

Safety Code of Practice 37

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MANUAL HANDLING



Contents

1	Summary.....	3
2	Scope.....	4
3	What is manual handling?	4
4	Requirements.....	5
4.1	Duties on managers	5
4.2	Duties on all staff.....	5
4.3	Duties on project managers, engineers and others who supervise contractors	5
5	Training and competency	6
6	Practical advice for assessing and reducing manual handling risks	6
6.1	Task.....	6
6.2	Individual capability.....	6
6.3	The load	7
6.4	The working environment.....	7
6.5	Handling aids.....	7
6.6	General considerations for reducing the risk.....	7
7	Further Information	8
Appendix 1:	Risk assessment filter.....	9
Appendix 2:	Manual Handling Operations – Specific Risk Assessment Form.....	14
Appendix 3:	Risk assessment graph for lifting and carrying operations	15
Appendix 4:	Version control.....	17

1 SUMMARY

This Safety Guide applies to persons within the University who manually move items, with the objective of minimising the risk to employees' health and safety during manual handling activities at work.

In the University setting, there is a wide range of manual handling tasks. These include, for example:-

- Simple lifting of boxes of paper, desks and furniture in an office setting
- Movement of objects within the museums and libraries
- Lifting and carrying of foods and equipment within kitchens
- Use and movement of equipment within the grounds or during maintenance activities, and on the University farms.
- Movement, lifting and carrying of animals
- Delivery of food and services
- Setting up of conference stands and exhibits
- Movement and setting up of IT equipment
- Lifting of cleaning chemicals and the use / movement of cleaning equipment.
- Movement of items by the porters

The risk to health posed by the task may not be limited to the weight of the load, but will also include the physical properties of the load which might either affect grip or cause direct injury e.g. slipperiness, roughness, sharp edges and extremes of temperature.

All manual handling must be:

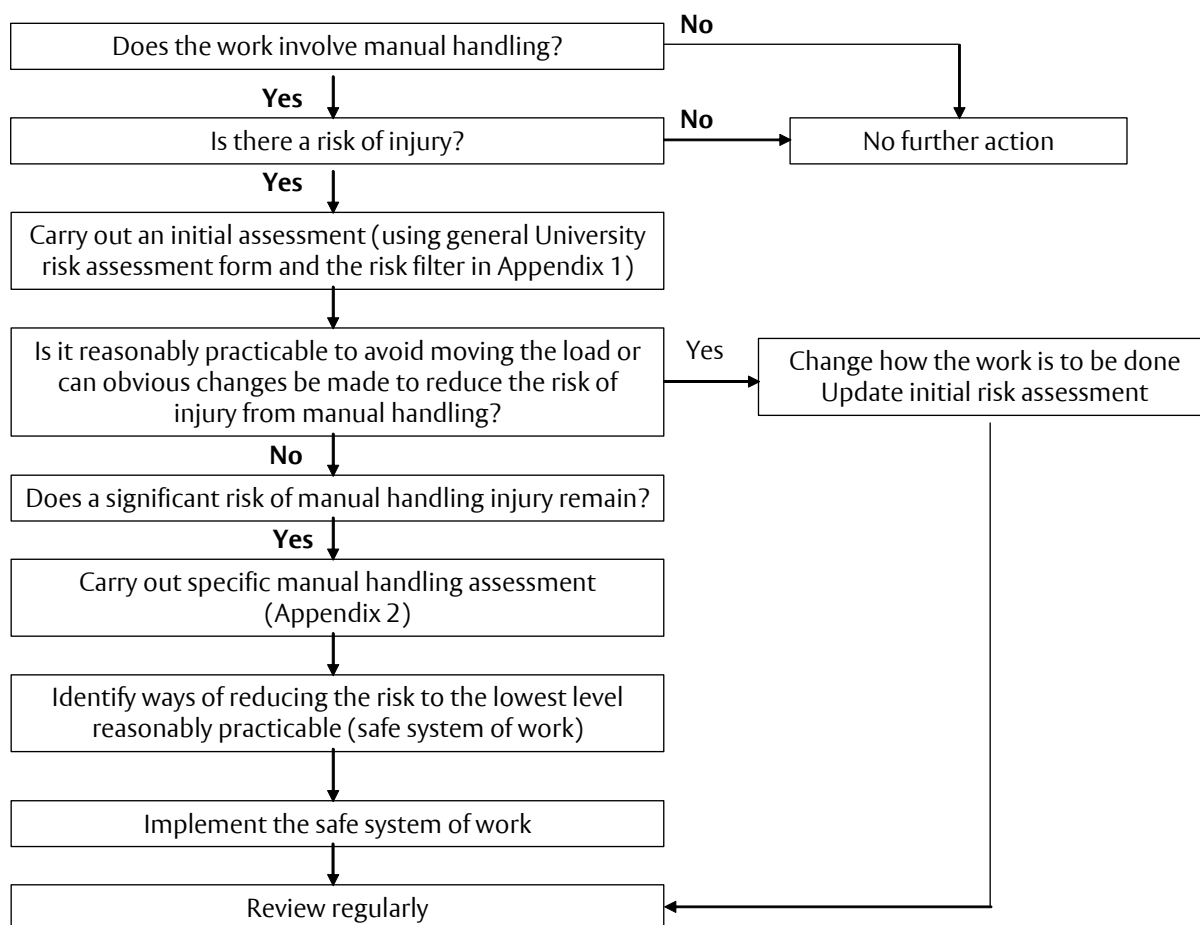
- Considered within a general risk assessment and avoided if it is reasonably practicable to do the work in some other way;
- Conducted in such a way that the risk of injury is reduced to as low as reasonably practicable. This may require a more detailed risk assessment to identify how this can be achieved;
- Carried out in a safe manner, so far as is reasonably practicable;
- Undertaken by people who have had appropriate training;
- Undertaken using appropriate equipment, which is inspected and maintained as required;
- Appropriate to the health and capabilities of the person carrying out the task. This includes young people, new / expectant mothers and persons with pre-existing health conditions that may be aggravated by inappropriate manual handling.

