The Control and Safe Use of Cranes

Contents

1. Purpose

The purpose of this Standard is to ensure the correct selection, control and safe use of Cranes as prescribed in the Lifting Operations and Lifting Equipment Regulations (LOLER).

2. Scope

This standard covers all Morgan Sindall projects and locations under the control of Morgan Sindall .

This standard applies to **all types of cranes** (including compact cranes, pedestrian operated cranes, mini / spider cranes, lorry mounted tower cranes, piling rigs and includes wheeled mobile cranes, tracked crawler cranes, tower cranes, trailer mounted cranes, gantry cranes etc.) used throughout the company, including those belonging to subcontractors.

3. Minimum competency requirements

- **Appointed Person (AP)** must hold the Construction Plant Competence Scheme (CPCS) certification
- **Crane lifting operations supervisors** must hold CPCS certification
- **Singer / signaller** must hold CPCS certification
- **Mobile or tower crane operator** must hold CPCS training certification for the particular crane to be used
- **Pedestrian operated tower crane / spider crane operator** must hold CPCS training certification for the particular crane to be used.
- **Responsible Person (Lifting)** must either hold CPCS certification for an AP, or have attended the Morgan Sindall Crane Appreciation Training Course

4. Responsibilities

The following duty holders must be appointed for all crane operations in accordance with this standard, and their responsibilities are detailed below:

4.1 Safe and sustainability director

Authorises this standard.

4.2 Project / site manager

The project manager shall:

- Implement this standard for all types of crane lifts
- Ensure appropriate measures are in place for the control of change for risk assessment/method statements
- Appoint a Morgan Sindall AP or Responsible Person (Lifting) to sign off permits to lift (suggest – 'to authorise permits to lift by signature' rather than 'sign off')
- Ensure all persons involved in the planning and carrying out of lifting operations are competent
- Appoint a Morgan Sindall person to coordinate the relevant plans, permits, forms and associated paperwork for the Morgan Sindall filing system
- Check the minimum attributes of personnel involved with lifting operations, and confirm that they are:
  1. Competent to perform the tasks required of them
  2. Adequately trained
  3. Able to present a record of training and assessment
  4. Physically able to carry out the work

4.3 Appointed Person (AP) (lifting operations)

The trained appointed person shall be responsible for the planning and management of lifting operations. AP shall have the appropriate knowledge, ability and time to carry out their duties, shall be suitably trained and have appropriate knowledge of cranes, lifting operations and legislation.

The AP will ensure that:

- The assessment and planning of lifting operations is undertaken and complies with the requirements of this Morgan Sindall standard
- The crane team is appointed and all are made aware of their duties and responsibilities
- There is an effective line of communication back to the AP in the event they are not present at the lift
- Close liaison is maintained with the technical crane suppliers throughout the installation, operational and dismantling phases of tower cranes
- Lifting operations are reviewed following advice from the crane / lift supervisor / signaller / slinger on any matters of change in arrangements, and that the lift plan and risk assessment are amended accordingly
- Develop the lift plan
- Details are provided to the Temporary Works Coordinator (TWC) so that a platform design can be produced for the site areas where the crane will be off loaded, rigged, de-rigged, travelled, operated and parked when not in use
- The relevant site conditions have been assessed with advice sought from the site temporary works coordinator and the information is made known to the crane lifting operations supervisor, operator, slinger / signaller and anyone else affected by the operations
- Any underground services, overhead services, ground conditions, surface, or other proximity hazards / objects which clash or obstruct the lifting operations - investigate, identify and record in the lift plan
- The crane checklists are completed and signed BEFORE a crane is used. In cases where a crane is used for multiple lifts, e.g. shaft work or construction lifts in a defined area, then these forms only require completing prior to the crane being set up, not for every lift
- The AP shall consider the findings of a risk assessment, and where necessary appoint a crane coordinator to carry out the planned sequential movement of cranes, loads and other equipment on sites where there is a possibility of collisions between cranes, loads and other equipment
- Where there is more than one appointed person allocated to a project, or where multiple lifting operations are carried out by various subcontractors, Morgan Sindall project / site manager will appoint the AP for the site, or appoint one of the subcontractors own AP's in a lead role. Each of the subcontractors on site will employ individuals who have undergone AP training but they should remain subservient to the Morgan Sindall AP or lead AP, who will ensure that the crane coordinator is advised of all lifting operations in order that they may perform their duties
- Where a contract lift package has been agreed by Morgan Sindall with a specialist lifting organisation the Morgan Sindall AP or Responsible Person (Lifting) shall be responsible for

ensuring that the specialist organisation carries out their duties and also for writing to that specialist confirming as a contractual requirement that:-

- The contractor has appointed a person to control the lifting operation in accordance with these standards.
- All information or services required of Morgan Sindall to facilitate compliance with the standards shall be notified in writing.

