



Noise reduction and control

Eliminating or reducing excessive noise at work is not simply a legal responsibility for employers; it is also in an organisation's commercial interests. The safer and healthier the working environment, the lower the probability of costly absenteeism, accidents and under-performance. This factsheet outlines the main steps that should be taken to reduce and control noise at work.

Steps to success

Noise can be a problem in many workplaces, not just on construction sites and in factories, but anywhere from farms to bars, schools to concert halls. Whatever the workplace, there are three key steps to preventing harm to workers:

- ☑ assess the risks;
- ☑ based on the assessment, take steps to prevent or control the risks;
- ☑ regularly monitor and review the effectiveness of the measures in place.

Assessing the risks

The degree and type of assessment will depend upon the scope and extent of the problem in the workplace, but all the risks arising from noise should be considered. For example, the ways in which noise may increase the risk of accidents in a factory should be considered along with the risk of noise-induced hearing loss (NIHL).

Key points in a risk assessment

- ☑ Identify the different noise-related risks in your organisation. For example:
 - Are some workers exposed to loud noises, with the potential risk of noise-induced hearing loss?



- Are there dangerous substances present that may increase the risk of hearing damage?
- Does noise in certain work tasks make it more difficult to communicate, increasing the risk of accidents?
- Is the nature of the noise contributing to the work-related stress within the organisation?
- ☑ Consider who may be harmed and how, including temporary and part-time staff, as well as workers in specific risk groups such as employees who are pregnant.
- ☑ Evaluate measures that are already in place to control noise levels, and decide what further action needs to be taken.
- ☑ Record all your findings and share them with workers and their representatives.

Take steps to prevent or control risks

There is a hierarchy of control measures that can be followed to ensure the health and safety of workers:

- ☑ elimination of noise sources;
- ☑ control of noise at source;
- ☑ collective control measures through work organisation and workplace layout;
- ☑ personal protective equipment.

Eliminate the noise source

The elimination of a source of noise is the most effective way to prevent risks to workers, and should always be considered when new work equipment or workplaces are planned. A 'no noise or low noise' procurement policy is usually the most cost-effective way to prevent or control noise. Several Member States have databases to help enterprises in the selection of work equipment.

Control of noise at source

The reduction of noise, either at its source or in its path should be a major focus of noise management programmes, considering both equipment and workplace design and maintenance.

A range of engineering controls can achieve this, including:

- ☑ isolation of the source, via location, enclosure, or vibration damping using metal or air springs or elastomer supports;
- ☑ reduction at the source or in the path — using enclosures and barriers, mufflers or silencers on exhausts, or by reducing cutting, fan, or impact speeds;
- ☑ replacement or alteration of machines — including belt drives as opposed to noisier gears, or electrical rather than pneumatic tools;

- ✓ application of quieter materials — such as rubber liners in bins, conveyors, and vibrators;
- ✓ active noise reduction ('anti-noise'), in certain circumstances;
- ✓ carrying out preventive maintenance: as parts become worn, noise levels can change.

Collective control measures

Where noise cannot be adequately controlled at source, further steps should be taken to reduce the exposure of workers to noise. These can include changing the:

- ✓ workplace — sound absorption in a room (e.g. a sound absorbing ceiling) can have a significant effect on reducing workers' exposure to noise;
- ✓ work organisation (e.g. using working methods that require less exposure to noise); and
- ✓ work equipment — how work equipment is installed, and where it is located, can make a big difference to workers' noise exposure.

The ergonomics of any noise control measure should be considered. When noise control measures create difficulties for workers to carry out their jobs, they may be modified or removed, rendering them ineffective.

Personal protective equipment

Personal protective equipment (PPE), such as earplugs and earmuffs, should be used as a last resort after all efforts to eliminate or reduce the source of the noise have been exhausted. Issues to take into account when using PPE include:

- ✓ making sure the PPE chosen is appropriate for the type and duration of the noise — it should also be compatible with other protective equipment;
- ✓ employees should have a choice of suitable hearing protection so they can select the most comfortable solution;
- ✓ many workers, such as drivers, police officers, pilots, and camera operators, need communication earmuffs or headsets, often with active noise cancellation (ANC) to ensure clear communication and minimise accident risks;
- ✓ the PPE should be correctly stored and maintained; and
- ✓ training should be given on why the PPE is necessary, how it should be used, and how to store and maintain it.

Information and training

Workers should receive information and training to help them understand and deal with the noise-related risks. This should cover:

- ✓ the risks faced, as well as the measures taken to eliminate or reduce them;

- ✓ the results of the risk assessment and any noise measurements, including an explanation of their significance;
- ✓ noise control and hearing protection measures, including PPE;
- ✓ why and how to detect and report signs of hearing damage;
- ✓ when workers are entitled to health surveillance, and its purpose.

Regularly monitor the risks and control measures

Employers should check regularly that the measures in place to prevent or control noise are still working effectively. Depending on their noise exposure, workers have a right to appropriate health surveillance. Where this occurs, individual health records must be kept and information provided to the employees. The knowledge gained from the surveillance should be used to review the risks and control measures.

Employee involvement

Consulting the workforce is a legal requirement, and helps to ensure that the workers are committed to safety and health procedures and improvements. Using their knowledge helps to ensure hazards are correctly spotted and workable solutions implemented. Worker representatives have an important role in this process. Employees must be consulted on health and safety measures before the introduction of new technology or products.

Legislation

In 2003, Directive 2003/10/EC of the European Parliament and of the Council on the minimum health and safety requirements regarding the exposure of workers to the risks arising from physical agents (noise) was adopted. This directive is to be transposed into the national legislation of all Member States before 15 February 2006 ⁽¹⁾.

Article 5(1) of the directive requires that, taking into account technical progress and the measures available to control the risk at source, 'the risks arising from exposure to noise shall be eliminated at their source or reduced to a minimum'. The directive also sets a new daily exposure limit value of 87 dB(A).

⁽¹⁾ Replacing Directive 86/188/EEC.

Further information

This factsheet is part of the European Week for Safety and Health at Work 2005 campaign. Additional factsheets and information on noise are available at <http://ew2005.osha.eu.int>. Information on EU safety and health legislation can be found at <http://europa.eu.int/eur-lex/>

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