Manual handling

Guidance

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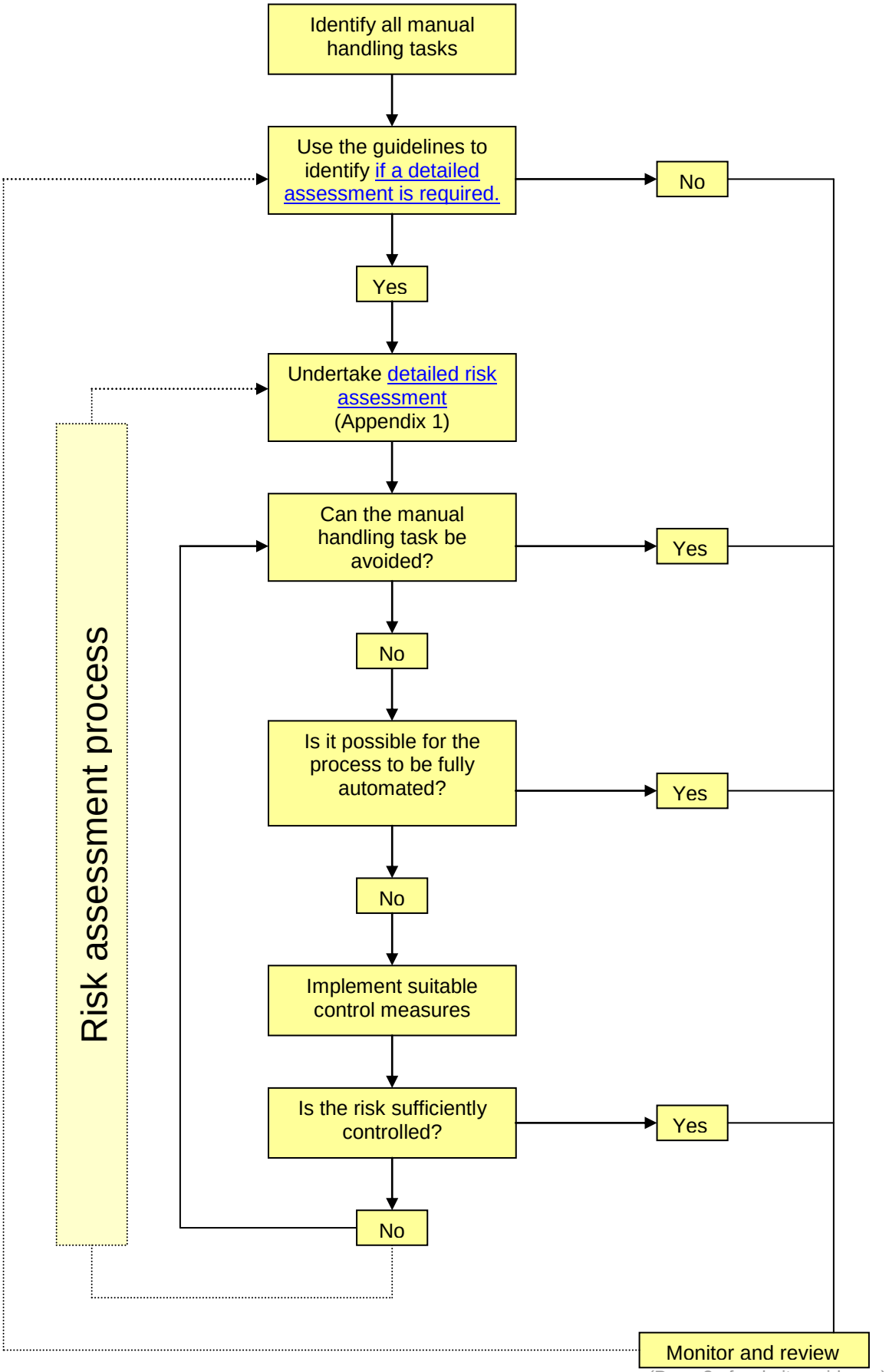
