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**Guide to the
Safety, Health and Welfare at Work
(General Application) Regulations 2007
Chapter 1 of Part 5: Control of Noise
at Work**

Table of Contents

	Page
Introduction	3
General Background Information	4
The impact of noise at work	4
Who is at risk?	5
Regulation 120 – Interpretation	7
Regulation 121 – Application	7
Regulation 122 – Transitional periods	7
Regulation 123 - Exposure Limit Values and Exposure Action Values	7
Regulation 124 - Determination and Assessment of Risks above a Lower Exposure Action Value	9
Regulation 125 - Provisions aimed at Avoiding or Reducing Exposure	13
Regulation 126 – Application of Upper Exposure Action Values	14
Regulation 127 – Prevention of Exposure above Noise Level of 85 dB(A)	14
Regulation 128 – Application of Exposure Limit Value	14
Regulation 129 - Personal Protection	16
Regulation 130 - Employee Information, Training and Consultation	17
Regulation 131 - Health Surveillance, Records and Effects	18
Regulation 132 - Exemptions	21
Prevention or control of risks	22
Eliminate the noise source	22
Control of noise at source	22
Collective control measures	23
Sources of Further Information and Bibliography	24

Guide to Chapter 1 of Part 5 of the General Application Regulations 2007

Chapter 1 of Part 5: CONTROL OF NOISE AT WORK

Introduction

This Guide is aimed at safety and health practitioners, employers, managers, employees, safety representatives and others to give guidance on Chapter 1 of Part 5 of the Safety, Health and Welfare at Work (General Application) Regulations 2007 (S.I. No. 299 of 2007) as amended from 12 November 2007 by the Safety, Health and Welfare at Work (General Application)(Amendment) Regulations 2007 (S.I. No. 732 of 2007) relating to the control of noise at work. The objective of the Guide is to give practical guidance aimed at the prevention of occupational accidents or ill health. It is not intended as a legal interpretation of the legislation.

The Regulations retranspose Directive 2003/10/EC of the European Parliament and of the Council of 6 February 2003 on the minimum health and safety requirements regarding the exposure of workers to the risks arising from physical agents (noise).

From 1 November 2007, Chapter 1 of Part 5 of the General Application Regulations 2007 as amended replaces the Safety, Health and Welfare at Work (Control of Noise at Work) Regulations 2006 (S.I. No. 371 of 2006), which are revoked from that date.

In this Guide the text of the Regulations is shown in italics.

The General Application Regulations 2007 are made under the Safety, Health and Welfare at Work Act 2005 (No. 10 of 2005) referred to elsewhere in this Guide as “the Act”.

The Regulations come into effect from 1 November 2007, other than, in accordance with Article 17 of Directive 2003/10/EC –

- ◆ Regulation 122 defers the application of the Regulations in the “music and entertainment” sectors until 15 February 2008 but the European Communities (Protection of Workers)(Exposure to Noise) Regulations 1990 (S.I. No. 157 of 1990) continue to apply to those sectors until 14 February 2008, and
- ◆ Regulation 122 also defers the application of the exposure limit value to personnel on board seagoing vessels (Regulation 128) until 15 February 2011.

In accordance with Article 14 of Directive 2003/10/EC, separate guidelines will be produced by the Health and Safety Authority, to provide practical guidance to assist employers and employees in the music and entertainment sectors to whom the Regulations will apply from 15 February 2008.

General Background Information

The basic instrument for measuring noise is a sound level meter. A dosimeter (personal sound exposure meter) worn by the employee can also be used. A calibrator to check the meter and a windshield to protect the microphone against air movement and dirt are essential accessories.

Noise is measured in decibels (dB). To address the way the human ear responds to sound of different frequencies, an A-weighting is commonly applied. The measurements are expressed in dB(A). To measure peak, impact or explosive noises a C-weighting is applied which is a wide band frequency-weighting and the measurements are expressed in dB(C).

Noise is a measure of pressure on the ear - a 3 dB increase in noise represents a doubling of that pressure, so what seems like a small difference in numbers can be quite significant.

The impact of noise at work.

Every day, millions of employees in the European Union are exposed to noise at work and all the risks this can entail.

While noise is most obviously a problem in industries such as manufacturing and construction, it can also be an issue in a wide range of other working environments, from call centres to schools, orchestra pits, bars etc.

