RSMA BEST PRACTICE GUIDE

PART 4

Occupational Health and Welfare

CONTENTS

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PART 4
OCCUPATIONAL HEALTH & WELFARE

Section 1. Introduction

1.1 This chapter

The purpose of this chapter is to give guidance and advice on a variety of Occupational Health hazards specifically associated with road marking activities. Occupational health is concerned not only with physical and psychological hazards but with chemical and biological ones as well. Most physical occupational hazards associated with work 'on the roads' are well known and have been for many years. Recent emphasis has been on developing lower risk workplace environments in respect to 'Occupational Health' focussing on those known physical occupational hazards such as Manual Handling, Noise and Ergonomics associated with operating plant and equipment.
In recent years psychological hazards have been included among the occupational health hazards faced by many road workers. Driven by the requirements of larger clients such as local authorities and principal contractors, this area of occupational health is seen to be one of the most expanding subjects and includes topics such as:

- Drugs and alcohol
- Fatigue risk management
- Smoking and passive smoking
- Violence to staff and operatives
- Workplace stress

This is by no means an exhaustive list and this section of the RSMA Best Practice Guide (BPG) will address the most common aspects of occupational health and welfare within the roadmarking sector.

1.2 The importance of Occupational Health

Occupational health is as important as occupational safety but often receives less attention. In industry generally, twice as many people suffer ill health caused or exacerbated by the workplace than suffer workplace injury. Such occupational health issues are often overlooked by employers as they do not usually manifest themselves as injuries or indeed cause deaths. They can however lead to many years of discomfort and pain. Illnesses such as respiratory disease, back pain, hearing problems and other debilitating physical conditions can be caused or exacerbated by the work activities carried out by road markers. Additionally, illnesses are overlooked as a direct result of the onset time of detectable signs and symptoms. It is important for employers to understand that ill health can be caused very quickly (Acute) or can be developed over a period of time (Chronic) paragraph 1.3 details the definitions of Acute and Chronic.

1.3 Acute & Chronic

Acute effects are often of short duration and appear fairly rapidly, this usually occurs during or after a single or short-term exposure to a hazardous situation (Substance or activity).
Acute ill health effects may be severe enough to require hospital treatment but are usually reversible. Examples of acute conditions specific to the road marking sector are wide and varied and could include asthma-type attacks, nausea and fainting caused by exposure to paint thinners and other solvent related fumes and vapours.

Chronic effects develop over a period of time. This may extend to many years. The word 'chronic' means 'with time' and should not be confused with 'severe' as its use in everyday conversation often implies this.
Chronic ill health effects are a result of prolonged or repeated exposure to hazardous situations producing a gradual, latent and often irreversible illness. Chronic work related illnesses may remain undiagnosed for many years. Many cancers and mental diseases fall into the chronic category. It is important for employers to understand that during the development stages of such chronic diseases, the employee may experience no symptoms.

Section 2. Chemical and biological health hazards

2.1 Chemical agents

The term ‘chemical agent’ is used to describe the transportation method of substances. These methods are wide and varied and are normally categorised under the following headings:

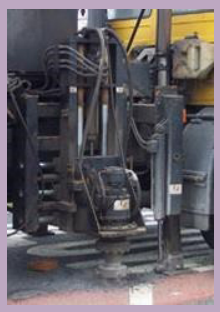
- Dusts
- Gases
- Vapours
- Liquids
- Mists
- Fumes

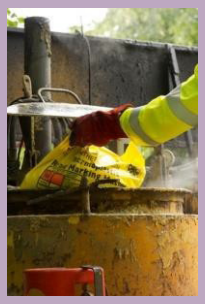
2.1.1 Dusts

Dusts are solid particles that are slightly heavier than air but are suspended in it for a period of time. The particulate sizes are measured in microns(s) (µm) and range from about 0.4 µm (fine) to 10 µm (course).
Dusts are produced by mechanical construction processes or by specific tasks.
Mechanical and specific tasks are known to create significant dust levels during road marking activities.

- Milling stud recesses
- Road stud removal
- Grinding and surface preparation (Scabbler)
- Removal using the HCA Lance
- Use of compressed air
- Brushing & sweeping
- Handling materials
- Chipping






Fine dust is much more hazardous because it penetrates deep in to the lungs and remains there. Known as ‘respirable dust’, examples such as cement, granulated plastics and silica dust produced from stone and concrete surface preparation can be common in the road marking sector. Repeated exposure may lead to permanent lung disease.

2.1.2 Gases

Gases are substances that are at a temperature above their boiling point. Steam is the gaseous form of water.
Gases that are common in industry generally and in the road marking sector specifically include Carbon Monoxide (CO), Carbon Dioxide (CO2), Nitrogen (N) and Oxygen (O).
Gases are absorbed into the bloodstream where they may be beneficial (Oxygen) or harmful (Carbon Monoxide).
It is easy to consider Liquefied Petroleum Gas (LPG) as hazardous to health as it is in common use in the road marking sector. Gases that are not so commonly known about such as Carbon Monoxide, pose a serious hazard to health and must be considered when conducting hazard analysis and risk assessments. Information regarding potential gaseous hazards can be found in material safety data sheets (MSDS). The specifics of MSDS are addressed in further parts of this section and in brief in the COSHH section of Part 2.

Section 3. Health Surveillance

3.1 Health surveillance policies

Road marking organisations should recognise their responsibility to ensure all personnel working under their control, visitors or people who may be affected by their work, are not subject to hazards that could affect their health, either short term and long term.

Road marking organisations should therefore do what is 'reasonably practicable' to control health hazards in order to reduce harm. The development of a specific health surveillance policy will help to demonstrate an organisation's commitment to health issues. The following sections are examples of what may be required in a company health surveillance policy:

3.1.1 Drugs and alcohol testing

Road marking organisations mainly operate as 'sub-contractor' or 'specialist contractors' working for a 'Principal Contractor' and as such are often required to align their policies with those of the their client.

A simple statement within the policy using the following form of words could be used:

"Drugs and alcohol testing will be conducted in line with the 'Principal Contractors' requirements or any client organisations who are in control of the work sites where the company are 'sub- contracted' to work"

3.1.2 Methods of Drugs and alcohol testing

Drugs and alcohol testing methods vary considerably from simple self assessments such as knowing when you are still under the influence of alcohol (From the night before) or reporting when you are prescribed medication that may preclude you from operating machinery, to more scientific methods including formal breath, blood or urine tests conducted in formal laboratory conditions.

The level and type of testing should be assessed according to the size of the organisation and any specific contractual needs placed upon that business. As discussed in 3.1.1 above, small sub-contractors could align their policies with the larger Principal Contractor or Local Authority they work for, whilst larger road marking contractors may be expected to have their own formal policy in place.

The table below shows different types of testing methods. Although not an exhaustive list, it gives a broad example of what could be required from road marking contractors.

Random breath testing is conducted on most major sites often on a voluntary basis. Organisations that use random breath testing equipment must ensure that the equipment is fully calibrated and adequately controlled in order to use the results thereafter. Maintaining a voluntary policy where employees are encouraged to volunteer for testing if they feel they are still under the influence of alcohol the morning after, goes some way to encouraging an open culture regarding the use of alcohol.

Still being under the influence of alcohol the next morning is becoming increasingly common. A zero tolerance approach to alcohol at work MUST be adopted by all. Such a 'zero tolerance' policy for being under the influence whilst at work and on-site, supported by a workable open approach to self reporting 'before attending work' will help drive alcohol related incidents and ill health rates down. A strict policy regarding repeat offenders is required, along with the most severe disciplinary action taken when employees test positive whilst at work and on-site.

Drug use is often stereotyped into the illegal use of controlled substances such as Marijuana or Cocaine. The use of drugs prescribed by GP's is often overlooked, however some prescription drugs are known to have side effects that make driving, operating plant and machinery hazardous.

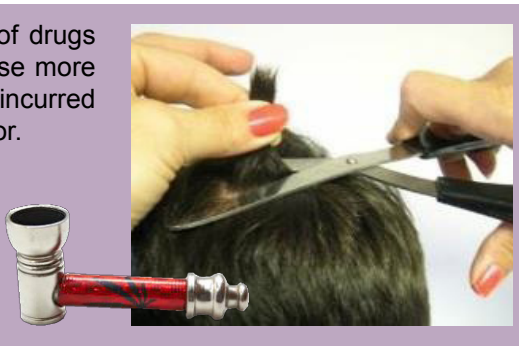
Prescription drugs and medication may contain substances that appear in drug testing. The 'sweat-test' is a method where a patch is stuck to the body and absorbs the 'sweat' from the person being tested. The patch is then sent away for analysis and testing at an authorised laboratory.

More common test methods such as urine sampling may be employed. Test results may find both illegal and prescription drugs and medication. These tests MUST be conducted in a controlled manner.

A clear policy, well communicated to the employees and adequate consent is often required to maintain legality in most alcohol and drug testing scenarios. Innovative ways are often found to beat the tests, especially where illegal drugs are concerned, so effective test methods and security is important. Larger organisation may wish to engage the services of an occupational health provider to carry out these tests. Smaller organisation may be required to undergo testing provided by the client or Principal Contractor.

Less common test methods may be used to accurately test for the type of drugs used and in some cases the length of time since the drug was taken.These more elaborate, precise and accurate tests may not be appropriate. The costs incurred may be considered as not reasonably practicable for the road marking sector.

Larger organisations with robust and legally binding policies may take samples of hair for drugs analysis. Other more formal tests needing medical professionals to take samples may also be undertaken. In practice it is not usual for a roadmarking organisation to use this level of testing.



NB: Pictures used in the table above are for illustration purposes only. The type and test methods associated with the illustration may not be accurately represented

3.1.3 Health effects of drug and alcohol use

It is often well known that the use of alcohol the effects of alcohol use whilst at work has a potentially lethal effect on the safety of everyone. Impaired reaction times, reduced productivity and questionable behaviour are well documented effects.

It is common to focus on the ‘safety’ issues regarding alcohol use. A broader issue must be addressed however, Acute and chronic ‘ill health’ caused by the use of alcohol will have an adverse effect not only on the employees health and wellbeing but on the profitability of the organisation. Ill health effects may include but are not restricted to:

- **Hangovers** - headaches, nausea, vomiting, aches and pains all result from drinking too much. Drinking to the point of drunkenness may make you unfit for work the morning after.
- **Weight gain** - alcohol is not water. A beer has about 150 ‘empty’ calories that provide few if any nutrients.
- **High blood pressure** - along with being overweight, high blood pressure is associated with many serious health problems.
- **Depressed immune system** - impaired immunity makes you more likely to contract viral illnesses such as flu and infections resulting in further lost time due to illness.
- **Cancer** - cancer cases can be related to alcohol it is thought that 2-4% of cancer cases are alcohol related. Upper digestive tract cancers are the most common, hitting the oesophagus, mouth, larynx, and pharynx. Women who drink prior to menopause are more likely to develop breast cancer. The risk of skin cancer doubles if you drink slightly more than “moderate levels.” Some studies implicate alcohol in colon, stomach, pancreas and lung cancer. Liver damage must not be forgotten.
- **Liver disease** - heavy drinking can cause fatty liver, hepatitis, cirrhosis and cancer of the liver. The liver breaks down alcohol at the relatively slow rate.
- **Alcohol poisoning** - drinking large amounts can result in alcohol poisoning, which causes unconsciousness and even death. Breathing slows, and the skin becomes cold and may look blue, ‘sleeping it off’ can be dangerous.
- **Heart or respiratory failure** - excessive drinking can have serious results. Heart or respiratory failure often means death.

Prescribed drugs and medicines

Some medicines, both prescribed and bought over the counter, can affect an employee's ability to operate plant and machinery and to drive safely. Employees may not always know whether or not a medicine will affect them. The danger is that the effects of a drug or medicine may not be noticed until the employee is in a driving/operating situation. Fast and accurate responses are needed to avoid accidents and incidents and this may be impaired.

Certain prescribed drugs and medicines may have side effects that considerably increase the risks to safety and health. Some medicines may make employees:

- Drowsy or tired
- Dizzy, lightheaded or faint
- Unable to think clearly
- Have reduced coordination, including shaking and feeling unstable
- Edgy, angry or aggressive
- Sick, nauseous or otherwise unwell
- Have blurred or double vision.

An open and positive culture regarding the use of **prescribed drugs and medicines will encourage employees to avoid taking risks with medication. An effective policy will again support openness and cooperation, allowing organisations to effectively monitor ill health in the same manner as accident and incident rates.**

For example; the following form of words could be used within a drugs and alcohol policy:

"If your medicine affects your ability to operate machinery or drive company vehicles, stop. Report the matter to your supervisor or manager. Do not stop taking your medicine and seek advice from your doctor or pharmacist. Ask your pharmacist, or doctor, if the medicine you are taking, either on prescription, or bought over the counter, may affect your ability to operate machinery or drive. Read the labels on all medicines you take. Check with your pharmacist or doctor when you have doubts about your medicine and inform your supervisor or manager"

Illegal controlled drugs and drug abuse

Like many prescription drugs, 'recreational drugs' come with potentially harmful side effects that can have serious and long-term effects on employee health.

