Falkirk Council

THE CONTROL OF VIBRATION AT WORK POLICY

March 2018
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## APPENDICES

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PART 1

1.0 POLICY STATEMENT

1.1 Falkirk Council is committed to keeping our employees and those affected by our activities, healthy and safe, and endeavours to comply with all health, safety & care legislation and initiatives. We recognise that there are health risks to employees who undertake tasks that involve exposure to vibration at work. This policy provides Services with the standards to minimise risk and comply with the relevant legislation ensuring good practice to manage exposure to vibration at work.

PART 2

2.1 INTRODUCTION

This policy provides standards of good management practices to identify minimise and control the risk of long-term injury to employees who are exposed to vibration at work. The policy endeavours to comply with good practice and with the following specific legislation:

- The Management of Health and Safety regulations 1999;
- The Control of Vibration at Work Regulations 2005;
- Provision and Use of Work Equipment Regulations 1998;
- The Reporting of Injuries, Diseases and Dangerous Occurrence Regulations 2013.

2.1 SCOPE

All managers and employees are expected to comply with this policy. The policy complements the Council’s Risk Management by Risk Assessment Policy and the Policy & Procedure for the Management of Occupational Health Monitoring & Surveillance.

PART 3

3. VIBRATION AT WORK

3.1 DEFINITION OF VIBRATION AT WORK

Vibration at work can occur when using work equipment. “Hand Arm Vibration” (HAV), is vibration transmitted from work equipment into the employees’ hands and arms. “Whole-body vibration” (WBV) is vibration transmitted to the body whilst sitting/standing on work equipment. It can be caused by operating hand-held power tools, such as road breakers, and hand-guided equipment, such as powered lawnmowers, or by holding materials being processed by machines, such as pedestal grinders.

When is it hazardous? - Regular and frequent exposure to vibration can lead to permanent health effects. This is most likely when contact with a vibrating tool or work process is a regular part of a person’s job. Occasional exposure is unlikely to cause ill health.
What health effects can it cause? - HAV can cause a range of conditions collectively known as hand-arm vibration syndrome (HAVS), as well as specific diseases such as carpal tunnel syndrome. Both HAVS and Carpal Tunnel Syndrome are specified in The Reporting of Injuries, Diseases and Dangerous Occurrence Regulations 2013 and are therefore reportable to the HSE.

WBV has been linked to persistent back pain as a result of continual vibration being transmitted through the seat of a vehicle or standing on work equipment which vibrates. Drivers of some mobile machines including certain tractors, fork lift trucks and earth-moving machinery may be exposed to WBV and shocks which can be associated with back pain although other work factors like posture and heavy lifting can also contribute to back problems.

3.2 EXPOSURE ACTION AND LIMIT VALUES

The Control of Vibration at Work Regulations 2005 defines a Daily Exposure Action Value (EAV) and a Daily Exposure Limit Value (ELV) in respect of both HAV and WBV. Vibration is caused by the acceleration of an object (m/s²).

These values are:

**Hand-arm Vibration**

- EAV: normalised to an 8-hour reference period is 2.5m/s².
- ELV: normalised to an 8-hour reference period is 5m/s².

**Whole-Body Vibration**

- EAV: normalised to an 8-hour reference period is 0.5m/s².
- ELV: normalised to an 8-hour reference period is 1.15m/s².

The EAV represents a clear risk to Employees that requires to be managed. Where a risk assessment (see section 3.3 – Risk Assessment) highlights that an EAV is likely to be reached or exceeded action is required to reduce exposure to as low a level as is reasonably practicable (see section 3.4 - Management Systems For Reducing Exposure To HAV).

The ELV represents a high risk above which employees should not be exposed. If either the risk assessment or monitoring shows an individual’s exposure exceeds or is likely to exceed the ELV Line Managers should immediately cease the work activity and seek advice from the Council’s Health, Safety & Care team.

3.3 RISK ASSESSMENT

3.3.1 Risk Assessment

The purpose of the risk assessment is to enable managers to make an assessment on the risk of exposure to vibration and identify measures to prevent or control the exposure to vibration.

Risk assessments should be undertaken in accordance with the Council’s Risk Management by
Risk Assessment Policy with reference to this policy and the guidance provided at APPENDIX 1. Risk assessments should be carried out by individuals who have specialist knowledge of vibration at work in order to be able to carry out competent assessments of risk and identify controls. Employees who participate in the risk assessment process must also be able to demonstrate their competence in the use of the relevant equipment to measure vibration levels accurately. When conducting the assessment the following steps should be followed:

- Identify all existing powered tools, equipment and machinery which potentially pose a risk of HAV or WBV.
- Review and observe the conditions under which such powered tools, equipment and machinery are used to obtain a true and representative appreciation of the nature of the work. Ensure that employees use equipment correctly. Poor posture, technique etc. may increase vibration exposure from a particular activity by up to 50%.
- Assess the vibration magnitude from each piece of equipment used. Manufacturer’s information on products will provide basic data on the vibration levels of new equipment; however it is not recommended that this be used for risk assessment as data will often come from testing under specific controlled environments and may underestimate exposures in practice. New equipment should always be measured to establish an accurate reading before being made available for use.
- Identify the maximum duration of their use in any working day, if necessary by keeping a log or using monitoring devices. The risk assessment should identify the maximum trigger time, or usage time permissible for the equipment to ensure that exposure does not exceed the ELV.
- Detail the controls in place to reduce the risk from vibration exposure. Further information on controls is provided at section 3.4 - Management Systems For Reducing Exposure To HAV.