One in five of Europe's workers have to raise their voices to be heard for at least half of the time that they are at work and 7% suffer from work-related hearing difficulties. (European Agency for Safety and Health at Work).

Noise-induced hearing loss is the most common reported occupational disease in the EU.

There is good evidence that a risk to hearing from prolonged exposure to noise exists at levels down to 85 dB(A) and a residual risk down to 80 dB(A).

Workers who are regularly exposed above the upper exposure action value of 85 dB(A) will be at increased risk of damage to their hearing resulting in noise-induced hearing loss.

Effects on hearing can be temporary or permanent. Temporary deafness is often experienced after leaving a noisy place. Although hearing recovers within a few hours, this should not be ignored as it is a sign that continued or regular exposure to such noise could cause permanent damage.

Hearing loss is usually gradual due to prolonged exposure to noise. It may only be when damage caused by noise over the years combines with normal hearing loss due to ageing that people realise how deaf they have become. Hearing damage can also be caused immediately by sudden extremely loud noises, e.g. from electric arcs, foundry

fettling machines, guns or cartridge-operated machines etc., though this is not common. Noise-induced hearing loss is permanent and incurable and can affect anybody.

Exposure to noise may also cause tinnitus, which is a sensation of noises in the ears such as ringing or buzzing. This may occur in combination with hearing loss.

These conditions are entirely preventable if-

- manufacturers design machinery to operate more quietly,
- employers introduce controls to reduce exposure to noise at source,
- where noise cannot be adequately controlled at source, employers provide suitable hearing protection
- employees make use of any protective measures supplied,
- employees control their exposure to noise outside of work.

Who is at risk?

Anyone who is exposed to noise is potentially at risk. The higher the noise level and the longer you are exposed to it, the more risk you have of suffering ill effects from noise.

As a rule of thumb you may be at risk if:

- you have to shout to be clearly heard by someone 2 metres away,
- your ears are still ringing after leaving the workplace,
- the noise is intrusive – like a vacuum cleaner or a crowded restaurant – for most of the day,
- you work in a noisy industry, e.g. construction, woodworking, canning or bottling etc.
- there are noises due to impacts such as caused by hammering, impact tools and cartridge operated tools etc.

Some examples of typical noise levels are:

- quiet library 30 dB,
- conversation 60 dB,
- classroom 70 dB,

- tractor cab 80 dB,
- power drill 90 dB,
- night club 100 dB.

An exposure to 97 dB for 15 minutes is equivalent to a daily noise exposure level of 80 dB.

An exposure to 86 dB for two hours is equivalent to a daily noise exposure level of 80 dB.

An exposure to 78 dB for twelve hours is equivalent to a daily noise level of 80 dB.

In manufacturing and mining, 40% of employees experience significant noise levels for more than half of their working time. For construction, the proportion is 35% and in many other sectors, including agriculture, transport and communications, the figure is 20%. (European Agency for Safety and Health at Work).

It is not only manufacturing and other traditional industries where noise is a problem. Noise is being recognised as a problem in service sectors such as education, healthcare, bars and restaurants.

Regulation 120 – Interpretation.

120. *In this Chapter:*

“daily noise exposure level ($L_{EX, 8h}$) (dB)(A) re: 20 μ Pa)” means the time-weighted average of the noise exposure level for a nominal eight-hour working day as defined by international standard ISO 1999: 1990, point 3.6, covering all noises present at work, including impulsive noise;

“exposure action values” mean for any employee the level of daily noise exposure or peak pressure level which, if exceeded, requires specified action to be taken to reduce risk;

“exposure limit value” means for any employee, the level of daily noise exposure or peak sound pressure which must not be exceeded;

“noise” means any audible sound;

“peak sound pressure (p_{peak})” means the maximum value of the “C”-frequency weighted instantaneous noise pressure;

“weekly noise exposure level ($L_{EX, 8h}$)” means the time-weighted average of the daily noise exposure levels for a nominal week of five eight-hour working days as defined by international standard ISO 1999: 1990, point 3.6 (note 2).

Regulation 121 – Application.

121. *This Chapter, subject to Regulation 122, applies to activities in which employees are or are likely to be exposed to risks to their safety and health arising from exposure to noise during their work and, in particular, the risk to hearing.*

Regulation 122 – Transitional periods.

