that there is existing equipment which was not operating at the time of the survey. It is possible that this pre-existing equipment would have increased sound levels from those measured and changed the soundscape accordingly, however, residents will have become accustomed to the current situation and therefore it is recommended that new equipment should be designed with this in mind.

A planning condition may be incorporated, setting the cumulative maximum at LAr 34dB.

8 CONCLUSION

The client is proposing to develop a new fitness gym at 1st floor level of the former Wilko's store at Unit B, Aberfan Shopping Centre, Port Talbot.

A scheme of noise mitigation measures has been developed to ensure that operational airborne and impact noise emissions from the gym achieve acceptable sound levels to adjoining and nearby receptors.

A maximum permissible noise level has been proposed for any future mechanical plant, to control emissions to ensure a good standard of amenity for closest receptors.

It is the author's opinion that with recommendations suggested in this report, the acoustic impact of the proposed new fitness gym should not be detrimental to the amenity of occupants of the adjoining residential properties.

Appendix A

Sound Insulation Test Results

Level Difference Measured in Accordance with ISO 16283-1

Field measurements of airborne sound insulation between rooms

Project Name Gym, Aberfan Shopping Centre, Port Talbot
Project Reference 250805

Client ET Planning
Test Date 18/08/2025

250805-AF01

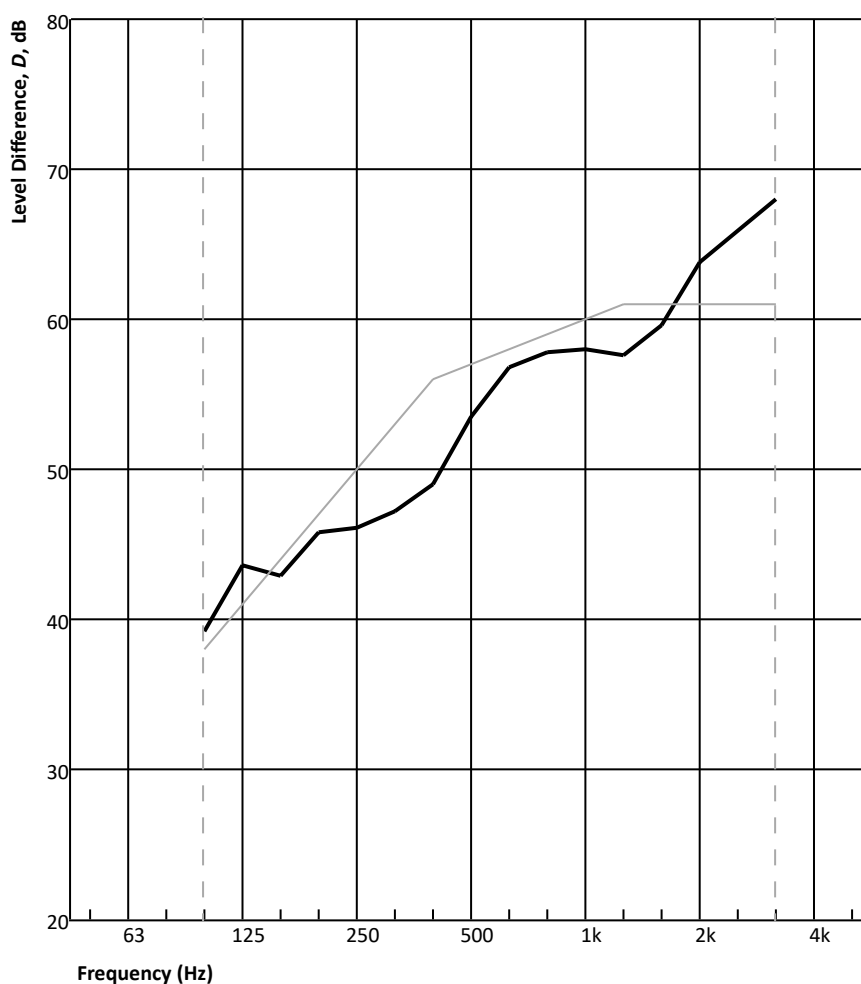
Test on Floor between Proposed Gym and Residential Flat

Description and identification of the building construction:

Source Room Volume (m³) -
Receive Room Volume (m³) -

--- Frequency range according to the
 — Curve of reference values (ISO 717-1)

	D (one-third octave) dB
50	-
63	-
80	-
100	39.2
125	43.6
160	42.9
200	45.8
250	46.1
315	47.2
400	49.0
500	53.5
630	56.8
800	57.8
1k	58.0
1,25k	57.6
1,6k	59.6
2k	63.8
2,5k	65.9
3,15k	≥ 68.0
4k	-
5k	-