The manual handling flow chart overleaf will help in planning what needs to be done.

Guidance:

The key message is to avoid manual handling which may lead to injury where ever possible. If it is not reasonable to avoid manual handling, carry out an assessment of the tasks involved. Reduce possible injury to the lowest level by considering the load, the task, the working environment and the individual capacity. Training is only one method of reducing risk and must be considered amongst other methods.

Manual handling assessment flow chart



2 SCOPE

This Guide sets out what managers and staff have to do to prevent, so far as is reasonably practicable, any person sustaining injury as a result of manual handling. The effects of manual handling are often cumulative and may not be the result of one incident.

Guidance:

More than a quarter of all accidents reported each year to enforcing authorities in the UK are associated with manual handling. Therefore reducing hazardous manual handling or in some cases avoiding it will significantly reduce the number of injuries and ill health.

3 WHAT IS MANUAL HANDLING?

Manual handling is the movement of a load by human effort. This can be applied directly to the load in the case of lifting, pushing, pulling or putting down. Effort can be indirectly applied by means of hauling on a rope, lifting a barrow, pushing a trolley or digging and moving soil with a spade.

4 REQUIREMENTS

4.1 Duties on managers

Heads of Schools/Directorates and other managers must ensure that as far as reasonably practicable employees avoid undertaking manual handling at work which involves a risk of injury. To enable this to be achieved, managers must:

- i. Carry out an initial risk assessment using the general University risk assessment form (see Safety Guide 4).
- ii. Use the risk assessment filter method set out in Appendix 1 to assist with the initial risk assessment and to judge if a manual handling operation is hazardous. If it is decided that a significant risk of injury remains, or the solutions to reduce the risks are not immediately obvious, further more detailed assessment will be required.
- iii. Use the method set out in Appendix 2 to carry out a detailed assessment of potentially hazardous manual handling tasks which cannot be avoided.
- iv. Provide information on safe lifting techniques to staff. Supervise staff to ensure they are practising the safe techniques.
- v. Keep manual handling assessments up-to-date. Assessments must be reviewed if new information comes to light; if there has been a change in a manual handling operation; a reportable injury occurs; or if an individual employee suffers an illness or injury which makes them more vulnerable.
- vi. Managers must take manual handling into consideration at the design stage where there are changes to the building or where processes and procedures change or where new equipment or materials are to be used. A review of risk assessments must be carried out at this stage.

