

MPF/PR0634/L12

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Pat Weightman
Renaker Build Limited
NQ Building
47 Bengal Street
Ancoats
Manchester
M4 6BB

Flint Glass Works
64 Jersey Street
Manchester M4 6JW

0161 605 0905 📞
info@fisheracoustics.co.uk 📧
www.fisheracoustics.co.uk 🌐

Dear Pat

CROWN STREET PHASE 2, PLANNING CONDITION 58

I write to confirm the results of sound transfer measurements conducted between non-residential spaces and apartments and between non-residential spaces and external areas at Building C5, Crown Street Phase 2, Manchester. The measurements have been conducted to determine the allowable internal activity noise levels within the non-residential spaces such that residential amenity can be maintained.

INTRODUCTION

The planning approval for Crown Street, C5 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 non-residential spaces that are ancillary to the residential accommodation at the development.

Fisher Acoustics Ltd has been commissioned by Renaker Limited to measure the levels of noise transfer from non-residential spaces to apartments and to external areas, and to advise on compliance with the requirements of the planning approval for the development.

PLANNING CONDITION

Planning Condition 58 (Phase B -Building C5) of the Planning Approval for Crown Street, Phase II (Planning Application number 126668/FO/2020) states:

- Prior to commencement of any of the non-residential uses within Phase B (including any gymnasium where this forms part of Phase B), the premises 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.

Where entertainment noise is proposed the LAeq (entertainment noise) shall be controlled to 10 dB 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, respectively.

Upon completion of Phase B of the development a verification report to validate that the work undertaken throughout Phase B 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 has 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.

The nearest noise sensitive locations to the non-residential uses, as referred to by the above conditions are the residential apartments within C5.

AMENITY SPACES & COMMERCIAL UNIT

The amenity spaces at Crown Street C5 are for the sole use of residents of the building and are located on the three lower floor of the building. The amenity spaces are as follows:

- | | |
|------------------------------|---------|
| ▪ Gym | Level 1 |
| ▪ Yoga Studio | Level 1 |
| ▪ Residents Lounge | Level 2 |
| ▪ Private Dining Rooms 1 & 2 | Level 2 |

In addition, a commercial unit is located at the ground floor and Level 1 of the building.

It should be noted that the commercial unit is located directly below a roof terrace, such that there are no apartments directly above. In addition, only a small entrance area of the gym is located directly below an apartment.

Figures 1 to 3 show the locations of the non-residential uses in C5.

