



Lusail Real Estate Development Company

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

Lusail Construction Safety Management Procedure – Signs, Barricades, & Traffic Control

Document No	<u>LUS-HSE-WG3-446-016.01</u>	Rev	<u>1</u>
Uncontrolled Copy	<input type="checkbox"/>	Controlled Copy	<input checked="" type="checkbox"/>
		Date	<u>01-Apr-2015</u>

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1. Description

This element of the Lusail Construction Safety Management Procedures (LCSMP) explains the Lusail HSE requirements for signs, labels, barriers, signals, and traffic controls. This element applies to all Lusail personnel, Contractors, Developers, Consultants, and Subcontractors working on the Lusail Project.

Term	Description
Job Hazard Analysis (JHA)	A process used to identify the hazards or potential hazards associated with each step of a job or work plan to uncover hazards and then eliminate, control, or remove them before the work is started.
Barricade	An obstruction to deter the passage of persons or vehicles.
Emergency	An unforeseen occurrence endangering life, limb, or property.
Signs	A warning of a hazard, temporarily or permanently affixed or placed, at locations where hazards exist.
Signals	A moving sign provided by workers (e.g., banksmen) or by devices (e.g., flashing lights) to warn of possible or existing hazards.
Tags	A temporary sign, usually attached to a piece of equipment or part of a structure, to warn of existing or immediate hazards.

2. 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 shall apply.

3. Signs and Labels

- A detailed description of typical traffic control signs used at the Lusail Project is provided in the Lusail Traffic Management Plan. All site traffic controls adhere to traffic laws and rules as prescribed by the Qatar Ministry of Interior.
- Signs are intended to point out hazardous work areas and working conditions, direct persons to proceed with caution, or provide instruction, direction, or information.
- Contractors must provide signs which appropriately and adequately describe or illustrate each situation or condition, and remove them when the hazard is eliminated or logistics change.
- Contractors are advised to use appropriate signs when work activities involve any of the following, in accordance with applicable LCSMP sections:
 - Aerial lift operation
 - Asbestos and lead abatement
 - Blasting locations
 - Closed roads
 - Concrete lift-slab
 - Confined spaces
 - Energized circuits or power lines

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- Equipment under repair
 - Exits
 - Flammable storage
 - Heavy equipment work areas
 - High noise areas
 - Powder actuated tools
 - Pressure vessel test areas
 - Underground access openings
 - Unstable excavations
 - Waste disposal vertical drop areas
- Signs must adhere to the following requirements:

Prohibition signs

- These signs are red and white with a black image. The signs inform people of things they **must not do**, for example 'No pedestrians' or 'No smoking'.

Mandatory signs

- These signs are blue with a white image and inform people of things that they **must do**, for example 'Wear ear protection' or 'Use crawling boards'.

Warning signs/signs on hazardous substances

- These signs are either yellow or amber with a black image and warn people of potentially dangerous situations, for example 'Forklift trucks operating' or 'Fragile roof'.

Safe condition signs

- These signs are green with a white image and inform people of features of the site that are associated with a safe condition, for example 'First aid' or 'Fire exit'.

Fire safety

- These signs are also red and white, but predominantly red with a white image. They indicate the location of facilities associated with fire safety such as 'Call point' or 'Fire point'.

Mixed signs

- Often 'mixed signs' will be displayed, which are a combination of the four main types of sign. For example, a sign at the site entrance might include:
 - a) an 'Unauthorized access strictly prohibited' sign - red and white = **must not do**
 - b) an 'All visitors must report to the site office' sign - blue and white = **must do**
 - c) a 'Beware open excavations' sign - yellow and black = **beware of danger**
 - d) an 'Assembly point' sign - green and white = **safe condition**.
- Similar signs that indicate, for example, the location of a dangerous substance storage area will also usually comprise a combination of signs, such as a 'Flammable' (warning) sign, a 'No smoking' (prohibition) sign, and additional appropriate wording.
- Use accident prevention tags as a temporary means of warning employees of an existing hazard, such as defective tools, equipment, etc. Tags are temporary controls and shall not be used in place of signs.
- Identify piping systems (including pipes, fittings, valves, and pipe coverings) to reflect the contents of the pipe(s) and direction of flow, temperature, state, etc.

