

To: Adrian Perry
Client: Foundry Gym PT Limited
Project: Unit B, Aberfan Shopping Centre, Port Talbot
Reference: 260205-R001A
Report date: February 20, 2026
Author: Tommy Burn BSc (Hons) MIOA
Checked: Rob Cant MIOA MEnvSc

Planning Application Reference P2025/0664

Conditions 3 & 8

Planning consent has been granted for the change of use of Unit B, Aberafan Shopping Centre, Port Talbot, for the use of a fitness gym, subject to various conditions.

Conditions 3 & 8 relate to the control of operational noise and vibration from the gym to adjoining residential areas. The conditions are included below for ease of reference.

3. *Prior to the commencement of development on site, a scheme for sound insulation of the floor/ceiling/walls separating the commercial part(s) of the premises from noise sensitive premises shall be submitted to and approved in writing by the Local Planning Authority. The scheme shall demonstrate that the impact sound insulation value $L'_{nT,w}$ is enhanced by at least 20dB above the Building Regulations value. The airborne sound insulation value $D_{nT,w}$ shall be enhanced by at least 20dB above the Building Regulations value from any areas of the premises where amplified voice/music sound levels exceed L_{Aeq} 76dB. Where necessary, additional mitigation measures shall be implemented to contain commercial noise within the commercial premises and to achieve the criteria of BS 8233:2014 within noise sensitive premises. The approved details shall be implemented prior to the first beneficial use of the development and shall be retained as such thereafter.*
8. *No vibration shall be transmitted to adjoining or other premises and structures through the building structure and fabric of this development as to cause a vibration dose value of greater than $0.4m/s^{(1.75)}$ 16 hour day-time nor $0.26 m/s^{(1.75)}$ 8 hour night-time as defined by BS 6472 (2008) in any part of a residential and other noise sensitive property.*

SOUND INSULATION SCHEME & SITE TESTING

ACA Acoustics have visited site along with the proposed gym operator to develop a final scheme for the control of noise emissions from the gym.

Details of the testing and proposed mitigation scheme are included below.

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Acoustic Flooring Scheme

Confirmation of the final acoustic flooring scheme is shown in the image below, including the different usage areas of the gym.

This also includes confirmation of the measurement positions, used during the site testing (marked A to E).



Figure 1: Proposed scheme of acoustic flooring and gym layout

Impact Sound Insulation Testing

Impact sound insulation tests have been carried out between the gym and residential areas above. Tests were conducted at Position A, being the only part of the gym directly below the residential flats, and Position B, being the closest point of gym activity to the residential receptors.

A tapping machine (type NTi Audio type NTI-TM3, s/n TPC 2340) was placed on a layer of 20mm SBR Rubber Flooring at measurement Position A. ACA Acoustics' consultant used a Svantek Class 1 sound level meter type SV971A (s/n 121131) to undertake 30 second sound level measurements in the residential corridor, using the moving microphone method. The tapping machine was then moved and the tests repeated. A background sound level measurement was then taken with the tapping machine switched off.

The tests were then repeated for Position B.

The impact sound insulation tests were carried out in accordance with BS 16283-2:2018. Results and single-figure rating have been provided in accordance with BS EN ISO 717-2:2004.

It should also be noted that the testing at both positions used only the 20mm SBR Rubber Flooring. This is intended for areas where there will be no heavy impact activity occurring. The actual flooring at Position B will include the 20mm EVA layer below the 20mm SBR Rubber Flooring, further improving the impact sound insulation performance.

Summary results are provided in the table below. Full results in graphical form are included in Appendix A.

Source Room	Receiving Room	Measured LnT,w	Building Regulations Maximum LnT,w	Excess
Gym Position A	Residential Corridor	31dB	≤64dB	-33dB
Gym Position B	Residential Corridor	28dB	≤64dB	-36dB

Table 1: Impact sound insulation test results

Results of the impact sound insulation tests are at least 33dB enhanced above the Building Regulations value. This fully complies with the minimum performance standards set out in Planning Condition 3.