4.4 Crane Lifting Operations Supervisor (CLOS) (appointed by site / project manager)

Act as a key member of the crane team and **report** to the **AP** as leader of that team, including details of any change in activities or arrangements. The CLOS will:

- Carry out the lift in accordance with the AP lift plan and give instructions. (Where cranes are working within the vicinity of overhead cable or other cranes/limitations, then "Motion Limit Devices" or anti collision devices (boom length, height and slew restrictors) must be operational)
- Check that the "Motion Limit Device" system is serviceable and suitable "prior" to the lift taking place. A full systems check and functions check should be carried out "prior" to the lift
- Ensure that the slinger / signaller controlling the lift and directing the crane is known to the crane operator, and will be clearly visible to them (e.g. by wearing a different colour helmet or slinger / signaller waistcoat or other agreed system)
- Ensure any certification is copied to the site register and recorded that the copies have been seen
- Monitor that weekly inspections of the crane is carried out and recorded in the inspection register
- Ensure that the slingers / signallers, the crane operator and any other person involved in the lift are familiar with and follow the safe system of work and the details and limitations recorded in the lifting plan
- Stop crane operations if it is considered there is an imminent risk to the safety of all persons / property, including persons not involved with the operations
- Receive complaints / observations from personnel involved with the crane operations and take appropriate action
- Check site conditions to ensure that there is adequate room for manoeuvre of the crane and where trapping hazards are present, that there is a safe system to prevent persons entering the lifting operation area, being trapped, e.g. physical barriers and signage to prevent access into the restricted area
- Confirm the weights of loads from delivery documentation etc.
- Ensure the Safe Working Load (SWL) is **never** exceeded. **There are no exceptions to this**
- Ensure cranes do not operate in any weather conditions that exceed the limit stated for that type of crane
- Ensure that man-riding is never carried out unless it is part of the agreed safe system of work
- Ensure that tower crane operators' working hours do not exceed the operating criteria.

4.5 Slinger / signaller (appointed by site / project manager)

Slinging duties should only be carried out under the direction of qualified slingers who are in possession of a valid CPCS certificate of competence.

- The slinger / signaller will read, understand and comply with the lift plan and take instruction from the CLOS
- Establish weights, judge distances, heights and clearances
- Attach and detach the load to and from the crane load lifting attachment
- Use the correct accessories for lifting and other equipment including "tag lines" in accordance with the planning of the operation
- Be responsible for initiating and directing the safe movement of the crane (if there is more than one slinger / signaller, only one of them should have this responsibility at any one time, depending on their positions relative to the crane)
- Blind lifts - where continuity of signalling is required and this slinger / signaller is not visible to the crane operator, another slinger or signaller may be necessary to relay signals to the crane operator. Alternatively, other audio or visual methods may be used
- Ensure that any physical controls i.e. barriers are in place and non-essential personnel are kept out of the immediate working area of the operation
- Ensure that wherever possible persons do not walk under suspended loads and loads are not

transported over people's heads. Check the anticipated path of the load
- Adopt correct slinging techniques. and make the lift (a trial lift may be necessary to establish centre of gravity and weight)
- Ensure lifting equipment is fit for use by carrying out pre-use and post-use checks. If found to be defective record in the register
- Stop crane operations if it is considered there is an imminent risk to the safety of persons / property, including persons not involved with the operations. Report all issues back to appointed persons and project / site manager
- Use the recognised code of signals (British Standard Code of Practice for Cranes BS7121). (If visual signals are not practical then a robust radio system with failsafe communication protocols should be used)
- Be familiar with any appropriate, documentation or operational requirements such as risk assessments, method statements or lift plans
- Ensure there is a safe and proper area set out to set down the load, set down the load and ensure that it is safe and suitably chocked. Release the lifting equipment after the lift has been completed. Clear up and where appropriate, return lifting equipment to a suitable secure storage location.

