Managing manual handling risks in construction work

Jane Beckmann
Health Risk Management Unit
Construction Sector
What I Will Cover

• Why manual handling is an HSE priority
• What are Musculoskeletal Disorders (MSDs)
• How to control the risk
  – Identifying high risk tasks
  – Control strategies
• Going forward
Why a priority?

- Lifting and Carrying
  - Handling is most common over 7-day injury in the industry
  - Skilled construction and building trades have one the highest estimated rates of back and upper limb disorders
Why a priority?

Ill-health statistics – construction

• 1.2m working days lost
• Over 60% due to MSDs
• Over 3/4m days to MSDs
What are MSDs

• Upper Limb Disorders
• Lower Limb Disorders
• Back pain

• Aches & pain
• Stiffness
• Weakness
• Tingling
• Numbness
• Cramp
• swelling
Upper limb disorders

- Osteoarthritis
- Tennis elbow
- Carpel tunnel syndrome
- Repetitive strain injury
Lower limb disorders

- Osteoarthritis
- Knee bursitis including beat knee
- Meniscal lesions & tear damage
- Stress fracture & reaction injuries
- Varicose veins
Back pain
Manual handling operation

Involves a load being

• Lifted
• Lowered
• Carried
• Pushed
• pulled
How to avoid manual handling risk (and other health risks)
Common Principles

- Assess
- Control
- Review
Assess

Identify your high risk tasks:

Think about the:

• Load
• Task
• Frequency
• Working area
• Individual
• Other factors
Assess: MSD toolkits

RAPP tool
Assess: Case Study

- This is a grade II list building which has been gutted and now on fit out stage.
- House has 3 floors plus attic
New sash windows are to be fitted. Most are already in house but still need to be installed.
Assess

What do you need to know?

• Load weight
• Task
• Frequency
• Work area
• Individual
Assess

• Load weight
  – 90-120 kg each

• Task
  – 2 men carried windows up stairs

• Frequency
  – Over 50 windows

• Work area
  – Narrow stairs & through doors
Assess

MAC

Insert the colour band and numerical score for each of the risk factors in the boxes below, referring to your assessment, using the tool.

G = GREEN - Low level of risk
Although the risk is low, consider the exposure levels for vulnerable groups such as pregnant women or young workers, where appropriate.

A = AMBER - Medium level of risk
Examine tasks closely.

R = RED - High level of risk
Prompt action needed. This may expose a significant proportion of the working population to risk of injury.

P = PURPLE - Very high level of risk
Such operations may represent a serious risk of injury and should come under close scrutiny, particularly when the entire weight of the load is supported by one person.

<table>
<thead>
<tr>
<th>Risk factors</th>
<th>Colour band (G, A, R or P)</th>
<th>Numerical score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Load weight and lift/carry frequency</td>
<td>Lift</td>
<td></td>
</tr>
<tr>
<td>Hand distance from the lower back</td>
<td>Carry</td>
<td></td>
</tr>
<tr>
<td>Vertical lift region</td>
<td>Team</td>
<td></td>
</tr>
<tr>
<td>Torso twisting/sideways bending</td>
<td>Lift</td>
<td></td>
</tr>
<tr>
<td>Asymmetrical torso/load (carrying)</td>
<td>Carry</td>
<td></td>
</tr>
<tr>
<td>Postural constraints</td>
<td>Team</td>
<td></td>
</tr>
<tr>
<td>Grip on the load</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Floor surface</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other environmental factors</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Carry distance</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Obstacles en route (carrying only)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Communication and co-ordination</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(team handling only)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total score:</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Other risk factors: Record individual and psychosocial factors etc (see website – address on page 10)
**Assess MAC**

<table>
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</thead>
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<td>Load weight and lifting/carry frequency</td>
<td>Lift</td>
<td>Carry</td>
</tr>
<tr>
<td>Hand distance from the lower back</td>
<td>R</td>
<td>R</td>
</tr>
<tr>
<td>Vertical lift region</td>
<td>A</td>
<td>R</td>
</tr>
<tr>
<td>Trunk twisting/sideways bending</td>
<td>A</td>
<td>R</td>
</tr>
<tr>
<td>Asymmetrical trunk/ shoulder</td>
<td>A</td>
<td>R</td>
</tr>
<tr>
<td>Postural constraints</td>
<td>A</td>
<td>R</td>
</tr>
<tr>
<td>Grip on the load</td>
<td>A</td>
<td>R</td>
</tr>
<tr>
<td>Floor surface</td>
<td>A</td>
<td>R</td>
</tr>
<tr>
<td>Other environmental factors</td>
<td>A</td>
<td>R</td>
</tr>
<tr>
<td>Carry distance (carrying only)</td>
<td>A</td>
<td>P</td>
</tr>
<tr>
<td>Obstacles en route (carrying only)</td>
<td>A</td>
<td>P</td>
</tr>
<tr>
<td>Communication and co-ordination (team handling)</td>
<td>A</td>
<td>P</td>
</tr>
</tbody>
</table>

Other risk factors, eg individual factors, psychosocial factors etc
For information on reducing the risks of individual or psychosocial factors Click here

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Assess: What happened!