4.2 Duties on all staff

Staff must:

- Follow the appropriate safe systems of work set out by the University to promote safety during the handling of loads;
- Ensure that they adopt the safe lifting techniques taught during their training;
- Use and take reasonable care of any personal protective equipment provided;
- Take reasonable care of themselves and others when undertaking manual handling activities;
- Inform the University Occupational Health Service (where appropriate) and their line manager of any health condition that might impair their capability for manual handling.

4.3 Duties on project managers, engineers and others who supervise contractors

The elimination or reduction of manual handling activities must be considered where building modifications, change of use, or design of new buildings is considered. This will include delivery areas, storage areas and plant rooms and general buildings where loads need to be moved i.e. along corridors and between floors.

5 TRAINING AND COMPETENCY

Staff must be trained to lift correctly. Managers should assess the type of manual handling carried out by each member of staff and ensure they are trained as necessary. The need for refresher training must be identified in the risk assessment.

Staff must be supervised and monitored as required to ensure they are lifting correctly.

Guidance:

Health and Safety Services offer:

- General manual handling training
- Training on how to carry out manual handling training
- Training in how to carry out a manual handling risk assessment.

Bespoke courses can be arranged on request.

6 PRACTICAL ADVICE FOR ASSESSING AND REDUCING MANUAL HANDLING RISKS

In considering the risk of injury associated with a manual handling task, issues to be considered include whether or not the task has a history of manual handling incidents (refer to local accident book, RIDDOR reports etc). The task may be known to be hard work or high risk, and this may be confirmed by using the risk filter in Appendix 1. Employees doing the work may show signs that they are finding it hard work (e.g. breathing heavily, red-faced, sweating).

The assessment must take into account the risk of injury from other causes, and not be limited musculo-skeletal injuries of health effects. For example, there may be a risk of injury from dropped loads, cuts from sharp edges, or burns from hot or cold materials.

In general, when assessing any manual handling task, the following factors must be considered:

- Task
- Individual capability
- Load
- Working environment

= TILE

6.1 Task

Wherever practical the task should be undertaken in such a way as to avoid known risk factors.

These include: holding a load at a distance from the trunk of the body; twisting the trunk; stooping; reaching upwards; lifts from floor level or above head height; carrying over long distances; excessive pushing or pulling; frequent or prolonged physical effort.

6.2 Individual capability

Individuals have different physical capabilities and this should be taken into account when assessing the task (although individual capability is likely to be less significant than the nature and design of the task itself). Any individual with a history of back pain in a job which involves heavy

manual handling should be assessed by the Occupational Health provider. However they should not be excluded from work unless there is a good medical reason for restricting their activity. Individuals capabilities may change and these must be taken into account i.e. new and expectant mothers or following and injury or an operation.

6.3 The load

There is a legal requirement to provide 'general indications' of the weight and nature of the load so that employees have sufficient information to carry out the tasks that they are likely to be asked to do. Suppliers of equipment and consumables to the University may therefore mark loads clearly with their weight and an indication of the heaviest side (where appropriate). Employees should know to look for this information. Information may also be included in local working procedures, where the task is routinely repeated.

The weight of a load is an important factor in assessing the risk, but it is not the only one. Other features to be considered may include the size; shape; rigidity; resistance to movement; offset centre of gravity; stability; the presence of sharp edges or extremes of temperature (hot or cold); and the availability of handholds.

Simple ways of reducing the risk of injury include splitting up the load into smaller units; packaging it in such a way as to reduce the chance of the load shifting; ensuring the load is clean of contaminants such as oil or dust; and providing gloves to protect against sharp edges etc.

Guidance:

Be aware that gloves may make a load more difficult to hold. Gloves should be close-fitting and supple.