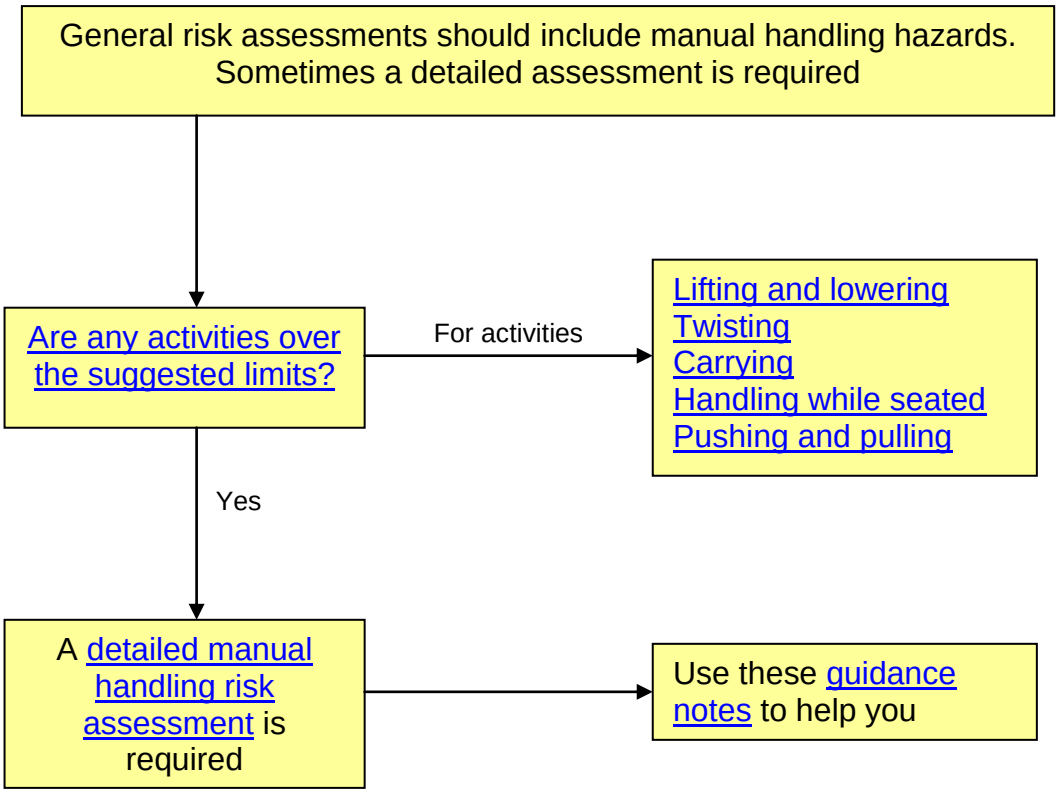
Manual handling - quick reference flow chart
(to be used in conjunction with this guidance document)



