

Health and safety in historic graveyards: guidance for works teams and volunteer workers, including volunteer surveyors

This leaflet provides straightforward guidance on how to work safely in historic graveyards. It should be read in conjunction with guidance on safe working practices available from the Health and Safety Executive.

The following *Graveyards and Gravestones Electronic Leaflets* are free and can be downloaded from Historic Scotland's website: www.historic-scotland.gov.uk

1. Working in a scheduled or listed graveyard or burial ground
2. Good practice in maintaining a historic graveyard
3. Looking after gravestones
4. Health and safety in historic graveyards: guidance for visitors and owners
5. Health and safety in historic graveyards: guidance for works teams and volunteer workers, including volunteer surveyors
6. Short guide for cemetery managers: emergency measures for historic memorials
7. Historic Scotland grants in relation to graveyards or burial grounds
8. Abandoned structures within graveyards

To obtain copies of all Historic Scotland publications referred to in this leaflet, including free leaflets, e-mail hs.conservation.bureau@scotland.gsi.gov.uk or telephone 0131 668 8638. Useful publications include *Conservation of Historic Graveyards: Guide for Practitioners 2* (£19.50) and *The Conservation of Architectural Ancient Monuments in Scotland: Guidance on Principles* (£5.50).

1. Why should you be concerned about health and safety?

The site owner (normally the local authority) is responsible for ensuring that the graveyard itself is a safe environment for visitors. However, in almost every graveyard the dangerously unstable condition of many memorials poses a danger to the safety of visitors and workers in the graveyard. This danger may not be immediately obvious as a gravestone can be perfectly upright and show no obvious signs of instability, yet still be highly unstable, requiring only the slightest pressure to cause it to collapse. In recent years there have been a number of accidents, some fatal, to members of the public in cemeteries due to the toppling of unstable memorials.

While risk is not confined to any one type or age of memorial, recent surveys show that memorials constructed between the mid-19th century and the mid-20th century pose the greatest risk of collapse. Many of these memorials are large and are typically constructed of granite or sandstone. Such memorials, especially those formed from two or more granite pieces, have often been poorly constructed, lack proper fixings between the various parts and are set on inadequate brick or stone foundations. In addition, a memorial may become dangerous due to movement of the adjacent ground causing the memorial to tilt. It is not just the complete toppling of a memorial that can cause severe injury. A relatively small capping stone falling from a memorial can cause a fatal accident because even quite a small stone can be very heavy.

2. How to identify an unstable memorial

An unstable memorial may not be recognised easily by a superficial inspection as it is not always the oldest memorials or those that are leaning that pose the greatest risk. How, therefore, can you identify which memorials are unstable?

Information is provided in section 6, 'Surveys and risk assessment' in *Graveyards and Gravestones Electronic Leaflet 6*.

3. Responsibilities of employers or organisers of volunteer workers for health and safety

Where work is being carried out, whether physical work such as improving drainage or clearing undergrowth, or a more sedentary operation such as conducting a survey of gravestones, the full range of health and safety at work legislation applies, even if the work is being carried out by volunteers.

Any group or organisation planning work in a graveyard, even if it is not an employer, must comply with the requirements of the Health and Safety at Work Act 1974 and relevant related legislation. There is a statutory requirement that a competent person with sufficient training, skill, experience and knowledge is appointed. If such expertise is not available within the group, it is recommended that a health and safety consultant or other person with suitable experience is asked to oversee all health and safety requirements. The person or persons responsible must not underestimate the attention to detail that will be required in the development and implementation of a risk assessment and a safety policy for the proposed work.