Recreational drugs can cause immediate life-threatening health problems such as heart attack, respiratory failure, and coma. Combining drugs with each other or with alcohol is especially dangerous.

Understanding and recognising the signs and symptoms of drug abuse may go some way to combating the problem. Employees who take recreational drugs put themselves, others and the reputation of the business at risk.

- **Barbiturates and tranquilizers** - barbiturates and tranquilizers are commonly abused prescription drugs. They can cause hangover-like symptoms, nausea, seizures, and coma. Overdose or mixing these drugs with alcohol can be fatal.
- **Cocaine** - cocaine can cause such long-term problems as tremors, seizures, psychosis, and heart or respiratory failure.
- **LSD** - LSD can cause nausea, rapid heart rate, depression, and disorientation. Long-term effects include paranoia and psychosis.
- **Marijuana** - Marijuana can cause rapid heart rate and memory impairment soon after use. Long-term effects include cognitive problems, infertility, weakened immune system, and possible lung damage.
- **Narcotics** - narcotics such as heroin can bring on respiratory and circulatory depression, dizziness, impotence, constipation, and withdrawal sickness. Overdoses can lead to seizures and death.

3.1.4 Fatigue and risk management

Working hours, specifically night work and periods involving long driving hours are known to increase the risk of fatigue and stress. Working hours should be monitored as well as the length of time employees are expected to drive as part of their job. Fatigue and risk management awareness information can be communicated to the workforce in the form of simple safety bulletins and toolbox talks. Further details regarding fatigue and risk management considerations are addressed in section 4 of this part of the RSMA Best Practice Guide (BPG).

As there are health risks linked with night work, employers must offer a free health assessment* (normally a questionnaire) before employees start working at night and on a regular basis after that. Generally this is done once a year, but employers may offer health assessments more frequently. Employees do not have to take the health check offered. Organisations should gain help from a suitably qualified health professional when devising and assessing the health assessments. If an employee completes a health assessment questionnaire and the answers given are cause for concern, employers should refer employees to a doctor or occupational health nurse. If health problems are confirmed as being caused by night work, employers must transfer employees to daytime work - if this is possible.

*Source: www.direct.gov.uk/en/Employment/Employees/WorkingHoursAndTimeOff

3.1.5 General health surveillance

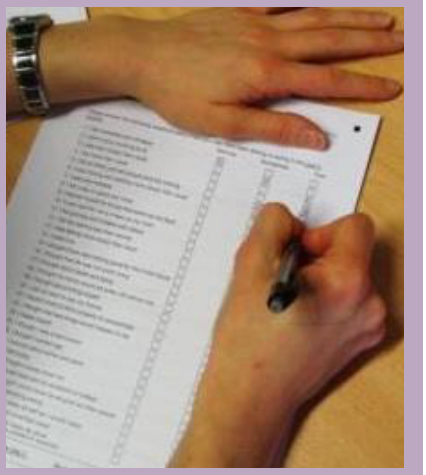
The starting point when understanding if a formal health surveillance programme is required, is the risk assessment activities conducted by the organisation. Through suitable and specific risk assessments, workplace health hazards and those who are at risk should have been identified. Suitable control measures should have been put in place to control the risks to health. Where risks still remain, further steps MUST be taken. One of which is to consider a programme of formal health surveillance. Organisations MUST remember that health surveillance is not a substitute for controlling health risks at work.

The table below contains a variety of different heath surveillance methods. Although not an exhaustive list, it gives a broad example of what road marking contractors could do to monitor the health of their employees.

Employees could be asked to volunteer information on an annual basis regarding their short term and long term health. This information can be gathered on an annual health surveillance questionnaire. The information MUST remain private and confidential. It MUST be gathered, stored and used in line with data protection legislation. An example health questionnaire is available from the RSMA.

The health questionnaire is meant as a tool to gather information regarding health hazards that may be associated with the work carried out in the road marking sector and to ensure that control measures remain adequate. In addition pre-employment health questionnaires can be used to highlight any pre-existing health issues that may need addressing prior to work tasks being issued.

Effective pre-screening can highlight health conditions that may be aggravated by road marking tasks. A ‘claims culture’ may be avoided if effective health screening identifies such conditions.



Working in areas containing unwanted sound (Noise) is known to have a damaging effect on hearing. Industrial deafness is a chronic condition that develops over time. If effective controls and surveillance methods are not engaged, employees can be left with lifelong hearing loss. Hearing tests are simple to administer and when conducted over a period of time can highlight any deterioration in an employee’s hearing. Professional Occupational Health organisations should be used to conduct and monitor hearing tests.

Further information regarding the assessment and management of noise at work is covered in an additional section of this document.

Employees who work with or are exposed to respiratory sensitisers may require spirometry testing (Lung function tests). Professional Occupational Health organisations should be used to conduct and monitor spirometry testing. Once again the information MUST remain private and confidential. It MUST be gathered, stored and used in line with data protection legislation.

Having previous records also allows comparisons to be made to detect any early signs of any abnormal deterioration in lung capacity and therefore tackle any issues before they become more serious problems.

In certain specialist sectors where employee exposure is likely to result in blood disorders, employees may be required to provide blood samples as part of health surveillance policies and procedures.

Generally this would be outside the needs of road marking organisations.

Checks and tests for diabetes have been asked for in the past by Principal contractors who use this type of testing to survey their own workforce.

Sub-contractors who align their policies with those of their clients may be required to conduct such testing.

General health and wellbeing assessments are common to many sectors of business. Pre-employment medicals along with annual general health assessments are used by many organisations to assess the health of their employees.

General assessments like this, along with annual health questionnaires may be considered to be the top level of commitment needed by most road marking businesses. The actual necessity for formal health screening and testing can only be established by risk assessments that measure exposure levels. Larger road marking organisations or materials manufacturing companies may find it necessary to provide higher level health screening for their employees.

Section 4. Fatigue Risk Management

4.1 Shift working and irregular hours

Your workers are night workers if they regularly work for at least three hours during the night time period either:

- On most of the days they work
- On a proportion of the days they work, which is specified in a collective or workforce agreement between the employer and the trade union or
- Often enough to say that your worker works such hours on a regular basis (eg a third of their working time could be at night, so they would be a night worker)

Between 70 and 75 million people worldwide are currently working shift work, night work and irregular schedules. In Europe, 22% of the European Union work shifts including nights. So working nights is not an uncommon thing to do and night workers are not alone.
A large majority of road marking projects are scheduled to take place during the 'silent hours'. It is of course easy to understand why road maintenance is planned when roads are quieter, either at night, late evening or early in the morning when traffic flows are lower. Working irregular hours will and does increase the risk of fatigue leading to stress and ill health. Health and safety issues are created as a result of employees feeling tired and sleepy at work.

- Nearly 70% of shift workers have seen poor performance or operational errors due to sleepiness
- Over half of the shift workers surveyed said they have seen poor safety practices or accidents due to fatigue
- 76% of shift workers have experienced noticeable sleepiness on every night shift
- 20% of shift workers have experienced at least one episode of sleepiness severe enough to fall asleep at work on night shift

4.1.1 Impaired Concentration

Research shows that night workers are more likely to make a mistake due to impaired alertness between the hours of 00:00 and 06:00 (even after 8 hours sleep that day)
Night workers are more likely to make a mistake when they have not slept well during the previous 24 hours.
Accident statistics show that the rate of accidents are 10 times higher between 04:00 & 06:00.
Loss of concentration due to 'Micro-sleeps' happen more regularly during night work.

4.1.2 How employees are affected

Night work and irregular shifts can affect employee's long term health. A small part of the brain behind the Hypothalamus known as the Suprachiasmatic Nucleus (SNC) has evolved to regulate the 'body clock'. This has caused the human body to evolve to be 'Diurnal' (active mainly in the day) this is the opposite to 'Nocturnal'. As the human body has developed in this way we have not evolved sufficiently enough to be able to remain fully alert at night when the body is designed to sleep. Health and wellbeing can be affected by such activities in the following manner:

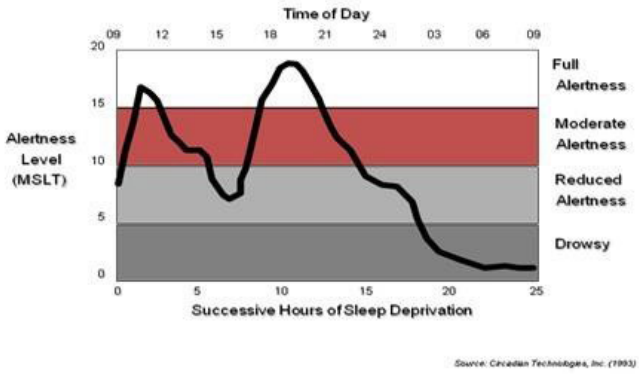
- Disrupted sleep at home
- Chronic sleep deprivation
- Lack of awareness of sleep debt
- Increased risk of 'Micro- sleep'
- Automatic behaviour syndrome
- 'Nodding off' on the job
- Exacerbation of dormant medical or psychiatric problems
- Reduced alertness, vigilance and work performance
- Cardiovascular disease
- Gastrointestinal disorders
- Chronic sleep disorders
- Lower immune system response

A recent study has shown that the UK has an increasing ‘sleep debt’ of up to 29 billion hours. This is a significant increase since 2008.

The effects of working nights and irregular shift patterns may have a detrimental effect on the health and safety of all employees. Organisations MUST assess shift working and irregular work patterns in the same manner as they would assess other more apparent health and safety risks.

4.1.3 Understanding fatigue

Everybody has different sleep patterns and require different amounts of sleep at different times. What is true is that without sufficient sleep an employee can become more prone to mistakes, minor errors or incidents and accidents. With increased sleep debt, an employee has an increased chance of suffering from the effects noted in paragraph 4.1.2. Those planning and coordinating night work should understand the fundamentals of shift working and fatigue risk management. The alertness curve below shows the levels of alertness over a 24 hour period when a person is deprived of sleep.



Source: Circadian Technologies, Inc. (1993)

Understanding that ‘reduced alertness’ generally occurs at around 3pm and 3am allows those responsible for planning works to effectively coordinate work patterns, people and equipment in order to achieve the safest situations during a project. Understanding that at 3am employee alertness may be low will help understand why productivity and safety often dips at this time.

4.1.4 Managing fatigue

Understanding and managing fatigue is key to a safe, productive and successful night shift project. When the body needs sleep, the body will find a way of getting that sleep. ‘Micro sleeps’ are common in drivers. Tired drivers loose alertness for a few seconds and are effectively asleep at the wheel.

Sleep debt cannot easily be re-paid! Quality of sleep can depend greatly upon what time you sleep and what external influences effect your sleep pattern. Night workers are prone to disturbed sleep by the daytime world going on around them. When fatigue hits, people do some strange things to stay awake. The list below shows some of these strange and sometimes bizarre methods of staying awake:

- A worker putting a drawing pin under an elastic band around the wrist.
- An air stewardess shutting her hair in her cars sunroof so that if she nodded off she would be jerked back to consciousness.
- A lorry driver who drove his lorry stood up in the cab to keep awake.
- A man who sucked on lemons to keep alert.
- An employee driving with his head out of the cab window to keep awake.


"I've got to do something about my insomnia. I didn't sleep a wink at work today."

4.1.5 Fatigue countermeasures

Adopting some simple fatigue countermeasures may help boost alertness ‘a little’, however nothing can replace ‘a good night’s sleep’. Things that employees can do to boost alertness whilst at work:

- Taking exercise (a brisk walk around site whilst waiting for things to happen)
- Job sharing (Rotating tasks such as driving and operating plant)
- Chew gum, eat fruit or drink water or juice.
- Keep the cab cool, windows down and heaters off.
- Take a short nap (Power naps help keep you alert...but only if it is safe to do so)
- Drink a high caffeine drink such as coffee or an energy drink (Only take caffeine in moderation though)

Sleep disruption can be caused by ‘lifestyle factors’

- Over reliance upon caffeine can make you ill.
- Smoking excessively is not only bad for your health it is bad for your sleep debt.
- Excessive consumption of alcohol ‘the night before’ will affect your alertness.
- Taking drugs, including illegal, legal and prescription will have an effect on your sleep pattern and your alertness.
- Poor diet and irregular meal times will increase fatigue and affect your performance at work

High caffeine drinks and caffeine supplements are well known to increase alertness and make the person taking the caffeine feel awake. It is however well documented that excessive levels of caffeine intake is bad for you. Symptoms range from nausea and vomiting to tremors, chest pain and racing pulse. Individuals have been hospitalised as a result of excessive caffeine intake.

4.1.6 Possible solutions to night working and fatigue management

There are many solutions that can be adopted to assist organisations with their fatigue risk management.