4.6 Crane operators

The operator must produce a valid CPCS competency card for the categories of cranes they are operating

Crane operators must:
- Be in possession of and have been briefed on the lift plan, and have signed the relevant section
- Position and operate the crane, in accordance with the lift plan
- Where "Motion Limit Devices" or anti collision devices are required set the parameters / limitations of the system "prior" to the lift, ensure the system is set and calibrated as per the manufacturer's instructions and checked for suitability "prior" to use
- Must have received "training" on the system prior to carrying out this duty
- Inform the crane lift supervisor / slinger / signaller if any problems arise which would affect the lifting operation
- Carry out daily / weekly inspections of the crane and lifting equipment (daily for carrying persons) and enter results into the site register or Planned Preventative Maintenance (PPM) sheets as applicable
- Operate the crane in accordance with the crane's operating instructions.

Morgan Sindall cranes shall be operated by drivers approved by Morgan Sindall and shall preferably be employed by the company or as agreed with Morgan Sindall. In the event that a company operator is unavailable: -
- Morgan Sindall shall arrange for an approved operator, or
- The site manager shall contact Morgan Sindall to make arrangements for a replacement operator when required.

4.7 Crane coordinator (Appointed in writing by the site / project manager)

The crane coordinator is the person who plans and directs the sequence of operations of cranes to ensure that;
- They do not collide with other cranes, loads and other equipment (e.g. concrete placing booms, telehandlers, piling rigs)
- Communication systems are established with corresponding instructions from the crane coordinator to crane operators being communicated via the respective signallers.

General
- Where audio or visual methods are used, the equipment or its means of use should be such that the operator is immediately aware of failure of the equipment, to enable them to stop crane movements.

4.8 Responsible Person (Lifting) (Appointed in writing by the site / project manager)

On projects that do not warrant a Morgan Sindall Appointed Person, the Responsible Person (Lifting) is the person who will manage and monitor lifting activities on the project. The Responsible Person (Lifting) shall ensure that:

- The Schedule of Lifting Operations is kept up to date and filed within the Project Execution Plan
- The competencies of the AP for each activity and other members of the workforce carrying out the activity are appropriate
- Temporary Works information in relation to the platform design is provided/made available to the AP
- Information on underground services, overhead services, ground conditions, surface, or other proximity hazards/objects which clash or obstruct the lifting operations is provided to the relevant person
- All lifting plans on the project are reviewed
- Permits to Lift are issued for all lifting activities
- Monitoring and inspection is completed to ensure this standard is being followed on the site, and any deviations from this standard are reported to the Morgan Sindall Project / Site Manager

5. Definitions of different types of lifts

5.1 Basic lift

An operation where the weight of the load(s) can be simply established, and there are no hazards or obstructions within the area of the operation or any lift using lifting equipment

5.2 Standard lift

Lifting operation where there are hazards, either within the working area of the crane or on the access route to the working area, but no multiple crane lifting is required. The AP shall consider whether for general site / depot handling and loading / unloading operations and repetitive operations such as piling if it is appropriate to provide a Risk Assessment / Method Statement (RAMS) for the operations. If it is, then the appointed person shall ensure these are produced.
The general rules for use of cranes (see general guidance), shall be followed for standard lifts.

5.3 Complex lift

Lifting operation which requires more than one crane to lift the load (e.g. tandem lift), or cranes using load enhancement equipment, attachments, lifting of persons, or the lift is to take place at a location with exceptional hazards, e.g. chemical plant or lifting loads on or near live equipment including Rail Infrastructure, but the onus is on the AP to carry out a risk assessment first to assist in decision making, i.e. motion limit devices.

All other crane operations, not identified above, that have the potential for significant risks due to the nature of the lift, shall be risk assessed as to whether they should be classified as complex.

The project manager shall ensure a risk assessment and if necessary a specific method statement in addition to the lifting plan is prepared for a complex lift defining the safe system of work to be used.

The method statement shall ensure compliance with BS7121 section 17. All cranes used in dual lifts (tandem) shall be managed by the crane company undertaking the contract lift/s and shall have similar characteristics and be of equal capacity.

