

NOISE CONTROL in RBKC

Paper by the Milner Street Area Residents Association

The area in which we live is normally quiet, particularly at night. This peace is sometimes in danger of being broken by the installation of machinery, in particular air conditioning or pumps. This is a danger with basement developments, which may need continuous air extraction and/or water pumping equipment.

Fortunately RBK&C has policies to control noise, which should mean that these installations should not be audible from nearby properties. Key to this is the Supplementary Planning Document (SPD) on Noise¹.

We should make sure that RBK&C is applying these policies fully to all basement developments.

RBK&C requirements

Applications for developments where external plant and equipment is proposed should be submitted with a noise survey and a report prepared by a competent acoustician².

The SPD says explicitly that noise surveys will generally be required for subterranean developments.

The background noise level must not be increased by the proposed installation. The SPD says that noise generating development will be subject to the following condition, attached by the Environmental Health Directorate:

“Noise emitted by external building services plant and equipment shall not increase the existing concurrent measured lowest LA90(15min) background noise level at any time when the plant is operating. The noise emitted shall be measured or predicted at 1.0m from the façade of the nearest residential window or at 1.2m above any adjacent residential garden, terrace, balcony or patio.”

At the very least, we should also ask for this to be applied as a condition when we object to basement applications.

To help meet this requirement, the SPD also says that³ the noise of the new machinery (also measured from the nearest window or garden) should be 10dBA below the LA90 background noise level (or 15dBA below if the noise contains a distinguishable, discrete continuous note⁴)⁵
⁶. Again, if it appears that the new noise source is to be louder than this, we should object.

¹ Noise – Supplementary Planning Document (adopted May 2009). RBK&C Local Development Framework

² Who shall be a member of the Institute of Acoustics

³ It quotes Planning Policy Guidance 24, published by the Department for Communities and Local Government May 2006

⁴ As defined in BS4142 – though both the acoustic consultants’ reports use 10dBA for air conditioners

How it works in practice

The basics

Sound is measured in decibels (dB). dBA is also a decibel measure, with weightings applied for the human ear's response to sound.

Roughly speaking, the threshold of hearing is 0dB, out of doors with no people or traffic is 20dB, speaking voice is 60dB, etc. A table is in Attachment 1.

An increase of 10dB represents a doubling in sound. Thus, for example, 40dB is twice as loud as 30dB.

The sound reduces by 6 dB for each doubling of distance from the sound source. The dB output for most machinery is measured at 1m.; thus, for example, at 4m from the source, the sound would be 12dB lower than the manufacturer's rating.

LA90(15 min) is the measure of background noise level (the sound level exceeded for 90% of the measurement period of 15 minutes).

Leq is the average equivalent continuous noise level. This will be higher than LA90 and will take account of, for example, occasional passing traffic. Because the averaging process is logarithmic, Leq tends to be dominated by the higher noise levels measured (e.g. passing traffic) so may be much higher than LA90.

*Example background level readings in MISARA area - LA90(5min)*⁷

1. At the back of 56 Ovington Street⁸:

Lowest daytime (7am-7pm)	38 dBA
Lowest night time (7pm-7am)	29 dBA

2. At the front of 25 Halsey Street⁹:

Day (7am-7pm)	41 dBA
Evening (7pm-11pm)	39 dBA
Night (11pm-7am)	34 dBA

Rule of thumb

⁵ According to Shaun Merkett (Report on Noise Survey at 50 Ovington Street), this regulation technically amounts to the same as the previous requirement not to increase background noise: if the new noise is 10dBA below background noise, then there will be no increase in background noise.

⁶ Note that at "very low" noise levels below about 30dB this methodology is considered (by BS4142) to be unsuitable - although this method has been used by both of the acoustic consultants' reports quoted.

⁷ Note that LA90 (5min) has been used for each of these studies instead of LA90 (15min).

⁸ Report on Noise Survey at 50 Ovington Street (Shaun Merkett, Acoustic Consultants Limited), April 2009.

⁹ Report by Environmental Equipment Corporation Ltd (Jan 2013) prepared for 24 Halsey St application.