The primary health and safety management considerations are listed below. Further guidance can be obtained from the Health and Safety Executive - see section 6 References:

- conduct an assessment of all risks likely to be encountered during the work
- appoint a competent person to be responsible for health and safety
- put in place appropriate health and safety training, instruction and supervision for all volunteers/staff for the type of task to be performed
- put in place arrangements for planning, monitoring and review of all measures to prevent injury and ill health and to protect volunteer workers and others who may be affected
- identify the adverse effects of the work on the workers/volunteers and provide appropriate health surveillance, for example for those with back problems, allergies, etc.
- establish first aid arrangements and procedures to be followed in case of an emergency, such as for a person trapped under a collapsed memorial
- ensure that appropriate protective clothing and other safety devices (safety glasses, safety boots, etc.) are available and worn
- ensure that reporting of all accidents, however minor, to staff, volunteers and members of the public is in accordance with The Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 1995 (RIDDOR) and recorded in an accident book
- provide toilet and washing facilities if the work will take more than one day
- ensure that all staff, volunteers and the general public are protected by sufficient and appropriate insurance for the work being undertaken to cover personal accident and injury or injury to others – an insurance certificate should be available for inspection

4. Precautions for staff and volunteers

Staff and volunteers are themselves legally obliged to ensure that their activities in the graveyard do not put either themselves or others at risk. Each member of staff/volunteer must observe the following precautions, in addition to those identified in 'Precautions for visitors', section 1 of *Graveyards and Gravestones Electronic Leaflet 4*:

- Fully acquaint yourself with the nature of the task to be undertaken and of the physical demands that it presents. Do not undertake the task if you have any doubt about your ability to cope with these demands. Seek specialist advice where necessary. Also recognise that weather conditions can affect adversely the demands of the work, whether from heat (dehydration, exhaustion etc.) or cold (ability to hold implements, etc.). In addition, if you suffer from allergic reactions (hay fever, contact with certain plants, insect bites etc.), there is an increased to your health when you are in contact with plants, pollen and insects.
- Never work alone. There must always be a team of two or more people on a task, one of whom should be first aid trained. Team members must cooperate with each other and provide information on the risks to others of their particular activity, particularly when using mechanical or electrical equipment.
- Make sure that you wear suitable protective clothing – safety helmet, safety boots, eye protection and noise mufflers as necessary – for the work you are doing.
- You must keep in regular contact with other staff/volunteers and with a base station and have a regular reporting system whereby you must call in at least every half-hour. Contact may be by mobile phone, radio or short-range walkie-talkie.
- Do not place ladders or steps against memorials or headstones to gain access to elevated inscriptions or sculptures. Where such access is necessary, use free-standing system scaffolds or other means of safe access. Position these on a sound, level base and restrain them properly.
- Be aware of the signs of monument instability identified in section 6 of *Graveyards and Gravestones Electronic Leaflet 6* and do not work any closer to a memorial than a distance equal to one and a half times the height of the memorial.
- Volunteer workers should not use chemicals or pesticides in graveyards. Only those who have been trained in accordance with the Control of Pesticides Regulations are permitted to do this.
- If you are likely to come into contact with the soil, make sure that your tetanus immunisation is up-to-date.

5. Lifting techniques suitable for historic gravestones

Some tasks undertaken in a graveyard will require gravestones to be moved. The Manual Handling Operations Regulations 1992 require employers, the self-employed and those organising works to eliminate the need to lift manually, or, if this is not possible, to use mechanical equipment wherever possible in order to eliminate the need to use physical effort to lift. Manual lifting must only be used as a last resort once all other options have been considered. All individuals involved in lifting or moving gravestones should have undergone manual handling training with a registered trainer. The use of levers and portable A-frames and other mechanical aids reduce the need for manual lifting. Some additional safeguards should be introduced when these techniques are used for historic gravestones – these are outlined in the following sections.

5.1 Manual lifting

In circumstances where physical effort is still required, an assessment must be carried out to ensure that the risk of injury is minimised. Guideline weights are published by the Health & Safety Executive (see Appendix A). It should be noted that a 9” cubic block of sandstone weighs around 25 kg. Increased weight is likely to be borne as a monument is turned to lay it flat, therefore these guidelines should be interpreted with caution. Other factors such as access, grip, stability and posture constraints will also have an impact on the risk associated with any particular operation.

