BS 5228-2:2009+A1:2014

BSI Standards Publication

# Code of practice for noise and vibration control on construction and open sites –

## Part 2: Vibration

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## Publishing information

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## Supersession

Together with BS 5228-1:2009, this part of BS 5228 supersedes BS 5228-1:1997, BS 5228-2:1997, BS 5228-3:1997, BS 5228-4:1992 and BS 5228-5:1997, which are withdrawn.

BS 5228-2:2009+A1:2014 supersedes BS 5228-2:2009, which is withdrawn.

## Relationship with other publications

BS 5228 is published in two parts:

- Part 1: *Noise*;
- Part 2: *Vibration*.

BS 6472 gives detailed guidance on human response to vibration in buildings and BS ISO 4866:2010 covers the measurement and evaluation of structural vibration. BS 7385-2 contains guidance on damage levels from groundborne vibration.

An item dealing with the vibratory loading of structures, ISO/FDIS 10317, is being processed within ISO Technical Committee ISO/TC 98/SC/2, *Safety of structures*. This is being monitored by BSI.

## Information about this document

This British Standard refers to the need for the protection against noise and vibration of persons living and working in the vicinity of, and those working on, construction and open sites. It recommends procedures for noise and vibration control in respect of construction operations and aims to assist architects, contractors and site operatives, designers, developers, engineers, local authority environmental health officers and planners.

Noise and vibration can cause disturbance to processes and activities in neighbouring buildings, and in certain extreme circumstances vibration can cause or contribute to building damage.

Noise and vibration can be the cause of serious disturbance and inconvenience to anyone exposed to it and in certain circumstances noise and vibration can be a hazard to health. Attention is drawn to the legislation summarized in Annex A.

BS 5228-2:2009 was a full revision of this part of BS 5228, and introduced the following principal changes:

- restructuring of the standard into two parts, one dealing with noise and one with vibration;
- updating of information relating to legislative requirements;
- updating of information relating to methods and equipment.

by tags ▮A1⟩ ⟨A1▮. Minor editorial changes are not tagged.

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### Use of this document

As a code of practice, this part of BS 5228 takes the form of guidance and recommendations. It should not be quoted as if it were a specification and particular care should be taken to ensure that claims of compliance are not misleading.

Any user claiming compliance with this part of BS 5228 is expected to be able to justify any course of action that deviates from its recommendations.

### Presentational conventions

The provisions in this standard are presented in roman (i.e. upright) type. Its recommendations are expressed in sentences in which the principal auxiliary verb is "should".

*Commentary, explanation and general informative material is presented in smaller italic type, and does not constitute a normative element.*

### Contractual and legal considerations

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

**Compliance with a British Standard cannot confer immunity from legal obligations.**

This part of BS 5228 gives recommendations for basic methods of vibration control relating to construction and open sites where work activities/operations generate significant vibration levels, including industry-specific guidance.

The legislative background to vibration control is described and recommendations are given regarding procedures for the establishment of effective liaison between developers, site operators and local authorities.

Guidance is provided concerning methods of measuring vibration and assessing its effects on the environment.

## 2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

〈A1〉 BS EN ISO 8041:2005, *Human response to vibration – Measuring instrumentation*

BS ISO 2041:2009, *Mechanical vibration, shock and condition monitoring – Vocabulary* 〈A1〉

## 3 Terms and definitions

For the purposes of this part of BS 5228, the definitions given in 〈A1〉 BS ISO 2041:2009 〈A1〉 and the following apply.

**3.1 air overpressure**
airborne pressure waves generated by blasting, produced over a range of frequencies including those which are audible and those which are below the lower end of the audible spectrum

*NOTE Air overpressure can be quantified either as a pressure or as a level in linear (unweighted) decibels (dB).*

**3.2 amplification factor**
motion measured at a given point (usually on the structure), divided by the motion measured at a reference point (usually at the base of the structure or on the foundation)

**3.3 peak particle velocity (PPV)**
instantaneous maximum velocity reached by a vibrating element as it oscillates about its rest position

**3.4 overburden**
material overlying the coal, or mineral or minerals to be extracted, including topsoil and subsoil

*NOTE Economic deposits of other minerals can occur in the overburden.*

**3.5 piling**
installation or removal of bored, driven and pressed-in piles and the effecting of ground treatments by vibratory, dynamic or other methods of ground stabilization

**3.6 vibration dose value (VDV)**
measure of the total vibration experienced over a specified period of time