ACOUSTIC MEMO #02 Rev A 02-15-51506-NC2 Rev A

Project:	435 Barlow Moor Road, Chorlton
Subject:	Planning Condition 7
Date of Issue:	18/05/2016
Author:	Dan Cramond (Associate)
Checked:	Neil Turnbull (Head of Acoustics)

INTRODUCTION

Stroma Tech was instructed by Pochins to undertake an acoustic review of proposals for the building envelope to new-build retail units, with regard to the discharge of Planning Condition 7.

Planning Condition 7 (PC7) relates to the control of noise breakout from retail units affecting nearby residential demises. It is assumed from the wording, that the condition relates only to breakout noise to outside and does not include internal noise transmission.

This memo is limited to addressing the specific acoustic issues contained herein and is based on information and drawings provided. Advice has been provided for acoustic reasons only and it is recommended that appropriate expert advice be sought on all the ramifications e.g. fire, structural, thermal, interstitial condensation etc. associated with any proposals contained herein.

CRITERIA

Planning Condition 7

The following planning condition relating to noise breakout is attached to the Decision Notice:

'7) Before any use hereby approved commences, 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.

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.'

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BUILDING ENVELOPE PROPOSALS

The proposed retail units are understood to comprise of the following:

Windows

- Single pane of 10.8mm 'standard' PVB laminate. R_w = 36 dB

or

- Sealed double glazed units comprising 10mm glazing: 16mm cavity : 6mm glazing. R_w = 37 dB

External wall

- Facing brick outer-leaf, 120mm minimum void containing 90mm rigid insulation, 100mm concrete aggregate blockwork inner-leaf. R_w 51 dB

Doors

- Doors will be fully glazed and the lowest acoustic glazing specification for the windows above has therefore been considered. It is assumed that all doors will have draught seals and the glazing will therefore drive the acoustic performance. R_w = 36 dB

BREAKOUT ASSESSMENT

There are various breakout noise scenarios to consider with regard to building envelope type to retail, building envelope type to residential, various receptors to consider etc. Therefore, for the sake of simplicity, only the reasonable worst-case scenario has been assessed.

The scenario considered is as depicted overleaf, assessing noise breakout from the retail units assuming a fully glazed façade, a 6dB reverberant to free-field correction, 10 log distance attenuation, a 5dB orientation correction and assumes the higher glazing performance specification is adopted for the entire residential facade. The lower glazing specification (standard thermal) to residential has not been considered, as this scenario only occurs above retail areas where there is solid walling i.e. unglazed. There would therefore be minimal breakout noise via the R_w 51 dB retail external wall to residential over for this scenario.

Further, with regard to noise breakout affecting existing residential demises, these adjoin retail areas comprising of solid walling and there are greater distances involved than the assessed scenario. Furthermore, the predicted external noise level due to breakout at the windows over is 16 dB below the

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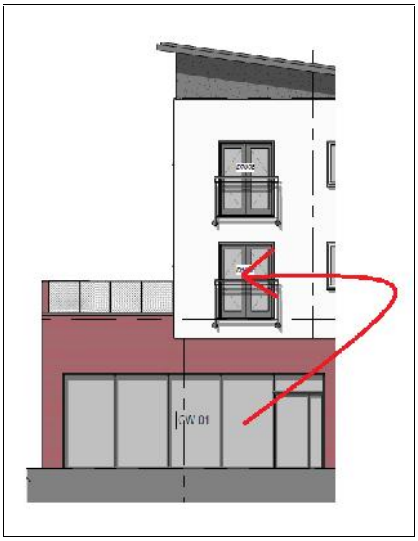
lowest measured prevailing daytime background noise level. Therefore, even if an existing demise were to have openable windows for ventilation, it is expected that reasonable noise levels due to retail unit breakout noise would still be achieved.

Considered noise breakout scenario



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The breakout calculations for the considered scenario are given below. The calculations have been simplified for ease of presentation e.g. radiating areas, reverberant room effects etc. have been neglected. Such effects however are considered negligible when considering the resultant predicted noise levels.

	125 Hz	**250 Hz**	**500 Hz**	**1 kHz**	**2 kHz**	**4 kHz**	
Internal reverberant noise level limits L_{eq} (dB)	85	80	80	80	80	80	**86 dB(A)**
Retail unit glazing performance R (dB)	-24	-28	-33	-35	-38	-48	**R_w 36**
Reverberant to free-field correction (dB)	-6	-6	-6	-6	-6	-6	**-**
Orientation correction (dB)	-5	-5	-5	-5	-5	-5	**-**
Distance correction (10 Log 1.5m) (dB)	-2	-2	-2	-2	-2	-2	**-**
Resultant external noise level (dB)	48	39	34	32	29	19	**38 dB(A)**
Residential glazing performance R (dB)	-23	-24	-34	-42	-43	-52	**R_w 38**
Resultant internal noise level (dB)	**25**	**15**	**0**	**0**	**0**	**0**	**12 dB(A)**

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Discussion

It can be seen that based on the assumed average internal reverberant noise level limits to retail, that the predicted internal noise level to residential dwellings is 12 dB(A). Such a noise level can be considered inaudible.

Furthermore, the predicted resultant external breakout noise levels outside the nearest residential façade are well below the lowest measured daytime background noise level at the site, as measured by AB Acoustics.

	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	dB(A)
Resultant external breakout noise level (dB)	48	39	34	32	29	19	**38**
Lowest measured daytime background noise level L_{90} (dB)	58	49	48	50	46	36	**54**
Breakout noise *vs* Background Noise	**-10**	**-10**	**-14**	**-18**	**-17**	**-17**	**-16**

Noise Level Limits

In order to achieve the calculated internal noise levels, it will be necessary to adhere to the following noise level limits for retail units. The breakout noise level limits shall be incorporated into the lease documentation for the retail units.

	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	dB(A)
Internal reverberant noise level limits L_{eq} (dB)	85	80	80	80	80	80	**86**

It should be noted that the above noise level limits relate to the control of noise breakout only and do not take account of internal noise transmission via the party floor.

It will not be possible to have foreground amplified music within retail units; however, background music will be acceptable. Furthermore, amplified music shall not be played externally to any of the units.