Portable A-frames and other mechanical aids such as levers and vacuum slab lifters should be used wherever possible to reduce the risks by providing mechanical assistance, a better grip, reducing the need to twist and stoop and making it easier for more people to share the load.

All those involved in manual lifting must be instructed in the kinetic handling technique described in Appendix B, and in the use of any equipment or methods outlined in the manual handling assessment.

5.2 Team lifting

A common way to reduce risks to the individual and share the load is to use team handling techniques. This does not necessarily reduce the risks proportionally as two people will only be able to lift two-thirds of the sum of their individual capabilities, and the load may be shared unevenly, especially on rough ground. Gravestones may not offer sufficient handholds, and space available for movement may be limited. Mechanical assistance must therefore be used wherever possible.

5.3 Levers

Simple leverage is a particularly useful technique to allow a strop to be fitted so that a portable A-frame can be used. Lever bars or crowbars are made of heavy-duty steel and vary in length, diameter and weight and so are suited to move objects of varying weights.

Some important points to remember:

- Only use a lever on stones that are in one piece or are securely splinted together.
- Always carry a crowbar by your side, tip forward, and grip it lightly near the middle to maintain balance.
- Maintain the factory bevel on the tip with a file or grindstone.
- Do not attempt to move a stone all the way with one levering action. Instead, move the stone in a series of small movements, adjusting the bar or fulcrum position between each. This way you will conserve energy and lessen the chance of damaging your back.
- Keep your hands clear of the stone and the fulcrum at all times. Beware of trapping your fingers when fitting the strop.
- Wear safety boots at all times, but not gloves. Your grip of the lever will be less secure if you are wearing gloves. In any case, there should be no need for gloves to protect your hands from crushing as your hands should be kept clear of stone and fulcrum.
- Use a timber block between the stone and the lever. This will serve to spread the stress imposed by the lever and act as padding. Watch the gravestone throughout to monitor how it is being affected by stresses. Stop immediately if you detect any signs of cracking or other distress.
- Arrange the lever and fulcrum so that the lever and timber block padding is not in contact with vulnerable parts of the gravestone, i.e. edges or any cracks, so that the risk of damage to the gravestone is minimised.
- Place the tip of the lever and timber block padding under the stone to be moved and wedge another block of wood between the bar and the ground to act as a fulcrum for the lever. Positioning the fulcrum near the stone will give the most powerful lever action, but will concentrate the stress in a short length of the lever bar at the end.
- If access allows, you may be able to use more than one lever, but you must be sure that everyone can work without getting in each other's way and that all levers and timber blocks for padding are positioned to minimise the risk of damaging the gravestone.
- Press the free lever end down with your body weight positioned over your palms.

- Never straddle the bar when prying.
- When the stone moves as much as the bite will allow, block it with a piece of wood and use a larger fulcrum or shorter bite on the same fulcrum to move the stone further.

5.4 Portable A-frames

Portable A-frames are readily available and some can handle stones up to 2 tonnes. Check the specification of your A-frame with your supplier or equipment hire shop to make sure it is suitable for the loads you will be lifting. The estimated time taken to lift a stone is half an hour for two people, but this will be faster if more than one stone can be handled without having to move the frame.

Some important points to remember:

- The Lifting Operations and Lifting Equipment regulations require that all lifting operations are planned and supervised by a competent person. Someone who has experience or is trained in the use of the equipment and in slinging must ensure that the operation is coordinated and that safe working practices are followed.
- Different A-frames will have different capacities. Always check the safe working load of the equipment, including strops and chain blocks, etc., and ensure that it is sufficient for the size of stone being lifted.
- All load-bearing devices, including the frame, chain, hoist and strops, must have a test certificate and an inspection certificate, issued within the previous 12 months. These should be checked before the equipment is used. Ask for a copy of this certificate from your equipment hire shop. Copies of the certificates must be available for inspection. If the equipment is owned by the group organising the work, for example, the local authority, it must be regularly inspected and tested in line with manufacturer's recommendations and a daily condition log (based on a visual inspection) of all weight-bearing components must be kept.
- Staff must be trained by responsible training suppliers to use the equipment safely.
- Operators must wear safety boots and safety helmets at all times. Any by-standers must be kept at a safe distance.
- Aluminium frames are preferred as they are much lighter and so easier to assemble and dismantle.
- When assembling the frame, make sure that its feet are level and are all resting on solid ground or substantial blocks.
- The block and tackle is fixed to the cross-member after the frame is erected.
- Hands can become oily when handling the block and tackle – make sure you wipe them before touching the stone.



