



Lusail Real Estate Development Company

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

Lusail Construction Safety Management Procedure – Aerial Lifts

Document No	<u>LUS-HSE-WG3-446-021.01</u>	Rev	<u>1</u>
Uncontrolled Copy	<input type="checkbox"/>	Controlled Copy	<input checked="" type="checkbox"/>
		Date	<u>01-Apr-2015</u>

COMPANY PROPRIETARY INFORMATION

Prior to use, ensure this document is the most recent revision by checking the Master Document List. To request a change, submit a Document Change Request to the Document Control Representative. Master copy of this document will be maintained by the LREDC QA/QC Manager. Not controlled if printed.

Amendment Record

This document is reviewed to ensure its continuing relevance to the systems and process that it describes. A record of contextual additions or omissions is given below:

Rev .No	Description / Comments	Prepared By	Checked By	Approved By	Issue Date
1	(Pg. 1) Company Propriety Information – Not controlled if printed has been added.	HSE Working Group	Michael Ford	<i>[Signature]</i> Uwe Krueger	1 st April 2015
1	(Pg. 2) Revised Amendment Table	HSE Working Group	Michael Ford <i>Michael Ford</i>	<i>[Signature]</i> Uwe Krueger	1 st April 2015

CONTENTS

- 1.0 DESCRIPTION**
- 2.0 DEFINITIONS**
- 3.0 RESPONSIBILITIES**
- 4.0 PPE**
- 5.0 PRE-OPERATION PLANNING**
 - 5.1 PRE-OPERATION INSPECTION**
 - 5.2 FUNCTION TESTS**
 - 5.3 WORKPLACE INSPECTION**
- 6.0 SAFE OPERATING PRACTICES**
- 7.0 MAINTENANCE**
 - 7.1 MAINTENANCE REQUIREMENTS**
- 8.0 TRAINING**
 - 8.1 OPERATION QUALIFICATION**
 - 8.2 RETRAINING**
- 9.0 DOCUMENTATION**
- 10.0 REFERENCES**
- 11.0 ATTACHMENTS**

1. Description

This element of the LCSMP details Lusail Construction HSE requirements for aerial lifts such as articulating booms and scissor lifts. This element applies to all Lusail personnel, Contractors, Developers, Consultants and Subcontractors working on the Lusail projects.

2. Definitions

Term	Description
Job Hazards Analysis (JHA)	A process used to identify the hazards or potential hazards associated with each step of a particular job or work plan in order to uncover hazards and then eliminate, control, or remove them before the work is started.
Boom	Vehicle-mounted elevating lift with a rotating and telescoping and/or articulating boom-supported personnel platform.
Outrigger	Extendable or fixed metal arms, attached to the mounting base, which rest on supports at the outer ends.
Scissor Lift	Vehicle-mounted elevating platform with lever arms that open and close like a pair of scissors.

3. Responsibilities

The Contractor is fully responsible for the pre-planning, development of Method Statements, Job Hazard Analysis, overall safe work planning and implementation. The Contractor's Project Management is responsible for the assurance that all work is planned and conducted according to the pre-planning document, Contractor and Lusail Health Safety & Environment (HSE) procedures and the Qatar Construction Specifications 2010. Should a conflict occur between procedures/standards or requirements the more stringent will apply.

4. PPE

Use PPE in accordance with the minimum requirements cited in [LUS-HSE-WG3-446-006](#), Personal Protective Equipment.

Provide fall protection for workers exposed to falls of 6 feet (1.8 m) or more, in accordance with [LUS-HSE-WG3-446-022](#), Fall Protection:

- When operating a boom, wear a full-body harness with double locking shock-absorbing lanyard. Attach the lanyard to manufacturer approved location on the platform support or basket. Never attach personal fall arrest/restraint systems to anything external to the lift.
- Scissor lift operators shall adhere to the manufacturer's recommendations or guidance regarding the use of personal fall arrest/restraint systems when operating the lift.
- The gate(s) must be closed while operators are on the platform/ inside the basket.
- Both feet of all workers must be flat on the platform floor at all times. Workers shall not stand on the gate(s), guardrails, or any other structure to gain additional height.
- To enter or exit the platform on the ground, the boom must be fully lowered. Enter or exit the platform only through the gate(s).
- Exiting of elevated platforms is highly discouraged; however, where approved, workers shall always anchor the secondary lanyard of their fall arrest systems to an appropriate external anchor point BEFORE exiting the platform. Once onto the external structure, workers may release the primary lanyard from the lift. The gap between the platform and the adjacent structure must be less than 1'.

5. Pre-Operation Planning

The supervisor conducts daily safety huddles emphasizing aerial lift safety and relevant JHAs.

Never operate a malfunctioning machine. If a malfunction occurs, immediately shut down the machine, tag the unit out of service, and notify the supervisor.

5.1 Pre-Operation Inspection

The operator is responsible for performing a daily pre-operation inspection of the equipment. Inspection items checked should include such things as mechanical integrity, availability of the operator's manual, and presence of safety features (signals, lights, etc).

