THINK SAFETY

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Mobile crane setup

Mobile cranes are present on almost every job site today. They have become indispensable to the construction industry, allowing contractors to complete a variety of difficult tasks in less time and with less manpower. However, despite their many benefits, mobile cranes are one of the most dangerous pieces of equipment on a job site.

Crane-related injuries and deaths among construction workers in the U.S. have often been the result of the following: the crane coming in contact with power lines, parts of the crane falling off or the crane tipping over. In most of these cases, improper crane setup was to blame.

Proper crane setup is essential to ensure that the crane is operating at its safest and greatest capacity. Every crane has load charts that are specific to it and dependent on such things as the operating condition of the crane per the manufacturer's specifications and the stability and levelness of the crane i.e., when a crane is not level, it can reduce its stability and lifting capacity.

You can take steps to avoid crane-related accidents by making sure that the crane is in proper working order, is set up correctly and is being operated by qualified and properly designated people.

Additional considewrations for mobile crane setup

- Inspect the crane prior to each use and comply with the manufacturer's maintenance specifications for safe operations.
- Implement pre-job planning, using these guidelines:
  Is the crane right for the job?
  Does the crane have the reach for the job?
  Does the crane have the capacity for the lift?
  Does the crane have the capacity at the radius?
- Consider carefully the location of the crane and look for obstructions, both on the ground and in the air.
- Examine whether or not outriggers can be fully extended for maximum crane stability.
- Determine whether or not the ground stable enough for the crane's weight plus the load.
- Increase the outrigger pad area three to five times. This blocking/cribbing technique will improve the crane's stability.

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- Make sure there is adequate swing clearance. Is it possible to swing all loads?
- Ensure that load charts are specific for the crane, either on rubber or on outriggers. Rubber tire cranes will have a load chart for each situation.
- Use a special load chart for “pick-and-carry” operations. Not all cranes are designed for pick-and-carry operations.
- Center the lift over the load. If not, the load could swing, causing side loading of the boom and damage to the crane or load.
- Limit crane operations to a minimum clearance of 10 feet from all energized electrical power lines of 550 KV or less. As the voltage increases, so does the required distance.
- Do not operate a crane if wind is greater than 20 mph.
- Demonstrate adequate understanding and proficient use of the load charts as related to the equipment in use and the loads being lifted. This applies to the crane operator and rigger.

  Gross load = load wt + rigging + block/hook attachments
- Communicate clearly with all people associated with the crane, including ground people. The operator should never carry loads over people.
- Use easily understood hand signals; radio contact is a plus.
- Barricaded off the crane’s swing area to prevent a pinch-point injury.
- Set up the crane at a distance of at least one and a half times the depth of digging during excavations.
- Check continuously for ground stability if a crane will be set in one place for more than a day. Weather conditions such as freezing, thawing, rain and snow conditions can affect the stability of outriggers.

References:

B30 Mobile and Locomotive ASME

1926 Cranes and Derricks OSHA

1926 Hoisting and Rigging OSHA

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