

# **POLICY FOR HEALTH, SAFETY AND WELFARE**

## **PART C ARRANGEMENTS**

### **Section 28**

#### **Managing Vibration at Work**

**Part C**

**Section 10**

**Managing Vibration at Work**

<b>CONTENTS</b>	<b>PAGE</b>
<b>Introduction</b>	<b>2</b>
<b>Responsibilities</b>	<b>3</b>
<b>Risk Assessment</b>	<b>4</b>
<b>Equipment that can cause Vibration</b>	<b>6</b>
<b>Training</b>	<b>7</b>
<b>Control Measures</b>	<b>8</b>
<b>Health Surveillance</b>	<b>8</b>
<b>Further Information</b>	<b>9</b>
<b>Appendix 1 - Vibration management checklist</b>	<b>10</b>
<b>Appendix 2 - Equipment risk assessment form</b>	<b>11</b>
<b>Appendix 3 - Employee vibration risk assessment record</b>	<b>12</b>

## 1. Introduction

The purpose of this arrangement is to explain the requirements of the Control of Vibration at Work Regulations, and to describe how service managers need to deal with these duties. The regulations seek to control and reduce exposure to vibration (hand/arm or whole body) on the basis that harm can result from a combination of the level or amount of the vibration and the time for which the employee is exposed to that vibration.

Vibration is well known to cause health problems. In Hand/Arm Vibration (HAV), it can cause a condition commonly known as Vibration White Finger, where the blood vessels collapse, causing numbness, pain and difficulty using the hands. In the case of Whole Body Vibration (WBV), the main effects are back and neck pain. Both of these conditions are aggravated by other factors. HAV is made worse by cold weather and WBV is worse when the vibration is combined with a frequent need to reach for controls, or if the seat of a vehicle is not correctly adjusted. Risk of injury from both kinds of vibration can be greatly reduced by correct selection, use and maintenance of equipment and training of staff.

Action levels are set in the regulations to identify levels above which harm from vibration is likely. They are as follows:

### **EAV – Exposure Action Value**

The average level of vibration, above which the employer must take action to reduce vibration. This value is calculated as an average for an 8-hour working day. This means that the vibration may at times during the day be above the level, but it is the day's average that is important to assessing the risk.

The daily exposure action value is  $2.5 \text{ m/s}^2 \text{ A}(8)$  for hand arm vibration, and  $0.5 \text{ m/s}^2 \text{ A}(8)$  for whole body vibration.

### **ELV – Exposure Limit Value**

The maximum level of daily exposure to vibration. This must not be exceeded on any working day. This is also an average exposure over 8 hours, and the vibration exposure must never go above this level.

The daily exposure limit value is  $5 \text{ m/s}^2 \text{ A}(8)$  for hand arm vibration and  $1.15 \text{ m/s}^2 \text{ A}(8)$  for whole body vibration.

**m/s<sup>2</sup>** means metres per second squared, it is a measure of the acceleration of the vibrating machine.

**A(8)** means the level averaged over an 8-hour working day. This allows for times when the level of vibration may be higher and also when there is no vibration, for example, during breaks.

## **2. Responsibilities**

### **Directors**

Ensure that adequate arrangements are in place to ensure the implementation of this policy and standards contained therein

### **Heads of Service**

- Ensure that risk assessments are carried out, training is provided by a competent person and that suitable control measures are put in place.
- Monitor the effectiveness of control measures, to ensure that they are reasonable, and that they are being followed.

### **Managers**

- Implement the content of this policy as directed by the Head of Service
- List all equipment that causes vibration.
- Identify all employees that may be exposed to Hand Arm vibration or Whole Body vibration and carry out a risk assessment (see below).
- Ensure that all employees that are exposed to vibration attend suitable training.
- Carry out the level 1 risk assessment, or in cases where greater technical knowledge is required, or if the vibration is above the action level, consult a competent person to carry out the level 2 risk assessment.
- Consult staff and unions on the risk assessment process and in the identification and implementation of control measures
- Supervise and manage work to ensure that control measures are followed

### **Employees**

- Co-operate with managers in the assessment of risk arising from vibration at work.
- Attend training and occupational health sessions as directed.
- Follow instructions relating to any measures to reduce the risk of vibration injury at work, including the type of equipment used, how it is used, how long it is used for, and any protective equipment that may be required.
- Report any ill health that may be a result of exposure to vibration at work.