The wording of any sign must be concise and easy to read. Signs must be printed in the English language and all other languages common to the workforce.

- ◆ Signs required to be seen at night must be lighted or reflectorized.
- Use specific hazard-warning signs or labels to identify radio frequency (RF) radiation hazards, lasers, and ionizing radiation sources.
 - Label, tag, or mark hazardous material containers in accordance with [LUS-HSE-WG3-446-010](#), Control of Substances Hazardous to Health.
- Hazardous waste containers shall be properly labeled and/ or marked per Qatar Ministry of Environment requirements.

4. Barricades

- Designated persons responsible for erecting barricades, barriers, etc. shall be provided with the appropriate personal protective equipment (PPE), and equipment necessary to safeguard the workers from the hazard(s) being barricaded, and/ or adjacent hazards; i.e., traffic.
- Barricades must enclose hazard areas on all sides, must be readily visible, and adequate to the safeguarding requirements of that which is being protected from the hazard.
- Place barricades no less than 6 feet from the hazard.
- When a hazardous condition develops which warrants some measure of barricade(s), Contractors must post a designated person(s) at the location who is responsible for warning personnel and preventing access to the area until such time it is properly barricaded.
- Use warning signs in conjunction with barricades.
- Barricades and barricade equipment should not be used for any other purpose.
- Barrier tape and/ or rope must be color coded per the following barricade categories:
 - Red with White or Black- Imminent danger areas (keep out)
 - Yellow with White or Black- Use caution before entering (proceed with caution)
 - Purple & Yellow- Radiation area (keep out)

4.1 Fencing

- Fencing to demarcate the extent of Contractors work area(s) within the Lusail Project property is highly recommended by Lusail. Fencing, at a minimum, shall be used for all project sites located within or adjacent to Public access areas.
- Fencing used around work areas or project sites shall be a minimum of 6' (1.8 m) in height.
- It is recommended that security screen be provided on site perimeter fencing to minimize noise and airborne dust migration.
- Adequate signage to properly describe the potential hazards inside the fenced area, PPE requirements, contact information of pertinent staff, and restrictions to unauthorized persons shall be posted on site fencing in all areas where personnel can access the site perimeter.
- Contractors granting personnel permission to enter barricaded areas shall ensure that all such personnel adhere to the Contractors policies and procedures for the site, as posted on perimeter site fences.

4.2 Heavy Equipment Barricades

Contractors shall ensure that adequate barriers/ barricades are provided around the rotating superstructure of cranes, excavators, shoring rigs, or other similar equipment where a pinch/ crush hazard exists. Barricades must be highly visible and placed such that personnel are notified of the hazard prior to coming near equipment swing paths and/ or swing radii.

These barricades serve as a warning of the hazardous condition(s). It is not necessarily a physical barrier intended to prevent entry; but more a warning of a hazard, and all personnel on site must be trained to respect it as such.

- All crane barricades should conform to a standard handrail height of 42 inches as often as is practical.
- If the Project Manager determines that a crane, excavator, shoring rig, etc. is to be stationed at one location for an extended duration, a semi-permanent guardrail built of lumber or steel is the most suitable control barrier which requires the least maintenance.
- For heavy equipment that frequently moves to different locations, it is recommended that barricades be attached to the body of the equipment. This guarantees that the barricade is always available and eliminates the time-consuming collection and re-erection of barricades each time the equipment is moved to a new location.

5. Signaling and Banksmen

Use Banksmen (flagmen) or other appropriate traffic controls when signs, signals, and barricades do not provide adequate protection of workers, equipment, and work areas from vehicle traffic.

Banksmen/ flagmen shall be properly trained as such. Only trained personnel shall serve as Banksmen and flagmen.

