Specific Regulations /Clauses:
PUWER (Provision and Use of Work Equipment Regulations 1998)

Regulation 4(1) Clause 103: Equipment must be suitable by design construction or adaptation, for the actual work it is provided to do. This means in practice that when you provide work equipment you should ensure that it is suitable for the work to be undertaken and that it is used in accordance with the manufacturers specification and instructions. If work equipment is adapted it must still be suitable for its intended purpose.

Clause 104: This requirement provides the focal point for the other Regulations – for example, compliance with regulation 10 should ensure the initial integrity of equipment in many cases, and compliance with the specific requirements of Regulations 11 to 24.

Regulation 5 Maintenance, Clause 118: This regulation builds on the general duty in the HSW Act, which requires work equipment to be maintained so that it is safe. It does not cover the maintenance process (that is covered by the general duties of the HSW Act) or the construction of work equipment so that maintenance can be carried out without risk to health or safety (these are the subject of Regulation 10 and Regulation 22).

Clause 119: It is important that equipment is maintained so that its performance does not deteriorate to the extent that it puts people at risk. In Regulation 5, ‘efficient’ relates to how the condition of the equipment might affect health & safety. It is not concerned with productivity. Some parts of equipment such as guards, ventilation equipment, emergency shutdown systems and pressure relief devices have to be maintained to do their job at all times. The need to maintain other parts may not be obvious, failure to lubricate bearings or replace clogged filters might lead to danger because of seized parts or overheating. Some maintenance routines affect both the way the equipment works and its safety. Checking and replacing worn or damaged friction linings in the clutch on a guillotine will ensure it operates correctly, but could also prevent the drive mechanism jamming, so reducing the risk or repeat uncovenanted strokes.

Clause 121: Frequency of Maintenance: The frequency at which maintenance activities are carried out should also take into account the:

(a) intensity of use- frequency and maximum working limits;

(b) operating environment, for example marine, outdoor;

(c) variety of operations – is the equipment performing the same task all the time or does this change?

(d) risk to health and safety from malfunction or failure.

Clause 138: Identifying what needs to be inspected: Inspection is only necessary where there is a significant risk resulting from:

(a) incorrect installation or re-installation;

(b) deterioration; or

(c) as a result of exceptional circumstances which could affect the safe operation of the work equipment.

Clause 155: Conditions causing deterioration and Dangerous situations: Where work equipment is of a type where the safe operation is critically dependent on its condition in use and deterioration would lead to a significant risk to the operator or other worker, you should arrange for suitable inspections to be carried out.

Specific Regulations /Clauses:
LOLER (Lifting Operations and Lifting Equipment Regulations 1998)

Clause 15: When considering what you need to do to meet the requirements of LOLER due to the risks from using a particular piece of lifting equipment, the factors that you need to consider include:

(a) the type of load being lifted, its weight, shape and what it consists of;

(b) the risk of a load falling or striking a person or object and the consequences;

(c) the risk of the lifting equipment striking a person or some other object and the consequences; and

(d) the risk of the lifting equipment falling or falling over while in use and the consequences.

Clause 58: Material of Manufacture: You should only select lifting equipment if it is made of materials which are suitable for the condition under which it will be used.

Strength and Stability

Every employer shall ensure that: -

(a) lifting equipment is of adequate strength and stability for each load, having regard in particular to the stress induced at its mounting or fixing points.

(b) *every part of a load and anything attached to it and used in lifting it is of adequate strength.*

Clause 98: You should assess whether the lifting equipment has adequate strength for the proposed use. Account should be taken of the combination of forces to which the lifting equipment will be subjected as well as the weight of any associated accessories used in the lifting operation.

Clause 99: The lifting equipment selected should not be unduly susceptible to any of the foreseeable failure modes likely to arise in service, for example fracture, wear and fatigue.

Clause 100: The lifting equipment used should provide an appropriate factor of safety against failure under foreseeable failure modes.

Clause 101: The lifting equipment should have adequate strength but you should pay particular attention to the mounting and fixing points. The mounting and fixing points not only include where the lifting equipment is secured to another surface but also where parts of the lifting equipment are fixed together, e.g. two jib sections of a crane. In addition to the downward

force of the weight of the load, you should consider additional forces, e.g. any wind loading since this may place extra stresses on the lifting equipment. Furthermore, any modifications to lifting equipment may also affect the wind loading. For example fitting Christmas decorations and messages or advertising hoardings, etc to a tower crane should only be carried out after a careful consideration of the risks that may arise from such changes to the wind loadings and the potential effect on the stability of the lifting equipment.

Clause 102: A competent person should ensure that the strength and stability of the lifting equipment continues to be adequate for the tasks that the equipment is intended to be used for.

Clause 109: Adequate Stability: Where lifting equipment is anchored to other work equipment or structures you should ensure that this equipment or structure can withstand the forces that the lifting equipment and its use will impose on them.

