Lusail Real Estate Development Company

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

Lusail Construction Safety Management Procedure – Scaffolds

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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	Uwe Krueger	1st April 2015
1	(Pg. 2) Revised Amendment Table	HSE Working Group	Michael Ford Michael Ford	Uwe Krueger	1st April 2015

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1. Description

This element of the LCSMP provides Lusail Contractors with general and safety requirements for scaffolds and scaffolding systems. This element applies to all Lusail personnel, Contractors, Developers, Consultants and Subcontractors working on the Lusail Project.

This element does not address walking/ working surfaces, ladders, aerial lifts, or fall protection, which are covered in **LUS-HSE-WG3-446-018**, Walking/ Working Surfaces; **LUS-HSE-WG3-446-019**, Ladders; **LUS-HSE-WG3-446-021**, Aerial Lifts; and **LUS-HSE-WG3-446-022**, Fall Protection.

This element does not include all OSHA standards. See Section 14, References, for complete regulatory details and references. This element addresses all construction site scaffold types except those listed below:

- Bricklayer square scaffold
- Cantenary scaffolds
- Crawling boards (chicken ladders)
- Horse scaffolds
- Ladder jack scaffolds
- Mason scaffolds
- Multipoint adjustable suspension scaffolds
- Outrigger scaffolds (one level)
- Plasterer, decorator, and large area scaffolds
- Pump jack scaffolds
- Repair bracket scaffolds
- Roof bracket scaffolds
- Stilts
- Stone setter scaffolds
- Tank builder scaffolds
- Window jack scaffolds

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. Purpose is to identify associated hazards and then eliminate, control, or remove them before the work is started.
Adjustable Suspension Scaffold	A suspension scaffold equipped with a hoist(s) that can be operated by an employee(s) on the scaffold.
Bearer	A horizontal member of a scaffold upon which the platform rests and that can be supported by ledgers.
Boatswain's Chair	A single-point adjustable suspension scaffold consisting of a seat or sling designed to support one employee in a sitting position.
Brace	A tie that holds one scaffold member in a fixed position with respect to another member.

Term	Description
Competent Person	Individual who demonstrates superior knowledge and understanding of scaffolding systems, is trained to recognize deficiencies in systems, and who has authorization to take prompt corrective measures to eliminate them.
Float (Ship) Scaffold	A suspension scaffold consisting of a braced platform resting on two parallel bearers and hung from overhead supports by ropes of fixed length.
Form Scaffold	A supported scaffold consisting of a platform supported by brackets attached to formwork.
Guardrail	A rail secured to uprights and erected along the exposed sides and ends of platforms.
Heavy-Duty Scaffold	A scaffold designed and constructed to carry a working load not to exceed 370 kg/ m^2 (75 lbs/ in^2).
Lean-To Scaffold	A supported scaffold that is kept erect by tilting it toward and resting it against a building or structure.
Ledgers (Stringers)	A horizontal scaffold member that extends from post to post and supports the putlogs or bearers forming a tie between the posts.
Light-Duty Scaffold	A scaffold designed and constructed to carry a working load not to exceed 126 kg/ m^2 (25 lbs/ in^2).
Manually Propelled Mobile Scaffold	A portable rolling scaffold supported by casters.
Maximum Rated Load	The total of all loads, including the working load, the weight of the scaffold, and other loads as may be reasonably anticipated.
Medium Duty Scaffold	A scaffold designed and constructed to carry a working load not to exceed 252 kg/m^2 (50 lbs/ in^2)
Mid-rail	A rail approximately midway between the guardrail and platform, secured to the uprights erected along the exposed open sides and ends of scaffold platforms.
Mobile Scaffold	A powered or non-powered, portable, caster, or wheel-mounted supported scaffold.
Multilevel Suspended Scaffold	A two-point or multipoint adjustable suspension scaffold with a series of platforms at various levels resting on common stirrups.
Needle Beam Scaffold	A platform suspended from needle beams.
Outrigger Scaffold	A scaffold supported by outriggers or thrust-outs projecting beyond the wall or face of the building or structure, the inboard ends of which are secured inside of that building or structure.
Point Suspension Scaffold	A platform suspended by bearers by wire rope from overhead supports, arranged and operated to permit the raising or lowering of the platform to desired working positions.
Putlog	A scaffold member upon which the platform rests.