- Regulatory compliance (Not working longer hours than the law dictates)
- Napping (Allowing employees to take ‘power naps’ when it is safe and appropriate to do so)
- Innovative scheduling, planning and cooperation (Avoiding the hurry-up and wait scenario)
- Training programmes (Managing a shiftwork lifestyle and education on sleep debt)

4.1.7 Conclusion

In a world with an ever increasing pace, the need for shift working, night shifts and longer hours is inevitable. The majority of road marking works are conducted at night in order to create the least disruption possible to the road network. With this comes the burden of the duty of care for employers to look after the health and welfare of their employees. Understanding how we work as human beings, why and when we need to sleep and what happens to us when we don’t sleep is a key factor in keeping shift and night workers not only safe but productive and alert. This section gives a few simple guidelines to start the thought process regarding working hours, fatigue and the risks associated with working long and unsociable hours.

Employees and employers alike MUST consider this subject and factor it in to any and all projects where long hours are likely to be worked.

Section 5. Substances Hazardous to Health

5.1 The Control of Substances Hazardous to Health (COSHH)

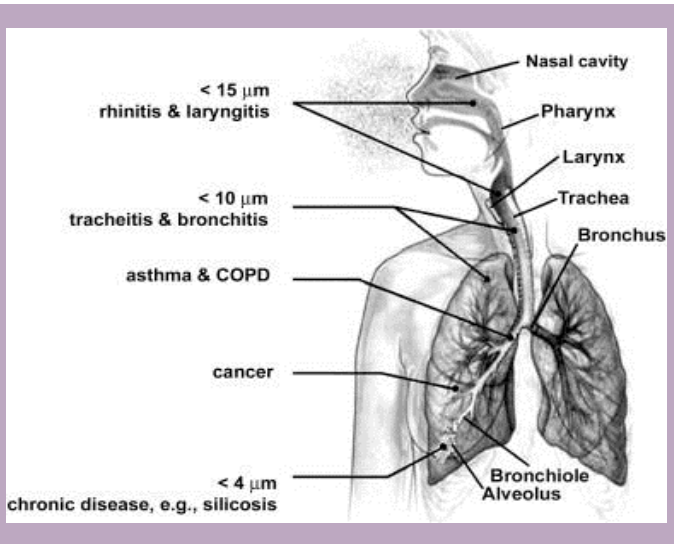
Part 2, section 3 of this Best Practice Guide (BPG) deals in general terms with the application of the COSHH Regulations. This section focuses on specific substances and their health hazards. An earlier section of part 4 listed chemical and biological health hazards in the forms of dusts, gases. vapours, liquids, mists and fumes. A closer examination of these health hazards and how they can affect an employee's health is addressed.

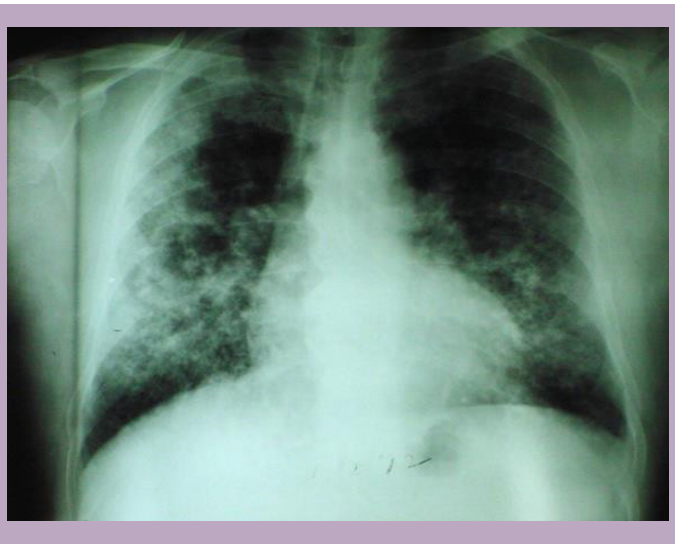
5.1.1 Occupational Exposure Limits

One of the main purposes of a COSHH assessment is to adequately control the exposure of employees and others to hazardous substances. This means that such substances should be reduced to levels which do not pose a health threat to those exposed to them on a daily basis at work. Workplace exposure limits (WEL) have been assigned to a large number of hazardous substances. Placed on a list, these WEL's are published on an annual basis and is called 'Workplace Exposure Limits' EH40. A copy can be downloaded from the HSE website and should be used as further guidance when conducting COSHH assessments and assessing WEL's.

5.2 Respirable Dusts

Respirable dusts tend to be long thin particles with sharp edges which puncture the alveoli walls. The puncture then heals producing scar tissue. This scar tissue is less flexible than the original alveoli walls, leading to a chronic condition called fibrosis. The diagram below (left) is a schematic of the human lungs and airways, showing the penetration of different sized dust particles and the associated diseases that may be caused. The picture to the right is an x-ray of chronic silicosis.





5.2.1 Silica dust

Silica is the main component of most rocks and is a crystalline substance made of silicone and oxygen. It occurs in granite, sand and other materials commonly used to build roads. When surfaces such as wearing courses, concrete carriageway sections and car parks are cut, scabbled, scarified or sandblasted. Silica dust is released. Even the simple action of sweeping or air-blasting an un-sealed concrete surface can create airborne silica dust that can cause harm when inhaled. Employees in the road marking sector may not be exposed to the same amount of silica dust as hard rock miners, quarry men and stone and pottery workers, but regular and prolonged exposure will increase the risk of chronic diseases such as Silicosis, Fibrosis, Pneumoconiosis and Cancer. Asthma sufferers may have an acute reaction to silica dust and employees may be more likely to suffer bronchitis.

Exposure to harmful silica dust can be avoided by the use of alternative line removal methods or the use of good extraction systems in factories that manufacture road marking materials. The use of respiratory personal protective equipment (RPPE) is a last resort and should be correctly selected. Part 2, section 2 of this BPG covers the correct issue and use of RPPE.

5.2.2 Other respirable dusts

Other types of respirable dusts are known to have health risks. Road marking contractors, material manufacturers and other organisations linked to the road marking sector that may conduct works that expose their employees to respirable dusts MUST use material safety data sheets to assess the risks to health from the substances used.

5.3 Gases and Vapours

As discussed in the introductory section of this part of the BPG. Gases are substances that are at a temperature above their boiling point. Steam is the gaseous form of water.

Gases that are common in industry generally and in the road marking sector specifically include Carbon Monoxide (CO), Carbon Dioxide (CO2), Nitrogen (N) and Oxygen (O) and of course Liquefied Petroleum Gas (LPG).

Exposure to gases can be as a result of the process created as a by product of combustion. Employees may be exposed to hazardous gases such as Carbon Monoxide (CO) simply because of their place of work. Having an awareness of gases that are hazardous to health will go some way in helping to control them.

5.3.1 Carbon Monoxide (CO).

Carbon Monoxide is a colourless, tasteless and odourless gas which makes it impossible to detect without the use of special measuring equipment. Carbon Monoxide enters the red blood cells more readily than oxygen and restricts the supply of oxygen to the vital organs. Symptoms of Carbon Monoxide poisoning can include:

At low concentrations <5%

- Headache
- Dizziness
- Nausea
- Chest pain
- Shortness of breath
- Vomiting
- Abdominal pain
- Drowsiness
- Fainting
- Seizures

At higher concentrations

- Abdominal pain
- Drowsiness
- Fainting
- Seizures
- Unconsciousness
- Death

The most common occurrence of carbon monoxide in the road marking sector would be as an exhaust gas either from a road marking vehicle or from any of the many items of plant equipment powered by internal combustion engines. Thermoplastic boilers are also probably one of the largest sources of carbon monoxide. In either case the production of carbon monoxide results from insufficient combustion, probably as a result of component failure and poor maintenance. Under normal circumstances the hazards associated with carbon monoxide and actual presence of the gas will go unnoticed because the vehicles, plant and equipment are used in well ventilated outdoor sites. The risks are increased when road marking operations are conducted in confined spaces such as road tunnels, underground car parks and other similar work sites. Accidental exposure can also be attributed to the running of engines and boilers in garages and workshops during servicing and maintenance activity. Other accidental exposures can occur during cold mornings when vehicles are left to warm-up in a confined space. Part 2, section 5 of this Best Practice Guide gives additional guidance regarding the safe operation of thermoplastic boilers. Safe systems of work and effective risk assessments will help to reduce the risks from Carbon Monoxide

Carbon Monoxide (CO)	8-hour Time - Weighted Average	15 minute Short-Term Exposure Limit
United Kingdom WEL	30 ppm	200 ppm

5.3.2 Carbon Dioxide (CO2)

Carbon Dioxide is a colourless and odourless gas which is heavier than air. If exposed, the gas acts to repress the respiratory system, eventually causing death by asphyxiation. At low concentrations it will cause headaches and sweating followed by a loss of consciousness.

Like Carbon Monoxide, Carbon Dioxide is a result of the burning of fossil fuels; however Carbon Dioxide is produced all the time when fuel is burned. The greatest hazard again occurs in confined spaces, particularly where the gas is produced as a by product.

CO2 Workplace Exposure Limits

Carbon dioxide is listed as a toxic contaminant with strictly defined occupational exposure limits in almost every jurisdiction. The most widely recognized exposure limits for CO2 reference an 8-hour Time-Weighted Average (TWA) of 5,000 ppm, with a 15-minute Short- Term Exposure Limit (STEL) of either 15,000 ppm or 30,000 ppm.
Workplace exposure limits:

Carbon Dioxide (CO2)	8-hour Time - Weighted Average	15 minute Short-Term Exposure Limit
United Kingdom WEL	5,000 ppm	15,000 ppm

5.3.3 Liquefied Petroleum Gas (LPG)

Liquefied Petroleum Gas (LPG) is in common use in practically all road marking organisations. It is a clean burning, non-poisonous, dependable and high performance fuel stored and transported in containers as a liquid, but is generally drawn out and used as gas. LPG occurs naturally in crude oil and natural gas production fields, and is also produced during the oil refining process. It is a mixture of light gaseous hydrocarbons (e.g. propane, butane) which are gaseous at normal ambient temperature and atmospheric pressure, but made liquid by application of moderate pressure.

Exposure to LPG Gas / Vapours

If inhaled, LPG can affect the body by acting as a simple asphyxiant and a central nervous system depressant. The following are common symptoms of exposure:

- Headache
- Dizziness or light-headedness
- Drowsiness
- Unconsciousness
- Death

Exposure to LPG Liquid

Contact with the liquid can cause frostbite and irritation to the skin. Eye protection MUST be worn to prevent damage to the eyes.

Other health risks include the risk of cancer, genetic defects and in high concentrations can sensitise the heart to adrenaline

Liquefied Petroleum Gas (LPG)	8-hour Time - Weighted Average	15 minute Short-Term Exposure Limit
United Kingdom WEL	1,000 ppm	2,500 ppm

5.3.4 Other Hazardous Gases and Vapours

Employees may be exposed to other hazardous gases and vapours whilst conducting road marking activities. Effective risk assessments and the application of COSHH regulations will help to highlight any such gases and pinpoint effective control measures needed to protect the long and short term health of those exposed.

5.3 Liquids, Mists and Fumes

Road marking activities can expose employees, visitors and the general public to various substances. If these substances remain unmeasured and uncontrolled then there is no idea of the level of harm they may cause.

5.3.1 Hot Compressed Air Lance (HCA Lance)

Probably the most questioned activity is that of 'burning off'. Using the Hot Compressed Air Lance (HCA Lance) when undertaking road marking removal or surface preparations, large amounts of noise and smoke are produced.
To any on-lookers the HCA Lance operation can appear extremely dangerous, when in fact, used correctly by trained operators in a suitable location; the HCA Lance can be considered as a reasonably practicable method for line removal and surface preparation. Of course suitable and specific site risk assessments MUST be conducted.

Section 6. Control of Noise at Work

6.1 Introduction

This section contains details of sound monitoring data obtained during activities conducted at a variety of locations. It involved sampling sound levels at various positions and distances from plant equipment known to produce unwanted sound and/or sound that is known or suspected to be equal to or greater than the action levels noted in the control of noise regulations.

Road marking activities, and the variety of plant and equipment used within the road marking sector is known to produce unwanted sound (Noise). Currently most organisations are reliant upon the plant and equipment manufacturers to provide the relevant information regarding the noise levels produced by their plant and equipment. This information is supplied by law in operations manuals, safety data and other such documentation supplied with the equipment.

To date there has been very little formal monitoring activities undertaken on behalf of the sector as a whole. Individual road marking organisations have conducted noise monitoring activities as a requirement of their statutory duties; however this information is specific to those organisations, their equipment and their individual policies and procedures.

6.2 Duties

Risk Assessment

5.—(1) An employer who carries out work which is liable to expose any employees to noise at or above a lower exposure action value shall make a suitable and sufficient assessment of the risk from that noise to the health and safety of those employees, and the risk assessment shall identify the measures which need to be taken to meet the requirements of the Regulations.

6.—(1) The employer shall ensure that risk from exposure to noise is either eliminated at source or, where this is not reasonably practicable, reduce to as low a level as reasonably practicable.