Illustration 1. Preparing to lift a stone – the A-frame is erected securely.



Illustration 2. Preparing to lift a stone – securing the stone to a wooden batten.

- How to prepare stone for lifting using wooden scaffolding battens
- Use of soft strops



Illustration 3. Preparing to lift a stone – the use of soft strops.

- Use of soft strops
- Lowering the stone – Lower the stone in a controlled way onto timber battens. This will allow the strops to be removed easily.



Illustration 4. Lifting the stone.

- Lifting the stone

6. References

A short guide to the Personal Protective Equipment at Work Regulations 1992 INDG174 HSE Books ISBN 0 7176 0889 1
<http://www.hse.gov.uk/pubns/indg174.pdf>

Five steps to risk assessment INDG163 HSE Books 1999. <http://www.hse.gov.uk/pubns/indg163.pdf>

Getting to grips with manual handling INDG143 HSE Books 2000 ISBN 0 7176 1754 8
<http://www.hse.gov.uk/pubns/indg143.pdf>

Management of health and safety at work. Management of Health and Safety at Work Regulations 1999. Approved code of practice and guidance L21 HSE Books 1999 ISBN 0 7176 2488 9

Management of Health and Safety at Work Regulations 1999 HMSO 1999 ISBN 0 1108 5625 2

Manual Handling Operations Regulations 1992. Guidance on Regulations L23 HSE Books 1998 ISBN 0 7176 2415 3

Personal Protective Equipment at work HSE Books ISBN 0 7176 0415 2

RIDDOR reporting: what the incident contact centre can do for you MISC310 HSE Books. <http://www.hse.gov.uk/pubns/misc310.pdf>

RIDDOR explained HSE31 HSE Books 1999. <http://www.hse.gov.uk/pubns/hse31.pdf>

Safe use of lifting equipment. Lifting Operations and Lifting Equipment Regulations 1998. Approved Code of Practice and Guidance L113 HSE Books 1998 ISBN 0 7176 1628 2

Simple guide to the lifting operations and lifting equipment regulations 1998 INDG290 HSE Books 1999 ISBN 0 7176 2430 7
<http://www.hse.gov.uk/pubns/indg290.pdf>

Working alone in safety. Controlling the risks of solitary work HSE Books 1998 ISBN 0 7176 1507 3.
<http://www.hse.gov.uk/pubns/indg73.pdf>

Acknowledgements

The Health and Safety Executive is gratefully acknowledged for permission to include text extracts and diagrams from *Getting to Grips with Manual Handling*, HSE Books 2000 in Appendices A and B.