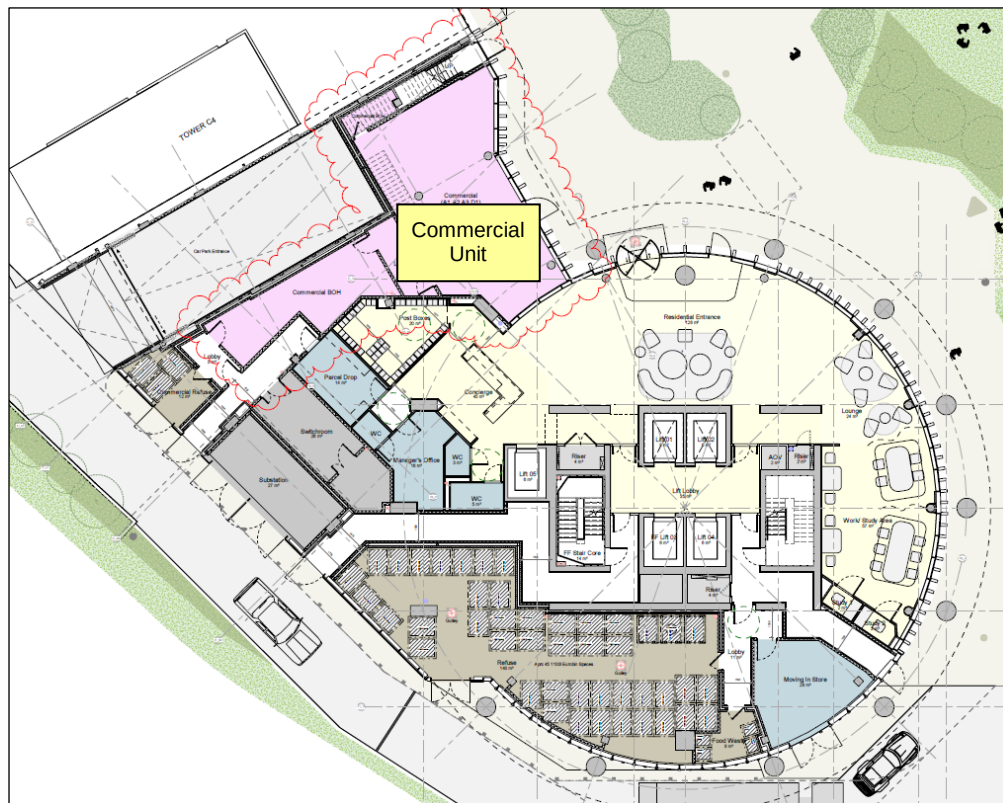


Figure 1: Non-residential spaces - Ground floor, Crown Street C5

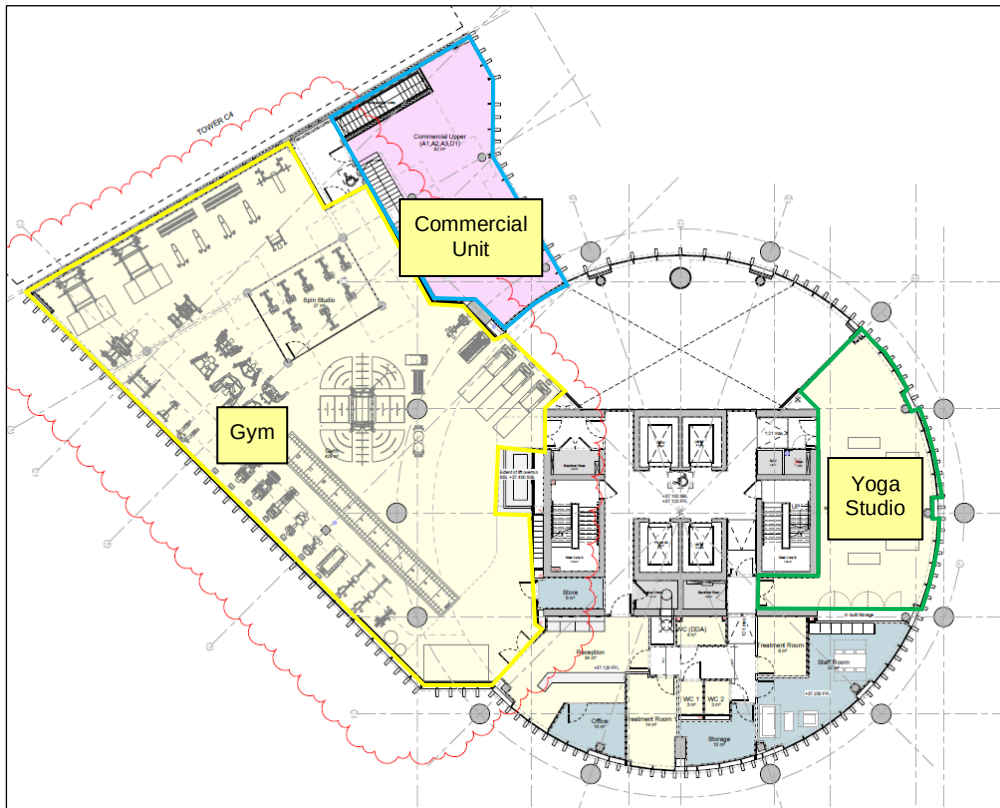


Figure 2: Non-residential spaces - Level 1, Crown Street C5

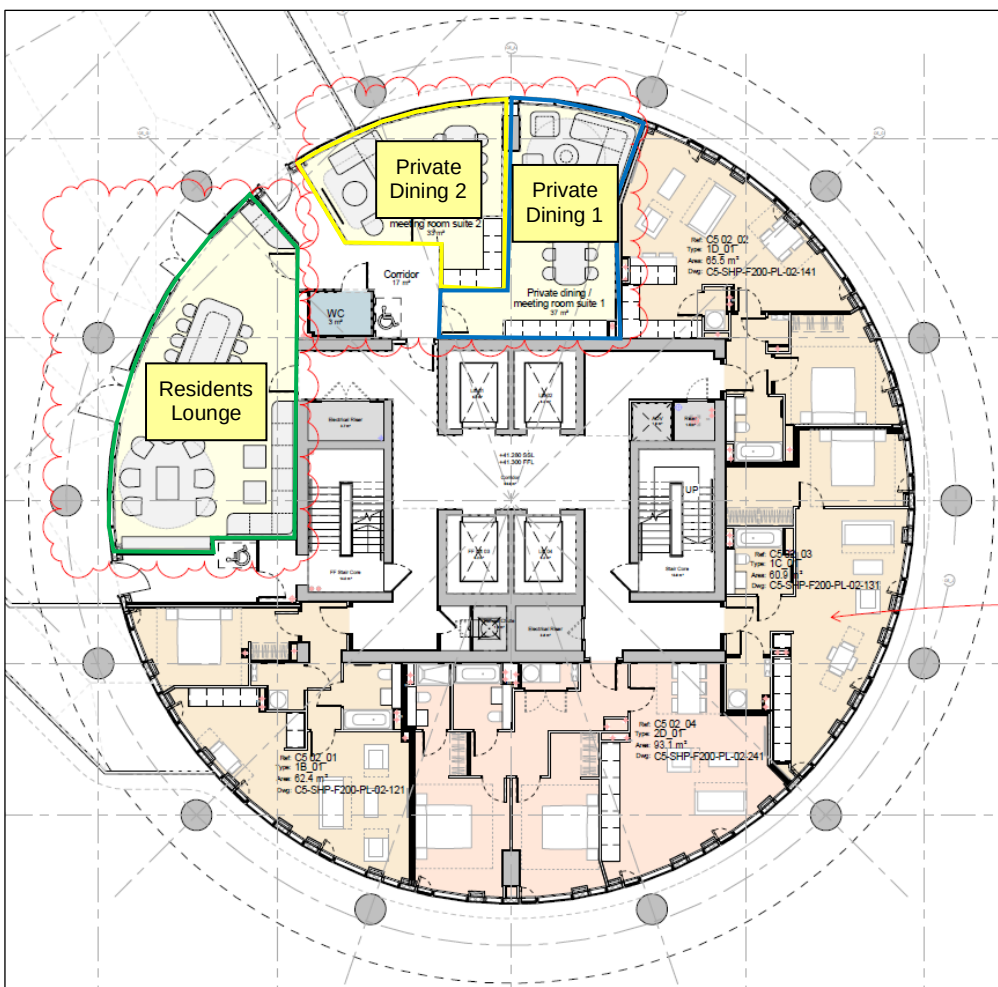


Figure 3: Non-residential spaces - Level 2, Crown Street C5

With regards to the commercial unit, it has been confirmed by the environmental health section of Manchester City Council that the future tenants would be required to carry out a noise study to determine the allowable activity noise levels within each unit. For information, this letter includes a study of the acoustic performance of the shell of the commercial unit prior to fit-out by a tenant.

ENVIRONMENTAL NOISE CRITERIA

Fisher Acoustics letter reference MPF/PR0634/L04 dated 22 March 2023 identifies the maximum recommended free-field external noise levels at apartments due to activity noise from the amenity areas of Crown Street, C5, as identified in Table 1.