Heavy Weight Drop Testing

Weight drop testing has been carried out for a variety of potential sources within the new gym, in accordance with Method 2 Testing of ProPG: Gym Acoustic Guidance.

Relevant weight/activities have been dropped for the different gym areas shown on the plan in Figure 1.

Through testing on site it was determined that no activities which could result in heavy impacts could be undertaken in the “Entrance and Shop” zone on the plan (coloured green), immediately below the residential flats. A standard 20mm SBR Rubber Flooring gym type floor will be used in this area. The same flooring will also be used in the “General Weight and Equipment Area” (coloured red). It is recommended that no activities which could result in regular heavy impacts should be conducted in this space.

The client brought in a pin-loaded weight machine for use in the testing. It was determined that airborne noise caused by the weight bars impacting on each other caused the sound transmission to exceed required levels when these machines were located beyond the second row of columns. Therefore, the pin-loaded weight machines should only be installed along the row of columns at Position C or further

removed from the flats. Plate loaded machines, which don't have metal-on-metal contact, may be installed within the zone between Positions B and C.

The criteria is provided in terms of guideline values from BS 8233:2014. This recommends internal sound levels of LAeq, 16-hour 35dB to living rooms and bedrooms during the daytime and LAeq, 8-hour 30dB to bedrooms overnight. These are 16-hour and 8-hour energy averaged values. This means that gaps between activities in the gym will reduce the achieved overall LAeq value in the flat.

To ensure a robust assessment ACA Acoustics have measured the 30-second LAeq value with 5 weight drops/gym activity occurring during the measurement period. It is very unlikely that this level of activity would occur regularly during normal gym usage. This means that the LAeq sound level over a longer assessment/measurement period will be lower than these test results when the gym is in operation.

Background sound levels were then measured in the residential corridor and the results corrected to account for the influence of background noise to determine the specific sound level of the weight drop/activity.

Summary of the test results are shown in the table below.

Source Position	Activity	Measured Specific LAeq	BS 8233:2014 Criteria	Excess
Gym Position C	Pin-loaded weight machine. 30kg weight dropped from maximum height of machine.	26dB	≤30dB	-4dB
Gym Position D	60kg dumbbell dropped from 0.5m	27dB	≤30dB	-3dB
Gym Position E	8kg slam ball dropped with force from head height	19dB	≤30dB	-11dB

Table 2: Heavy weight/activity sound transmission test results

Measured sound transmission from typical gym activity are below BS 8233:2014 criteria and comply with the requirements of Planning Condition 3.

Heavy Weight Drop Testing – Vibration

In addition to the measurement of structure-borne sound transmission, vibration measurements were also recorded during the weight drop/activity testing.

A Rion Vibration Analyser (type XV-2P, s/n 380062) was set up in the residential corridor to measure the level of vibration transmission through the structure during the tests. 30-second measurements were recorded, with the 5 weight drops occurring as discussed above. This measured value was then assumed

to repeat throughout a 24-hour period, to determine the Vibration Dose Value as defined in BS 6472-1:2008.

Results of the vibration testing are included in the table below.

Source Position	Activity	Axis	Measured VDV (m/s ^{1.75})	Criteria	Excess
Gym Position C	Pin-loaded weight machine. 30kg weight dropped from maximum height of machine.	X	0.0017	0.2600	-
		Y	0.0006	0.2600	-
		Z	0.0114	0.2600	-
Gym Position D	60kg dumbbell dropped from 0.5m	X	0.0040	0.2600	-
		Y	0.0012	0.2600	-
		Z	0.0168	0.2600	-
Gym Position E	8kg slam ball dropped with force from head height	X	0.0011	0.2600	-
		Y	0.0009	0.2600	-
		Z	0.0117	0.2600	-

Table 3: Heavy weight/activity vibration transmission test results

Vibration transmission from gym activity and heavy weight drops are significantly below the required criteria and fully comply with the requirements of Planning Condition 8.

Amplified Music/Speech

The client has confirmed that no amplified music or speech will be played at a level above LAeq 76dB at any position within the gym. A music volume limiter will be installed to ensure compliance with this criterion.

As such, no enhancement is required to the airborne sound insulation performance offered by the existing building structure and airborne sound transmission will comply with the requirements of Planning Condition 3.