Term	Description
Qualified Person	One who, by possession of a recognized degree, certificate, or professional standing, or who, by extensive knowledge, training, and experience, has successfully demonstrated his/her ability to solve or resolve problems relating to the subject matter, the work, or the environment.
Scaffold	Any temporary, elevated platform and its supporting structure used to support workmen or materials or both.
Sectional Frame Lock Scaffold	A platform consisting of basic prefabricated end frames, cross bracing, and frame lock devices to hold the parts firmly in place.
Self-Contained Adjustable Scaffold	A combination supported and suspension scaffold consisting of an adjustable platform mounted on an independent supporting frame that is not a part of the object being worked on, and that is equipped with a means to permit the raising and lowering of the platform. Such systems include rolling roof rigs, rolling outrigger systems, and some masons' adjustable supported scaffolds.
Shore Scaffold	A supported scaffold that is placed against a building or structure and held in place with props.
Single-Point Adjustable Suspension Scaffold	A suspension scaffold consisting of a platform suspended by one rope from an overhead support and equipped with means to permit the movement of the platform to desired work levels.
Single-Pole Scaffold	A supported scaffold consisting of a platform resting on bearers, the outside ends of which are supported on runners secured to a single row of posts or uprights, and the inner ends of which are supported on or in a structure or building wall.
Step, Platform, and Trestle Ladder Scaffold	A platform resting directly on the rungs of step ladders or trestle ladders.
Supported Scaffold	One or more platforms supported by outrigger beams, brackets, poles, legs, uprights, posts, frames, or similar rigid support.
Suspension Scaffold	One or more platforms suspended by ropes or other non-rigid means from an overhead structure.
Toeboard	A barrier secured along the sides and ends of a platform to guard against the falling of materials from the platform to areas below.
Tubular Welded Frame Scaffold (Fabricated Frame Scaffold)	A scaffold consisting of a platform supported on fabricated end frames with integral posts, horizontal bearers, and intermediate members.
Two-Point Suspension Scaffold (Swing Stage)	A suspension scaffold consisting of a platform supported by hangers (stirrups) suspended by two ropes from overhead supports and equipped with means to permit the raising and lowering of the platform to desired work levels.
Working Load	Load imposed by men, materials, and equipment.

3. Responsibilities

The Contractor is fully responsible for the pre-planning of work activities, development of Method Statements, Job Hazard Analyses, and 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

4. Project Scaffold Plan

The HSE Representative leads the development and implementation of a Project-Specific Scaffold Plan (Plan) in accordance with this LCSMP. The Contractors Plan is included in the Site-Specific Health & Safety Plan in accordance with LCSMP.

The Project Manager reviews, approves, and facilitates implementation and compliance with the Plan. The Project Manager designates a scaffold qualified person to design and erect scaffolds, as well as a scaffold competent person to supervise scaffold erection and dismantling, perform inspections, maintain scaffold tags, and conduct scaffold user training.

The Contractor audits the activities of all scaffold users to ensure compliance with the Plan. The Plan must include site-specific provisions for the following:

- Design requirements for scaffolds
- Fall protection requirements for scaffolds and scaffold users
- Means of access to scaffolds
- Provisions for safe scaffold use by work crews other than those responsible for the scaffold (subcontractors)
- Qualified and competent scaffold persons
- Related job hazards analyses (JHA)
- Summary of tagging system

The Plan must include the following general requirements:

- A qualified person(s) or certified scaffold contractor must design and erect scaffolds.
- A scaffold competent person qualified in management, inspection, and modification of scaffolds must supervise and direct such erection and dismantling work. The competent person must select only experienced and trained (qualified) employees to perform such work.
- No employee, subcontractor, or scaffold user may modify or remove any part of a scaffold, unless under the supervision of the scaffold qualified or competent person.