### **3. Risk Assessment**

The regulations state that a “suitable and sufficient risk assessment” must be carried out.

The risk assessment consists of two stages, level 1 and level 2.

The **level 1 risk assessment** is a preliminary assessment, and is designed to establish if there may be a risk to staff. To do this, it is necessary to:

- List the equipment that may cause vibration, including the machine type, make, model, power rating and vibration risk, and record what it is used for.
- List the employees who use this equipment and what jobs they do
- Find out how much time they are actually at risk (how long they are actually **using** the equipment while it is vibrating). For whole body vibration, this includes how long they are driving or travelling in vehicles etc.
- Ask employees about any problems they have with the equipment and record these findings.
- Decide on suitable control measures to keep vibration to below the EAV. If this cannot be achieved, the vibration level should be measured and reduced to the lowest level reasonably practicable, and a regime of health surveillance should be put in place to monitor the effects of vibration. If the vibration level is below the EAV, there is no need to actually measure the vibration or take further action.

If the level 1 risk assessment reveals that the level of vibration is above the EAV, it will be necessary to employ a competent person to carry out a **level 2 assessment**, to measure the vibration and conduct a full assessment and identify suitable control measures.

Risk assessments should be carried out by a competent person who has attended suitable training in vibration at work.

As with all risk assessments, vibration risk assessments must be recorded (see assessment forms in appendix 2 and 3) and reviewed at least every five years, or when there is reason to believe that it is no longer valid (for example if a user complains of or is diagnosed with a vibration-related illness).

Table 1 – typical vibration values for common equipment

<b>Tool type</b>	<b>Lowest</b>	<b>Typical</b>	<b>Highest</b>
Road breakers	5 m/s <sup>2</sup>	12 m/s <sup>2</sup>	20 m/s <sup>2</sup>
Demolition hammers	8 m/s <sup>2</sup>	15 m/s <sup>2</sup>	25 m/s <sup>2</sup>
Hammer drills/combi hammers	6 m/s <sup>2</sup>	9 m/s <sup>2</sup>	25 m/s <sup>2</sup>
Needle scalars	5 m/s <sup>2</sup>		18 m/s <sup>2</sup>
Scabblers (hammer type)			40 m/s <sup>2</sup>
Angle grinders	4 m/s <sup>2</sup>		8 m/s <sup>2</sup>
Clay spades/jigger picks		16 m/s <sup>2</sup>	
Chipping hammers (metal)		18 m/s <sup>2</sup>	
Stone-working hammers	10 m/s <sup>2</sup>		30 m/s <sup>2</sup>
Chainsaws		6 m/s <sup>2</sup>	
Brushcutters	2 m/s <sup>2</sup>	4 m/s <sup>2</sup>	
Sanders (random orbital)		7-10 m/s <sup>2</sup>	

Table 2, calculation of vibration exposure

Tool vibration (m/s <sup>2</sup> )	3	4	5	6	7	10	12	15
Points per hour (approximate)	20	30	50	70	100	200	300	450

From the figures in table 1, identify the vibration of the tool involved. For each level of vibration, the number of points is shown in table 2.

Multiply the points in the bottom row of table 2 corresponding to the tool vibration by the number of hours of daily use (the ‘trigger time’) for the tool. Then compare the total with the exposure action value (EAV) and exposure limit value (ELV) points.

