

MPF/PR0679/L07

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Dear Pat

HOUSE OF SOCIAL, MANCHESTER, PLANNING CONDITION 12

I write to confirm the results of sound transfer measurements conducted between the gym and residential studios and between the gym and external areas at House of Social, First Street, Manchester. The measurements have been conducted to respond to condition 12 of the planning approval for the building and to demonstrate that the operation of the gym will not affect residential amenity.

INTRODUCTION

The planning approval for House of Social includes a condition which requires that post-completion noise measurements are carried out in relation to internal activity noise transfer and activity noise egress from the residents' gym within the building.

Fisher Acoustics Ltd has been commissioned by Renaker Build Ltd to measure the levels of noise transfer from the gym to the studio above and to external areas, and to advise on compliance with the requirements of the planning approval for the development.

PLANNING CONDITION

Planning Condition 12 of the Planning Approval for House of Social (Planning Application number 136170/FO/2023, dated: 1 March 2023) states:

- 12) Notwithstanding the details within the First Street Plot 10a Noise Impact Assessment First Street Developments Limited Ref PLOT10A-XX-XX-RP-Y-45001 P03 12 January 2023 by Cundall stamped as received on 17-02-23 before use of the gym area as shown in dwg 1172-TGA-XX-00-DR-A-95030 P05 commences a scheme for acoustically insulating the space to ensure that there is no unacceptable level of noise transfer from this unit to the PBSA above or any unacceptable noise break out shall be submitted to and approved in writing by the City Council as local planning authority. Noise from gym activities such as impact machines and free weights areas will need to be included within the assessment and details of any acoustic insulation / acoustic floor build up recommendation for these areas.

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.

The approved noise insulation scheme shall be completed before the use of the gym commences. The approved details shall be implemented and remain in place for as long as the unit is in use.

Prior to the use commencing a post completion report to verify that all of the recommended mitigation measures have been installed and effectively mitigate any potential adverse noise impacts in adjacent residential accommodation arising directly from the proposed development shall be submitted and agreed in writing by the City Council as local planning authority. Prior to occupation any non compliance shall be suitably mitigated in accordance with an agreed scheme

Reason - To secure a reduction in noise in order to protect future building occupiers from noise nuisance, pursuant to policies SP1 and DM1 of the Core Strategy and saved UDP Policy DC26.

In relation to condition 12, the discharge of conditions for House of Social (planning reference CDN/24/1107, dated 20 February 2025) states:

- *Condition 12 (a) (Noise Gym): On the basis of ongoing compliance with the following: Fisher Acoustics, Gym Noise Impact Assessment November 2024 the requirements for acoustically insulating the space to ensure that there is no unacceptable level of noise transfer from this unit to the PBSA above or any unacceptable noise break out have been met.*

Prior to the use commencing a post completion report to verify that all of the recommended mitigation measures have been installed and effectively mitigate any potential adverse noise impacts in adjacent residential accommodation arising directly from the proposed development shall be submitted and agreed in writing by the City Council as local planning authority. Prior to occupation any non compliance shall be suitably mitigated in accordance with an agreed scheme.

GYM

The proposed gym at House of Social is for the sole use of residents of the building and is located on the ground floor, as identified in Figure 1.

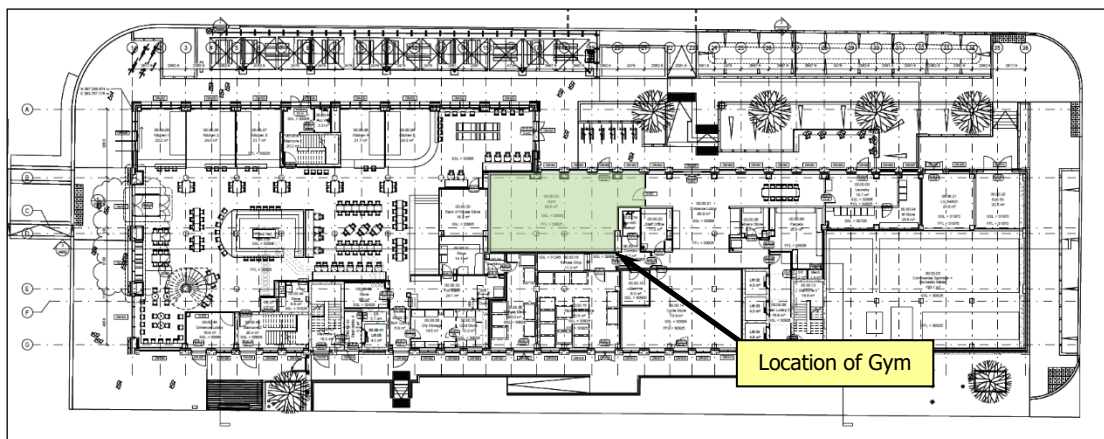


Figure 1: Location of gym - Ground floor, House of Social

INTERNAL NOISE TRANSFER - AIRBORNE NOISE

There is a residential studio on the 1st floor of House of Social that is partially located directly above the Gym. There is therefore the possibility of internal noise transfer between the gym and the studio above via the party floor structural slab.

