



Appendix 12.1: Legislation, Policy and Guidance

Control of Pollution Act 1974 (COPA), 1974

The Control of Pollution Act 1974 (COPA 1974) gives the local authority power to serve a notice under Section 60 imposing requirements as to the way in which works are to be carried out. This could specify times of operation, maximum levels of noise which should be emitted and the type of plant which should or should not be used.

However it may be preferable for the chosen contractor to obtain prior consent under Section 61 of COPA 1974. Section 61, enables anyone who intends to carry out works to apply to the local authority for consent. Under Section 61 the local authorities and those responsible for demolition and construction work, have an opportunity to settle any problems, relating to the potential noise, before work starts.

Planning Policy Wales

Planning Policy Wales (PPW) is the current planning policy guidance within Wales. The planning guidance defines the primary objective of the document in paragraph 1.2 as follows:

'...to ensure that the planning system contributes towards the delivery of sustainable development and improves the social, economic, environmental and cultural well-being of Wales...'

In particular reference to noise Paragraph 6.7.3 of the PPW states:

'Problematic forms of sound are generally experienced as noise pollution and can affect amenity and be prejudicial to health or a nuisance. Noise action plans drawn up by public bodies aim to prevent and reduce noise levels where necessary and preserve soundscape quality where it is good. Noise levels used to identify priority areas contained in noise actions plans are usually set quite high in order to focus resources on the most polluted areas and noise must meet a number of tests before it qualifies as a statutory nuisance. Lower levels of noise however, can still be annoying or disruptive and impact on amenity and as such should be protected through the planning process wherever necessary.'

Technical Advice Note 11: Noise (TAN 11), 1997

TAN 11 is used to categorise noise levels for proposed residential developments. TAN 11 presents four noise exposure categories (NECs), ranging from A to D, where A represents the lowest noise levels, and D is for sites with higher noise levels. A breakdown of the NECs, and subsequent advice is provided below in Table 1 and 2.



Table 1: Noise exposure categories for road traffic noise and mixed sources ⁽¹⁾				
Time	Noise Exposure Category			
	A	B	C	D
0700-2300	<55	55 - 63	63 - 72	>72
2300-0700 ⁽²⁾	<45	45 - 57	57 - 66	>66

Footnote

⁽¹⁾ **Noise levels:** the noise level(s) ($L_{Aeq,T}$) used when deciding the NEC of a site should be representative of typical conditions.

⁽²⁾ **Night-time noise levels (2300-0700):** sites where individual noise events regularly exceed $82dB_{LAmax}$ (S time weighting) several times in any hour should be treated as being in NEC C, regardless of the $L_{Aeq,8H}$ (except where the $L_{Aeq,8H}$ already puts the site in NEC D).

Table 2: Advice relating to noise exposure category		
NEC	Significance	Advice
A	Negligible	Noise need not be considered as a determining factor in granting planning permission, although the noise level at the high end of the category should not be regarded as desirable.
B	Minor	Noise should be taken into account when determining planning applications and, where appropriate, conditions imposed to ensure an adequate level of protection.
C	Moderate	Planning permission should not normally be granted. Where it is considered that permission should be given, for example, because there are no alternative quieter sites available, conditions should be imposed to ensure a commensurate level of protection against noise.
D	Major	Planning permission should normally be refused.

TAN 11 also states that:

“This note provides advice on how the planning system can be used to minimise the adverse impact of noise without placing unreasonable restrictions on development.”

British Standard 8233: 2014 Guidance on Sound Insulation and noise reduction for buildings (BS8233)

British Standard 8233 “Guidance on sound insulation and noise reduction for buildings” 2014, suggests the following guideline noise levels and states that they are based on guidelines issued by the World Health Organisation;

- 35 dB L_{Aeq} (16 hour) during the day time in noise sensitive rooms
- 30 dB L_{Aeq} (8 hour) during the night time in bedrooms
- 45 dB $L_{Af,Max}$ during the night time in bedrooms
- 50 dB L_{Aeq} (16 hour) desirable external noise levels for amenity space such as gardens and patios



- 55 dB L_{Aeq} (16 hour) upper guideline value which would be acceptable in noisier environments.