3.3.2 Risk Assessment for Whole-body Vibration

Most people who drive road-going vehicles at work are not likely to experience high levels of WBV unless there is another contributory factor like a vehicle with poor suspension being operated for the majority of a working day. It is therefore reasonable to assume that normal driving operations are unlikely to exceed the EAV and it should be sufficient to record this fact.

There may be some work activities where driving operations may expose employees to higher levels of WBV. For example, where vehicles are regularly driven off-road or along unadopted roads or tracks such as farm tracks or construction site roadways.

An assessment of exposure based on published information will normally be adequate. Ideally machine specific vibration information should be used but if this is not available the use of information relating to a similar machine may be necessary.

If you consider there may be a WBV risk you should assume that the exposure action value may be exceeded and introduce a programme of control measures to minimise that risk so far as is reasonably practicable. While there is an option to measure the vibration exposure to see whether an exposure action value is exceeded this is not recommended by the HSE as it is not likely to be cost-effective.
Vibration can broadly be described as either steady-state vibration or vibration which includes occasional shocks and jolts. Vibration which includes shocks and jolts is believed to present a greater risk of back pain. It is therefore important to identify whether shocks and jolts are present when considering the risks and concentrate on reducing these when identifying the control measures needed.

Employees may identify vibration as the source of back pain. Investigation may reveal that something else is the most likely cause of the back pain but it is the exposure to vibration that causes them discomfort. Back pain may be made worse by driving for a long time in a poorly adjusted seat, jolting and jarring from off-road activities. The HSE advise that injuries arising out of vehicle use may not be entirely due to whole body vibration. Controls should therefore include improving driver posture in vehicles, manual handling activities and methods of alighting from vehicles.

### 3.3.3 Risk Assessment for Young Persons

A young person is someone under the age of 18. The Council will not engage young people in work activities where there is a significant risk to their health and safety from vibration and that risk cannot be avoided. To avoid placing young people at risk a management control programme should be considered to include:

- identifying hazardous equipment/tasks
- minimising exposure to vibration by reducing either the time of exposure and/or the vibration level
- providing competent supervision
- providing health surveillance
- providing information, and training on how to minimise the risk

During adolescence there is an increased risk of non-occupational Reynaud’s Disease, which can lead to experiencing similar symptoms to vibration white finger. Therefore young people with non-occupational Reynaud’s Disease should not be exposed to hand-arm vibration.

### 3.3.4 Vibration Monitoring

While the monitoring of individual exposure by use of personal monitoring equipment provides a useful additional way of monitoring the risk from vibration to employees it does not replace the requirement for an assessment of vibration to be undertaken and reviewed regularly. Further information on monitoring is provided at section 3.5 – Monitoring Working Practices.


Risk assessments should be reviewed at least annually or following an incident involving workplace vibration or where there has been a significant change in working practices or equipment used.
3.4 MANAGEMENT SYSTEMS FOR REDUCING EXPOSURE TO VIBRATION

Services using vibrating equipment must develop and implement a range of systems/procedures to minimise the risk to their employees. The goal of these systems should be to eliminate vibration at source or, where this is not reasonably practicable, reduce exposure to vibration to as low a level as is reasonably practicable. The following controls provide assistance for achieving this:

3.4.1 Reducing Risk/Control of Risk

There are a number of methods that can be applied to reduce risk to employees. Risks should be reduced to the lowest reasonably practicable level by taking preventative measures in order of priority. The start point should always be to look at eliminating vibration at source. Where this is not reasonably practicable, equipment or processes should be substituted or changed with ones that reduce vibration to as low a level as is reasonably practicable. Finally, consideration should be given to developing and implementing controls aimed at providing protection against any vibration that cannot be eliminated. Priority should be given to measures which protect collectively over individual measures.

There are a number of different ways to identify suitable control measures. HSE publications such as Hand-arm vibration - The Control of Vibration at Work Regulations 2005 (L140) available at www.hse.gov.uk/pubns/books/l140, Whole-body vibration. Control of Vibration at Work Regulations 2005 (L141) available at www.hse.gov.uk/pubns/priced/l141, Trade Journals and magazines and manufacturing guidance all supply useful information and the Health, Safety and Care Team can advise on possible solutions. The following is not an exhaustive list, but provides some options to control risk:

- eliminate the use of the vibrating equipment
- substitute the process or type of equipment used, for example by using vehicles with hammer drills rather than hydraulic hammers
- reduce the vibration generated by using vibration suppressors
- minimise force required to handle or hold equipment by use of double handles or harnesses
- separating the employee from the source of the vibration
- train employees in best ergonomic/working practice
- purchase new equipment with built in vibration reduction features
- job/task rotation of teams to minimise individual exposure.