- PN served on site
- Follow up visit to PC
- Track back visit to designer
Assess

- Involve workers

Leadership and worker involvement toolkit

Reducing harm by learning from the best in the construction industry

This toolkit has been developed by the construction industry’s Leadership and Worker Engagement Forum to help contractors and managers learn how to make health and safety improvements in their businesses.

Getting started

If you are new to this toolkit, use the Health and Safety Diagnostic Tool (HSDT) to find out how your organisation is doing.

You could also visit the sections 'LWI - Key principles' or 'The seven steps', or read the tips on how to use the toolkit.

Launch the Health and Safety Diagnostic Tool

1 2 3 4 5 6 7

Assess how you're doing

Find the root of the issues

Make it fit with what you do

Lead this in your company

What's in it for your team

How your team can carry it out

Make it last
Control

Law requires:

• Avoid manual handling operations which involve a risk of injury so far as reasonably practicable

• Take appropriate steps to reduce risk of injury to lowest level reasonably practicable

• Take appropriate steps to provide weight of load
Control: Elimination

• Design Out
• Work processes
Eliminate
Lightweight kerbs
Control: Mechanical handling

Photo courtesy of Loughborough University
Control: Mechanical handling
Control: blocks

• Specify blocks less than 20kg
• Deliver close to the point of use and keep dry
• Prevent work above shoulder height
• Reduce lay rate for feet level
• Adjust scaffold height and use spot boards
Control: plasterboard

Weight of 1200 x 2400 x 12.5 mm?

• Standard
• Fire board
• Soundbloc
• Lifeboard
Control: plasterboard

Weight of 1200x2400x12.5mm?

- Standard 23kg
- Fire board 28kg
- Soundbloc 30kg
- Lifeboard 34kg
Reduce – manual handling
Control: Loading out
Control: handling solutions
Control: Installing
Review:

• Have work procedures
• Check controls working
• Maintenance
• Supervision
Operational Guidance

- Transparent decision making

New operational guidance

<table>
<thead>
<tr>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reviewing COMAH Intervention Plans 2015-16</td>
</tr>
<tr>
<td>Offshore Pipeline Integrity Management - Operational Guidance for Inspectors</td>
</tr>
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</tr>
<tr>
<td>Construction Hazardous Substances: Inspection and Enforcement Guidance</td>
</tr>
<tr>
<td>Workplan 2014-15: health risks in surface engineering</td>
</tr>
<tr>
<td>Obtaining Information from Government Departments and Agencies and Open Sources</td>
</tr>
<tr>
<td>Whistleblowing and whistleblowers</td>
</tr>
<tr>
<td>Assuring the independence of prosecution decisions</td>
</tr>
<tr>
<td>Workplan 2014/15 – Ports Inspection</td>
</tr>
<tr>
<td>Quarry industry worker competence</td>
</tr>
<tr>
<td>The health and safety (training for employment) regulations 1990</td>
</tr>
<tr>
<td>Gas Pipelines: inspecting Polyethylene (PE) Natural Gas Installations</td>
</tr>
<tr>
<td>Health risks in small bakeries: exposure to flour dust and enzymes</td>
</tr>
<tr>
<td>Civil Proceedings: requests and summonses to attend civil cases</td>
</tr>
<tr>
<td>Enforcement Management Model (EMM): Framework for drafting enforcement guidance</td>
</tr>
<tr>
<td>Enforcement considerations for inspectors investigating gas incidents arising from the failure of steel service pipes</td>
</tr>
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<td>Simple Cautions - HSE guidance</td>
</tr>
<tr>
<td>Construction Dust: Inspection and Enforcement Guidance</td>
</tr>
</tbody>
</table>
Operational Guidance

- Transparent and proportionate

Kerbs

**Table 4e:** Manual laying of kerbs 70Kg each by two persons

<table>
<thead>
<tr>
<th>Issue</th>
<th>Consequence &amp; Likelihood</th>
<th>Risk Gap</th>
<th>Standard</th>
<th>PN?</th>
<th>Initial Enforcement Expectation</th>
</tr>
</thead>
<tbody>
<tr>
<td>No controls in place</td>
<td>Serious Injury &amp; Probable</td>
<td>Extreme</td>
<td>Established?</td>
<td>YES</td>
<td>PN regardless of number – quoting CIS57 – lifting irons etc.</td>
</tr>
</tbody>
</table>

Assumptions: Full size kerbs at 70KG+ - Lifting from ground and laying at foot level
## Risk Gap

- Difference between:
  - Expected standards
  - On-site conditions

### Measure of actual risk (where the dutyholder is)

<table>
<thead>
<tr>
<th>Consequence</th>
<th>Likelihood</th>
<th>Dutyholder complies with or exceeds legal standard</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nil</td>
<td>Nil</td>
<td></td>
</tr>
<tr>
<td>Minor injury</td>
<td>Remote</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Possible</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Probable</td>
<td></td>
</tr>
<tr>
<td>Significant injury</td>
<td>Remote</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Possible</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Probable</td>
<td></td>
</tr>
<tr>
<td>Serious personal injury</td>
<td>Remote</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Possible</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Probable</td>
<td></td>
</tr>
</tbody>
</table>