5. Capacity

Scaffolds and scaffold components must be capable of supporting, without failure, their own weight and at least four times the maximum intended load.

Scaffolds and accessories such as braces, brackets, trusses, screw legs, and ladders that have been damaged or weakened from any cause must be immediately repaired or replaced. Scaffolds identified with damaged components shall be immediately taken out of service until adequate repairs are made.

Load-carrying timber members of scaffold framing must be a minimum of 1,500 fiber (stress grade) construction grade lumber. Dimensions are nominal sizes as provided in the American Lumber Standards, except that where rough sizes are noted, only rough or undressed lumber of the size specified will satisfy minimum requirements.

All scaffold decking (planking) must be adequately secured and/ or supported to/ by the scaffold frame and tested for strength and must be suitable to bear the intended load. Cracked, damaged or warped planking shall not be used.

Frames, bracing, connecting pins, and all other scaffolding components and accessories cannot be interchanged. Contractors shall use only components manufactured by certified or licensed scaffold systems manufacturers. Site fabricated components or materials not intended for use in scaffold systems shall never be used at the Lusail Project.

Structural connections and counterweights used to balance adjustable suspension scaffolds must be capable of resisting at least four (4) times the tipping moment imposed by scaffolds operating at either the rated load of the hoist, or 1.5 (minimum) times the tipping moment imposed by scaffolds operating at the stall load of the hoist, whichever is greater.

Each suspension rope, including connecting hardware, used on non-adjustable suspension scaffolds must be capable of supporting, without failure, at least six (6) times the maximum intended load applied or transmitted to that rope.

Each suspension rope, including connecting hardware, used on adjustable suspension scaffolds must be capable of supporting, without failure, at least six (6) times the maximum intended load applied or transmitted to that rope with the scaffold operating at either the rated load of the hoist, or two (2) (minimum) times the stall load of the hoist, whichever is greater.

The stall load of any scaffold hoist cannot exceed three (3) times its rated load.

Scaffolds and scaffold components cannot be loaded in excess of their maximum intended loads or rated capacities, whichever is less.

6. Access

When climbing ladders, employees must maintain three-point contact at all times. Employees cannot hand-carry tools or materials while climbing. Do not use toe-boards as handholds or footholds. Steps and rungs of ladder and stairway type access must line up vertically with each other between rest platforms.

When scaffold platforms are more than 2’ (0.6 m) above or below a point of access, use ladders, stair towers, stairways, stairway-type ladders (such as ladder stands), ramps, or direct access from another scaffold, structure, personnel hoist, or similar surface.

Direct access to or from another scaffold or platform is permissible only when the adjacent scaffold platform is not positioned greater than 6” (15 cm) horizontally and not more than 19” (0.48 m) vertically from the other scaffold platform.

Cross braces used on tubular welded frame scaffolds are not to be used as a means of access or egress.

Access provided for employees erecting or dismantling supported scaffolds must be in accordance with the following requirements:

- Hook-on or attachable ladders must be installed as soon as scaffold erection has progressed to a point that permits safe installation and use. Typically, this is following installation of planking and bracing on any particular level.
- When erecting or dismantling tubular welded frame scaffolds, end frames with horizontal members that are parallel, level and are not more than 22” (55.9 cm) apart vertically may be used as climbing devices for access, provided they are erected in a manner that creates a usable ladder and provides good hand hold and foot space.

Use only appropriate ladders for safe access to scaffolding.

