

Belfast City Council

Environmental protection unit

Advice note for construction and demolition sites

This information is intended for contractors, developers, statutory undertakers and others who are undertaking works within the boundary of Belfast City Council.

Noise control

Your attention is drawn to the Pollution Control and Local Government (NI) Order 1978 which enables the council to impose requirements as to the times during which work may be carried out and the methods of work to be used. These requirements can extend to the following description of work:-

- a) the erection, construction, alteration, repair or maintenance of buildings, structures or roads;
- b) breaking up, opening or boring under any road or adjacent land in connection with the construction, inspection, maintenance or removal of works;
- c) demolition or dredging work; and
- d) any work of engineering construction (whether or not already comprised in paragraphs (a), (b), or (c) above).

Legal notices

Where noise or vibration cannot be controlled by an informal agreement, or depending on the nature of specific projects, it may be necessary for the Council to serve a legal notice under Article 40 of the Pollution Control and Local Government (NI) Order 1978. This notice is served on the person carrying out/about to carry out the works, (including relevant sub contractors) and it also may be served on those having responsibility and control for the works. Notices may prohibit the use of certain equipment such as breaking tools, specify the hours during which the works may be carried out, and/or stipulate noise and vibration limits. It will also require the adoption of "best practicable means" to minimise noise and vibration as defined in relevant codes of practice. The Council will not hesitate to take legal action against any person contravening the requirements of a legal notice served upon them.

The service of a legal notice by the council does not prevent residents or the occupants of commercial premises from taking civil action for damages arising from, for example, loss of trade or structural damage.

Methods of work

In all cases the best practicable means of minimising noise on the site must be adopted. In this respect guidance is given in British Standard, BS 5228: 1997 Code of Practice for Noise Control on Construction and Open Sites.

The following examples are applicable:

- a) for any particular job, the quietest available plant and/or machinery should be used. Where appropriate, it must be constructed to meet the requirements of EC Directives;
- b) all equipment should be maintained in good mechanical order and fitted with the appropriate silencers, mufflers or acoustic covers where applicable;
- c) stationary noise sources should be sited as far away as possible from noise sensitive development, and where necessary acoustic barriers should be used to shield them;

- d) any piling should be carried out by the method causing the minimum of noise or vibration;
- e) any machinery which is in intermittent use should be shut down in intervening periods of non-use or where this is impracticable, it should be throttled back to a minimum;
- f) employees should be informed about the need to minimise noise and should be supervised to ensure compliance with the noise control measures adopted.

Noise and vibration criteria

1. Residential areas

In residential areas or in close proximity to dwelling accommodation, the priority is for residents to be able to sleep at night. Very strict noise controls will be applied to any site which is to operate at night. Periods when people are getting to sleep and just before they wake are particularly sensitive. Site noise expressed as LA(eq) 1 hour at the façade of noise sensitive premises may need to be as low as 40 dB(A) to avoid sleep disturbance. Work should therefore be conducted during the day, but for lengthy projects it is desirable to have some daytime respite e.g. Saturday afternoon, Sundays and Bank Holidays.

Evening work needs special consideration and evening limits are typically set 10dB (A) below daytime limits.

The following limits may be applicable in certain circumstances:-

Noise from construction activities shall -

- a) not exceed 75 dB LAeq, 12 hr between 07.00 hours and 19.00 hours on Mondays to Fridays, or 75 dB LAeq 5 hr between 08.00 hours and 13.00 hours on Saturdays, when measured at any point 1 metre from any facade of any residential accommodation, and
- b) not exceed 65 dB LAeq 1 hr between 19.00 hours and 22.00 hours on Mondays to Fridays, or 13.00 hrs to 22.00 hrs on Saturdays when measured at any point 1 metre from any facade of any residential accommodation, and
- c) not be audible between 22.00 hrs and 07.00 hrs on Mondays to Fridays, 22.00 - 08.00 hrs on Saturdays, or at any time on Sundays, at the boundary of any residential accommodation. (As a guide the total level (ambient plus construction) shall not exceed the pre-construction ambient level by more than 1 dB(A). This will not allow substantial noise producing construction activities but other "quiet" activities may be possible). Routine construction and demolition work which is likely to produce noise sufficient to cause annoyance will not normally be permitted between 22.00 hrs and 07.00 hrs.

2. Commercial areas

In commercial areas or in close proximity to office accommodation, the priority is for workers not to be subjected to noise at a level which causes speech interference e.g. conversation should not be too difficult with the windows shut. In dealing with complaints it may be necessary for the Council to restrict the hours of operation of noisy equipment such as pneumatic drills, kango hammers and breaking tools. This can be achieved by an informal compromise agreed with the contractor (depending on the nature of the commercial premises, noisy work may be prohibited between 10am – 12noon and 2pm – 4pm) or by serving a legal notice where appropriate. It is recognised that for some offices lunch time may be their most busy period, whilst others may be closed.

3. Vibration

Limits on vibration are generally applicable to piling operations only. Human beings are very sensitive to vibration and piling operations are a common source of complaint. Residents are likely to complain when vibration levels are only slightly in excess of perception levels. Sensitivity to vibration varies and peak particle velocities in the range 0.1 - 0.3 mm/s equate to the human threshold of vibration perception at frequencies of 1-80 Hz. Vibrations above these values can startle, cause annoyance or interfere with work activities as well as give rise to concerns over structural damage.

Guidance on the magnitude of vibration and methods of measurement are detailed in BS 5228: Part 4: 1992. The following limits may be applicable in certain circumstances.

Vibration from construction activities shall -

- a) not exceed 2.5 mm/s peak particle velocity, between 08.00 hrs and 19.00 hrs on Mondays to Saturdays, when measured on any ground floor structural surface of any noise sensitive premises, and
- b) not be perceptible between 7pm and 8am on Mondays to Saturdays or at any time on Sundays, within any residential accommodation.

Note: imperceptibility generally equates to a peak particle velocity of less than 0.15 mm/s p.p.v.

For the purpose of noise and vibration limits “**noise sensitive premises**” is to be regarded as any residential or office accommodation in the vicinity of the construction works.

It may be beneficial to specify the former noise and vibration limits for inclusion in tender documents together with the following general clause referring to the use of “best practicable means”:-

The contractor shall employ the “best practicable means” as defined in the Pollution Control and Local Government (NI) Order 1978 to minimise noise and vibration resulting from his operations and shall have regard to British Standard BS 5228: 1997 Code of Practice for Noise Control on Construction and Open Sites.

General advice

The council recognises that construction operations by their nature are noisy. However the impact on those living and working in the vicinity must be minimised. This is best considered at the tender and design stage.

The maintenance of good community relations is vital. Contractors are advised to consult local residents or communities regarding works and to give them details of a responsible appointed person on site who will be able to deal with queries. The removal of uncertainty and rumour can help to reduce people’s reaction to noise. Particular regard should be given to the noise impact on hospitals, schools and churches.

This article is intended to provide general advice. If construction noise problems are anticipated or if you have any queries regarding these matters please contact a member of the Environmental Protection Unit who will be pleased to discuss the relevant matters. Telephone: 028 9032 0202 extension: 3314 or 3325.

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