MANCHESTER 1824
The University of Manchester

Safety Services Guidance

Guidance on the Lifting Operations and Lifting Equipment Regulations 1998 (LOLER)

Key word(s):	Lifting equipment, lifting operations, thoroughly examined, competent persons, safe working loads, safe working practices, plan
Target audience:	Heads of Schools, Directorates, Faculties, Institutes

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Introduction

1. This document provides guidance in relation to how the University of Manchester will comply with the requirements of the Lifting Operations and Lifting Equipment Regulations (LOLER) 1998.

2. This document does not consider the requirements for manual handling operations.

3. These Regulations require employers to ensure that lifting operations carried out as part of their daily operations are done so without risks to health and safety and that lifting equipment used in the workplace does not present risks.

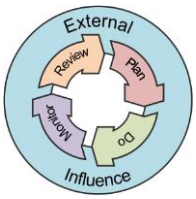
4. Where lifting equipment is used on University premises and in areas under University control it must: -

    - be of sufficient strength, stable and suitable for the proposed use, as will any load being lifted or lowered and attachments used.
    - be positioned and installed to prevent the risk of injury.
    - be marked accordingly where such equipment is used for lifting people and be safe for such a purpose.
    - be thoroughly examined before lifting equipment is put into service for the first time.
    - be thoroughly examined at intervals in accordance with the requirements of the regulations by a competent person.

Responsibilities

5. **Heads of School/Directorates/Faculties/Institutes** must ensure:

    - all items of lifting equipment in areas under their control are identified and recorded in an inventory.
    - that all lifting operations are planned, supervised and carried out in a safe manner.
    - that all risks arising from operations involving lifting equipment are assessed and suitable control measures implemented.
    - that suitable information, instruction and training is given to users of lifting equipment and they are competent to carry out those tasks.



- the examination date for all lifting equipment is identified and arrangements made for a competent person to carry out inspections and that all lifting equipment is made available for inspection.
- any remedial actions regarding any defects found during examinations are carried out.
- that any reports of defects etc are acted upon appropriately.
- that records of thorough examination of lifting equipment are kept.

6. **The Director of Estates and Facilities** is responsible for the provision and maintenance of passenger carrying lifts, and for fixed lifting equipment and appliances. Further information regarding responsibility of plant / equipment can be found in Chapter 23 'Interface between Estates and Facilities and building occupiers"

7. **All users of lifting equipment** must use lifting equipment in accordance with safe working practices and with any information, instruction or training received.

Definitions

What is Lifting Equipment?

8. Lifting equipment is equipment used at work for lifting and lowering loads and includes attachments used for anchoring, fixing or supporting a load. Lifting equipment covers a wide range of items and includes:

- Cranes
- Vacuum lifting cranes
- Hoists
- Scissor lifts
- Fork lift trucks
- Passenger lifts
- Mobile elevated work platforms
- Vehicle tail lifts
- Bath hoists
- Dumb waiters
- Pallet trucks

Also covered under this definition is equipment used for connecting a load to a lifting machine or appliance (also known as lifting tackle) and includes shackles, slings, hooks etc.

Who is a Competent Person?

9. A person with the necessary knowledge, experience, training, skill and ability to perform the specific duty to which the requirement refers. For the purpose of thoroughly examining lifting equipment a competent person is a person having such practical and theoretical knowledge and experience of the equipment which is to be thoroughly examined that will enable him / her to detect defects or weaknesses. The person must be able to certify with confidence whether it is free from patent defects and suitable in every way for the duty for which the equipment is required. Formal examination should be carried out by the University's appointed Insurance Engineers, currently Allianz Engineering.

Safe Working Load

10. The maximum load as assessed by a competent person that an item of lifting equipment may raise, lower or suspend under the particular service conditions. The safe working load is marked on the equipment and appears in the statutory records.

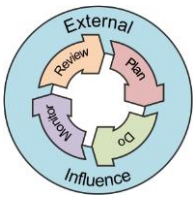
Providing Equipment that is Safe and Suitable

11. As an employer the University has a duty to provide equipment that is safe and suitable for its intended purpose. New equipment should comply with the relevant European Directive and have an EC Declaration Conformity and CE mark. Older equipment should comply with the general requirements of the Health and Safety at Work Act 1974 and any relevant current regulations and British Standards current at the time of supply.

Adequate Planning, Supervision and Undertaking of Lifting Operations in a Safe Manner

12. All lifting operations must be adequately planned. For routine operations a general plan will be sufficient, but for special or complex operations a specific written plan will be required.