Conduct a pre-operation inspection according to the inspection checklist included in the lift operator's manual, which is stored in a tube on the equipment. If no such form is provided, Contractors may use the Aerial Platform Inspection Form (Attachment [LUS-HSE-FM4-446-043](#)). The pre-operation inspection also serves to determine if maintenance is required.

5.2 Function Tests

The operator conducts function tests first using the ground controls and then the platform controls. To test all machine functions, the operator must follow the step-by-step instructions included in the lift operator's manual, which is stored in a tube on the equipment.

Function tests will be performed:

- At each job site (work area)
- Before hoisting employees on the personnel platform
- After any repair, modification, or incident

Aerial lift users shall conform to manufacturer's specifications with regard to additional equipment inspection and certification requirements, if applicable.

5.3 Workplace Inspection

The operator inspects the workplace areas and must be aware of and avoid the following hazardous situations:

- Bumps, floor obstructions, or debris
- Drop-offs or holes
- Forces imposed by the machine
- Hazardous locations
- Inadequate surface support to withstand all loads
- Overhead obstructions and high voltage conductors
- Presence of unauthorized personnel
- Sloped surfaces
- Unstable or slippery surfaces
- Wind and weather conditions
- Other possible unsafe conditions

6. Safe Operating Practices

- Read and obey all warnings, cautions, and operating instructions posted on the machine and in the operations manual.
- Be familiar with locations and operation of all alternate and override controls.

-
- Never exceed the manufacturer's rated platform capacity. No more than two persons are allowed on the platform at any time.
 - Clean oil, mud, grease, and slippery substances off footwear and the platform deck.
 - Never use the boom for any purpose other than positioning working personnel, their tools, and equipment.
 - Never pull the machine or other objects by retracting the boom. Never push the machine or objects by telescoping.
 - Aerial lift machines should not be used as elevators. Never enter or leave platform above ground level unless approved and all fall protection requirements have been met. Never leave the machine unattended.
 - Never walk or climb the boom to gain access to or to leave the platform.
 - Never position/ use steps, ladders, or similar items on the unit to provide additional reach or gain additional height for any purpose.
 - Do not use the machine as a ground for welding unless the machine is designed for such use.
 - Do not increase the surface area of the platform or the load. Increasing the surface area decreases the machine's stability. Never modify equipment from manufacturer's design.
 - Do not modify or alter an aerial work platform without prior written permission from the manufacturer. Mounting attachments for holding tools or other materials onto the platform, toe boards, or guardrail system increases the weight in the platform and the surface area of the platform or the load.
 - Keep all parts of the body inside the platform during raising, lowering, and positioning, except when performing the duties of a signal person.
 - Be aware of crushing hazards when grasping the platform guardrails. Avoid placing hands on railings during platform maneuvers.
 - When riding in or working from the platform, position both feet firmly on the deck.
 - Never allow ground personnel in areas around and under a raised platform. Barricade the area to keep out personnel and other equipment, in accordance with [LUS-HSE-WG3-446-016](#), Signs, Barricades, and Traffic Control.
 - Before entering or exiting a personnel platform that is not landed, secure the platform to the structure where the work is to be performed, unless securing to the structure creates an unsafe situation.
 - Promptly discontinue lifting upon indication of any dangerous weather conditions. Never operate the machine when winds exceed 35 km/h.
 - Do not operate the machine in locations where potentially flammable or explosive gases or particles may be present.
 - Maintain safe clearance from electrical lines and apparatus refer to [LUS-HSE-WG3-446-024](#), Electrical.
 - Be extremely cautious when operating from platform to prevent objects striking or interfering with operating controls.
 - Be aware of clearances when driving and towing. Always keep your attention in the direction of travel and watch out for overhead obstructions.
 - Check clearances around entire platform and boom when raising, lowering, swinging, and telescoping. Always check turntable clearance before swinging the boom.
 - Always check clearance on both sides of machine before outriggers are extended and set.
 - In situations where the operator's view is obstructed, the use of a signal person (banksmen) and/or radios may be necessary. When using verbal signals, clarity and precision are essential for safe operation. The following voice commands are recommended for use:
 - Boom up or down
 - Swing left or right
 - Extend out or retract in
-

-
- Turn right or left
 - Forward or back
 - Stop
 - Use banksmen when operating in confined areas or where vision is impaired.
 - To avoid tipping, never travel or work the machine on soft or uneven surfaces. Do not depend on the tilt alarm as a level indicator: the tilt alarm sounds only when the machine is on a severe slope.
 - Request compaction reports and load capacities prior to operating lifts in backfilled areas or on elevated decks.
 - Most machines must be mechanically assisted when traveling grades exceeding 15%.
 - Always check machine stability before positioning the platform.
 - Never attempt to free the machine by lifting it off the ground with the boom.
 - Never move the machine until the outrigger beams and jacks have been completely retracted. Never drive the machine with outriggers extended.
 - Ensure the proper orientation of the turntable for the intended direction of travel. Secure turntable before extended traveling.
 - Always position the boom in line with the direction of travel.
 - Reverse traveling is intended for jobsite mobility only.
 - Always actuate controls with slow, even pressure.
 - Never slam a control through neutral to opposite direction. Return lever to neutral, stop, and then proceed.
 - Limit travel speed according to the condition of the ground surface, congestion, slope, location of personnel, and any other factors that may cause collision.
 - Chock all wheels while the machine is being used in a stationary operation.
 - Stow the boom and shut off all power before leaving the machine.