Summary of detailed manual handling risk assessment



Manual handling risk assessments

Introduction

The main areas of concern regarding manual handling are lifting and carrying, and it is important to avoid stooping and twisting where possible. The activity may also include pushing or pulling, and team handling.

Manual handling should usually be included as a hazard within the general risk assessment, but sometimes, certain activities will require a more detailed manual handling risk assessment.

For each of the following activities, extra steps must be taken to confirm only weights within set guidelines are moved.

- Lifting and lowering
- Carrying
- Handling while seated
- Pushing and pulling

If the activity involves moving weights outside these limits then the detailed manual handling assessment is required. See Appendix 1 for the manual handling assessment form. More detailed information about when to use a detailed risk assessment is available later in this guidance.

If women of child-bearing age are employed, the general risk assessment should also identify any manual tasks that may present a hazard for new and expectant mothers. This ensures staff are warned of any relevant workplace hazards before they become pregnant.

Who can carry out these risk assessments?

You do not need to be a health and safety expert to do a risk assessment, however, it is recommended that staff undertaking risk assessments have attended a suitable training course eg. both a general risk assessment and manual handling risk assessment training course.

People involved in the risk assessment process will need to consider the risks involved in any activity or task and decide what can be done to reduce the risks. Consequently, they will need knowledge of the work area and the types of tasks involved.

When do you need a detailed risk assessment?

The HSE has developed guidelines to identify situations where a more detailed manual handling risk assessment is required. For each of the activities, a detailed risk assessment must be filled out if weights are outside the set guidelines:

- Lifting and lowering
- Carrying
- Handling while seated
- Pushing and pulling.

- Figure 1 will help you assess the risks posed by lifting and carrying activities. (If twisting cannot be avoided, figures may need to be reduced as indicated).
- Use figure 3 to assess the risks posed by handling while seated
- Use table 2 for guidance on pushing and pulling

These guidelines are based on situations where the load is easy to grasp and hold in a good working environment. They will provide a reasonable level of protection to around 95% of working people, but these should not be regarded as safe weight limits for lifting. Even weights within these guidelines should be avoided or made less demanding wherever possible.

The guidelines are most likely to be useful for confirming a more detailed assessment is not required. For example if you think the activity to be assessed is low risk, the guidelines should quickly and easily confirm this.

If the operation is within the guidelines, a further assessment is usually unnecessary unless there are any individual employees at significant risk such as a new or expectant mother, a young person, an individual with significant health problems or an existing manual handling injury.

The guidelines are less likely to be useful if the activities are complex and in this case it may be more appropriate to go directly to the detailed risk assessment.

With regard to the manual handling activities for your school or service:

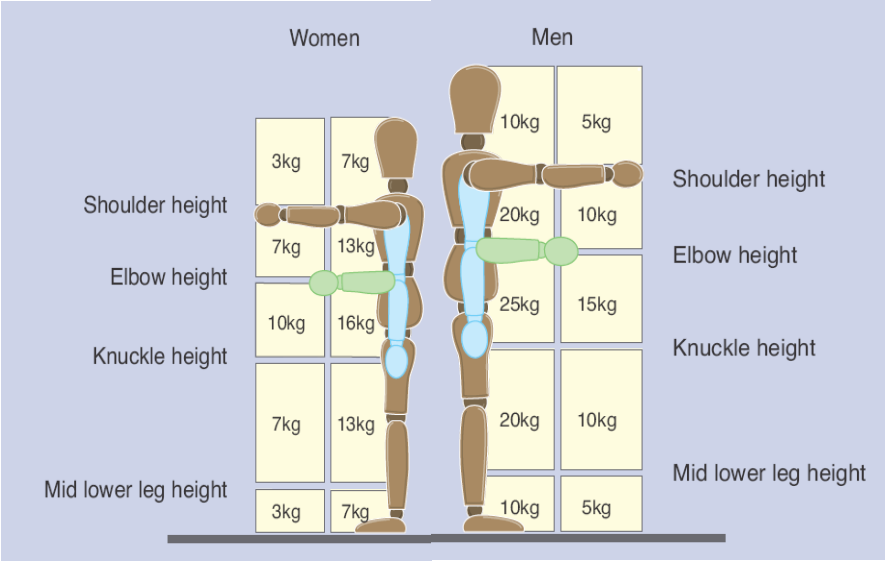
1. Observe the activity,
2. Note the weight of the object being moved and
3. Compare it to the appropriate diagram.

In all cases, if the activity has weights outside the guidelines then a more detailed manual handling assessment is required.

Guidelines

Lifting and lowering

Each box in the diagram is a guideline maximum weight for lifting and lowering in that zone. The diagram enables the assessor to take into account the vertical and horizontal position of the hands as they move the load.



Source: HSE Leaflet, Getting to Grips with Manual Handling Figure 1

The guideline maximum weights are less if handling with arms extended or at high or low levels, as that is where injuries are most likely.

For example:
The guidelines show 95% of women will be able to safely lift an object weighing 16kg from a shelf at waist height and move it to another shelf at waist height, as long as the load is kept within close reach. If the lifter's hands pass between zones then the lowest weight must be taken, so if she has to lift the load from the floor to waist height and the load weighs more than 7 kg, a detailed risk assessment is required.

