



Systemic Safety Alert **Use of Mobile Cranes**

Major systemic safety problems

Mobile cranes are widely used for lifting operations on/ in various construction sites or workplaces. Unsafe use of mobile cranes can lead to serious/ fatal accidents causing loss of properties or even lives. The following are the major systemic safety problems attributed to the occurrence of the relevant accidents:

- failure to conduct task-specific risk assessments and devise detailed lifting plans;
- failure to use or ensure the proper functioning of suitable safety facilities/ devices, such as automatic safe load indicators, reversing video devices, mats or timber blockings, etc.;
- failure to adhere to the safety operating instructions and measures required by the manufacturers;
- absence of clear delineation of safety responsibilities, and lack of effective coordination and communication among parties like the principal contractor, subcontractors, crane owners and operators for lifting operation;
- lack of competent lifting supervisors to oversee lifting operations;
- failure to designate and barricade restricted areas for the operation of mobile cranes, or failure to prohibit unauthorized persons entry into the restricted areas;
- failure to properly maintain the mobile cranes;
- failure to ensure that all personnel including crane operators, riggers and signallers have the required knowledge, skills and experience; and
- failure to provide adequate safety information, instruction, training and supervision to all personnel concerned.

Accident prevention measures

Registered Safety Officers (RSOs) should advise their employers/ clients to:

- (i) conduct task-specific risk assessments to identify all potential hazards associated with the use of mobile cranes for lifting operations;



- (ii) devise and implement detailed lifting plans with due consideration to the results of the risk assessments. Safety measures to be taken include but not limited to:
- select and use suitable mobile crane, lifting gears and methods of rigging/ lifting, taking into account characteristics of the load including its weight, shape, centre of gravity, lifting points, etc.;
 - adequately assess the environment of sites/ workplaces, such as the existence of overhead power lines/ other structures, trenches and excavations, other lifting operations in the vicinity, working space and allowable bearing capacity of the ground to avoid hazards arising from environment factors;
 - properly fence off lifting zones (e.g. providing fencing or barricades) with suitable warning notices displayed. If fencing off the lifting zones is not practicable, other effective measures such as deploying sufficient watch-out personnel should be adopted to ensure no unauthorized entry into the lifting zones;
 - take appropriate precautions to ensure the stability of the mobile crane, such as fully extended outrigger beams/ jacks, and use suitable mats or timber blockings of adequate strength and size capable to completely supporting the floats of the mobile crane with due regard to the ground conditions;
 - keep a safety distance between the foundation (the mat, timber blocking of outrigger or crawler) and the edge of soil slope or excavation;
 - ensure that an unobstructed passageway of not less than 600 mm wide is maintained between any part of the mobile crane liable to move and any nearby installation/ fixture. Where it is not practicable to maintain such passageway, ensure that no person is allowed to get close to the operating mobile crane;
 - ensure that the operators of mobile cranes have a clear view of the full path of lifting and its vicinity. If a clear view could not be maintained, competent signallers should be appointed to give effective signals to the operators; and
 - closely monitor the weather conditions, such as lightning, heavy rain, fog and excessive wind speed in workplace and stop the lifting operation under dangerous conditions.



- (iii) ensure the mobile crane is used for its original design purposes and avoid using it for piling operation, grabbing, magnet service or any other duty which might impose excessive and/ or indeterminate loadings onto the crane;
- (iv) ensure that the mobile crane has been certified in safe working order through test and thorough examinations by competent examiner and regularly inspected by competent person before put into operation;
- (v) maintain and keep detailed testing, examination, inspection, maintenance/ repairing records;
- (vi) appoint a competent lifting supervisor possessed adequate experience to oversee and control the lifting operations to ensure that all risks are effectively managed;
- (vii) establish a clear delineation of the safety responsibilities and effective coordination among all parties involved including the principal contractor/ the proprietor, sub-contractors, owners and operators of mobile cranes;
- (viii) provide effective communication among all persons involved; and
- (ix) provide all workers/ employees concerned with the necessary safety information, instruction and training, and ensure that they are familiar with the safe working procedures and safety measures.

Registered Safety Auditors (RSAs) should take into account these systemic safety problems and accident prevention measures in executing safety audit functions.

DISCLAIMER

This Systemic Safety Alert (“the Alert”) is issued to draw the attention of interested parties to the relevant systemic safety problems and accident prevention measures necessary to protect people engaging in similar work activities. The material contained in the Alert constitutes general guidance only. It does not reduce, limit, or replace, any legal obligations upon any person to comply with any statutory duties under relevant legislation. Users such as Managers and Supervisors should make their own evaluation of the information contained in the Alert to determine if it can be applied to their own situations and practices. The Labour Department does NOT accept any responsibilities for any loss or damage resulting from the use of or failure to use of the information contained herein.