When all the factors in the lift/s cannot be accurately evaluated, an appropriate down rating should be applied to the cranes involved. This may be 25% or more.

Similar requirements shall apply to subcontractors who undertake dual lift/s on our sites.

5.4 Contract lift

Morgan Sindall may enter into a contract with a third party (usually a crane hire company) who will undertake the work on its behalf. Before entering into such a contract, Morgan Sindall has a duty to satisfy itself that the third party has the necessary competence to carry out the work in accordance with the requirements of BS 7121.
In a contract lift the crane hire company will plan the lift, select a suitable crane, specify the slinging and signalling arrangements, supervise the lift and be responsible for the lifting operation.

Morgan Sindall retain the duty to issue a permit to lift.

- Where a contract lift package has been agreed by Morgan Sindall with a specialist lifting organisation the person appointed shall be responsible for ensuring that the specialist organisation carries out their duties and also be responsible for writing to that specialist confirming as a contractual requirement that:-

    1. The contractor has appointed a person to control the lifting operation in accordance with these standards. All information or services provided by Morgan Sindall to facilitate compliance with the standards shall be notified in writing.

5.5 Crane hire arrangements

In a crane hire arrangement (including tower cranes), the crane and operator will work to the client's instructions. Under this arrangement, Morgan Sindall will plan the lift and specify the slinging and signalling arrangements supervise the lift and be responsible for the lifting operation.

6. Test and thorough examinations

Testing and inspections of cranes and lifting equipment shall be carried out by competent persons, supply chain companies must ensure all test and thorough examinations are carried out by a independent body appointed by them.

Cranes belonging to Morgan Sindall shall be tested by an Independent body appointed by them, and maintained and examined by competent plant department personnel.

Cranes, piling rig's and lifting equipment belonging to sub-contractors or hired in, shall be tested, thoroughly examined, maintained and inspected by their own competent persons at intervals not exceeding 12 months and six months if used for man riding duties.

Plant coordinators / managers shall be responsible for ensuring that all statutory certification and records are maintained.

7. Implementation

7.1 Planning of the lifting operation

All lifting operations should be planned and recorded in the lift plan to ensure that they are carried out safely and that all foreseeable risks have been taken into account.

The project manager and AP or Responsible Person (Lifting) should agree a schedule of lifts. The schedule of lifts should be updated as the contract progresses. Planning of lifting operations should be carried out by a CPCS competent AP, who has the appropriate knowledge for the lift being undertaken.

As part of the planning process a risk assessment is to be carried out by the appointed person to identify the hazards associated with the proposed lifting operation. The AP should also take into consideration hazards identified by the overall site risk assessments.

Before a crane is put to work the appointed person shall instigate checks to ensure that the crane is of a suitable capacity for the work, taking into account the weight of the lifts, and the height and radius at

which the machine will operate. Consideration shall be given to ground conditions, weather conditions, wind speeds, the weight of the hook, the rope, and any other lifting accessories used. These points shall be checked with the crane supplier where necessary.

Where lifting equipment, and/or its load, may be affected by high wind the equipment shall be fitted with the appropriate devices i.e. anemometer so as to detect dangerous situations and allow measures to be taken to cease using the equipment.

7.2 General crane lifts

A lift plan must be received from the **AP** responsible for a contract lift carried out by a third party.
Note: The Health and Safety Executive (HSE) recommend that the lift plan includes a detailed layout plan. In cases where the crane moves location (multiple crane position) around site then the lift plan must be suitable for multiple positions.

7.3 Cranes under the control of contractors

When contractors provide cranes for their own use and operate them under their own control on Morgan Sindall sites, then the principles of this guidance shall apply. Morgan Sindall will retain permit control. The contractor shall work under the direction of Morgan Sindall AP or Responsible Person (Lifting) even where they have their own AP. .

Where a contractor enters a contract lift with a crane hire company 5.4 applies but Morgan Sindall still retain permit control.

The Morgan Sindall AP or Responsible Person (Lifting) shall be informed of any cranes to be used on Morgan Sindall sites.