3.4.2 Equipment Selection and Purchasing Policy

Equipment Selection

Managers should ensure:

- equipment is suitable and can do the work efficiently. Unsuitable equipment, too small or not powerful enough is likely to take longer to complete the task and result in higher periods of vibration exposure
- equipment with the lowest vibration levels available is used
- where possible, the use of high-vibration tools is limited
**Purchasing**
When purchasing new equipment, vibration levels must be taken into account, although other methods of work which can eliminate or reduce exposure including automated processes should first be considered. Suppliers must provide information about the vibration magnitude of their products. The manufacturer’s information supplied can be used to compare types of equipment from the same supplier, but not between suppliers because suppliers may use different methods to measure vibration levels. While the manufacturer’s information is suitable for estimating vibration magnitude new items of equipment should be field tested and tagged prior to use to confirm accurate data for actual work activities.

The manufacturer should also provide information on servicing and maintenance of the equipment along with training requirements. This should be scheduled into the maintenance programme along with any training requirements which must be put in place.

A record of all data linked to each item of equipment in use will require to be held by a Manager defined by the Service.

**Hiring/Leasing**
The measurement of vibration of all items of equipment should always be provided by the company when arranging hires/leases. Only equipment with details of vibration readings and a colour coded tag to indicate the level of risk of exposure from using the equipment should be used.

3.4.3 **Maintenance of Equipment**
All equipment that presents a risk from vibration is subject to a natural deterioration in performance over time. Consequently, continued use will gradually increase an employee’s exposure to vibration. In order to minimise the deterioration of equipment and reduce risk items must be inspected and serviced on a regular basis. Advice from the supplier should be taken into account in relation to frequency, i.e. there may be certain routine checks or replacement parts required at specific frequencies. The level of risk to users should also be taken into account in determining the frequency. Maintenance work should only be carried out by individuals that are competent to do this by virtue of appropriate qualifications and experience of the equipment being maintained.

As part of the maintenance programme, prior to return for use, a test of the vibration level should be completed. Prior to return to use, each piece of equipment should have a tag attached to the body of the equipment which provides the colour code, vibration level and vibration points score (see Management Controls 3.4.4.).

Equipment with cutting/breaking edges often present a higher risk and the performance and vibration levels of the equipment will be drastically affected if edges are not replaced or sharpened regularly. Employees should be aware that if they consider any equipment has deteriorated in terms of vibration, they must report this as the earliest opportunity. Replacement or sharpening cutting edges should be done by appropriately trained individuals and should be recorded to demonstrate regular maintenance.

In determining maintenance requirements consideration should be given to the level of risk, ongoing cost of replacement parts and the cost or reduced productivity from reduced maximum usage times. A replacement strategy for phasing in replacement equipment with
clear timescales should therefore be in place to reduce exposure to vibration (see section 3.4.2 Equipment Selection and Purchasing Policy).

Records of maintenance should be kept for 10 years and be available for inspection. These should be archived for future reference even when equipment is no longer in use.

3.4.4 Management Controls
Falkirk Council uses a national system which has been endorsed by the HSE to control and manage risk from HAV. This is a points based system where different combinations of vibration magnitude and exposure time are expressed in exposure points. The accumulation of these points over the course of an employee’s normal work will enable them to quickly calculate their daily exposure and whether they are likely to reach or exceed an exposure action value. Further information on the application of the points system is provided at APPENDIX 1.

The total exposure points accrued by an employee over the course of a working day should not exceed 100 points; this is equivalent to the EAV. Under no circumstances should the accrued personal exposure exceed value of 400 points; this is the equivalent of the ELV.

All equipment likely to expose employees to vibration must be measured and then tagged to show the individual vibration measurements for the piece of equipment and the trigger time limit (i.e. maximum recommended operating time). The tags are colour coded to provide a simple visual aid to assist Employees and Managers alike in the management of exposure to vibration. More information on colour coding is provided at APPENDIX 1.

3.4.5 Information, Instruction and Training
The nature of the risk from vibration is such that working practices can make a significant difference to personal exposure to vibration. Training employees in correct and safe working practices is an essential step in managing these risks. The following must be in place when employees are routinely exposed to vibration at work:

• Managers are trained in vibration at work and understand the health risks and the control measures required to be in place. Employees are aware of the results of risk assessments, the control measures contained in the risk assessments and their own role in managing the risks from vibration.
• Employees are trained in correct procedures to be used including good ergonomic working practices.
• Managers and Employees are provided with information on the health risks associated with vibration from equipment used.
• Managers and Employees are informed of health surveillance programmes and how they will apply to their work.
• Managers and Employees are trained in the use of the tag system and how employees can use this to take control of the risks.
• Employees are to be informed of the importance of reporting early stages of symptoms of Hand Arm Vibration to their line manager.
• Managers and Employees are issued with the HSE Pocket Leaflet: Hand-Arm Vibration Syndrome (INDG296) http://www.hse.gov.uk/pubns/indg296.pdf. Other language guides are available.

Services should record information relating to the above for reference purposes and refresher
training should be provided as appropriate.

Training on the risk from vibration should include discussion on the relevant risk assessments. Employees should be advised of relevant occupational health diseases and the requirement to report any symptoms from vibration exposure to their Line Manager as soon as possible.

3.4.6 Blood Circulation/PPE

Where Employees are exposed to vibration it is important to ensure that the circulation of blood to the hands and fingers is maintained to reduce risk of injury. Hands should also be kept warm. Where Employees at risk of hand-arm vibration are working in cold areas the following measures must be taken:

- Employees to be provided with warm, weatherproof work clothing, including gloves to keep hands warm. (Note: Anti-vibration gloves have not been proven to work and may increase the risk to employees).
- Employees should be provided with, and use proprietary heating pads to help keep hands warm
- Employees should be provided with warm up time before starting work and shelter for outdoor workers must be provided.

