

fisher acoustics

Plot F1 Great Jackson Street,
Manchester

Amenity Noise Impact Assessment

June 2026

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PROJECT TITLE PLOT F1, GREAT JACKON STREET, MANCHESTER

REPORT TITLE	AMENITY NOISE IMPACT ASSESSMENT
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1.0 SUMMARY

Fisher Acoustics Ltd has been commissioned by Renaker Build Limited to conduct a residents amenity noise impact assessment to respond to condition 51a of the planning approval for Plot F1, Great Jackson Street, Manchester (planning reference 143143/JO/2025).

Condition 51 states:

- 51) a) *The residential amenity areas, including any gymnasium, within Phase 2 shall be acoustically insulated and treated to limit the break out of noise in accordance with a noise study of the premises and a scheme of acoustic treatment that has been submitted to and approved in writing by the City Council as local planning authority. The scheme shall be implemented in full before first occupation of the premises within Phase 2.*

Where entertainment noise is proposed the LAeq (entertainment noise) shall be controlled to 5dB below the LA90 (without entertainment noise) in each octave band at the facade of the nearest noise sensitive location, and internal noise levels at structurally adjoined residential properties in the 63 Hz and 125 Hz octave frequency bands shall be controlled so as not to exceed (in habitable rooms) 47dB and 41dB (Leq,5min), respectively.

b) Prior to occupation of Phase 2 of the development a verification report to validate that the work undertaken throughout Phase 2 of the development conforms to the recommendations and requirements in the approved acoustic consultant's report shall be submitted to and approved in writing by the City Council as local planning authority. The verification report shall include post completion testing to confirm that acceptable criteria have been met. Any instances of non-conformity with the recommendations in the report shall be detailed along with any measures required to ensure compliance with the agreed noise criteria and timescales for the implementation of those measures.

Reason - To safeguard the amenities of the occupiers of the building and occupiers of nearby properties, pursuant to policies SP1 and DM1 of the Core Strategy.'

Maximum recommended airborne noise levels within the residents amenity areas have been determined such that compliance with guidance published by Manchester City Council can be achieved.

Impact noise due to the dropping of free weights is to be controlled to acceptable levels by proprietary resilient gym flooring.

2.0 INTRODUCTION

Fisher Acoustics Ltd has been commissioned by Renaker Build Limited to conduct a noise impact assessment to respond to condition 51a of the planning approval for Plot F, Great Jackson Street, Manchester (planning reference 143143/JO/2025).

Condition 51a requires that a noise study is conducted that demonstrates that appropriate noise levels are achieved at pre-existing noise sensitive receptors and within residential areas in Plot F1 due to activity noise from the amenity areas of the development.

This report responds to condition 51a and in particular advises on the maximum allowable internal noise levels within the amenity spaces to achieve compliance with the noise criteria stipulated in the planning condition.

An assessment of impact noise transmission from the proposed residents' gym to the residential apartments above is also provided.

3.0 DESCRIPTION OF SITE

The overall Plot F development proposals are for the erection of two 51 storey residential towers (Plot F1 & Plot F2) comprising a total of 984 apartments (Use Class C3) and internal residential amenity uses, private car parking and cycle parking facilities within two basement levels, together with public realm, highway and associated works.

Plot F1 will provide 490 apartments.

The residential amenity spaces are to be located on the ground floor and Level 1 of the tower and are proposed to include lounges, shared workspaces and a gym.

Figure 1 shows the location of Plot F1 in the context of the overall Plot F development site.