In addition, for internal noise levels it states;

“Where development is considered necessary or desirable, despite external noise levels above WHO guidelines, the internal target levels may be relaxed by up to 5 dB and reasonable internal conditions still achieved.”

Furthermore, with regard to external noise, the Standard states:

“However, it is also recognised that these guideline values are not achievable in all circumstances where development might be desirable. In higher noise areas, such as city centres or urban areas adjoining the strategic transport network, a compromise between elevated noise levels and other factors, such as the convenience of living in these locations or making efficient use of land resources to ensure development needs can be met, might be warranted. In such a situation, development should be designed to achieve the lowest practicable levels in these external amenity spaces, but should not be prohibited”.

British Standard 4142:2014+A1:2019, Methods for rating and assessing industrial and commercial sound (BS4142):

BS4142 is used to rate and assess sound of an industrial and/or commercial nature including:

- sound from industrial and manufacturing processes;
- sound from fixed installations which comprise mechanical and electrical plant and equipment;
- sound from the loading and unloading of goods and materials at industrial and/or commercial premises; and
- sound from mobile plant and vehicles that is an intrinsic part of the overall sound emanating from premises or processes, such as that from forklift trucks, or that from train or ship movements on or around an industrial and/or commercial site.

The standard is applicable to the determination of the following levels at outdoor locations:

- rating levels for sources of sound of an industrial and/or commercial nature; and
- ambient, background and residual sound levels, for the purposes of:
 - 1) Investigating complaints;



2) Assessing sound from proposed, new, modified or additional source(s) of sound of an industrial and/or commercial nature; and

3) Assessing sound at proposed new dwellings or premises used for residential purposes.

The purpose of the BS4142 assessment procedure is to assess the significance of sound of an industrial and/or commercial nature.

BS4142 refers to noise from the industrial source as the '*specific noise*' and this is the term used in this report to refer to noise which is predicted to occur due to activities associated with the nearby industrial/commercial establishments in the vicinity of the site.

BS4142 assesses the significance of impacts by comparing the specific noise level to the background noise level (L_{A90}).

Certain acoustic features can increase the significance of impacts over that expected from a simple comparison between the specific noise level and the background noise level. In particular, BS4142 identifies that the absolute level of sound, the character, and the residual sound and the sensitivity of receptor should all be taken into consideration. BS4142 includes allowances for a rating penalty to be added if it is found that the specific noise source contains a tone, impulse and/or other characteristic, or is expected to be present. The specific noise level along with any applicable correction is referred to as the 'rating level'.

The greater the increase between the rating level over the background noise level, the greater the magnitude of the impact. The assessment criteria given by BS4142 are as follows:

- A difference of around +10dB or more is likely to be an indication of a significant adverse impact, depending on the context.
- A difference of around +5dB is likely to be an indication of an adverse impact, depending on the context.
- The lower the rating level is relative to the measured background sound level, the less likely it is that the specific sound source will have an adverse impact or a significant adverse impact. Where the rating level does not exceed the background sound level, this is an indication of the specific sound source having a low impact, depending on the context.

During the daytime, BS4142 requires that noise levels are assessed over 1-hour periods. However, during the night-time, noise levels are required to be assessed over 15-minute periods.



Where the initial estimate of the impact needs to be modified due to context, BS4142 states that all pertinent factors should be taken into consideration, including:

- The absolute level of sound;
- The character and level of the residual sound compared to the character and level of the specific sound; and
- The sensitivity of the receptor and whether dwellings or other premises used for residential purposes will already incorporate design measures that secure good internal and/or outdoor acoustic conditions.

Code of Practice on Environmental Noise Control at Concerts, 2011

The Code of Practice on Environmental Noise Control at Concerts consider various guidelines and criteria. The code provides advice on how to minimise disturbance from noise due to music events via compliance to the guidelines and criteria referenced within the document.

The code provides music noise levels guideline levels for different types of venue categories. These are shown in Table 3.