7. Maintenance

The operator may perform only the routine maintenance items specified in the operator's manual:

- Check the engine oil level
- Check the hydraulic oil level
- Check the batteries
- Check the engine coolant level for liquid-cooled models

If the operator discovers damage or any unauthorized variation from the factory-delivered condition, the machine must be tagged and removed from service. Only a qualified service technician may repair the machine, according to the manufacturer's specifications.

After repairs are completed, perform pre-operation inspection and function tests again.

Qualified service technicians will perform scheduled maintenance inspections quarterly, annually, and every two years according to procedures in the service manual for the aerial lift.

Machines that have been out of service for more than three (3) months must receive the quarterly inspection before they are returned to service.

7.1 Maintenance Requirements

- Remove rings, watches, or other jewelry when performing any maintenance.
- Do not wear loose fitting clothing or unrestrained long hair, which is apt to become caught on or entangled in equipment.
- Use only approved nonflammable cleaning solvents.

-
- Always disconnect batteries when replacing electrical components.
 - Shut off all power controls before making adjustments, lubricating, or performing any other maintenance.
 - Use caution when checking a hot, pressurized engine coolant system.
 - When refueling the machine:
 - Ensure that the machine is grounded.
 - Do not smoke.
 - Never refuel if exhaust is located adjacent to fill spout and exhaust is hot.
 - Never refuel during electrical storms.
 - Ensure that the fuel cap is secure when not refueling.
 - Never work under an elevated boom until the boom has been restrained from movement by blocking or with overhead sling (lockout/ tagout).
 - Keep oil, grease, water, etc., wiped from standing surfaces and handholds.
 - Always check all instruction, caution, and warning placards to ensure they are not obliterated, defaced, or missing.

8. Training

Contractors shall train all applicable employees in the safe operation of aerial lifts.

The HSE Representative arranges employee training at the time of the initial assignment. Supervisors are responsible for identifying additional employee training needs during risk mitigation planning (2-week look-ahead). Training can be organized and presented to groups or on a work area by work area basis, depending on the operation.

Some equipment rental agencies will conduct aerial lift operator training upon request by the Contractor. The HSE Representative will coordinate externally provided training.

8.1 Operator Qualification

Operators must be instructed by a qualified person who is trained by the manufacturer (e.g., vendor, rental dealer) in the intended purpose and function of each of the controls, potential hazards, and procedures for dealing with hazards.

Only employees who have demonstrated to their Supervisor that they are able to operate the unit in a safe manner will be allowed to operate a self-propelled aerial platform. Operating proficiency consists of being able to demonstrate all phases of operation safely and correctly.

Before being allowed to demonstrate his/her operating capabilities, each employee is required to sign an Aerial Platform Certification Form (Attachment [LUS-HSE-FM4-446-042](#)) indicating that he/she has received and read a copy of the operator's manual and understands the operating instructions, limitations, control placards, warning and caution placards, and load limits of the unit.

Trained operators will be issued certification cards by the trainer/ training entity upon completion of training courses. Operators are required to maintain certification cards on their person at all times when operating aerial lifts.

8.2 Retraining

Retraining is provided for employees when there is a change in job assignment, equipment, or processes that present a new hazard.

Additional retraining is conducted when there are deviations from or inadequacies in the employee's knowledge or use of proper procedures. The retraining re-establishes the employee's proficiency and introduces new or revised control methods and procedures, as necessary.

9. Documentation

The records custodian documents all instruction, training, and retraining records. Records verifying completion of training are kept in the individual employee's training files.

The HSE Representative maintains records of inspection and maintenance at the site for the duration of the project, and archives them for a minimum retention time of 10 years from creation date.

10. References

Qatar Construction Specifications 2010 Section 11 Part 1.4 “Safe Use of Plant Equipment”

ANSI/SIA A92.2-2009, Elevating and Vehicle Lift Devices Package

EM 385-1-1, Safety – Safety and Health Requirements, Section 22.J, Elevating Work Platforms; and Section 22.K, Vehicle-Mounted Elevating and Rotating Work Platforms

Manufacturer Equipment Operator’s Manuals

11. Attachments

[LUS-HSE-FM4-446-042](#) Aerial Platform Certification Form

[LUS-HSE-FM4-446-043](#) Aerial Platform Inspection Form