Fisher Acoustics report 'Gym Noise Impact Assessment', reference HS-FAC-A180-RP-00-001 P01 and dated November 2024, as referenced by the discharge of condition 12, identifies the maximum recommended noise levels in the residential accommodation above due solely to music replay in the gym. The applicable noise levels are given in Table 1.

Space	Sound pressure level (dB Leq) @ Octave Band Centre Frequency (Hz)							dB(A)
	63	125	250	500	1k	2k	4k	
Studios above gym	47	41	26	20	17	15	12	28

Table 1: Maximum recommended noise levels in residential rooms due to music replay in non-residential spaces

The sound level difference between the gym and the studio above has been measured in the completed building. From the measurement, the maximum allowable activity noise level, including music replay, in the gym has been determined.

Table 2 identifies the maximum music noise levels that could be generated in the gym without exceeding the noise limits given in Table 1.

Location	Sound pressure level (dB Leq) @ Octave Band Centre Frequency (Hz)							dB(A)
	63	125	250	500	1k	2k	4k	
Gym	86	87	80	84	87	86	86	92

Table 2: Maximum allowable noise levels in House of Social gym re internal noise transfer

The gym is provided with small pendant loudspeakers for background music replay. The amplifiers for the loudspeakers are located in a back-of-house store accessible only by employees of House of Social. The amplifiers are to be set to a fixed maximum output such that music replay above a certain loudness level in the gym is not possible.

The proposed maximum music replay noise levels in the gym are given in Table 3. It can be seen that the proposed music replay noise levels in the gym are substantially lower than the allowable noise levels identified in Table 2. Thus compliance with the requirements of condition 12 are fully expected in relation to noise transfer to the residential accommodation above the gym.

Location	Sound pressure level (dB Leq) @ Octave Band Centre Frequency (Hz)							dB(A)
	63	125	250	500	1k	2k	4k	
Gym	70	70	65	65	65	60	57	69

Table 3: Proposed maximum music replay noise levels in the House of Social gym

NOISE EGRESS FROM GYM

Fisher Acoustics report 'Gym Noise Impact Assessment', reference HS-FAC-A180-RP-00-001 P01 and dated November 2024, as referenced by the discharge of condition 12, identifies the maximum allowable external noise levels at the closest noise sensitive receptors due to activity noise breakout from the gym, as reproduced below in Table 4.

Period	Sound Pressure Level (dB Leq) @ Octave Band Centre Frequency (Hz)						
	63	125	250	500	1k	2k	4k
Daytime (07:00 to 23:00)	55	48	45	44	46	38	26
Night time (23:00 to 07:00)	45	38	38	34	33	25	16

Table 4: Maximum allowable external music noise levels due to proposed gym

The sound breakout level from the gym has been measured by Fisher Acoustics. From the measurements, the allowable internal noise levels to ensure compliance with the external noise limits identified in Table 4 has been determined.

In particular, sound breakout from the gym to a position 5 metres in front of the glazed external wall of the gym has been measured. From the measurement, the maximum allowable activity noise levels within the gym to ensure compliance with the noise limits in Table 4 at residential receptors in the area have been determined.

Table 5 identifies the maximum music noise levels that could be generated in the gym without exceeding the noise limits given in Table 4.

Location	Sound pressure level (dB Leq) @ Octave Band Centre Frequency (Hz)							dB(A)
	63	125	250	500	1k	2k	4k	
Gym – 07:00 to 23:00	81	87	91	95	100	93	81	101
Gym – 23:00 to 07:00	71	77	84	85	87	80	71	89

Table 5: Maximum allowable noise levels in House of Social gym re noise egress

It will be noted that the allowable daytime internal noise levels detailed in Table 5 are typically greater than those in Table 2. The applicable internal noise limits for the gym are the lower of the values in Tables 2 and 5.

For ease of reference, Table 6 identifies the maximum allowable noise levels in the gym, taking into account internal noise transfer to the studio above and noise egress to noise sensitive receptors.

Location	Sound pressure level (dB Leq) @ Octave Band Centre Frequency (Hz)							dB(A)
	63	125	250	500	1k	2k	4k	
Gym – 07:00 to 23:00	81	87	80	84	87	86	81	91
Gym – 23:00 to 07:00	71	77	80	84	87	80	71	89

Table 6: Maximum allowable noise levels in the House of Social gym re noise breakout & noise transfer

Although the proposed operating hours of the gym are 07:00 to 22:00, night time noise limits have been provided above for completeness.