The crane requirements shall be discussed at the SHE Pre-start meeting with contractors, and it shall be agreed at that meeting:
:-

- When the RAMS and lifting plan shall be produced by the contractor
- That the contractor's AP shall prepare a crane lift plan (it will be necessary for Morgan Sindall to provide details of the ground conditions)
- That the Morgan Sindall AP or Responsible Person (Lifting) shall complete the crane checklist and permit to lift plan prior to use of any crane.

7.4 Special or complex lifts

Special lifts include tandem, complex, and floating lifts etc. Additional advice must be sought from the SHEQ team during the planning of such lifting operations.

Certain crane applications, such as handling temporary pile casings or piling hammers / extractors can be controlled by a trained signaller / slinger provided that a detailed RAMS has been produced by the AP, and it is worked to, and the signaller / slinger has been specifically instructed in its application.

Complex lifts may be common and repetitive during piling operation, tandem lifts, diaphragm walls, topping and tailing loads etc. Where it has been identified by the AP that this is the case, the AP shall be in attendance for the duration of the first lift. Once satisfied the lifting operation, RAMS are correct they may delegate their supervisory duties to the CLOS for the remainder of the operation. Thereafter the AP will be required to monitor the lifting operation at intervals agreed with the project manager. Where changes to lifting operation, RAMS are required, the AP must be notified immediately and shall review and revise the lifting operation, RAMS for the duration of the lift. Once satisfied, the AP can once again delegate the supervisory duties back to the CLOS or signaller / slinger.

7.5 Tower cranes

Due to the high risk nature of tower crane selection, erection, use, maintenance and dismantling operations, specialist advice must be sought.

After erection and before starting work all tower cranes shall be thoroughly examined and tested by owner / hire company and in addition by an independent body appointed by them.

Tower cranes that are electronically powered shall require a current electrical test certificate covering motors, transformers, panels and cables etc. which shall include the installation.

The base or sitting for tower cranes shall be designed by a competent person together with drawing and design criteria which shall be verified in accordance with the Temporary Works Process (SH PRO7). The design shall take account of the foundation ground bearing pressure and wind loading. Prior to the erection of the tower crane the foundation and base shall have been verified for use by the temporary works department.

Radius flags indicating the various radius distances shall be provided on the jib, a working wind speed alarm system shall be fitted to the tower crane and a chart indicating various radius loading shall be fixed to the lower section of the mast.

The AP must ensure there is an appropriate plan / lifting schedule in place for lifting operations. The slinger / signaller shall have radio contact with the crane operator.

When raising the block the operator shall not be permitted to use the upper overrun device to stop the hook block movement. This causes damage to the brake plate and can cause failure of the brakes allowing loads to drop.
Maintenance checks shall be made in accordance with the manufacturer's instructions and may require brake systems to be opened up for checks, even if this causes disruption to work. When parking the crane, the slew brake shall not be applied so that the jib is able to move with the wind.
Where more than two tower cranes are operating and not fitted with automatic proximity warning devices i.e. SMIE anti-collision systems. The appointed person shall appoint an additional slinger / signaller to coordinate tower crane operations, design a slewing order plan, a RAMS and nominate a lead crane.
Where tower cranes are working in close proximity of each other, and where there is a requirement to use a live man-riding basket, then only the crane with this man-riding basket in operation shall be allowed to operate, and all other tower crane activities shall cease, until such time the man-riding basket activity is complete.

Where tower cranes are operating, the RAMS also needs to consider the security of the crane, e.g. protestors, unauthorised entry, etc. controls could include:

For internal cranes,

- First / base section of the mast, in the region of 4 metre high, or to the underside of the upper floor, can be covered with heavy gauge 50millimetres squared (maximum) weld mesh secured with either wire or zip ties (not welded)
- Access for the crane driver can be in the form of an outward opening lockable door, with a turnbuckle on the inside with key access from the outside. Keys can be held by the crane driver and the slinger / signallers for use in the event of an emergency. The gate is to remain closed at all times whilst the driver is up the crane.

For external cranes,

- A 2.4 metre high plywood hoarding with a security fan, independent of the crane, gated as above, with mesh viewing panels to give additional natural lighting to facilitate safe access / egress.

Where the building is progressed around the tower crane,

- 2 metre high double clipped demountable Heras type fencing to be placed around the floor aperture at each floor slab level as the building progresses
- Lockable access doors to the cab / jib installed and padlocked shut when the crane driver vacates the crane.