Concert Days per calendar year, per venue	Venue Category	Guideline
1 to 3	Urban stadia or arenas	The MNL should not exceed 75dB(A) over a 15 minute period
1 to 3	Other urban and rural venues	The MNL should not exceed 65dB(A) over a 15 minute period
4 to 12	All venues	The MNL should not exceed the background noise level by more than 15dB(A) over a 15 minute period

In addition to the above table, for those venues where more than 3 events per calendar year are expected, the frequency and scheduling of events will affect the level of disturbance. In particular, additional discharges can arise if events occur more than three consecutive days without reduction in the permitted MNL.

The code states that with certain types of events, it may be necessary to set additional criterion in terms of frequency noise or apply additional control conditions. It is recognised within the code that although guidelines maybe being achieved, complaint may still occur simply because the music is audible.



It is recommended, prior to any event to plan how the event will be executed including testing noise level equipment and determining likely noise levels at the nearest receptors for comparison with the guidelines. Noise monitoring can be continued through the event to ensure guidelines are being met.

British Standard 5228: 2009+A1:2014 Code of Practice for Noise and Vibration Control on Construction and Open Sites – Part 1: Noise (BS5228-1), and Part 2: Vibration (BS5228-2):

The activities associated with the demolition, earthworks and construction phase of the proposed development will have the potential to generate noise and create an impact on the surrounding area.

Guidance on the prediction and assessment of noise from development sites is given in British Standard 5228-1:2009+A1:2014 “Code of Practice for noise and vibration control on construction and open sites – Part 1: Noise” (BS5228-1) and BRE Controlling particles, vapour and noise pollution from construction sites, Parts 1 to 5, 2003.

Demolition and construction noise can have a disturbing effect on the surrounding neighbourhood. The effects are varied and are complicated further by the nature of the site works, which will be characterised by the type of noise sources and their locations throughout the demolition and construction period. The duration of site operations is also an important consideration. Higher noise levels may be acceptable if it is known that the levels will occur for a limited period.

In addition to COPA 1974, BS5228-1 provides guidance on significance criteria for assessing the potential noise impacts associated with the demolition and construction phase of large projects. For the purposes of this noise assessment, the noise likely to be generated by the demolition and earthworks and construction phase, have been assessed against significance criteria established, using the BS5228-1 ABC Method.

The ABC method for determining significance criteria requires the ambient noise levels at existing sensitive receptors to be determined. The ambient noise levels at each existing receptor location are then rounded to the nearest 5dB(A) to determine the appropriate threshold value in accordance with the category value, A B or C, as detailed in Table 4.

Table 4: Thresholds of Significant Impact from Construction Noise at Residential Receptors in accordance with the ABC Method of BS5228-1			
Assessment Category and Threshold Value Period (L _{Aeq})	Threshold Value, in decibels (dB)		
	Category A * ¹	Category B * ²	Category C * ³
Daytime (0700 to 1900 hours) and Saturdays (0700 to 1300 hours)	65	70	75



* ¹ Category A: Threshold values to use when ambient noise levels (when rounded to the nearest 5dB) are less than this value.
* ² Category B: Threshold values to use when ambient noise levels (when rounded to the nearest 5dB) are the same as Category A values.
* ³ Category C: Threshold values to use when ambient noise levels (when rounded to the nearest 5dB) are higher than Category A values.

The noise level likely to be generated at the receptor during the demolition and construction phase, i.e. the ambient noise level plus demolition and construction noise, is then compared to the appropriate category value. If the noise level is greater than the appropriate category value, a significant noise impact may be registered.

For the purposes of this assessment it is possible to estimate the degree of impact from the Site works (demolition, earthworks and construction), according to the suggested standards, by reference to the time periods during which noise levels may occur in excess of the quoted values. These levels can be seen in Table 5.

Magnitude of Impact	Criteria for assessing Construction Noise Impact
Large	Noise levels exceed the Assessment Category threshold level for the duration of the construction works.
Medium	Noise levels exceed the Assessment Category threshold level for periods of more than one month, but for significantly less than the whole duration of the construction works.
Small	Noise levels exceed the Assessment Category threshold level for periods of less than one month.
Negligible	Noise levels do not exceed the Assessment Category threshold level during any period.

Work involving heavy plant on an open Site is likely to generate vibration, which may, in certain circumstances, propagate beyond the boundary of the Site. In situations where particularly heavy plant, vibrating compaction equipment or piling rigs are being used close to the Site boundary, nearby properties may experience ground-borne vibration.