It can be seen that the proposed music replay noise levels in the gym given in Table 3 are lower than the allowable noise levels identified in Table 6. Thus compliance with the requirements of condition 12 are fully expected in relation to both noise transfer to the residential accommodation above the gym and noise breakout to external receptors.

INTERNAL NOISE TRANSFER - IMPACT NOISE FROM GYM

Fisher Acoustics report 'Gym Noise Impact Assessment', reference HS-FAC-A180-RP-00-001 P01 and dated November 2024, as referenced by the discharge of condition 12, states that the proposed gym floor coverings are expected to achieve maximum impact sound levels (L_{max}) in the residential studios above the gym that are approximately 6dB greater than the recommended maximum daytime 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).

The recommended maximum daytime impact sound levels in residential areas identified in the ProPG guidance are represented by the 'G25' curve, as defined in the guidance.

Measurements of the impact noise levels in studio 01.01.02 directly above the gym have been undertaken, involving the dropping of a 20 kg kettlebell from a height of 500 mm and the measurement of the subsequent noise level in the studio above.

The flooring installed in the weights area of the gym is as follows:

- GenieMat FIT70 (70 mm thick) on GenieMat FF25 (25 mm thick) by Pliteq

Figure 2 shows the approximate locations employed for the weight drop tests. These were approximately 1 metre from the structural columns close to the free weight benches and thus the assessments include the vertical transmission of impact noise via the columns.

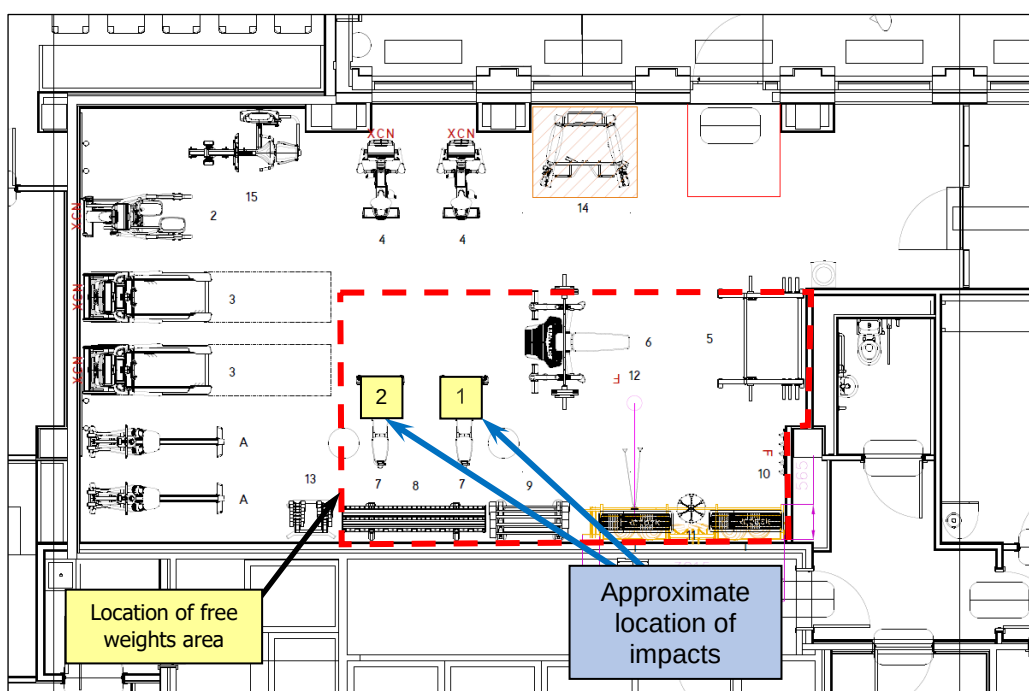


Figure 2: Approximate location of weight drops – House of Social Gym, Ground Floor

The maximum (L_{fmax}) noise levels generated by the dropping of the kettlebell was measured.

Studio 01.01.02 was furnished at the time of the measurements but had no mattress or bed linen. Once these items have been introduced, the reverberation time of the room will reduce which will in turn reduce the resultant noise levels in the room. The measured noise levels have therefore been corrected to determine the expected noise levels upon furnishing of the studio using the relationship:

$$\text{dB correction} = 10 \text{ LOG } (T_{\text{complete}}) / (T_{\text{tested}})$$

where T_{complete} = expected reverberation time in fully furnished room
 T_{tested} = measured reverberation time in room as tested

Table 7 identifies the applicable dB correction for the Studio under test.

