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Philip Harvey
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By email only at:
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Dear Philip

RE: ACOUSTIC CRITERIA
GREENWOOD PLACE RESOURCE CENTRE

Further to our recent meeting, please find below our proposals regarding internal ambient noise levels.

1.0 Introduction

A new community resource centre has been proposed at Greenwood Place, Kentish Town.

Planning conditions have been issued by London Borough of Camden (18 June 2014) which include a condition relating to internal ambient noise levels (IANL) to be achieved within noise sensitive spaces inside Greenwood Place Resource Centre.

Hann Tucker Associates has reviewed these spaces in respect of the planning conditions.

2.0 Planning Conditions

Planning Condition 12 of the Decision Notice (2013/5947/P, dated 18 June 2014) states the following:

> *No work shall begin on the Greenwood Place building until a detailed scheme for noise insulation and/or mitigation has first been submitted to and approved in writing by the local planning in respect of the following:*
>
> a) *A scheme of sound insulation and attenuated ventilation so as to ensure that noise from external sources shall not exceed 35 dB(A) $L_{Aeq,T}$ in any noise sensitive room;*
>
> b) *sound mitigation measures to be incorporated to terraces and balconies such that the external noise climate does not exceed 55 dB $L_{Aeq,T;}$*

The buildings shall not be occupied until completed fully in accordance with such scheme(s) as will have been approved.

Reason: To safeguard the premises against the transmission of external noise in accordance with the requirements of policy CS5 of the London Borough of Camden Local Development Framework Core Strategy and policies DP26 and DP28 of the London Borough of Camden Local Development Framework Development Policies

3.0 Alternative Performance Standards

It is our understanding that the strategy and policies referenced within Planning Condition 12 (see Section 2.0) pertain mostly to residential developments and not to healthcare type projects such as the Greenwood Place Resource Centre. In situations such as this we would consider more appropriate target criteria to be achieved within the *Specialist Services Health Technical Memorandum (HTM) 08-01: Acoustics*.

As the Greenwood Place Resource Centre plans also contain internal spaces not specifically covered by HTM 01-08, such as an art room and an ICT suite, it could be considered more appropriate to target criteria listed within *Building Bulletin 93 (BB93) Acoustic Design of Schools - Performance Standards.*

Where rooms proposed within the Greenwood Place Resource Centre are not covered adequately by criteria in either of the above documents *BS8233: 2014* '*Guidance on sound insulation and noise reduction for buildings*' and *BREEAM* may be considered where appropriate.

3.1 HTM 08-01 Acoustics Standards

HTM 08-01 gives the following guidance regarding the break-in of external noise sources to spaces within a healthcare building:

2.5 Sound insulation of external façades depends on external noise levels and how quiet the rooms inside need to be. Appropriate noise levels in rooms are recommended [in Table 1].

Room type	Example	Criteria for noise intrusion to be met inside the spaces from external sources (dB)
Ward – single person	Single-bed ward, single-bed recovery areas and on-call room, relatives' overnight stay	40 LAeq, 1hr daytime 35 LAeq, 1hr night 45 LAmax, f night
Ward – multi-bed	Multi-bed wards, recovery areas	45 LAeq, 1hr daytime 35 LAeq, 1hr night 45 LAmax, f night
Small office-type spaces	Private offices, small treatment rooms, interview rooms, consulting rooms	40 LAeq, 1hr
Open clinical areas	A&E	45 LAeq, 1hr
Circulation spaces	Corridors, hospital street, atria	55 LAeq, 1hr
Public areas	Dining areas, waiting areas, playrooms	50 LAeq, 1hr
Personal hygiene (en-suite)	Toilets, showers	45 LAeq, 1hr
Personal hygiene (public and staff)	Toilets, showers	55 LAeq, 1hr
Small food-preparation areas	Ward kitchens	50 LAeq, 1hr
Large food-preparation areas	Main kitchens	55 LAeq, 1hr
Large meeting rooms (>35 m2 floor area)	Lecture theatres, meeting rooms, board rooms, seminar rooms, classrooms	35 LAeq, 1hr
Small meeting rooms (≤35 m2 floor area)	Meeting rooms, seminar rooms, classrooms, board rooms	40 LAeq, 1hr
Operating theatres	Operating theatres	40 LAeq, 1hr 50 LAmax, f
Laboratories	Laboratories	45 LAeq, 1hr

HTM 08-01 Table 1 Criteria for noise intrusion from external sources

2.13 The noise levels on site may dictate ventilation strategy, space planning, building shape and layout.

2.18 Rain noise should not result in undue disturbance in internal spaces. Some noise from rain is acceptable in most types of room, and indeed can be comforting to occupants.