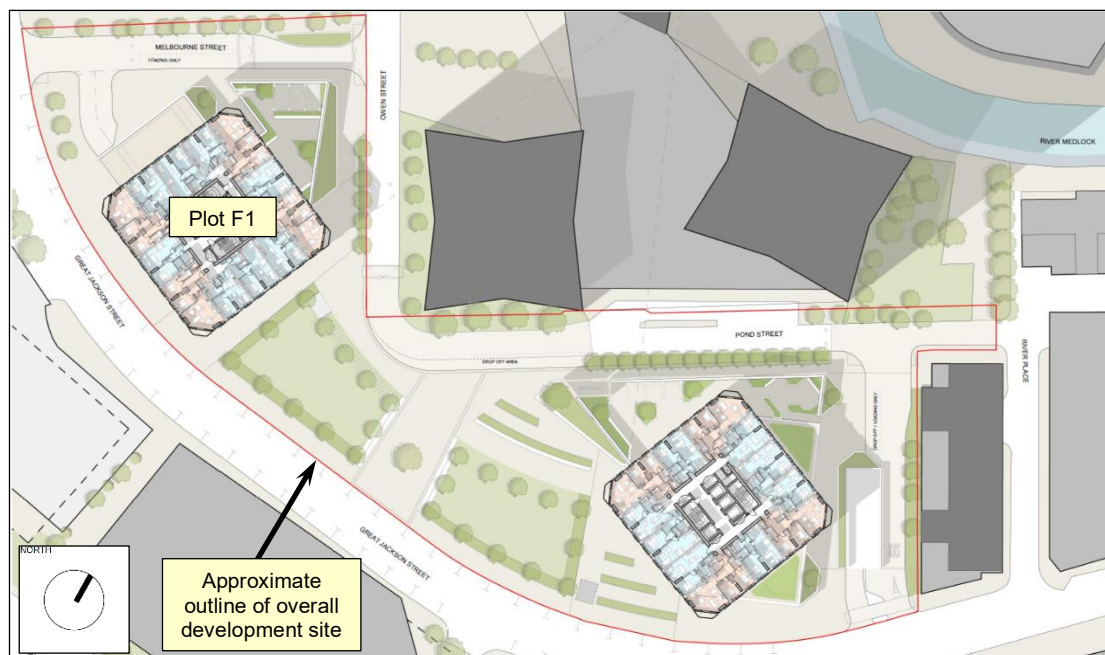


Figure 1: Site location plan – Plot F1, Great Jackson Street

4.0 LOCATION OF AMENITY AREAS

The proposed amenity areas are to be located internally on ground floor and Level1 of Plot F1.

The amenity areas on the Ground floor are:

- Reception/ Lounge
- Co-working
- Office
- External terrace.

The amenity areas on Level 1 are:

- Gym
- Studio
- Event/ Create space
- Residents Lounge
- Games room
- Private Dining rooms

With regard to potential noise disturbance of the residential occupiers, only the amenity areas with music replay have been considered and therefore the Reception/ Lounge, Co-working, Office, Event/ Create space and external terrace are not included in this assessment.

Figure 2 shows the location of the Level 1 residents amenity areas. There are no residents amenity areas on the ground floor that could generate potentially disturbing levels of music noise.