6.4 The working environment

Manual handling tasks are safer if the handler has room to move around easily and avoid unnatural postures such as stooping or twisting. It will also make the manoeuvring of awkward loads easier.

Other factors to consider are extremes of temperature; weather conditions (in particular gusts of wind which would make a load more difficult to handle); and lighting. Handlers must be able to see what they are doing, to make accurate judgements about height and distance when manoeuvring the load, and to avoid any tripping hazards such as changes in level.

6.5 Handling aids

Managers should consider the practicality of using handling aids such as hoists, trolleys, sack trucks, ramps, chutes or handling devices. Such aids should be subject to a regular maintenance programme where appropriate. They should be readily accessible to staff, otherwise they are less likely to be used.

6.6 General considerations for reducing the risk

This section gives general guidance on possible options for reducing the risk of injury or ill health from manual handling. This does not negate the need for each task, where there is a risk of significant injury, to be subject to a detailed risk assessment.

Guidance:

Depending on local circumstances, the following options may be viable:

- a) Reorganise stock so that heavier loads are at a suitable height and are accessible.
- b) Relocate or reorganise the store room to avoid carrying items long distances, or awkward twisting movements.
- c) Have items delivered directly to where they are needed to reduce the number of times they are handled.
- d) Avoid lifting by mechanising the load. This can be as simple as using a trolley.
- e) Adopt team handling e.g. two people to lift instead of one.
- f) Use the right size of container, rather than one that is too big.

Note: Improvements don't have to be immediate. They can be long term objectives that can be achieved during building refurbishments or when equipment is due to be replaced. Examples include: redesigned or new delivery areas; replacement vehicles that are more suitable for the task; doors held open on magnets that allow clear access at all times but release when the fire alarm sounds.

7 FURTHER INFORMATION

Further information and guidance is available from the following sources:

- Manual Handling Operations Regulations 1992 L23 - HSE
- HSE Manual Handling web site <http://www.hse.gov.uk/falls/index.htm>
- Upper Limb disorders in the Workplace HSG60(rev) - HSE
- Moving food and Drink - Manual handling solutions for the food and drink industries HSG196 - HSE
- Manual Handling solutions for farms AS23(Rev2) - HSE
- A Guide to reducing injuries from manual handling in libraries 2nd Edition 2005 – Universities & Colleges Employers Association
- Are you making the most of handling aids INDG398
<http://www.hse.gov.uk/PUBNS/indg398.pdf>
- Manual handling solutions you can handle HSG 115
- Roll cages and wheeled racks in the food and drink industries: Reducing manual handling injuries Food Information Sheet FIS33 HSE Books 2003
<http://www.hse.gov.uk/pubns/fis33.pdf>
- Caring for cleaners Guidance and case studies on how to prevent musculoskeletal disorders HSE ISBN 0 7176 2682 2
- Mac tool – Manual Handling Assessment <http://www.hse.gov.uk/pubns/indg383.pdf>

Appendix 1: Risk assessment filter

The filter described in this Appendix is relevant to:

- a) lifting and lowering;
- b) carrying for short distances;
- c) pushing and pulling; and
- d) handling while seated.

It is likely to be most useful if you think that the activity to be assessed is low risk - the filter should quickly and easily confirm (or deny) this. If using the filter shows the risk is within the guidelines, you do not normally have to do any other form of risk assessment unless you have individual employees who may be at significant risk, for example pregnant workers, young workers, those with a significant health problem or a recent manual handling injury.

However these filter guidelines only apply when the load is easy to grasp and held in a good working environment.

The filter is less likely to be useful if:

- a) there is a strong chance the work activities to be assessed involve significant risks from manual handling; or
- b) the activities are complex. The use of the filter will only be worthwhile if it is possible to quickly (say within ten minutes) assess whether the guidelines in it are exceeded.

In either of these cases using the filter may not save any time or effort, so it may be better to opt immediately for the more detailed risk assessment.

