Code of Practice for Manual Handling

DEPARTMENT OF LABOUR
TE TARI MAHI

OCCUPATIONAL SAFETY & HEALTH SERVICE
TE RATONGA ORANGA

ACC
PREVENTION. CARE. RECOVERY.

How to use this Code

Find out how the basic manual handling hazard management process works.

Figure 1 – Page 6

Read the glossary if you are not familiar with the terms already.

Pages 8 and 9

Find out what this Code is, who it is for, when it should be used and how it fits into the bigger picture.

Page 11

Find out your general responsibilities as an employer or employee.

Pages 12 - 14

Find out more detail about each of the four hazard management steps:

Copy the *Manual Handling Hazard Control Record* on pages 45 – 48. Use it (or the separate checklist) to generate records of your own hazard assessments, including the controls you devise and the plans you make to implement them.

After using this Code you should be able to:

1. Know when to use this Code and how it fits with the legislation.
2. Use the *Manual Handling Hazard Control Record* to:
   - identify aspects of manual handling tasks that may make them hazardous
   - assess the significance of these hazards
   - find control measures suitable for the tasks and devise action and evaluation plans.
3. Know where to look for further help – for example, how to manage episodes of acute low back pain experienced by employees.

code of practice for manual handling

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contents

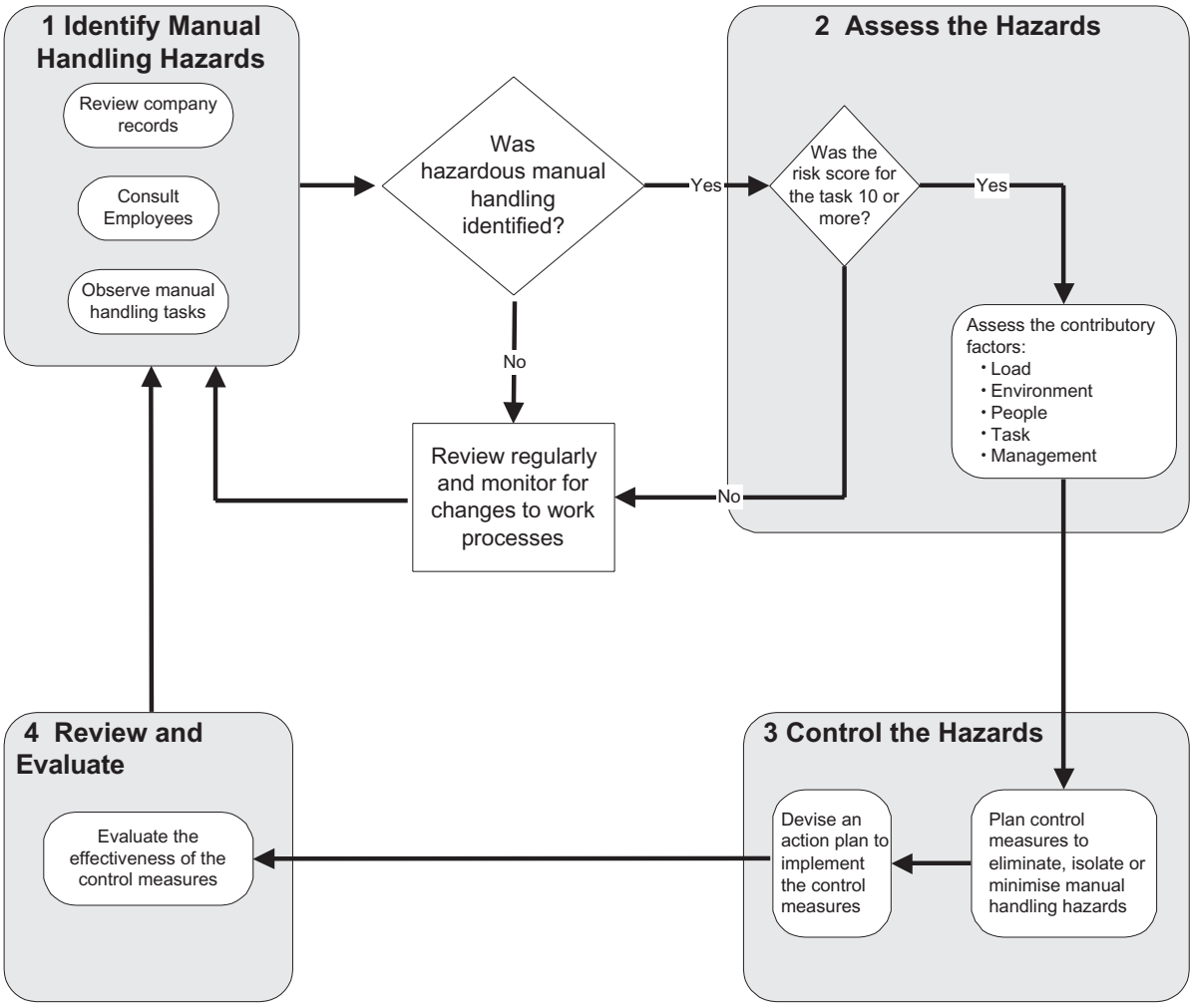


Figure 1: Controlling manual handling hazards – basic process

Executive Summary

This Code sets a process that may be used to identify, assess and control hazards associated with manual handling.

It is reasonable to expect that by applying this process in the workplace the number and severity of injuries relating to manual handling will be reduced. This is likely to include serious back injuries, acute low back pain and other work-related musculoskeletal disorders such as disorders of the neck, shoulders, knees, arms and hands.

The Code reflects the provisions of the Health and Safety in Employment Act 1992. The Act requires employers to provide safe places of work and this includes manual handling tasks. Employers should identify hazardous manual handling, assess its significance, provide controls where they are needed and evaluate the effectiveness of controls.

The systematic methods described in the Code are summarised in the *Manual Handling Hazard Control Record*. This checklist is shown in Appendix 1, and is available separately.

The methods given in the Code are based on a standard hazard management process, as shown in Figure 1, opposite.

The Code has been developed by the Occupational Safety and Health Service of the Department of Labour and the Accident Compensation Corporation.

Glossary

- **Acute low back pain**

  Acute low back pain is the short-term (less than three months) presence of pain in the low back, without leg symptoms or the presence of a serious back injury or those medical conditions called "red flags" in the *New Zealand Acute Low Back Pain Guide.* Research has shown that the majority of back claims, taken across the entire population, fall into this category.

- **Asymmetrical posture**

  A posture that requires the body to twist or bend to one side or to bear the weight unevenly on the feet.

- **Back injuries (serious)**

  Serious back injuries are fractures of the spine, medical co-morbidity where a back problem makes a medical problem worse (e.g. osteo-arthritis), intervertebral disc problems with serious complications or conditions that produce persistent severe pain that require a long time off work.

- **Biomechanical**

  Biomechanics uses laws of physics and engineering concepts to describe the motion undergone by the various body segments and the forces acting on these body parts during activities.

- **Contributory factors (manual handling)**

  The factors of load, environment, people, task and management that can contribute to the incidence and severity of manual handling hazards.

- **Control or control measure**

  A way of eliminating, isolating or minimising the risk of harm in a manual handling task.

- **Designer**

  Any person who designs or alters the design of plant (or systems) for use in a workplace.

- **Ergonomics**

  Ergonomics (or Human Factors) aims to understand how people and other elements of a system interact. It is the study of human behaviour, abilities, limitations and other characteristics. This information is applied to the design of tools, machines, tasks, jobs, environments and systems.

- **Harm**

  The definition in section 3 of the Health and Safety in Employment Act 1992 is "illness, injury or both".

- **Hazard**

  The definition in section 3 of the Health and Safety in Employment Act 1992 is "any activity, arrangement, circumstance, event, occurrence, phenomenon, process, situation or substance... that is an actual or potential cause or source of harm".

- **Hazardous manual handling**

  The presence in a manual handling task of one or more of the following: twisted, stooped, awkward, asymmetrical postures; fixed, sustained, rigid, prolonged postures; unvaried, repetitive movements; sudden, uncontrolled or jerky movements; handling or reaching away from the body; using high or sustained force; handling heavy or awkward loads; whole body vibration or upper limb vibration; handling that goes on for too long without a break.

- **Job**

  The group of activities (which may include manual handling tasks) which a person does at work.

- **Load**

  The object being handled or the forces being applied.

- **Manipulative tasks**

  Tasks that require an object of some sort to be held and worked on at the same time.

- **Manual handling**

  Any activity requiring a person to interact with their environment and use any part of their muscles or skeletal system to lift, lower, push, pull, carry, throw, move, restrain or hold any animate, or inanimate, object.

- **Manual handling task**

  Specific manual handling action or activity. It may be one part of a job.

- **Musculoskeletal disorders (work related)**

  A collective name for a range of conditions that affect the muscles, tendons, bones and joints. This term includes occupational overuse syndromes, back injuries and acute low back pain.

- **Musculoskeletal system**

  The integrated system of the muscles, bones and joints in the body.

- **OOS**

  Occupational overuse syndrome. An umbrella term for a range of disorders characterised by pain and/or other sensations in muscles, tendons, nerves, soft tissues and joints with evidence of clinical signs. Overuse syndromes are musculoskeletal disorders.

- **Personal protective equipment**

  Items of personal equipment worn for protection of some sort: ear muffs, gloves and boots are examples.

- **Plant**

  Any appliance, equipment, fitting, furniture, implement, machine, machinery, tool or vehicle (and any part, controls or any thing connected to that plant).

- **Practicable steps**

  The definition in section 3 of the Health and Safety in Employment Act 1992 of "All practicable steps" is "all steps to achieve the result that it is reasonably practicable to take in the circumstances, having regard to– (a) the nature and severity of the harm that may be suffered if the result is not achieved; and (b) the current state of knowledge about the likelihood that harm of that nature and severity will be suffered if the result is not achieved; and (c) the current state of knowledge about harm of that nature; and (d) the current state of knowledge about the means available to achieve the result and about the likely efficacy of each; and (e) the availability and cost of those means."

- **Resiliency**

  Less resilient people are those who are more at risk (in this context of harm from manual handling) than others for some reason. This may be because they are, for example, younger, older, different in size or strength or disabled. Each situation requires evaluation on its own merits.

- **Safe**

  As defined in the Health and Safety in Employment Act 1992: "not exposed to any hazards or free from hazards".

- **Serious harm**

  As defined in the First Schedule to the Health and Safety in Employment Act 1992: . . . "any of the following conditions that amounts to or results in permanent loss of bodily function or the temporary severe loss of bodily function: . . . musculoskeletal disease . . .".

- **Significant hazard**

  The definition in section 3 of the Health and Safety in Employment Act 1992 is:"A significant hazard is a cause, or potential cause of: Serious Harm or: Harm (the severity of which depends on how often or how long a person is exposed to the hazard) or: Harm that cannot be detected until a significant time after exposure has occurred". (For example, deafness from prolonged exposure to noise in the workplace.)

- **Static work**

  Work performed when muscles contract, but where no or little motion occurs in the body.

- **Strains and sprains**

  These terms are used in the sense of their normal meanings in a medical diagnosis.

- **Workplace design**

  The design of the workplace– by implication in relation to the characteristics of the people who will use the workplace and the work that will be done in it.

Part A – Background Information

Contents

A.1 Introduction

A.1.1 What is this Code, who is it for and when should it be used?

This Code explains how the Health and Safety in Employment (HSE) Act 1992 applies to manual handling tasks. It describes one way of meeting the requirements of the Act with respect to manual handling. It follows the logical sequence of identify, assess and control to prevent manual handling causing harm to employees.

The Code is a statement of preferred practice but also provides practical guidance on the control of manual handling tasks.

Although the Code represents current preferred practice, employers do not have to follow the suggestions given in it. If they choose, they may use other methods to meet the requirements of the HSE Act. The methods chosen must be at least as effective as the ones in the Code.

> Employers may use other methods to control hazards posed by manual handling tasks. The methods they chose should be at least as effective as the ones in the Code.

The Code is for use by employers, managers, health and safety advisers, health and safety representatives, consultants and designers. It encourages employers and employees to adopt a co-operative approach to prevent harm from manual handling.

The Code should be used:

- to evaluate existing manual handling tasks
- during the design and implementation of any new jobs which will have a manual handling component
- when plant, equipment, facilities, work processes, workstations and tools are designed, changed, manufactured, imported or supplied for use in workplaces.

The Code replaces the OSH*Guidelines for Manual Handling* published in 1992.

A.1.2 Why is this Code needed and where does it fit in the bigger picture?

Under the HSE Act, employers must make sure employees can stay healthy and safe at work. The purpose of the Code is to present preferred practice to support the safety and health of employees carrying out manual handling tasks.

The Code gives a method that employers and designers, manufacturers, importers and suppliers can use to analyse the manual handling tasks that are associated with the design of plant, equipment, facilities, work processes, workstations and tools. There is a huge variety in these tasks, so discretion and judgement will be needed when applying the principles given in the Code.

Finding the healthiest and safest ways of doing tasks where objects must be handled can save people from harm and make work more flexible, effective and productive.