(2) If any employee is likely to be exposed to noise at or above an upper exposure action value, the employer shall reduce exposure to as low level as is reasonably practicable by establishing and implementing a programme of organisational and technical measures, excluding the provision of hearing protectors, which is appropriate to the activity.

(3) The action taken by the employer in compliance with paragraphs (1) and (2) shall be based on the general Principles of prevention set out in Schedule 1 to the Management of Health and Safety Regulations 1991.

The general risk assessment activities of a roadmarking organisation should include where necessary and where reasonably practicable an assessment of noise.

Specific noise risk assessment activities should be conducted as required and when information and data provided by the plant manufacturer is thought to be out of date or absent in any way.

6.3 Elimination or control of exposure to noise at the workplace

6.3.1 Other work methods

Where reasonably practicable roadmarking organisations shall develop or use alternative work methods that do not involve noise levels that are likely to expose their employees to noise at or above an upper exposure action value.

6.3.2 Work equipment

The procurement practices of roadmarking organisations should, where reasonably practicable, involve the choice of appropriate work equipment that is known to emit the least possible noise. This will take account of the work to be done, the availability of current technology and the cost measured against the risk from unwanted sound.

6.3.3 The design and layout of workplaces

Generally, the activities that emit noise within the road marking sector are limited to the operation of plant and equipment. Where plant and equipment usage cannot be avoided, for example the need to use a 'donkey engine' or a 'diesel powered air compressor' these items are often positioned on the works vehicles in such a location as to increase the distance between the operatives and the source of noise. Compressors and other mounted plant are often positioned to the front of a works vehicle. Normal operations are conducted away from the source of noise to the rear of the vehicle or to the very front.

6.3.4 Information, instruction and training.

Roadmarking organisations should, where required provide suitable and sufficient information, instruction and training to employees, such training will ensure that work equipment is used correctly in order to minimise their exposure to noise. Training may take the form of, but not limited to;

A) Formal induction training
B) Plant specific training (covering noise)
C) Site specific training
D) Toolbox talks
E) Safety bulletins
F) Safety briefings

6.3.5 Noise reduction

Where technology is available and it is reasonably practicable, noise reduction methods should be employed.

6.3.6 Maintenance programmes.

Effective planned preventative maintenance programmes (PPM) should be employed to ensure such work equipment is maintained in good working order. In addition, the maintenance of the workplace and workplace systems will assist in the reduction of noise.

6.3.7 Reducing exposure.

Where better control measures, as listed above, are considered insufficient to reduce exposure to the desired levels. The limiting of the duration and intensity of noise exposure

6.4 Hearing protection

6.4.1 Availability on request

Where work activities are likely to expose employees to noise levels at or above the lower exposure action value. Organisations should make personal hearing protectors available upon the request of any employees who are so exposed.

6.4.2 Personal hearing protection

Where noise levels cannot be reduced by other means and employee exposure is, or is likely to be below the upper exposure action value personal hearing protection must be provided to any employee who is so exposed.

6.4.3 Mandatory hearing protection

The control of noise at work regulations state that ‘if in any area of the workplace under the control of the employer an employee is likely to be exposed to noise at or above an upper exposure action value the employer shall ensure that a number of steps are taken to identify that area as a mandatory hearing protection zone.

Due to the transient nature of roadmarking works. It is not practicable to assess every work area in such a manner. Some work sites exist for as little as fifteen minutes and then the work moves on to another site. Due to this specialist situation the ‘workplace’ could be considered as a distance or perimeter around the works vehicle or the specific plant equipment being used at any work site. Therefore the following should be maintained:

- A suitable distance around the works vehicle (a perimeter zone) of a specific distance (approximately 3m) should be considered as the designated mandatory hearing protection zone.
- This area can be identified in training and briefing documentation. Fixed signage may not be suitable for demarcation purposes, therefore safe systems of work and method statements should contain information regarding how close to the works vehicle, or source of noise, an employee can be before entering the mandatory hearing protection zone.
- Restricting access to the hearing protection area may not always be reasonably practicable for the road marking sector, however traffic management and other signing and guarding methods do restrict access, albeit for other safety reasons. These methods ensure that the work site is often free from pedestrian activity and serve well in keeping employees and others who may be exposed to noise away from the zone.
- Where employees are likely to enter the hearing protection zone. The roadmarking organisation should ensure that so far as is reasonably practicable that no employee enters that area unless they are wearing personal hearing protection.

6.4.4 Provision and supply of hearing protection

Any personal hearing protection made available or provided by a roadmarking organisation should be suitably selected so as to eliminate the risk to hearing or to reduce the risk to as low a level as is reasonably practicable.
Hearing protection should be selected after reasonable consultation with the employees or their representatives in order to ensure the style and design is wearable.

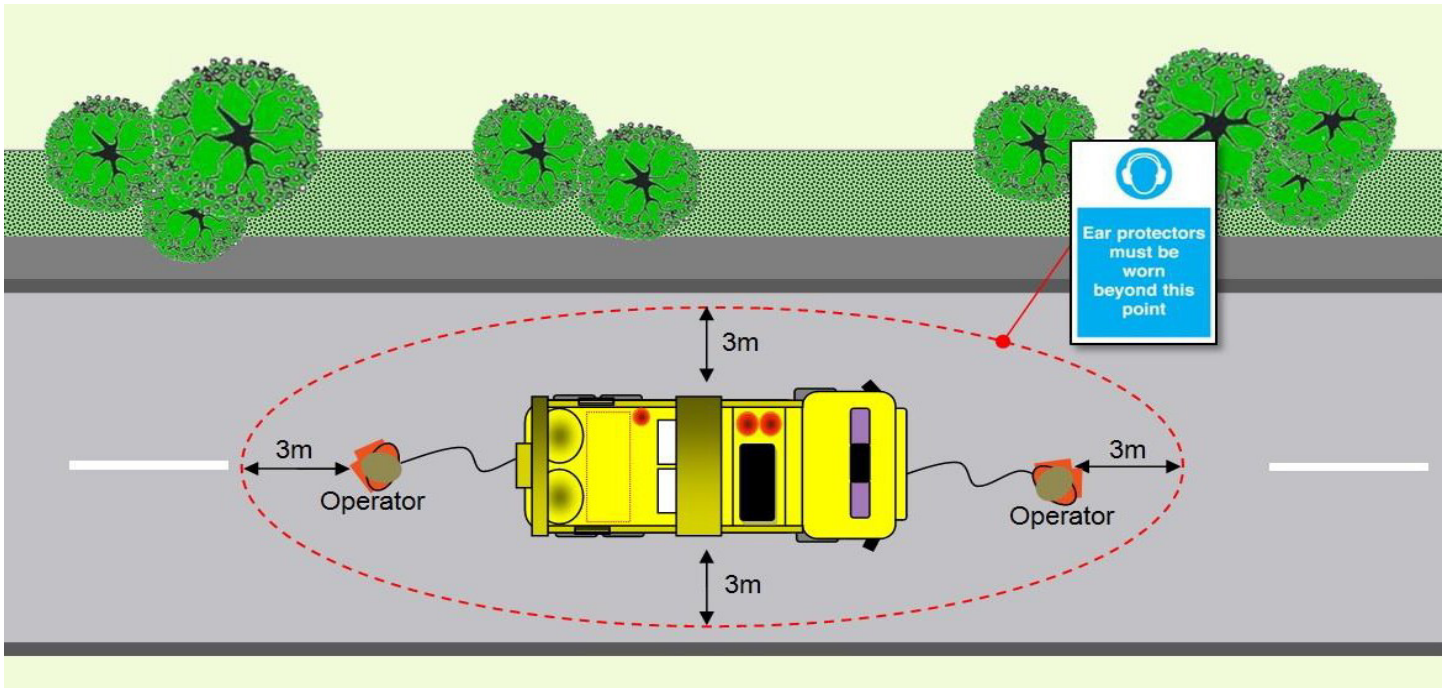
6.4.5 Site visitors

Official visitors to site must be fully briefed in site specific safety matters. Hearing protection must be issued as required, and visitors should be accompanied where appropriate. Unannounced visitors must be discouraged. In the event that an unannounced visitor arrives on site, and where that visitor in not in possession of suitable hearing protection, the visitor should be asked to leave site or the work activity responsible for noise production be suspended until the visitor is clear of the mandatory hearing protection zone or is provided with suitable hearing protection.

6.4.6 Safety signs

Where noise is an issue and safety signs are required to inform and remind employees that hearing protection is required, the signs must be within the requirements of the Health and Safety (Safety Signs and Signals) Regulations 1996. The table below shows various examples of signs that may be fixed to items of plant equipment or indeed the plant vehicle itself.

6.4.7 Mandatory hearing protection area (site diagram)



6.5 On site assessments

6.5.1 Risk and noise assessments on site

Where road marking operations are liable to, or suspected of exposing any person to noise levels at or above a lower exposure action value (80dBA) the employer is required to make a suitable and sufficient assessment of the risk from that noise.

6.5.2 How do you know if a noise risk assessment in needed?

To get a rough idea of whether a noise risk assessment is required, the simple tests shown in the table below could be used:

Test	Probable noise level	A risk assessment will be needed if the noise is like this for more than:	
The noise is intrusive but normal conversation is possible	≤ 80dB	6 hours	
You have to shout to be heard and to have a conversation with someone 2 meters away	80dB to 85dB	2 hours	
You have to shout to be heard and to have a conversation with someone 1 meter away	85dB to 90dB	45 minutes	

6.5.3 Comparable noise levels

Understanding the levels of noise in various situations and being able to compare that noise to known levels will help an organisation to decide if a formal noise risk assessment is needed. The Health and Safety Executive (HSE) publish guidance on this and use the diagram below to simply illustrate comparable noise levels.

6.5.4 Noise hazards

Specific items of roadmarking plant and equipment create noise hazards. The table below gives some basic examples of common plant and the noise measurements taken when conducting research into noise levels.

The information in the table is designed to provide an overview of noise measurements and should not be used for anything other than guidance and MUST not replace the regulatory requirement for specific noise assessments conducted by individual organisations.

Specific noise measurements (Road marking activities, plant and equipment)				
Equipment type		**Distance (m)****	**Readings (dB)**	**Average reading (dB)**
Ambient sound	High wind	Operator's ear	59.5 - 85.1	
	Low wind		47.5 - 59.0	51.7
	Still		41.5	
Compressed air	Used for cleaning/ blowing debris	Operator's ear	70.8 - 90.9	79.2
Donkey engine	Start-up	Operator's ear	57.7 - 89.4	80.5
	Low idle		72.8 - 79.0	75.5
	High idle		91.3 - 93.5	92.2
	Operating speed	@ 1m	75.3 - 79.4	77.0
		@ 3m	71.5 - 79.0	73.8
		@ 5m	70.8 - 76.0	72.0
HCA Lance	Start-up	Operator's ear	38.2 - 107.3	87.8
		@ 7m	68.9 - 96.0	75.1
	Operating	Operator's ear	86.5 - 106.5	97.7
		@ 3m	93.3 - 103.4	96.3
		@ 7m	41.5 - 59.5	51.81
NB: All HCA Lance readings were measured at a 90^{o} angle to the lance nozzle.				

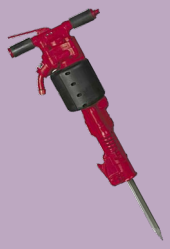
Section 7. Vibration

7.1 Introduction

In a similar way to noise, vibration is of significant occupational health concern to industry at large. This section looks closely at the physical and psychological health hazards surrounding vibration, in particular the use of vibrating hand held tools. Vibration is often grouped together along with noise and forms 'noise and vibration' policies and procedures. It is only recently (last twenty years) that such physical and psychological health hazards have been included among the occupational health hazards faced by many workers in industry in general. By studying the way workers interact with their work, their work place and their work equipment an organisation can better assess hazards such as vibration. The following paragraphs will provide specific guidance for the roadmarking sector in how to recognise, assess and control the risks associated with vibration and vibrating tools.

7.2 Ill-health due to vibration

Hand-held vibrating machinery can produce health risks from hand-arm or whole body vibration. Industry in general is awash with such machinery; however the use of hand-held vibrating equipment is reasonably limited when considering the operational aspects of the roadmarking sector. The following list of equipment, although not exhaustive provides a guide to work equipment that should be subject 'in some way' to vibration assessment activities. The list includes equipment that may be ancillary to the task of actually marking the road.



The pneumatic drill is employed by road stud organisations and is used to remove old or damaged road studs and road stud castings. Prolonged use of the pneumatic drill is common when many kilometres of road are prepared for re- surfacing or surface dressing. Studs are removed and then replaced after the surface dressing is complete.

Road line and marking removal is often conducted using a surface scarifier (Scabbler).
In addition to excessive dust and noise, vibration can be an issue when operators are exposed to long 'finger on trigger' times.

Other hand held vibrating tools may be used by non operational personnel.
Those employed as engineers and fitters who build, repair and maintain roadmarking plant and equipment are often exposed to vibration.

