

Document Reference **19-0010-M1**

Project Name **Moxy Marriott, Manchester**

Subject **Planning Condition 15**

Date:

2 March 2021

Prepared by:

Johnny Berrill

Reviewed by:

Ian Yates

1 Introduction

1.1 Planning permission has been granted for the construction of a hotel building at Invicta House, Spinningfields, Manchester. The building is currently under construction.

1.2 A number of conditions have been set as part of the planning permission, some of which relate to noise. Planning Condition 15 is covered by this memorandum. The condition states:

"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. The scheme shall be implemented in full before the use commences or as otherwise agreed in writing by the City Council as local planning authority. Where entertainment noise is proposed the L_{Aeq} (entertainment noise) shall be controlled to 10 dB below the L_{A90} (without entertainment noise) in each octave band at the façade of 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) 47 dB and 41 dB respectively."

1.3 Planning Condition 14, relating to noise from fixed plant items, is covered in BY Acoustics report 19-0010-R3-0.

2 Design Requirements

2.1 Sandy Brown prepared an acoustic report, 17090-R03-A 17 November 2017, relating to the design of the hotel building, including the façade elements.

2.2 The report sets out the façade design requirements in terms of control of noise break-in to the hotel bedrooms without commentary on break out. As there is no notable noise source expected in any of the bedrooms, design to ensure suitable internal noise levels is considered appropriate to control break-out from these rooms. Planning consultants Avison Young have confirmed that compliance with the façade design requirements set out in this report would be considered compliant with Planning Condition 15. Noise break-out from the ground floor bar and lobby area is also considered in this memorandum.

2.3 The report includes a table relating to performance of facade glazing systems. In each case, the non-glazed areas are stated to have a performance requirement of 10 dB greater than that stated in the table. Glazing Zones A, B, and C relate to external façade areas while Zone D relates to the central lightwell in the building.



- 2.4 The following F2.1 shows some excerpts from report 17090-R03-A, including the internal noise level criteria (Table 1) glazing performance requirements (Table 2) and a figure showing the façade locations where the various requirements apply. The figure included shows the requirements at upper levels; these are representative of the requirements at all levels on each façade where glazing is present.

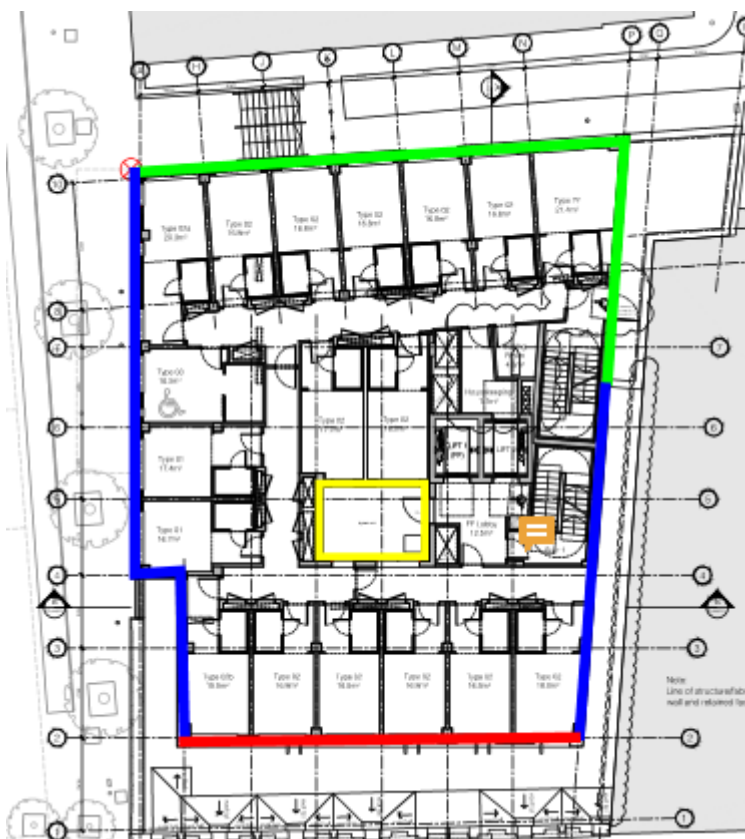
Table 1 Internal noise criteria

Internal space	Internal noise limit	
	Daytime(07:00-23:00)	Night (23:00-07:00)
Bedroom internal noise limit, $L_{Aeq,1h}$ (dB)*	45	40
Meeting spaces internal noise limit, L_{Aeq} (dB)	40	40
Ground floor entrance and public areas L_{Aeq} (dB)	40	40

*The $L_{A_{Fmax}}$ in bedrooms shall not normally exceed 50 dB due to external events.