3.4.7 Control of Contractors

All contractors employed by Falkirk Council will be required to demonstrate their compliance with the Control of Vibration at Work Regulations. This applies to all work activities from services to major construction projects. Evidence of risk assessments should be sought where appropriate as part of the process for selection and appointment of contractors. Such measures will be required to be considered in the following areas:

- capital projects
- property maintenance
- grounds works
- cleaning.

When monitoring performance of contractors, evidence of method statements and risk assessments for vibrating tools should be provided to ensure compliance.

3.5 MONITORING WORKING PRACTICES

Monitoring of individual exposure by use of HAVWEAR or equivalent personal monitoring equipment provides a useful additional way of monitoring the level of risk. The exposure data provided by these devices can assist with the development of control measures and management systems.

These devices are intended only for use as a secondary source of vibration analysis. The results obtained from the HAV Risk Assessment are used as the primary source of risk information. Used regularly the monitoring equipment will help ensure personal exposure is not exceeding an exposure action value and can assist in monitoring equipment performance. Services should ensure as part of the day to day working procedures, the following process is in place:

- Line Managers to ensure the vibration risk assessment and task analysis are current and
include exposure values for individual tasks.

- Line Managers must ensure that the alarm on the device is set for 80% of the EAV.
- Line Managers will review vibration exposure data on a daily and weekly basis. If exposure regularly exceeds 80% of the EAV the task analysis should be re-evaluated a corrective action plan developed.
- Summary of the HAV monitoring results for each employee should be provided to Occupational Health (OH) with Tier 2 questionnaire as part of health surveillance process (see section 3.6 Occupational Health Surveillance).
- Records of exposure submitted as part of Tier 2 assessment to be retained by Occupational Health provider for 40 years in line with the Policy and Procedure for the Management of Occupational Health Monitoring and Surveillance.

3.6 OCCUPATIONAL HEALTH SURVEILLANCE

3.6.1 Screening/Monitoring

The Control of Vibration at Work Regulations 2005 require that health surveillance is provided where a risk assessment indicates that there is a risk to the health of employees who are, or are likely to be, exposed to vibration levels at or above an exposure action value. It is also good practice to monitor the health of employees who are not classed as being in the “at risk vibration” levels but have been working for some time with vibrating equipment (see APPENDIX 2 for information).

The Council’s Policy and Procedure for the Management of Occupational Health Monitoring and Surveillance sets out a health surveillance process to protect and monitor the ongoing health of employees exposed HAV through their workplace activities.

It provides tiered approach to health surveillance, to identify employees with symptoms that require further investigation by an OH professional. The tiered approach is as follows:

- Tier 1 – A pre-employment questionnaire which provides a baseline assessment to ensure pre-existing HAV related conditions are recorded and managed to minimise future progression of the condition. Managers must also ensure Occupational Health are provided with information on risk and the type of work undertaken for all recruitment vacancies advertised. This should include details of measured vibration levels likely to be present in the workplace.
- Tier 2 – An annual screening questionnaire issued by Customer & Business Support to employees currently exposed to HAV, who have been exposed to HAV in the past two years or who have been diagnosed with HAVS but no longer work with vibrating tools or equipment.
- Tier 3 – Where HAV related symptoms are identified at Tier 2 employees will require a face to face assessment with an Occupational Health professional.
- Tier 4 – Where Tier 4 identifies symptoms that may be suggestive of HAVS employees will be referred to an Occupation Physician for assessment and formal diagnosis.
- Tier 5 - Use of standardised tests. Tier 5 is not required as part of routine health surveillance but may be recommended in some cases by the Occupational Physician where further assessment is required.

The health surveillance process is mapped out at APPENDIX 2.
3.6.2 Employees Who Have Been Diagnosed With a Medical Condition
Employees diagnosed as having a medical condition will be required to have specific risk control measures developed for them. The exact requirements for control will normally be determined by Occupational Health in consultation with the Employee, Line Manager and the Health, Safety and Care Team. These controls may include:

- regular reviews of health by Occupational Health
- restricted use of plant and equipment
- prevention from use of high vibrating equipment with high vibration levels;
- redeployment to alternative duties.

3.6.3 Reporting of a Notifiable Disease
There are currently two main conditions arising from the effects of vibration on the human body:

- Hand Arm Vibration Syndrome (HAVS)
- Carpal Tunnel Syndrome

Both conditions require to be notified to the HSE when Occupational Health confirms diagnosis of either of these diseases involving an Employee.

PART 4 IMPLEMENTATION

4.1 ROLES AND RESPONSIBILITIES

4.1.1 THE CHIEF EXECUTIVE AND DIRECTORS
The Chief Executive and Directors of the Council are responsible for the effective operation of the policy across the Council and for ensuring that the relevant procedures are implemented within Services. They are also responsible for ensuring that adequate resources are made available to implement appropriate control measures, where these have been identified as required as a result of risk assessment or accident/incident investigation.

4.1.2 CHIEF OFFICERS AND HEADTEACHERS
Chief Officers and Head Teachers are responsible, so far as is reasonably practicable, for ensuring the requirements of the procedure are adhered to. They must ensure that adequate procedures are developed and implemented across their service area. They should ensure that adequate resources are available to enable a programme for the procurement of new and/or replacement equipment, that equipment is effectively maintained, that key personnel are trained in HAVS and an effective health surveillance programme is applied.