7.3 What is hand-arm vibration?

Hand-arm vibration is vibration transmitted from work processes into workers' hands and arms. It can be caused by operating hand-held power tools such as those illustrated. Vibration can also be transmitted through materials being processed by machines, such as pedestal (Bench) grinders.

7.3.1 When is hand-arm vibration hazardous?

Regular and frequent exposure to hand-arm vibration can lead to permanent ill health effects. Because this is more likely when contact with vibrating tools is a regular part of a person's job, roadmarkers are less likely to be exposed to levels that cause ill health if their exposure is limited, controlled and suitably assessed. Effective control measures could be as simple as limiting the 'finger on trigger time' by organising the work schedule to rotate workers away from long periods of exposure.

7.3.2 Ill health effects caused by hand-arm vibration.

Hand-arm vibration is known to cause a range of medical conditions. These conditions are collectively known by the term hand-arm vibration syndrome (HAVS), other specific conditions and diseases can be caused by exposure to hand-arm vibration such as carpal tunnel syndrome.

7.4 Symptoms of hand-arm vibration.

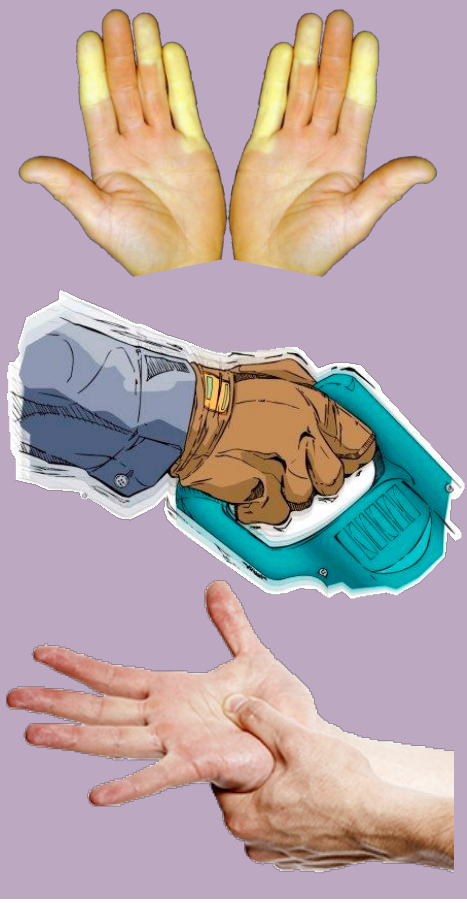
Identifying the signs and symptoms of hand arm vibration syndrome at an early stage is important. Early identification will allow roadmarking employers to take any necessary action to prevent any health effects from becoming serious. The signs and symptoms include any combination of the following:

- Tingling and numbness in the fingers
- Not being able to feel things properly
- Loss of strength in the hands
- The fingers going white (blanching) and becoming red and painful on recovery, particularly in the cold and wet and probably only in the finger tips at first.

For some people, symptoms may appear after only a few months of exposure, but for others they may take a few years. Symptoms are likely to get worse with continued exposure to hand-arm vibration and may become permanent.

- Pain, distress and sleep disturbance
- Inability to do fine work (eg assembling small components) or conducting everyday tasks such as fastening shirt buttons
- Reduced ability to work in cold or damp conditions, especially road marking and marking out
- Painful finger blanching attacks caused when conducting road marking and marking out activities
- Reduced grip strength which might affect the ability to safely handle molten materials, plant and equipment

These effects can severely limit the jobs an affected person is able to do, such as precise marking out and measuring. Family and social activities may also be effected with knock- on effects such as stress and fatigue



7.5 Legal duties

The Control of Vibration at Work Regulations are based on a European Union Directive requiring similar basic laws throughout the Union on protecting workers from risks to their health and safety from vibration.
The regulations require more specific duties compared to earlier general health and safety regulations such as the Management of Health and Safety at Work Regulations 1999 which still apply. If employers comply with the Vibration Regulations and follow guidance, it may be possible to reduce instances of vibration related ill-health as discussed earlier. There are simple, non-technical and common sense measures which can be introduced to reduce exposure to vibration.

7.5.1 The regulations require you as a roadmarking employer to:

- Assess the vibration risk to your employees
- Decide if they are likely to be exposed to levels above the daily exposure action value (EAV)
- Decide if they are likely to be exposed above the daily exposure limit value (ELV)
- Provide information and training to employees on health risks and the actions you are taking to control those risks
- Consult the RSMA safety representative on your proposals to control risk and to provide health surveillance
- Keep a record of your risk assessment and control actions
- Keep health records for employees under health surveillance
- Review and update any risk assessments regularly

7.6 Exposure action value (EAV) and exposure limit value (ELV)

The regulations introduce actions and limit values for hand-arm vibration and are referred to using the acronym EAV and ELV.

7.6.1 Exposure action value (EAV)

The EAV is a daily amount of vibration exposure above which employers are required to take action to control exposure. The greater the exposure level, the greater the risk and the more action roadmarking organisations will need to take to reduce the risk.

For hand-arm vibration the EAV is a daily exposure of 2.5 m/s2 A(8).

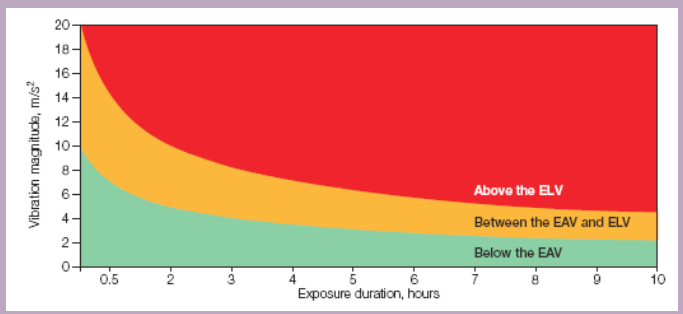
7.6.2 Exposure limit value (ELV)

The ELV is the maximum amount of vibration a roadmarking operative or any employee may be exposed to on any single day. It represents a high risk above which roadmarking employees should not be exposed.

For hand-arm vibration the ELV is a daily exposure of 5 m/s2 A(8).

The regulations allowed a transition period for the limit value until July 2010. This limit only applied to work equipment already in use before 2007. The exposure limit value may have been exceeded during the transition period as long as all other requirements of the regulations were complied with. All roadmarking organisations should have taken all reasonably practicable actions to reduce exposure as much as possible.
At the time this document was published (After July 2010) it can be expected that most roadmarking organisations are compliant with the regulations.

How vibration level and duration affect exposure



7.7 Assessing vibration risks

Roadmarking organisations need to identify whether there is likely to be a significant risk from hand-arm vibration. In order to do this, organisations should:

- Include employees, managers and supervisors in the assessment of vibration risk
- Establish with employees which, if any, processes involve regular exposure to vibration
- Create a list of tasks, jobs, processes and tools that are thought to produce a risk
- Review the hand books provided with the tools to see whether there are any vibration warnings
- Look to see if the manufacturer has fitted a vibration warning sign to the equipment
- Ask employees if they have experienced any of the HAVS symptoms previously described in this document
- Ask employees if equipment is creating discomfort or strains on hands and arms

7.7.1 Conducting vibration risk assessments

It is important to assess who is at risk from vibration and to what degree they are at risk. The risk assessment activities must enable organisations to decide whether employees are likely to be exposed to levels above EAV or ELV values. Risk assessments should also identify which work activities need to be controlled.
Managers and supervisors can do basic risk assessments or can seek assistance from competent persons who can do the assessments on behalf of the organisation.
The level and complexity of the risk assessments will depend on the specific needs of the organisation. Larger organisations with more employees, who may be at risk may require more detailed assessments, policies and procedures. Smaller organisations, especially those with lower exposure levels may only require a more basic assessment that would include looking at the amount of time an employees is exposed, assessing the 'finger on trigger time' and recording any significant findings will allow effective control measures to be put in place.

Further information regarding specific vibration risk assessment can be obtained from sources listed at the end of this section

7.8 Controlling the risk

Once it has been decided who is at significant risk from vibration, an action plan to decide how risks can be reduced should be considered and put in place. Organisations MUST do all that is reasonable to control vibration risk. Addressing the medium and low risk activities first will be a good starting point.
Simple and cost effective controls may be considered more appropriate, easier to set-up, manage and follow by employees.

7.8.1 Alternative work methods

Look for alternative work methods which eliminate or reduce exposure to vibration. Finger on trigger time can be eliminated by mechanising or automating the work.

7.8.2 Selecting appropriate equipment

Equipment should be suitable enough to do the work efficiently. Organisations must ensure equipment is appropriate for the task and powerful enough to do the job. Low powered, unsuitable equipment is likely to increase the time taken to complete the task and expose employees to vibration for longer than necessary.
Select the lowest vibration tool that is suitable enough to complete the task efficiently and limit the use of high vibration tools wherever possible.

7.8.3 Replacing old equipment and tools

Work equipment is likely to be replaced over time as it becomes worn out. Roadmarking organisations should choose replacement plant and equipment, so far as is reasonably practicable, which is suitable for the work, efficient and of low vibration. The procurement procedure may include the following activities:

- Discuss the organisations requirements with a range of suppliers
- Check the proposed equipment is suitable and effective, and compare vibration emission information
- Ask if the equipment is provided with safety data, operating manual and training information
- Involve employees in the selection process, getting them to trial various options
- Select equipment with vibration reduction features
- Create a suitable purchasing policy that takes in to account vibration emissions and efficiency
- Train and inform purchasing staff on issues relating to vibration

7.8.4 Workstation design

Roadmarking organisations should assess the design of workstations to enable them to improve the loads on employees' hands, wrists and arms caused by bad posture. The use of devices such as jigs, frames and suspension systems could be employed to reduce the need to grip heavy tools tightly.

7.8.5 Maintenance

Where appropriate following the manufacturer's recommendations, introduce an appropriate planned preventative maintenance programme. This will help in the prevention of avoidable increases in vibration. Encourage the replacement of blunt or damaged consumable items such as chisels, grinding discs and wheels, so equipment is as efficient as possible and keeps employees exposure as short as possible.

7.8.6 Work scheduling and job rotation

An effective method of reducing employee exposure is to limit the finger on trigger time. Work activities can be planned so individuals are exposed for a minimum time. Rather than one person working for a continuous period, the work can be shared amongst other employees and scheduled to involve several shorter periods of exposure. Job rotation is an easy way to reduce finger on trigger time and can help to keep employee exposure out of the high risk ELV levels.

Example:
A road stud removal crew is organised as a team of three where they switch tasks between driving the vehicle, sweeping and collecting the debris and operating the pneumatic drill used to remove the road studs. By rotating each task at appropriate timings unnecessary exposure to vibration can be avoided.

7.8.7 Clothing

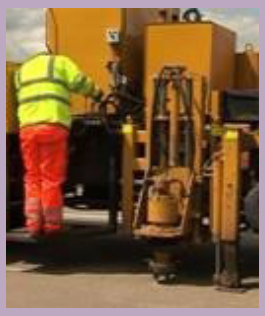
Providing employees with protective clothing to keep them warm and dry will encourage good blood circulation which should help prevent the development of vibration white finger. Gloves should be used to keep hands warm, but should not be relied upon to provide protection from vibration.

7.8.8 Checks and audits

Roadmarking organisations should regularly review their policies and procedures to ensure they are current and up to date. An audit programme that includes checks to ensure controls are being carried out by managers and employees must be in place. Regular communication to employees, managers and supervisors and to other outside organisations such as the RSMA and HSE will help keep any policies, procedures and control measures up to date and effective. Checking the results of health surveillance will help to see if controls appear to be effective or if they need to be changed or reviewed.







Section 8. Welfare Facilities

8.1 Introduction

The provision of acceptable welfare facilities for roadmarking employees is probably one of the most difficult duties a roadmarking employer has to fulfil. The transient nature of roadmarking activities precludes the use of permanent welfare facilities such as 'suitable and sufficient sanitary conveniences' and 'suitable and sufficient washing facilities' (connected to mains water and drainage). The extremely short life span of most roadmarking sites (in many cases less than fifteen minutes) results in the requirements being considered as 'not reasonably practicable' in that it would be impossible to fully interpret the regulatory requirements without the prohibitively high costs of expensive mobile welfare facilities for each crew and each site.

This section aims to highlight how the roadmarking sector should and could interpret many of the requirements contained within such legislation as the Workplace (Health, Safety and Welfare) Regulations 1992, The Construction (Design and Management) Regulations 2015 and generally how to fulfill an employer's duty under the Health and Safety at Work etc Act 1974.

8.2 Workplace (Health, Safety and Welfare) Regulations 1992

Workplace (Health, Safety and Welfare) Regulations 1992 will mainly apply to roadmarking organisations who maintain office space, depots, workshops and any other buildings or facilities used by their employees as a 'place of work'. The regulation is accompanied by an accepted code of practice (ACOP) that addresses such welfare requirements as workplace temperature, lighting, seating, sanitary conveniences, rest and break facilities, drinking and washing facilities. This ACOP is available to download free at: *www.hse.gov.uk.* This section will focus on operational roadmarking welfare arrangements looking at the interpretation for the on-site provision of welfare facilities.