2.19 Indoor ambient-noise levels during "heavy"1 rainfall should not exceed the intrusive noise criteria in Table 1 by more than 20 dB(A) or should not be more than 65 dB(A), whichever is lower.

3.2 BB93 Acoustics Standards

BB93 gives the following guidance regarding the break in of external noise sources to spaces within an educational (school) building:

1.1.2 Acoustic performance standards

Table 1 specifies upper limits for indoor ambient noise levels (IANL) in terms of $L_{Aeq,30mins}$ during normal teaching hours. Where a type of room is not listed, the nearest approximation should be used.

Type of Room	Upper Limit for the IANL $L_{Aeq,30min}$ dB (New Build)
Open plan: Resource/breakout area	40 dB
Administration and ancillary spaces: Office, medical room, staff room	40 dB
Design and Technology: ICT room, art	40 dB

Excerpt of BB93 Table 1 Noise Activity and Sensitivity Levels and Upper Limits for Indoor Ambient Noise Level

4.0 Large/Multi-Occupancy Office Spaces

The proposed building comprises cellular and larger office accommodation. Whilst small office-type spaces are dealt with within HTM 08-01 and BB93, larger multi-occupancy offices are not. We have undertaken an investigation of the "industry standards" for design parameters currently used for quality commercial office developments, using BS8233: 2014 '*Guidance on sound insulation and noise reduction for buildings*' and BREEAM as reference documents. The following table summarises the findings of our investigation:

Design Reference Documents	Office Area Type	
	Small/Cellular	Large/Open-Plan
BS8233: 2014	35-40 dB $L_{Aeq,T}$	45-50 dB $L_{Aeq,T}$
	(NR30-45 L_{eq} equiv approx)	(NR40-45 L_{eq} equiv approx)
BREEAM	35-40 dB $L_{Aeq,T}$	45-50 dB $L_{Aeq,T}$
	(NR30 - 35 L_{eq} equiv approx)	(NR40-45 L_{eq} equiv approx)

Note: L_{Aeq} – 5dB = NR (approx)

Based on the above, we propose external noise intrusion levels (whether from road, rail or aircraft sources), should, after attenuation by the composite building envelope, not exceed 45 dB $L_{Aeq,1hr}$ in larger multiple occupancy office spaces.

5.0 Recommended Acoustic Performance Targets

Based upon the above advice contained within HTM 08-01, BB93, BS8223: 2014 and BREEAM, we would recommend the following IANL be achieved in each of the following spaces in terms of dB $L_{Aeq,1hr}$. It should be noted that the targets below assume that background ventilation strategy would allow for a partially opened window for cooling purposes:

Ground Floor

Greenwood Place Resource Centre Space	Criteria for noise intrusion to be met inside the spaces from external sources (dB $L_{Aeq,1hr}$)	Most Relevant Alternative Standard	Achievable with Background Ventilation Strategy
0.2 Multi-Purpose Room	40 dB	BB93: Open plan: Resource/breakout area	No
0.36 Dementia Meeting Room		HTM 08-01: Small meeting rooms	
0.37 Dementia Meeting Room			
0.16 PMLD Common/Day Room	45 dB	HTM 08-01: Open clinical areas	Yes
0.17 PMLD Activity Room			
0.32 Dementia Common/Day Room			
0.33 Dementia Common/Day Room			
0.35 Dementia Office		BS8233 & BREEAM: Large offices	
0.21 PMLD Kitchen	50 dB	HTM 08-01: Small food-preparation areas	
0.26 PMLD Dining		HTM 08-01: Public areas	
0.27 Dementia Dining Room			
0.1 CIL Foyer	55 dB	HTM 08-01: Circulation spaces	
0.9 Changing Places W.C		HTM 08-01: Personal hygiene (public and staff)	
0.10 Accessible W.C			
0.11 Accessible W.C			
0.12 Unisex W.C			
0.13 Unisex W.C			
0.14 Kitchen		HTM 08-01: Large food-preparation areas	
0.38 Dementia Main Entrance/Access Lift		HTM 08-01: Circulation spaces	
0.40 Stair 3			
0.42 PMLD Entrance Lobby			
0.43 Glazed Access Link			
0.47 Reception Desk			
0.53 Access Corridor			