Using the filter

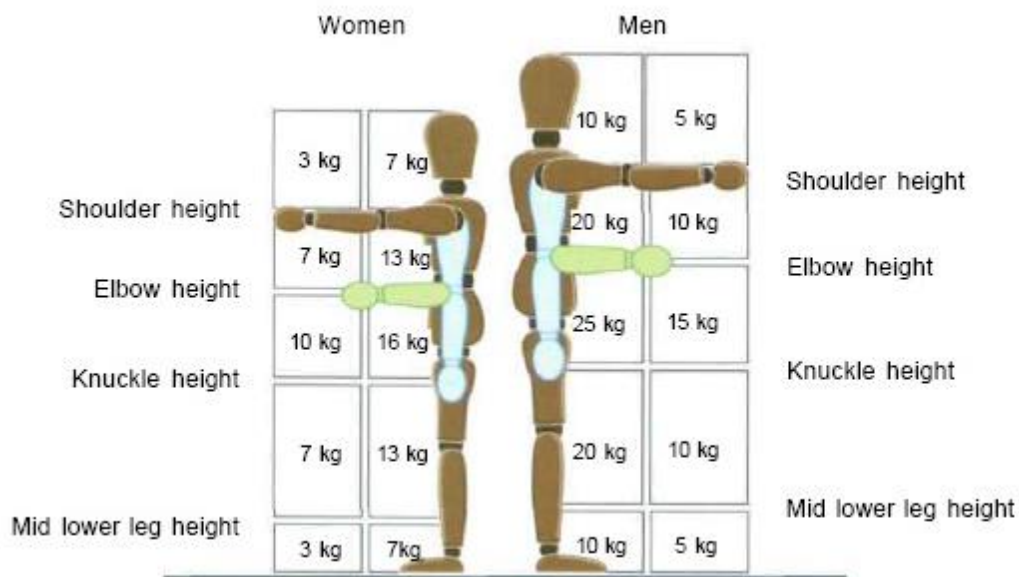
The filter is in several parts, covering lifting and lowering, frequent lifting, carrying, twisting, carrying, pushing and pulling and handling when seated. Use the guideline figures in each part to help you assess the task.

You will need to carry out a more detailed assessment if:

- a) Using the filter shows the activity exceeds the guideline figures (Figure1);
- b) The activities do not come within the guidelines, e.g. if lifting and lowering unavoidably takes place beyond the box zones in Figure1;
- c) There are other considerations to take into account;
- d) The assumptions made in the filter are not applicable, for example when carrying the load it is not held against the body;
- e) For each task the assessment cannot be done quickly.

Lifting and lowering

Figure 1 HSE guidance on weight limits



Each box in the diagram contains a guideline weight for lifting and lowering in that zone. Using the diagram enables the assessor to take into account the vertical and horizontal position of the hands as they move the load, the height of the individual handler and the reach of the individual handler. As can be seen from the diagram, the guideline weights are reduced if handling is done with arms extended, or at high or low levels, as that is where injuries are most likely.

Observe the work activity being assessed and compare it to the diagram. First decide which box or boxes the lifter's hands pass through when moving the load. Then assess the maximum weight being handled. If it is less than the figure given in the box, the operation is within the guidelines.

If the lifter's hands enter more than one box during the operation, then the smallest weight figure applies. An intermediate weight can be chosen if the hands are close to a boundary between boxes.

The guideline figures for lifting and lowering assume:

- The load is easy to grasp with both hands;
- The operation takes place in reasonable working conditions; and
- The handler is in a stable body position.

If these assumptions are not valid, it will be necessary to make a full manual handling assessment.