8.3 The Construction (Design and Management) Regulations 2015

Schedule 2 (Welfare Facilities) of The Construction (Design and Management) Regulations 2015 (CDM 2015) is probably the most common piece of legislation affecting roadmarking welfare provision. It is however important to note that the majority of roadmarking organisations are 'specialist sub-contractors' and as such rely heavily on the direction and guidance of other 'duty holders' under CDM 2015.

This document will not only help roadmarking organisations, it will also help CDM 2015 duty holders such as Clients, Principal Designers and Principal Contractors and Contractors to better understand the roadmarking sector, its specialist nature and the manner in which its contractors interpret and apply relevant legislation.

8.4 Interpreting legislation

HSE information sheet No 59. Supplied as a guide to 'duty holders' in respect to the provision of welfare facilities during construction work. This information sheet carries a section relating to the 'Use of alternative facilities for transient construction sites'. The following paragraphs will highlight how general guidance in this section can be specifically applied to the working practices of roadmarking organisations. A copy of the information sheet is included as an annex to the rear of this part of the RSMA BPG.

Roadmarking organisations may wish to refer to this section when dealing with CDM 2015 related welfare questions during the completion of pre-qualification questionnaires (PQQ), tender response documentation and any other supply chain questionnaires.

8.5 Planning

In order to maintain CDM 2015 compliance, the roadmarking interpretation of welfare facilities should be considered by duty holders at the planning and preparation stages of every construction project that involves any form of roadmarking works. This will ensure that those duty holders are fully aware of how the roadmarking sector interprets and applies welfare requirements in the most reasonably practicable way.

Generally roadmarking works are conducted at the very end of a construction project, often when facilities are starting to be removed or have been fully removed from site. In addition roadmarking is carried out while moving over a continuous geographical area making on-site fixed welfare facilities inappropriate.

8.6 Toilets, washing facilities and rest areas

Generally, roadmarking activities are conducted within a reasonably 'local area' in relation to the organisations depot or head office. In this case the organisation is advised to use 'local knowledge' in respect to the location of public toilets, cafes, restaurants and other public rest areas that provide an adequate level of welfare facilities.

Other local commercial premises could be used, however clear arrangements should be made with the provider of the facilities rather than it be assumed that facilities can be used without their prior agreement.

In all cases facilities must be:

- Of a standard that complies with the welfare requirements
- Readily accessible to the worksite (within a short driving distance in the case of a roadmarking crew)
- Open for use at all relevant times
- Available at NO-COST to the workers
- Of an acceptable level of cleanliness
- Equipped with adequate hand-washing facilities

Where organisations work further afield, local knowledge may not be applicable. In such cases the use of transient facilities should be planned in advance of the work.

It is recommended that site visits, surveys and planning meetings include the **reconnaissance of suitable welfare facilities.**

8.7 Communication to employees

Whatever arrangements are agreed, workers MUST be made aware of them, encouraged to use them and clearly informed of their location. In practice experienced roadmarking crews will be fully aware of local facilities and will use them on a regular basis. Those who are contracted to work further afield may not be as aware. Roadmarking organisations should formalise their policy regarding the use of transient facilities.

Examples of how this may be achieved are shown below:

Local facilities can be plotted on a map to be kept in every vehicle cab.

The facilities chosen can have their post codes or other location information recorded so it can be programmed into a GPS system.

Larger organisation who operate in-cab technology could include mapping software with a facility to save and retrieve the locations of preferred welfare facilities.

Whatever option is chosen, the details should be recorded and saved. This ideally would be in the form of a formal section within a welfare policy. This will also serve as good evidence for PQQs as detailed above

8.8 Roadmarking specific welfare provision

The application and interpretation of the 'Use of alternative facilities for transient construction sites' will not negate the need for some kind of provision for on-site or in- cab welfare facilities.
The following sections will highlight alternative ways to fulfil welfare requirements.

8.8.1 Toilet facilities

There can be no alternative to the use of toilet facilities as described in section 7.6 above. Workers MUST be encouraged not to relieve themselves on-site or by the side of the vehicle. Doing so may constitute an illegal act, many sites have specific rules relating to this subject and doing so may result in crews being asked to leave site.

8.8.2 Hand washing and hand sanitising

Whilst the hot works conducted on roadmarking vehicles may make it possible to heat water for hand washing, in practice this would seldom happen, therefore the following could be introduced as an alternative:

Hand sanitising wipes, alcohol wipes and other such hand cleaning solutions should be provided.
Where fixed hand washing facilities are not available, such items make an acceptable alternative. Employees should be encouraged to sanitise hands before eating and drinking.

8.8.3 Drinking water and water heating

In much the same way as heating water for hand washing, water can be heated for making hot drinks.
Those crews who do not use the equipment on the vehicle to heat water for drinking may carry hot water in vacuum flasks filled from facilities at the yard or depot prior to leaving for the shift.
Fresh drinking water should be available and can be provided either in bottled form or in water containers that can be refilled from drinking water taps at the yard or depot. In summer it is common practice for roadmarking crews to freeze bottled water prior to starting work, the water bottles can then be stored in cool boxes/bags. The frozen water will then gradually defrost during the shift providing a steady supply of refreshing chilled drinking water.

8.8.4 Adverse weather conditions (rain, sleet, snow and freezing temperatures)

Employers are required to provide sufficient protection for employees from adverse weather conditions. The nature of roadmarking, the materials and processes used often precludes application work from being carried out in wet and rainy conditions. This results in most roadmarkers being asked to conduct alternative work when it is wet and raining or sit-out the bad weather in the vehicle or at the depot/yard.

The same situation is true with regards to extremely low temperatures. Material manufacturers recommend minimum application temperatures for most roadmarking materials. In winter when temperatures drop to single figures or below freezing, material quality can be compromised. This means that roadmarking operatives are not often expected to work in extremely cold conditions unless they are given non roadmarking related work to do.

Inclement weather can be kept at bay by suitable and sufficient PPE.

8.8.5 Adverse weather conditions (summer sun, heat and high temperatures)

In contrast to the statement above; dry warm weather is ideal for roadmarking operations. Where roadmarking activities are conducted in daylight hours and at the height of summer, employees may be exposed to hazardous sunshine and working temperatures. Although there is no specific maximum working temperature, only a requirement to maintain a reasonable temperature inside workrooms, employers still have a duty of care. The following examples can be used to ensure roadmarking operatives are protected from harmful ultraviolet rays and heat exhaustion:

The use of sun screen should be encouraged by employers. Although roadmarkers should be suitably covered with PPE to protect from molten material (A no naked skin policy is encouraged) certain parts of the body are more exposed to UV sunlight than others. Whilst operatives are bending over to measure or mark-out and when conducting hand applied operations the back of the neck is dangerously exposed.

Sun screen should be provided and should be applied following the directions on the bottle. Re-application time must be observed.

Heat exhaustion and heat related illness is of significant concern when working outside in the height of summer. Roadmarking operatives MUST wear the correct PPE despite it being very hot inside gloves, gauntlets, hard hats, protective trousers and other PPE.

First-aid training should cover significant hazards faced by roadmarkers and MUST include how to recognise the signs and symptoms of heat injury and illness. Toolbox-talks detailing how to stay safe in the sun and how to avoid dehydration are a great way to educate employees in the dangers of heat related injury.

Working in a hot environment causes sweating which helps keep people cool but means losing vital water that must be replaced. To help prevent dehydration, as mention previously, employees should be provided with drinking water and should be encouraged to re-hydrate at regular intervals before, during and sometimes after work.

The exact amount of water needed is difficult to calculate as it is dependant on many factors, however as a guide, employees should be drinking at least 2 litres of water per day. This may be more or less when accounting for the type of activity and time spent doing physical work.

Section 9. First Aid Provision

9.1 What is first aid and what is a first-aider?

First aid refers to the action taken in response to someone who is injured or suddenly taken ill. A first aider is a competent person who knows how to take care of the injured / ill person (casualty) whilst managing the incident, keeping everyone involved safe and ensuring no further harm is caused. Whilst this section gives guidance on the provision of first aid and associated incident management it will not cover first aid treatments in any detail.
Moreover, this guide must be used with reference to current practices, procedures and legislation and does not replace the need for qualified, competent first aiders and effective first aid provision.

9.1.1 First aid at work

First aid at work covers the arrangements that should be put in place to make sure injuries and ill health conditions receive immediate attention. Immediate actions such as calling an ambulance without delay can save lives and prevent minor injuries becoming major ones.
The Health and Safety (First-Aid) Regulations 1981 require all businesses to provide 'adequate' and 'appropriate' first aid equipment, facilities and people so employees can be given immediate help if they are injured or taken ill.

9.1.2 Assessing first aid needs

What is 'adequate' and 'appropriate' will depend upon the circumstances found in each workplace. Working on the highway network poses specific risks, as does working in live traffic and with molten material. Specific needs can be highlighted by conducting a suitable and specific first aid assessment. The table below shows the 'minimum' first aid provision for any work site (Left Column) as detailed by the Health and Safety Executive (HSE). The right column shows additional recommendations specific to the road marking sector.

Table 9.1 First aid provision

Minimum requirements:	Additional requirements:
A suitably stocked first aid box An appointed person to take charge of first-aid arrangements Information for employees about first-aid arrangements 	A suitably stocked burns kit Burns cards for Thermoplastic & Bitumen Potable water for burns treatments Additional sterile dressings Site specific emergency procedures Specific burns training (Thermoplastic & Bitumen) Competent persons in every crew

IT IS IMPORTANT TO REMEMBER THAT ACCIDENTS, INCIDENTS AND ILLNESS CAN HAPPEN AT ANY TIME. FIRST AID PROVISION MUST BE AVAILABLE AT ALL TIMES WHEN PEOPLE ARE AT WORK.

An activity risk assessment can include a first aid element, or a specific first aid or medical risk assessment can be conducted. However conducted, the findings of activity risk assessments can be used to take account of the workplace, work activities and any associated hazards which may require different levels of first aid provision. A checklist for the assessment of first aid needs can be used to assist this process. The following points should be considered:

	Points to consider:
• Hazards	Is the site/activity considered as low, medium or high level risk?
• Employees	How many employees are on site and conducting the activity?
• Accidents and ill-health record	What injuries and illnesses have occurred in the workplace and where?
• Working arrangements	Do employees travel a lot, work remotely or work alone?
• Non-employees	Are visitors to site or members of the public effected?

9.1.3 First-aiders and appointed persons

In workplaces where it is considered unnecessary (Not reasonably practicable) to have fully qualified and competent first aiders, someone should be appointed to take charge of first aid arrangements. The role of this 'Appointed Person' should include looking after the first aid equipment, facilities and calling the emergency services when required. Appointed persons do not necessarily need formal first aid training, although it is recommended that they are at least competent to 'emergency first aid' level.

Due to the intrinsic hazards associated with working on the highway, in practice all organisations involved in the road marking sector should have at least one crew member qualified to emergency first aid level as a minimum on every work site. An appointed person may be considered in offices and depots where risks are lower.

First aiders are people who have undertaken recognised training and hold qualifications provided by appropriate training organisations. Qualifications such as 'First aid at Work' (FAW) or 'Emergency First aid at Work' (EFAW) are recognised courses. These formal qualifications cover the additional requirements of an organisation's first aid provision. The syllabus covers; not only the treatment of injuries, recognising the signs and symptoms of ill health and dealing with a casualty, but goes further into the legislation, reporting and recording of accidents and incidents (RIDDOR) and the provision and maintenance of first aid equipment and facilities.

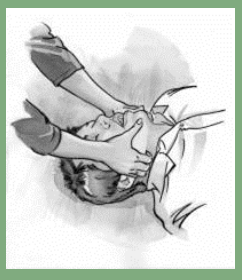
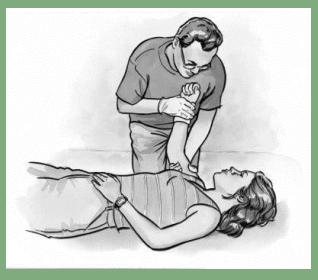
To help keep their basic skills up to date, it is strongly recommended that your first-aiders undertake refresher training. Ideally refresher training should be conducted annually; however, certification bodies will validate qualifications for specific periods. Expiry dates are often displayed on individual certificates.

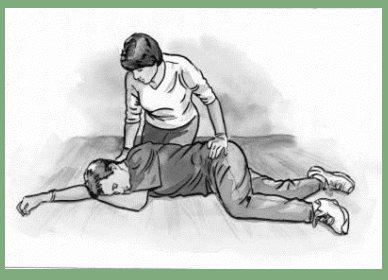
9.1.4 How many First aiders are required?

By using the findings of the first aid needs assessments an organisation can decide whether first aiders should be trained in FAW or EFAW, and how many first aiders are required. The table below provides suggested numbers of first aid personnel to be made available at all times when people are at work.