The basic guidelines for lifting and lowering are for relatively infrequent operations (up to 30 operations per hour or one lift every two minutes). If this frequency is exceeded, a detailed risk assessment is required.

But remember, it is preferable to modify the activity so it is within the guidelines, rather than having to complete a detailed risk assessment.

Another factor that may require a more detailed assessment is if the operation involves repetitive twisting or stooping. Twisting is moving the upper body while keeping the feet static. Stooping is bending forward from the waist and should be avoided wherever possible by bending the knees.

Twisting

Twisting should be avoided wherever possible by moving the feet. If twisting cannot be avoided then the guideline weights should be reduced as shown below:

How far does the handler twist?

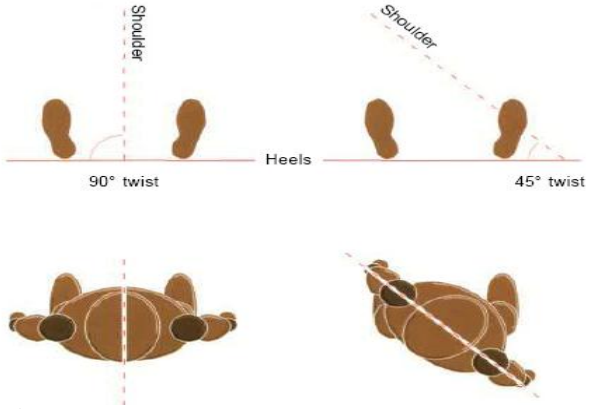


Figure 2

How far does the handler twist (from the front)? see Fig 2	Reduce guideline limits by:
45º	10%
90º	20%

Guidelines for carrying

The guidelines for lifting and lowering also apply to carrying operations where the load is held against the body and carried no further than 10m without resting. A detailed assessment is required if the load is carried further than 10m without resting or if the hands are below knuckle height or above elbow height.

Guidelines for handling while seated

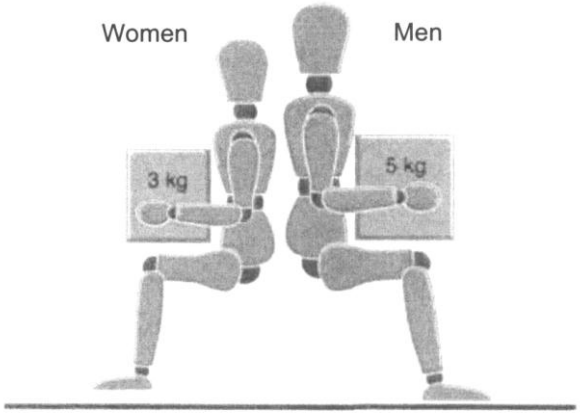


Figure 3:

Seated workers face particular risks when handling because they cannot use their stronger leg muscles to lift the load. The weight limits are much smaller and the object should be held closer to the body. Where this is not happening, a detailed risk assessment is needed.

Guidelines for pushing and pulling

For pushing and pulling (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 20 metres. If these assumptions are not met, a detailed risk assessment is automatically required.

The following table shows guideline figures produced by the HSE. If these are exceeded, the additional assessment for pushing and pulling should be filled in on page 4 of the form.

Table 2:

	Men	**Women**
Guideline figure for stopping or starting a load	20 kg on a trolley this equates to around 200 newtons*	15 kg on a trolley this equates to around 150 newtons*
Guideline figure for keeping the load in motion	10 kg on a trolley this equates to around 100 newtons*	7 kg on a trolley this equates to around 70 newtons*

(* A newton is defined as the amount of force required to accelerate a mass of one kilogram at a rate of one metre per second squared)

In order to give an indication of how to calculate the above, the amount of force needed 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 weighs 400kg then the force

needed to move the load is 8kg. However on an uneven surface the force needed to start moving could increase to 10% of the load weight.

Factors to consider when assessing the risk

The risk assessor should discuss how lifting and handling is done in the school or service with the staff who carry out those operations.