Period	Sound Pressure Level (dB Leq) @ Octave Band Centre Frequency (Hz)						
	63	125	250	500	1k	2k	4k
N/ NE Façades - 07:00 - 23:00	45	36	38	38	42	36	25
N/ NE Façades - 23:00 - 07:00	45	36	33	33	37	31	20
S/ SW Façades - 07:00 - 23:00	60	57	59	59	63	57	46
S/ SW Façades - 23:00 - 07:00	55	52	54	54	58	52	41
C5 SE façade / C5 NW façade – 07:00 - 23:00	52	50	50	51	56	48	35
C5 SE façade / C5 NW façade – 23:00 - 07:00	47	45	45	46	51	43	30

Table 1: Maximum recommended external noise levels at apartments due to activity noise from Crown Street, C5 amenity areas and commercial units

INTERNAL NOISE TRANSFER

AIRBORNE NOISE

Condition 58 advises that

- *'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, respectively*

The condition does not stipulate allowable noise levels at frequency bands above 125 Hz. However, section 3.7.1.2 'Entertainment Venues' of 'Planning & Noise, Technical Guidance' issued by Manchester City Council in June 2022 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 activity noise from adjoining amenity spaces lies between NR15 and NR20.

In order to comply with the requirements of condition 58, the internal noise levels within an apartment due solely to music replay in the non-residential spaces should not exceed the values given in Table 2.

Location	Sound Pressure Level (dB) @ Octave Band Centre Frequency (Hz)						
	63	125	250	500	1k	2k	4k
Crown Street, Building C5	47	41	26	20	17	15	12

Table 2: Maximum recommended noise levels in apartments due to music replay in amenity spaces and commercial units

Within Crown Street C5 there are residential apartments directly above the Yoga Studio, Amenity Space/ Private Dining Rooms and above a small entrance area of the Gym. There is therefore the possibility of internal noise transfer between these spaces and the apartments above via the party floor.

The sound level difference between these spaces and the apartments directly above has been measured. From these measurements, the maximum allowable activity noise level, including music replay, in the amenity spaces has been determined. Table 3 identifies the maximum music noise levels that could be generated in the amenity spaces without exceeding the noise limits given in Table 2.

Location	Sound Pressure Level (dB) @ Octave Band Centre Frequency (Hz)						
	63	125	250	500	1k	2k	4k
Gym	86	90	79	84	81	80	83
Yoga Studio	88	87	81	78	75	78	83
Private Dining Room 1	78	79	77	76	79	84	84
Private Dining Room 2	94	95	92	85	92	93	91
Residents Lounge	90	92	88	84	89	85	86

Table 3: Maximum allowable noise levels in Crown Street, C5 non-residential spaces re internal noise transfer

The allowable noise levels identified in Table 3 for the various non-residential spaces would allow relatively high levels of music noise to be accommodated, appropriate for the intended room uses.

Given compliance with the noise limits given in Table 3, it is expected that the amenity spaces within the development will be able to operate as intended without causing disturbance to existing and future residential receptors.

Reference must also be made to the section below relating to noise egress.

NOISE EGRESS FROM AMENITY SPACES AND COMMERCIAL UNIT

The sound breakout level from the Yoga Studio, Residents Lounge, Private Dining rooms and commercial unit has been measured. From the measurements, the allowable internal noise levels to ensure compliance with the external noise limits identified in Table 1 has been determined. In particular, sound breakout from the above spaces to the open window of the apartment directly above each space has been measured. The gym only has an external façade that faces the Mancunian Way. Due to high external noise levels from the Mancunian Way, meaningful noise breakout levels from the gym could not be measured. As the gym has the same curtain wall glazing specification as the Yoga Studio the in-situ performance of the curtain wall to the gym has been assumed to be the same as that measured for the Yoga Studio.

From these measurements, the maximum allowable activity noise levels within the non-residential spaces in question has been determined.

Table 4 identifies the maximum music noise levels that could be generated in the non-residential spaces without exceeding the noise limits given in Table 1.

