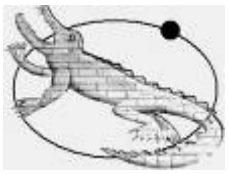
A Code of Practice for Lifting and Moving Loads in the Department of Physics



This document contains the following information:

Dealing with an unfamiliar lifting situation

1. What is the problem?

Unfortunately manual handling accidents are all too common, and can lead to life-long problems with 'bad backs'. While they do not have the same drama as fire, electrocution, etc, they deserve careful consideration as they represent an enormous cost to both the individual and to the employer. Choosing the right lifting method, and executing it correctly can remove most of the risk.

Injuries from manual handling include 'bad backs' - a whole range of musculo-skeletal injuries, but the hands, arms and feet are also vulnerable.

Manual handling includes any transporting or supporting of a load by hand or by bodily force, applied directly or indirectly. It includes lifting, putting down, pushing, pulling, carrying or moving.

Employers should avoid the need for employees to undertake manual handling operations that **involve a risk of their being injured**.

If such manual handling cannot be avoided, then you shall

- Make a suitable and sufficient assessment of the manual handling task
- Take steps to reduce the risk of injury to the lowest level reasonably practicable.

Thus, there is an explicit requirement to undertake risk assessment for manual handling operations where there is a risk of injury.

The overall requirement is to reduce the risk to the lowest level reasonably practicable. The employer shall provide general indications of the weight of the load and the heaviest side (if it is not symmetrical).

Mechanised lifting is not without hazard. Suitable equipment must be chosen and used correctly. Lifting equipment must be made to good engineering standards, tested before use, and also be periodically examined. Fork lift trucks have poor stability and may only be driven by trained personnel. Sadly each year there are many cases of fork lift trucks overturning in the hands of the poorly trained.

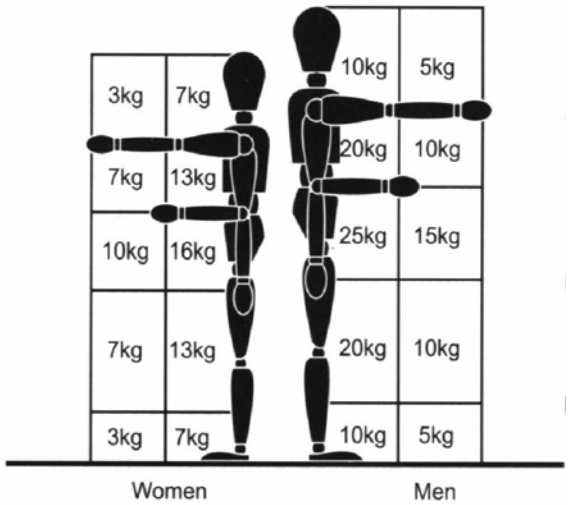
2. Choosing a lifting method

2.1 Lifting by hand

For many operations, lifting by hand is the cheapest, quickest and most sensible option.

It is not possible to set hard and fast rules on the weight that a human being can lift unaided, but the diagram here is reproduced from the HSE guidance. It represents weights that are within the capabilities of the **majority** of the adult population. The underlying message from the regulations is that exceeding these weights would warrant some thought and planning. However, they are NOT to be interpreted in any way as legal weight limits.