Frequent lifting and lowering

The basic guideline figures for lifting and lowering in Figure 1 are for relatively infrequent operations - up to approximately 30 operations per hour or one lift every two minutes. The guideline figures will have to be reduced if the operation is repeated more often. As a rough guide:

Table 1 HSE guidance for repetitive lifts

Where operations are repeated	Figures should be reduced by
Once or twice per minute	30%
Five to eight times per minute	50%
More than 12 times per minute	80%

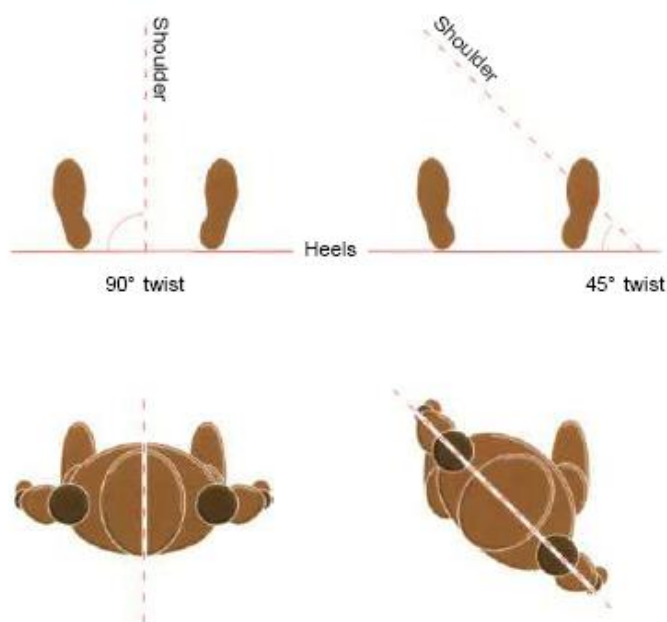
Even if the above conditions are satisfied, a more detailed risk assessment should be made where:

- a) The worker does not control the pace of work;
- b) Pauses for rest are inadequate or there is no change of activity which provides an opportunity to use different muscles; or
- c) The handler must support the load for any length of time.

Twisting

In many cases manual handling operations will involve some twisting, i.e. moving the upper body while keeping the feet static (see Figure 2). The combination of lifting and twisting, stooping and lifting are particularly stressful on the back. Therefore where the handling involves twisting and turning a detailed assessment should normally be made.

Figure 2 Twisting



However if the operation is

- a) relatively infrequent (up to approximately 30 operations per hour or one lift every two minutes); and
- b) there are no other posture problems,

then the guideline figures in the relevant part of this filter can be used, but with a suitable reduction according to the amount the handler twists to the side during the operation. As a rough guide:

Table 2 HSE guidance for twisting

If handler twists through (from front)	Guideline figures (Figure 2) should be reduced by
45 ^o	10%
90 ^o	20%

Where the handling involves turning, i.e. moving in another direction as the lift is in progress and twisting, then a detailed assessment should normally be made.

Guidelines for carrying

The guideline figures for lifting and lowering (Figure 1) apply to carrying operations where the load is:

- a) Held against the body;
- b) Carried no further than about 10 m without resting.

Where the load can be carried securely on the shoulder without first having to be lifted (as, for example when unloading sacks from a lorry) the guideline figures can be applied to carrying distances in excess of 10 m.

A more detailed assessment should be made for all carrying operations if:

- a) The load is carried over a longer distance without resting; or
- b) The hands are below knuckle height or above elbow height (due to static loading on arm muscles).

Guidelines for pushing and pulling

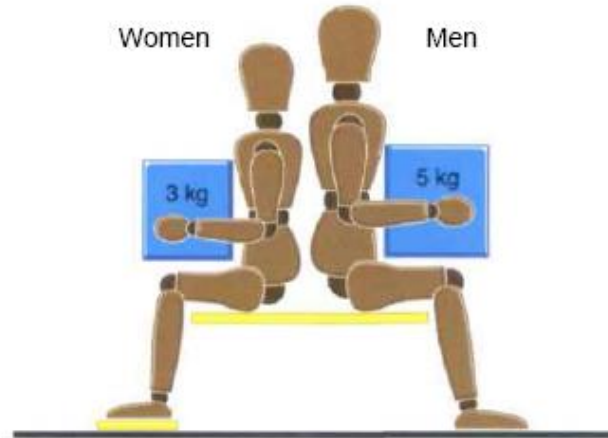
For pushing and pulling operations (whether the load is slid, rolled or supported on wheels) the guideline figures assume the force is applied with the hands, between knuckle and shoulder height. It is also assumed that the distance involved is no more than about 20 m. If these assumptions are not met, a more detailed risk assessment is required