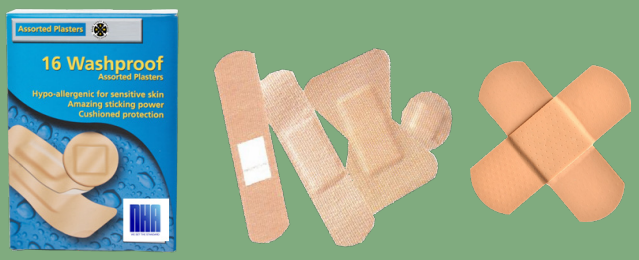
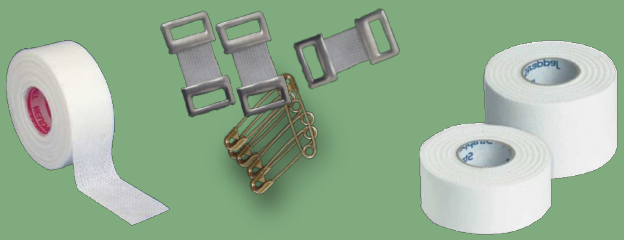
Table 9.2 Suggested numbers of first aid personnel

1. From the risk assessment, what degree of hazard is associated with your work activities?	2. How many employees do you have?	3. What first aid personnel do you need?
Low hazards Offices and depot locations	Less than 25	At least one appointed person
	25 - 50	At least one first aider (EFAW)
	More than 50	At least one first aider (FAW) for every 100 employees
Higher hazard Road marking, vehicle and equipment engineering. Materials manufacturing and other associated high hazard activities	Less than 25	At least one first aider (EFAW) per crew, with a FAW trained appointed person to oversee the provision
	25 - 50	
	More than 50	As above with at least one additional FAW trained first aider and an appointed person for every 50 employees



9.1.5 What to include in a roadmarking first-aid kit?

Easily identifiable waterproof container. Usually kept in the cab of a road marking vehicle, first aid equipment must be stored in a waterproof container that is easily seen and easily accessible. Generally first aid containers are green with a white cross, however red containers with a white cross are acceptable. Care MUST be taken to ensure that the first aid kits are not buried under other articles and equipment or left behind the driver's seat hidden under clothing, PPE or paperwork, making it difficult to retrieve in an emergency	
20 (Twenty) adhesive dressings (plasters) in assorted sizes Plasters to apply to small cuts and grazes are made from fabric or waterproof plastic. Used to help protect from dirt and infection. Hypoallergenic plasters for anyone who is allergic to the adhesive in regular plasters may be required.	
6 (six) medium sterile wound dressings 4 (four) large sterile wound dressings 2 (Two) sterile eye pads The most useful dressings consist of a dressing pad attached to a roller bandage. Sealed in a protective wrapping to maintain sterility, these dressings often have a 'use-by' date and must be subject to audit and inspection and replaced when out of date.	
6 (six) triangular bandages Made of cloth, triangular bandages can be used folded as bandages or slings. If they are sterile and individually wrapped, they can be used as dressings for large wounds and burns.	
6-8 (six-eight) safety pins 6-8 (six-eight) bandage clips 1 (one) roll adhesive tape The first aid kit MUST contain enough pins, clips and/or adhesive tape to secure all the dressings and bandages provided in the kit.	

Disposable gloves Disposable gloves must be made available and worn by all those who dress wounds or handle bodily fluids or waste. This is to protect from infection, first aiders could infect casualties and casualties could infect first aiders. The use of latex free surgical gloves is recommended because some people are allergic to latex.	
2 (two) roller bandages Roller bandages are used to give support to injured joints, secure dressings and hold them in place, whilst maintaining pressure on wounds and limiting swelling.	
Scissors and tweezers Kits must contain appropriate medically approved scissors with blunt, rounded ends so that they will not cause injuries. Tweezers for the removal of foreign objects from wounds (when appropriate) should be included in the equipment inventory	
Alcohol gel and wound cleansing wipes Alcohol gel and alcohol-free wipes should be provided to ensure first aiders can sanitize their hands prior to dealing with a casualty. Alcohol-free wound cleansing wipes can be used to clean the skin around wounds.	
Plastic face shield or pocket mask To protect first aiders and casualties from possible cross infection when giving 'rescue breaths'	
Notebook and pen/pencil First aiders are often required to take initial control of an incident. Key details about what has happened will assist the emergency services. It is important to remember everything that has happened and what signs and symptoms a casualty displays. It is easy to forget important information especially in stressful situations. Making notes will also help later with incident reports and investigations	

9.1.6 What to include in a roadmarking burns kit?

Easily identifiable waterproof container. As with standard first aid kits, burns kits should be stored in an easily identifiable waterproof container. It is extremely important to react quickly to Thermoplastic and/or Bitumen burns. Locating the burns kit and potable water supply quickly and administering immediate burns treatment will help prevent the burn and/or later effects from the trauma becoming worse.	
20 – 25Lt potable water in a clean container. An adequate supply of 'potable water' (clean enough to drink) MUST be provided. Ideally stored in a large sealed container with a tap. The water MUST be changed or replenished on a regular basis. Stagnant water used to treat burns may increase the risk of infections.	
1 (one) roll of kitchen film It is recommended that burns are dressed with either clean kitchen film, a clean plastic bag or a sterile dressing or clean non-fluffy pad. Adhesive dressings MUST NOT be used on burns	
Cool packs and burns gels The principles of first aid strongly discourage the application of lotions, ointments or fats to burns as this may hinder later hospital treatment. Cooling the burn area with potable water is considered the best treatment in most cases. Cooling packs and medicated gel packs are available and are often included in standard burns kits and if used should be used with caution.	
Burns cards & material safety data sheets Every employee who handles molten material MUST be issued with a 'Burns Card' specific to the type of material they are using. A stock of burns cards MUST be included in the burns kit. In addition to a burns card, it is considered best practice to have safety data sheets available at all times. These SDS should be sent to the hospital with the casualty so medical professionals have the information they need to effectively treat the burn.	

9.1.7 What to include in a roadmarking first-aid and burns kit?

There is no mandatory list of items to be included in a first aid container. The decision on what to provide will be influenced by the findings of the first aid needs assessment.

The items listed in the previous tables are provided as a guide to what is considered the absolute minimum and has been developed by conducting a desktop first aid needs assessment on a standard everyday roadmarking activity. Those who use this guide MUST conduct a suitable and specific first aid needs assessment to ensure they are suitably compliant.

9.1.8 Suitable arrangements for restocking first aid kits

The Health and Safety (First-aid) Regulations 1981 states that “Suitable arrangements should be in place for restocking first aid kits” To ensure kits are replenished when items are used or out of date items are replaced, audits and physical checks MUST be conducted, recorded and actioned.

9.1.9 Tablets and medication

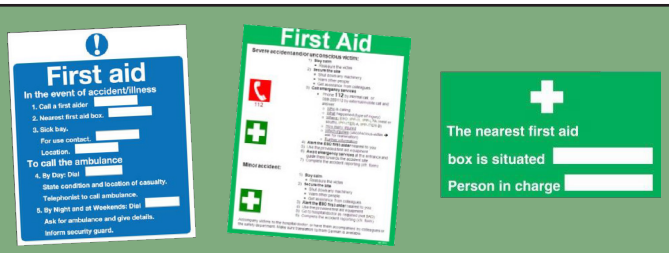
First aid at work does not include the administering of tablets or medicines to treat illness. The only exceptions to this are where a person is helped to self administer their own mediation, or where aspirin is used when giving first aid to a casualty with a suspected heart attack in accordance with current accepted first aid practice. It is recommended that tablets and medicines should not be kept in the first aid container. Incorrect administration of medicines could put the casualty at risk and could lead to legal action.

9.2 First aid rooms

Employers should provide a suitable first aid room(s) where the assessment of first aid needs identifies it as necessary. Larger roadmarking organisation with greater numbers of office and depot personnel may require a first aid room(s). Manufacturing sites with large numbers of employees may also consider a first aid room(s) as a necessity.
The Health and Safety (First aid) Regulations 1981 gives further guidance to what should be considered regarding first aid room(s) provision.

9.2.1 Information for employees

First aid arrangements will only operate efficiently within a road marking organisation when everyone in the workplace is aware of them and understands and accepts them. Procedures for informing staff should detail first aid provision and explain how employees will be informed of the location of first aid equipment, facilities, first aiders and how and when to report and record incidents and accidents. The procedure should also identify who will provide relevant first-aid information to new and transferred employees.

A simple method of keeping employees informed is to display first aid notices. The information needs to be clear and easily understood by all employees. Pictogram style signs will ensure those with reading or language difficulties are catered for	
Posters carrying information about specific first aid risks, actions and treatments can be used to draw employees attention to specific risk identified by the first aid needs assessment. When selecting such specific posters, care must be taken to ensure that such actions and treatments are in line with roadmarking requirements e.g. general burns posters may not fully cover the needs of thermoplastic and bitumen burns.	

The inclusion of first aid information during induction training will help ensure new employees are made aware of first aid arrangements. First aid toolbox talks may also help inform staff and keep their knowledge refreshed.

9.2.2 Review, audit and recording

Roadmarking organisations should review their first aid needs from time to time, ideally this review should be conducted annually or after any significant operational changes.

The 'National Highways Sector Scheme 7' (NHSS7) along with the 'International Standards Organisation' (ISO) audit processes may include the review and maintenance of an organisations first aid provision. Such a provision is a statutory requirement under the Health and Safety (First-Aid) Regulations 1981. All organisations however small MUST review their first aid provision on an annual basis.

It is important for an organisation to accurately record incidents and accidents.

The legal requirements of the Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 1995 (RIDDOR) places specific requirements on an organisation to report certain incidents, accidents and work related ill health. In addition best practice would suggest that it is important to record other events. This will help to highlight trends and recurring minor injuries that may escalate in to a major incident. Policies and procedures and effective reporting and management tools can assist with this.

PERSONAL DETAILS

ANNUAL DECLARATION OF MEDICAL FITNESS

EXAMPLE ONLY

PRIVATE & CONFIDENTIAL

First Name:	Surname:
Name of Employer	Date of Birth:

Complete the following Self Declaration of Medical Fitness for New Employees, Specialist Contractors and return to normal duties following any Accident or Absence requiring a Sick Note. Alertness and reasonable physical fitness are essential to carrying out duties in a safe manner. It is therefore, important to be accurate with your answers of this questionnaire. Please circle your answers and indicate if any of the following apply, or have applied to you in the past, giving details below, where appropriate. When you declare NO you are accepting a degree of responsibility for your safety

Medical Review	Yes	No
Diabetes needing insulin?	Y	N
Have you ever suffered blackouts, recurrent dizziness or any condition, which may cause sudden collapse orincapacity?	Y	N
Do you have difficulty in moving rapidly over short distances, including slopes, steps or rough ground?	Y	N
Do you have any difficulty with your eyesight (other than wearing glasses or contact lenses where required)?	Y	N
Are you taking any medication that could cause dizziness or drowsiness?	Y	N
Have you had any illness related to alcohol during the last 12 months?	Y	N
Injury to bones, joints, tendons, including wrist tendons?	Y	N
Industrial injury: Repetitive Strain Injury?	Y	N
Industrial injury: Occupational Stress?	Y	N
Any difficulty in moving freely over slight inclines?	Y	N
Recent operation or fracture?	Y	N
Chest problems such as asthma?	Y	N
Circulatory problems such as varicose veins, phlebitis,thrombosis?	Y	N
Skin disorders?	Y	N
Do you suffer headaches?	Y	N

Medical Review	Yes	No
Epilepsy or fits?	Y	N
Do you get discomfort or pain in the chest or shortness of breath on exercise (e.g. Climbing a single flight of stairs?	Y	N
Difficulty in looking over either shoulder?	Y	N
Do you have any difficulty hearing normal conversation?	Y	N
Have you used any drug of abuse (not alcohol or tobacco) within the last 12 months?	Y	N
Do you have any restricted movement in wrists, arms, legs, shoulders, back and neck?	Y	N
Industrial injury: Noise Induced Hearing Loss?	Y	N
Industrial injury: Hand Arm Vibration?	Y	N
Any difficulty in moving freely over steep inclines?	Y	N
Any difficulty in moving freely over flat ground?	Y	N
Back trouble, arthritis, rheumatism?	Y	N
Suffering pain from an area of injury?	Y	N
Heart problems such as angina, high blood pressure, heart attack?	Y	N
Allergies?	Y	N
Skin discolouration from an area of injury?	Y	N

*If you answered **YES** to any of the above, please give details below & on reverse:*

*I HEREBY DECLARE THAT THE ABOVE INFORMATION IS CORRECT TO THE BEST OF MY KNOWLEDGE AND I CONSIDER THAT **I AM FIT** / **NOT FIT** FOR MY NORMAL DUTIES * (Delete as Appropriate)*

Signature: **Date:**

FOR OFFICE / SITE USE ONLY - Action Taken By: *HL Line Manager (Delete as appropriate)

If YES is indicated above consult the RSMA SHEQ Advisor before commencement of duties

(A) Declaration ☐ (B) Declaration ☐ (C) Referred to SHEQ for Further Assessment ☐

If B or C above are ticked DO NOT allow individual to work on site until decision is received from SHEQ Advisor

Name: Position:

Signature: Date:

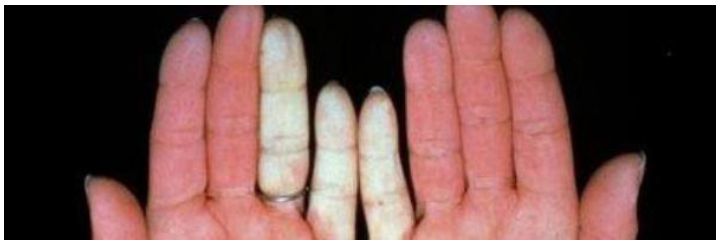
MEDICAL IN CONFIDENCE

INITIAL SCREENING QUESTIONNAIRE FOR WORKERS USING HANDHELD VIBRATING TOOLS, HAND-GUIDED VIBRATING MACHINES AND HAND-FED VIBRATING MACHINES

Date: .....
Employee: .....
Occupation: .....
Address: .....
Date of Birth: .....
National Insurance No.:.....
Employer Name: .....