Some things to consider:

- Can any of the operations either be avoided or made easier and safer? If so how?
- Can a delivery company deliver to the exact destination so staff need not be involved?
- Can a trolley be provided? If so the platform should be at a suitable and safe height for receiving the item from the delivery van and for offloading when the destination is reached.
- Can the manual handling activities be interspersed with light duties to allow time for the muscles to recover?
- Can the job be rotated around other workers?
- Can arrangements be made with the supplier for regular bulky loads to be delivered in smaller more easily manageable packages?
- Can two people be asked to carry out the task so the load is shared and the risks reduced?
- Is the storage area free from obstruction that may cause staff to overstretch, overreach or handle in an awkward position?

Guidance notes for completing a detailed manual handling risk assessment

This guidance should be used in conjunction with the detailed manual handling assessment form in appendix 1.

When filling out the form, you will be allocating different levels of risk to the hazards in the workplace. These risks are colour coded to make the process even simpler – Green for low risk, up to purple for very high risk.

Each 3.1 heading relates to a row in section 1 of the detailed manual handling assessment form. The numbers below relate to the 'GN reference number' on the form, so you can readily refer to the relevant section of guidance when filling in the form. (Some rows on the assessment form do not have a GN reference number and guidance because they do not require any further explanation.)

The risk assessment form and guidance has been developed with reference to the HSE's Guidance on the Manual Handling Operations Regulations 1992 and the HSE leaflet 'Manual Handling Assessment Charts' (MAC).

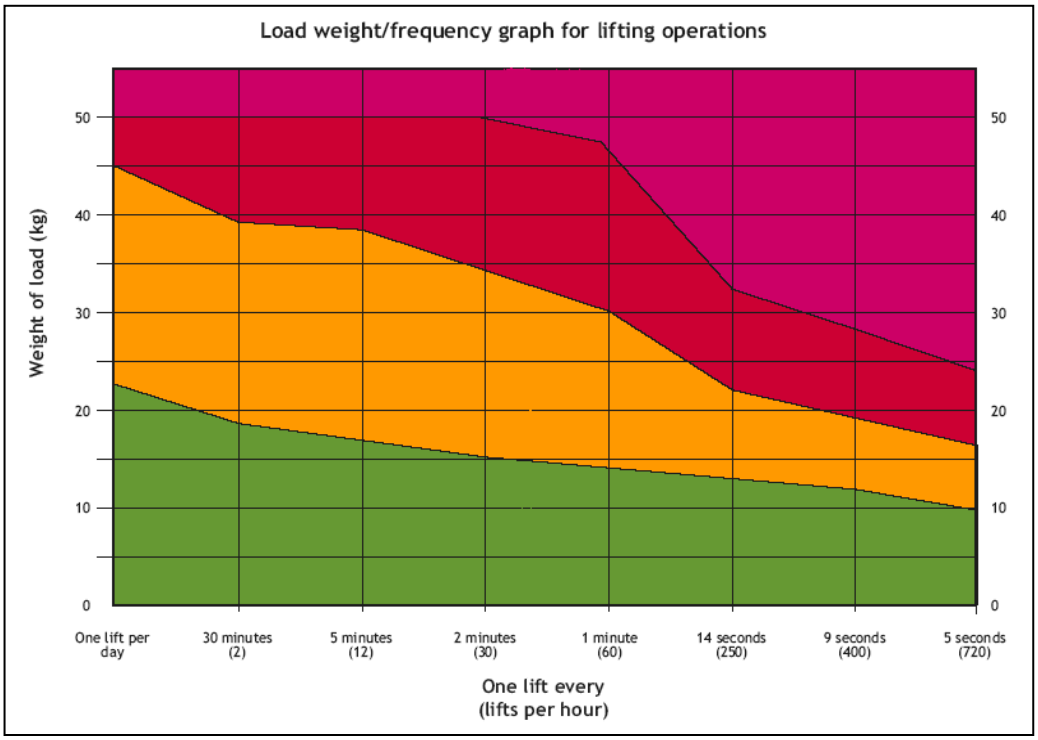
3.1.1 – Load weight / frequency graph for lifting

This graph will identify the colour band in relation to weight and frequency of lifting. Green is the lowest band, amber the next, then red and purple is the highest band.