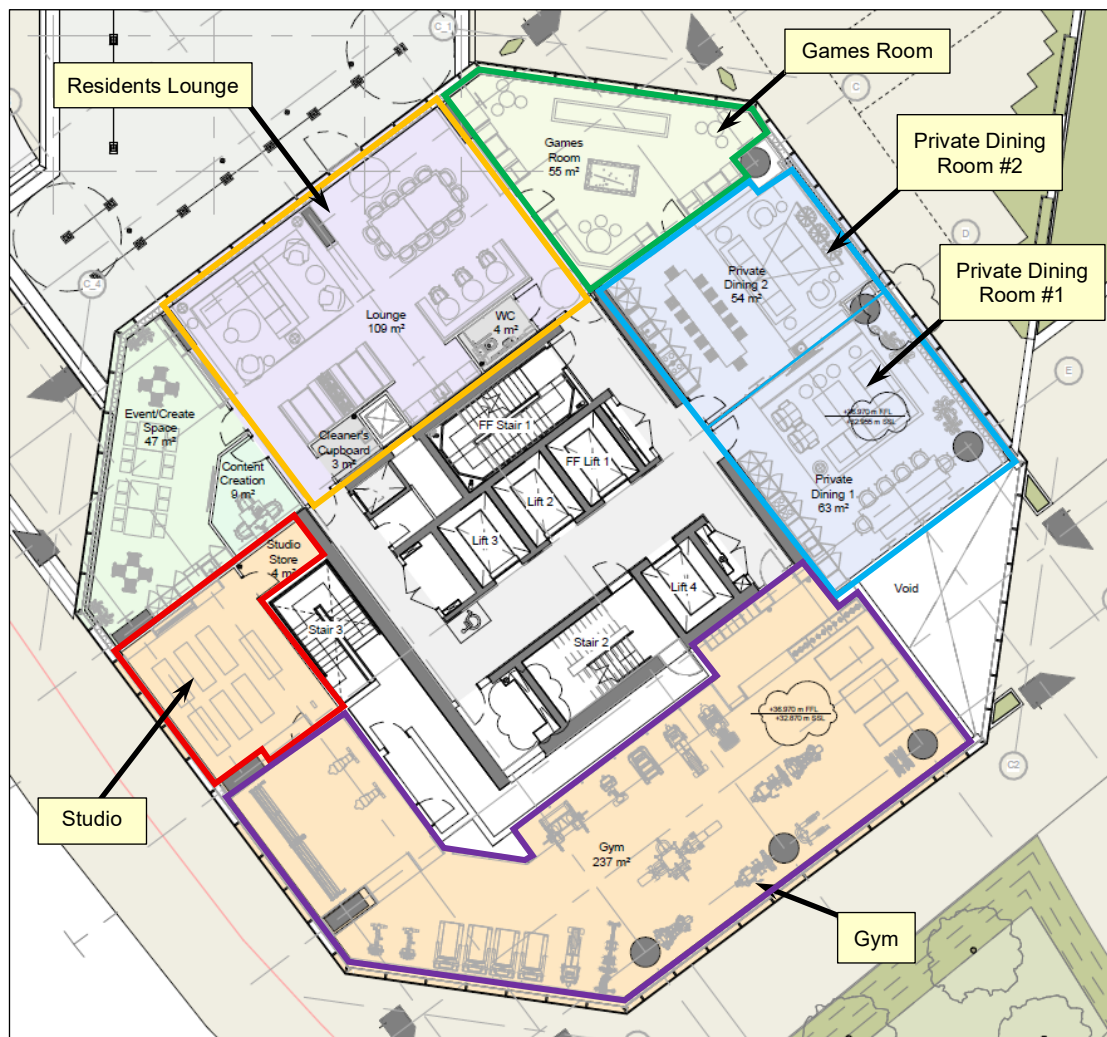


Figure 2: Level 1 plan - location of Gym, Studio, Residents Lounge, Games Room and Private Dining Rooms

Figure 3 overlays the footprint of each Level 1 amenity area onto the Level 2 floor plan.