- Portable, hook-on, and attachable ladders:
  - Position portable, hook-on, and attachable ladders so they do not tip the scaffold.
  - Position hook-on and attachable ladders so that the height of the bottom rung above the base (ground) is equal to the vertical rung spacing of the ladder, but never more than 18” (45.7 cm).
  - When hook-on and attachable ladders are used on a supported scaffold more than 35’ (10.7 m) in height, they shall have rest platforms provided at every 35’ (10.7 m) of vertical travel.
  - Scaffold erectors shall make all attempts to avoid use of individual hook-on or attachable ladders which exceed 24’ in vertical height. Where this is not achievable, Contractor shall implement an approved fall protection system for users of individual ladders exceeding 24’ (7.3 m) in vertical height; i.e., retractable lifelines.
  - Ladders must be designed specifically for use with the type of scaffold used.
  - Ladders must have a minimum rung length of 11.4” (29 cm).
  - Hook-on and attachable ladders must have uniformly spaced rungs with a maximum vertical spacing between rungs of 16.7” (42.5 cm) or less.
  - Stairway-type ladders:
  - Must be positioned so that the vertical distance between the bottom step and the scaffold supporting surface is equal to the distance between the individual steps of the ladder, but never more than 18” (45.7 cm).

- Must be provided with landings of not less than 30" (76 cm) in the direction of travel which extend at least 22" (56 cm) in width at every 12' (3.7 m) or less of vertical rise.
- Have a minimum step width of 16" (41 cm), except that mobile scaffold stairway-type ladders will have a minimum step width of 11.8" (30 cm).
- Have slip resistant treads on all landings

- Stair towers (scaffold stairway/ towers):
  - Must be positioned so that their bottom step is not more than 18" (45.7 cm) above the scaffold supporting level.
  - A stairrail consisting of a top-rail and a mid-rail will be provided on each side of a scaffold stairway. Toe rails shall be provided on all sides where worker exposure to falling objects exists below.
  - The top-rail of each stairrail system must also be capable of serving as a handrail, unless a separate handrail is provided.
  - Handrails and the top rails of stairrail systems shall be capable of withstanding, without failure, a force of at least 200 lbs. (890 n) applied within 2" (5 cm) of the top edge, in any downward or outward direction, at any point along the top edge.
  - Stairrail systems and handrails must be surfaced to prevent injury to employees from punctures or lacerations and to prevent snagging of clothing.
  - The ends of stairrail systems and handrails must be constructed so that they do not constitute a projection hazard.
  - The height of handrails shall be not more than 37" (94 cm) or less than 30" (76 cm) from the upper surface of the handrail to the surface of the tread, in line with the face of the riser at the forward edge of the tread.
  - When the top edge of a stairrail system also serves as a handrail, the height of the top edge shall be not more than 37" (94 cm) nor less than 36" (91.5 cm) from the upper surface of the stairrail system to the surface of the tread, in line with the face of the riser at the forward edge of the tread.
  - Handrails, and top-rails that are used as handrails, must be at least 3" (7.6 cm) from other objects.
  - Each scaffold platform and walkway must be at least 18" (45.7 cm) in width.
  - Each scaffold stairway must be at least 18" (45.7 cm) wide between stairrails.
  - Treads and landings must have slip-resistant surfaces.
  - Stairways must be installed between 40 and 60 degrees from the horizontal.
  - Guardrails must be provided on the open sides and ends of each stairway landing. Toe rails shall be provided where workers exposure to fallings objects exists below.
  - Riser height and tread depth must be uniform within each flight of stairs, including any foundation structure used as one or more treads of the stairs.
  - Variations in riser height and tread depth shall not exceed 0.25" (0.6 cm) in any stairway system.
- Ramps and Walkways:
  - Ramps and walkways 6.0' (1.8 m) or more above lower levels must be provided with guardrail systems meeting all requirements of **LUS-HSE-WG3-446-022**, Fall Protection.
  - No ramp or walkway must be inclined more than a slope of two vertical to ten horizontal (20 degrees above the horizontal).
  - Ramps must be surfaced and/ or cleated to prevent slipping. Where cleats are used, they shall be spaced no more than 16" (40.6 cm) apart.
- Integral prefabricated scaffold access frames must:
  - Be specifically designed and constructed for use as ladder rungs.
  - Have a rung length of at least 7.9" (20 cm).