### Benchmark (where dutyholder should be)

- **Risk gap:**
  - Extreme
  - Substantial
  - Moderate
  - Nominal
Construction manual handling: Specific tasks

Some common construction tasks can present significant risks of developing musculoskeletal disorders (MSD). Information on these tasks and how to control them can be found below:

- Plasterboard installation
- Kerbs and paving
- Blocks and masonry units
Manual handling
What you need to know as a busy builder

- Avoid repetitive lifting, handling heavy building blocks or other masonry units and installing heavy tiles by hand.
- This is just a summary— you can find out what else you need to know about health and safety by visiting www.hse.gov.uk/constructionindex.htm

What can happen if health and safety is ignored?
A builder was installing a 750kg steel beam by himself. He had to reposition the steel a number of times and subsequently suffered with a ‘slipped disc’ and had to have three months off work.

See over for examples of good practice...

Preventing injury during plasterboard handling
What you need to know as a busy builder

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See over for examples of good practice...

Remember
Injuries from lifting and carrying do not occur because of a ‘one-off’ task. They result from repeated strain on the body from handling heavy or awkward loads with poor postures. If you suffer a significant manual handling injury you may be off work for several weeks and the affected area may be permanently weakened.

- Move around from ‘one-size-fits-all’ systems. These encourage workers to lift and not to use lifting equipment, which increases the risk of injury.
- Create manual access openings such as ‘safety’ floor doors so large panels do not need to be carried through doorways or up stairs.
- Make sure workers are trained to use lifting equipment and handling aids safely.
- Purchase plasterboard panels from suppliers who mark their weight on the board itself.

See examples for good practice...

For further information
HSE now covers the costs of time spent dealing with material breaches of health and safety law. This is known as FAS by entrepreneur (FAS) and is generally applies when an Inspector finds something wrong that they believe is serious enough for them to write to you about. A fee is charged for the time spent by the inspector in sorting it out. Following the simple guidance on this sheet may help you avoid having to pay a fee.
Guidance

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 generally precast concrete and weigh approximately 40 kg. Failure kerbs, stone kerbs, or other equivalent 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 those of the weight of the kerb, the repetitive nature of the task, and poor posture during the work. These hazards can cause 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 2007) apply to all construction work. They set out a framework for employers to control the risks from manual handling. Under these regulations, employers cannot avoid manual handling where there is a risk of injury. They must assess the manual handling operations and take action to reduce the risk to the lowest reasonably practicable level.

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

Controlling the risk

When leading 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 near 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. (e.g., use alternative construction methods that do not involve manual handling or minimise the need for the kerb).

Total mechanisation

Ensure kerbs are always handled and laid mechanically (e.g., using vacuum or power/mechanical cranes etc.). This is the preferred solution for new build, rehabilitation work and work involving the use of large, special purpose kerbs.

Partial mechanisation

Ensure that the minimum amount of the kerb handling process is undertaken manually (e.g., using mechanical solutions to get the kerbs near to the final location using hoists). Specialised machinery for handling kerbs is available.

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

Manual handling

In rare cases where it is not possible to use any of the above solutions, short stretches of kerbs may be laid manually. Where this is necessary, workers should be trained in good handling techniques. The use of lightweight 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 kerbs should ensure that the kerbs are handled in a safe manner and all necessary precautions are taken to ensure the health and safety of all involved.

Preventing injury from handling heavy blocks

What you need to know as a busy builder

Fed up of suffering from a bad back or joint pain while laying or handling concrete blocks?

There are several health and safety tips you should follow, even if you don’t directly employ the people working on your site.

Back pain doesn’t just happen at work. Back pain caused by manual handling builds slowly but once developed can greatly affect many aspects of life, such as church or sports and leisure activities. Make sure you prevent it all by following all the guidance:

- Always order blocks that weigh less than 20 kg unless specified by a designer for genuine technical reasons.
- Don’t load blocks by hand. Use machinery or mechanical aids. Organise site traffic routes and scaffolding points to deliver blocks close to where they will be laid.
- Use lightweight blocks (20 kg or less) which have handles and consider using half-size blocks. Wider trenches so blocks can be laid at foot level, not higher.
- Adapt scaffolding and working platforms to allow blocks to be laid between chest and knee height. It places less stress on the body and work rate is faster.
- See your doctor for a general checkup.

Detached and independent blocks do not necessarily mean they are safe. Make sure you are aware of the guidance and apply it to your site.
Guidance

- Being revised
- Published 2016
- Will include:
  - MAC
  - ART
  - RAPP
Health Remains a Priority

“Tackling ill health” is a strategic theme in the new strategy
Wider Developments
Be Inspired!

https://player.vimeo.com/video/151709341
Any questions?

Jane Beckmann
Health risk management unit
jane.beckmann@hse.gsi.gov.uk