Location	Sound Pressure Level (dB) @ Octave Band Centre Frequency (Hz)						
	63	125	250	500	1k	2k	4k
Commercial Unit, Level 0 & 1 - 07:00 to 23:00	80	71	83	85	88	94	83
Commercial Unit, Level 0 & 1 - 23:00 to 07:00	80	71	78	80	83	89	78
Yoga Studio, Level 1 – 07:00 to 23:00	81	72	78	84	88	86	80
Yoga Studio, Level 1 – 23:00 to 07:00	81	72	73	79	83	81	75
Gym, Level 1 – 07:00 to 23:00	88	86	90	97	102	98	90
Gym, Level 1 – 23:00 to 07:00	83	81	85	92	97	93	85
Private Dining Room 1, Level 2 – 07:00 to 23:00	82	88	97	98	101	95	90
Private Dining Room 1, Level 2 – 23:00 to 07:00	77	83	92	93	96	90	85
Private Dining Room 2, Level 2 – 07:00 to 23:00	90	87	92	85	92	93	91
Private Dining Room 2, Level 2 – 23:00 to 07:00	85	82	92	85	92	93	91
Residents Lounge, Level 2 – 07:00 to 23:00 (doors closed)	85	88	102	105	105	106	100
Residents Lounge, Level 2 – 23:00 to 07:00 (doors closed)	80	83	97	100	100	101	95
Residents Lounge, Level 2 – 07:00 to 23:00 (doors open)	69	71	80	83	91	83	75

Location	Sound Pressure Level (dB) @ Octave Band Centre Frequency (Hz)						
	63	125	250	500	1k	2k	4k
Residents Lounge, Level 2 – 23:00 to 07:00 (doors open)	64	66	75	78	86	78	70

Table 4: Maximum allowable noise levels in Crown Street, C5 amenity spaces and commercial unit re noise egress

It must be noted that the final allowable internal noise levels within the various spaces must be determined with reference to both Tables 3 and 4. For ease of reference, Table 5 identifies the maximum allowable noise levels in the non-residential spaces, taking into account both internal noise transfer to apartments and noise egress to noise sensitive receptors.

Space	Sound pressure level (dB Leq) @ Octave Band Centre Frequency (Hz)						
	63	125	250	500	1k	2k	4k
Commercial Unit, Level 0 & 1 - 07:00 to 23:00	80	71	83	85	88	94	83
Commercial Unit, Level 0 & 1 - 23:00 to 07:00	80	71	78	80	83	89	78
Yoga Studio, Level 1 – 07:00 to 23:00	81	72	78	78	75	78	80
Yoga Studio, Level 1 – 23:00 to 07:00	81	72	73	78	75	78	75
Gym, Level 1 – 07:00 to 23:00	86	86	79	84	81	80	83
Gym, Level 1 – 23:00 to 07:00	83	81	79	84	81	80	83
Private Dining Room 1, Level 2 – 07:00 to 23:00	78	79	77	76	79	84	82
Private Dining Room 1, Level 2 – 23:00 to 07:00	77	79	77	76	79	83	77
Private Dining Room 2, Level 2 – 07:00 to 23:00	81	87	92	85	92	92	91
Private Dining Room 2, Level 2 – 23:00 to 07:00	81	82	92	85	92	92	91
Residents Lounge, Level 2 – 07:00 to 23:00 (doors closed)	85	88	88	84	89	85	86
Residents Lounge, Level 2 – 23:00 to 07:00 (doors closed)	80	83	88	84	89	85	86
Residents Lounge, Level 2 – 07:00 to 23:00 (doors open)	69	71	80	83	89	83	75
Residents Lounge, Level 2 – 23:00 to 07:00 (doors open)	64	66	75	78	86	78	70

Table 5: Maximum allowable noise levels in Crown Street, C5 amenity spaces and commercial unit

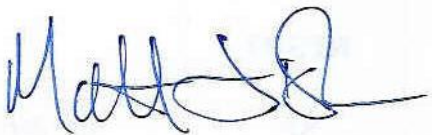
If the tenant of the commercial unit wished to generate higher internal noise levels than those identified in Table 5, the tenant may need to introduce appropriate sound insulation measures such as a solid ceiling to reduce noise transfer to the apartments above and a door lobby to reduce noise egress during the movement of patrons in and out of the unit.

CONCLUSION

With reference to the assessments detailed above, compliance with the requirements of condition 58 of the planning approval for Crown Street, C5, Manchester is expected, such that the non-residential uses within the development will be able to operate as intended whilst maintaining residential amenity at residential receptors.

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

Yours sincerely

A handwritten signature in blue ink, appearing to read 'Matt Fisher', is written over a light blue rectangular background.

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