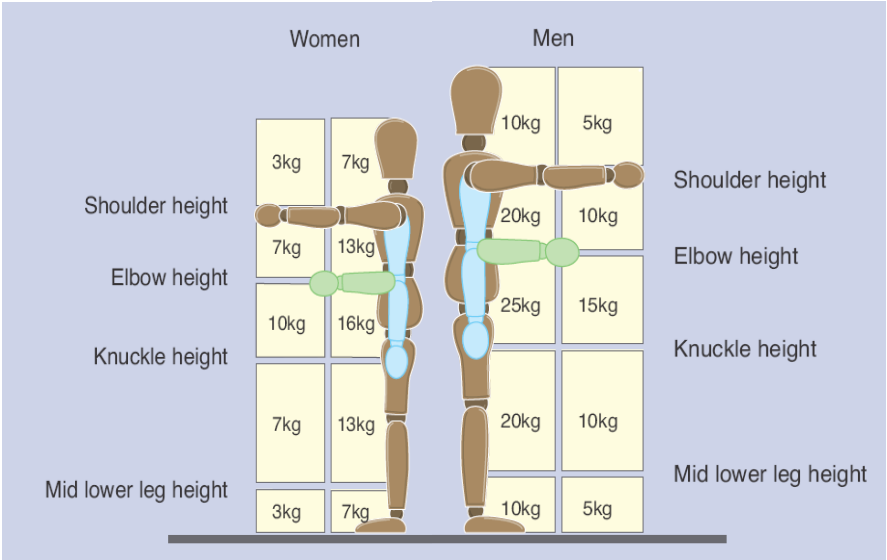
Note the weight of the load and the frequency of the lifting operation. Read off the risk banding on the graph below and enter the colour onto the assessment form.

Please note: High frequency handling of light weights will fall within the green zone, but may be associated with upper limb problems and so may need further control measures.

Source: HSE Leaflet, Manual Handling Assessment Charts



3.1.2 - Vertical lift region



Source: HSE Leaflet, Getting to Grips with Manual Handling

How high or low is the object being lifted? Identify the relevant colour on the form. See also team handling: load weights where applicable.

3.1.3 - Hand distance from lower back when carrying

Next watch the task and note the horizontal distance between the operative's hands and their lower back. Always assess the worst case scenario, and use the following to guide your assessment:

Source: HSE Leaflet, Manual Handling Assessment Charts

3.1.4 - Postural constraints

If the movements of the operative are unhindered, the colour band is green.
If they adopt restricted postures during the lift because of the space available (for example, a narrow gap between the load and shelf or a high workstation), the colour band is amber. If the posture is severely restricted, (for example, work in confined areas such as small store cupboards or areas with a lot of equipment) the colour band is red.

3.1.5 - Environmental factors

Does the lifting operation take place in a work environment where there are any of the following?

- Poor lighting
- Extreme temperatures
- Outdoors
- Strong air movement or ventilation
- Extreme lighting conditions (dark, bright or poor contrast).
- None of the above

Mark down the relevant colour band on the form

3.1.6 - Asymmetrical trunk/load

The operative's posture and the stability of the load are risk factors associated with musculoskeletal injury. The following illustrations should guide your assessment.

Green Amber Red

Source: HSE Leaflet, Manual Handling Assessment Charts

3.1.7 - Personal protective equipment (PPE)

The manual handling assessment should take into account whether the task requires the use of PPE, and if so, whether it has been provided and if it is suitable for the task. PPE must provide sufficient protection from hazards but should not hinder the lifting process. PPE covers a wide range of items relevant to manual handling, including overalls, gloves, safety shoes, food safety hats and hard hats.

Take care to ensure overalls or uniforms do not restrict movement and prevent people using the correct manual handling techniques. For example, skirts or long overalls over trousers may restrict leg movement. If this is the case a more suitable uniform should be provided, such as trousers with short overall tops.

