Controlling Noise at Work

HSE guidance and expectations
Introduction

• New “Control of Noise at Work Regulations 2005” replaced current noise regulations from 6th April 2006

• Headline: 5 dB reduction in exposure which triggers duties to control

• Opportunity: A revised framework for management of noise risks

• New regulations, new emphasis
Some figures

- 2 million people exposed to noise at work which may be harmful

- 1.1 million people relying on PPE to prevent harm

- 500,000 with hearing loss due to noise at work
Why reduce the levels?

% suffering 30 dB loss aged 60 (40 years exposure)

0 10 20 30 40 50 60 70

% suffering

0 10 20 30 40 50 60 70

No significant exposure

Daily exposure (dB)

85 90 95
Effects of noise exposure

- Hearing loss
- Tinnitus
- Other hearing problems (e.g. localisation of sounds)
- Safety risks
  - warning signals
  - essential communications
Our Challenge

Away from…

• Noise assessment as the end point

• Excessive quantification of exposure

• Reliance on hearing protection

Towards

• Control of noise risks

• Managed through risk assessment and prioritised action plans

With

• New ‘tools’ and guidance to encourage rapid risk identification and decision making
Terms and Definitions

• Daily personal noise exposure $L_{EP,d}$
  – A measure of the total noise ‘dose’ received during the working day – an ‘average’ over the working day. Expressed in decibels (dB), with human response frequency-weighting

• Peak sound pressure level $L_{Cpeak}$
  – A measure of short-duration impulse/impact sounds. Expressed in decibels (dB), with a wide-band frequency weighting
The Noise Regulations – in Brief

- **Purpose**: Protecting persons against risks to their health and safety from noise at work

- **Risks from noise** to be eliminated at source or, where this is not reasonably practicable, reduced to as low as reasonably practicable

- **Do what is ‘reasonably practicable’** for a given level of risk
The Noise Regulations – in Brief

• Lower exposure action values \( (L_{EP,d} \) of 80 dB, \( L_{Cpeak} \) of 135 dB)
  – inform, instruct, train employees;
  – provide hearing protection on request;
  – maintain equipment provided to reduce risk/exposures;
  – ensure its use.
The Noise Regulations – in Brief

• Upper exposure action values ($L_{EP,d}$ of 85 dB, $L_{Cpeak}$ of 137 dB)
  
  – all duties as at lower action values;
  – reduce exposure by a programme of technical/organisational measures;
  – provide hearing protection to all exposed’
  – ensure it is used;
  – provide health surveillance.
The Noise Regulations – in Brief

• Exposure Limit Values \( (L_{EP,d} \text{ of } 87 \text{ dB}, L_{Cpeak} \text{ of } 140 \text{ dB}) \)
  – Maximum permitted exposure at the ear (takes account of hearing protection if applicable)
  – Return to this later in talk
Protecting the workers – In practice

• A practical framework:
  – **Assess** the risks;
  – **Take action - reduce** noise **exposure** that produces risks;
  – **Provide hearing protection** – while considering what action to take, and if you cannot reduce noise exposure enough by other means;
  – Make sure **legal limits** on noise are **not exceeded**;
  – Provide **information, instruction and training** – get workers and their representatives involved;
  – Carry out **health surveillance** for those at risk of hearing damage
Priced guidance

- Regulations, comprehensive guidance and technical appendices – for the employer, their advisors, providers of competent services
Free guidance

- Free pamphlet for employers – the essentials for small, medium (and large) enterprises

- Free pocket card for employees – plain language advice on protecting themselves and working with their employer
Making the transition

• Use the data from your current noise assessment

• Identify anyone not already considered who may be at risk

• Compare exposures to new action values

• Consider current control measures and decide whether more needs to be done to control risks and reduce exposures
Risk Assessment

• Assessment of risks to health and safety arising from the noise

• Purpose: to identify what needs to be done to reduce risks (Action Plan)

• Necessary when Lower Exposure Action Values likely to be exceeded

• Should contain assessment of exposure
  – Not necessarily highly precise
  – Reliable assessment based on representative data
Risk Assessment

• Can be very simple
  – Do I have tools/machines/processes known to be noisy?
  – Are people exposed/action values likely to be exceeded?
  – Are industry standard/good practice control measures in place?