The Code is not a complete guide to the control of back problems. Reference 11 on page 43 explains how to manage acute low back pain in the workplace.

A.1.3 What is manual handling?

Manual handling is defined as:"any activity requiring a person to lift, lower, push, pull, carry, throw, move, restrain, hold or otherwise handle any animate, or inanimate, object"

This includes a wide range of activities: For example:

- packing in an apple shed or supermarket
- lifting boxes from a conveyor to a pallet
- cleaning tasks
- operating machinery

- construction tasks
- using workbenches for assembly tasks
- using handtools
- handling hospital patients.

A.1.4 What harm can result from manual handling?

Manual handling can pose risks for several types of problems, including:

- serious back injuries
- musculoskeletal disorders - including occupational overuse syndromes
- acute injuries such as sprains and strains of muscles or tendons
- injuries sustained through slips, trips and falls.

In addition, there is some evidence that manual handling is one risk factor of many inter-related risk factors for acute low back pain. The differences between serious back injuries and acute low back pain are explained fully in other publications (see page 41 and the Glossary).

A.1.5 What advantages are there to implementing this Code?

If this Code is followed by employers an overall reduction in the number and severity of serious back injuries and other musculoskeletal disorders may be expected. As well, it is reasonable to believe that:

- removing risk factors for serious back injuries from manual handling tasks may reduce the incidence, delay the onset, or reduce the severity of an episode of acute low back pain
- preventing recurrent attacks of acute low back pain will prevent more serious persistent conditions from developing
- controlling the hazards posed by manual handling tasks, with the intention of bringing them within the reach of everyone in an organisation (including people with a disability or with acute low back pain) makes a lot of economic sense to employers.

The appropriate design of manual handling tasks has additional benefits:

- insight into how to optimise the efficiency and performance of the work
- reduced injury costs
- fewer absences from work and less disruption
- increased flexibility in work arrangements
- the retention of skilled employees
- safer work, which leads to better morale.

Just as it is unreasonable to expect employees to prevent the occurrence of every episode of acute low back pain or serious back injury by using correct handling techniques, so it is unreasonable to expect that the best efforts of employers will prevent every episode of acute low back pain.

A. 2 Legislative framework

A.2.1 Employer responsibilities

The HSE Act 1992, and the HSE Regulations 1995 require employers to take all practicable steps to ensure the safety and health of employees and others while at work.

Prevention of harm to employees

Sections 5 and 6 of the HSE Act require the proactive prevention of harm. In particular, the Act requires employers to take all practicable steps to:

- provide and maintain a safe working environment
- provide and maintain facilities for the safety and health of employees
- ensure plant is designed, made and maintained so it is safe for employees
- ensure that working arrangements (including the organisation, storage and transport of things) are not hazardous to employees
- provide procedures to deal with emergencies that may arise while at work.

Hazard management

Employers must have systematic and effective methods in place for:

- identifying and assessing hazards. There must be effective methods in place to identify existing hazards, identify new hazards and assess hazards to determine whether they are significant hazards or not
- controlling hazards. Where there is a significant hazard the employer must take all practicable steps to control it.

A significant hazard is a cause, or potential cause, of:

- serious harm (includes death, serious injury or disease, as defined in the First Schedule to the HSE Act 1992). The definition includes: ". . . any of the following conditions that amounts to or results in permanent loss of bodily function or the temporary severe loss of bodily function". The conditions listed include musculoskeletal disease
- harm (the severity of which depends on how often or how long a person is exposed to the hazard)
- harm that cannot be detected until a significant time after exposure has occurred (e.g. deafness from prolonged exposure to noise in the workplace).

If a hazard is deemed significant by the employer, the Act requires employers to control it by:

- eliminating the hazard
- isolating the hazard (if elimination is not possible or practicable)
- minimising the hazard (if elimination and isolation are not possible or practicable).

Where a hazard must be minimised because elimination and isolation are impossible, employeés exposures to the hazard must be monitored and their health, in relation to the hazard, must be monitored. Consent must be obtained from employees for this monitoring first.

Information, training and supervision

Sections 12 to 14 of the HSE Act require that employees are given information about the hazards they are exposed to or that they may create, and information on how to minimise these hazards.

Employees must have the knowledge and experience, or be supervised by someone with the knowledge and experience, to ensure that they and others are not harmed. Employees must be trained in the safe use and operation of plant, objects and substances and the equipment and protective equipment and clothing that they may use or handle.

A.2.2 Employee responsibilities

Employees must take all practicable steps to ensure their own safety and that of others while at work. See section C.1 on page 40 for a fuller explanation.

It is unreasonable to expect employees to prevent the occurrence of every episode of acute low back pain or serious back injury by using correct handling techniques.

A.2.3 Duties of the designers, manufacturers and suppliers of plant

The HSE Regulations 1995 specify duties that relate to designers, manufacturers and suppliers of plant.

Each group must take all practicable steps to design, manufacture, install, adjust, clean and repair plant in accordance with applicable ergonomics principles. An example of poor design that should be avoided is shown in Figure 2.

Good design includes supplying comprehensive and comprehensible information to the appropriate parties or users. Information should identify the manual handling hazards that remain in the plant, and how to use, maintain, operate, clean, transport and dispose of the plant without risk of harm from manual handling. There are similar requirements specified for designers, manufacturers and suppliers of protective clothing and protective equipment.

Figure 2: Poor design of equipment and facilities can create awkward manual handling tasks.

This means that the duty of the designer, manufacturer or supplier is to eliminate any hazards that may cause harm through manual handling activities occurring when the plant is used properly. If elimination is not practicable, the harm from manual handling associated with the plant must be isolated or minimised. Designers, manufacturers and suppliers can use this Code to help them meet the requirements of the Regulations. Wherever possible, changes to plant (or processes) should be developed in consultation with employees and trialed by employees at all stages of the design process. Employees may also need to obtain information specific to their plant to ensure that any hazards associated with it are eliminated, isolated or minimised.

Part B – Controlling Manual Handling Hazards

Contents

B.1 Introduction

To manage manual handling hazards:

1. Identify each task that contains hazardous manual handling
2. If a task contains hazardous manual handling, find a risk score for the task and, if the score is 10 or more, assess the contributory factors for the task
3. Find controls for the specific manual handling hazards of the task
4. Review the effects of the control measures to ensure that a successful intervention has been achieved.

The *Manual Handling Hazard Control Record* summarises this approach.

B.2 Identifying hazardous manual handling

Activities or jobs may involve a number of manual handling tasks, so:

1. List all the tasks that involve manual handling
2. Consider each manual handling task individually.

The remainder of this section outlines how to use a variety of methods to identify hazardous manual handling.

B.2.1 Review company records

Workplace records can be a good source of information about manual handling tasks.

Examine the hazard register, accident investigation forms and early reports of discomfort for records of accidents, injuries and incidents to help identify the locations, jobs and tasks where injuries from manual handling have occurred.

In this examination consider:

- the area of the workplace where the problem occurred
- the job of the affected person
- the task being carried out at the time
- the part of the body affected (for example the *lower back* or the *ankle*)
- the nature of the problem (for example a *strain*, *laceration* or *fracture*)
- the type of incident (for example whether it was described as *over-exertion*, *a gradually developing pain*, or *a slip and fall*).

When you review accident, incident and injury records for evidence of hazardous manual handling, it can be useful to consider:

- the frequency and severity of the accidents, injuries or incidents in the workplace that are related to manual handling tasks
- the incidence of incidents in the area over a period of time (incidence = number of incidents divided by the number of employees in the area or number of hours worked)
- the total workload.

These results can be compared across departments in the organisation to indicate trends in locations, jobs and tasks and can help determine tasks that may pose greater risk of harm.

Other potential sources of useful information include:

- minutes of health and safety committee meetings
- equal employment comments or complaints about work processes or equipment
- reports from previous investigations
- hazard registers
- workplace inspection reports
- health and safety audits.

B.2.2 Consult employees

Consulting employees usually provides valuable insights into tasks that might be hazardous. Employees will have a good knowledge of the manual handling activities they perform and how and when they perform them.

Employees will be able to identify specific tasks or actions that they find fatiguing, strenuous or difficult to perform, and they will usually be able to identify suitable controls. Interviewing injured employees and those carrying out similar tasks will show what they think are the hazards.

Good liaison with employee representatives can help with:

- selecting employees to help identify manual handling hazards
- developing control measures
- liaising with other employees to address concerns like confidentiality
- devising auditing procedures.

B.2.3 Observe manual handling tasks

Observe manual handling tasks to identify the presence of any specific hazards. Not all manual handling is necessarily harmful, so it is important to consider the hazards that may lead to harm from manual handling.

Involve employees, to explain what you are doing and gain their consent if necessary. Observe them in detail and ask them to assist you to carry out the evaluation. There are several ways of collecting information to gain further insights:

- watching the task
- using checklists
- filming the task
- participating in the task (where it is safe to do so).

B.2.4 Identify hazardous manual handling

The last step in this part of the hazard control process is to find out if hazardous manual handling is present in the task.

The previous investigations will allow you to answer the following series of questions.

Table 1: Hazard identification checklist

Are any of these factors present in the task?	**No**	**Yes**
Twisted, stooped, awkward asymmetical postures	❑	❑
Fixed, sustained, rigid, prolonged postures	❑	❑
Unvaried, repetitive movements	❑	❑
Sudden, uncontrolled or jerky movements	❑	❑
Handling or reaching away from the body	❑	❑
Using high or sustained force	❑	❑
Handling heavy or awkward loads	❑	❑
Whole body vibration or upper limb vibration	❑	❑
Handling that goes on for too long without a break	❑	❑

If any of these elements are present in a manual handling task i.e. if there is a tick in any one of the boxes in the“Yes” column, it will require further assessment.

B.2.5 Key Actions: hazard identification

Record your findings on page 1 of the *Manual Handling Hazard Control Record,* questions 1 – 6.

The presence of hazardous manual handling indicates there is potential for harm. If you have identified one or more manual handling hazards in the task, or if the company records or consultation with employees indicates the potential for harm from manual handling, you should assess the manual handling hazards as described in the next section.

Otherwise you do not need to undertake any further assessment.

However, you should still regularly review your manual handling tasks to monitor for any changes, according to your hazard review schedule.

B.3 Assessing manual handling hazards

B.3.1 Introduction

If hazardous manual handling is present, assess the task as follows:

1. Find the risk score for the task
2. If the risk score is 10 or more, assess the contributory factors for the task.

If the risk score is less than 10, you need go no further in the assessment, but you should review the situation from time to time according to your hazard review schedule.

B.3.2 Find the risk score for the task

To find the risk score for the task, follow the procedure in questions 7 11 of the *Manual Handling Hazard Control Record*. You will be able to use the information you have collected during the hazard identification phase to work out a score for each component.

Table 2: Obtaining the risk score components

Load score	Measure or estimate the muscle force applied by the worker. It may be the weight of the object handled or you may need to measure the forces applied with a spring balance or force gauge. If several people do the task, the score should reflect the ability of the least able.
Posture and workplace layout score	Observe the postures adopted. Take an average value if necessary.
Work conditions and environmental score	Observe the environmental conditions and compare with the table.
Time score	Find the time score from the greatest of either the number of repetitions of the task or the time spent doing it during the shift.

Calculate the risk score by adding the load, posture and environmental scores and multiplying their sum by the time score. A sample calculation is shown in Figure 3. The risk score will help you to decide the size of the risk and the urgency of the need for controls. The following table is provided as a guide.