4.1.3 SERVICE MANAGERS
All Service Managers must review work activities and identify where vibrating plant and machinery and hand tools are used and ensure effective local procedures to manage risk are in place. The Service Manager should ensure adequate resource is available to implement the procedures. This should include ensuring equipment is effectively maintained, that key personnel are trained in HAVS and an effective health surveillance programme is applied.
All managers who have operational responsibility for employees and for implementing systems and procedures of work will be specifically responsible for ensuring that:

- The policy is effectively implemented and monitored
- Safe systems of work, risk assessments and procedures relating to vibration at work are implemented and all working procedures and practices are properly documented and adhered to
- Monitoring of employee’s exposure to vibration is carried out in line with procedures and all data is recorded
- Occupational health surveillance of employees is carried out and all employees meet with manager/supervisor to discuss vibration controls.
- Support is put in place where required for those who may have been affected by exposure to vibration

4.1.4 LINE MANAGERS, TEAM LEADERS, SUPERVISORS

Line managers, team leaders and supervisors will:

- Undertake all relevant risk assessments and ensure these are reviewed regularly, involving employees within their area of control in this process
- Ensure all employees are aware of and have access to the risk assessments, including new employees
- Ensure that all new employees undergo appropriate induction training which includes provision of relevant information and guidance on the risk of vibration and training in use of specialist equipment;
- Ensure that employees adhere to risk assessments, safe systems of work and recommended control measures
- Are aware of good vibrating equipment work procedures, both current and impending and providing basic advice to employees on this
- Provide appropriate monitoring equipment where required and ensure that employees use this during their full working day and maintain records
- Ensure appropriate and adequate PPE is provided
- Ensure employees attend occupational health surveillance required
- Ensure faulty equipment is replaced and equipment is serviced in line with the service and replacement programme
- Liaise with Service Directors and Human Resources on any issues of concern relevant to vibration at work.

4.1.5 EMPLOYEES

Employees will:

- co-operate in the development and implementation of the correct working practices designed to reduce personal exposure
- attend and participate in appropriate tool box talks and training courses
- co-operate with the process of measurement and monitoring of vibration presented by their work equipment
- attend occupational health screening as directed by Occupational Health
• report any broken or faulty equipment which is affecting vibration levels
• report any medical condition or symptoms associated with vibration to their manager as soon as possible.

4.1.6 HEAD OF HUMAN RESOURCES & BUSINESS TRANSFORMATION

The Head of Human Resources & Business Transformation will monitor implementation of this policy across all relevant Council Services. The Head of Human Resources & Business Transformation will ensure that the Health, Safety & Care team provide adequate support and advice to Services on vibration at work.

The Head of Human Resources & Business Transformation will ensure that the Occupational Health Contractor provides appropriate an occupational health surveillance programme.

4.1.7 PURCHASING MANAGERS OR THOSE WITH RESPONSIBILITY TO PURCHASE PLANT AND EQUIPMENT

Officers involved in procurement or purchasing must ensure that an appropriate specification for use of vibrating equipment is provided to them by each Service, to include identification of the type/range of use before tendering for replacement equipment to allow for suitable equipment to be purchased. Manufacturers or suppliers will be required to provide accurate data on the levels of exposure of vibration for equipment being supplied and provide field trials on this equipment in order to measure actual vibration levels in predetermined work activities.

Every effort should be made to ensure that the equipment purchased presents the lowest vibration exposure level wherever it is reasonable to do so.

4.1.8 HEALTH, SAFETY AND CARE TEAM

The Health, Safety and Care Team provide support in the implementation of this procedure by:

• advising Line Managers and Employees on the requirements of this procedure.
• providing advice on relevant training.
• providing assistance to Line Managers in the review of risk assessments and the development of specific management plans.
• Undertaking periodic inspections and audits to establish compliance with the requirements of this procedure.

PART 5

5 MONITORING & REVIEW

5.1 The Head of Human Resources & Business Transformation, in conjunction with Service Directors and Trade Unions, will monitor and review this policy as required.
### The Control of Vibration at Work: Guidance Note on Calculating Vibration Exposure

Risk assessment is a critical element of the management system for the control of vibration at work. The risk assessment should take account of an employee’s daily exposure to vibration through their work activities.

Individual personal daily vibration exposure of employees may seem difficult to calculate. To assist Employers the HSE has developed a process of using a points based system to quickly calculate an individual’s exposure and whether they are likely to reach or exceed an exposure action value. A ready reckoner is available to work out the cumulative daily exposure (fig. 1).

![Fig. 1 – HAVS Ready Reckoner](image)

**Fig. 1 – HAVS Ready Reckoner**

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Using the ready reckoner

1. Find the vibration magnitude (level) for the tool or process (or the nearest value) on the grey scale on the left of the table.
2. Find the exposure time (or the nearest value) on the grey scale across the bottom of the table.
3. Find the value in the table that lines up with the magnitude and time. This will give their exposure points for that activity.
4. If an Employee is exposed to more than one tool or process during the day follow steps 1-3 for each activity and add the exposure points to calculate the total daily exposure.

The total exposure points accrued by an Employee’s over the course of a working day should not exceed 100 points; this is equivalent to the EAV. Under no circumstances should the accrued personal exposure exceed value of 400 points; this is the equivalent of the ELV.