122. (1) *In the case of employees on board seagoing vessels, Regulation 128 does not apply until 15 February 2011.*

(2) *Taking account of Regulation 3(1)(z) and (2), this Chapter does not apply to the music and entertainment sectors until 15 February 2008.*

Regulations 120 (Interpretation), 121 (Application) and 122 (Transitional periods) are self-explanatory.

Regulation 123 - Exposure limit values and exposure action values.

123 (1) *For the purposes of this Chapter, the exposure limit values and exposure action values in respect of the daily noise exposure levels and peak sound pressure are as follows:*

(a) *exposure limit values—*
 $LEX_{8h} = 87 \text{ dB(A)}$ and $p_{peak} = 140 \text{ dB(C)}$ in relation to $20 \mu\text{Pa}$;

(b) *upper exposure action values—*
 $LEX_{8h} = 85 \text{ dB(A)}$ and $p_{peak} = 137 \text{ dB(C)}$ in
relation to $20 \mu\text{Pa}$;

(c) *lower exposure action values—*
 $LEX_{8h} = 80 \text{ dB(A)}$ and $p_{peak} = 135 \text{ dB(C)}$ in relation to $20 \mu\text{Pa}$.

(2) *An employer, when applying the exposure limit values referred to in paragraph (1)(a) in determining an employee's effective exposure, shall take account of the attenuation provided by individual hearing protectors worn by the employee.*

(3) *The exposure action values referred to in paragraphs (1)(b) and (c) apply irrespective of the attenuating effect of any such hearing protectors as referred to in paragraph (2).*

(4) *For activities where the daily noise exposure varies markedly from one working day to the next, an employer, for the purposes of applying the exposure limit values and the exposure action values, may use the weekly noise exposure level in place of the daily noise exposure level to assess the levels of noise to which the employer's employees are exposed, provided that—*

(a) *the weekly noise exposure level as shown by adequate monitoring does not exceed the exposure limit value of 87 dB(A) , and*

(b) *appropriate measures are taken in order to reduce the risk associated with these activities to a minimum.*

The exposure limit value means for any worker the level of daily exposure or peak sound pressure which must not be exceeded.

The **exposure limit values** are

$L_{EX, 8h} = 87 \text{ dB (A)}$ and $P_{peak} = 140 \text{ dB(C)}$ in relation to $20 \mu\text{Pa}$.

The exposure action values mean for any worker the levels of daily noise exposure or peak pressure level which, if exceeded, requires specified action to be taken to reduce risk.

The **upper exposure action values** are

$L_{EX, 8h} = 85 \text{ dB(A)}$ and $P_{peak} = 137 \text{ dB(C)}$ in relation to $20 \mu\text{Pa}$.

The **lower exposure action values** are

$L_{EX,8h} = 80 \text{ dB(A)}$ and $P_{\text{peak}} = 135 \text{ dB(C)}$ in relation to $20 \mu\text{Pa}$.

When applying the exposure limit values, the determination of an employee's effective exposure must take account of the attenuation provided by individual hearing protectors worn by the worker. It should be noted that the exposure action values shall not take account of the effect of any such protectors.

The attenuation provided by individual hearing protectors worn by a worker may be estimated using a number of different methods. The principal three methods for passive hearing protectors are defined by international standard I.S. EN ISO 4869-2:1996, Acoustics –Hearing Protectors-Part 2: Estimation of Effective A-weighted Sound Pressure Levels when Hearing Protectors are Worn.

Regulation 123(4) allows an employer to calculate exposure over a week rather than over a day in circumstances where the noise exposure varies markedly from day to day. The formula for calculating weekly exposure is as defined by international standard ISO 1999: 1990, point 3.6 (note 2)¹.

Use of the weekly exposure might be appropriate in situations where noise exposure varies markedly from day to day, e.g. where employees use noisy power tools on one day in the week but not on others. It is only likely to be appropriate where daily noise exposure on one or two working days in a week is at least 5 dB higher than the other days, or the working week comprises three or fewer days of exposure.

When considering whether to use weekly averaging it is important to ensure there is no increase in risk to health. It would not, for example, be acceptable to expose workers to very high noise levels on a single day without providing them with hearing protection. There is an overriding requirement to ensure so far as is reasonably practicable that the risk from exposure to noise is eliminated at source or reduced to a minimum (Regulation 125(a)).