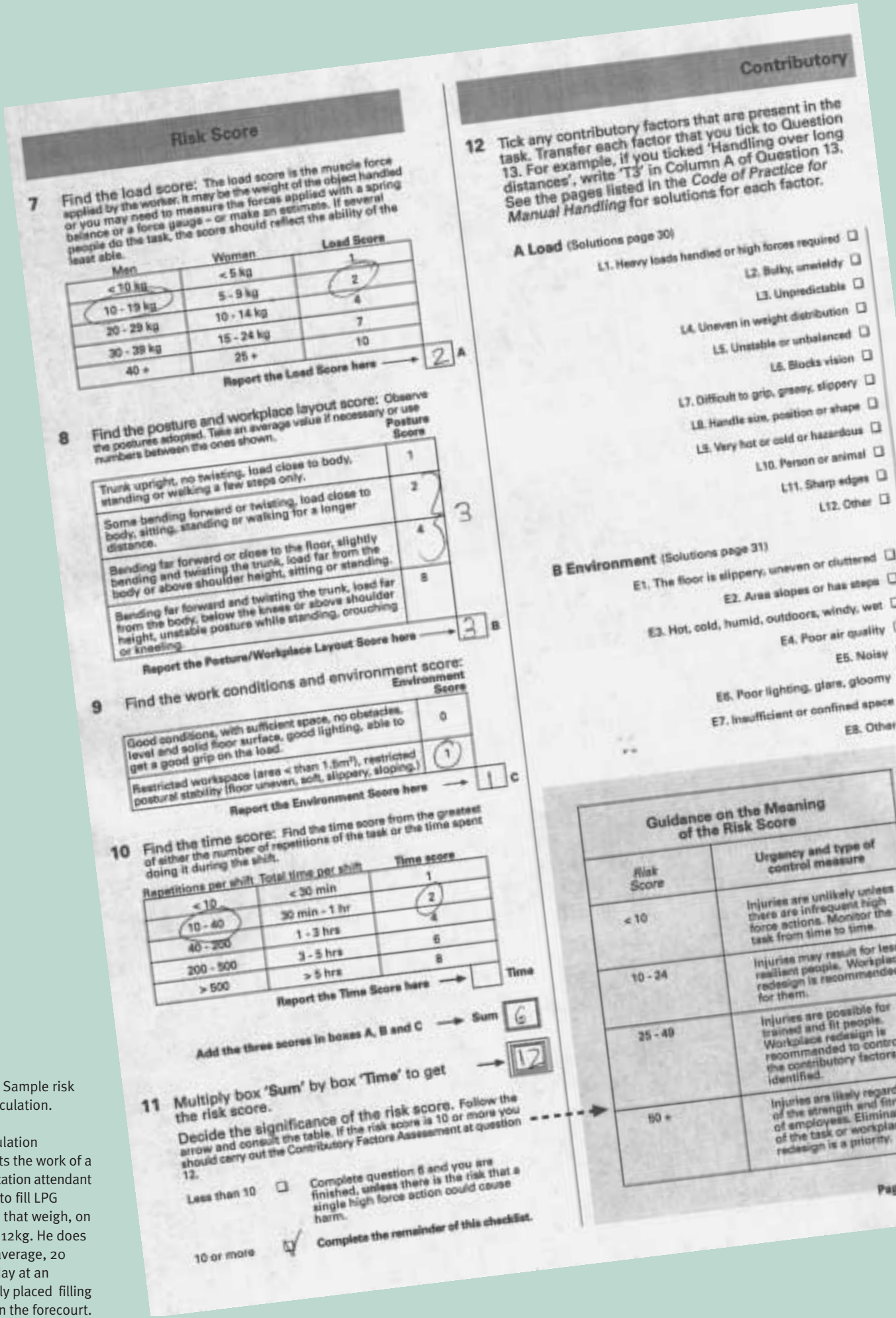
Table 3: Assessing the meaning of the risk score

Risk score	Urgency and type of control measure
< 10	Injury is unlikely. Monitor the task from time to time.
10 – 24	Injury may result for less resilient people. Workplace redesign is recommended for them.
25 – 49	Injuries are possible for trained and fit people. Workplace redesign is recommended to control the contributory factors identified.
50 +	Injuries are likely regardless of the strength and fitness of employees. Elimination of the task or workplace redesign is a priority.

There are times when a task may have a risk score of less than 10 but may still pose a risk of harm. An example is a task that requires high force to carry out but which does not happen very often. In these cases you will need to judge if the task needs further evaluation.

These and other factors help determine whether a hazard is a significant hazard. Because of this, and because the decision rests with the employer as to whether a hazard is significant or not (in the meaning of the HSE Act), Table 3 is given as a guide only.

It is up to the employer to decide if a manual handling task poses a significant hazard.



Risk Score

7 Find the load score: The load score is the muscle force applied by the worker. It may be the weight of the object handled or you may need to measure the forces applied with a spring balance or a force gauge – or make an estimate. If several people do the task, the score should reflect the ability of the least able.

Men	Women	Load Score
< 10 kg	< 5 kg	1
10 - 19 kg	5 - 9 kg	2
20 - 29 kg	10 - 14 kg	4
30 - 39 kg	15 - 24 kg	7
40 +	25 +	10

Report the Load Score here → 2 A

8 Find the posture and workplace layout score: Observe the postures adopted. Take an average value if necessary or use numbers between the ones shown.

	Posture Score
Trunk upright, no twisting, load close to body, standing or walking a few steps only.	1
Some bending forward or twisting, load close to body, sitting, standing or walking for a longer distance.	2
Bending far forward or close to the floor, slightly bending and twisting the trunk, load far from the body or above shoulder height, sitting or standing.	4
Bending far forward and twisting the trunk, load far from the body, below the knees or above shoulder height, unstable posture while standing, crouching or kneeling	8

Report the Posture/Workplace Layout Score here → 3 B

9 Find the work conditions and environment score:

	Environment Score
Good conditions, with sufficient space, no obstacles, level and solid floor surface, good lighting, able to get a good grip on the load.	0
Restricted workspace (area < than 1.5m²), restricted postural stability (floor uneven, soft, slippery, sloping.)	1

Report the Environment Score here → 1 C

10 Find the time score: Find the time score from the greatest of either the number of repetitions of the task or the time spent doing it during the shift.

Repetitions per shift	Total time per shift	Time score
< 10	< 30 min	1
10 - 40	30 min - 1 hr	2
40 - 200	1 - 3 hrs	4
200 - 500	3 - 5 hrs	6
> 500	> 5 hrs	8

Report the Time Score here → Time

Add the three scores in boxes A, B and C → Sum 6

11 Multiply box 'Sum' by box 'Time' to get the risk score. → 12

Decide the significance of the risk score. Follow the arrow and consult the table. If the risk score is 10 or more you should carry out the Contributory Factors Assessment at question 12.

Less than 10 ☐ Complete question 6 and you are finished, unless there is the risk that a single high force action could cause harm.

10 or more ☑ Complete the remainder of this checklist.

Contributory

12 Tick any contributory factors that are present in the task. Transfer each factor that you tick to Question 13. For example, if you ticked 'Handling over long distances', write 'T3' in Column A of Question 13. See the pages listed in the *Code of Practice for Manual Handling* for solutions for each factor.

A Load (Solutions page 30)

L1. Heavy loads handled or high forces required ☐
L2. Bulky, unwieldy ☐
L3. Unpredictable ☐
L4. Uneven in weight distribution ☐
L5. Unstable or unbalanced ☐
L6. Blocks vision ☐
L7. Difficult to grip, greasy, slippery ☐
L8. Handle size, position or shape ☐
L9. Very hot or cold or hazardous ☐
L10. Person or animal ☐
L11. Sharp edges ☐
L12. Other ☐

B Environment (Solutions page 31)

E1. The floor is slippery, uneven or cluttered ☐
E2. Area slopes or has steps ☐
E3. Hot, cold, humid, outdoors, windy, wet ☐
E4. Poor air quality ☐
E5. Noisy ☐
E6. Poor lighting, glare, gloomy ☐
E7. Insufficient or confined space ☐
E8. Other ☐

Guidance on the Meaning of the Risk Score	
Risk Score	Urgency and type of control measure
< 10	Injuries are unlikely unless there are infrequent high force actions. Monitor the task from time to time.
10 - 24	Injuries may result for less resilient people. Workplace redesign is recommended for them.
25 - 49	Injuries are possible for trained and fit people. Workplace redesign is recommended to control the contributory factors identified.
50 +	Injuries are likely regardless of the strength and fitness of employees. Elimination of the task or workplace redesign is a priority.

Page

Figure 3: Sample risk score calculation.

The calculation represents the work of a service station attendant who has to fill LPG cylinders that weigh, on average, 12kg. He does this, on average, 20 times a day at an awkwardly placed filling station on the forecourt.

B.3.3 Assess the contributory factors

If the risk score is 10 or more, assess the contributory factors to identify the hazardous aspects of the task. Estimate the importance or severity of each factor or group of factors by using the low, medium or high rating system at question 13 in the *Manual Handling Hazard Control Record*.

The contributory factors are:

- load
- environment
- people
- task
- management.

How the two assessments relate:

The risk score determines the urgency of the need to put controls in place.

The contributory factors show how to control the hazards in the task.

Identifying the contributory factors shows how to control the hazards in the task.

Each contributory factor described below is numbered according to the table at question 12 in the *Manual Handling Hazard Control Record*.

LOAD

Is . . . or does . . . the load . . .?

L1 Heavy: Handling heavy objects can require high muscle forces. This can mean overloading of the tissues and joints, particularly of the back, knees, arms and shoulders. A lighter weight object held at a distance from the body can require the same effort to handle as a heavy one held close (see Figure 5).

The force needed to move an object can be greater than the load itself if the load is moved quickly or jerked.

It is unhelpful to prescribe specific weight limits (because of the complexity of the way the different risk factors combine), but the risk of harm increases with increasing weight or force.

Figure 4: Awkward loads can make handling difficult.

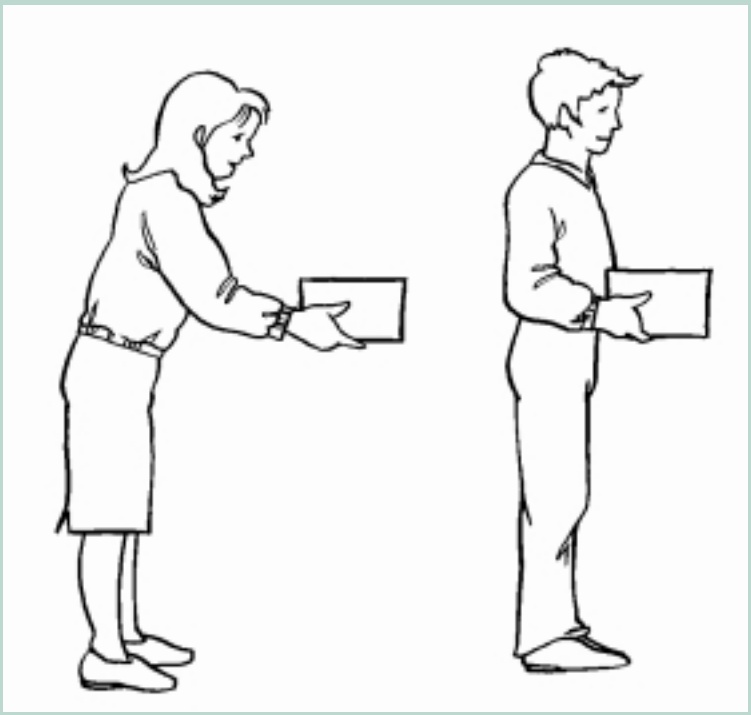


Figure 5: It takes about three times the effort to lift a load 60cm from the body than to lift the same load when held close to the body.

Figure 6: This load is awkward to grasp in the best of conditions. Handling it in a wind is even more difficult.

L2 Bulky or unwieldy: A bulky load can:

- require awkward and twisted postures
- make it hard to keep the weight close to the body
- increase the load on the spine and other joints.

L3 Unpredictable or difficult to move: Unpredictable loads, for example when items are lodged or stuck, can require high force application, awkward, undesirable postures or sudden, uncontrolled movements.

L4 Uneven in its weight distribution: This may place demands on how the load is handled and can overload specific muscle groups. The shape may prevent the heavy end from being held close to the body.

L5 Unstable or unbalanced: Loads such as fluids, sacks of shifting contents or other unstable loads can need extra muscle effort to control them. Sudden, uncontrolled movements may be needed if the contents suddenly tip.

L6 Hinder the person 's view: Loads that introduce twisted postures as the handler tries to get a better view can cause injury from a slip or fall.

L7 Difficult to grip, greasy or slippery: If it is difficult to grip the load, a high constant force may be required in the hand and arm muscles. Sudden, uncontrolled movements can result if the grip fails. Wearing gloves will make it possible to get a better grip but may increase the force needed to grip the load securely.

L8 Have handles: Handles can greatly reduce the force needed to handle a load and increase the precision and ease with which it can be moved. The location, shape, position and size of handles can all be important.

L9 Very hot or cold, or loads that contain hazardous material: The temperature of the load or its chemical make-up will influence how the load can be handled. Protective equipment may be required and/or the load may need to be held away from the body.

L10 Person or animal: Handling people or animals produces particular difficulties, such as how to grip the animal or person and the need to counter unpredictable movements. The degree of assistance a person can provide, their ability to comply with the handling, the degree of pain experienced or the presence of particular health conditions can also affect the way the handling must be done.

This handling will usually require more detailed assessment. Professional policies, practices and guidelines should be sought from industry associations.

Figure 7: Handling people requires special assessment.

L11 Sharp edges: Loads with sharp edges may cause obvious handling difficulties.

ENVIRONMENT

Are the floor surfaces...?

E1 Slippery: Handling that is otherwise safe may become hazardous if there is a risk of falling or slipping. Slippery, uneven or cluttered floors are one danger.

E2 Sloping or with steps: Having to walk on steps, slopes, ramps or obstacles increases the risk of falls, or injury from sudden, uncontrolled movements.