Rating according to ISO 717-1

$D_w (C; C_{tr}) = 57 (-2; -5) \text{ dB};$

$C_{50-3150} = -2 \text{ dB}; C_{50-5000} = -1 \text{ dB}; C_{100-5000} = -1 \text{ dB}$

Evaluation based on field measurement results obtained by an engineering method

$C_{tr, 50-3150} = -8 \text{ dB}; C_{tr, 50-5000} = -8 \text{ dB}; C_{tr, 100-5000} = -5 \text{ dB}$

Date: 07/09/2025

Name of Test Institute: ACA Acoustics Limited

Report Reference: 250805 R1

Signature: Rob Cant

Level Difference Measured in Accordance with ISO 16283-1

Field measurements of airborne sound insulation between rooms

Project Name Gym, Aberfan Shopping Centre, Port Talbot
Project Reference 250805

Client ET Planning
Test Date 18/08/2025

250805-AF02

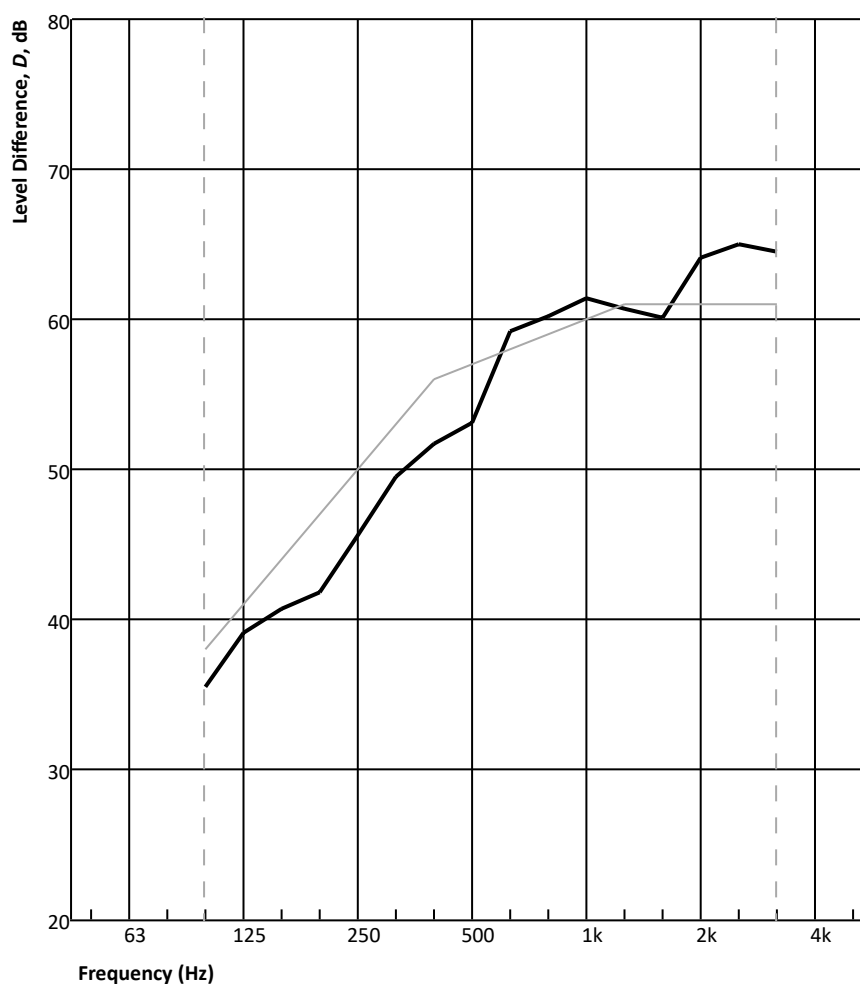
Test on Floor between Proposed Gym and Ground Floor Retail

Description and identification of the building construction:

Source Room Volume (m³) -
Receive Room Volume (m³) -

--- Frequency range according to the
 — Curve of reference values (ISO 717-1)

	D (one-third octave) dB
50	-
63	-
80	-
100	35.5
125	39.1
160	40.7
200	41.8
250	45.6
315	49.5
400	51.7
500	53.1
630	≥ 59.2
800	≥ 60.2
1k	≥ 61.4
1,25k	≥ 60.7
1,6k	≥ 60.1
2k	≥ 64.1
2,5k	≥ 65.0
3,15k	≥ 64.5
4k	-
5k	-



Rating according to ISO 717-1

$D_w (C; C_{tr}) = 57 (-2; -7) \text{ dB};$

$C_{50-3150} = -2 \text{ dB}; C_{50-5000} = -1 \text{ dB}; C_{100-5000} = -1 \text{ dB}$