Risk Assessment

Regulation 124 - Determination and Assessment of Risks above a Lower Exposure Action Value.

124. *An employer shall—*

(a) without prejudice to sections 19 and 20 of the Act, where employees are liable to be exposed to noise at work above a lower exposure action value, in consultation with the employer's employees or their representatives, or both, make a suitable and appropriate assessment of the risk arising from such exposure,

¹ International standard ISO 1999: 1990, point 3.6 (note 2) defines the means for calculating the time-weighted average of the daily noise exposure levels for a nominal week of five eight-hour working days.

(b) in carrying out the risk assessment referred to in paragraph (a), if necessary, measure the levels of noise to which the employer's employees are exposed,

(c) be responsible for the assessment referred to in paragraphs (a) and (b) being planned and carried out competently at suitable intervals and for ensuring that any sampling is representative of the daily personal exposure of an employee to noise,

(d) ensure that the methods and apparatus used in the measurement of noise at work for the purposes of this Chapter are adapted to—

(i) the prevailing conditions, particularly in the light of the characteristics of the noise to be measured,

(ii) the length of exposure, ambient factors, and

(iii) the characteristics of the measuring apparatus, and

that it is possible to—

(I) determine the parameters defined in Regulation 120, and

(III) decide, whether in a given case, the values specified in Regulation 123 have been exceeded,

(e) give particular attention when carrying out a risk assessment under this Regulation to the following—

(i) the level, type and duration of exposure, including any exposure to impulsive noise,

(ii) the exposure limit values and the exposure action values specified in Regulation 123,

(iii) the effects of exposure to noise on employees whose safety or health is at particular risk from such exposure,

(iv) as far as technically possible, any effects on employees' safety and health resulting from interactions between noise and work-related ototoxic substances, and between noise and vibrations,

(v) any indirect effects on employees' safety or health resulting from interactions between noise and warning signals or other sounds that need to be observed in order to reduce the risk of accidents,

(vi) any information on noise emission provided by the manufacturers of work equipment in accordance with section 16 of the Act,

(vii) the availability of alternative equipment designed to reduce noise emission,

(viii) the extension of exposure to noise beyond normal working hours under the employer's responsibility,

(ix) appropriate information obtained from health surveillance including, where possible, published information, and

(x) the availability of hearing protectors with adequate attenuation characteristics,

(f) without prejudice to section 19(3) of the Act, review a risk assessment undertaken for the purposes of this Chapter where the results of health surveillance undertaken in accordance with Regulation 131 show it to be necessary,

(g) record in the safety statement drawn up pursuant to section 20 of the Act—

(i) the findings of the risk assessment as soon as it is practicable after it is made, and

(ii) the steps which he or she has taken to comply with Regulations 125 to 130, and

(h) review the assessment and, if necessary, the measurement referred to in paragraph (b) at suitable intervals and, in particular, where either of the conditions specified in section 19(3) (a) and (b) of the Act are met.

Employers have a legal duty to protect the safety and health of employees from all noise-related risks at work. If there are reasonable grounds for believing that the exposure exceeds the lower exposure action values a risk assessment shall be made which may include noise measurements.

The purpose of this risk assessment is to enable the employer to make a valid decision about whether action is necessary to prevent or adequately control exposure of his or her employees to noise at the workplace. A suitable and sufficient noise risk assessment is one which –

- identifies sources of noise,
- identifies the employees who are exposed above the lower exposure action values,

- contains information on noise exposure derived from measurements where these have been taken (if there are no measurements a brief explanation should be provided);
- identifies the necessary measures to eliminate the risks or reduce them to a minimum,
- includes such information as is necessary to permit compliance with other duties under the Regulations, and
- is based on competent advice as required.