13. Providing the right equipment, using appropriately trained people and following correct practices are a fundamental part of any plan. However many other points of detail must be considered if the operation is to be conducted in a safe manner. For example, the weight, shape and strength of the load will need to be known,

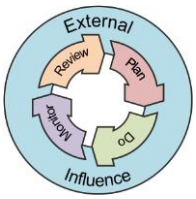


whether the load is to be turned in the air, whether the load will be stable when it is landed, whether the floor is strong enough to support the load. The effect of the lifting operation on other people or activities must also be considered, as must the weather if outdoor working is involved.

Training and Use

14. As an employer the University is obliged to ensure that equipment is properly used and operatives are suitably trained in the use of lifting equipment. Employees are equally obliged to only use equipment for which they have received training and to use it in the manner in which they have been trained. The training of any individuals involved in the use of lifting equipment should take into account:

- The specific uses for which items of lifting equipment are intended and where information relating to any appropriate operation manual can be found.
- The correct methods of using lifting equipment. Warnings should be given as to incorrect methods of use and dangerous practices, together with an explanation of the possible outcome.
- Recognition and understanding of the markings on the equipment, including any limitations this may impose on the use.
- The daily check procedure, including any requirements imposed by the manufacturer, supplier or competent person.
- Pre-use checks to be made, including load and angle estimation where applicable and the identification of basic equipment defects together with the procedure for reporting them.
- The correct methods of attaching the load, slings and other accessories to the load hook of the appliance.
- Pre-lift checks to be carried out.
- Lifting and lowering procedures to be adopted. For complicated lifting operations written schemes of work, complete with diagrams, should be issued to operatives or be on permanent display in the vicinity of the lifting operation.
- The signals to be used when more than one operative is involved in the lifting operation.
- The possible faults which can occur in use, how to withdraw equipment from service and how to report defects.
- The procedures to follow on completion of the lifting operation including the correct methods of preparing portable items and accessories for transportation and storage.



- The correct methods of storage and the need to ensure these requirements are observed.
- The safe system of work to be followed and where advice can be sort if in doubt.

Selection of Suitable Lifting Equipment

Factor of safety

15. Good practice requires that any lifting equipment shall have an adequate factor of safety incorporated in each of the separate sections of the lifting arrangement. A minimum factor of safety for the specific item is recommended and this should not be decreased. The purposes of a factor of safety are numerous, including allowance for wear, impact, dynamic loading and accidental overloading. However it cannot be too highly stressed that such allowances are a contingency only and must never be eroded. Care should always be taken to avoid circumstances which can overload and care should be taken in circumstances where inadvertent overload can occur. In extreme cases where several adverse circumstances occur at the same time, the result may be failure even though the nominal load lifted does not exceed the safe working load of the equipment. If such circumstances are likely to occur, reference should be made to a competent person who will advise whether it is necessary to use higher rated equipment to achieve a higher factor of safety.

Intended Use

16. Some items of lifting equipment (eg lifting beams) can be used in a variety of ways. It is therefore important that information on the specific intended use(s) be indicated by the manufacturer / supplier in such cases and the advice of a competent person sought before any change of use is authorised.

Compatibility

17. Several different grades of material are used for lifting equipment and in particular it will be found that hooks, links, rings and shackles vary considerably in size for a given capacity according to the grade of materials used. Care must therefore be taken to ensure that each item of equipment seat correctly and aligns with its neighbours. Where necessary an intermediate link or shackle should be used to ensure this.

Marking, Storage and Handling

Marking

18. Equipment which has been satisfactorily verified eg proof tested and has passed the subsequent thorough examination should be marked with:

    - Safe working Load
    - An identification mark to facilitate periodic inspection and cross reference to other records
    - Such other marks as are required by the standard being worked to and by legislation

19. Should any of these become obliterated or ineligible the equipment should be withdrawn from use and referred to a competent person for re-verification and re-marking.

Storage and Handling

20. In order to reduce to a minimum the risk of damage or deterioration which may affect the safety of equipment, it is essential to provide suitable storage for equipment not in use and in many cases to prepare it for storage first.

21. The ideal storage requirements vary according to the nature of the equipment but in general the storage area should be dry and free from harmful pollution and not subject to extreme temperatures. Equipment with exposed threads or machined bearing surfaces (eg eyebolts, shackles) should be protected and handled with care. Equipment which is returned to stores wet or has been subject to other substances liable to cause deterioration should be treated with special care.

