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Top Ten Ways to Improve Mobile Crane Safety

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Mobile crane safety is an important aspect of overall construction safety as evidenced by the recently issued OSHA regulations in 29 CFR 1926.1400, Subpart CC – Cranes and Derricks in Construction. Listed below are ten ways to improve crane safety on your site.

1. Develop and Implement a Crane / Lifting Safety Management System.

   Developed by company management, this describes the overarching structure of your crane safety program, e.g., objectives, roles and responsibilities, assigns human and financial resources for the various elements, provides documented procedures, etc.

2. Adopt a "Risk Based" Lift Classification System.

   This should be based on the risks involved, not merely the weight of the load. Ask yourself, "Which is more risky: 1) a 50 ton load being lifted at 95% of the crane's rated capacity or, 2) a 500 ton load lifted at 50% of the crane's rated capacity?"

3. Define the Various Categories.

   Three or four levels of classification ranging from Critical to Standard are probably about right to capture the spectrum of risks. A Risk Matrix may be helpful in this regard.

4. Ensure that the Extent and Depth of Planning for each lift is commensurate with the level of risk.

   Lift planning, at its most basic level, is identifying risks, hazards and vulnerabilities and developing steps, actions, and strategies to mitigate them. Critical lifts will require drawings and review by others, whereas the documentation for a standard lift will require recording the rated capacity of the crane in the proposed configuration and the weight of the load.

5. Appoint a competent and qualified, as defined by OSHA, Site Lift Director.

   The Lift Director directly oversees the work done by the crane and rigging personnel and should, among others, review all written lift plans.

Work Highlights

Process, Operations & Safety

- *Providing support for a major North American refiner regarding various aspects of proprietary non-aqueous extraction technology development, including oversight of specific testing by a third party laboratory.*
- *Assisting a major chemical company with new strategies, such as evaluating opportunities for low cost intermediates via shale gas and viability of new technologies.*
- *Supplied staff for multiple onsite assignments associated with LNG startup planning support to a refiner in Australia.*
- *Completed patent review and technical consultation regarding fuels hydroprocessing technology.*
- *Provided noise, safety, heat exchanger, and fired equipment consulting support as part of a client's integrated project management team. Work involved auditing prime contractor's and equipment suppliers' work to help ensure that it meets project requirements and extended for several years. Full time offsite/ utilities operations consulting support in the contractor's engineering office was also provided. This mega-project involved a major "clean fuels" revamp of a Middle-East refinery.*

6. Ensure all lifting and rigging equipment has been properly inspected and is fit for purpose.

   National codes and standards are proscriptive regarding inspections and the records to be kept. Investigate the inspection status of all equipment as it comes onto the site.

7. Ensure that only appropriately qualified or certified personnel are assigned to your lifts.

   In the not too distant future, national codes and standards will require all operators, riggers, and signal persons to be qualified or certified. Certification testing is widespread and is conducted nationally by several accredited testing organizations. The most popular, perhaps, is the National Commission for the Certification of Crane Operators, NCCCO (aka CCO).

8. Ensure the quality and capability of third-party crane suppliers beforehand.

   Don't wait until the last minute to wonder who the safest local crane supplier is. Spend some time before you need a crane to check out safety records, experience level of operators, condition of equipment, etc.

9. Pay particular attention to crane assembly, disassembly, or configuration changes.

   These activities are not required for every crane or for every lift, but when required, they are hazardous activities and have resulted in many accidents. OSHA standards now cover these activities; be sure to comply.

10. Never exceed the load rating chart capacity for any crane unless the crane's manufacturer has give written permission to do so.

    There are still some operators who think they know when a crane can take an overload and not fail. A crane may not fail during an overload, but hidden damage is likely which will cause a failure in the future during normal operations.

About the Author

Robert Hontz has over 40 years professional experience (33 with Exxon Research and Engineering) in civil engineering, project management, and construction management. He is the author of Project Management Guides on Construction Safety Management and Project Constructability Programs. Rob co-authored the Exxon Crane Guide and several articles on crane / lifting safety.

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