The employer must give particular attention, when carrying out the risk assessment to the following -

- the level, type and duration of exposure, including any exposure to impulsive noise,
- the exposure limit values and the exposure action values specified in Regulation 123,
- any information on noise emission provided by the manufacturers of the work equipment,
- the availability of alternative equipment designed to reduce noise emission,
- the availability of modifications or enclosure panels etc. fitted to existing equipment designed to reduce noise emissions,
- as far as technically possible, any effects on employees' safety and health resulting from interactions between noise and work-related ototoxic (ear damaging) substances and between noise and vibrations. Some studies have suggested that there is a link between exposure to hand-transmitted vibration and hearing loss, meaning that workers may be more vulnerable to noise-induced hearing loss if they are exposed to hand-transmitted vibration. Other studies have suggested that some chemicals, particularly solvents, can act in combination with noise to cause further damage to hearing than from the noise or chemical exposure alone. Where there are likely to be such mixed exposures in a workplace the employer should note this within the risk assessment and monitor developments on these issues.
- the availability of hearing protectors with adequate attenuation characteristics [i.e. the PPE (personal protective equipment) must be appropriate to the task/activity based on a site specific risk assessment].

The level of exposure to noise may be assessed by means of -

- observation of specific work practices,

- reference to relevant information on the probable levels of noise corresponding to any equipment used in the particular working conditions, and
- if necessary, measurement of the level of noise to which employees are likely to be exposed.

Elimination or Control.

Regulation 125 - Provisions aimed at Avoiding or Reducing Exposure.

125. *An employer shall—*

(a) in compliance with the general principles of prevention set out in Schedule 3 to the Act, and in consultation with the employer's employees or representatives, or both, ensure, so far as is reasonably practicable, that the risk arising from exposure of the employer's employees to noise is either eliminated at source or reduced to a minimum,

(b) in complying with paragraph (a), take into account, in particular—

(i) other methods of work which eliminate or reduce exposure to noise,

(ii) the choice of appropriate work equipment, taking account of the work to be done, emitting the least possible noise, including the possibility of making available to employees work equipment in compliance with section 16 of the Act with the aim or effect of limiting exposure to noise,

(iii) the design and layout of places of work and workstations,

(iv) adequate information and training to instruct employees to use work equipment correctly and safely in order to reduce their exposure to noise to a minimum,

(v) noise reduction by technical means, such as—

(I) reducing air-borne noise, for instance by use of shields, enclosures and sound absorbent coverings,

(II) reducing structure-borne noise, for instance by damping or isolation,

(vi) appropriate maintenance programmes for work equipment, the place of work, workstations and systems of work, and

(vii) organisation of work to reduce noise by –

(I) limiting the duration and intensity of the exposure, and

(II) arranging appropriate work schedules with adequate rest periods,

(c) where, owing to the nature of the activity, rest facilities are provided, ensure that noise in those facilities is reduced to a level compatible with their purpose and the conditions of use, and

(d) adapt any measure taken in compliance with this Regulation and Regulations 126 and 127, to take account of any employee whose safety or health is at particular risk from exposure to noise.

Regulation 126 - Application of Upper Exposure Action Values.

126. If a risk assessment referred to in Regulation 124 indicates that an upper exposure action value is exceeded, an employer shall establish and implement a programme of technical or organisational measures, or both, designed to reduce exposure to noise, taking into account, in particular, the measures referred to in Regulation 125.

Regulation 127 - Prevention of Exposure above Noise Level of 85dB(A).

127. If a risk assessment indicates that there are workstations within the place of work where employees are likely to be exposed to noise above 85dB(A), an employer shall—

(a) display mandatory warning signs, in accordance with Chapter 1, Part 7, to convey information that—

(i) the noise levels at those workstations are likely to exceed that upper exposure action value, and

(ii) hearing protectors are available and must be worn, and

(b) ensure that the workstations are protected from unauthorised access by barriers or other suitable means that are technically feasible and justified by the risk of exposure.

Regulation 128 - Application of Exposure Limit Value.

128. Subject to Regulation 122, an employer shall ensure that—

(a) the employer's employees are not exposed to noise above the exposure limit value, or

(b) if, despite the measures taken to comply with this Chapter, exposure above the exposure limit value is detected—

(i) immediate action is taken to reduce exposure to noise to below the exposure limit value,

(ii) the reasons for that limit being exceeded are identified, and

(iii) the organisational and technical measures taken in accordance with Regulation 125 are amended to prevent the exposure limit value being exceeded again.