Conclusion

A scheme of noise and vibration testing has been carried out and confirmed that the proposed mitigation scheme fully complies with the criteria set out in Condition 3 and 8 of Decision Notice P2025/0664. The design element of these conditions may be discharged.

Normalized Impact Sound Pressure Level according to ISO 140-7

Field measurements of impact sound insulation of floors

Client: Estama (UK) Limited

Date of test: 06/02/2026

Description and identification of the building construction and test arrangement:

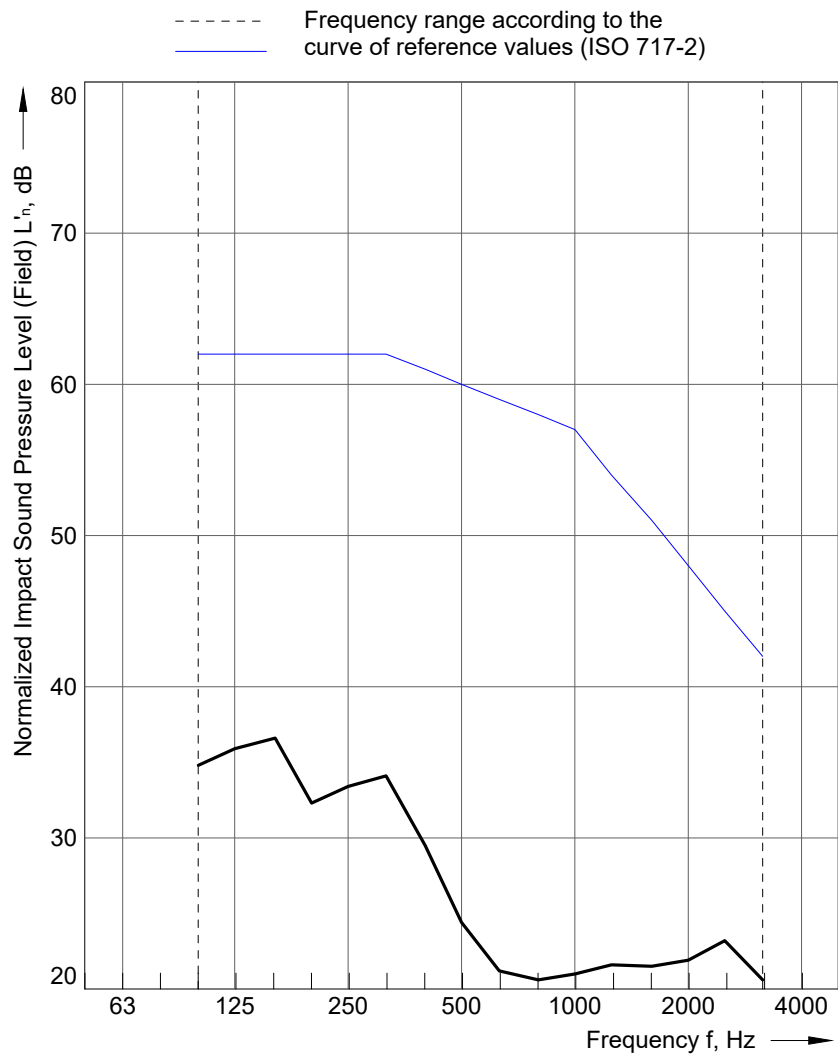
Existing building construction. Impact test carried out on 25mm resilient flooring layer.

Source Room: Gym - Position A

Receiving Room: Residential Corridor

Receiving room volume V: 30.00 m³

Frequency f Hz	L' _n 1/3 Octave dB
50 63 80	
100 125 160	34.8 35.9 36.6
200 250 315	32.3 33.4 34.1
400 500 630	29.5 24.4 21.2
800 1000 1250	20.6 21.0 21.6
1600 2000 2500	21.5 21.9 23.2
3150 4000 5000	20.6