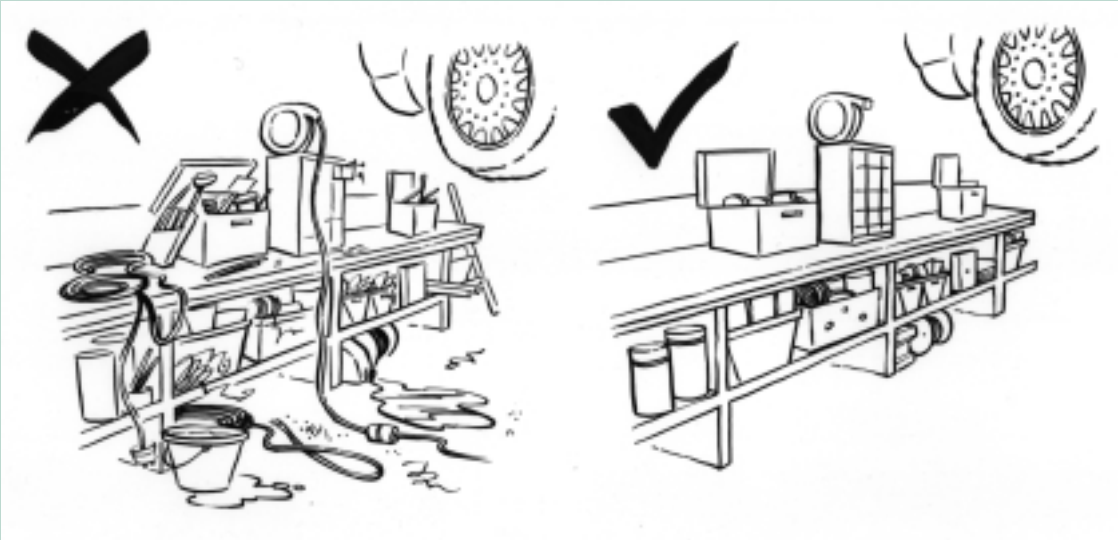


Figure 8: Tidy workspaces with clean, dry floors are safer.

Is the environment...?

E3 Hot or cold or humid: Working in very hot or cold temperatures can affect physical and mental capability, and may also mean that personal protective equipment is needed.

Windy: Strong or gusty winds can catch a load. This may mean that sudden movements and the use of high forces are needed to control it (see Figure 6).

Wet: If the floor surface or load is wet the chances of a slip, trip or fall, sudden movements and difficulty gripping are increased.

Carried on outside: Work outside can be cold and windy. This, and the general unpredictability of work outside, increases the risk of injury.

E4 Polluted or dusty: Poor air quality can affect the ability to work. If personal protective equipment must be worn, increased effort during handling may be needed.

E5 Noisy: Noise can distract employees and cause unsafe actions. Noise may reduce the ability to communicate, for example during team handling.

Figure 9: Handling in cold conditions can be more difficult if protective clothing must be worn.

E6 Poorly lit: This can include dull or overly bright conditions. If there are sharp and sudden contrasts between lighting (e.g. working between inside and outdoors) or glare, the chances of slips, trips and falls are increased.

Is the work...?

E7 Carried out in a small or confined space: Working in small or confined spaces can result in awkward postures and the need for high force. Attention to the design of the working environment at the design stage is the preferred method of control.

PEOPLE

Figure 10: Noise can prevent the communication required for safe handling.

Are the people carrying out these tasks...?

P1 Sufficient in number: If there are not enough people to do the task there is an increased risk of injury.

P2 Adequately trained: Are employees informed and trained in the specific manual handling hazards they may encounter? All handling requires an element of training and skill specific to the tasks being done. Untrained employees will be more at risk if they do not understand the nature of the hazards to which they are exposed.

P3 Sufficiently fit and capable of carrying out the tasks: Some manual handling tasks may require a degree of physical fitness, skill and strength. If the task has demands that do not match the characteristics of the people doing it, they are at risk of injury.

P4 Needing special consideration: Figure 11 illustrates the wide range of personal characteristics, some of which may need to receive special consideration when manual handling tasks are designed. These characteristics include age, fitness, disability, pregnancy and size.

Figure 11: The variety of people.

P5 Wearing any clothing or footwear that might compromise safe handling: Clothing and shoes that do not match the task and environment can introduce risk of harm by limiting postures and actions.

Do people...?

P6 Have less resilience: Depending on the task, there may be specific requirements which can increase the risk of injury to some individuals. Some examples include:

- ***strength:*** expecting an elderly nurse to restrain a young, aggressive male psychiatric patient
- ***joint range of motion:*** expecting a man with an injured shoulder to move objects on a high shelf
- ***environment:*** a person wearing glasses working in a hot, humid room.

P7 Work by themselves: If people work by themselves they may be at increased risk of harm because there is no one to help them with hazardous manual handling tasks.

P8 Become fatigued by the task: If people work hard for a long time fatigue may become a factor in their ability to continue doing the task safely.

P9 Have a poor commitment to health and safety: If people lack commitment to health and safety they may be a danger to themselves and other people.

TASK

Does the task involve...?

T1 Large horizontal or vertical reaches for any employee: The further away from the body the load is, the greater the potential for harm. This is due to the increased leverage on the spine and limbs as shown in Figure 12.

T2 Reaching above shoulder height or below mid-thigh: Working heights that are too low or too high will require employees to adopt undesirable postures. The characteristics of all the employees doing the task as well as the task itself determine the optimum working heights, as shown in Figures 20 and 21 on page 33.

T3 Handling over long distances: Carrying, pushing or pulling over long distances can mean that muscles need to contract continuously. If there is insufficient rest and recovery time the risk of an injury is increased.

Figure 12: Forward reaching, especially to high levels, increases the risk of harm.

Figure 13: Repetitive movements can lead to harm for a variety of reasons.

T4 Repetitive handling for a long time or without enough rest breaks: Muscular activity over a length of time, even at a low level, can produce muscle fatigue and tiredness sufficient to increase the potential for harm.

As the frequency and repetition of handling increase, the potential for harm also increases. If a cycle of work is repeated several times a minute it is likely to need consideration. Use the *Manual Handling Hazard Control Record* to help find the degree to which repetition can influence the risk of injury.

Figure 14: Awkward postures, when sustained or repeated, can lead to fatigue and injury.

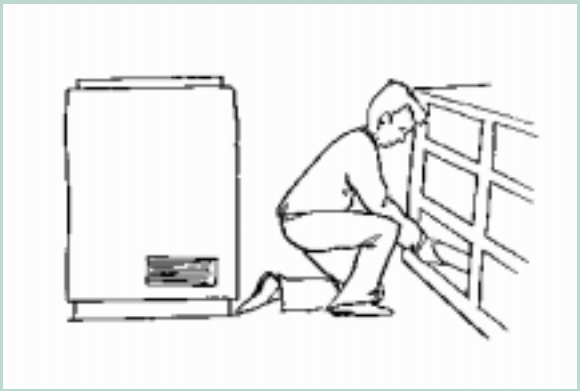


Figure 15: Working in a confined space can lead to awkward postures.

T5 Awkward, twisted or restrained postures: Joints in the spine, arms or lower limbs are more susceptible to injury when twisted, or fully flexed, stooped, rotated or bent. Joints that are held in one restrained posture are also at more risk of harm.

T6 Freedom of movement restricted: Where the design of workstations, equipment or facilities causes people to adopt awkward postures, the risk of harm can be increased. Poorly designed clothing can also restrict freedom of movement.

T7 Unpredictable, unexpected or fast movements: Unpredictable, uncontrolled movements are more likely to have unpredictable consequences than controlled, careful actions. Fast movements, if uncontrolled, may involve high forces. They may not allow time for muscle recovery.

T8 An uncontrolled or invariable pace of work: A fixed pace of work (e.g. having to conform to the speed of a machine) may limit the efficiency of work and increase muscle fatigue.

T9 Standing for a long time: Prolonged standing, without the ability to regularly sit or perch, can increase the potential for harm.

T10 Handling while in a seated position: When sitting, the body cannot safely handle the same weights and exert the same forces as it can when standing. Sitting for long durations introduces its own problems because of limited postural variation and static muscle work. Task and postural variety is important in preventing injury.

T11 Prolonged or repetitive work when squatting, kneeling or crouching: These positions may be unstable and require high levels of muscle activity. They can also place the joints in flexed positions, which can overload tissues.

T12 Handtools: If handtools are poorly designed, muscles may need to exert extra force. Some of the characteristics of well designed handtools are:

- handles are large enough in diameter to grasp easily
- forces required for operation are not too large
- triggers are large enough to be operated by several fingers
- the wrists remain straight during their use
- the grip span required is not too great
- the hand grips or handle are free of sharp edges.

T13 Where handling requires two or more people: Teamwork requires co-ordination between people, and creates specific training requirements to minimise the hazard. Teamwork may limit the postures and actions that can be used and is generally 30% less effective than the sum of the individuals acting alone.

T14 Use of mechanical aids without training: If mechanical aids are used without training, employees may use them incorrectly.

T15 The use of personal protective equipment: Special clothing or footwear may influence the ability to handle objects. For example, gloves may make it more difficult to handle loads if extra muscle force is required. Many work uniforms are poorly designed for the tasks that employees are expected to undertake.

T16 Vibration: (Either whole-body or upper arm.) Whole body vibration, such as during driving or jackhammer use, is harmful, particularly to the back. Hand-held machines and tools may expose employees to risks of musculoskeletal disorders. This can be through their design (e.g. handle shape, grip design and weight) as well as through the effects of vibration itself. Typically this occurs when tools become worn and are not maintained properly, though this is not a necessary condition for vibration to be a risk factor.

Figure 16: Whole body vibration increases the risk of harm.

MANAGEMENT

Does the task...?

M1 Have adequate rest breaks: Insufficient breaks and avoiding breaks (e.g. shift compression) lead to muscle fatigue and overloading. Indirect consequences can be changes in performance such as taking short cuts. Low-grade, long duration work or repetitive work creates a need for breaks. Doing heavy manual handling tasks requires more frequent breaks.

M2 Have piece work payments or other incentive schemes: These encourage risk taking and can lead to unsafe work practices.

M3 Involve shift work: Shift work introduces specific risk factors including the effects of sleep deprivation, poor concentration and less support and supervision. The handover between shifts may be important if handling requirements change during a shift.

M4 Have sufficient employees assigned to the task: Is support available to complete work under pressure and/or to deadlines?

The management of jobs that include manual handling tasks should account for holiday periods and sickness (absence from and return to work), time pressure, busy periods and the different skills and abilities of the employees.

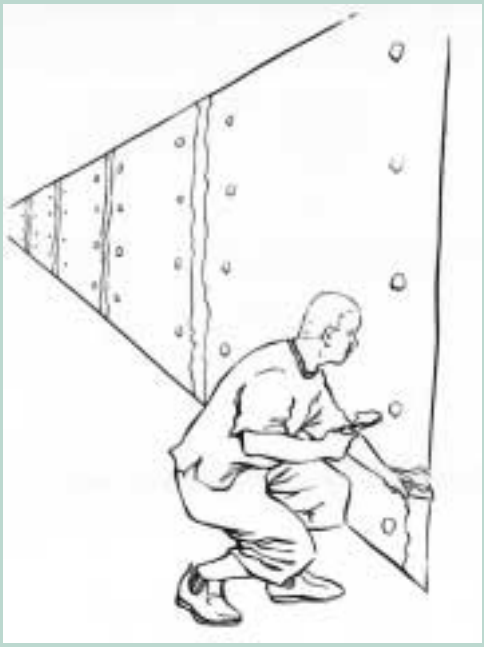


Figure 17: Scheduling of rest breaks into a task that would otherwise go on for a long time will reduce the risk of harm.

Is there. . . ?

M5 A proper maintenance programme for equipment: Poorly maintained plant may introduce manual handling hazards.

M6 Provision for employee involvement: Employees should be involved in the selection, purchase and trialing of new equipment. Bad decisions by managers can result in equipment that is not appropriate for the job, or not used by employees. This may introduce handling hazards. Employees comment from first-hand experience, and a short trial will usually reveal any defects in equipment planned for purchase.

M7 Good communication, organisation: Good communication between management and employees can help prevent unnecessary or poorly executed handling. There should be clear and unambiguous lines of reporting so that incidents and accidents come to the attention of management.

M8 Good communication, logistics: Good communication between employees doing manual handling tasks may be prevented if employees are working in confined spaces, are separated by distance or if they are wearing personal protective equipment.

M9 Task organisation: The time scheduling of tasks can affect the risk the task poses. Where there is a variety of tasks and rotation between jobs, risks will be fewer.

M10 Health and safety is not important to the company: Health and safety systems require the visible commitment and support of management to be successful.

B.3.4 Interpreting the significance of the contributory factors

The contributory factors assessment should consider **all** of the above factors. You should record the results at question 12 in the *Manual Handling Hazard Control Record*.

For each of the contributory factors you identify, make a judgement of the overall risk posed by each one, based on the information gathered and the system shown below. Record your estimate of the risk posed by each contributory factor at question 13 in the *Manual Handling Hazard Control Record*.

Table 4: Interpreting the risks posed by contributory factors

Low	**Insignificant risk.** For example: You find a contributory factor that it would be beneficial to address but does not pose a risk of injury to the majority of people. As you have identified that there is a hazard present, it is still in your interests to address it to improve performance, health and safety.
Medium	**Important risk.** Injuries are possible (particularly for less resilient people). For example, the task requires handling close to the body, carried out in a seated position, over a large proportion of the total shift. Workplace redesign is indicated, especially for less resilient people.
High	**Substantial risk.** Injuries are likely. For example, the task has a number of important load factors such as excessive force, instability and poor handles that result in twisted and awkward postures. Workplace redesign is urgent.