- Not be used as work platforms when rungs are less than 11.5" (29.2 cm) in length, unless each affected employee uses fall protection or a positioning device.
- Be uniformly spaced within each frame section.
- Be provided with rest platforms at 35' (10.7 m) maximum vertical intervals on all supported scaffolds more than 35' (10.7 m) in height.
- Have a maximum spacing between rungs of 16.9" (43 cm). Non-uniform rung spacing caused by joining end frames together is allowed, provided the resulting spacing does not exceed 16.9" (43 cm).

7. Scaffold Erection and Dismantling

Scaffolds exceeding 40' (12.2 m) in height above the base plates must be designed and erected by a licensed Scaffolding Contractor. Scaffold systems must be designed and approved by a registered Professional Engineer. Contractors shall not self-erect scaffolding exceeding 40' (12.2 m) unless licensed and approved as a Scaffolding Contractor. Employment of a scaffold qualified and scaffold competent person does not negate this policy.

Workers must keep both hands empty for secure handholds when moving above on scaffolds. Pockets, pouches, and tool belts must be used to carry the necessary tools for the work to be conducted.

Hoist or lower scaffold members with a hand line or pass them from hand to hand. Do not throw or drop components/ items up or down to co-workers.

Keep scaffold platforms clear of debris and loose materials used in the erection or dismantling process.

The footing or anchorage for scaffolds must be level, compacted, and capable of carrying the maximum intended load without settling or displacement. Unstable objects such as stacked lumber, barrels, boxes, loose brick, or concrete blocks, cannot be used to support scaffolds or planks.

All scaffolding boards must be secured against movement. Planks must overlap their supports by no less than 6" (15.2 cm) and no more than 18" (45.7 cm). Engineered planks with cleating devices or hooks are exempt from overlap requirements.

Planks shall overlap each other by a minimum of 12" (30.5 cm) and overlapping shall occur only at supports.

Install adjusting screws only between the base plate and the vertical frame section; never use them together with casters. Do not extend adjusting screws more than 12 inches (30.5 cm).

Brace scaffolds with cross bracing or diagonal braces (or both) when necessary for securing vertical members together laterally. Cross braces must be of a length that will automatically square and align vertical members so that the erected scaffold is always plumb, square, and rigid. All brace connections must be secure.

Scaffolds less than 36" (.91 m) in width must be tied to the adjacent structure every 20' (6.1 m) vertically and every 30' (9.2 m) horizontally. Scaffolds greater than 36" (.91 m) in width must be tied to the adjacent structure every 26' (8 m) vertically and 30' (9.2 m) horizontally. Scaffolds must be adequately braced (bumpered) to prevent collapse into the adjacent structure.

8. Use

8.1 General Use

The scaffold competent person must select only experienced and trained employees (qualified persons) to perform scaffold erection, dismantling, or modification. The scaffold competent person will supervise and direct the work of the scaffold qualified persons.

Do not move scaffolds while employees are occupying them. Rolling scaffolds must be cleared of personnel before being moved. Riding the scaffold while it is in the process of being moved (surfing) is prohibited at the Lusail Project. While in use, the castors on rolling scaffolds must be set in the locked position. All loose tools, materials, and equipment resting on the scaffold platforms must also be removed prior to moving rolling scaffolds.

Scaffolds must not be erected or used in a manner or at a distance which may expose the scaffold to contact with energized electrical lines. The minimum safe separation distances indicated in Table A below must be strictly adhered to.

Table A – Scaffold Distance from Power Lines

Insulated & Non-insulated Line Voltage	Minimum Distance
< 50 kV	10 ft (3.1 m)
> 50 kV	10 ft (3.1 m) plus 4.0 in. (10 cm) for each 1 kV over 50 kV

Separation distances specified above may be exceeded only where the electrical system provider has been notified prior to scaffold work starting and has fully de-energized or relocated the electrical line(s), or installed protective coverings to prevent accidental contact with the electric lines. Protective coverings must be capable of successfully eliminating the potential for arcing. Exceedance of specified distances requires approval from the Lusail HSE Department and verification that one or more of the above controls has been implemented.

Scaffolds, platforms, and accessways must be maintained free of grease, mud, and other materials or equipment that could create a slipping, tripping or falling hazard. Do not allow tools, materials, equipment, or debris to accumulate on scaffolds work platforms, or in access ways.