22. Bins, racks etc should be provided and only the heavier, more robust items allowed to lie on the floor.

Inspections and Thorough Examinations

In Service Inspection

23. Lifting equipment can be subjected to operational and environmental conditions which may affect its safe working characteristics. LOLER require that lifting equipment is properly maintained and safe to operate at all times. To ensure that this is the case the regulations require lifting equipment to be inspected at

suitable intervals between thorough examinations. Regular in service inspections should be programmed at appropriate intervals to satisfy this legal requirement. The period between the in-service inspections should be determined by the utilisation, environment and similar factors based on the history of the equipment eg visual check each time equipment is used.

24. The in service inspection should be carried out by a responsible and competent person with knowledge of the requirements.

Inspection and Thorough Examination

25. LOLER require that all lifting equipment is thoroughly examined by a competent person throughout its life and the results recorded. The regulations require the thorough examination to be either within a fixed period (six months for lifting equipment for lifting persons and lifting accessories, twelve months for other lifting equipment) or in accordance with a written scheme of examination drawn up by a competent person. It is also a legal requirement that lifting equipment is thoroughly examined by a competent person following any exceptional circumstances eg unexpected shock loading which is liable to jeopardise the safety of the equipment. The regulations also require the competent person to state on the report the date by which the next examination is to be made.

26. All records of test, examination, inspection and maintenance should be retained and cross-referenced for inspection by the competent person or the Regulator, when requested.

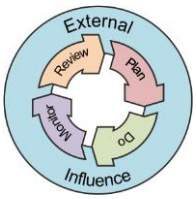
Maintenance

27. There is a legal requirement to maintain all equipment provided for use at work and this is of particular importance for lifting equipment. This duty can be satisfied by the introduction of regular maintenance programmes, the details of which should be recorded. Maintenance should be carried out in accordance with the manufacturers' instructions, supplemented as necessary to take into account the operating conditions.

28. Where equipment is dismantled and re-assembled, or repairs are made the equipment should be re-verified by a competent person before further use.

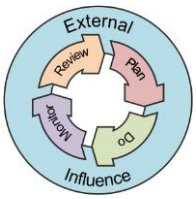
Safe Use of Lifting Equipment

29. The objective of good lifting practice is to ensure that any load is safe when lifted and is as secure in the air as it is on the ground. The following is a general



procedure which can be adapted by Schools/Directorates to any lifting operations irrespective of the type of lifting appliance or method of attaching the load to the appliance. Also it can be used for developing/assisting in risk assessments for lifting and lifting schemes (see Plan of Lifting Operations below) All lifting operations must be undertaken by suitably trained and competent personnel.

- Determine the weight of the load and the position of its centre of gravity in relation to the lifting points. In all lifting operations, care should be taken to ensure that the load imposed on any item does not exceed its safe working load. Where there is any uncertainty about the weight of the load or the load applied to a particular part of the equipment, it is recommended that load-sensing devices be used.
- Decide on the method of lifting and slinging of the load. The equipment selected should be used only for the specific purpose for which it was designed and should not be adapted for any other purpose without the approval of a competent person. The equipment and its method of intended use should be suitable for the load and the method of attachment of slings to the load and slings to the lifting appliance should be secure. None of the lifting equipment should be overloaded either by the weight of the load or the method of slinging.
- The method of slinging must ensure that the load is balanced, does not violently or unintentionally change when lifted and at all stages of the lift remains in a stable condition. In general the load will swing and may be unstable if at any time the centre of gravity of the load is not vertically beneath the crane hook, or the centre of gravity of the load is higher than the point of attachment of the slings to the load.
- Care must be taken to ensure that the lifting equipment does not damage the load and equally the load does not damage the lifting equipment. Depending upon the slinging method chosen, packing may be required between the sling and the load.
- All lifting equipment should be carefully inspected for obvious defects before use.
- Ropes or tag lines may be required to control the load once it is in the air. This is particularly recommended in the case of long loads where tag lines should be attached at one or both ends so that rotational movement can be controlled. The tag lines should be of such length that persons controlling the load do not stand under it during the lift. Under no circumstances must tag lines be used to balance the load, or for any other purpose than controlling rotation of the load.
- Consideration should be given to any obstacles which may have to be avoided such as cables, pipes or structures.