It may be difficult to assign ratings in an absolute sense. However what matters is that there is some agreement about the urgency of the control steps, so classifying risks in relation to each other is acceptable. This is an area where discussion and co-operation between employers and employees will be beneficial. This will help to determine which control measures to address and how urgently they should be addressed. The judgement can also help you to decide whether hazards are significant under the HSE Act 1992.

B.3.5 Key actions: hazard assessment

Use the *Manual Handling Hazard Control Record*, questions 7 – 12, to record your assessment of the task.

- The ***risk score*** determines the urgency of the need to put controls in place
- The ***contributory factors assessment*** shows how to control the hazards in the task.

In the majority of cases, applying both assessment methods will ensure that employers can decide if a manual handling task poses a significant hazard in terms of the HSE Act 1992.

B.4 Planning and implementing controls for manual handling hazards

B.4.1 Introduction

The third part of the hazard management process is to plan and implement controls.

The HSE Act 1992 requires that employers must take all practicable steps to eliminate significant hazards, isolate them if that is not possible and then minimise them if neither elimination nor isolation is possible.

For any contributory factors identified, follow the procedure shown in Figure 18 to ensure the most effective measures are considered first. Note the requirements for monitoring described in section C.2 on page 41.

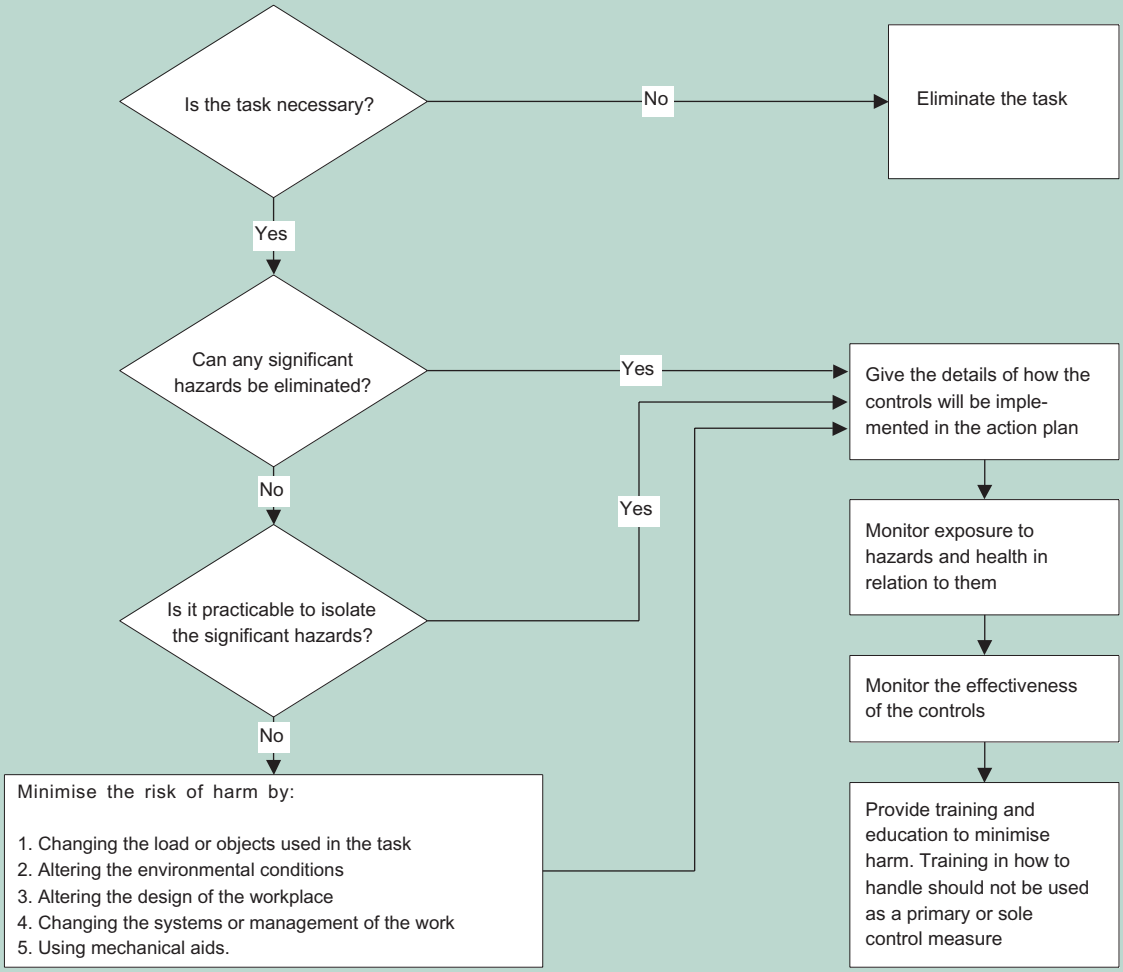


Figure 18: Hierarchy of hazard controls.

If the task is necessary and cannot be eliminated, the aims should be to:

- make the task as easy as possible for everyone involved
- reduce the time for which people are required to do it.

For any manual handling task there may be a number of control options that appear feasible.

Inspection of the components of the risk score can indicate where to direct control measures. A high posture and workplace layout score, for example, indicates that redesign of the workplace may be the best area to direct control efforts.

Some of the control options may need to be trialed and evaluated before they are finally implemented (to identify whether they are appropriate for that particular work system). This trialing can be relatively quick and informal, or may need to be formal and extensive, to get the best solution possible.

Examples of controls are given in the following pages for each of the contributory factors. More detailed information on preventing slips, trips and falls is given on page 35.

It is not intended that this should be a comprehensive list, and specific ways of achieving these controls will vary among different industries. For example, where one industry may raise the handling surface by using an adjustable pallet, another may install a pit to lower the employee. Employee consultation will help establish the most appropriate controls.

Refer to industry guidelines, industry groups, educational training bodies, employee organisations and publications for examples of controls used in your industry.

Use the *Manual Handling Hazard Control Record* to summarise your findings and to record your control measures and plans to action them.

B.4.2 Controlling the contributory factors

LOAD

This includes the load itself, or tools and equipment used in the task or to help perform the task.

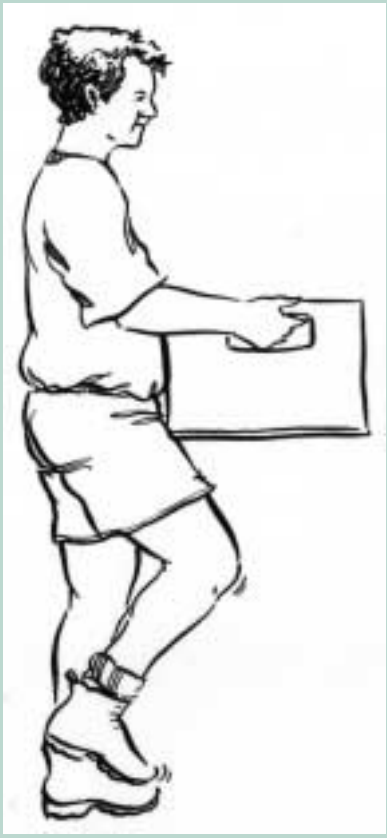


Figure 19: Handles make the handling of loads easier. The location, shape, size and number of handles can all affect the ease of handling.

Possible controls include:

- Split the load into more manageable sized packages. For example a 40kg sack of flour can be reduced to two 20kg sacks.
- Aggregate loads – use a large load and mechanical handling, for example bulk grain and a forklift.
- Reduce the weight or force required to move the load. This may mean you should consider where it is positioned and how it is moved.
- Improve the stability of the load through repackaging, redesign or by redistributing its weight.
- Ensure regular maintenance of equipment to allow easy movement and operation.
- Use slides, rails, roller tracks or castors to reduce friction and therefore reduce force.
- If the load is greasy or slippery, clean it, use protective equipment while handling it or use mechanical handling aids.
- Improve or attach appropriate handles– these need to be in the correct position to allow a good grip and to allow the employee to hold the object close to the body.
- Label the item with handling instructions, including the weight of the package.
- Use mechanical means to handle loads that contain hazardous materials or are extremely hot or cold. Reduce the hazard by enclosing the load to protect employees, or reduce the hazard some other way (e.g. remove frozen boxes from freezers well prior to handling so they are not so cold).
- If handling people or animals, specialist advice should be sought from industry and employer or employee groups.

ENVIRONMENT

Possible controls include:

- Reduce the slipperiness of floors or increase cushioning through altering floor surface or footwear. Ensure that floors don't get slippery in wet weather or wet conditions.
- Replace uneven or damaged floor surfaces in areas where handling takes place.
- Remove clutter and allocate an individual or team to keep the area tidy.
- If there are steps and slopes, and the task cannot be altered to avoid them, ensure good design and adequate visibility.
- Limit the duration of handling in extreme temperatures or for particular at-risk tasks. Reduce extreme temperatures where possible. (Where this is not possible, arrange professional assessment, for example by an occupational hygienist.)
- Erect windbreaks around outdoor areas where handling occurs regularly.
- Improve air quality through maintenance or improved design, or limit the employee's exposure to manual handling when air quality is low (where not possible arrange professional assessment, for example through an occupational hygienist).
- Reduce noise that might distract or limit communication.
- Redesign tasks to limit outdoor handling where possible. Reduce exposure to bad weather by encouraging the delivery of goods closer to indoor areas.
- Ensure lighting provides good visibility, and avoid extremes of glare, high contrast or dull lighting.
- Increase the available space for handling by removing unnecessary equipment, redesigning the layout or altering or changing the location of the task.

PEOPLE

Possible controls include:

- Have sufficient people for the task's demands.
- Provide appropriate training and education specific to the tasks (see "Training" on page 41).
- Make sure that there is the best possible "fit" between tasks and the people doing them – making allowance for strength, size and fitness. In addressing hazards of this nature the aim should be to bring the task within the reach of everyone who may need to do it. Controlling the hazards of the task through redesign or the use of mechanical aids is preferable to using training or selection. If people are at risk because they are new to a task, then a period of gradual build-up to full capacity may be appropriate.
- Consider how special needs such as age, fitness, disability, pregnancy and size might influence the task. For example, plan for reducing manual handling activities during pregnancy.
- Ensure that appropriate clothing and personal protective equipment are available and that they are used/worn by the employees. For example:
  - divided skirts, culottes, shorts or trousers for nurses
  - non-slip footwear
  - overalls with sufficient room to bend the back and knees easily, stretch and reach up.
- Plan for less resilient people, for example those returning to work after an injury.

TASK

Possible controls include:

- Improve the layout. Allow the handler to get close to the load or force by reducing horizontal and vertical distances. Figures 20 and 21 show the preferred areas for handling.

- The layout should reduce the need to turn, or to twist the body and reduce the distances moved, in any direction, between the starting point and end point of any handling.

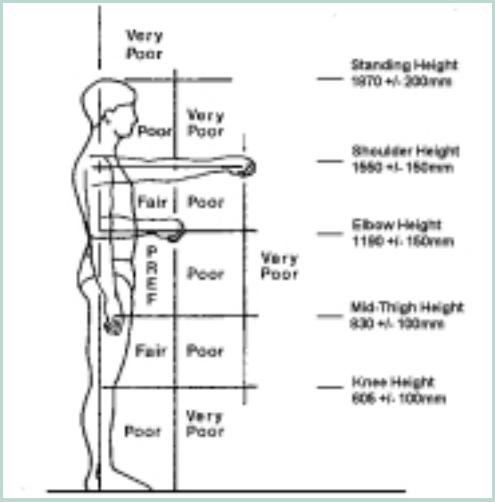


Figure 20: Locations for handling for a tall male.

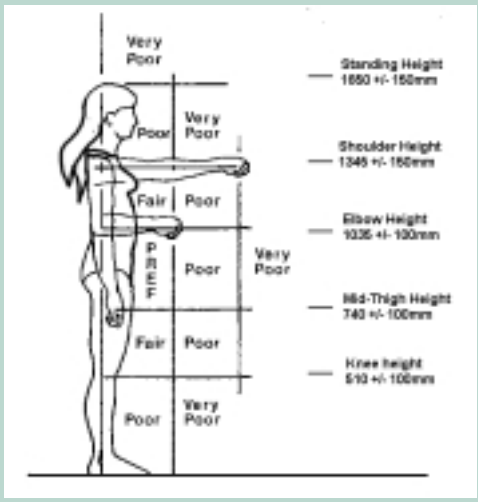


Figure 21: Locations for handling for a small female.