As a rough guide the amount of force that needs to be applied to move a load over a flat, level surface using a well-maintained handling aid is at least 2% of the load weight. For example, if the load weight is 400 kg, then the force needed to move the load is 8 kg. The force needed will be larger, perhaps a lot larger, if conditions are not perfect (e.g. wheels not in the right position or a device that is poorly maintained). Moving an object over soft or uneven surfaces also requires higher forces. On an uneven surface, the force needed to start the load moving could increase to 10% of the load weight, although this might be offset to some extent by using larger wheels. Pushing and pulling forces will also be increased if workers have to negotiate a slope or ramp.

There is no specific limit to the distance over which the load is pushed or pulled as long as there are adequate opportunities for rest or recovery. If you are unsure, carry out a detailed risk assessment.

Guidelines for handling while seated

Figure 3 Handling whilst seated



These guidelines only apply when the hands are within the box zone indicated. If handling beyond the box zone is unavoidable, a more detailed assessment should be made.

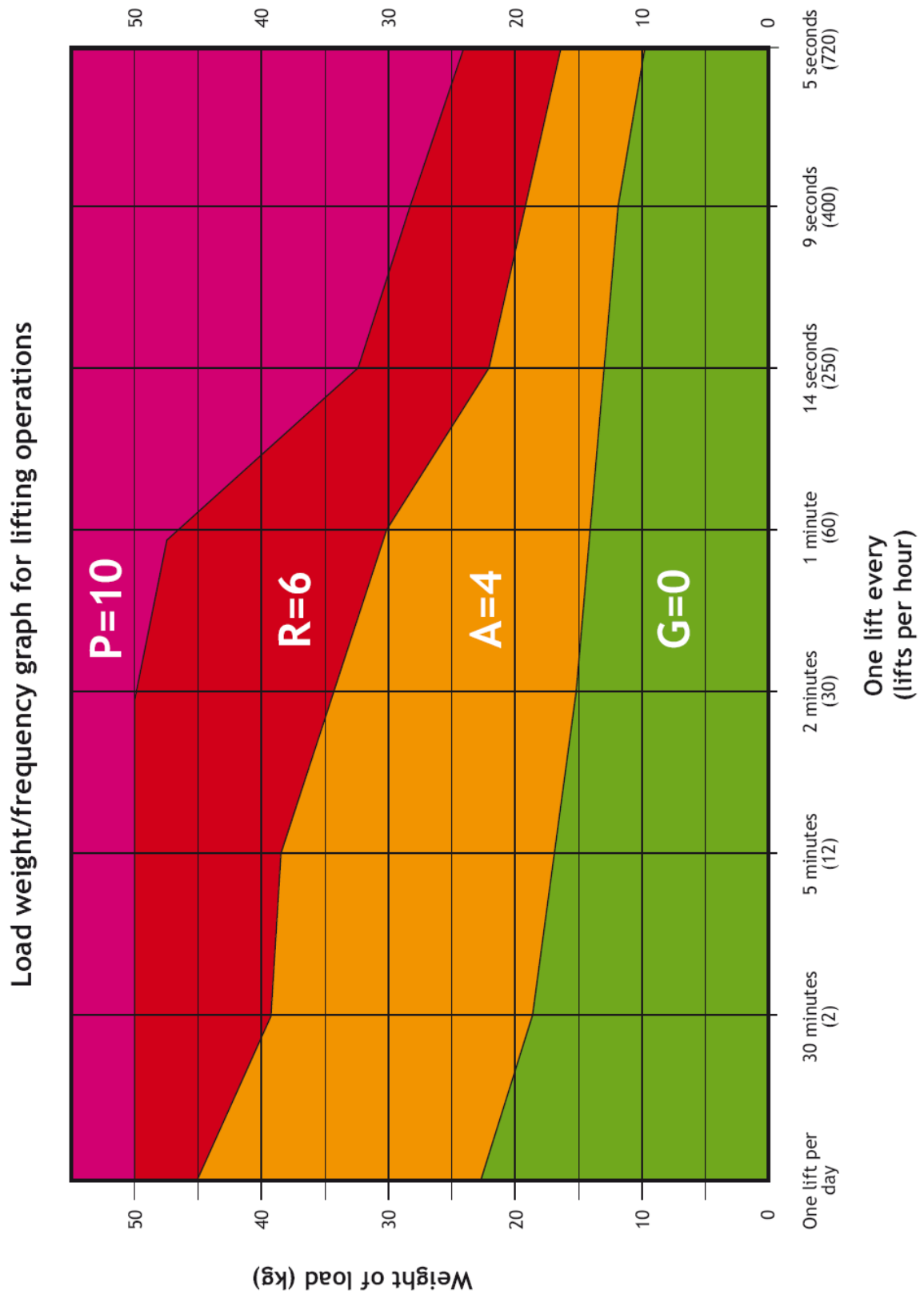
Recording findings

Use the general University risk assessment form (see Safety Guide 4) to record your findings and then assess any tasks which require a more detailed assessment.

Appendix 2: Manual Handling Operations – Specific Risk Assessment Form

School / Directorate: Area & Location: Assessor(s):	Manual handling task(s):	
Can any aspects of the manual handling task be avoided or eliminated YES / NO ? If so how?		
For lifting operations, use the colour chart in Appendix 3 to make an initial assessment of risk, based on weight and frequency of lifting Tick ✓ (use colour charts in Appendix 3) Green Amber Red Purple 		
Hazards to consider:	If YES Tick ✓	Action required to reduce risk of injury (if YES)
THE TASKS - do they involve <ul style="list-style-type: none"> twisting the trunk? holding loads away from the trunk? stooping or reaching upwards? long carrying distances? strenuous pushing or pulling? unpredictable movement of loads? repetitive handling? handling while seated? insufficient rest or recovery time? a work rate imposed by a process? 		
