



## Handling kerbs: Reducing the risks of musculoskeletal disorders (MSDs)

### Construction Information Sheet No 57

#### Introduction

This information sheet explains how to manage the risks associated with the repetitive manual handling of kerbs and associated products. The guidance is relevant to the whole supply chain involved in the use of kerbs including clients, designers, manufacturers, suppliers and contractors.

#### Background

Traditionally, kerbs (in one form or another) have been specified on the majority of roads. The standard components used are principally precast concrete and weigh approximately 67 kg. Feature kerbs, stone kerbs or other associated products may be considerably heavier. More recently a number of manufacturers have developed lighter kerbs.

The main hazards associated with the manual handling of kerbs are the weight of the kerb, the repetitive nature of the work and poor posture during the work. These hazards create excessive stress and strain on the body, which can cause damage to muscles and tendons, and in the longer term may lead progressively to more serious injury. These injuries are commonly referred to as musculoskeletal disorders (MSDs).

MSDs account for a significant proportion of accidents and injuries in construction. They are a main reason for people having to leave the construction industry.

#### What the law requires

The Manual Handling Operations Regulations 1992 (as amended 2004)<sup>1</sup> apply to all construction work. They set out a framework for employers to tackle the risks from manual handling. Under these regulations, if employers cannot avoid manual handling where there is a risk of injury, they must assess their manual handling operations and take steps to reduce the risk of injury to the lowest level reasonably practicable.

Kerb laying by hand involves a serious risk of injury to those who are doing the work and therefore employers need to take action to control this risk.

#### Controlling the risk

When tackling the risk, the best solutions will be those which address all three main hazards: the weight of the kerb; the repetitive nature of the operation; and poor posture during the work.

To help find the best solution, we suggest you use the following 'hierarchy of control measures'. You should try to adopt the solutions nearest the top of the hierarchy first, as these will give the best level of risk control.

#### The hierarchy of control measures

##### *Elimination*

Eliminate manual lifting of kerbs at the design stage, (eg use alternative construction methods that do not involve manual handling or eliminate the need for the kerb).

##### *Total mechanisation*

Ensure kerbs are always handled and laid mechanically (eg using vacuum devices/mechanical grabs etc). This is the preferred solution for new build, refurbishment works and work involving the use of large, special purpose kerbs.

##### *Partial mechanisation*

Ensure that the maximum amount of the kerb handling process is undertaken mechanically (eg using mechanical solutions to get the kerb near its final position, off-loading using a hoist etc). Using smaller/lighter kerbs or handling aids will further reduce the risks from any residual manual handling.

##### *Manual handling*

In rare cases where it is not possible to use any of the above solutions, short stretches of kerb may be laid manually. Where this is necessary workers should be trained in good handling techniques. The use of lighter-weight kerbs, or devices which allow two people to share the lift, will further reduce the risk of injury.

#### Precautions

All of those involved in the specification, manufacture, supply and installation of road edge details can help to reduce the risks from manual handling.

## ***Designers, planning supervisors and clients***

Those involved in design and planning should consider:

- solutions that eliminate the need for repetitive manual handling;
- specifying kerb units that are compatible with mechanical handling solutions;
- appropriate use of alternative lightweight kerb products;
- the risks during the lifetime of the kerb, including repair and maintenance issues;
- maximising the number of kerbs to be laid at one time to realise economies of scale and promote the practicability of mechanical handling.

## ***Manufacturers and suppliers***

Kerb manufacturers should seek to minimise the risks associated with their product range throughout the supply chain, including;

- supplying kerbs in a format compatible with commonly used mechanical handling equipment;
- providing information to the user including clearly marking pack weights and component weights;
- ensuring, where possible, pack sizes are below 1 tonne to allow handling by a wide range of commonly used site equipment.

## ***Contractors***

Contractors should plan and assess the work to ensure risk is kept to an acceptable level. This may involve:

- economies of scale through re-phasing of the work to maximise the efficiency of the kerb laying operation;
- safe storage and secure transport of kerbs;
- laying direct from the pack rather than double handling by stringing out ahead of final laying;
- use of machinery capable of handling both packs and individual kerbs;
- mechanical solutions for handling non-standard kerb details such as feature kerbs, transition kerbs, drop kerbs, quadrants and radius kerbs;
- training of workers in the safe use of mechanical lifting equipment;
- use of alternative lightweight kerb components to reduce residual manual effort;
- providing training in good handling techniques for workers involved with kerb laying.

## **Mechanical kerb handling solutions**

### ***Vacuum lifters***

A number of manufacturers produce equipment to handle kerbs using vacuum technology. The machines can be fitted with a number of interchangeable heads to allow different products to be handled.