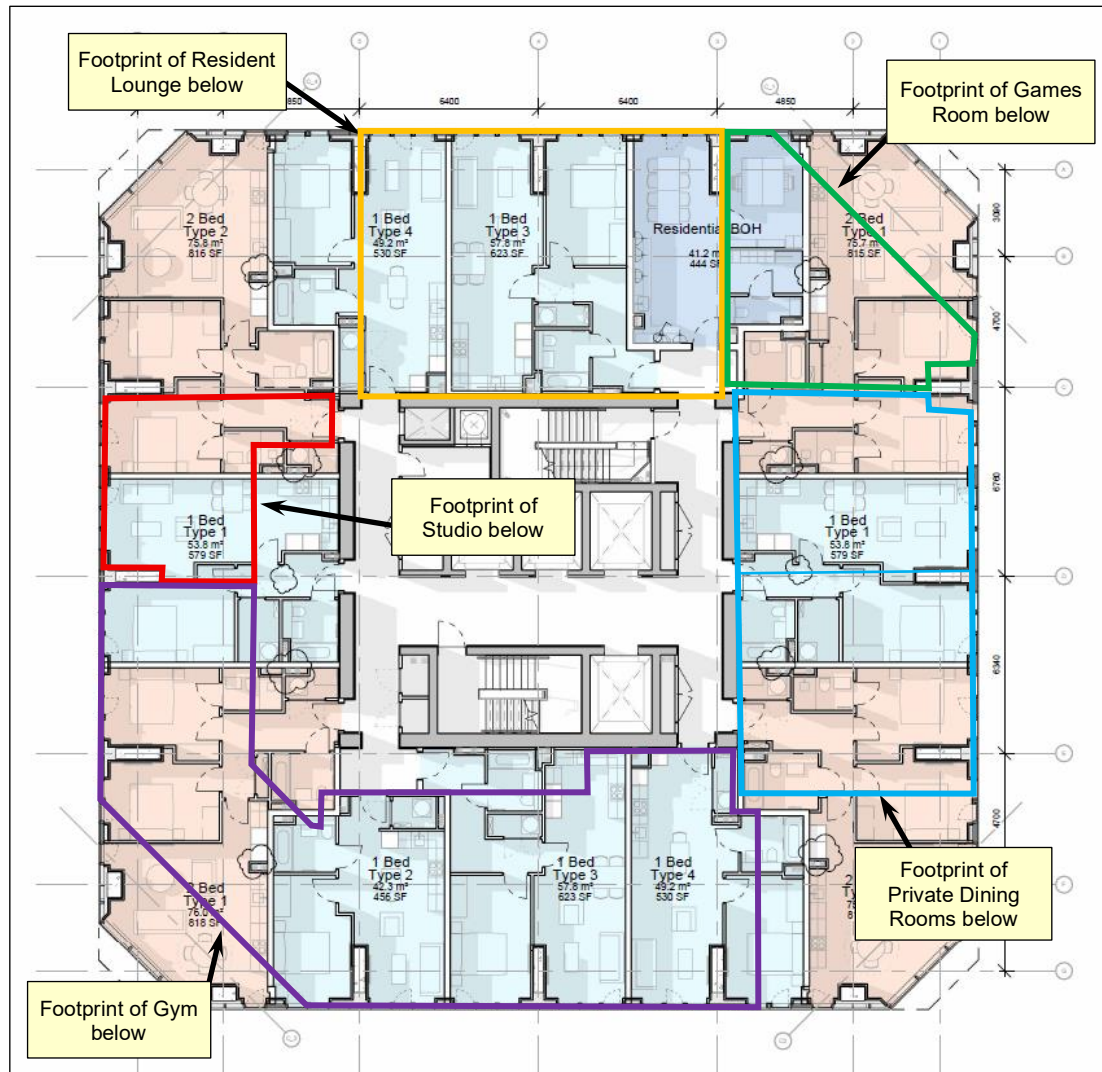


Figure 3: Level 2 floor plan showing footprint of Amenity areas below

5.0 PLANNING CONDITION

Planning condition 51 of the Planning Permission for Plot F1, reference: 143143/JO/2025, dated 18 February 2026, states:

- *'51) a) The residential amenity areas, including any gymnasium, within Phase 2 shall be acoustically insulated and treated to limit the break out of noise in accordance with a noise study of the premises and a scheme of acoustic treatment that has been submitted to and approved in writing by the City Council as local planning authority. The scheme shall be implemented in full before first occupation of the premises within Phase 2.*

Where entertainment noise is proposed the LAeq (entertainment noise) shall be controlled to 5dB below the LA90 (without entertainment noise) in each octave band at the facade of the nearest noise sensitive location, and internal noise levels at structurally adjoined residential properties in the 63Hz and 125Hz octave frequency bands shall be controlled so as not to exceed (in habitable rooms) 47dB and 41dB (Leq,5min), respectively.

b) Prior to occupation of Phase 2 of the development a verification report to validate that the work undertaken throughout Phase 2 of the development conforms to the recommendations and requirements in the approved acoustic consultant's report shall be submitted to and approved in writing by the City Council as local planning authority. The verification report shall include post completion testing to confirm that acceptable criteria have been met. Any instances of non-conformity with the recommendations in the report shall be detailed along with any measures required to ensure compliance with the agreed noise criteria and timescales for the implementation of those measures.

Reason - To safeguard the amenities of the occupiers of the building and occupiers of nearby properties, pursuant to policies SP1 and DM1 of the Core Strategy.'

6.0 NOISE SENSITIVE RECEPTORS

Figure 4 identifies the nearest noise sensitive receptors to Plot F1. The buildings that are not identified as 'noise sensitive receptors' in Figure 4 are at a greater distance from the proposed development than the identified receptors and are subject to similar levels of pre-existing ambient noise. Thus, if satisfactory conditions are expected at the assessed receptors, then satisfactory conditions can also be expected at any other buildings.

It should be noted that Plot F1 itself is a noise-sensitive receptor due to the residential dwellings at and above Level 2 of the building.