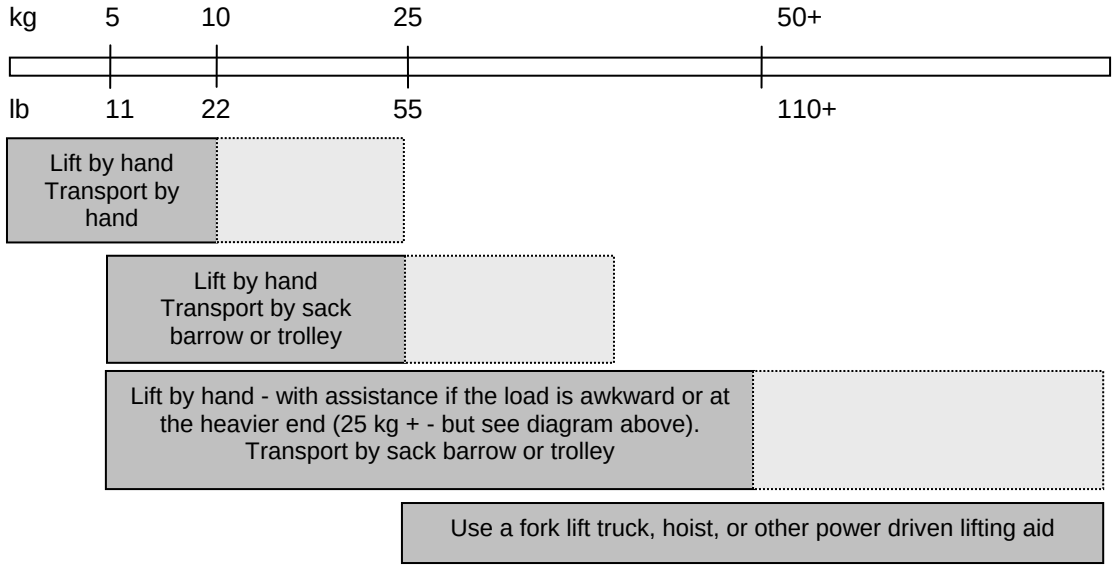
It would be helpful to use these weights as a first filter to decide whether a formal risk assessment is necessary



However, even within these guidelines, it is still perfectly possible to injure oneself, unless correct lifting technique is used. This technique has to be learnt, and this is why training is so important. Some guidance is given below. If the operation involves twisting reduce these weights, e.g. by 10% if the angle of twist exceeds 45 degrees, and by 20% if it exceeds 90 degrees.

2.2 Suggested methods of lifting

Suggested Practices



Practice can generally be recommended but in the case of manual handling you **must** take account of the zone of the body where the lift is taking place, and the individual's capability

Practice may be adopted, with care, if personnel are suitably fit and trained, and the load is easily manipulated. Note the capability for lifting in the various zones around the body detailed in the diagram above

3. Doing the risk assessment for manual handling

3.1 Risk assessment

The Task

Does it involve	Lifting or moving loads at a distance from the trunk? Unsatisfactory bodily movement or posture, especially twisting the trunk, stooping, reaching upwards? Excessive movement of loads – especially excessive lifting, lowering, carrying, pushing or pulling distances? Risk of sudden movement of loads? Insufficient rest or recovery periods? A rate of work imposed by a process?

The Loads

Are they	Heavy? Bulky or unwieldy? Difficult to grasp? Unstable, or with contents likely to shift? Sharp, hot, or otherwise potentially damaging?

The Working Environment

Are there	Space constraints preventing good posture? Uneven, slippery or unstable floors? Variations in level of floors or work surfaces? Extremes of temperature, humidity, or air movement? Poor lighting conditions?

Individual Capability

Does the job	Require unusual strength, height, etc? Create a hazard to those who are pregnant or have a health problem? Require special knowledge or training for its safe performance?

Other Factors

Is movement or posture hindered by personal protective equipment or by clothing?

3.2 Reducing the risk

Can you reduce the risk by:

- Improving the workplace layout?
- Reducing the amount of twisting and stooping?
- Avoiding lifting from floor level to above shoulder height?
- Reducing carrying distances?
- Avoiding repetitive handling?
- Varying the work, allowing one set of muscles to rest while another is used?

Can you:

- Reduce the bulk or weight of the load?
- Make it easier to grasp?
- Make it more stable?
- Make it less damaging to hold?

Can you:

- Remove the obstructions to free movement?
- Provide better flooring?
- Avoid steps and steep ramps?
- Prevent extremes of hot and cold?
- Improve lighting?
- Consider less restrictive clothing or personal protective equipment?

Can you:

- Take better care of those who have a physical weakness or are pregnant?
- Give the employees more information, e.g. about the tasks to be done?