Clause 111: If the lifting equipment is situated on a floating vessel it will be effectively operating on a variable out of level base and thus subject to significantly different loading conditions than is the case on firm level ground. In addition, the distance between the water level and the deck (and therefore the stability margins) of the floating vessel will vary as the lifting operation is carried out. Such lifting equipment will be subject to greater dynamic loading than when used on land. For example, for a crane there will be increased side loading on the jib and greater forces in the slewing mechanisms, brakes and clutches due to changes in inclination of the vessel. The crane must therefore be derated from its normal land-based duties. The extent of such derating should be determined by a competent person based on the manufacturer of the lifting equipment's recommendations for floating duties. Further guidance on derating can be found in BS7121.

Clause 116: The requirement to ensure that the lifting equipment has adequate strength and stability for the task links with your duty under Regulation 8(1)(c) of LOLER to ensure that all lifting operations involving lifting equipment are carried out in a safe manner.

Clause 118: The surface on which rail-mounted lifting equipment runs (with or without load) should be sufficiently firm to support the rails. The rails should have an even running surface; be properly joined; laid so that the lifting equipment and its load can move freely and without danger of derailment.

Clause 119: Ground settlement can cause rails to become misaligned and the running surface to become uneven. You should not allow such settlement to develop to the extent that the lifting equipment can become unstable or derailed in use.

Regulation 6 Positioning and Installation

(1) Every employer shall ensure that lifting equipment is positioned or installed in such a way as to reduce as low as is reasonably practicable (ALARP) the risk –

(a) of the equipment or a load striking a person; or

(b) from a load –

(i) drifting;
(ii) falling freely; or
(iii) being released unintentionally;

and it is otherwise safe.

Clause 171: Runway beams supporting lifting equipment should be level and of sufficient stiffness to prevent equipment drifting or running away.

Regulation 6(1)(b)(ii).

Clause 172: Where appropriate, lifting equipment should be fitted with suitable devices to minimise any risk of the load falling freely.

Regulation 8(1)(a)

Clause 217: Regulation 4 of PUWER 98 requires suitable work equipment to be provided for the task. There is therefore a close link between Regulation 4 and this requirement for planning. Factors you should consider when selecting lifting equipment so that it is suitable for the proposed task include;

(a) the load to be lifted;

(b) its weight, shape, centre of gravity, availability of lifting points;

(c) where the load is presently positioned and where it will be positioned after lifting operations;

(d) how often the lifting equipment will be used to carry out the task;

(e) the environment in which the lifting equipment will be used ; and

(f) the personnel available and their knowledge, training and experience.

The person carrying out this part of the planning exercise will need to have appropriate knowledge and expertise.

Continuing integrity: Regulation 5 of PUWER

Clause 290: Regulation 5 of PUWER requires you to maintain work equipment in an efficient state, in efficient working order and good repair. Further advise on maintenance is in the guidance supporting PUWER.
Thorough Examination

Clause 296: You should identify equipment, which requires a thorough examination, and ensure that it is thoroughly examined. The risks which could arise from the failure of the lifting equipment will determine how thorough the examination needs to be.

Clause 298: All lifting equipment deteriorates in use and should be thoroughly examined so that deterioration can be detected in sufficient time to allow remedial action to be taken. Deterioration can occur more quickly in certain conditions such as wet, abrasive or corrosive environments and this equipment may need to be thoroughly examined more frequently. The competent person will determine the level of thorough examination required based on an assessment of the risk.

Clause 300: For certain types of thorough examination, access to inner workings of the equipment may be required.

Regulation 9(3)(a) – In service thorough examination

Clause 313: The competent person should thoroughly examine those items and parts of the lifting equipment specified in the examination scheme or those items and parts of the lifting equipment which could through deterioration lead to dangerous situations.

Clause 314: Lifting equipment deteriorates through normal wear and tear when used within its design limits and in the ways specified by the manufacturer / supplier.
Unacceptable deterioration occurs when the equipment has deteriorated to the extent that the safety is compromised or could be compromised before the next thorough examination takes place.

Clause 321: Any examination scheme for lifting equipment should take account of:

(a) its condition;

(b) the environment in which it is to be used; and

(c) the number of lifting operations and the loads lifted.

Regulation 9(3)(b)

Clause 336: You should arrange for suitable inspections to be carried out where the lifting equipment is of a type where its safe operation is dependent on its condition in use and deterioration would lead to significant risks to the operator or other persons. In determining the suitability and scope of the inspection you should refer to available information such as the manufacturers instructions. Examples of conditions, which can be detected by inspection of the lifting equipment, include:

(a) rapid wear arising from use in an arduous environment, e.g. construction;

(b) failure through repeated operations, e.g. of a hoist interlock;

(c) malfunction, e.g. of a rated capacity indicator; and

(d) tampering with safety devices, e.g. defeating an interlock.

Regulation 10 Reports and Defects

Clause 349: Competent person's reports are a vital diagnostic aid to the safe management of lifting equipment. Defects which are habitually not detected or rectified until the competent person's thorough examination are indicative of inadequacies in management systems. A competent person who fails to report a defect, simply because it has been remedied on the spot, is disguising a potentially dangerous situation.