100 points per day = exposure action value (EAV)

400 points per day = exposure limit value (ELV)

Example:

A road breaker typically produces vibration of 12m/s<sup>2</sup>. This level of vibration corresponds to 300 points per hour. If the tool is only used for 15 minutes, i.e. a quarter of an hour, in a typical working day, the result is 75 points ( $300 \times \frac{1}{4} = 75$ ), and there is no need for any action to reduce exposure. If the tool is used for 30 minutes, though, the result of the calculation is 150, which is above the Exposure Action Value, and measures are required.

If the road breaker is used for more than 1 hour 20 minutes, the resulting score is 400, which is the exposure limit value, and immediate action must be taken to limit the use of the machine or to use an alternative method to do the job.

#### **4. Equipment that can cause vibration**

There are many types of equipment which can cause ill health from vibration. Some of the more common ones are:

<b>Hand arm vibration</b>	<b>Whole body vibration</b>
<ul style="list-style-type: none"><li>• chainsaws;</li><li>• concrete breakers/road breakers;</li><li>• cut-off saws (for stone etc);</li><li>• hammer drills;</li><li>• hand-held grinders;</li><li>• impact wrenches;</li><li>• jigsaws;</li><li>• needle scalers;</li><li>• pedestal grinders;</li><li>• polishers (including floor polishers);</li><li>• power hammers and chisels;</li><li>• powered lawn mowers;</li><li>• powered sanders;</li><li>• scabblers;</li><li>• strimmers/brush cutters.</li></ul>	<ul style="list-style-type: none"><li>• Tractors and other agricultural and forestry machinery,</li><li>• Construction, mining and quarrying machines</li><li>• Vehicles with poor suspension that are used off road, for example on construction sites, poor surfaces, or surfaces in bad repair (such as potholes, cracks and speed ramps)</li><li>• Ride-on lawn mowers</li><li>• Tractors</li></ul>

## 5. Training

Training in the use of vibrating equipment must be provided for all employees who may have to use this equipment a part of their job and be provided **before** exposure to the risk.

**Training must cover the following subjects:**

Hand arm vibration	Whole body vibration
<ul style="list-style-type: none"><li>• The risks of vibration, and the illnesses that can occur,</li><li>• What kind of equipment and activities can cause vibration,</li><li>• Information about the ELV and EAV, and whether they are above it,</li><li>• How to recognise symptoms,</li><li>• The need for health surveillance,</li><li>• What they need to do to reduce the risks, including<ul style="list-style-type: none"><li>○ Changing work practice</li><li>○ Selecting and maintaining equipment correctly,</li><li>○ How to use the equipment in the safest way,</li><li>○ Methods to keep good circulation, such as keeping warm, massaging fingers and cutting down on smoking (smoking is known to reduce circulation).</li></ul></li></ul>	<ul style="list-style-type: none"><li>• The risks of vibration</li><li>• How to prevent excessive vibration, by adjusting seat height and eight settings, by using appropriate speed and driving technique, and by using the best route around a site.</li><li>• What to do if they think there is a problem.</li></ul>

Training on vibration and the use of vibrating equipment must be provided by a competent person or organisation.

For information about Health and Safety Training, see of the **Corporate Health and Safety Policy Arrangement 2 – Health and Safety Training**. For information about training in vibration at work, contact the Safety Health and Wellbeing team.

## 6. Control measures

Measures need to be taken to reduce the risk of damage arising from vibration if the risk assessment reveals exposure that is likely to be above the EAV. There are many methods, but they can be generally described as reducing vibration from a machine itself, or decreasing the time for which people are exposed to the vibration.

<b>Measures that reduce vibration</b>	<b>Measures that reduce exposure to vibration</b>
<ul style="list-style-type: none"><li>• Maintenance and replacement of equipment</li><li>• Changing the way we use the equipment</li><li>• Selection of equipment to reduce the vibration itself,</li><li>• The use of alternative tools or working methods, including for vehicles the surface on which they are driven,</li><li>• Providing information and instruction in proper use to reduce vibration (for example how to adjust the suspension on suspension seats in vehicles),</li><li>• Maintaining the equipment properly</li></ul>	<ul style="list-style-type: none"><li>• PPE</li><li>• Length of time exposure is present</li><li>• Changes to job design</li></ul>

All vibrating equipment must be labelled or marked to show that it may pose a risk and that the user must seek information about how it should be used, what for, and for how long. This marking can take the form of a label or painted area, as long as all employees know what it means. (traffic light system??)

