

Proceedings of the Institute of Acoustics

A REVIEW OF CONTROL OF CONSTRUCTION SITE NOISE

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1. INTRODUCTION

This paper reviews the current local authority practices in Scotland with regard to control of construction site noise and in particular the interpretation of sections 60 and 61 of the Control of Pollution Act 1974.

2. CONSTRUCTION SITE NOISE AND THE CONTROL OF POLLUTION ACT

The Control of Pollution Act 1974 (1) specifically deals with construction site noise in sections 60 and 61 of Part 111. Under this part of the Act the local authority may specify its own requirements to limit noise on construction sites by serving notice in terms of section 60 that may specify:

- (a) the plant or machinery which is, or is not to be used;
- (b) the times of operation;
- (c) levels of noise during specified hours for
 - (i) emission from the premises
 - (ii) emission from any part of the premises

The notice may also provide for change in circumstances.

In serving the notice the local authority must have regard to any codes of practices issued under this part of the Act. They must also ensure that best practicable means are employed to minimise the noise. Finally the local authority must have regard to the need to protect persons from the effects of noise in the locality in which the premises are situated.

Section 61 of the Act provides those responsible for carrying out the work an opportunity to settle any problems relating to potential noise, before the works start by applying for what is known as "prior consent".

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3. NEED FOR SURVEY OF MEANS OF CONTROL

Section 60 is quite clear in that the local authority may specify its own requirements to limit noise on construction sites by serving notice. These requirements will very obviously be site specific, the most likely common elements of control are described in the Act and summarised in section 2 above as points (a)-(c). However, there would appear to be some very differing ideas amongst Environmental Health Officers with regard to the most effective means of controlling noise from construction sites. For example, some authorities will allow weekend working while others will not. Absolute levels at boundaries are also used and some authorities consider the application of the method of assessment outlined in section 8.2 of BS 4142 :1990 (2) to be the appropriate means of controlling noise. In an attempt to obtain an overall picture of the means of control all the local authorities within Scotland were asked the following questions;

- 1 What BS/Statutory Instrument/other criteria do you use in controlling site construction noise?
- 2 Do you use
 - (i) inaudibility
 - during working hours
 - outside working hours
 - (ii) specific levels
 - if yes based on what?
 - (iii) prohibition of tasks, ie., piling
- 3 What is considered a normal working week?

ic	Mon-Fri	8 - 5
	Sat	8 - 12
	Sun	?
- 4 Have you (LA) ever served a Section 60?
 - if yes average annually
- 5 Have you (LA) ever received a Section 61?
 - if yes average annually

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4. RESULTS OF SURVEY

At the time of the proceedings going to press responses from authorities representing approximately 56% of the population have been received. It is hoped that this will be increased to over 80% by the time of the presentation.

In response to question one 67% of the respondents to date use BS 5228:1984(3) in conjunction with Part 111 of the Control of Pollution Act 1974 while 33% normally only use the Control of Pollution Act. This correlates well with the REHIS survey on Codes of Practice relating to noise, where even although 98.7% of respondents were aware of the code of practice only 56.5% always used it,(4). BS 5228 was referred to for guidance as to best practicable means. It was very interesting to note that 33% of the respondents would also regularly use BS 4142: 1990 as a basis for control of construction site noise particularly section 8.2 on the "method of assessment".

With regard to question two on the use of "inaudibility", "specific levels" and "prohibition of tasks" no respondents asked for inaudibility during normal working hours as defined (see response to question 3). It was however considered by two authorities to be the appropriate criterion for noise generated outwith what could be considered the normal working week. One respondent stated that inaudibility would be used for fixed plant to be used over a long period of time, e.g. power generator or even vehicle reversing alarms. All of the respondents commented that any 'reasonable level' was permissible during normal working hours, however, no definition of reasonable was forthcoming. Absolute levels were only regularly used by 16% of the respondents with a further 24% setting absolute levels for very specific projects. The specific levels were site and project specific however a L_{Aeq} 75dB was mentioned, the origin of this level will be discussed later. It follows that 60% did not use absolute levels during normal working hours. All of the respondents stated that prohibition of tasks was an option to be considered for all projects although it had rarely been used.

In response to the third question in relation to what was considered to be the normal working week 58% specified a full working day as being in the region of 0700-1900 hours Monday to Saturday, 17% 07.00-19.00 hours Monday to Friday plus a half day on Saturday(08.00-13.00) and 25% excluded a Saturday. Sunday is not routinely included in the working week, one authority did allow Sunday work between 10.00-16.00 with the condition of no piling or works of similar loudness (no definition of similar loudness was given). One authority stated that where Sunday work was allowed the criteria of night-time background plus 10dB(A) would be set. Working outwith the normal working hours would only be tolerated for emergency work, road or rail repairs.