- Place objects being handled below shoulder height or above mid-thigh height. If this cannot be achieved, place regularly handled and heavier objects close to the employees at the optimum heights. Place rarely handled or lighter objects in the less suitable working areas.
- Rotate employees between tasks or increase breaks if long handling distances (e.g. carrying) or durations cannot be avoided.
- Reduce repetition and allow sufficient rest breaks and pauses (these do not have to be long but should be frequent) and rotate employees between tasks that have different actions.
- Provide as much space as is required to safely carry out the handling task, through moving unnecessary equipment and furniture, or redesigning the layout of the task. This can be established through a trial.
- If teamwork is used, establish whether mechanical equipment might be better. If teamwork cannot be avoided, ensure that the layout allows sufficient room and provide training specific to the task.
- Special clothing or footwear can pose its own hazards, for example by restricting movement. These should not compromise movement or other aspects of safety.
- Seating (for example for long distance truck drivers and forestry machine operators where there is a recognised excess of back injuries) should incorporate vibration reduction in its design (for example anti-vibration suspension seating).

Figure 22: Proper design of workstations, including the provision of seating that allows a choice of sitting and standing, will reduce the risk of back problems.

- Hand-held tools should be designed to be as light as possible or counterbalanced. They should have handles designed to reduce awkward postures and forces, avoid sharp edges, require a reasonable force to operate and have a reasonable opening span.

- Allow employees control over the pace of work or introduce variation. If the pace is fixed, allow regular changes in posture and sufficient breaks.

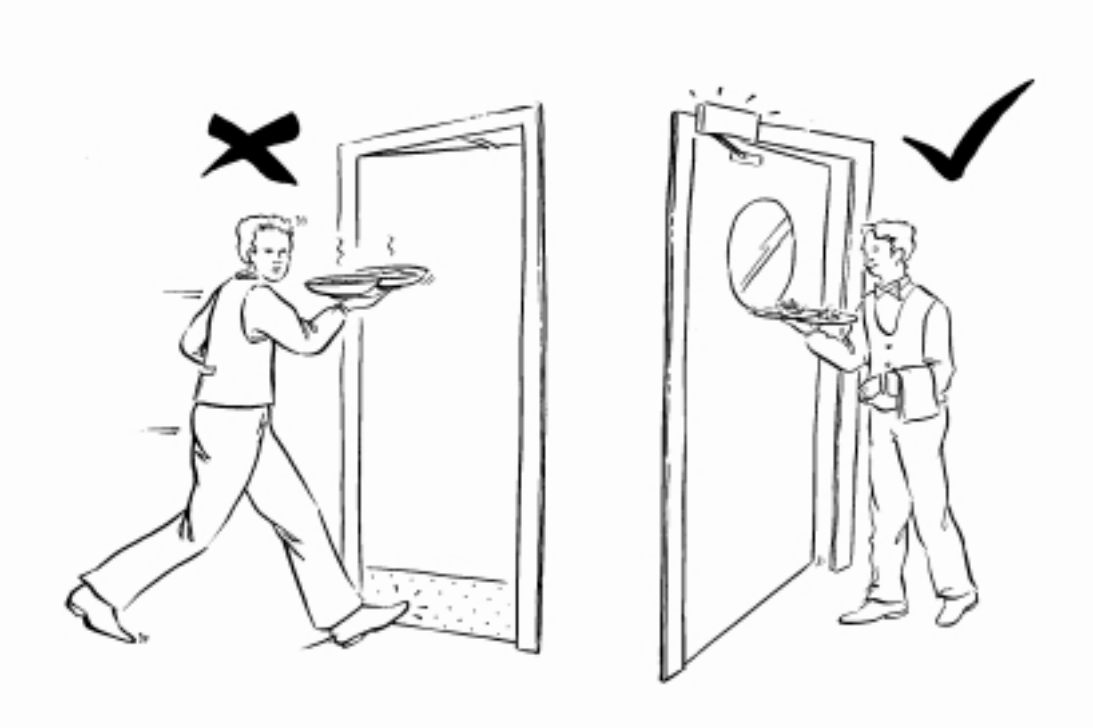


Figure 23: Careful attention to the design of the whole of the task can eliminate manual handling hazards. Here the waiter on the left, who needs to kick the door open with his foot while carrying large, heavy plates with awkwardly placed rims on their undersides, is at risk. The waiter working in the better-designed environment faces none of these hazards.

- Ensure that mechanical aids are appropriate for the task and that they do not introduce additional hazards. Train employees in the safe use of any mechanical handling equipment.
- Ensure any equipment is designed and maintained to reduce vibration, as well as other factors which may contribute to manual handling hazards.
- Provide employees who are handling in a seated position with appropriate adjustable seating and ensure regular changes in position. The employee should be able to reach the load easily and keep the load close to their body. Forces or weights should be kept to a minimum.
- Redesign the layout to reduce the need for squatting, kneeling or crouching. If standing for long periods cannot be avoided, rotate employees or ensure some sort of seating is available. Optimise footwear and flooring.

MANAGEMENT

Possible controls include:

- Make management commitment to health and safety visible and consistent.
- Provide a variety of tasks.
- Provide sufficient employees to complete tasks under pressure and/or to a deadline.
- Ensure employees have sufficient rest. Provide rest areas and sufficient employees to rotate tasks. Overlap shift times to allow adequate handover to reduce any handling pressure.
- Plan ahead for holiday periods, sickness (absence from and return to work), known busy periods and the different skills and abilities of available employees.
- Ensure a system is in place to provide sufficient and effective maintenance programmes for tools, plant and equipment used during manual handling tasks and involve, inform and train employees in their use.

- Involve employees in the selection and purchase of equipment. The design of instructions about the operation and maintenance of the equipment will need to be understood by employees.
- Optimise communication between management and employees with regular face-to-face contact and provision for feedback in both directions.
- Schedule regular rest breaks and ensure they are taken e.g. through employee education.
- Rotate people between different jobs that have different activities associated with them, to reduce exposure to hazards as well as to increase skill levels.
- Gear any reward/incentive schemes, including"home when finish" schemes, towards good practice and efficiency rather than speed or production only.

B.4.3 The use of mechanical aids

- Mechanical aids can be an effective method of reducing manual handling. Figures 24 and 25 illustrate a small range of the types of equipment available.
- Ensure the aids you select are appropriate for the task, and that employees are trained in their use. You should consider any manual handling hazards that still might be associated with the task, and any new ones that might be introduced by the use of the aid.
- Ensure that there is sufficient room for the equipment and workspace, and that the equipment is appropriately maintained. Consult employees if equipment is being considered as a control option, to trial equipment formally prior to purchase.

Figure 24: Drum handlers are available for most sizes of drums. This allows their convenient tilting and lifting.

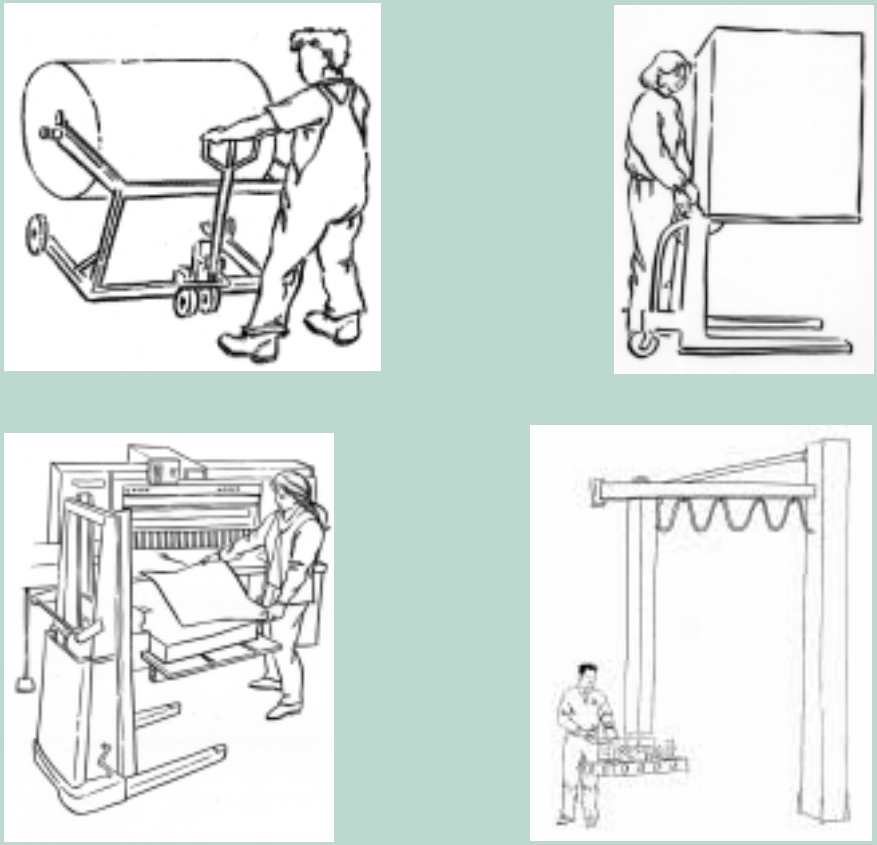


Figure 25: Specialised handling equipment is available for special loads.

B.4.4 Preventing slips, trips and falls

Serious back injuries may result from slips, trips and falls associated with manual handling. Loss of balance is increasingly likely as the weight and height of the load being carried increase. There is a greater risk of slipping on slippery surfaces if a load is being carried. Tripping is also more likely where a load obscures the vision or affects the balance of the carrier. Some ideas on contributory factors and controls are summarised below.

Figure 26: Slips, trips and falls associated with manual handling are responsible for a large number of serious back injuries.

Table 5: Prevention of slips, trips and falls

Factor	Possible controls
LOAD	
Blocks visibility	Avoid carrying high or wide loads that may obscure forward, lateral or underfoot vision. Use equipment. Alter the load by splitting, redesigning or providing handles. Provide assistance.
ENVIRONMENT	
Floor surface	Ensure it is a suitable (e.g.non-slip) material. Ensure the task does not involve movement between floor surfaces with widely different frictional properties. Remove obstacles and trip hazards such as wiring and stored materials. Pay particular attention to tasks performed in food preparation or processing areas and outside. Ice, water, snow, mud, liquid contamination, obstacles and holes all increase the risk of slipping or tripping, particularly when carrying or handling.
Lighting	Ensure good lighting is provided for all tasks.
PEOPLE	
Characteristics	Ensure the task design has considered the skills, experience, strength and other characteristics of the employees.
Training and education	Train, educate and inform people in the tasks they are performing and the associated slip, trip and fall hazards, including how to reduce those hazards. Ensure employees know how to prevent falls and injuries from falls.
TASK	
Ascending and descending stairs or a ladder (whilst carrying or handling)	Eliminate carrying loads on steps/ladders, or reduce the weight and size of the load and improve the ability to grasp. Provide handling equipment (e.g. pulley system). Simplify the task, reduce number of actions.
Footwear	Provide appropriate footwear with adequate grip for the underfoot conditions where the task takes place, and ensure the footwear provided is used.
Uncontrolled or fast pace	Ensure task design considers peoples capabilities. Allow operator control or slow the pace.
MANAGEMENT	
Production bonus/incentive to rush or take risks	Remove incentives or motivation to rush or take risks. Organise work to ensure slip, trip and fall likelihood is minimised.

B.4.5 Summary of control options

Table 6: Summary of the main control options

	Control options
Load	• Make the load lighter or reduce the force being applied • Split the load or make it less bulky • Make the load easier to grasp • Improve load stability • Make changes to reduce load hazards, like better packaging or labels
Environment	• Reduce slips by improving flooring or using better footwear • Remove clutter, rough surfaces and obstacles • Avoid steps and slopes, or make them less hazardous • Reduce extreme temperatures • Cover outdoor areas and protect employees from wind • Reduce noise levels • Improve lighting
People	• Provide training specific to the tasks being performed • Consult and inform employees about hazards, and how to avoid them • Motivate people to carry out the tasks as safely as possible • Consider the task requirements with respect to age, fitness or other special needs • Provide appropriate personal protective equipment and make sure it is used • Plan for new starters and those returning to work after illness or injury
Task	• Improve layout to keep the load close to the body • Reduce handling distances and twisting actions • Avoid repetitive actions and vary the work to rest different muscle groups • Provide sufficient space to perform the task • Provide mechanical aids where they reduce hazards, and train employees to use them properly and safely • Reduce vibration, for tools and for seating • Provide sufficient rest breaks • Limit duration of any handling, and particularly if standing or sitting • Avoid the need for squatting, kneeling or crouching
Management	• Provide sufficient staff to cover sickness, deadlines and holidays • Schedule regular rest breaks and rotate staff between different activities • Ensure good maintenance systems • Provide information and incentives to encourage safe work practices

B.4.6 Making an action plan

Table 6 summarises the main control options, but is not a comprehensive list.

An action plan should be made to implement the controls.

The action plan may need to have several time spans - and these could range from immediate, short-term plans to long-term plans for implementation several years later. The results of the contributory factors assessment may show the need for a long-term plan to improve the design of plant such as buildings, workplace equipment, tools and workstations.

The action plan should include any consequences for training employees that flow from the controls planned.