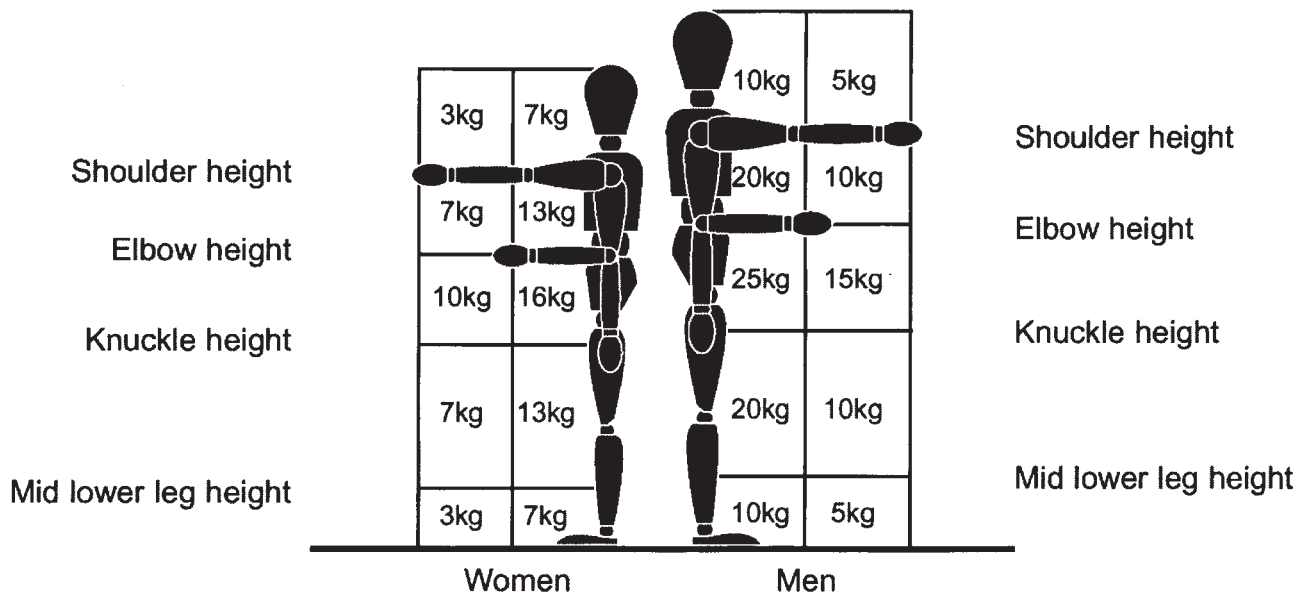
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Appendix A

Manual Handling Guidelines

Adapted from *Getting to Grips with Manual Handling* HSE.

- There is no such thing as a completely safe manual handling operation – but working within the guideline weights given







above will reduce the risk.

- This diagram shows guideline weights for lifting and lowering. The weights assume that the load is readily grasped with both hands and the operation takes place in reasonable working condition with the lifter in a stable body position.
- The guideline weights are reduced by 10% if a person twists through 45°, and 20% for twists of 90°.
- Observe the lift and compare to the diagram. If the lifter's hands enter more than one box during the operation, use the smallest weight given. Use an in-between weight if the hands are close to a boundary between boxes. If the operation must take place beyond the boxes, make a more detailed assessment.
- Any operation involving more than twice the guideline weights should be rigorously assessed, even for very fit, well-trained individuals working under favourable conditions.

Appendix B

Kinetic Handling Technique

Adapted from *Getting to Grips with Manual Handling* HSE.

- Stop and think – Plan the lift, where is the stone to be placed? Do you need handling aids? Do you need help? 
- Position your feet – Stand with feet apart, giving a balanced and stable base for lifting. Position your leading leg as far forward as is comfortable and, if possible, pointing in the direction you intend to go. 
- Adopt a good posture – When lifting from a low level, bend your knees. But do not kneel or over-flex your knees. Keep your back straight, maintaining its natural curve (tucking in your chin helps). Lean forward a little over the load if necessary to get a good grip. Keep your shoulders level and facing in the same direction as your hips. 
- Get a firm grip – Try to keep your arms within the boundary formed by your legs. The best position and type of grip depends on the circumstances and individual preference, but must be secure. A hook grip is less tiring than keeping your fingers straight. If you need to vary your grip as the lift proceeds, do it as smoothly as possible. 

- Keep close to the stone – Keep the stone close to your trunk for as long as possible.
- Don't jerk – Lift smoothly, raising your chin as the lift begins, keeping control of the load
- Move your feet – Don't twist your trunk when turning to the side
- Put down, then adjust – If precise positioning of the stone is required, put it down first, then slide it into the desired position.