- Before commencing the operation a suitable landing site should be prepare. The site chosen must be of adequate size and capable of taking the weight of the load. The operatives should be wary of any cellars, suspended floors, underground services which could affect the load bearing capacity of the landing site. In addition it may be necessary to provide suitable landing pads e.g. timber bearers to enable the slings to be removed from under the load.
- Ensure that the load is free to be lifted and not restrained by fixing bolts etc. Seals or joints, which may offer considerable resistance, should be separated by other means before the lift commences.
- Ensure that any loose parts of the load are adequately secured, either by the slinging method or by other means, or they are removed.
- Ensure that there is a clear method of communication between the operative responsible for slinging and the operator of the lifting appliance. Hand signals are preferred particularly where noise might interfere.
- Unless avoidable no one should be allowed under a suspended load and as far as possible all people should be kept clear of the area of operation.
- With ALL lifting operations the load should be lifted a nominal distance only in the first instance. This trial lift allows the operative to check his estimation of balance, stability and general security of the load, whilst in a relatively safe position. If any discrepancies are found the load should be lowered and the slinging revised. The sequence of trial lift and adjustment should be repeated until the operative is satisfied that the load is balanced, stable and secure.
- When lowering the load it should be brought to a halt a short distance above the landing site to allow it to be steadied, its position and the position of any landing pads checked and to ensure all personnel are clear of the danger area. The load should be inched down into position. Before slackening off the slings, checks should be made to ensure that the load is safe and stable. If not it should be lifted slightly to allow the landing blocks etc to be adjusted and lowered again. The load should not be lowered so as to trap the slings as this may result in serious damage to them.
- Operatives should always be careful not to set the load down on his own or anyone else's toes and ensure that fingers do not become trapped. Both are common accidents. Having set down the load carefully, the sling legs should be manually withdrawn by the operatives.
- If no longer required lifting equipment should be returned to storage.
- If to be used again the slings should be hooked back onto the upper terminal fitting to prevent them inadvertently becoming hooked onto surrounding objects or striking someone.

Further Information

S.I. 1998:2307 Lifting Operations and Lifting Equipment Regulations 1998

Safe Use of Lifting Equipment. Lifting Operations and Lifting Equipment Regulations 1998 Approved Code of Practice L113, HSE Books, 1998. ISBN 978 0 7176 6586 0

Safe Use of Work Equipment. Provision and Use of Work Equipment Regulations 1998 Approved Code of Practice L22 (4th addition), HSE Books, 1998. ISBN 978 0 7176 6619 5

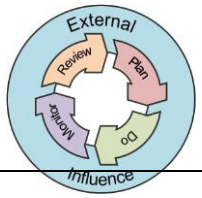
BS7121-1:2016 Code of Practice for the Safe use of Cranes

Managing for health and safety (HSG65) 2013, HSE Books, 2013. ISBN 978 0 7176 6456 6

Code of Practice for the Safe Use of Lifting Equipment Edition 8 (Revised 2015)– Lifting Equipment Engineers Association

LIFTING OPERATIONS AND LIFTING EQUIPMENT REGULATIONS 1998 PLAN OF LIFTING OPERATIONS	**Rev: 00**	**Ref:**
	Date:	
	Sheet No.	**Name:**

Site:		Area:	
Details of Lift:		Details of load	
A. Work Details			
1. Dimensions of load		2. Weight of load + factor of safety	
3. Max height of lift.		4. Max working radius	
5. Jib length required		6. Total Weight	
7. Special Requirements			
B. Crane Set Up Details			
1. Type of crane with configuration			
2. Operators Certification (Check)			
3. Will Outriggers/tracks be on concrete, soil or stone?			
4. Will Outriggers/tracks be next to an excavation?			
5. Are any underground services located under outrigger/tracks?			
6. Are the crane operator & banksman out of sight of each other?	(Means of communication)		



7. Is the access route suitable and are there any restrictions?	
8. Any other restrictions?	
C. Rigging Arrangements	
1. SWL at configuration and lifting radius?	
2. Is there any eccentricity of the load that will present rigging difficulties?	
3. Does the irregularity of the shape of the load present any rigging or lifting difficulties?	
4. Is the lifting tackle of sufficient capacity? (Including any reductions in capacity for sling angles and choking back onto the sling arrangements)	
5. Is the access safe to attach lifting tackle?	
6. Are there any lifting points that are attached to the load that are damaged or in poor condition?	

D. Sketch of Lifting Arrangement:

E. Lifting Equipment Schedule			
Item of lifting equipment		Number required	S.W.L
Completed By:		Checked By:	
Position		Position:	

If there are any doubts then advice should be sought from the 'Appointed Person' for lifting operations.

Document control box	
Title:	Guidance on the Lifting Operations and Lifting Equipment Regulations 1998 (LOLER)
Link to Policy or Chapter:	University Health & Safety Arrangements Chapter 23 "Interface between Estates and Facilities and building occupiers", Guidance on statutory inspections, A-Z of documents on Safety Services website
Date first issued:	January 2009
Issued by:	Safety Services
Implementation date:	January 2009
Version and date:	v 1.2, February 2017 v 1.1, July 2014
Next review date:	Upon significant change
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