• or detailed
  – e.g. for a novel situation
Tools for estimating exposure

- To encourage rapid exposure determination, and risk assessment

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Tools for estimating exposure

- Spreadsheets on the web

www.hse.gov.uk/noise
Control of risks and exposure

• Aim for noise control by technical and organisational means

• Wherever there are risks from noise employers should:
  – look for alternative processes, equipment, methods for quieter working or reduced exposure times.
  – keep up with good practice for noise control in their industry
  – consider noise in selecting tools and machinery

• Regardless of exposure, but so far as is reasonably practicable
Advice on controlling noise

• ‘Generic’ advice
  – In the free leaflet
  – In the main guidance, with examples

• Specific advice
  – Continuing free sector-specific advice from HSE
  – Further advice on good practice & industry standard benchmarks planned

• Case studies
  – Free web access to new case studies
  – Priced publications (Sound Solutions, Sound Solutions for Food & Drink industry)
Noise Control - Examples

• Problem: Internal cab noise of 95 dB. Vehicles have long working life, cost £200,000

• Solution: Damping pads to resonant surfaces, sound barrier mat to floor and engine bulkhead, line cab with absorptive foam

• Result: 11 dB reduction

• Cost: £15,000 (1995)
Noise Control - Examples

• Problem: Pneumatic knives – manufacture of roof tiles - Air exhausts – high levels of noise

• Conventional silencers considered impractical

• Solution: 6 exhausts piped to manifold and silencer

• Result: 12 dB reduction
Noise Control - Examples

• Problem: Significant noise from bowl feeder in manuf. of tube fittings

• Solution: line feeder with rubber layer – impact reduction and damping

• Result: 5 dB reduction
Quieter tools and machinery

• Have a positive purchasing policy

• Use suppliers data to
  – Help in selecting (incl. hiring) suitable products
  – Plan and design for lower exposures

• Be aware of limitations
  – Data may not relate to real use
  – Data may not represent your work
  – Ask suppliers for real/representative noise data
• Not a long-term solution

• Can be used whilst other controls are being investigated & developed

• Acceptable where despite all reasonably practicable controls, exposures remain above Upper Exposure Action Values ($L_{EP,d}$ of 85 dB, $L_{Cpeak}$ of 137 dB)
Hearing protectors

• Select according to protection, comfort, user preference, environment, work activity

• Account for ‘real-world’ attenuation

• Guard against over-protection – isolation can lead to tendency to under use, and safety risks

• Will only protect if worn fully (all of the time it should be) and properly – requires information, instruction, training, supervision, motivation
Simplified guidance on selection of hearing protection

<table>
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<tr>
<th>A-weighted noise level (dB)</th>
<th>Select a protector with an SNR of …</th>
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<tbody>
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<td>85-90</td>
<td>20 or less</td>
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<td>95-100</td>
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<td>100-105</td>
<td>30 or more</td>
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</table>
Hearing Protection

- Spreadsheet for hearing protection calculations

www.hse.gov.uk/noise
Legal limits – Exposure Limit Values

- Legal limits on noise exposure – 87 dB daily exposure
  - Apply at the ear – can take account of hearing protection
- Not a target for hearing protection performance, or noise control
- Should not be an issue for majority of UK industry
  - Provided other duties under regulations are complied with
- May present a challenge for some sectors
  - Let HSE know – we want to help
Health surveillance

• New requirements on health surveillance for hearing damage

• To be covered in detail later on today
Summary: What do you need to do to control noise at work?

• **Assess** risks to develop an action plan

• **Reduce** risks for all employees

• **Investigate** and **implement** good practice and industry standards for control of noise

• **Prioritise** higher risk cases with a programme of control measures

• **Use** hearing protection for residual risks

• **Health surveillance** to detect hearing damage and feedback to control measures