If any worker is likely to be at risk from noise, the employer must establish and implement a programme of technical and organisational measures to reduce exposure. In this respect the employer must take into account, in particular, the following -

- (a) other working methods which eliminate or reduce exposure to noise,
- (b) choice of appropriate work equipment emitting the least possible noise, taking account of the work to be done,
- (c) the design and layout of workplaces, work stations and rest facilities,
- (d) suitable and sufficient information and training for employees, such that work equipment may be used correctly, in order to minimise their exposure to noise,
- (e) reduction of noise by technical means including, in the case of airborne noise, the use of shields, enclosures and sound-absorbent coverings; and in the case of structure-borne noise by damping and isolation,
- (f) appropriate maintenance programmes for work equipment, the workplace and workplace systems,
- (g) limitation of the duration and intensity of exposure to noise, and
- (h) appropriate work schedules with adequate rest periods (whereby there is a rest or break from that particular noisy task or work activity).

The employer must additionally, in cases where the noise is likely to exceed the upper exposure action value 85 dB (A) –

- provide a personal hearing protector to any worker who is so exposed and ensure that it is used correctly and always within the designated zone in which such exposure can occur,
- in accordance with Chapter 1 of Part 7 of the General Application Regulations 2007, post signs which convey that -

(a) the noise level at the workplace is likely to exceed the upper exposure action level, and

(b) hearing protectors are provided and **must** be worn,



- delimit the areas where noise levels exceed the upper exposure action value 85dB(A) and restrict access to the delimited area where this is practicable and the risk from exposure justifies it (i.e. only those required to enter such an area should be allowed entry and only then if they are firstly adequately protected against the risk of noise),

(An employer should also designate as hearing protection zones any areas where the upper exposure action level would be likely to be exceeded if workers spent a significant portion of their working day within them, even if access is generally infrequent, e.g. plant rooms or compressor houses).

- make available the services of a registered medical practitioner to carry out or to have carried out on his or her responsibility, a hearing check.

The employer must ensure that his or her employees are not exposed to noise above an exposure limit value, or if exposure above an exposure limit value is detected he or she must forthwith:

- take action to reduce exposure to noise below the limit value,
- identify the reason for that limit being exceeded, and
- amend the technical and organisational measures already taken.

Regulation 129 - Personal Protection.

129. (1) *An employer shall—*

(a) in accordance with sections 8, 9, 10, 13 and 14 of the Act, and where the risks arising from exposure to noise cannot be prevented by other means, make available appropriate, properly fitting, individual hearing protectors which comply with the relevant statutory provisions,

(b) where noise exposure exceeds the lower exposure action values, make individual hearing protectors available,

(c) ensure that individual hearing protectors referred to in subparagraph (a) are selected following consultation with the employees concerned or their representatives, or both, so as to eliminate the risk to hearing or reduce the risk to a minimum, and

(d) ensure, so far as is reasonably practicable, that—

(i) hearing protectors are used in accordance with paragraph (2), and

(ii) the measures taken under this Regulation are effective.

(2) An employee whose exposure to noise equals or exceeds the upper exposure action values shall use individual hearing protectors.

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 (i.e. must take into account the specific requirements of the work activity or tasks being performed),
- employees should have a choice of suitable hearing protection so they can select the most comfortable solution,
- the PPE should be correctly stored and maintained,
- training should be given on why the PPE is necessary, when it should be used, how it should be worn and how to store and maintain it properly and safely, and
- employees should report any defects in PPE without delay.

Regulation 130 - Employee Information, Training and Consultation.

130. An employer shall—

(a) without prejudice to sections 9 and 10 of the Act, where the employer's employees are exposed to noise at work at or above the lower exposure action value, provide them or their representatives, or both, with suitable and sufficient information and training relating to risks resulting from exposure to noise,

(b) ensure that, without prejudice to the generality of paragraph (a), the information and training provided under that paragraph includes—

- (i) the nature of such risks,*
 - (ii) the organisational and technical measures taken in order to comply with Regulation 125,*
 - (iii) the exposure limit values and the exposure action values specified in Regulation 123,*
 - (iv) the results of the assessment and measurements of the noise carried out in accordance with Regulation 124 and an explanation of their significance and the potential risks,*
 - (v) the correct use of hearing protectors,*
 - (vi) why and how to detect and report signs of hearing damage,*
 - (vii) the circumstances in which health surveillance is made available to employees and its purpose, in accordance with Regulation 131,*
 - (viii) safe working practices to minimise exposure to noise, and*
- (c) ensure that the consultation of employees in relation to this Chapter is effected in accordance with section 26 of the Act and includes in particular consultation in regard to Regulations 124(a), 125(a) and 129(1)(c).*

If any worker is likely to be exposed to noise at or above a lower exposure action value, the employer must provide suitable and sufficient information and training relating to risks resulting from exposure to noise, including on:

- the nature of the risks,
- the measures to avoid or reduce exposure,
- the results of risk assessments and noise measurements,
- the correct use of individual hearing protectors,
- entitlement to and purpose of health surveillance,
- safe working practices.