Colour coding

To assist Employees and Line Managers to manage individual personal exposure all vibrating equipment will be tagged to show the vibration magnitude of the equipment and an indication of the number of points that will be accumulated through the operation of the equipment. The tags are colour coded red, amber or green to provide a simple visual aid to assist in the management of exposure to vibration.

- A **Red Tag**/ **Red Tag+**: will identify that the measured vibration level may exceed the ELV (5 m/s²) if operated for more than 30 minutes. The additional + sign will require Managers to apply more stringent management controls to protect employees from continued exposure;
- An **Amber Tag** will identify use of equipment with the potential to exceed the EAV but when used for less than 2 hours would be below the ELV. Maximum use is 2 hour trigger time;
- A **Green Tag** will identify that it can be used for 8 hours before EAV is exceeded.

**Example:** where an employee is using a hand tool measured at 5m/s² for 1 hour (red tagged), this is equivalent of 50 points. If the employee then works with a hand tool measured at 3.5 m/s² for 2 hours (amber tagged), this is equivalent to 50 points. No other exposure to vibrating equipment for that day means the daily exposure is 100 points, at the EAV. Note the tools tagged with red and amber tags will provide a reminder to employees of the immediate risks from the equipment.

**Employees with symptoms of Hand Arm Vibration Syndrome (HAVS)**

Employees who have been referred to Occupational Health following exposure to HAV will be provided with specific advice by the Occupational Physician. This advice that will reflect the degree of severity of the HAVS they have been diagnosed with, their other medical conditions and their exposure to vibration at work and leisure. The Manager will be provided with recommendations on reducing the risk of any further medical conditions developing.

Table 1 provides Managers with guidance on the category of HAVS the employee may be diagnosed with and provides guidance on the management response that may be required based
on average exposure levels of vibration. However individual medical conditions may require this to be modified.

Table 1 – Guidance following the diagnosis of HAVS

<table>
<thead>
<tr>
<th>Equipment</th>
<th>No reported symptoms</th>
<th>Diagnosed stage 1</th>
<th>Diagnosed stage 2 or greater</th>
</tr>
</thead>
<tbody>
<tr>
<td>High (RED+)</td>
<td>Exposure of 15 minutes. Employee rotation. Provision for warming hands. Rest breaks and availability of hot drinks.</td>
<td>Work will be closely monitored by Managers and health and safety team. Short duration work plus employee rotation (15 minute exposure in any hour Max.) Must not exceed ELV</td>
<td>Shall be restricted from working with this work equipment as instructed by Occupational Health.</td>
</tr>
<tr>
<td>HIGH (RED) Greater than ELV of 5m/s²</td>
<td>Exposure of 15 minutes in any hour. Employee rotation. Provision for warming hands.</td>
<td>Rest breaks and availability of hot drinks. Short duration work plus employee rotation (15 minute exposure in any hour Max.) Warm weather only. Regular supervisory checks.</td>
<td>Shall be restricted from working with this work equipment as instructed by Occupational Health.</td>
</tr>
<tr>
<td>MEDIUM (AMBER) Greater than EAV of 2.5 m/s²</td>
<td>Exposure of 45 minutes in any hour. Maximum of 2 hours trigger time. Employee rotation. Provision for warming hands.</td>
<td>Rest breaks and availability for hot drinks. Short duration work only. (30 minutes in any hour). Maximum of 2 hours in 1 day. Autumnal weather only. Employee rotation. Provision for warming hands.</td>
<td>Recommendations provided by Occupational Health will be followed.</td>
</tr>
<tr>
<td>LOW (GREEN) Less than 2.5 m/s²</td>
<td>Exposure will be determined in the task risk assessments. Equipment monitoring and maintenance.</td>
<td>All employees to be made aware of self assessment process. Exposure 30 minutes in any hour. Autumnal weather Regular health checks and condition monitoring. Employee rotation. Provision for warming hands.</td>
<td>Recommendations provided by Occupational Health will be followed.</td>
</tr>
</tbody>
</table>

2 Please see Appendix 2 for a description of the different HAVS categories
Risk Assessment and Exposure Measurements

For the purposes of a risk assessment an employee’s exposure can also be calculated using the HSE’s Hand Arm Vibration calculator available at [http://www.hse.gov.uk/vibration/hav/hav.xls](http://www.hse.gov.uk/vibration/hav/hav.xls) (fig 2). These require the measured vibration magnitude together with accurate trigger times to be input.

Where the measurement of vibration is to be undertaken, those who carry out such measurement must be able to demonstrate their competence in the use of such equipment and in the evaluation of results. The use of external consultants is acceptable however it is recommended that the Health, Safety and Care Team is consulted prior to appointment of such consultants.

When conducting the risk assessment the work exposure of employee actual use of equipment or “trigger time” will be required to be measured. Past experience has shown that questioning staff about working time has often been proven to be highly inaccurate. There are timers available now commercially that can be attached to the equipment to record the actual trigger time if this is necessary.

The risk assessment will also require to take account of the work pattern of employees to calculate individual daily exposures. However where work teams are being rotated so that all employees are exposed to similar work activities then a team vibration risk assessment can be carried out. It is important that trigger times are similar, or where this is impracticable then worst case times should be used.