3.3 Training

Training in manual handling technique is very important. It does not, however, overcome failing to use a lifting aid where needed, or bad working conditions.

Training should cover

- How to recognise harmful manual handling
- Systems of work appropriate to the kinds of situation in the Department
- How to choose and use mechanical aids
- Good manual handling techniques.

4. Good manual handling practices

4.1 Good lifting technique

There is no doubt that correct lifting technique is important. The instructions below should be followed to ensure that you reduce the level of risk in lifting.

❶ **Stop and think.**
Plan the lift – where is the load going? Use appropriate handling aids if possible. Do you need help? Remove obstructions on the route you intend to use.

❷ **Position the feet**

Place your feet apart to give a balanced and stable base. Put the leading leg as far forward as is comfortable, pointing in the direction you want to go.

❸ **Adopt a good posture**

When lifting from a low level, bend the knees. Do not kneel or overflex the knees. Keep your back straight, maintaining its natural curve.

Lean forward a little over the load, if necessary, to get a good grip. Keep your shoulders level and facing in the same direction as the hips.

❹ **Get a firm grip.** Try to keep the arms within the boundary formed by the legs. Make sure your grip is secure. A 'palm grip' is preferred.

❺ **Keep the load close to your trunk** for as long as possible. If the load is unbalanced, keep the heaviest side of the load close to your trunk.

❻ **Lift smoothly**, raising the chin as the lift begins. Keep control of the load. Don't jerk. Avoid flexing your back further by straightening your legs before starting to raise the load.

❼ **Move the feet**

Don't twist the trunk when turning to the side – move your feet first. Don't lean sideways, especially while your back is bent.

❽ **Put it down, then adjust**

If you need to place the load precisely, put it down first, then adjust its position.

Source of advice and accompanying drawings: The Health and Safety Executive.

4.2 Coordination of two or more people

Lifting a load in cooperation with others is quite difficult. Two people should not attempt to lift a load that represents their combined capability. HSE Guidance is that two people should only attempt to lift two thirds of their combined capability, and three people may lift half of their combined capability.

Decide who will be in charge BEFORE you begin the lift, and what commands will be used (watch any medical drama series and notice how they lift patients in co-operation). Lack of coordination of such a lift can easily lead to injury for one or more members of the team - plan your work carefully.

5 Cranes, hoists and fork-lift trucks

5.1 Risk assessment

The risk assessment for moving something using a crane or hoist should address the following:

- How heavy is the load, and where is its centre of mass?
- How do I attach it to the crane?
- Have I organised the area where it is to be moved to?
- Is the path underneath the load cleared (particularly of people)?
- Does the person using the equipment know how to use it correctly?

Employers are responsible for ensuring that every lifting operation (i.e. lifting and lowering of a load) involving lifting equipment is

- Properly planned by a competent person
- Appropriately supervised
- Carried out in a safe manner

Training courses are available in lifting and slinging. It is strongly advised that employees and others who are expecting to use an overhead travelling crane for lifting anything that is heavy enough to injure someone if it were to fall off should attend one of these courses.

5.2 Lifting Equipment

Cranes, shackles, chains, ropes, etc must be of adequate strength and stability for each load. Lifting equipment and all its accessories must be clearly marked with the safe working load, and that load must never be exceeded.

The Safety Officer maintains a register of all lifting equipment. It is important to send her details of any new item acquired and any item that has been scrapped. Please retain any test certificates or CE declarations and send a copy to the Safety Officer. Once you have informed the Safety Officer, then the equipment will be inspected at the prescribed intervals.

5.3 Fork Lift trucks

Fork lift trucks are useful for carrying the largest and most bulky loads. They are vehicles of inherently poor stability, and for this reason must only be operated by trained competent people. The driver will check the weight and distribution of the load, and reconnoitre the path to be taken to where the load is put down. The driver is responsible for the safety of the lift.

People must not be carried on the forks of a truck. They can only be lifted by a truck if there is a purpose-built cage installed on the forks.

There is currently no statutory requirement for re-training, but it is a good idea to have a refresher course after about five years to iron out any bad habits that have formed!