



# Lusail Real Estate Development Company

**Health, Safety, Security, Environment, Logistics & Quality  
Department**

## **Lusail Construction Safety Procedural Forms/Checklists – Hoist Specifications**

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## Hoist Specifications

### 1. OVERHEAD HOISTS

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- ◆ The supporting structure must have a safe working load exceeding that of the hoist plus the maximum rated loading with a safety factor of at least four. The support must provide unobstructed movement of the hoist and load. It must also permit the operator to stand clear of the load in all hoisting positions.
- ◆ Power-operated overhead hoists must be equipped with a limit switch that prevents the load hook from two-blocking.
- ◆ In addition to the regular operating controls, power-operated overhead hoists must have a manually or automatically operated switch, within the operator's reach if manually operated, that cuts off the power supply in case of malfunction.
- ◆ Air hoists must be connected to an air supply of sufficient capacity and working pressure to safely operate the hoist with maximum load.
- ◆ Hand-powered hoists must be worm-gear driven or equipped with a pawl or ratchet system permitting continuous effective control and braking reliability.
- ◆ The manufacturer-determined safe working load of an overhead hoist must be indicated on the hoist. This safe working load must not be exceeded.
- ◆ The supporting structure to which a hoist is attached must have a safe working load equal to that of the hoist.
- ◆ Supports must be arranged to provide for free movement of hoists and must not restrict hoists from aligning with loads.
- ◆ Hoists must be installed only in locations that permit the operator to stand clear of the load at all times.
- ◆ Air hoists must be connected to an air supply of sufficient capacity and pressure to safely operate the hoists. Air hoses supplying air must be positively connected to prevent disconnection during use.
- ◆ Overhead hoists must meet all applicable requirements for construction, design, installation, testing, inspection, maintenance, and operation, prescribed by the hoist manufacturer.
- ◆ Load drums on load-hoisting equipment must be equipped with dogs, pawls, or other positive holding devices.
- ◆ At least three full wraps of line must be maintained on hoisting drums.

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## 2. PERSONNEL HOISTS

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- ◆ All personnel hoists must be designed by a registered professional engineer competent in the field and in compliance with applicable federal, state, and local standards.
- ◆ The contractor must comply with the manufacturer's drawings, specifications, and limitations when installing and operating personnel hoists.
- ◆ Rated load capacities, recommended operating speeds, and special hazard warnings must be posted on cages and platforms and at the operator's station.

Hoist towers installed outside buildings or structures must be enclosed for the full height of the side or sides used for entrance to or exit from the structure. The other sides must be enclosed to a height of at least 10 feet at the lowest landing. Sides of the tower adjacent to floors or scaffold platforms must be enclosed to a height of 10 feet above the level of such floors or scaffolds. Towers inside buildings or structures must be enclosed on all four sides throughout the full height.

- ◆ Towers must be anchored to the structure at intervals not exceeding 25 feet. In addition to tie-ins, a series of guys must be installed. Where tie-ins are not practical, the tower must be anchored by wire rope guys at least 0.5 inch in diameter securely fastened to anchorages to ensure stability.
- ◆ Cages must be fully enclosed on all sides and the top, except the sides used for entrance, which will have car gates or doors.
- ◆ A door or gate must be provided at each entrance to the cage, designed to cover the full height and width of the cage entrance opening.
- ◆ Doors or gates must be provided with interlocks that not permit movement of the cage unless the door or gate is fully closed.
- ◆ Overhead protection of 2-inch planking, 0.75-inch plywood, or other equivalent strength material must fully cover the top of the cage.
- ◆ The cage must be equipped with an over-speed safety device that stops and holds the cage plus the maximum rated load when the governor tripping speed is exceeded or the hoist rope fails.
- ◆ The hoist must be equipped with two independent braking systems:
  - An automatic system that is applied when the controls are in neutral or if the power fails. An equivalent system of gearing and/or braking affording equal protection is acceptable.
  - A manually operated braking system is attached to the hoist drum, capable of stopping and holding at least 125% of the full rated load in any position.
- ◆ The hoist power unit must be designed to provide power-up and power-down throughout the gears at all times.
- ◆ The speed of the cage must not exceed 200 feet per minute.
- ◆ Hoists must be equipped with approved limit switches that automatically cause the cage to stop at the top and bottom limits of travel.
- ◆ Internal combustion engines are not permitted.
- ◆ Hoist wire ropes must meet the following minimum requirements:

- Drum hoists must have at least two hoisting ropes.
- Traction hoists must have at least three hoisting ropes.
- Hoisting and counterweight ropes must never be less than 0.5 inch in diameter.
- ◆ An emergency stop switch must be installed in the cage and marked STOP.
- ◆ Safe access ways must be provided for inspection and maintenance of hoist towers and equipment.
- ◆ Personnel hoists used in bridge tower construction must be designed by a professional engineer and erected under the supervision of an engineer competent in the field.