B.4.7 Key actions: hazard control

Use the *Manual Handling Hazard Control Record*, questions 13 and 14, to record:

- the controls available to reduce the risk of harm. When you complete question 13 you should:
  1. Write the number of each contributory factor that poses a risk in column A
  2. Indicate the importance of the factor by circling one of Low, Medium or High in column B
  3. Write controls in column C (one to each row)
  4. Estimate their cost in column D
  5. Estimate their impact in column E
  6. Circle Yes or No in column F to indicate whether or not the control measure will be actioned
  7. Transfer the control number to column A, question 14 if you will action it.
- the action plan you will use to implement the controls. When you complete question 14 you should:
  1. Indicate if the control is short, medium or long term
  2. Indicate if the control will eliminate, isolate or minimise the hazard
  3. Write the action plan– including training requirements
  4. Indicate who is responsible for the plan
  5. Indicate when the plan will be completed.

B.5 Reviewing the effects of controls

B.5.1 Introduction

When choosing controls, ensure that they don't create new hazards, and ensure that they are going to solve the problem and actually reduce the risk of injury due to manual handling.

This can be done by repeating the hazard identification process to find out:

- if any new hazards (not just manual handling hazards) have been created as a result of changes made
- if controls have eliminated or reduced the risk of injury from the manual handling task.

B.5.2 Methods for evaluating controls

Once manual handling controls have been put in place, the next step is to evaluate how well the controls are working. Below are some suggestions for evaluating controls. The evaluation schedule may differ depending on the type of evaluation you are doing.

- Repeat the hazard identification process– this allows the manual handling task to be re-evaluated to ensure the risk of injury is low, and to ensure that controls remain effective.
- Track injury rates– compare injury rates before and after controls are put in place.
- Track the severity of injuries by counting the days lost per injury. Where it is relatively new for employees to report early discomfort and injury, the number of injuries reported may initially rise as people become aware that they have to report their injuries. Measure the severity of the claim by tracking how many days off are needed for an injury. With better hazard controls in place, the number of days lost per injury should decrease, showing that injuries are less severe.
- Track the number of incidents reported– the incident rate should be decreasing if effective controls are in place. Where employees have under-reported incidents, the rate may increase initially but then should level off, and then decrease.

- Track reports of discomfort– discomfort reports could be collected each shift, day, month, quarter or year as needed. Again, there may be an initial increase in discomfort reporting as people start to report but, over time, the severity of the discomfort reported should decrease.
- Absence – absence for both occupational and non-occupational reasons can be tracked and compared with the rates before intervention. As hazards are addressed and morale and productivity improve, absence rates generally decrease.
- Health and safety audits– audits are done in order to evaluate a workplace against an external standard. Audit results should improve as hazards are controlled better within the workplace.
- Evaluate product quality– quality can be affected with changes in process and equipment, and better training for staff. Quality measures generally improve as workplace hazards are addressed.
- Evaluate process efficiency– efficiency is generally affected by changes in processes, equipment, job design, and worker training. Generally, efficiency improves with improvements in hazard management.
- Measure staff morale– morale generally increases when employee concerns are heard and employees are included in generating solutions for hazard management.
- Cost-benefit analyses– carrying out cost-benefit analyses can show justification for continuing the hazard control measure, or for improving it. Hazard controls that are costly and add little benefit need to be re-evaluated.

Information gathered from evaluation feeds back into the identification of hazards. The sequence is then followed: assess the hazard, control the hazard, and evaluate the controls. For continuous improvement of hazard control measures, this cycle continues (see Figure 1, page 6).

Requirements for personal health monitoring are described in the next section.

B.5.3 Key actions: control evaluation

Use the *Manual Handling Hazard Control Record*, question 18, to say how you will evaluate the effectiveness of the controls you implement.

Say how often the evaluation needs to take place and indicate who will confirm that the evaluation plan has been actioned.

Feed back the effectiveness of controls into the hazard management cycle for continuous improvement.

Part C – Additional information

Contents

C.1 Employee responsibilities

The HSE Act 1992 requires employees to take all practicable steps to ensure their own safety while at work and that no action or inaction of an employee while at work causes harm to any other person.

With this in mind it is reasonable to expect that employees, in relation to manual handling tasks:

- attend training sessions
- comply, as far as possible, with the intent of the training
- request help for a manual handling task, where this is appropriate
- notify the employer of unsafe manual handling tasks or work practices and changes needed to improve these tasks.

It is unreasonable to expect employees to prevent the occurrence of every episode of acute low back pain or serious back injury by using correct handling techniques.

C.2 Monitoring

The HSE Act requires that, when an employer must minimise a significant hazard because it cannot be eliminated or isolated, the exposure of the employee to the significant hazard and (with the employee's informed consent) the health of the employee in relation to the hazard must be monitored. Figure 18 on page 29 illustrates the process required.

The following should be included in a health monitoring programme:

- employee consent: This consent must be informed and the employee needs to be told what monitoring will be done, how often, what records will be kept, how the records will be kept and under what circumstances the health information will be released
- confidentiality: Health information must remain confidential and health records must be kept according to the appropriate confidentiality requirements. Release of health information requires employee consent. Access to records must be controlled and limited to designated staff. Duplication, mailing, faxing, transmission of health data, storage, and destruction of records must follow procedures which preserve confidentiality.

C.2.1 Monitoring exposure to significant hazards

Methods are as follows:

- The risk score

  The risk score can be used to help decide if there is exposure to a significant hazard.

- Technical assessments

  If a task does not submit itself to analysis by the risk score method, for example because it is not constant over time, additional methods of assessing exposure may be required. Some of these methods are outlined on page 43.

- Auditors

  Periodic auditing can include an assessment of the exposure to manual handling tasks and any associated hazards.

- Health assessments

  Periodic health assessments carried out by a health provider.

C.2.2 Monitoring health in relation to a significant hazard

Methods are as follows:

- Asking employees about discomfort

  When employees must carry out tasks that have been assessed as having significant manual

handling hazards, supervisors and/or managers may follow their impact on employees by asking them.

- Discomfort reporting system

  The Discomfort Survey shown on page 49 can be used by employees to report discomfort at any time. Employers can periodically ask all employees to complete the Discomfort Survey. Either method will require an infrastructure to support its operation.

- Tracking injury and incident rates

  Company records of injury and incident rates can be used. They do not, of course, relate to the health status of each individual, which means that additional methods of monitoring individual health may be required.

C.3 Training

Unless a hazardous manual handling task has been eliminated, training and information for employees will be required. Information and training should be specific to the tasks performed.

Record the details of the attendance at the training and its contents. Competently trained employees should know:

- how to do the task properly and safely
- the hazards associated with the job
- how to deal with or minimise the hazards
- how to use equipment such as lifting aids properly and safely
- effects of the contributory factors on handling, namely: load, environment, people, task and management
- how to carry out a basic assessment of the task in order to recognise hazardous manual handling
- the principles of safe handling (such as being close to the load)
- the use of personal protective equipment.

Table 7 shows a suggested outline for employee training in relation to manual handling.

Training cannot make up for:

- poor layout of the workstation and/or work area
- the lack of mechanical aids or the provision of ones that are inappropriate
- unsuitable loads
- poor working conditions.

C.4 Further reading and information sources

C.4.1 Publications and sources

1. *A Guide to Managing Health and Safety* (1993). Occupational Safety and Health Service, Wellington New Zealand
2. *Approved Code of Practice for the Use of VDUs in the Place of Work* (1995). Occupational Safety and Health Service, Wellington New Zealand
3. *OOS: Guidelines for Prevention and Management* (1991). Occupational Safety and Health Service, Wellington New Zealand
4. *OOS: Checklists for the Evaluation of Work* (1994). Occupational Safety and Health Service, Wellington New Zealand
5. *OOS: Treatment and Rehabilitation: a Practitioner's Guide* (1997). Occupational Safety and Health Service and the Accident Compensation Corporation, Wellington New Zealand

Table 7: Sample training outline for employees doing manual handling tasks

Before any handling takes place

1. Identify the hazards of the task first

- Include static and repetitive tasks in these analyses
- Consider the duration and frequency of the handling
- Decide whether the task can be done safely by people or if changes to the task are needed first

2. Implement controls to reduce the extent of handling

- Plan tasks to minimise (a) the forces that are needed and (b) the time spent applying them
- Make sure the handler can get a good grip on the object – by providing handles, handholds or other aids for safe gripping or by providing appropriate gloves or other handling aids such as drum lifters and scissor lifts

Preparing for the handling

Basics

- Study the handling task carefully beforehand
- Visualise the path the load will take– in particular to ensure the load can be set down close to the body
- Keep the area tidy– to prevent slipping, tripping and awkward walking around clutter on the floor

The location and destination of the load

- Position the load to minimise forward reaching, if possible
- Position the load to avoid handling from below mid-thigh height or above chest height, if possible
- Position the load and arrange the task to avoid twisting, turning and bending of the trunk, if possible
- Have a tidy, secure place ready for the object to go (i.e. so it does not topple or slide)

The load

- Check the object– is it wet, slippery, heavy, smooth, liable to bend or break or fragile? Is the load stable or might the centre of gravity or the contents move? Are there any sharp edges? If possible, orient the object so that the longest dimension is vertical– while ensuring that a clear line of vision may be preserved throughout the handling
- Provide safe gloves if necessary (safe gloves, among other things, fit well, can't catch on anything and are heat and cold resistant if either is necessary)

The person

- Make sure the person has the capacity to do the task and can carry out a basic risk assessment

The environment

- Reduce carrying distances to a minimum
- Make sure the handler can't slip, trip or fall
- Floors over which the load will be carried should be clear, dry, uniform in level and non-slip
- Shoes should have high-traction soles
- Minimise the need to climb stairs or ramps
- Good lighting – ability to see obstacles and details of flooring is essential

Executing the handling

Preparing

- Make sure you can execute the handling safely – apply all of the above, at least
- Step close to the load– straddle it if that is appropriate
- Use the semi-squat technique
- Face the load directly and use both hands equally to grip it
- Balance, as far as possible, your body's weight equally over the entire surfaces of your feet
- Think about the best place to grip the load and the best type of grip to use
- Test the load. If it is too heavy and/or difficult to handle, get help

Executing

- Use smooth slow movements throughout
- Hold or carry the load close to the body
- To alter direction while moving, take a step in the new direction rather than twisting your body
- Pace the work if it goes on for a long time- take frequent micro-breaks

Finishing

- Realise that lowering can be as hazardous as lifting and that all of the above applies to setting down the load

6. *Code of Practice for Manual Handling* (2000). Victorian WorkCover Authority, Melbourne Australia
7. *Manual Handling Regulations*. Federal Institute of Occupational Safety and Health, Berlin Germany
8. *The New Zealand Acute Low Back Pain Guide* (1998). Accident Compensation Corporation, Wellington New Zealand
9. *Guide to Assessing Psychosocial Yellow Flags in Acute Low Back Pain* (1998). Accident Compensation Corporation, Wellington New Zealand
10. *The Patient Guide: Acute Low Back Pain Management* (1997). Accident Compensation Corporation, Wellington New Zealand
11. *Active and Working! Managing Acute Low Back Pain in the Workplace. An employer's guide* (2000). Accident Compensation Corporation, Wellington New Zealand
12. ACC Web Site: www.acc.co.nz

C.4.2 Other assessment tools

The two assessment tools used in this Code are intended to include all aspects of the manual handling task being considered. However, there are many other tools that could be used to assess manual handling tasks where more detail may be required. Some of these are used for assessing specific elements of tasks. They require prior knowledge to apply them properly and interpret them accurately.

Further assessment of a manual handling task may be required where:

- further clarification is required of a hazard assessment result
- more information is needed to prioritise hazards
- information is needed on the potential effectiveness of hazard controls
- information is needed to assist in planning and implementing task/equipment/work area design changes.

The more common assessment tools are:

- Waters, T R, Putz-Anderson, V, and Garg, A. 1994 *Applications manual for the revised NIOSH lifting equation*. National Institutes of Occupational Safety and Health, Cincinnati
- Michigan 3D Static Strength Prediction Programme (Software). Centre for Occupational Health and Safety Engineering. University of Michigan, Ann Arbor, Michigan
- Snook, S and Ciriello, V. 1991. The design of manual handling tasks: revised tables of maximum acceptable weights and forces. *Ergonomics* 34:9. pp 1197– 1213
- Mital, A, Nicholson, A S, and Ayoub, M M. 1997 *A Guide to Manual Materials Handling*. Taylor and Francis. London
- McAtamney, L and Corlett, N. 1993. RULA: A survey method for the investigation of upper limb disorders. *Applied Ergonomics* 24:2. pp 91– 99
- McAtamney, L and Highnett, S. December 1995. *REBA: Rapid entire body assessment method for investigating work related musculoskeletal disorders*. Ergonomics Society of Australia Conference. pp 45– 51
- Karhu, O, Kansi, P, and Kuorinka, I. 1977. Correcting working postures in industry. *Applied Ergonomics* 8:4. pp 199– 201
- Kemmlert, K. 1995. A method assigned for the identification of ergonomic hazards. *Applied Ergonomics* 26:3. pp 199– 211
- *Lumbar motion monitor*. Chattanooga Corporation

Appendices

Contents

1 Manual Handling Hazard Control Record

The order and content of the checklist reflect the order and content of the Code.

It provides a logical way of identifying, assessing and controlling manual handling hazards.