**Figure 1** Handling kerbs using a vacuum lifter

### ***Self-contained***

These devices can be either fitted on the forks of standard construction machines or mounted on trailers which allow the kerbs to be laid straight from the pack without the need to 'string out'. A vacuum provides both the attachment to the kerb and the lifting force.

### ***Fork mounted***

Vacuum lifters can be mounted on standard construction lifting equipment. Kerb laying can be undertaken using a single machine, which carries the pack of kerbs and provides the mechanical lift. The vacuum lifter can be powered independently or by the hydraulics of the machine on which it is mounted.

### Trailer mounted

Trailer-mounted machines offer a stand-alone handling solution that can be towed at road speeds between locations. They may be useful for contractors who lay small numbers of kerbs in multiple locations.

### Independent

These are self-contained units, which create a vacuum to attach to the kerb. They have to be fitted to a lifting device to lift and position the load.

### Grabs/clamps

A number of devices are available which clamp the kerb, either hydraulically or by friction and self-weight. Grabs have traditionally been used with success to handle packs of kerbs and larger precast components. Smaller grabs can be used to handle individual kerbs and avoid manual handling.



Figure 2 Vehicle-mounted crane and mechanical grab

The grabs can be used with existing construction plant, such as a backhoe or mini digger, to provide the lifting effort. They can be used to lift the kerbs from the pack and place them directly at the point of lay, minimising the manual handling input.

### Return to work

Employers should consider how to manage workers who have suffered manual handling injury, in particular their return to work. For most lower back injuries, staying mobile can assist recovery. With an employer's good management, including a 'back-to-work' plan, in most cases the affected person will be able to return to work. Good management would include reviewing your risk assessment and obtaining medical advice. Further information is available on the HSE *Back pain*<sup>2</sup> and *Sickness absence*<sup>3</sup> web pages.

### Wider applications

The information in this document is relevant for other precast concrete components such as drainage channels, slabs, ducts, copings and hard landscaping materials. Many of the solutions used for the mechanical handling of kerbs can be used to handle other products.

### References and further reading

#### References

- 1 *Manual Handling Operations Regulations 1992* SI 1992/2793 The Stationery Office 1992 ISBN 0 11 025920 3, as amended 2004
- 2 [www.hse.gov.uk/msd/backpain/index.htm](http://www.hse.gov.uk/msd/backpain/index.htm)
- 3 [www.hse.gov.uk/sicknessabsence/index.htm](http://www.hse.gov.uk/sicknessabsence/index.htm)

#### Further reading

*Backs for the future: Safe manual handling in construction* HSG149 HSE Books 2000 ISBN 0 7176 1122 1

*Manual handling assessment charts* Leaflet INDG383 HSE Books 2003 (single copy free or priced packs of 10 ISBN 0 7176 2741 1)

*Manual handling. Manual Handling Operations Regulations 1992 (as amended). Guidance on Regulations L23* (Third edition) HSE Books 2004 ISBN 0 7176 2823 X

*Getting to grips with manual handling: A short guide* Leaflet INDG143(rev2) HSE Books 2004 (single copy free or priced packs of 15 ISBN 0 7176 2828 0)

*Are you making the best use of lifting and handling aids?* Leaflet INDG398 HSE Books 2004 (single copy free or priced packs of 15 ISBN 0 7176 2900 7)

## Acknowledgements

This publication has been produced with the support and assistance of the following organisations:

Interpave

The precast concrete paving and kerb association  
[www.paving.org.uk](http://www.paving.org.uk)

The Construction Confederation

[www.constructionconfederation.co.uk](http://www.constructionconfederation.co.uk)

The Civil Engineering Contractors Association

[www.ceca.co.uk](http://www.ceca.co.uk)

## Further information

HSE produces a wide range of documents. Some are available as printed publications, both priced and free, and others are only accessible via the HSE website, [www.hse.gov.uk](http://www.hse.gov.uk).

HSE priced and free publications are available by mail order from HSE Books, PO Box 1999, Sudbury, Suffolk CO10 2WA Tel: 01787 881165 Fax: 01787 313995 Website: [www.hsebooks.co.uk](http://www.hsebooks.co.uk) (HSE priced publications are also available from bookshops and free leaflets can be downloaded from HSE's website: [www.hse.gov.uk](http://www.hse.gov.uk).)

For information about health and safety ring HSE's Infoline Tel: 08701 545500 Fax: 02920 859260 e-mail: [hseinformationservices@natbrit.com](mailto:hseinformationservices@natbrit.com) or write to HSE Information Services, Caerphilly Business Park, Caerphilly CF83 3GG.

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

© *Crown copyright* This publication may be freely reproduced, except for advertising, endorsement or commercial purposes. First published 2/05. Please acknowledge the source as HSE.

**Interpave**  
THE PRECAST CONCRETE PAVING  
AND KERB ASSOCIATION



CONSTRUCTION CONFEDERATION