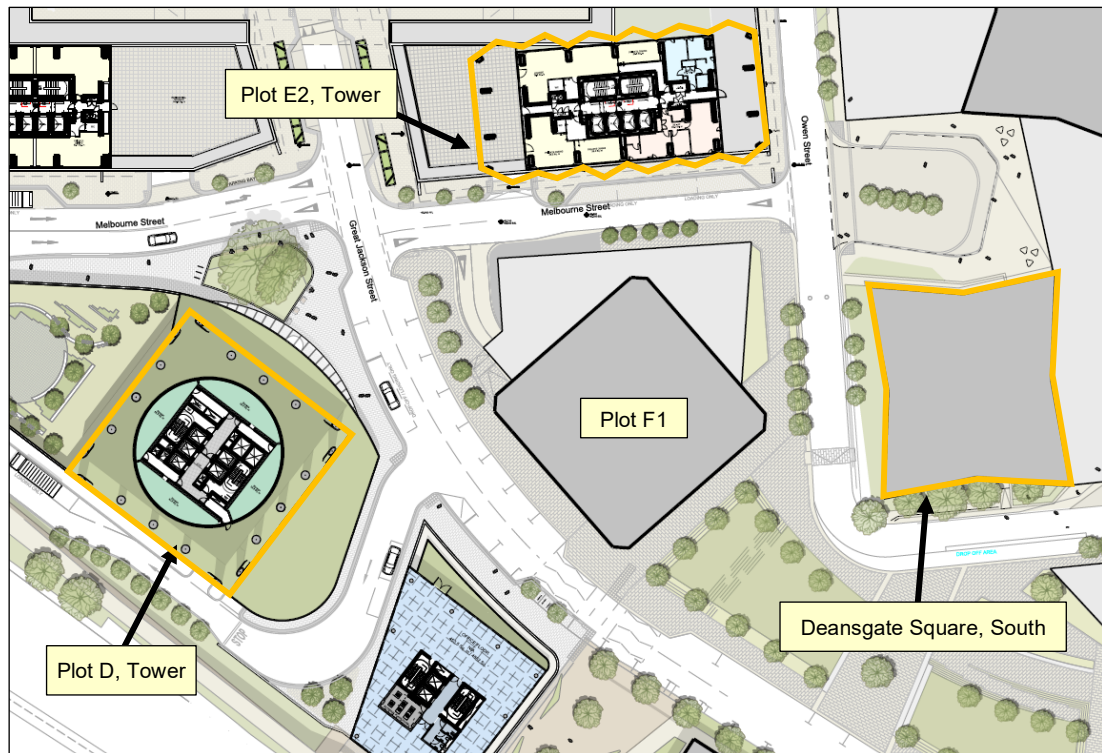


Figure 4: Noise sensitive receptors in the vicinity of the development

7.0 ENVIRONMENTAL NOISE SURVEYS AND EXTERNAL NOISE CRITERIA

The Environmental Impact Assessments that were conducted as part of the planning submission for the development of Plot F and the adjacent Crown Street Phase 3 development included noise surveys at and around the various noise sensitive receptors in the vicinity of Plot F. The results of the noise surveys allow the establishment of the maximum allowable external noise levels at the closest noise sensitive receptors due to activity noise breakout from the amenity areas.

Table 1 identifies the maximum allowable cumulative daytime and night time free-field external noise levels at the closest residential façades due to activity noise breakout from the amenity areas to comply with the noise criterion of condition 51.

Period	Sound Pressure Level (dB Leq) @ Octave Band Centre Frequency (Hz)						
	63	125	250	500	1k	2k	4k
Proposed Residential Tower, F1 (0700 to 2300)	58	52	50	48	49	43	34
Proposed Residential Tower, F1 (2300 to 0700)	47	40	40	40	45	36	22
Residences, Deansgate Square (0700 to 2300)	49	46	48	48	52	44	31
Residences, Deansgate Square (2300 to 0700)	49	46	48	48	46	39	29
Proposed Residential Tower, Plot D (07:00 to 23:00)	58	52	50	48	49	43	34
Proposed Residential Tower, Plot D (23:00 to 07:00)	47	40	40	40	45	36	22
Proposed Residential Tower, Plot E2 (07:00 to 23:00)	47	44	46	46	50	43	30
Proposed Residential Tower, Plot E2 (23:00 to 07:00)	47	40	42	42	43	36	23

Table 1: Maximum allowable external music noise levels due to proposed amenity areas

8.0 INTERNAL NOISE TRANSFER

With regard to internal noise transfer from the Plot F1 amenity areas to the residential areas, condition 51a identifies noise limits at 63 Hz and 125 Hz but does not provide noise limits at frequency bands above 125 Hz. Section 3.7.1.2 'Entertainment Venues' of 'Planning & Noise, Technical Guidance', issued October 2022 by the Environmental Protection, Environmental Health and The Neighbourhoods Service sections of Manchester City Council states that in relation to entertainment noise 'the [NR15] curve may be too stringent at mid and higher frequencies'. It is therefore suggested that at frequency bands above 125 Hz, the allowable noise level in apartments due to entertainment (music) noise from adjoining amenity spaces lies between NR15 and NR20.

With reference to the above, in order to comply with the requirements of condition 51a and to achieve acceptable noise levels generally, it is recommended that the internal noise levels within an apartment due solely to music replay in the amenity areas do not exceed the values given in Table 2.

Location	Sound Pressure Level (dB Leq) @ Octave Band Centre Frequency (Hz)						
	63	125	250	500	1k	2k	4k
Apartments above amenity areas	47	41	26	20	17	15	12

Table 2: Maximum recommended noise levels in residential apartments due to music replay in amenity areas

The structural floor between the amenity areas and the apartments directly above is a 250 mm thick flat concrete slab. In addition, plasterboard ceilings are to be installed in all Level 1 amenity area except the gym and gym studio, which are to be provided with acoustic ceiling tiles and timber ceiling panels respectively. Given the party floor slab and the proposed ceilings, Table 3 identifies the calculated maximum allowable music noise levels in the Level 1 amenity areas without exceeding the noise limits given in Table 2.