Work on or from scaffolds shall be evaluated by the scaffold competent person during high winds. The competent person shall determine if it is safe for employees to be on the scaffold and whether additional safeguards are required for those employees; i.e., personal fall arrest system, or additional ties and braces.

Contractors shall close all scaffolding systems upon visual identification of lightning or and/ or heavy rain showers.

Contractors shall utilize tag lines on all suspended loads (or equivalent measures) to control loads from contacting scaffolding. Where materials are being hoisted onto scaffolds, the competent persons shall verify beforehand that loads will not exceed safe load capacities of the scaffolding.

The use of boxes, blocks and barrels on scaffold platforms to increase the working level height of employees is prohibited. Do not use ladders (any type) on scaffolds to increase the working level height of employees, except on large area scaffolds (dance floors) where the following conditions have been satisfied:

- When placing the ladder against a structure that is not a part of the scaffold, secure the scaffold against the sideways thrust exerted by the ladder via use of additional ties.
- Minimum 4’ X 8” sheet plywood must be placed under ladder legs. Plywood (or similar material) shall be secured to the scaffold platform to prevent displacement.
- Ensure that platforms do not deflect more than 1/60 of the span when loaded with ladder, man and materials.

8.2 Welding On Scaffolds

Welding on scaffolds must be conducted in accordance with **LUS-HSE-WG3-446-028**, Welding, Cutting, and Brazing, with the following limitations. Suspended scaffold welding precautions include, but are not limited to, the following:

- Do not perform welding, burning, or open flame work on any scaffold staging suspended by means of fiber or synthetic rope.
- To reduce the potential for welding current arcing through the suspension wire ropes, Contractors must take the following precautions, as applicable:
  - Use an insulated thimble to attach each suspension wire rope to its hanging support (e.g., cornice hook or outrigger). Insulate excess suspension wire rope and any additional independent lines from grounding using appropriate non-conductive material.
  - The suspension wire ropes must be covered with insulating material extending at least 4’ (1.2 m) above the scaffold. If there is a tail line below the scaffold, it must be insulated to prevent contact with the platform. The portion of the tail line that hangs free below the scaffold must be guided or retained, or both, so that it does not become grounded.
  - Each scaffold must be covered with insulated protective covers.
  - All welding leads must be fully insulated and free of breaks or damage to the insulation.

  - Do not allow an active welding rod or non-insulated welding lead to contact the scaffold or its suspension system.
- In addition to the welding lead required by the welding process, the scaffold must be bonded to the adjacent structure. The size of this bond conductor must be at least the size of the welding lead, and must not be in series with the welding process or the work piece.
- If the scaffold bond is disconnected at any time, welding activities must cease.

9. Guardrail System

All scaffold working platforms at heights greater than 6' (1.8 m) above the ground or lower level must be equipped with minimum 39" (1 m) high guard railings. Railing construction must comply with fall protection specifications as provided in **LUS-HSE-WG3-446-022**, Fall Protection. Where worker exposure to falling object hazards is located below scaffold platforms, the railings shall be provided with rigidly secured toeboards.

Steel or plastic banding or manila or synthetic rope are not suitable materials for use as top-rail or mid-rail and shall not be used. Guardrails must be surfaced to prevent injury or snagging of clothing. The ends of all rails must not overhang the terminal posts where they may constitute a projection hazard to employees.

Each top rail or equivalent member of a guardrail system must be capable of withstanding, without failure, a force of at least 100 pounds (45.3 kg) on single-point and two-point adjustable suspension scaffolds, and at least 200 pounds (90.7 kg) on all other scaffolds.

Suspension scaffold hoists and non-walkthrough stirrups may be used as end guardrails if the space between the hoist or stirrup and the side guardrails does not exceed 4" (10 cm).

Cross-bracing is acceptable in place of a mid-rail when the cross point of the braces is between 20" (50.8 cm) and 22" (55.9 cm) above the work platform, or as a top-rail when the crossing point of the two braces is between 39" (.99 m) and 45" (1.1m) above the work platform. The separation between individual braces at each upright must not exceed 39" (.99 m) apart.