Guidance on the assessment of vibration from development Sites is given in British Standard 5228-2:2009+A1:2014 “Code of Practice for noise and vibration control on construction and open Sites – Part 2: Vibration” (BS5228-2). BS5228-2 2009+A1:2014 indicates that vibration can have disturbing effects on the surrounding neighbourhood; especially where particularly sensitive operations may be taking place. The significance of vibration levels which may be experienced adjacent to a Site is dependent upon the nature of the source.



It is not possible to mitigate vibration emissions from an open Site. It is important therefore to examine the proposed working method to ascertain what, if any, operations would be likely to cause unacceptable levels of vibration at nearby sensitive locations. It is possible that these operations could be modified to reduce their vibration impacts.

BS5228-2 indicates that the threshold of perception is generally accepted to be between a peak particle velocity (PPV) of 0.14 and 0.3mm/sec. In an urban situation it is unlikely that such vibration levels would be noticed. BS5228-2 also indicates that it is likely that vibration of 1.0 mm/s in residential environments will cause complaint, but can be tolerated if prior warning and explanation have been given to residents. The standard also indicates that 10 mm/s is likely to be intolerable for any more than a very brief exposure to this level.

The Highways Agency Research report No. 53 *“Ground Vibration caused by Civil Engineering Works”* 1986 suggests that, when vibration levels from an unusual source exceed the human threshold of perception, complaints may occur. The onset of complaints due to continuous vibration is probable when the PPV exceeds 3mm/sec.

British Standard BS6472: 2008 *“Guide to Evaluation of human exposure to vibration in buildings. Part 1: Vibration sources other than blasting”* (BS6472-1) suggests that adverse comments or complaints due to continuous vibration are rare in residential situations below a PPV of 0.8mm/sec. Continuous vibration is defined as “vibration which continues uninterrupted for either a daytime period of 16 hours or a night-time period of 8 hours”. The proposed demolition, earthworks and construction works at the Site will not cause continuous vibration as defined in BS6472-1.

Human perception of vibration is extremely sensitive. People can detect and be annoyed by vibration before there is any risk of structural damage. Cases where damage to a building has been attributed to the effects of vibration alone are extremely rare; even when vibration has been considered to be intolerable by the occupants.

It is not possible to establish exact vibration damage thresholds that may be applied in all situations. The likelihood of vibration induced damage or nuisance will depend upon the nature of the source, the characteristics of the intervening solid and drift geology and the response pattern of the structures around the Site. Most of these variables are too complex to quantify accurately and thresholds of damage, or nuisance, are therefore conservative estimates based on a knowledge of engineering.



Where ground vibration is of a relatively continuous nature, there is a greater likelihood of structural damage occurring, compared to transient vibration; for example that caused by transiting vehicles.

BS5228-2 suggests that the onset of cosmetic damage is 15mm/sec (15 mm/s at 4 Hz increasing to 20 mm/s at 15 Hz for residential or light commercial type buildings).

The adverse residual impacts are assessed against the categories set out in Table 6.

Table 6: Construction Vibration Assessment Significance Criteria	
Magnitude of Impact	Criteria for Assessing Construction Vibration impact
Large	> 10mm per sec. Vibration likely to be intolerable for more than brief exposure. Approaching the level at which cosmetic damage may occur in light structures.
Medium	5mm - 10mm per second. Tolerance less likely even with prior warning and explanation.
Small	1mm – 5mm per second. Complaints are likely, but can be tolerated if prior warning and explanation given.
Negligible	<1mm per second. Below level at which complaints are likely.

Work involving heavy plant on an open Site is likely to generate vibration, which may, in certain circumstances, propagate beyond the boundary of the Site. In situations where particularly heavy plant, vibrating compaction equipment or piling rigs are being used close to the Site boundary, nearby properties may experience ground-borne vibration.

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It is not possible to mitigate vibration emissions from an open Site. It is important therefore to examine the proposed working method to ascertain what, if any, operations would be likely to cause unacceptable levels of vibration at nearby sensitive locations. It is possible that these operations could be modified to reduce their vibration impacts.

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