Evaluation based on field measurement results obtained by an engineering method

$C_{tr, 50-3150} = -8 \text{ dB}; C_{tr, 50-5000} = -8 \text{ dB}; C_{tr, 100-5000} = -7 \text{ dB}$

Date: 07/09/2025

Name of Test Institute: ACA Acoustics Limited

Report Reference: 250805 R1

Signature: Rob Cant

Level Difference Measured in Accordance with ISO 16283-1

Field measurements of airborne sound insulation between rooms

Project Name Gym, Aberfan Shopping Centre, Port Talbot
Project Reference 250805

Client ET Planning
Test Date 18/08/2025

250805-AW01

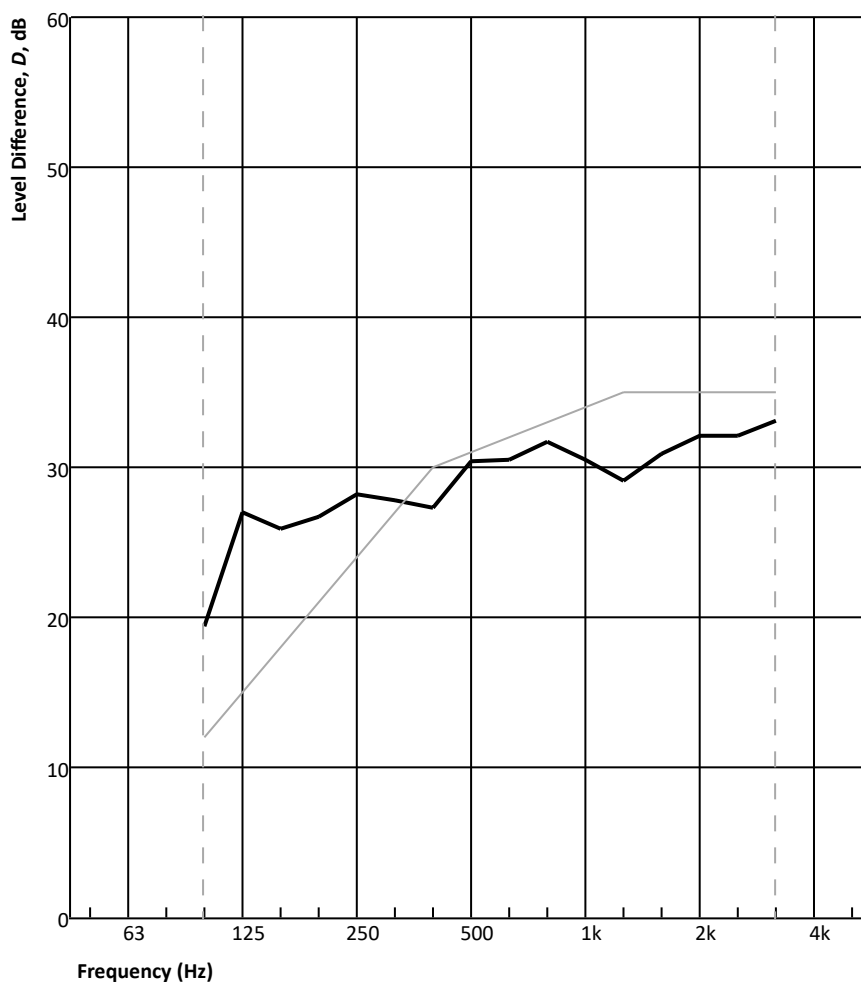
Test on Wall between Proposed Gym and Shopping Centre Concourse

Description and identification of the building construction:

Source Room Volume (m³) -
Receive Room Volume (m³) -

--- Frequency range according to the
 — Curve of reference values (ISO 717-1)

	D (one-third octave) dB
50	-
63	-
80	-
100	19.4
125	27.0
160	25.9
200	26.7
250	28.2
315	27.8
400	27.3
500	≥ 30.4
630	≥ 30.5
800	31.7
1k	≥ 30.5
1,25k	≥ 29.1
1,6k	≥ 30.9
2k	32.1
2,5k	32.1
3,15k	33.1
4k	-
5k	-



Rating according to ISO 717-1

$D_w (C; C_{tr}) = 31 (0; -2) \text{ dB};$

$C_{50-3150} = 0 \text{ dB}; C_{50-5000} = 0 \text{ dB}; C_{100-5000} = 0 \text{ dB}$

Evaluation based on field measurement results obtained by an engineering method

$C_{tr, 50-3150} = -2 \text{ dB}; C_{tr, 50-5000} = -2 \text{ dB}; C_{tr, 100-5000} = -2 \text{ dB}$

Date: 07/09/2025

Name of Test Institute: ACA Acoustics Limited

Report Reference: 250805 R1

Signature: Rob Cant