Room	Sound Pressure Level (dB Leq) @ Octave Band Centre Frequency (Hz)						
	63	125	250	500	1k	2k	4k
Gym	80	77	75	78	78	78	78
Gym Studio	80	78	76	78	78	78	78
Residents Lounge	82	80	78	82	80	80	80
Games Room	82	80	78	82	80	80	80
Private Dining Rooms	82	80	78	82	80	80	80

Table 3: Maximum allowable noise levels in Level 1 amenity areas – re internal noise transfer

The allowable music noise levels identified in Table 3 would allow relatively high levels of background music replay in the amenity areas, such that compliance can be achieved with the guidance published by Manchester City Council.

9.0 ACTIVITY NOISE BREAKOUT FROM AMENITY AREAS

NOISE EGRESS CALCULATIONS

Noise egress calculations have been carried out to determine the expected noise level at the closest residential properties due to activity noise breakout from the proposed amenity areas.

The amenity areas are to be fully mechanical ventilated and cooled spaces such that the opening of windows and doors is not required to ventilate the spaces. Therefore, the determinant of the sound insulation performance of the external envelope will be the glazed curtain wall.

The glazing specification to the amenity spaces curtain wall, installed as part of the main construction contract for Plot F1, is as follows:

- Double glazing of 16.8 mm laminated glass / 16 mm cavity / 13.5 mm laminated glass

The expected minimum weighted sound reduction index of the curtain wall fixed units are given in Table 4.

Building element	Sound Reduction Index (dB) @ Octave Band Centre Frequency (Hz)						
	63	125	250	500	1k	2k	4k
Curtain wall, glazed with 16.8 mm laminate/ 16 mm cavity/ 13.5 mm laminate	18*	27	39	37	40	51	64

Table 4: Expected sound reduction index of Level 1 amenity areas curtain wall

Calculations have been carried out to determine the maximum allowable internal noise levels within the amenity spaces. The exterior curtain wall does not have any patron entrance doors at Level 1 and therefore only daytime and night time calculations have been made with a sealed façade such that the external noise limits identified in Table 1 are not exceeded. Table 5 identifies the calculated noise levels.

Location	Period	Sound Pressure Level (dB Leq) @ Octave Band Centre Frequency (Hz)						
		63	125	250	500	1k	2k	4k
Gym	(0700 hrs to 2300 hrs)	80	88	96	96	96	96	96
	(2300 hrs to 0700 hrs)	69	76	91	94	96	96	96
Studio	(0700 hrs to 2300 hrs)	89	96	96	96	96	96	96
	(2300 hrs to 0700 hrs)	78	85	96	96	96	96	96
Residents Lounge	(0700 hrs to 2300 hrs)	81	89	96	96	96	96	91
	(2300 hrs to 0700 hrs)	70	77	87	93	96	92	81
Games Room	(0700 hrs to 2300 hrs)	81	87	88	96	96	96	95
	(2300 hrs to 0700 hrs)	78	87	88	87	91	87	85
Private Dining Rooms	(0700 hrs to 2300 hrs)	87	93	96	96	96	96	96
	(2300 hrs to 0700 hrs)	76	83	96	96	96	96	96

Table 5: Maximum allowable internal activity noise levels due solely to breakout

OVERALL MAXIMUM ALLOWABLE INTERNAL NOISE LEVELS

Given the calculated allowable noise levels due to internal and external noise transfer, Table 6 identifies the overall maximum allowable internal activity noise levels, including music replay, within the amenity areas.

Location	Period	Sound Pressure Level (dB Leq) @ Octave Band Centre Frequency (Hz)						
		63	125	250	500	1k	2k	4k
Gym	(0700 hrs to 2300 hrs)	80	77	75	75	78	78	78
	(2300 hrs to 0700 hrs)	69	76	75	75	78	78	78
Studio	(0700 hrs to 2300 hrs)	80	78	76	78	78	78	78
	(2300 hrs to 0700 hrs)	78	78	76	78	78	78	78
Residents Lounge	(0700 hrs to 2300 hrs)	81	80	78	82	80	80	80
	(2300 hrs to 0700 hrs)	70	77	78	82	80	80	80
Games Room	(0700 hrs to 2300 hrs)	81	80	78	82	80	80	80
	(2300 hrs to 0700 hrs)	78	80	78	82	80	80	80
Private Dining Rooms	(0700 hrs to 2300 hrs)	82	80	78	82	80	80	80
	(2300 hrs to 0700 hrs)	76	80	78	82	80	80	80

Table 6: Overall maximum allowable internal activity noise levels, internal noise transfer & breakout

Given the proposed uses of the amenity spaces, compliance with the noise limits given in Table 6 is fully expected.