10. Fall Protection

Workers must use an approved form of 100% fall protection in accordance with **LUS-HSE-WG3-446-022**, Fall Protection, on scaffold platforms exceeding 6' (1.8 m) where fall protection is not adequately provided for by standard guard railings, as described above.

The scaffold competent person and the HSE Representative shall determine the feasibility of requiring the use of personal fall arrest by scaffold erectors and dismantlers. Criteria to be evaluated when making this determination include scaffolding systems:

- Where use of fall arrest systems is feasible (overhead anchorage points are available).
- Where use of fall arrest systems does not create a greater hazard to the worker.

The Supervising Consultant and Lusail HSE should be consulted when making this determination. Determinations shall be made for each scaffolding system individually, as opposed to a site-wide determination.

Each employee on a boatswain's chair, float scaffold, or needle beam scaffold must be protected by a personal fall arrest system. Each employee on a single-point or two-point adjustable suspension scaffold or a self-contained adjustable supported scaffold must be protected by both a personal fall arrest system and guardrail system.

Personal fall arrest systems are not required when climbing up and down the ladder to the scaffold platform unless individual un-broken ladder heights exceed 24' (7.3 m).

For all scaffolds not otherwise specified in this procedure, employees must be protected by the use of personal fall arrest or restraint systems, or guardrail systems, when working platform heights exceed 6' (1.8 m) above the lower level or ground.

Personal fall arrest systems used by scaffold users must incorporate anchorage points meeting the required capacity of 5,000 lbs (2273 kg) per worker attached to the anchorage. Typically, scaffolding frames and components do not meet this load capacity requirement. The HSE Representative, Supervising Consultant and Lusail HSE must be consulted in cases where available fall arrest anchorages do not meet load capacity requirements.

Do not use vertical lifelines when overhead components (e.g., overhead protection or additional platform levels) are part of a single- or two-point adjustable suspension scaffold.

When vertical lifelines are used, anchorage points must meet the above load capacity requirements and shall be independent of the scaffold. Vertical lifelines must be protected from sharp edges and abrasion. Each worker on the scaffold shall be supplied with their own vertical lifeline.

When horizontal lifelines are used, secure them to two or more structural members of the scaffold, or loop them around both suspension and independent suspension lines (on scaffolds so equipped) above the hoist and brake attached to the end of the scaffold. Do not attach horizontal lifelines only to the suspension ropes.

When lanyards are anchored to horizontal lifelines or structural members on a single or two-point adjustable suspension scaffold, equip the scaffold with additional independent support lines and automatic locking devices capable of stopping the fall of the scaffold if one or both of the suspension ropes fail. The independent support lines must be equal to the suspension ropes in number and strength.

Do not attach vertical lifelines, independent support lines, and suspension ropes to each other. Do not attach them to, or allow them to use, the same point of anchorage, nor attach them to the same point on the scaffold.

Where potential exists for tools and materials to fall from the scaffold and strike employees below, the following provisions (in addition to guardrails and toeboards) shall apply:

- Barricade the area below the scaffold to which objects can fall, and keep and keep all personnel out of the hazard area. Area should be sign posted for overhead hazards.
- Erect a canopy structure, debris net, or catch platform strong enough to withstand the impact forces of any falling object which may be used on the scaffolding.
- When canopies are used for falling object protection, they must comply with the following criteria:
  - Canopies must be installed between the falling object hazard and worker accessible locations below.
  - When canopies are used on suspension scaffolds for falling object protection, the scaffold must be equipped with additional independent support lines equal in number and strength of suspension ropes.

11. Inspections

11.1 Scaffold Tagging

All scaffolds shall be red tagged during erection, modification and dismantling activities. Following erection of a scaffold or scaffold system, the scaffold competent person shall conduct a thorough pre-use inspection of the complete scaffold system to determine the appropriate colored tag. Once the appropriate tag color is selected (per criteria below) the competent person indicates all pertinent information on the tag, signs the tag, and affixes the tag to the scaffold. Individual tags must be provided at all points of access to the scaffold system.