Room	One-third Octave Band Centre Frequency (Hz)														
	<63	80	100	125	160	200	250	315	400	500	630	800	1k	1.25k	1.6k
Bedroom, when complete	-	0.72	0.50	0.55	0.60	0.58	0.55	0.53	0.52	0.50	0.50	0.50	0.50	0.50	0.50
Bedroom, as tested	-	0.72	0.51	0.59	0.60	0.72	0.71	0.99	0.99	0.95	0.92	0.94	0.91	0.81	0.78
dB correction	0	0.0	0.0	0.0	0.0	-0.9	-1.1	-2.7	-2.8	-2.8	-2.6	-2.7	-2.6	-2.1	-1.9

Table 7: Derivation of noise reduction following full furnishing of Studio

Figure 3 shows the measured noise levels (L_{fmax}) in the studio directly above the gym due to kettlebell drops onto the installed floor covering and also identifies the G25 curve from the ProPG document.

The typical measured 'ambient, MVHR off' L_{fmax} noise levels in the studio are also plotted on the chart.

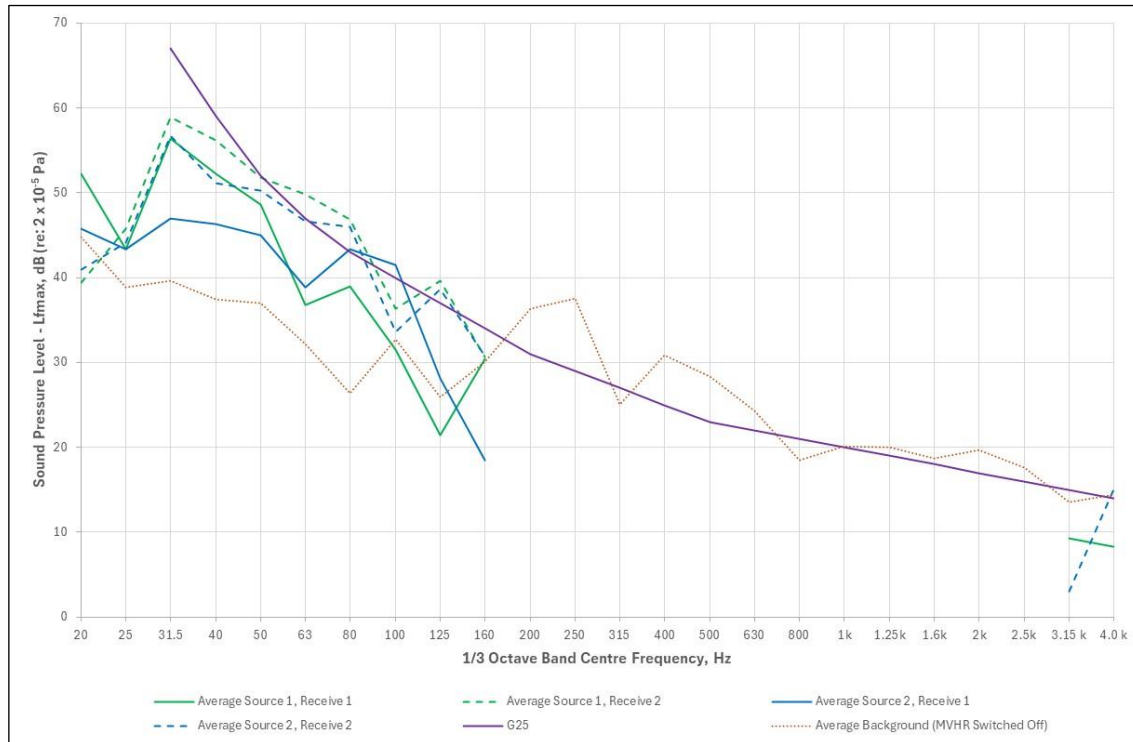


Figure 3: Measured gym impact noise levels in Studio 01.01.02 - 20kg kettlebell

Where no value is identified on the graph, the impact noise was not measurable above the ambient noise in the room.

It can be seen that the measured noise levels exceed the G25 curve in only three 1/3 octave bands by a maximum of 3dB. The measured impact noise levels are therefore compliant with the requirements of planning condition 12.

It should also be noted that the gym at House of Social is for the use of residents only. Therefore users of the gym are expected to be instructed in the safe use of weights such that the dropping of free weights is minimised as far as possible.

CONCLUSION

With reference to the assessments detailed above, compliance with the requirements of condition 12 of the planning approval for House of Social, Manchester is expected, such that the gym within the development will be able to operate as intended whilst maintaining residential amenity at residential receptors both within and external to the building.

If there are any aspects that you would like to discuss, please do not hesitate to contact the undersigned.

Yours sincerely

MATT FISHER BEng(Hons) CEng MIOA
For and on behalf of Fisher Acoustics Limited