



# GLOBAL TECHNICAL INSTITUTE

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**In the Name of Allah (SWT) the  
Merciful, the Compassionate**



**TOPIC: CRANES AND LIFTING EQUIPMENT**



# Crane Operations

# Crane OPERATIONS

Crane lifts shall be conducted per GI 7.024 and GI 7.028, as applicable.

All crane operators shall be properly licensed and certified by SA per GI 7.025

Appropriate work permits shall be issued for crane operations in accordance with GI 2.100

Crane operators shall have the final decision on crane lifts that affect the safety of the crane.

# CRANE OPERATIONS

Cranes shall be inspected by the crane operator using form SA 9466 (see GI 7.028) prior to each shift.

All cranes shall have a valid crane inspection sticker issued by SA or by a SA-approved third-party certifying entity.

Crane cabs shall provide maximum visibility (e.g., curtains/cardboard shall not obstruct the operator's view during operation)

Cabs shall be kept clean and clear of items such as rubbish and loose tools.

All riggers shall be certified by SA per GI 7.024 and/or GI 7.028, as applicable.



# Crane OPERATIONS

Crane lifts shall not be performed in wind speeds exceeding 32 km/h (20 mph) (17.4 knots) (9 m/sec), unless otherwise specified by the crane manufacturer.

Crane lift areas shall be barricaded and secured. Only authorized personnel shall be permitted inside the barricaded area.

All cranes shall be leveled in accordance with manufacturer's specifications and shall be located on a properly compacted foundation prior to performing any lift.

# Crane OPERATIONS

During a lift, the crane's outriggers shall be fully extended and lowered to raise the wheels and level the crane, unless otherwise specified in the crane manufacturer's load chart.

Outrigger mats shall be used under all crane outrigger float pads during crane lifts.

Mats shall not be permanently secured to the outrigger pads.

# Crane OPERATIONS



Properly Extended  
Outrigger



**Bloking**



**Mats**



# Crane OPERATIONS

Tag lines shall be used to control suspended loads.

The crane operator shall not leave the controls at any time while a load is attached.

Crane operators shall only pick up loads when the boom head and hook are centered directly over the load.

A designated signalman shall be used at all times during the lifting, moving and setting of a load. Only one designated signalman shall give signals to the crane operator. Universal hand signals shall be used. In the event that the crane operator cannot see the signalman, radio communications shall be used.

# Crane OPERATIONS

When a crane is operating near an energized power line, a designated signalman shall be assigned to ensure the following minimum distances are maintained.

## Voltage

## Absolute Limit of Approach

- |                      |                     |
|----------------------|---------------------|
| • Up to 50,000 volts | 3.0 meters/ 10 feet |
| • 50,000 to 250,000  | 6.1 meters/20 feet  |
| • Over 250,000 volts | 7.6 meters/25 feet  |

# Crane OPERATIONS

Personnel shall not ride a hook or auxiliary headache ball at any time.

Personnel shall not ride the load during the lift.

Welding on or modification of hooks and other lifting equipment is strictly prohibited.

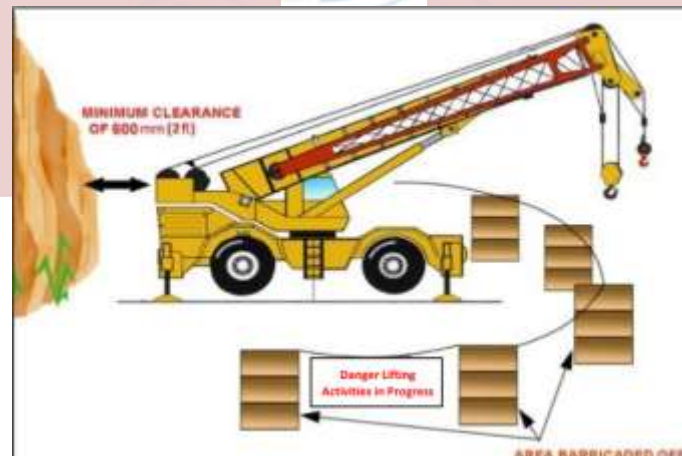
Cranes traveling inside plant facilities shall be assisted by a flagman to ensure the boom tip is clear of any obstruction.

Cranes working near trenches and excavations shall be at the minimum clearance

# Crane OPERATIONS

Cranes shall be provided with a 30 m (100 ft) tape measure to assist with crane positioning and determining the crane's exact working radius.

Cranes shall have a minimum tail swing clearance of 0.6 m (2 ft). Barricades shall be provided at the crane's working radius when working around personnel.





# Side Boom Tractors

Lifts using side boom tractors shall be per GI 7.028.

Prior to traveling, the side boom tractor operator shall:

A. Visually check the immediate surrounding area to ensure it is free of obstructions and personnel.

B. Sound a warning signal, if supplied by the manufacturer, prior to movement and intermittently during travel.

C. When traveling with a load, check the position of the load, boom location, ground support, travel route and speed of movement to ensure that they do not present a safety hazard.

# Side Boom Tractors



# Critical Crane lifts

A Critical Lift Plan (SA 9644) shall be completed and approved per GI 7.024 and/or GI 7.028, and made available on-site prior to any critical crane lift.

When any part of a crane whose boom or boom attachment is to be within 10 m (33 ft) of hydrocarbon or pressurized piping. This includes cranes having to suspend a load over a vessel, piping or equipment containing hydrocarbons, steam or other pressurized liquids.

When any load is 36,300 kg (40 tons) or greater.

When any load that exceeds 85% of the crane's rated load capacity or manufacturer's specifications for that specific lift.

# Critical Crane lifts

Occurring at night (i.e., between sunset and sunrise).

When an explosion, fire or high heat hazard is present.

When the crane is operating near energized power lines



# Critical CRANE LIFTS

Tailing, tandem (multiple) or turning lifts shall be per GI 7.028 and require:

Derating of all involved cranes by 25% of the load chart.

Manbasket crane lifts shall not be performed in wind speeds exceeding 25 km/h (15 mph) (13 knots) (7 m/sec).

# Questions



# Thank you

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