



Advice note for construction and demolition sites (May 2018)

This information is for contractors, developers, statutory undertakers and others who are undertaking works in the Belfast City Council area.

Noise control

The Pollution Control and Local Government (NI) Order 1978 which enables Belfast City 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/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.

Legal notices may:

- prohibit the use of certain equipment such as breaking tools,
- specify the hours during which the works may be carried out,
- stipulate noise and vibration limits, and
- require the adoption of “best practicable means” to minimise noise and vibration as defined in relevant codes of practice.

We 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 Belfast City Council does not prevent residents or the occupants of commercial premises from taking civil action for damages arising from e.g. loss of trade or structural damage.

Methods of work

In all cases the best practicable means of minimising noise and vibration on the site must be adopted. In this respect guidance is given in British Standard, BS 5228-1:2009+A1:2014 and BS 5228-2:2009+A1:2014 Parts 1 and 2 Code of Practice for Noise and Vibration Control on Construction and Open Sites.

The following examples apply:

- a) For any particular job, the quietest available plant and/or machinery should be used. It must be constructed in line with current standards.
- 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; any piling should be carried out by the method causing the minimum of noise or vibration.
- d) 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.
- e) Employees should be informed about the need to minimise noise and should be supervised to ensure compliance with the noise control measures adopted.

Noise limits

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 LAeq 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, for example Saturday afternoon, Sundays and Bank Holidays.

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

Noise from construction activities should not exceed the following noise targets when measured at any point 1 metre from any facade of any residential accommodation

Table 1: Summary of Noise targets at nearest noise sensitive dwellings

Day	Time period	Noise Target LAeq
Monday to Friday	7am -8am	70dBA (1hr)
	8am-6pm	75dBA (10hr)
	6pm-7pm	70dBA (1hr)
	7pm–10pm	65dBA (3hr)
	10pm-7am	Not audible *
Saturday	8am-1pm	75dBA (5hr)
	1pm-2pm	70dBA (1 hr)
Sunday		Not audible *

*(As a guide to ensure noise is not audible at the boundary of nearby residential premises the total noise level (ambient plus construction noise) 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. (unless exceptional circumstances apply).

. To ensure unreasonable noise disturbance is not being caused to nearby resident's, the contractor should not solely rely on these noise targets but by employing best practical means should reduce the noise levels at the nearby dwellings to as low as possible.

The ABC Method

BS5228 presents an alternative and /or additional method to determine the significance of construction noise This considers the change in the ambient noise level when construction is taking place. The 'ABC' method is presented in para. E.3.2. BS5228

We would recommend that both methods should be considered and if possible the more conservative targets applied.

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 10.00 - 12.00 hrs and 14.00 - 16.00 hrs) 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.

Vibration limits

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. If you are carrying out piling (driving steel or concrete piles in to the ground for foundations) you should where feasible use methods to reduce the generation of noise and vibration. You should consider other methods for impact –driven piles, such as continuous flight auger-injected piles or auger –bored piles (where piles are drilled rather than hammered into the ground). When setting vibration targets you should not only consider avoiding structural and cosmetic damage to neighbouring buildings but should also endeavour to reduce the potential adverse impact on the occupants of nearby noise and vibration sensitive premises. The table below provides guidance on the human response to vibration,(see table B.1 of BS5228-2:2009+A1:2014)

Guidance on effects of vibration levels

Vibration Level (Peak Particle Velocities)	Effect
0.14mm/s	Vibration might be just perceptible in the most sensitive situation for most vibration frequencies associated with construction. At lower frequencies people are less sensitive to vibration
0.3mm/s	Vibration might be just perceptible
1.0mm/s	It is likely that vibration of this level in residential environments will cause complaint, but can be

	tolerated if prior warning and explanation has been given to residents
10mm/s	Vibration is likely to be intolerable for any more than a brief exposure to this level in most building environments

Contractors should refer to BS5228-2:2009+A1:2014 Code of Practice for Noise and vibration control on construction and open site- Part 2 “: Vibration.

For the purpose of noise and vibration limits “**noise and vibration sensitive premises**” is to be regarded as any residential, office, church, school, library, hospital or laboratory with sensitive balancing/scientific equipment etc 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 & Local Government (NI) Order 1978 to minimise noise and vibration resulting from operations and shall have regard to British Standard BS 5228 Code of Practice for Noise Control on Construction and Open Sites Parts 1 and 2.

Advice for large developments

Large developments close to noise sensitive premises have the potential to cause unreasonable disturbance due to the nature and length of time the development takes to complete. It is therefore good practice, particularly prior to commencement of such works, for the developer to produce a construction noise management plan. This plan should outline the methods to be employed to minimise any noise and vibration impact from demolition and construction operations demonstrating ‘best practicable means. The plan should pay due regard to BS5228 Noise and Vibration Control on Construction and Open Sites Parts 1 and 2 and include a detailed programme for the demolition/construction phase, the proposed noise and vibration monitoring methods, noise vibration and dust mitigation methods and evidence of neighbour liaison.

Often Planning Permission will be granted for such developments with a condition attached requiring that prior to construction the applicant must submit a Construction Noise Management Plan for review and approval by the Environmental Health Service.

Air quality

Belfast City Council can impose requirements to prevent or reduce nuisance from dust or smoke. Dust should be controlled by a continuous fine water spray. The perimeter of the site should be screened to a sufficient height to prevent the spread of dust. Bonfires should not be permitted. It is an offence under the Clean Air NI order 1981 to emit dark smoke from any industrial or trade premises.

General Advice

The Council recognises that construction operations by their nature are disruptive. 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/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.

If construction noise problems are anticipated or if you have any queries regarding these matters please contact the Environmental Protection, Public Health & Housing Unit.

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