Rating according to ISO 717-2

$$L'_{n,w} (C_i) = 31 (-3) \text{ dB}$$

$$C_{i,50-2500} = \text{N/A dB}$$

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

No. of test report: 260205-SI-01

Name of test institute: ACA Acoustics Limited

Date: 11/02/2026

Signature: R. Cant

Normalized Impact Sound Pressure Level according to ISO 140-7

Field measurements of impact sound insulation of floors

Client: Estama (UK) Limited

Date of test: 06/02/2026

Description and identification of the building construction and test arrangement:

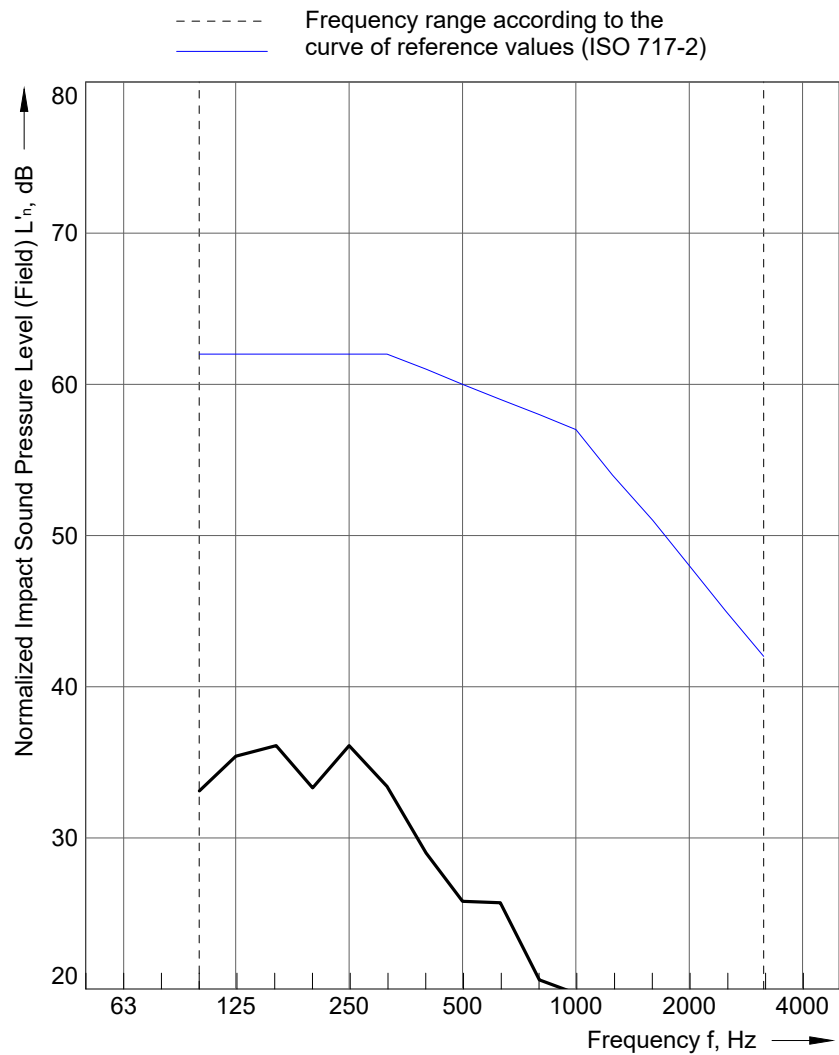
Existing building construction. Impact test carried out on 25mm resilient flooring layer.

Source Room: Gym - Position B

Receiving Room: Residential Corridor

Receiving room volume V: 30.00 m³

Frequency f Hz	L' _n 1/3 Octave dB
50 63 80	
100 125 160	33.1 35.4 36.1
200 250 315	33.3 36.1 33.4
400 500 630	29.0 25.8 25.7
800 1000 1250	20.6 19.7 14.1
1600 2000 2500	16.3 15.0 14.7
3150 4000 5000	12.6



Rating according to ISO 717-2

$$L'_{n,w} (C_i) = 28 (0) \text{ dB}$$

$$C_{i,50-2500} = \text{N/A dB}$$

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

No. of test report: 260205-SI-02

Name of test institute: ACA Acoustics Limited

Date: 11/02/2026

Signature: R. Cant