10.0 IMPACT SOUND TRANSFER FROM GYM

There is the potential for disturbance of residents due to the dropping of weights on the floor of the proposed gym. There is no statutory performance requirement in relation to the transfer of noise from gyms to residential areas. However, guidance has been jointly published by the Institute of Acoustics, the Association of Noise Consultants and the Chartered Institute of Environmental Health. In particular, ‘ProPG: Gym Acoustics Guidance’, published in March 2023, provides suggested maximum noise levels in residential dwellings due to both airborne and impact noise transfer from gyms.

Table 7 identifies the criteria for residential areas, with reference to the ‘G curves’ presented within ProPG: Gym Acoustics Guidance. G curves provide a way to reference sound spectra data in a single figure.

Receptor Type	Guide Criteria	
	Airborne Sound (e.g. music) Leq, T (31.5Hz to 8kHz)	Heavy Impact Sound Lmax,F (31.5Hz to 8kHz)
Residential Areas	G15-G25 (day)	G20-G25 (day)
	G10-G20 (night)	G15-G20 (night)

Table 7: Guidance Internal Sound Target Criteria for Gym Activity – Residential

It should be noted that the values in Table 2 to comply with the recommendations of Manchester City Council relating to internal music noise transfer more onerous than the upper noise limits of ‘ProPG: Gym Acoustics Guidance’ for daytime airborne noise transfer to residential areas and similar to the upper noise limits of ‘ProPG: Gym Acoustics Guidance’ for night time airborne noise transfer to residential areas. Therefore, the Manchester City Council noise limits have been designed to in relation to airborne noise transfer.

The ProPG guidance relates to all gyms, including commercial gyms. It could therefore be argued that the guidance is necessarily more onerous than needs to be the case for a gym that is solely for the use of the residents of the building, as the users of a residents-only gym can be instructed in the safe use of weights such that the dropping of weights on the floor does not occur frequently. In addition, the ProPG publication post-dates the planning submission for the Plot F development.

On this basis, it is not proposed to design for the impact noise targets of the ProPG. However, reasonable and practicable measures are proposed to mitigate occasional weight drops by users, as described below.

Figure 5 shows the proposed equipment layout within the gym. The proposed free weights area is highlighted.