Regulation 131 - Health Surveillance, Records and Effects. as amended by the Safety, Health and Welfare at Work (General Application)(Amendment) Regulations 2007 (S.I. No. 732 of 2007)

131. (1) *Without prejudice to section 22 of the Act, an employer shall—*

(a) ensure that appropriate health surveillance is made available to those employees for whom a risk assessment referred to in Regulation 124 reveals a risk to their health, and

(b) without prejudice to the generality of paragraph (a)—

(i) in the case of employees whose exposure exceeds an upper exposure action value, make available to them the services of a registered medical practitioner to carry out, or to have carried out on his or her responsibility, a hearing check, and

(ii) in the case of employees whose exposure exceeds a lower exposure action value, make available to them preventive audiometric testing.

(as amended by the Safety, Health and Welfare at Work (General Application)(Amendment) Regulations 2007)

(2) The purpose of hearing checks and audiometric tests referred to in paragraph (2) shall be to provide early diagnosis of any hearing loss due to noise and to assist in the preservation of hearing.

(3) An employer shall—

(a) ensure that—

(i) a health record in respect of each of the employer's employees who undergoes health surveillance in accordance with paragraphs (1 and 2) is made and maintained, and

(ii) the record or a copy of it is kept available in a suitable form so as to permit appropriate access at a later date, taking into account any confidentiality concerns,

(b) on request, allow an employee access to his or her personal health record,

(c) provide the Authority with copies of such health records as the Authority may require, and

(d) if the employer ceases to trade, notify the Authority forthwith in writing and make available to the Authority all health records kept by the employer in accordance with this Chapter.

(4) Where, as a result of surveillance of the hearing function in accordance with this Regulation, an employee is found to have identifiable hearing damage, the employer shall ensure that a registered medical practitioner assesses whether such damage is likely to be the result of exposure to noise at work and, if so established—

(a) every relevant employee shall be informed by the registered medical practitioner of the result which relates to the employee personally; and

(b) the employer shall—

(i) review the risk assessment carried out in accordance with Regulation 124,

(ii) review the measures provided to eliminate or reduce risks in accordance with Regulation 125,

(iii) take into account the advice of the registered medical practitioner or other suitably qualified person, or the Authority, in implementing any measures required to eliminate or reduce risk in accordance with Regulations 125 to 130, including the possibility of assigning the employee to alternative work where there is no risk of further exposure, and

(iv) arrange systematic health surveillance and provide for a review of the health status of any other employee who has been similarly exposed.

Health surveillance is about putting in place systematic, regular and appropriate procedures to detect early signs of work-related ill health and acting upon the results. The aims are primarily to safeguard the health of workers including identifying and protecting individuals at increased risk, but also to check the long-term effectiveness of measures to control risks to health.

Regulation 131 requires employers to ensure that appropriate health surveillance is made available to those employees for whom a risk assessment reveals a risk to their health.

Preventive audiometric testing, carried out by an occupational health care professional, must be made available for employees whose exposure exceeds the lower exposure action level.

Where the risk assessment indicates exposure above the upper exposure action level, the employer must make available the services of a registered medical practitioner to carry out or have carried out on his or her responsibility, a hearing check.

Health surveillance for noise-induced hearing loss will involve a system of audiometric testing to measure the sensitivity of hearing over a range of sound frequencies. The employer will need to appoint a suitable occupational health care professional to be in charge of the testing programme. This person should be fully conversant with the technical and ethical aspects of the conduct of audiometry and, in particular, be responsible for:

- the quality of the service provided;
- ensuring that appropriate standards are maintained during testing;
- record keeping;
- referring individuals for further advice.

[**Note:** The Health and Safety Authority is also publishing separate complementary “Guidelines on Audiometry and Hearing Checks”.]