Traffic signaling must conform to the guidelines of this LCSMP. Personnel shall use approved sign (stop/slow) paddles and/ or lights for hand signaling. Colored flags may also be used to direct vehicle traffic. Where visibility is limited, either on the part of the Banksman or motorist, the Contractor must provide additional Banksmen to ensure visibility by all parties.

5.1 Banksmen Protection

Mandatory personal protective equipment (PPE) which must be used by all Banksmen or flagmen includes:

- Lusail required basic PPE (hard hat, eye protection, safety toed shoes)
- USDOT Class II high visibility clothing (vest at a minimum); colors permitted include fluorescent orange, yellow, or green
- Lantern (torch) for nighttime operations
- Communication device (2-way radio, megaphones)

Non-mandatory equipment that may be used to safeguard banksmen includes:

- Hard hat mirror for rear view
- Motion detectors equipped with an audible alarms
- Additional spotter personnel
- Erection of rigid barriers around Banksman work stations.

Banksmen work stations (posts) must be illuminated by floodlights during hours of darkness. In no case should floodlighting be positioned to create a disabling glare for motorists. Emergency situations are exempt from illumination requirements.

Banksmen shall not be assigned other duties while engaged in flagging/ spotting activities. Use of personal devices; i.e., cell phones, pagers, or MP3 player that may distract their vision, hearing, or attention shall not be permitted.

The Contractor must ensure that Banksmen receive frequent breaks from flagging so they can remain attentive and alert, and that replacement trained Banksmen are available during primary Banksman breaks.

6. Project Traffic Control Plan

All Lusail site Contractors shall enact an internal Project Traffic Control Plan (Plan). The Plan shall be submitted to the Supervising Consultant prior to site mobilization. The purpose of this Plan is to help move traffic through or around the construction zones in a way that protects the safety of the traveling public, pedestrians, and workers.

The Contractors Plan shall coincide with the Lusail Traffic Management Plan and the scope of work of the site "Roads Contractor." The Contractor shall consult with the Roads Contractor and Lusail prior to creating, blocking, re-routing, or altering any Lusail site road. Contractors are advised to coordinate their needs with the Lusail Logistics Dept. a minimum of three (3) days prior to any proposed work. Unauthorized road modifications may warrant fines being levied against the Contractor.

The Contractor Project Manager and HSE Representative facilitate implementation and compliance with the Contractor's Plan and the Lusail site requirements. They are responsible for understanding and enforcing site traffic rules, sign requirements, etc upon all motorists under their supervision.

At a minimum, the Contractor's Plan must include the following information:

- Procedures for coordination with Lusail and Roads Contractor
- Name of the person responsible for implementing and maintaining the program
- Name and contact information of designated person(s)
- Provisions for inspections and surveillance
- Provisions for worker training
- Signs/ markings used and placement of such
- Scheduling procedure
- Placement and maintenance of devices
- Work areas requiring Banksmen and placement of Banksmen
- Roadway lighting
- Procedures for compliance with traffic regulations

7. Training

The Contractor HSE Representative arranges employee training at the time of initial assignment to Banksmen responsibilities. Construction Management is responsible for identifying additional employee training needs.

Banksmen Training Requirements

Banksmen shall be trained every 3 years (minimum) and after any incident involving vehicle, equipment, or personnel in work areas under his responsibility. Banksmen shall be provided with and carry certifications cards which document training accomplished.

Retraining

Additional training or re-training shall be provided to Banksmen when site conditions change, when relocated to different site areas and when site roads are modified by the Roads Contractor. The Contractor shall provide all additional training.

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

8. Documentation

The records custodian documents all instruction and training. The HSE Representative maintains these records at the site for the duration of the project and archives them for a minimum retention time of 10 years from creation date.

9. References

Qatar Construction Specifications 2010 Section 1 Part 3.0 "Site Access and Entry onto the Site"

Qatar Construction Specifications 2010 Section 1 Part 10.3.6 "Warning Signs"

Qatar Construction Specifications 2010 Section 11 Part 1.8.2 "Signs"