THE LOADS - are they <ul style="list-style-type: none"> heavy (G,A,R,P)? bulky or unwieldy? difficult to grasp? unstable or unpredictable? harmful, e.g. sharp, rough or hot? 		
WORKING ENVIRONMENT- are there <ul style="list-style-type: none"> constraints on posture? poor floor surfaces? variations in floor levels? hot/cold/humid conditions? strong air movement? poor lighting conditions? restrictions on movement or posture from clothes or PPE? other hazards - obstructions, noise, chemicals? 		
INDIVIDUAL CAPABILITY - does task <ul style="list-style-type: none"> require unusual strength, reach? endanger staff with a health problem? endanger pregnant women? call for special info, training or PPE? 		
Persons who are not permitted to carry out these tasks:		
Has a safe system of work been drawn up for this task? YES / NO		
Have all manual handlers been suitably instructed and trained? YES / NO		
Date of assessment:	Review date:	

Appendix 3: Risk assessment graph for lifting and carrying operations



Team handling

Where teams handle loads the weights can be considered in the following categories. This takes into account the reduced capacity of individuals when lifting in a team.

2 person < 35 kg 3 person < 40 kg	G / 0
2 person 35-50 kg 3 person 40-75 kg 4 person 40-100 kg	A / 4
2 person 50-85 kg 3 person 75-125 kg 4 person 100-170 kg	R / 6
2 person >85kg 3 person >125kg 4 person >170kg	P / 10

Classification

<p>G = GREEN - Low level of risk The vulnerability of special risk groups (eg pregnant women, young workers etc) should be considered where appropriate.</p>
<p>A = AMBER - Medium level of risk - Examine tasks closely</p>
<p>R = RED - High level of risk - Prompt action needed This may expose a significant proportion of the working population to risk of injury.</p>
<p>P = PURPLE - Very high level of risk Such operations may represent a serious risk of injury and should come under close scrutiny, particularly when the entire weight of the load is supported by one person.</p>

Appendix 4: Version control

VERSION	KEEPER	REVIEWED	APPROVED BY	APPROVAL DATE
X.X	H&S	Every four years	XXXXX	XX/XX/XX
X.X	H&S	Annually	XXXXX	XX/XX/XX