A Hand Arm Vibration Risk Assessment Proforma HR16E has been developed to assist managers in the carrying out of risk assessments (see APPENDIX 1A).

[HAND-ARM VIBRATION EXPOSURE CALCULATOR](http://www.hse.gov.uk/vibration/hav/hav.xls)


---

Both calculators have a help screen available and will provide a calculation of the total exposure points.

---

## Task Title

**Date of assessment:**

**Task description:**

### Assessor name:

**Signature:**

### Manager name:

**Signature:**

<table>
<thead>
<tr>
<th>Equipment used</th>
<th>Model</th>
<th>HAVS Colour code</th>
<th>Vibration level (m/s²)</th>
<th>Vibration Points</th>
<th>Max exposure A(8)</th>
<th>Actual trigger time</th>
<th>Maintenance programme in place</th>
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**Overall Comments on activity**

**Existing Control measures**
Is Occupational Health monitoring required?  Yes/ No
If Yes provide details in Action Plan

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<th>Action Plan</th>
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<td>Action required</td>
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Managers name

Signature

Date

Attached information:                  HSE Calculator Yes/No Maintenance records Yes/No
The Control of Vibration at Work:  
Guidance Note on Occupational Health Monitoring Programme

The Control of Vibration at Work Regulations 2005 require that health surveillance is provided where a risk assessment indicates that there is a risk to the health of employees who are, or are likely to be, exposed to vibration levels at or above an exposure action value.

Health Surveillance

Falkirk Council have adopted the following tiered approach to monitoring the health of our employees:

- Tier 1 - Initial or baseline assessment (pre-employment questionnaire – see APPENDIX 2A)
- Tier 2 - Annual screening (questionnaire – see APPENDIX 2B)
- Tier 3 - Assessment by qualified person (face to face with an OH professional)
- Tier 4 - Formal diagnosis (Occupational Physician)
- Tier 5 - Use of standardised tests (Optional)

Flow diagrams are used to illustrate the Tier 1 Pre-employment process (fig 1) and the In-employment process covered by Tiers 2-4 (fig 2).

Correspondence with Occupational Health will be managed by the affected Employee’s Line Manager and kept on either the employee personal file or a vibration file that will relate to the specific type of work being surveyed.

These diagrams outline the process for the majority of cases. In some individual cases where symptoms of HAVS have been recognised or there is another relevant medical condition additional restrictions or workplace modifications may be recommended. This is covered under Tier 5 Assessments and will be determined on a case by case basis by the Occupational Physician.

Employees should also report any changes to their medical condition to their Line Manager. This would include such issues as symptoms of circulatory diseases or persistent health issues such as finger blanching or lower back pain. Line Managers should then arrange for a Tier 2 assessment to be undertaken.
Role identified as “at risk” by employer

Recruiting manager issues Tier 1 Questionnaire and Hand Arm Vibration Advice for Employees leaflet with Pre-employment Health Questionnaire.

Occupational Health assess Tier 1 questionnaire
Symptoms declared?

yes

Tier 3 assessment

Occupational Health to advise recruiting manager on fitness for role with any specific recommendations and requirements for next assessment.
Report issued to recruiting manager detailing findings.

no

Tier 2 assessment
recommended at 12 months.

Report issued to employer detailing findings.

fig 1 - Pre-employment health surveillance process
Employees diagnosed with medical condition

HAVS: Diagnoses of HAVS falls into three categories:

Stage 1: this is the first stage where medical conditions of mild or intermittent attacks. The affect
will be on the tips of one or more fingers and intermittent numbness without tingling. Will require management control over the type of equipment allowed to be used and periods of time allowed to be used.

Stage 2: this is the second stage where moderate levels of attacks to the tips and middle of more than one finger as well as intermittent or persistent numbness with reduced sensory perception. This will require management control to provide significant restrictions to the work equipment that the employee can use. A “late” stage 2 is likely to result in the employee being redeployed from work involving HAV.

Stage 3: this is the final stage, where most severe symptoms are exhibited. Symptoms include intermittent or persistent numbness of all or most fingers with trophic skin changes to finger tips. Another symptom will be the loss of feeling in the fingers and employees may exhibit a loss of manual dexterity.

This stage will result in a permanent redeployment from all work involving vibratory equipment.

Carpal Tunnel Syndrome: This is a recognised condition arising out of work activity, in certain situations from HAV. Prognosis is dependant on individual circumstances.
**SECTION 1 - PERSONAL DETAILS**

Company/Organisation:  
Job title:  
Surname:  
Forenames:  
Date of Birth  
Home address  
Post Code  

*Data Protection Act 1998* - Personal information generated by completion of this form provides a medical view of your fitness for employment or specific task. Without this information your application/assessment of fitness will not proceed further. Your consent will be sought for any other use of all or part of this confidential medical data.

**SECTION 2 - HAND ARM VIBRATION SYNDROME (HAVS) ASSESSMENT**

This assessment is to be completed by all people who will be required to use hand held vibrating tools (including hand guided vibrating machines and handfed vibrating machines) as part of their work.

OPTIMA HEALTH will use this information in order to provide guidance to both you and your employers on your fitness to work with hand held vibrating tools. This might involve the need for you to attend for a more detailed medical assessment.