When the crane driver vacates the crane, the machine to be locked off, isolated and secured into free slew either from the cab or from the isolator situated at the base.

7.6 Self-erect pedestrian operated tower cranes

For a self-erect tower crane where it is positioned on a prepared base and deployed using it own winches and no additional components are put into the structure then a thorough examination is not required each time it is erected. However a pre-use inspection must be undertaken by a competent

person and written confirmation issued to Morgan Sindall confirming the crane is safe to use. A copy of the cranes current in date thorough examination certificate must also be in place. Where the additional components are added to the unit then a thorough examination will be required.

7.7 Lorry mounted tower cranes

Thorough examination, pre use checks and handover certification will be required for self erect pedestrian operated tower cranes.

7.8 Wind speeds

On Morgan Sindall sites, all cranes are to be fitted with wind speed indicators. The crane manufacturer's operating handbook MUST be consulted to determine when it is safe to lift in windy conditions and these must be strictly observed. The use of hand held anemometers may be required.

Note before the erection of cranes including self erect tower cranes, suitable wind speed checks must be undertaken to ensure the operation can be safely carried out. This may include obtaining local weather forecasts and readings taken from hand held wind speed metres on adjacent structures etc.

8. Emergency arrangements

Morgan Sindall site management must ensure that suitable arrangements are put in place for emergency situations (rescue from tower crane, crane failure etc.). Any such arrangements shall be subject to liaison with emergency services and appropriate rescue practices carried out to test any agreed arrangements.

9. Temporary works

It is vital that all crane operations are planned well in advance. Ground conditions in the proposed locations shall be checked for integrity by the appointed person and the site's appointed Temporary Works Coordinator (TWC). An outline plan of known or potential crane operations and positions must be established at the commencement of the project and form part of the health and safety plan, and updated as required.

The planned positions for cranes to operate from, once established shall be re-checked in consultation between the appointed person and the TWC before starting work if there is reason to believe site conditions have changed since the original check for integrity. Some of the important factors that need consideration are: -

- Ground bearing capacity (guidance can be obtained by the temporary works manager
- Maximum load on any outrigger and size of outrigger pads (information should be available from the crane hire company)
- Proximity hazards, (requires a survey of underground services, cellars, voids and infrastructure).

Where any doubt exists at site level by either the appointed person or the TWC as to the capacity of the ground conditions for the basing of cranes, consultation should be made with the relevant temporary works manager.

It is vital that the ground bearing capacity for cranes is adequate, and that for all lifts and where there is cause for concern about the integrity of the ground conditions, calculations are available to support the crane management control documents.
Drawings and/or sketches shall also be provided to identify the location of mobile crane outriggers, and the operating locations for crawler cranes, and these shall be identified by the use of grid reference or located by proximity to fixed structures such as boundary fences, roads etc.

Where lifts are of a nature that can be regarded as COMPLEX the lifting arrangements shall always be checked via the relevant temporary works manager.

The outer edges of the platform shall be clearly defined. Any requirement in the design specifying that the crane shall not approach within a set distance of the platform edge shall be clearly demarcated on site and made known to the cranes and lifting operations supervisor, operator and slingers / signaller.

Whenever a platform is to be altered in any way, particularly when an excavation through the platform is necessary, the designer of the platform shall be consulted and his recommendations followed in making good the platform. The cranes and lifting operations supervisor, crane operator and slinger signaller are to be informed of all such works and alterations.
A regime of regular inspections and maintenance of the platform is to be maintained and recorded.

10. Crawler cranes

It is Morgan Sindall policy that only fully hydraulic operating crawler cranes are used on Morgan Sindall contracts, before any hired-in or subcontractor owned, crawler crane is allowed to commence work on any contract, a Morgan Sindall approved plant engineer shall visit site and conduct an inspection of the crawler crane. The work must be planned such that a minimum seven days' notice for this to take place can be given to Morgan Sindall.
After the inspection a report shall be completed and the results relayed to site management informing them if the crane can or cannot be allowed to begin work. A copy of the inspection report will be left on site. The plant engineer or other designated competent person shall also conduct a familiarisation induction of the crane operator.

It is a Morgan Sindall requirement that a minimum of six turns of rope are left on the hoist drum at all times.