Gloves may affect dexterity and the ability to grip a load, depending on their type and thickness. Always ensure the correct type of gloves are used to provide protection but also give as much dexterity as possible.

Safety shoes with steel toe caps are also important for some types of manual handling tasks, such as to prevent injury if a load is dropped or a trolley is wheeled over a foot.

Safety shoes should also provide a good grip and are usually covered over to protect against spillages of hot liquids or chemicals. Where safety shoes are not required, it is important that the shoes worn are suitable for the particular task, being flat, having good grip and with toes covered.

3.1.8 - Training

Manual handling assessments should identify where staff require training in lifting techniques or in the use of specialist equipment. Schools and services must ensure training is provided as soon as possible after the need has been identified.

Staff whose job involves significant manual handling should undertake a practical manual handling course. These courses are usually organised by health and safety services and the names of staff requiring this training should be sent to the general office of health and safety services. Usually the courses will be provided by suitably trained University health and safety managers, however, occasionally a specialist consultant may be used.

The length of these practical, hands-on courses is generally a 3-3½ hour practical course and refresher training should take place at least every 3 years.

Training in correct lifting techniques is beneficial to everyone, as back sprains and strains are cumulative and do not always result in immediate pain or injury. Consequently, for staff who are more office-based or who do less manual handling in their role, a 1½ hour manual handling course can be provided which focuses on theory, with a practical demonstration of lifting techniques by the trainer.

In addition, local on-the-job training should be provided by schools and services for new staff and repeated for all staff at regular intervals. This should include a description of the manual handling tasks involved. Explanation of any relevant manual handling safe-working procedures, and risk assessments should also be given. These documents should be readily available to all staff for reference, at a central point. Records of this training should be kept and this should include the date of training, name of the trainer, a brief description of areas covered and the names of staff who attended.

3.1.9 - Women of child-bearing age

Where an activity requires this detailed risk assessment and involves women of child-bearing age, it is unlikely to be suitable for new and expectant mothers. (See the following section regarding individual capabilities and the requirement for individual risk assessments). Consequently, by identifying this as part of the risk assessment, it ensures that staff are warned in advance of any relevant workplace hazards, before becoming pregnant.

3.1.10 - Individual capabilities

Everyone is different and some people may be more likely to develop musculoskeletal problems than others. Employees who are especially at risk include:

Staff known to have a history of relevant health problems.
For example back, knee or hip trouble, or other health problems that could affect their manual handling capability.

Staff with a previous manual handling injury
For example hernia or prolapsed disc

Young workers
Below the age of 18

New or expectant mothers
New and expectant mothers should take special care with moving loads. An individual risk assessment should aim to either

- Remove manual handling from their normal workload
- Reduce the extent of manual handling involved, or
- Alter the way the task is done to minimise manual handling and fatigue.

Hormonal changes can affect the ligaments and bring increasing susceptibility to injury, while postural problems may increase as the pregnancy progresses. Avoiding manual handling activities is particularly important in the early stages of pregnancy and from the 28th week of pregnancy onwards, as well as avoiding long periods of standing or walking.

A risk assessment should be made for pregnancy, where the pregnancy is visibly apparent or the employee has informed the University of her pregnancy. For more information, and definitions of new or expectant mothers, read our policy on health and safety risk assessment for new or expectant mothers at http://www.leeds.ac.uk/safety/handling/documents/pregwrkr.pdf

If any of these people work in your school or service and their role involves manual handling, then individual risk assessments must be completed to ensure the risks are adequately controlled.

Schools and services must ensure they have procedures in place to inform staff of the need to report these conditions as early as possible, to help this risk assessment process. In more complex cases, the University occupational health service will provide additional support where necessary.

Other important factors regarding an individual's risk of developing musculoskeletal injuries include inexperienced or new workers (who may need time to acquire the necessary work skills) and individual attitudes or characteristics that may affect compliance with safe working procedures or reporting symptoms.

3.1.11 - Psychosocial risk factors

These are factors that might affect staff's response to their work and workplace conditions, including working relationships with supervisors and colleagues. Examples include high workloads, tight deadlines, lack of control of work and working methods.