In addition, it has space for:

- writing plans for implementing the controls you decide on
- indicating how personal health will be monitored
- indicating how you will check that the controls have been actioned
- plans for evaluating control effectiveness.

The checklist is a sample procedure. Other ways of assessing tasks are possible.

2 Discomfort Survey – sample

The form shows one way to monitor staff health in relation to significant hazards posed by manual handling tasks. Again, other methods are possible.

Manual Handling Hazard Control Record

Task Details

1 Task name: ……

Area: ……

Assessor: ……

Date of assessment: ……/……/……..

Others consulted: ……

……

2 Sketch with dimensions (Optional)

3 Record the results of your:

Review of the company records: (e.g. hazard register, accident investigations, early reports of discomfort.)

……

……

……

……

……

……

Consultation with employees: (Talk to the people who do the task or who were injured doing it. Get them to mime the task actions.)

……

……

……

……

……

……

Observation of the manual handling task: (Watch the employees doing the task. Video the task. Describe the manual handling aspects of the task by writing down its steps.)

……

……

……

……

……

……

……

……

Task duration or cycle time: ……..

Number of repetitions per shift: ……

Forces exerted (per cycle): (e.g. Lifting 16kg bags, pushing with a force of 20kg for 3 metres.)

……

……

Hazard Identification

4 Are any of these factors present in the task?

	No	Yes
Twisted, stooped, awkward, asymmetrical postures	❑	❑
Fixed, sustained, rigid, prolonged postures	❑	❑
Unvaried, repetitive movements	❑	❑
Sudden, uncontrolled or jerky movements	❑	❑
Handling or reaching away from the body	❑	❑
Using high or sustained force	❑	❑
Handling heavy or awkward loads	❑	❑
Whole body vibration or upper limb vibration	❑	❑
Handling that goes on for too long without a break	❑	❑

5 Is one or more of the boxes in question 4 ticked 'Yes'?

Yes ❑ **go to questions 7 – 11 and find the risk score for the task**

No ❑

6 If there is no evidence that there is hazardous manual handling, stop here. Review again according to your hazard review schedule.

Sign off:

Name: ……

Date: ……../……../……..

Risk Score

7 Find the load score: The load score is the muscle force applied by the worker. It may be the weight of the object handled or you may need to measure the forces applied with a spring balance or a force gauge – or make an estimate. If several people do the task, the score should reflect the ability of the least able.

Men	Women	**Load Score**
< 10 kg	< 5 kg	1
10 - 19 kg	5 - 9 kg	2
20 - 29 kg	10 - 14 kg	4
30 - 39 kg	15 - 24 kg	7
40 +	25 +	10

Report the Load Score here → ☐ **A**

8 Find the posture and workplace layout score: Observe the postures adopted. Take an average value if necessary or use numbers between the ones shown.

	Posture Score
Trunk upright, no twisting, load close to body, standing or walking a few steps only.	1
Some bending forward or twisting, load close to body, sitting, standing or walking for a longer distance.	2
Bending far forward or close to the floor, slightly bending and twisting the trunk, load far from the body or above shoulder height, sitting or standing.	4
Bending far forward and twisting the trunk, load far from the body, below the knees or above shoulder height, unstable posture while standing, crouching or kneeling.	8

Report the Posture/Workplace Layout Score here → ☐ **B**

9 Find the work conditions and environment score:

	Environment Score
Good conditions, with sufficient space, no obstacles, level and solid floor surface, good lighting, able to get a good grip on the load.	0
Restricted workspace (area < than 1.5m^2), restricted postural stability (floor uneven, soft, slippery, sloping.)	1

Report the Environment Score here → ☐ **C**

10 Find the time score: Find the time score from the greatest of either the number of repetitions of the task or the time spent doing it during the shift.

Repetitions per shift	Total time per shift	**Time score**
< 10	< 30 min	1
10 - 40	30 min - 1 hr	2
40 - 200	1 - 3 hrs	4
200 - 500	3 - 5 hrs	6
> 500	> 5 hrs	8

Report the Time Score here → ☐ **Time**

Add the three scores in boxes A, B and C → **Sum** ☐

11 Multiply box **'Sum'** by box **'Time'** to get the risk score. → ☐

Decide the significance of the risk score. Follow the arrow and consult the table. If the risk score is 10 or more you should carry out the Contributory Factors Assessment at question 12.

Less than 10 ❑ Complete question 6 and you are finished, **unless** there is the risk that a single high force action could cause harm.

10 or more ❑ **Complete the remainder of this checklist.**

Contributory

12 Tick any contributory factors that are present in the task. Transfer each factor that you tick to Question 13. For example, if you ticked 'Handling over long distances', write 'T3' in Column A of Question 13. See the pages listed in the *Code of Practice for Manual Handling* for solutions for each factor.

A Load (Solutions page 30)

L1. Heavy loads handled or high forces required ❑
L2. Bulky, unwieldy ❑
L3. Unpredictable ❑
L4. Uneven in weight distribution ❑
L5. Unstable or unbalanced ❑
L6. Blocks vision ❑
L7. Difficult to grip, greasy, slippery ❑
L8. Handle size, position or shape ❑
L9. Very hot or cold or hazardous ❑
L10. Person or animal ❑
L11. Sharp edges ❑
L12. Other ❑

B Environment (Solutions page 31)

E1. The floor is slippery, uneven or cluttered ❑
E2. Area slopes or has steps ❑
E3. Hot, cold, humid, outdoors, windy, wet ❑
E4. Poor air quality ❑
E5. Noisy ❑
E6. Poor lighting, glare, gloomy ❑
E7. Insufficient or confined space ❑
E8. Other ❑

Guidance on the Meaning of the Risk Score

Risk Score	**Urgency and type of control measure**
< 10	Injuries are unlikely unless there are infrequent high force actions. Monitor the task from time to time.
10 - 24	Injuries may result for less resilient people. Workplace redesign is recommended for them.
25 - 49	Injuries are possible for trained and fit people. Workplace redesign is recommended to control the contributory factors identified.
50 +	Injuries are likely regardless of the strength and fitness of employees. Elimination of the task or workplace redesign is a priority.

C People (Solutions page 31)

- P1. Too few staff to do the work ❑
- P2. Low skill, untrained, new ❑
- P3. Insufficient strength or fitness ❑
- P4. Special considerations ❑
- P5. Inappropriate footwear, clothing or personal protective equipment ❑
- P6. Less resilient people ❑
- P7. People work by themselves ❑
- P8. Fatigued ❑
- P9.Poor employee commitment to health and safety ❑
- P10. Other ❑

D Task (Solutions pages 31 - 33)

- T1. Large horizontal/vertical reaches ❑
- T2. Reaching above shoulder or below mid-thigh ❑
- T3. Handling over long distances ❑
- T4. Repetitive movements with few or no breaks ❑
- T5. Awkward, twisted or restrained postures ❑
- T6. Freedom of movement restricted ❑
- T7. Unpredictable, fast or unexpected movements ❑
- T8. Uncontrolled/invariable work pace ❑
- T9. Standing for a long time ❑
- T10. Handling in a seated position ❑
- T11. Squatting, kneeling or crouching ❑
- T12. Handtools are poorly designed ❑
- T13. Handling requires two or more people ❑
- T14. Mechanical handling aids used without training ❑
- T15. Personal protective equipment, special clothing or footwear makes task awkward ❑
- T16. Vibration ❑
- T17. Other ❑

E Management (Solutions pages 33 - 34)

- M1. Insufficient rest breaks ❑
- M2. Involves piece work or other incentive schemes ❑
- M3. Job involves shift-work and/or unsociable hours ❑
- M4. Too few staff if busy, sickness, deadlines ❑
- M5. Poor maintenance of tools, equipment, workstations ❑
- M6. Staff are not involved in the selection, purchase or trialing of equipment ❑
- M7. Poor organisational communication ❑
- M8. Communication is compromised because people are separated by distance, protective equipment or by working in a confined space ❑
- M9. Task organisation ❑
- M10. Health and safety is not important to the company ❑
- M11. Other ❑

Controls

13 In column A, write the number of each contributory factor you ticked in question 12. Indicate the importance of the factor by circling one of Low, Medium or High in column B. Write controls in column C (one to each row) and estimate their cost and impact in columns D and E. Circle Yes or No in column F to indicate whether or not the control measure will be actioned. Use a separate sheet if necessary.

A. Link to contributing factor	**B. Risk** (Low, Medium or High)	**C. Controls:** What are the possible solutions for controlling the risk posed by this factor? Transfer the control number to column A, question 14, if you will action it.	**D. Cost of control** (Low, Medium or High)	**E. Impact of control** (Low, Medium or High)	**F. Action** Yes or No
	L M H	1	L M H	L M H	Yes No
	L M H	2	L M H	L M H	Yes No
	L M H	3	L M H	L M H	Yes No
	L M H	4	L M H	L M H	Yes No
	L M H	5	L M H	L M H	Yes No
	L M H	6	L M H	L M H	Yes No
	L M H	7	L M H	L M H	Yes No
	L M H	8	L M H	L M H	Yes No
	L M H	9	L M H	L M H	Yes No

Action Plan

14 Starting with the most important, write the number for each control you decide to action in Column A.

Indicate the term of the solution and the method of control in columns B and C. Write the action plan, responsibilities and completion dates in the last three columns.

A.Control number from question 13, column C	**B. Term** Short, medium or long term?	**C. Method** Will the control eliminate, isolate or minimise the hazard?	**D. Action plan method:** (How is the control measure going to be implemented and how will any related training be given to affected employees?)	**E. Person assigned**	F**. Date** for completion
	S M L	E I M			
	S M L	E I M			
	S M L	E I M			
	S M L	E I M			
	S M L	E I M			

Monitoring and Evaluation

15 Does the task pose a significant hazard?

Yes ❑ **go to question 16**

No ❑ **go to question 18**

If the task poses a significant hazard and you do not eliminate or isolate it, you are required to monitor the health of the employees exposed to the hazard, with their consent and in relation to the hazard.

16 Which method of monitoring will be used to follow the musculoskeletal health of the people doing this task?

Talking with employees ❑ Discomfort reporting system ❑ Questionnaire surveys ❑ Periodic health assessments ❑

17 How frequently will this monitoring be carried out?

Continuously ❑ Daily ❑ Weekly ❑ Monthly ❑ Quarterly ❑ Every 6 months ❑ Annually ❑

18 Say how you will evaluate the effectiveness of the controls.

Control number	Type of evaluation*	Frequency	Who will confirm that the evaluation plan has been actioned?

*** Suggested methods:** Tracking: injury rates, injury severity, incidents reported, discomfort reported and sickness absence. A repeat hazard identification. General health and safety audits. Evaluating the quality of the product, the process efficiency or staff morale. Cost/benefit analyses.

Discomfort Survey

The purpose of this form is to gather information about any work-related body discomfort you may have now – or have had since a past survey. Information that you write on this form will remain confidential to the Human Resources section.

Personal information

1 Name :. . . . . .

2 Job title: . . . . . .

3 Manager 's name and section: . . . . . .

. . . . . .

4 Tel: . . . . . Fax: . . . . . .

5 Age: . . . . . .

6 Length of time on present job: . . . . . .

Work-related muscle/joint discomfort

7 Do you have work-related discomfort now?

Yes ❑ go to question 9

No ❑

8 Have you had work-related discomfort since the previous survey?

Yes ❑

No ❑ go to question 14

9 What is - or was - the main cause of the discomfort?

. . . . . .

. . . . . .

. . . . . .

. . . . . .

. . . . . .

10 When did you first notice the discomfort?

. . . . . .

. . . . . .

. . . . . .

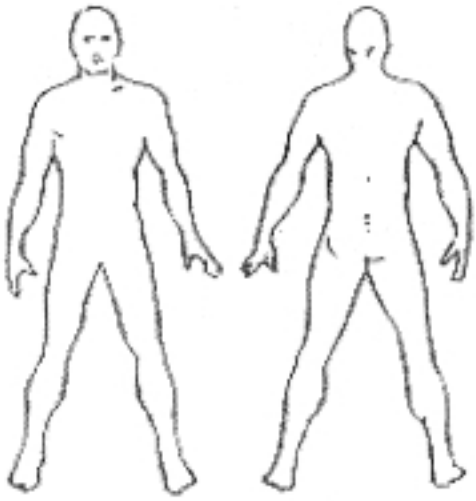
. . . . . .

. . . . . .

. . . . . .

. . . . . .

11 Please shade the body diagram to show the site of any discomfort:



Please mark, adjacent to each body location where you have indicated discomfort, the severity and length of the discomfort in a digit-letter code. Use the key below:

Severity		**Length**	
Severe pain	4	Continuous	A
Mild pain	3	Present always at work	B
Aching	2	Present for some of work	C
Discomfort	1	Occasional	D

12 Please shade the hand diagrams to show the site of any discomfort. Again, write a digit-letter code to indicate its severity and length.

13 Was the discomfort related to something outside of work?

Yes ❑ No ❑

If yes, what was it?

. . . . . .

. . . . . .

14 Signed: . . . . . .

15 Date: . . . . . .

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