1st Floor

Greenwood Place Resource Centre Space	Criteria for noise intrusion to be met inside the spaces from external sources (dB $L_{Aeq,1hr}$)	Most Relevant Alternative Standard	Achievable with Background Ventilation Strategy
1.1 Office	40 dB	HTM 08-01: Small office-type spaces	No
1.2 Office			
1.3 Meeting Room			
1.4 Meeting Room			
1.5 Meeting Room			
1.7 Large Meeting Room			
1.19 ASC Base Room			Yes
1.22 Mental Health Activity Room 1		BB93: Open plan: Resource/breakout area	No
1.24 Mental Health Activity Room 2			
1.25 Mental Health Activity Room 3			
1.37 Mental Health Activity Room 4			Yes
1.16 ASC Activity Room	45 dB	HTM 08-01: Open clinical areas	
1.21 ASC Day Room			
1.28 Office		BS8233 & BREEAM: Large offices	
1.30 Office			
1.31 Mental Health Common/Day Room		HTM 08-01: Open clinical areas	
1.8 Waiting Area	50 dB	HTM 08-01: Public areas	
1.20 ASC Base Room			
1.32 Mental Health Dining Room			
1.33 Mental Health Kitchen		HTM 08-01: Small food-preparation areas	
1.9 Accessible W.C	55 dB	HTM 08-01: Personal hygiene (public and staff)	
1.10 Accessible W.C			
1.13 ASC Entrance		HTM 08-01: Circulation spaces	
1.14 ASC Unisex Changing Area		HTM 08-01: Personal hygiene (public and staff)	
1.15 ASC Accessible Shower			
1.35 Mental Health Entrance		HTM 08-01: Circulation spaces	
1.38 Access Gallery			

2nd Floor

Greenwood Place Resource Centre Space	Criteria for noise intrusion to be met inside the spaces from external sources (dB $L_{Aeq,1hr}$)	Most Relevant Alternative Standard	Achievable with Background Ventilation Strategy
2.1 IT Room	40 dB	BB93: Design and technology: ICT room, art	No
2.10 Art Room			
2.11 Music Studio		HTM 08-01: Small meeting rooms	Yes
2.12 Music Room		HTM 08-01: Small office-type spaces	No
2.5 Demonstration Flat	45 dB	BS8233 & BREEAM: Large offices	Yes
2.9 Office			
2.13 New Shoots Space			
2.18 New Shoots Office			
2.2 Waiting Area/Breakout Space	50 dB	HTM 08-01: Public areas	
2.17 New Shoots Space		HTM 08-01: Small food-preparation areas	
2.3 Access Gallery	55 dB	HTM 08-01: Circulation spaces	
2.14 New Shoots Changing Places W.C		HTM 08-01: Personal hygiene (public and staff)	
2.20 New Shoots Entrance		HTM 08-01: Circulation spaces	
2.21 Demonstration Flat Accessible W.C		HTM 08-01: Personal hygiene (public and staff)	

6.0 Conclusion

It is the opinion of Hann Tucker Associates that the IANL criteria set within Planning Condition 12 could be too onerous for such a development and that a relaxation of the stated '*35 dB(A) $L_{Aeq,T}$ in any noise sensitive room'* be considered.

To this end we have recommended alternative IANL performance targets, based on relevant industry standard documents and have demonstrated where, in each case, background ventilation may achieve these levels.

We trust the above to be clear and of assistance. Please do not hesitate to contact us with any other queries.

Yours sincerely

Richard P booth

for HANN TUCKER ASSOCIATES