The following tagging color system shall be used by Contractors on the Lusail Project:

- **Red or (DANGER) tag:** Indicates a scaffold that is incomplete and in an unsafe condition. Only persons directly involved with the erection, modification, or dismantling of the scaffold are authorized to access onto any component of the red tagged scaffold. The red tag has a red background with black lettering.
- **Green or (OK) tag:** Indicates the scaffold is complete and fully compliant with Lusail and international scaffold safety standards and is safe to work on. Generally, no additional fall protection measures are required to work from scaffolds that are green tagged. This tag has a green background with black lettering.

11.2 Inspection Frequency

The scaffold competent person, or his approved designee, shall visually inspect the condition of all scaffolds and scaffolding systems per the following guidelines:

- Before initial use following erection
- Before each work shift (10 hour)
- After any scaffold incident
- After high wind events

- After heavy rain events
- After any other occurrence which may have compromised the integrity of the scaffold or any scaffold component

All personnel intending to use a scaffold or scaffold system must perform a pre-use visual inspection. This includes a review of the tag provided on the scaffold and any requirements listed on the tag.

Employees who identify a defective scaffold or scaffold component must immediately contact the scaffold competent person or their supervisor. Employees must immediately report any incident which occurred on a scaffold which may or may not have affected the scaffolds integrity.

All inspections shall be documented in some manner, either on the scaffold tag, or on formalized inspection records, with copies being submitted to the HSE Representative.

12. Training

12.1 Training for Scaffold Users

All persons planning to use scaffolding in the completion of their work activities shall be properly trained prior to scaffold use on the hazards associated with scaffolds and scaffold systems, and procedures governing the safe use of scaffolding. At a minimum, scaffold user training should address the following:

- Expected hazards associated with scaffold use and particular work area/ activities
- Fall protection requirements
- Use procedures in high winds and adverse weather
- Tagging system requirements
- Use limitations
- Basic required scaffold components, placement, and signs of damage or deficiency
- Proper method for scaffold access/ egress, and safe ladder use
- Maximum intended load and the load-carrying capacities of the scaffolds used

Retraining is conducted when the scaffold competent person has reason to believe that a scaffold user lacks the skill or understanding needed for safe work involving the use of, or work from scaffolds. Retraining is also required under the following situations:

- Where changes at the jobsite present a hazard about which an employee has not been previously trained
- Where changes in the types of scaffolds, fall protection, falling object protection, or other equipment present a hazard about which an employee has not been previously trained
- Where the user is observed in violation of safe scaffold use procedures
- When the scaffold has been re-classified with a different tagging system

12.2 Scaffold Qualified Person Training

Only those persons properly training in scaffold erection, modification and dismantling (erectors) shall perform such duties. Lusail requires that all scaffold erectors be 3rd party certified/ trained for scaffold erection. Erectors are required to carry a certificate card or similar documentation showing current qualification in scaffold erection duties.

The scaffold competent person shall evaluate the credentials of persons assigned to scaffold erection duties prior to their starting on site. If qualified to do so, the competent persons will provide training for erectors as needed.

Retraining is conducted when the scaffold competent person or lead erector has reason to believe that an employee lacks the skill or understanding needed for safe work involving the erection, use, or dismantling of scaffolds. Retraining is also required under the following situations:

- Where changes at the jobsite present a hazard about which an employee has not been previously trained.
- Where changes in the types of scaffolds, fall protection, falling object protection, or other equipment present a hazard about which an employee has not been previously trained.

13. Recordkeeping & Documentation

The Contractor HSE Representative documents/ files all scaffold instruction, training, and retraining records. The Contractor maintains project records at the site for the duration of the project and archives them for a minimum retention time of 10 years from creation date.

14. References

Qatar Construction Specifications 2010 Section 1 Part 10.3.10 “Scaffolding”

Qatar Construction Specifications 2010 Section 11 Part 1.3 “Working at Heights”