Psychosocial risk factors can lead to stress which is a hazard in its own right, however they can also lead to musculoskeletal disorders. This is because stress can lead to changes in the body such as increased muscle tension, which can make people more susceptible to musculoskeletal problems. Alternatively, staff may change their behaviour by missing rest breaks to cope with deadlines and high workloads.

Some key questions include:

- Do staff feel that they have been consulted about planning and scheduling tasks and rest breaks?
- Do staff feel there is good communication between managers and employees - Are staff involved in risk assessments or changes to workstation design?
- If sudden changes occur in workload such as seasonal changes, are systems in place for dealing effectively with this change?

3.1.12 - Pushing and pulling

Pushing and pulling loads on trolleys is a simple way to reduce the risk from manually lifting and carrying objects. However if people do this it can still bring a risk of injury due to a number of other factors. Manual handling regulations cover pushing and pulling – usually a load supported on wheels such as trolleys or wheelie bins, but also if the load is slid along or rolled on the floor.

A specific question at the end of Section 1 of the risk assessment form deals with pushing and pulling activities. This question will tell you whether a more detailed pushing / pulling manual handling risk assessment is required - The extra section is on page 4 of the form. It must also be completed if the load is transported over 20m or the hands on the trolley are either above shoulder height or below knuckle height.

Depending on the design of the trolley it is usually safer to push rather than pull. (The exceptions are trolleys designed to be pulled, including suitcases on wheels. Care should always be taken with these to ensure that they are not too heavy.)

3.1.13 - Team handling: load weights

Team handling may make a lift possible which is beyond the capability of a single person, but it may introduce additional problems which the assessment should consider. During the lift, the proportion of the load that is borne by each team member is likely to vary to some extent, especially over sloping or uneven ground.

Therefore, the load a team can handle safely is less than the sum of the loads individual people could lift alone.

As an approximate guide, a two-person team, can lift 2/3 of the sum of their individual capabilities. Two men could separately lift 25kg each if it was moved, for example, from a shelf at waist height to a table at waist height. Together they could lift a single object weighing 2/3 x 50kg = 33.3kg from waist height to waist height.

A three-person team guideline figure is half the sum of their individual capabilities, three men could lift a 1/2 x 75kg = 37.5 kg load from waist height to waist height.

3.1.14 - Team handling: communication, co-ordination and control

Communication between the operatives is essential when lifting as part of a team. Good communication may include the operatives counting 'one, two, three' prior to the lift and again when putting the item down. The team should have control of the load, lift smoothly and all members should lift and lower together. Ideally, members of the team should be of a similar height to ensure a smooth, even lift.

An uncoordinated team lift may leave one member of the team bearing the entire weight.

Section 2

Section 2 of the risk assessment form is a detailed pushing / pulling risk assessment. You will need to fill in this section if directed by question 3.1.12 of section 1.

3.2.1 - Maintenance and planned inspection regime of lifting equipment

Trolleys, wheels and casters etc:

Staff should know the importance of checking the condition of trolleys, wheels and casters before use. Faults should be reported immediately and equipment taken out of use until it is repaired. Regular planned inspections should be completed and will need to be documented.

Hoists

If mechanical lifting and handling aids are introduced, specific instruction and training will need to be provided. Hoists must be clearly marked to indicate their safe working loads.

Lifting equipment must undergo an annual inspection, or every six months if it is used for lifting people. This will be carried out by the University's insurance company and so it is important that this equipment is logged with the University's insurance contact.

Generic safe working procedures for various manual handling tasks

A number of safe working procedures (SWPs) have been produced for various manual handling tasks. These SWPs will soon be made available on the health and safety services website, however they are generic procedures and may need to be adapted slightly to suit the specific needs of your school or service.

The SWPs should cover the majority of manual handling tasks at the University, but it may occasionally be necessary for schools and services to write a specific SWP for tasks (especially if it is high risk or there are a number of steps involved). This specific SWP should include step by step instructions on how to carry out the task, identifying any key stages.