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When asked about serving a Section 60 notice 58% of local authorities had served such a notice, the range being 1-12 annually, averaging 3.9 per year. Only two authorities had received an application for prior consent in terms of Section 61. There was a general consensus of opinion that with the current work load experienced by most Environmental Health Officers Section 61 notices were not encouraged. Regional authorities routinely advise the local authorities of impending works.

5. COMMENT ON SURVEY RESULTS

It is clear that there is still a mis-use of BS 4142:1990. The scope of 4142 is limited to noise from fixed premises. In 1975 Large(5) carried out an investigation into community reaction to construction noise. In the survey he examined construction noise according to common methodologies for rating industrial or community noise and BS 4142 was one of the methodologies examined. It was found that in most cases construction noise exposure would be allowed to exceed a given criterion by 5dB(A) because it is a temporary phenomenon. On the other hand, construction noise can contain impulsive noise which could to a greater or lesser extent counterbalance the +5dB(A) correction for the temporary nature of the noise. The findings of Large's study support the view that there is insufficient evidence to support assessing construction site noise on the same basis as noise from fixed premises.

The use of absolute levels, despite being used by 40% of the respondents in some form or another, is considered by most authorities to be problematic in practical terms. Most of the authorities found it well nigh impossible to carry out the monitoring required to ensure that the levels set were not being exceeded. The level L_{Aeq} 75dB is frequently referred to and there have been some reference to its origins as being (a recommended level) BS 5228. This is not the case. In the 1975 version of BS 5228 Appendix D stated that "Using quieter techniques and plant discussed in this code it should generally be possible to limit the noise 1m outside the nearest noise-sensitive building to an equivalent continuous sound level over a typical daytime period (e.g. 07.00-19.00 hours $L_{Aeq}(12hr)$ of 75dB(A))" Appendix D then goes on to state that such a level would keep exposure limits in line with those proposed by the Wilson Committee while still leaving the contractor some flexibility.

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The reluctance to rely on absolute levels has led in some circumstances to the use of inaudibility as a criterion for site work outwith the normal working week. There is one very recent case(6) where a developer was served with a Section 60 notice which required that "All works and ancillary operations which are audible at the site boundary, or at such other place as may be agreed with the Council, shall be carried out only between the hours of 8am and 7pm Monday to Friday inclusive, and 8am and 1pm on a Saturday and at no time on a Sunday". The terms of the notice effectively prohibited work outwith the normal working week as there was no reliable and effective means of the developer ensuring that every task ancillary to internal work was going to be inaudible at the boundary. Despite the statement in court by one of the Environmental Health Officers involved that "inaudibility meant that the noise was not intrusive" the appeal against the terms of the notice was upheld with the Sheriff supporting the use of "audibility" as a "recognised standard by Environmental Health Officers".

6. GENERAL COMMENTS AND CONCLUSION

While acknowledging the need for local and site specific controls there is a need for consistency amongst authorities in dealing with construction site noise. Difficulties in monitoring the site noise should not be swept aside by introducing the concept of inaudibility, although the recent Sheriffs Court decision (6) would disagree. Where serious complaints or a breach of conditions are anticipated a system such as a variant of the B&K Matron for domestic situations could be adopted for external use, the important element of this system being the DAT recorder.

It is possible that further work into the acceptability of construction site noise as opposed to noise from fixed industrial or commercial premises is required before a comprehensive set of guidelines covering various sets of circumstances can be issued. However such a set of guidelines would not be able to cater for the variations in response of occupiers resulting from attitudes towards the project under construction. It was abundantly clear during the survey that good relations between the contractor or developer and the public are vital in ensuring a trouble free project. It is also evident that the attitude of the local affected community to the project is very important in determining the acceptability of increase noise levels and reference to this problem is made in section 11 of Part 1 BS 5228: 1984.

It was surprising to find that with the exception of regional authorities and the large national companies, builders and developers were ignorant of Section 61. Local authorities do not appear enthusiastic about encouraging the use of Section 61.

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REFERENCES

- (1) The Control of Pollution Act 1974 Part 3.
- (2) BS 4142:1990 "Method for Rating industrial noise affecting mixed residential and industrial areas".
- (3) BS 5228:1984 "Noise control on construction and open sites". Parts 1 - 4.
- (4) REHIS survey on Codes of Practice relating to noise.
- (5) LARGE J B and LUDLOW J E "Community reaction to construction noise" Inter-noise proceedings 1975.
- (6) Adam (Scotland) Ltd v Bearsden & Milngavie District Council February 1995.