Regulation 132 – Exemptions.

132. (1) Subject to paragraphs (2) to (4), the Authority, in exceptional situations, by a certificate in writing, may exempt any person or class of persons from Regulations 128 and 129 where, because of the nature of the work, the full and proper use of personal hearing protectors would be likely to cause greater risk to safety or health than not using such protectors.

(2) An exemption under paragraph (1) may be granted subject to conditions including a limit of time not exceeding 4 years.

(3) The Authority shall not grant an exemption under this Chapter unless—

(a) the Authority consults—

(i) representatives of employers and employees, and

(ii) any other persons

as the Authority considers appropriate,

(b) the risks resulting from the exemption concerned are reduced, so far as is reasonably practicable, to a minimum, and

(c) appropriate health surveillance is available to the employees concerned.

(4) The Authority, by a certificate in writing, may revoke an exemption under paragraph (1) at any time as soon as the justifying circumstances no longer obtain.

Regulation 132 is an enabling provision which transposes Article 11 of Directive 2003/10/EC which provides that “In exceptional situations where, because of the nature of the work, the full and proper use of individual hearing protectors would be likely to cause greater risk to health or safety than not using such protectors, Member States may grant derogations from the provisions of Articles 6(1)(a) and (b) and 7.”

The Health and Safety Authority may only consider, in exceptional situations, requests for exemptions where the compulsory use of hearing protectors might increase danger overall, outweighing the risk of hearing damage and where the employer clearly states the existing arrangements for identifying individuals who might have a particular difficulty in hearing warning sounds and for ensuring their safety and health.

Prevention or control of risks

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

- 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 the source of noise is the most effective way to prevent risks to employees and should always be considered when new work equipment is being selected/purchased/commissioned or when workplaces are being planned. Where possible a “no noise or low noise” procurement policy is usually the most cost-effective way to prevent or control noise.

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 gears that are noisier, or electrical rather than pneumatic tools,
- application of quieter materials - such as rubber liners in bins, conveyors, and vibrators,
- active noise reduction in certain circumstances, “anti-noise” (active noise control is an electronically-controlled noise reduction method and involves

the reduction or cancellation of one sound by the introduction of a second “opposite” sound. The second sound is usually derived electronically from the original, using a microphone signal processing system and loudspeaker. The technique can be particularly effective in reducing low frequency noise. It has been used to control noise in ducted systems such as diesel engine exhausts and the low frequency rumble from gas turbine stacks),

- carrying out preventive maintenance: as parts become worn, noise levels can change (check for worn bearings, gears, belts etc.).

Collective control measures

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

- workplace: sound absorption in a room (e.g. a sound absorbing ceiling, panels on walls etc.) can have a significant effect on reducing employees’ exposure to noise,
- work organisation: (e.g. using working methods that require less exposure to noise),
- work equipment: how work equipment is installed, and where it is located, can make a big difference to employees’ noise exposure, and
- rotation of staff in/out of noisy areas or between noisy and non or less noisy tasks: i.e. reduce the duration of exposure of employees to high levels of noise during the working day by developing suitable systems or patterns of work (where possible).

Sources of Further Information and Bibliography

The Regulations may be purchased directly from -

Government Publications Office,
Sun Alliance House,
Molesworth Street,
Dublin 2

or by mail order from -

Government Publications,
Postal Trade Section,
51 St. Stephen's Green,
Dublin 2

(Tel: 01 6476834/35/36/37; Fax 01 6476843)

The unofficial text of the Regulations may also be accessed on the Health and Safety Authority website, www.hsa.ie

“Noise in figures”, Risk Observatory Thematic Report, published by the European Agency for Safety and Health at Work, at <http://osha.europa.eu/OSHA/>

International standard ISO 1999: 1990, point 3.6, defines the means for calculating the time-weighted average of the noise exposure level for a nominal eight-hour working day.

International standard ISO 1999: 1990, point 3.6 (note 2) defines the means for calculating the time-weighted average of the daily noise exposure levels for a nominal week of five eight-hour working days.

Guidelines on Hearing Checks and Audiometry, published by the Health and Safety Authority.

I.S. EN ISO 4869-2:1996, Acoustics – Hearing Protectors-Part 2: Estimation of Effective A-weighted Sound Pressure Levels when Hearing Protectors are Worn.