11. Overhead line

When working in the vicinity of overhead power lines the following should implemented

- Suitable precautions shall be taken to maintain appropriate clearances and to prevent contact between the lines and the crane jib or lifting rope, bearing in mind the arcing ability of electricity
- Contact / consultation should be made with the owner of the overhead lines and safe systems of work agreed in writing prior to commencing works, the following document should be followed for additional guidance - HSE - GS6, Avoidance of Danger from Overhead Electric Lines
- Electronic or manual slew, boom length / height restrictors should be fitted to the cranes to prevent the crane coming into contact with the overhead lines.

12. Special provisions

If a crane is to be used within 6 kilometres of an aerodrome / airport and its height exceeds 10 metres or that of surrounding structures or trees, if higher, the appointed person should consult the aerodrome / airport manager for prior permission to work. Restrictions could be placed on the overall height of the crane and there could be a requirement to fit warning (obstacle) lights to the top of the crane.

Where loose items are raised they shall be in containers or safety nets used, particularly with crane forks.

Waste skips that are to be raised by cranes or lifting equipment shall be thoroughly examined and a lifting certificate supplied. Checks on the condition of the base of the skips shall be made.

A system of work shall be employed which minimises the risk of loads being travelled or raised over people's heads. Adequate warning signs indicating that people shall not stand under suspended loads shall be displayed in appropriate places.

Where cranes lower materials into shafts a suitable warning system using either horn or flashing lights shall be provided to warn operatives to stand clear of suspended loads.

In the event that there is concern over any of the safety measures or requirements, or that safety devices are not working correctly, the crane shall not be allowed to commence work and the supplier / owner shall be contacted.

The crane operator, site manager and/or AP have the authority to stop from working any crane which they believe is working in an unsafe manner, condition or environment.

13. General rules for the use of cranes

The following rules apply to all Morgan Sindall sites and shall be made known to all persons involved in lifting operations:

- Cranes shall only be used for vertical lifts
- The weight of the load (including lifting gear, etc.) shall be confirmed before lifting
- A lift schedule for ALL cranes to be produced
- The safe working load shall never be exceeded; if the rated capacity indicator is activated this shall be investigated
- When lifting a load for the first time the crane stability shall be checked when the load is just off the ground
- No operation shall be carried out where high winds affect the stability of the load or the crane. Limits on wind speeds shall be determined (i.e. by reference to the operator's manual). The means for determining wind speed shall be by use of an anemometer fitted to the crane or available on site
- An audible alarm shall be capable of being heard at the crane's maximum operation radius
- No crane shall be left unattended with the load suspended or the engine running
- The crane shall be left secured when unattended
- Site conditions, both underfoot and overhead, shall be checked for hazards before a crane is used. This includes checking access to and egress from the site before attendance
- Where a crane is to be used for carriage of persons, the following points are mandatory:
    1. Persons shall only be lifted by a crane in power lowering mode and automatic brakes
    2. Cranes with the "traditional manually operated slipping friction clutch will not be used
    3. Lifting equipment used shall comply with relevant regulations and codes of practice and include current test colour coding
    4. Each crane must be individually assessed and a technical statement, with appropriate information, obtained from the owner as to its suitability for the carriage of persons. This statement must be appraised by a technically competent person and agreed prior to the commencement of man-riding
    5. An over hoist device shall be fitted for all man-riding operations or where an over hoist risk exists
    6. Technical assistance is available from the SHEQ manager / team.

14. Document references

Standards

Lifting Operations Standard
Safe Planning and Operation for MEWPs

Guidance
Safe Use of Cranes and Lifting Operations Guidance

Forms and Templates
Schedule of Lifts (Basic)
Schedule of Lifts (Standard)
Schedule of Lifts (Complex)
Lift Plan Schedule
Lifting Operations Pre Permit to Lift Checklist
Crane Permit to Lift
Crane Permit to Lift Pt2 – Multiple Ops
Tower Crane Pre Work Check Form
Quick Hitch Equipment Pre Start Arrival Check Form
Delivery Lifting Plan – Telehandler
Delivery Lifting Plant – Lorry Loader Checking Form
Check by Magnor Plant Fitter of External Cranes
MEWP Supervisor Appointment
MEWP Co-Ordinator Appointment
Responsible Person (Lifting) Appointment