## 7. Health surveillance

Health surveillance is necessary if, in spite of the measures taken to reduce the risk, the level of vibration exposure is still above the EAV or if they are at risk from vibration for any other reason. If any employees are at risk in this way, managers should refer the individual to the Occupational Health Service.

## **8. Further information**

This arrangement is intended to be a policy and initial guidance in how to comply with the Vibration at Work Regulations. The Health and Safety Executive have produced comprehensive guidance on this issue, all of which is available at their website <http://www.hse.gov.uk/vibration/information.htm>. The following documents are particularly useful.

### **Guidance for employers**

- INDG 175 Control the Risks From Hand Arm Vibration – Advice for Employers
- INDG 242 Control Back Pain From Whole Body Vibration – Advice for Employers
- INDG 338 Power Tools – How to Reduce Vibration Health Risks – Guide for Employers

### **Guidance for employees (these should be issued to all employees at risk from vibration)**

- INDG 296 Hand Arm Vibration - Advice for Employees
- INDG 404 Drive Away Bad Backs – Advice for Mobile Machine Operators and Drivers

### **Relevant Arrangements from Corporate Health and Safety Policy:**

- Arrangement 1 Management of Health and Safety
- Arrangement 2 Health and Safety Training
- Arrangement 20 Work and Lifting Equipment

All of these documents are available in the Healthy Workplace area of the Barnet intranet site.

If you have any questions about this document, contact the Safety Health and Wellbeing team 020 8359 7955; [shaw@barnet.gov.uk](mailto:shaw@barnet.gov.uk)

## Appendix 1

### Vibration management checklist

	Y/N	Action taken
Have you identified all equipment that causes vibration?		
Have you identified the level of vibration caused in normal use by these machines?		
Have you carried out a risk assessment for all employees that are exposed to vibration from work equipment?		
Have they all received appropriate training?		
Are any workers exposed to vibration above the EAV?		
What action has been taken to reduce the risk?		
Are any workers exposed to vibration above the ELV?		
What action has been taken to reduce the risk?		
Does the purchasing policy include information about vibration at work?		
Do all employees responsible for the purchase of equipment that may cause vibration understand the need to purchase low-vibration equipment as far as possible?		
Is all work equipment properly maintained to reduce vibration?		
Is there a method in place for workers to report defective equipment?		
Are all staff trained in the proper use of equipment, in order to reduce vibration exposure and the time taken to complete the job?		
Are jobs designed to reduce the time that workers are exposed to vibration?		

**Equipment risk assessment form**

Name and serial number of tool/equipment/vehicle	
Date of purchase	
Is the equipment regularly maintained?	(provide date of last maintenance inspection)
Description of tool/equipment/vehicle	
How is this tool/equipment/vehicle used? Nature of use Frequency of use Who is it used by?	
Typical vibration value under normal use	
Hazard rating L/M/L	
Has the tool/equipment/vehicle been labelled or marked to show the vibration hazard rating?	
Risk assessment carried out by (name and job title):	
Date of risk assessment:	
Review date:	

**Employee vibration risk assessment record**

Employee Name	
Job title	
Start date	
Date of attendance on vibration health and safety training	
Any history of vibration-related injury or illness?	If yes, give details and refer to Occupational Health)
Is this person exposed to risk from vibration (HAV or WBV)?	
Is the vibration exposure likely to be above EAV or ELV?	
Has the person been referred to Occupational Health for Health surveillance?.	If yes, provide date and referral number.
Risk assessment carried out by (name and job title):	
Date of risk assessment:	
Review date	