Given the above, an approximate rule of thumb for assessing a new planning application might be as follows:

To calculate the noise limit:

1. Estimate the background noise level. (Maybe 34 dBA for street front; 30 dBA for back gardens – other figures might be available)
2. Subtract 10 dBA. This gives the proposed noise limit for the new equipment (as heard from the nearest resident’s window or garden, etc.)

To calculate the noise level:

3. Look up the dBA rating of the proposed machinery from 1m distance.
4. Measure, in metres the distance of the window or garden, etc. from the source
5. Subtract 6dBA for every doubling in distance, e.g.

Distance (m)	Reduction in dBA
1	0
2	-6
4	-12
8	-18
16	-24

If the calculated noise level is less than the noise limit, then it should not be audible from the window or garden over background noise; if greater, then the machinery will be audible and we should object. Noise control (boxing in, etc.) may be used to reduce the figure, in which case it should be estimated (and subsequently verified).

Once a unit is installed, if it is causing disturbance, it should also be possible for the Council to verify both the sound output from the machinery and any increase in background noise. If there is an increase in background noise, it should be possible for us to ask for the equipment to be switched off until the problem is solved.

Caveat

This is very simplified and we are not acoustic consultants. The information above is gathered and interpreted only from various web sites and acoustic reports and is intended only as a very brief summary, so will not cover all aspects of noise control. It has, however, been reviewed by Keith Mehaffy of RBK&C’s Noise and Nuisance Team, who commented on it by email (on 16.9.13) as follows:

“You display a good understanding of the principles of noise control from building services plant and the information provides a valuable outline of the systems we use to assess noise reports when plant is being proposed. The essence of our process is to conserve background sound levels to ensure that noise creep does not arise.

As I explained when we spoke recently on the telephone the important issue is to identify from the noise report that the sound levels emitted by the new building services plant and attenuation measures when operational, will comply with the Council’s noise criteria outlined in the condition. Sound levels throughout the borough will vary depending on location and time of

day, as a result we require a separate noise report with all applications, for all plant, identifying the lowest background level (La90-15 minute) throughout the period when the plant is proposed to operate. The La90-15minute is the level of sound exceeded for 90% of the time and would equate to the lowest background when extraneous sounds such as road traffic and aircraft noise are removed. It would be useful to denote the sound levels stated in your document as the La90-15minutes.

We use the perceptibility test as a means to identify compliance with the planning criteria, this means if the plant is perceptible within a neighbouring premises, it may not be compliant with the planning condition criteria. In practice the noise report will usually assess the worst case scenario, namely the plant operation on full capacity during the early morning periods, when the lowest background sound levels are at their lowest. on a hot night when neighbouring residents have their windows open. The systems are usually designed to operate on a lower capacity and as a result they usually operate 3-5dB(A) below the sound levels specified within the report. We get a lot of applications for subterranean basement developments and the majority of them have no information provided on any building services plant to be installed, as part of the process, in our observations we request that if the planning department are minded to grant permission, an informative is added to the consent ,stating that if any additional building services plant is to be installed it may require a further planning approval. The planning condition does state that if the plant is not compliant it should be switched off. In order to achieve this formally, a planning enforcement notice would have to be served. Planning enforcement notices I understand take a period of time before they take effect, the person on whom they are serve has the right of appeal and once confirmed the notice may have a period of time to take effect. It is important that this is understood and residents' expectations are controlled

I do hope this is helpful, my direct telephone number is 020 7341 5702, please do not hesitate to contact me should you wish to discuss this matter further.

Kind regards

Keith Mehaffy
Area Senior Environmental Health Officer
Noise & Nuisance Team”

We hope that this gives us some useful rules that should be considered in the context of basement applications and other installations of a/c equipment.

Milner Street Area Residents' Association
December 2013

EXAMPLE DECIBEL LEVELS

<u>dB</u> A	
0	Threshold of hearing
10	Rustle of leaves, a quiet whisper
20	Average whisper
20-50	Quiet conversation
40-45	Hotel, theatre between performances
50-65	Loud conversation
65-70	Traffic on a busy street
65-90	Train
75-80	Factory noise (light/medium work)
90	Heavy traffic
90-100	Thunder
110-140	Jet aircraft at takeoff
130	Threshold of pain
140 – 190	Space rocket on take-off