Table 4 Minimum glazing sound insulation performances R_w+C_w (dB) to guestrooms

Facade zone (see Appendix A)	Minimum glazing performances R_w+C_w (dB)	
	Guestrooms	Meeting rooms/ Public areas
A 	38	30
B 	32	29
C 	24	24
D 	28	28



F2.1

Excerpts from Sandy Brown report 17090-R03-A



3 Proposed Design

- 3.1 BY Acoustics have reviewed the proposed façade design through the detailed design stages to ensure it complies with the Sandy Brown report. The following Table 3.1 sets out the performance of the proposed glazing along with the zones from Report 17090-R03-A Table 4 where these are proposed.
- 3.2 For most façade zones, more than one glass type is proposed depending on the location. This is due to a higher glass performance being specified at locations closer to the primary noise source, this being along Atkinson St to the south, where the highest façade zone A requirements apply. For example, glass to the south part of the west and east facades is a higher performance, as is glass at lower levels of the building. The locations of these glazing types are shown in attached Appendix A.

Glazing Reference	Sound Reduction Index, R (dB)						$R_w + C_{tr}$
	at Octave Band Centre Frequency (Hz)						
	125	250	500	1000	2000	4000	
Glazing Type G1	26*	24	35	43	41	54	32
Glazing Type G1 - 8.8mm clear laminate / 16mm argon cavity / 8mm HST toughened							
Glazing Type G2	26*	25	40	46	45	58	33
Glazing Type G2 - 8.8mm acoustic laminate / 16mm argon cavity / 8mm HST toughened							
Glazing Type G3	26	24	35	45	45	49	33
Glazing Type G3 - 9.5mm clear laminate / 16mm argon cavity / 8mm HST toughened							
Glazing Type G4	25	31	39	42	41	54	35
Glazing Type G4 - 9.5mm acoustic laminate / 16mm argon cavity / 8mm HST toughened							
Glazing Type G5	29	35	46	48	45	57	40
Glazing Type G5 - 12.8mm acoustic laminate / 16mm argon cavity / 10mm HST toughened							
Glazing Type G6	30	33	43	45	47	57	40
Glazing Type G6 - 13.5mm acoustic laminate / 16mm argon cavity / 10mm HST toughened							

Table 3.1: Proposed glazing octave band sound reduction index

*Manufacturers data indicates 29, but 26 used to provide a robust analysis

- 3.3 The lightwell glazing (Zone D) is to be Type G1 at a minimum and so is considered compliant with the requirements of the report also.
- 3.4 Analysis of the proposals indicates that the glazing, in appropriate framing as proposed, is suitable to achieve the internal noise level criteria for the hotel bedrooms. The proposed non-glazed areas comprise either existing masonry façade with an independent wall lining, or the



relevant glazing system with internal independent wall lining. In all cases, this has been specified to meet a sound reduction performance of at least 10 dB greater than the glazing.

- 3.5 Ventilation is not mentioned in Report 17090-R03-A; however it is necessary to consider it in relation to the sound insulation performance of the façade. Each room is to be mechanically ventilated using MVHR units ducted out through the façade. The following atmospheric side attenuation is proposed to ensure suitable internal noise levels via the units.

Silencer	Insertion Loss, IL (dB) at Octave Band Centre Frequency (Hz)						
	63	125	250	500	1000	2000	4000
South, East and West Façade	4	10	8	11	16	30*	30*
Equivalent to Nuaire PVCSIL-1500							
North Façade	5	11	6	6	8	19	25*
Equivalent to Nuaire PVCSIL-500							

Table 3.2: Required MVHR attenuation

*Manufacturers data limited to allow selection of alternative units as required

- 3.6 On the basis of the proposed design, the façade requirements and internal noise levels as set out in Sandy Brown Report 17090-R03-A can be met.
- 3.7 The glazing proposals at first floor are also applied for all glazed areas on the ground floor bar and entrance lobby area. It is understood that activities in the bar would not constitute “entertainment” activities and so the second part of Planning Condition 15 does not strictly apply.
- 3.8 However, the proposed façade construction is considered sufficient to maintain suitable noise levels at the nearest noise sensitive façades based on noise levels in a typical bar with background music playing over speakers. A basic analysis has been undertaken on the basis of typical reverberant noise levels in the ground floor area of 82 dB(A) with the façade construction as proposed. Resultant levels of around 43 dB(A) have been calculated at the nearest residential façade on Atkinson St.
- 3.9 A BY Acoustics survey of the site in December 2019 indicated typical background levels between 07h00 and 23h00 of 60 dB L_{A90} on Atkinson St and 55 dB L_{A90} facing on to Tivoli St. Therefore, this design proposal is considered compliant with the requirements of Planning Condition 15.
- 3.10 On this basis it is proposed that Planning Condition 15 for Invicta House, Spinningfields, Manchester, can be discharged. Should any alteration to the use of the ground floor area be proposed by the tenant to include entertainment activities, an assessment of the proposed activities would be required to ensure compliance with the planning condition.



Appendix A – Glazing Proposals



Ground Floor & First Floor



Second Floor to Eighth Floor

Drawing Title:
Floor plans at various levels
showing glazing proposals
Read in conjunction with
19-0010-M1

Key:

Glazing:

- Type G1
- Type G2
- Type G3
- Type G4
- Type G5
- Type G6

Note: Drawing not to scale

Project Title:
Moxy Hotel, Manchester

Drawing Number:
19-0010-FS1

Revision:
0

Date:
February 2021

by acoustics
105 Woodlands Avenue, West Byfleet,
Surrey, KT14 6AP
E office@byacoustics.com; T +44 1932 932038
www.byacoustics.com