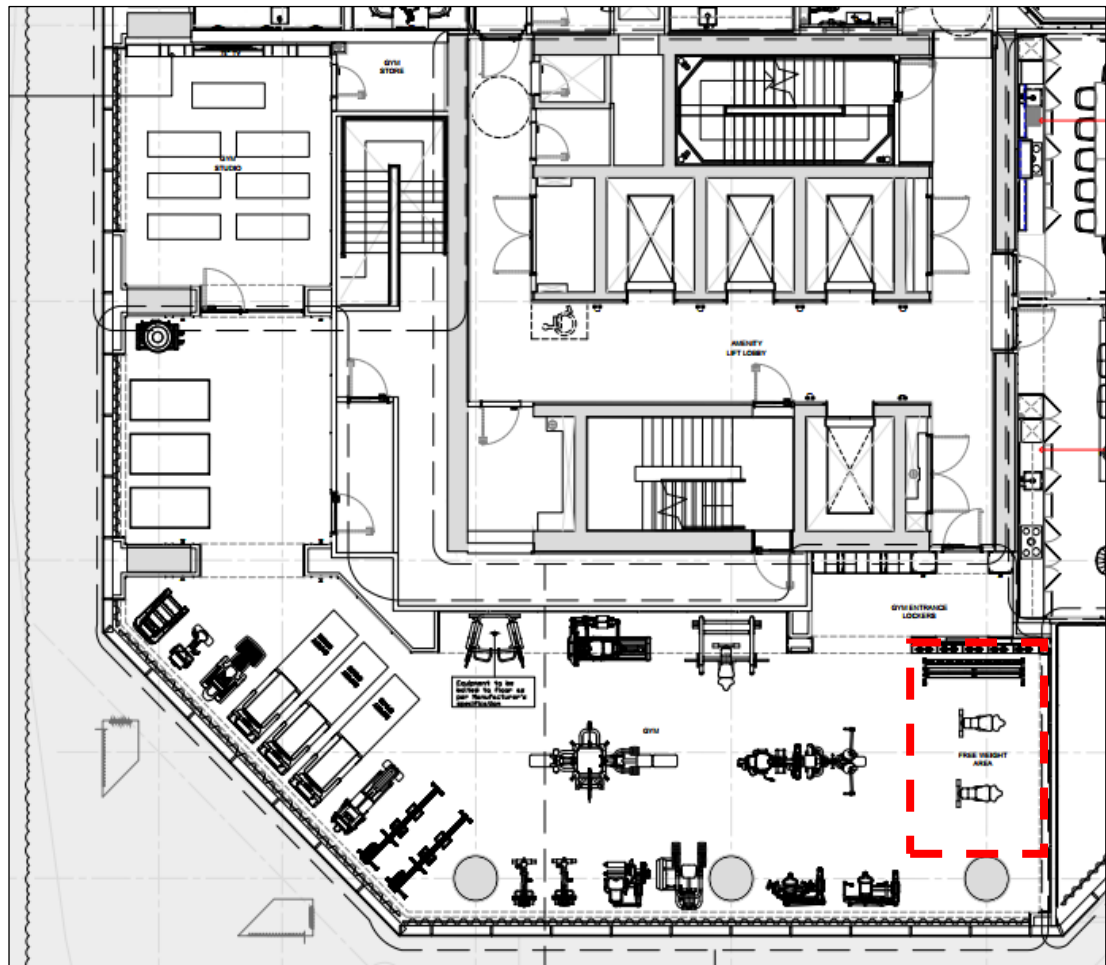


Figure 5: Level 1, Gym layout plan

Reasonable mitigation of impact noise due to the dropping of free weights can be achieved by the installation of a proprietary resilient floor coverings in the weights area of the gym.

The proposed resilient floor covering in the weights area identified in Figure 5 is identified below.

- 40 mm thick Sportec Style Tile on 25 mm Sylomer SR42 on 25 mm Sylomer SR28

The flooring build-up in the free weights area of the gym is expected to achieve maximum impact sound levels (L_{max}) in the residential apartments above the gym that are approximately 5 dB greater than the recommended maximum night time 'G20' impact sound levels in residential areas identified in the ProPG guidance due to the typical dropping of free weights (e.g. 20 kg dumbbells dropped from a height of 500 mm). This exceedance may only occur in one or two one-third octave frequency bands and is not therefore considered to be significant.

The identified level of performance relative to the recommendations of the ProPG document is considered acceptable as the building management will be able to influence the conduct of gym users such that weight drops occur infrequently.

'Functional' gym area

In the Functional area of the gym, it is recommended that any floor covering achieves a minimum impact sound reduction of 16 dB dLw.

The functional area of the gym is to be provided with treadmills. With regard to the potential for 'Synchronised Repetitive Excitation' (SRE) of a gym floor and structure due to the use of treadmills, Section 3.5.3 of the ProPG guidance states:

3.5.3 SRE Testing Method

Synchronised Repetitive Excitation would typically occur in Gyms where people are running/stepping together. Estimates of the response factor and complementary heel-drop tests as described in SCI P354 can assist to determine if the structural floor is dynamically sensitive to footfall excitation.

Walk-by or running (with flat-footed style) to a metronome set typically to 160 steps per minute (to represent 11km/hr) are ways that have been used by members of the Working Group to explore this, but it is the experience of the Working Group that this is not commonly done and is usually dealt with by a combination of the isolation within treadmills and also the floor treatment. It should be for the SQA to use their experience to advise in this regard, as it is the Working Group's view that this remains very hard to standardise.

As stated above, the ProPG relies on the 'Suitable Qualified Acoustician' to advise on control of SRE as there is no standardised testing method for treadmills.

To our knowledge, the generation of SRE has not been reported in any similar residential gym to that proposed within concrete framed buildings due to treadmills that have not been mounted on isolation pads.

Acoustic treatment of treadmills and resistance machines

If required, treadmills and weights machines can be provided with individual isolation pads to control impact noise to the adjacent areas and residential areas above. Such mounts can be installed retrospectively. Suitable products include:

- 1) TVS Impact Absorbers
- 2) Pliteq GenieMat TMIP (treadmill isolators)
- 3) Pliteq GenieMat WSI (weight stack isolators)

11.0 CONCLUSION

The expected internal noise levels within the amenity areas are such that compliance with the requirements of condition 51a in relation to internal noise transfer and external noise breakout are fully expected.

Potential impact noise from the gym due to the dropping of free weights is to be controlled by the provision of high performance proprietary resilient gym floor coverings specifically designed to reduce low frequency impact noise, such that acceptable levels of noise are expected in the residential areas above the gym. Therefore, compliance with planning condition 51a is fully expected due to operation of the proposed gym.