Have you ever used hand-held vibrating tools, machines or hand-fed processes in your job? Y/N
If YES:
(a) list year of first exposure.....
(b) when was the last time you used them?.....
(Detail work history overleaf)

1. Do you have any tingling of the fingers lasting more than 20 minutes after using vibrating equipment? **Y/N**
2. Do you have tingling of the fingers at any other time? **Y/N**
3. Do you wake at night with pain, tingling, or numbness in your hand or wrist? **Y/N**
4. Do one or more of your fingers go numb more than 20 minutes after using vibrating equipment? **Y/N**
5. Have your fingers gone white* on cold exposure? **Y/N**



6. If Yes to 5, do you have difficulty re-warming them when leaving the cold? **Y/N**
7. Do your fingers go white at any other time? **Y/N**
8. Are you experiencing any other problems with the muscles or joints of the hands or arms? **Y/N**
9. Do you have difficulty picking up very small objects, eg screws or buttons or opening tight jars? **Y/N**
10. Have you ever had a neck, arm or hand injury or operation? **Y/N** If so give details .....
    .....
    .....
    .....
11. Have you ever had any serious diseases of joints, skin, nerves, heart or blood vessels? **Y/N** If so give details .....
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12. Are you on any long-term medication? **Y/N** If so give details .....
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Dates Job Title:

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I certify that all the answers given are true to the best of my knowledge and belief.

Signed: **Date:**

RETURN IN CONFIDENCE TO:

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Useful links:

http://www.hse.gov.uk

http://www.rsma.co.uk

http://www.highwaysfirstaid.co.uk

http://www.hse.gov.uk/VIBRATION/hav/readyreckoner.htm

Further reading:

http://www.hse.gov.uk/vibration/hav/advicetoemployers/havsemployers.pdf

http://www.hse.gov.uk/pubns/indg430.pdf

http://www.hse.gov.uk/pubns/priced/l74.pdf

http://www.hse.gov.uk/firstaid/assessmenttool.htm

Health and Safety Executive

Provision of welfare facilities during construction work

HSE information sheet

Construction Information Sheet No 59

Introduction

This information sheet is for dutyholders involved in construction work. It replaces previous guidance contained in *Provision of welfare facilities at transient construction sites* and in *Provision of welfare facilities at fixed construction sites*. It gives guidance on the **minimum** welfare facilities that must be provided or made available to workers on construction sites.

Construction workers need adequate toilet and washing facilities, a place to warm up and eat their food and somewhere to store clothing. However, these basic requirements are often neglected. A cold water tap and chemical toilet on their own are not adequate facilities. Good facilities can positively benefit health and well-being and can help to prevent dermatitis.

General duties (Construction (Design and Management) Regulations 2007)[1]

Clients

If you are a client (but not a domestic client, ie you or your family live in the building under construction) then you must ensure that your contractors have arrangements to provide adequate welfare facilities for construction workers. This does not mean that you have to provide the facilities yourself. If the work is notifiable (that is lasts more than 30 days or will involve more than 500 person days of work) then you must ensure that construction work (including demolition) does not start until suitable welfare facilities are in place.

CDM coordinators

You should give suitable and sufficient advice to the client on the measures needed to ensure that suitable welfare is provided during the construction phase.

Principal contractors

You should make sure that suitable welfare facilities are provided from the start and are maintained throughout the construction phase.

Contractors (including the self-employed)

In all cases you should ensure that there are adequate welfare facilities for workers under your control.

Planning

The availability of welfare facilities, their location on site and regular maintenance must be considered at the planning and preparation stages of every construction project, before construction work (including demolition) starts.

When planning welfare provision, consider:

- the nature of the work to be carried out and the health risks associated with it. For example, consider the provision of showers if the project involves hazardous substances or very dirty work, eg sewer maintenance, dusty demolition activities, work with contaminated land or concrete pouring;
- the distance workers will have to travel to the welfare facilities;
- the duration of the work and number of different locations;
- the numbers of people who will use them;
- the cleaning and maintenance of the welfare facilities;
- whether they need to be relocated during the construction phase.

Installing and removing from site

You need to plan how welfare units will be moved from delivery vehicles into position. It is preferable to mechanically move these units; if manual handling cannot be avoided then you should manage the risk effectively. Your plans should cover safe lifting practices and ensure proper protection of workers from falls from vehicles or portable units.

Positioning on site

You should site welfare units and manage traffic effectively to ensure adequate segregation of pedestrians and vehicles.

Toilets

So far as is reasonably practicable you need to provide flushing toilets and running water, connected to mains water and drainage systems. If this is not possible, facilities with a built-in water supply and drainage tanks should be used. Portable chemical toilets are acceptable only if it is not reasonably practicable to make other adequate provision.

Toilets must be adequately ventilated, lit and maintained in a clean condition. The frequency of cleaning will depend on usage. Basic daily cleaning may not always be sufficient.

Provide an adequate number of toilets. The number needed will depend on the number of workers on site and the type of facilities provided. Portable toilets have a limited capacity and will need emptying. The number of portable toilets needed depends on the number of persons and the frequency of emptying. BS6465–1:2006 recommends a ratio of 1 toilet to 7 persons where portable toilets are emptied once a week.

Men and women may use the same toilet, if it is in a lockable room and partitioned from any urinals. Otherwise provide separate toilets. Adequate supplies of toilet paper should always be available.

Sanitary waste disposal should be provided in facilities used by female workers.

Washing facilities

Provide washing facilities next to both toilets **and** changing areas. Consider placing them next to rest areas if these are far from toilets or changing areas. They should include:

- a supply of clean hot and cold, or warm, water (which should be running water so far as is reasonably practicable);
- soap or other suitable means of cleaning;
- towels or other suitable means of drying;
- sufficient ventilation and lighting;
- sinks large enough to wash face, hands and forearms.

Men and women can share sinks used for washing hands, face and arms. Unisex shower facilities can be provided if they are in a separate, lockable room, which can be used by one person at a time.

Showers used for particularly dirty work, or when workers are exposed to especially hazardous substances (eg development of contaminated land, or demolition of old industrial buildings which are contaminated with toxic substances etc), will need to be separate from the main facilities.

Specialist facilities are needed for certain activities, eg working with lead or asbestos or tunnelling in compressed air.

Drinking water

A supply of wholesome drinking water should be readily available. Where possible, it should be supplied direct from the mains. If water is stored, protect it from possible contamination and make sure it is changed often enough to prevent it from becoming stale or contaminated. Where necessary, clearly mark the drinking water supply to prevent it being confused with hazardous liquids or water which is not fit to drink. Provide cups or other drinking vessels at the outlet, unless the water is supplied in an upward jet, which can be drunk easily (eg a drinking fountain).

Changing rooms and lockers

Every site should have arrangements for securely storing personal clothing not worn on site and for protective clothing needed for site work. Men and women should be able to change separately. Separate lockers might be needed, although on smaller sites the site office may be a suitable storage area provided it is kept secure. Where there is a risk of protective site clothing contaminating everyday clothing, items should be stored separately.

Provision should be made to allow wet clothing to be dried. As a general rule clothing should not be placed directly on heaters due to the risk of fire. If electrical heaters are used, they should be properly ventilated and, if possible, fitted with a high temperature cut-out device.

Rest facilities

Rest facilities should provide shelter from wind and rain. The rest facilities should have adequate numbers of tables, seating with backs, a means for heating water for drinks and for warming up food (eg a gas or electrical heating ring or microwave oven) and be adequately heated. Rest areas are not to be used to store plant, equipment or materials.

Smoking

Smoking is prohibited in enclosed public places and workplaces such as construction sites or work vehicles. Further information is available at www.smokefreeengland.co.uk, www.clearingtheairscotland.com and www.smokingbanwales.co.uk.

Heating

Rest facilities will normally require heating. Using properly maintained electrical equipment can eliminate the risks associated with LPG heaters. Inadequately ventilated LPG cookers and heaters can produce carbon monoxide, with potentially fatal results. Flammable gas may escape from leaking cylinders, which have not been properly turned off. If LPG is used reduce the risks by:

- using and storing the cylinders in safe, well-ventilated places outside the accommodation (including overnight) or in purpose-built ventilated storage areas;
- ensuring that the appliances have been properly installed, checked and maintained by a competent person;
- providing adequate combustion ventilation (provide fixed grilles at high and low level);
- checking that the ventilation provided is not blocked, eg fixed grilles blocked by newspaper or rags in cold weather to 'stop draughts';
- checking that cylinders are properly turned off when not in use;
- using wall or ceiling-mounted carbon monoxide detectors.

Use of alternative facilities for transient construction sites

For the purpose of this information sheet, a transient construction site is either where short duration work (up to a week) is carried out at one or many locations, or is of a longer duration carried out while moving over a continuous geographical area, eg major roadworks, cable laying contracts etc.

In such cases, it may be appropriate to make arrangements to use facilities provided by the owner of existing premises, in which the work is being done, local public facilities or the facilities of local businesses. Clear agreement should be made with the provider of the facilities; it should not be assumed that local commercial premises can be used without their agreement. In all cases the standards above must be provided or made available. Facilities must be readily accessible to the worksite, open at all relevant times, be at no cost to the workers, be of an acceptable standard in terms of cleanliness and have hand-washing facilities. Workers need to be made aware of the arrangements to use them and be informed of their location.

Table 1 gives an indication of the options available, in order of preference, for providing welfare facilities for transient construction sites.

Table 1 Welfare facilities: the options

Type of installation	Additional notes
1a Fixed installation: connected to mains drainage and water.	Order of preference: ■ on site; ■ at a base location; ■ at a satellite compound. NB This may include the pre-arranged use of private facilities. Permission, preferably in writing, should be obtained from the proprietor in advance of the work starting. The use of public toilets is acceptable only where it is impractical to provide or make available other facilities.
1b Portable water flushing units with water bowser supplies and waste storage tanks.	
2 Portable installation on site.	Consisting of chemical toilet(s), washing facilities and sufficient tables and seating.
3 Suitably designed vehicle.	Consisting of chemical toilet(s), washing facilities and sufficient tables and seating.
4 Facilities which are conveniently accessible to the worksite (includes public toilets).	Use of public toilets is acceptable only where it is impractical to provide or make available other facilities.
5 Portable installation near site.	Incorporating a chemical toilet, washing facilities and sufficient tables and seating.

References

1 *Managing health and safety in construction. Construction (Design and Management) Regulations 2007. Approved Code of Practice* L144 HSE Books 2007 ISBN 978 0 7176 6223 4

While every effort has been made to ensure the accuracy of the references listed in this publication, their future availability cannot be guaranteed.

Further reading

Health and safety in construction HSG150 (Third edition) HSE Books 2006 ISBN 978 0 7176 6182 4
Fire safety in construction work HSG168 HSE Books 2010 ISBN 978 0 7176 6345 3

BS 6465–1: 2006 *Sanitary installations. Code of practice for the design of sanitary facilities and scales of provision of sanitary and associated appliances*

Further information

Visit www.hse.gov.uk/construction for more specific information on CDM 2007 and health and safety in the construction industry, including a link to additional guidance for CDM dutyholders developed by the construction industry.

HSE priced and free publications can be viewed online or ordered from www.hse.gov.uk or contact HSE Books, PO Box 1999, Sudbury, Suffolk CO10 2WA Tel: 01787 881165 Fax: 01787 313995. HSE priced publications are also available from bookshops.

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e-mail: hse.infoline@connaught.plc.uk or write to HSE Information Services, Caerphilly Business Park, Caerphilly CF83 3GG.

This information sheet contains notes on good practice which are not compulsory but which you may find helpful in considering what you need to do.

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