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
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<th>Details &amp; Dates (Give full information where applicable)</th>
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<th>Question</th>
<th>Yes</th>
<th>No</th>
<th>Details &amp; Dates</th>
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<tr>
<td>8. Have you suffered with all or part of your fingers going white on exposure to cold? (Whiteness means a clear discoloration of all or part of a finger, with a sharp edge, usually followed by a red flush) See picture on reverse</td>
<td>☐</td>
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<tr>
<td>9. If Yes to 8 do you have difficulty rewarming them when leaving the cold?</td>
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</table>

**SECTION 2 - HAND ARM VIBRATION SYNDROME (HAVS) ASSESSMENT CONTINUED**

<table>
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<tr>
<th>Question</th>
<th>Yes</th>
<th>No</th>
<th>Details &amp; Dates</th>
</tr>
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<tbody>
<tr>
<td>10. Do your fingers go white at any other time?</td>
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<tr>
<td>11. Are you experiencing any other problems with the muscles or joints of your hands or arms?</td>
<td>☐</td>
<td>☐</td>
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<tr>
<td>12. Have you ever had difficulty picking up very small objects such as screws or buttons, or opening tight jars?</td>
<td>☐</td>
<td>☐</td>
<td></td>
</tr>
<tr>
<td>13. Have you ever had a neck, arm or hand injury or operation?</td>
<td>☐</td>
<td>☐</td>
<td></td>
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<tr>
<td>14. Have you ever had any serious diseases of joints, skin, nerves, heart or blood vessels?</td>
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<tr>
<td>15. Are you on any long-term medication? If so, please provide details.</td>
<td>☐</td>
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</tbody>
</table>

**SECTION 3 - CONSENT & DECLARATION**

I hereby declare that all medical information given by me to OPTIMA HEALTH is true and accurate to the best of my belief and knowledge. I consent for OPTIMA HEALTH to provide fitness for work guidance to my employer.

Signature of Applicant: ____________________________ Date: ______________________

**SECTION 4 - OUTCOME**

(OPTIMA HEALTH Use Only)

Referred for further assessment

Yes ☐ No ☐

Name: ____________________________ Signature: ____________________________ Date: ______________________
Examples of hand blanching due to HAVS
# HAVS Health Surveillance Questionnaire (Tier 2)

## Section 1 - Personal Details

<table>
<thead>
<tr>
<th>Company/Organisation:</th>
<th>Job title:</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Surname:</th>
<th>Forenames:</th>
<th>Date of Birth:</th>
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<table>
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<tr>
<th>Home address:</th>
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<tr>
<th>Date of Previous Screening:</th>
</tr>
</thead>
</table>

**Data Protection Act 1998** - Personal information generated by completion of this form provides a medical view of your fitness for employment or specific task. Without this information your application/assessment of fitness will not proceed further. Your consent will be sought for any other use of all or part of this confidential medical data.

## Section 2 - Hand Arm Vibration Syndrome (HAVS) Assessment

This assessment is to be completed by all people who currently use hand held vibrating tools (including hand guided vibrating machines and handfed vibrating machines) or those people that have used them in the past two years.

OPTIMA HEALTH will use this information in order to provide guidance to both you and your employers on your fitness to work with vibrating tools. This might involve the need for you to attend for a more detailed medical assessment.

<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
<th>Details &amp; Dates (Give full information where applicable)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<td>----------------------------------------------------------</td>
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</table>

1. Do you use handheld vibrating tools at work?  
   - Yes  
   - No  
   Year of first exposure -

2. If this is a review assessment, have you used handheld vibrating tools in your job since your last assessment?  
   - Yes  
   - No  
   
3. Do you have any numbness or tingling of the fingers lasting more than 20 minutes after using vibrating equipment?  
   - Yes  
   - No  
   
4. Do you have numbness or tingling of the fingers at any other time?  
   - Yes  
   - No  
   
5. Do you wake at night with pain, tingling or numbness in your hand or wrist?  
   - Yes  
   - No  
   
6. Have you suffered with all or part of your fingers going white on exposure to cold?  
   (Whiteness means a clear discolouration of all or part of a finger, with a sharp edge, usually followed by a red flush) See picture on reverse  
   - Yes  
   - No  
   
7. If you have noticed any of the symptoms mentioned in Q 3-6, are they making it more difficult to work outside in the cold than at your last assessment?  
   - Yes  
   - No  
   
8. Are you experiencing any other problems with your hands or arms?  
   - Yes  
   - No  
   
---

29
9. Have you ever had difficulty picking up very small objects such as screws or buttons, or opening tight jars?

☐ ☐ 

10. Have you noticed any other symptoms, since your last assessment, which you feel may be related to working with vibrating tools?

☐ ☐ 

SECTION 3 - CONSENT & DECLARATION

I hereby declare that all medical information given by me to OPTIMA HEALTH is true and accurate to the best of my belief and knowledge. I consent for OPTIMA HEALTH to provide fitness for work guidance to my employer.

Signature of Applicant ........................................... Date ...........................................

SECTION 4 - OUTCOME  

(OPTIMA HEALTH Use Only)

Referred for further assessment Yes ☐ No ☐

Follow up Surveillance Planned and Timescale? (i.e. Tier 2 in 12 months, Tier 3 in 12 months, referred for further assessment) -

................................................................. .................................................................

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Name/Role (i.e. OHA/OHP) ........................................... Signature: ........................................... Date: .........................................
Examples of hand blanching due to HAVS