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HYUNDAI ENGINEERING & CONSTRUCTION

AMIRAL PROJECT

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SCAFFOLDING SAFETY PROCEDURE

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1 PURPOSE

- To provide fundamental requirements needed for scaffold erection/dismantling, use, inspection and tagging to eliminate the potential use of substandard erected scaffold and work platform.
- To set standards to which scaffolds will be erected and/or dismantled using required materials.
- To provide minimum administrative requirements for the safe design, erection, supervision, inspection, alteration, and dismantling of stationary and mobile scaffolds with fixed platform heights.

2 SCOPE

This procedure and guidelines is applicable to all CONTRACTOR scope of work in AMIRAL Project on personnel engaged in the erection, modification, dismantling, inspection and use of scaffolding.

3 DEFINITIONS

Base Plate	A metal base (with a central spigot) for distributing the load from a standard, raker or load bearing tube
Board Bearer (Immediate Transom)	A tube spanning across ledgers at mid span, to support a working platform
Brace	A tube incorporated diagonally across two or more members in scaffold and secured to them in order to ensure stability.
Competent Person	A person who has and is able to successfully demonstrate to Saudi Aramco's satisfaction that he has the knowledge, training and experience to properly solve or resolve problems relating to the subject matter and work.
Coupler/s	Fittings used to fix scaffold tubes together of a tube and coupler scaffold. Couplers are divided into load bearing or non-load bearing
Full Body Harness	Designed personal protective equipment used to prevent and/or protect a person from injury and fall which is attached to a sturdy / firm anchorage point
Guardrail System	A vertical barrier consisting of but not limited to top rails, mid-rails and posts erected to prevent employees from falling off a scaffold platform
Ledger	A horizontal tube secured to the standards, with load bearing fittings. It prevents standards from bowing and acts as a support for transoms, board bearers and ledger to ledger diagonal bracing
Personal Fall Arrest System	A system used to arrest a person's fall. It consists of anchorage, connectors or body harness and may include a lanyard, deceleration device, lifeline or combination of these

Scaffolding /Scaffold	A temporary structure which provides access, working places, and can be used to support materials, plant or equipment. It can be divided into two types: • Proprietary systems which clip together rather than using traditional units. • Tube & Fittings: Individual tubes, of varying lengths, held together by individual couplers
Scaffold Tag (Scaff-tag)	A tag strategically displayed, normally at the access point of every scaffold which indicates that the scaffold is safe for use, not safe for use or additional precaution required prior to use
Toe board	Toe board means a low protective barrier that will prevent the fall of materials and equipment to lower levels and provide protection from falls for personnel
Landing platform	Means any temporary elevated platform (supported or suspended) and its supporting structure (including points of anchorage), used for supporting employees or materials or both.

4 ROLES AND RESPONSIBILITIES

4.1 Project Manager

- To ensure that all scaffolding works are adequately planned, executed and that all component used on site is inspected and conforms to this procedure. And has overall responsibility on the proper implementation of this procedure.
- To stop any activity on site if there is an immediate risk of injury to any employee or the possibility of a dangerous occurrence.

4.2 Discipline Manager

- The Discipline Manager must ensure that all scaffolding works that will be performed at site is with approved Scaffolding Certificate signed by the respective personnel.
- To monitor scaffolding operation, take necessary action to enforce safe scaffolding practices.
- To ensure that other persons working at site and members of public are protected from work activities.
- To ensure that the scaffolding team adhere to the recognized standard or code of practice with respect to the material, erection and maintenance of scaffolds.
- The Construction Manager shall not allow any person to use a scaffold that is not inspected and certified to be safe to use or does not conform to the requirements and standards.

4.3 HSE Manager

- Provided that proper required training to all persons involved in scaffolding work in line with the local regulations.
- Review concerned of Certificate and ensures that controls and precautions are adequate to the risks of the work. Provide recommendations on additional control measures.
- Conduct worksite inspection prior to processing the permit ensuring that all hazards documented on permit and risk assessment are correct and actual site conditions were addressed

4.4 HSE Supervisor/Officer

Health, Safety, and Environment (HSE) supervisors and officers play critical roles in ensuring that scaffolding work is conducted safely and in compliance with relevant regulations and best practices.

- Conducting thorough risk assessments prior to scaffolding work to identify potential hazards and implementing control measures to mitigate risks.
- Ensuring that all scaffolding work complies with relevant health, safety, and environmental regulations, standards, and codes of practice. This includes national regulations as well as industry-specific guidelines.
- Providing comprehensive safety induction and training to workers involved in scaffolding activities, ensuring they understand the risks associated with the work and how to safely use scaffolding equipment.
- Regularly inspecting scaffolding structures, equipment, and work practices to ensure compliance with safety standards. Conducting audits to identify any non-compliance issues and implementing corrective actions.
- Implementing and managing a permit-to-work system for scaffolding activities, ensuring that only authorized personnel undertake scaffolding work and that all necessary safety precautions are in place.
- Developing and implementing emergency response procedures specific to scaffolding work, including procedures for rescue and evacuation in the event of an accident or emergency.
- Providing ongoing supervision and monitoring of scaffolding activities to ensure that safe work practices are followed, and hazards are promptly addressed.
- Ensuring that appropriate personal protective equipment (PPE) is provided and used correctly by workers involved in scaffolding work. This may include helmets, safety harnesses, gloves, and safety footwear.
- Facilitating clear communication between workers, supervisors, and management regarding safety procedures, hazards, and any changes in work practices or site conditions.
- Investigating any incidents or near misses related to scaffolding work to determine root causes and implement measures to prevent recurrence.
- Maintaining accurate records of safety inspections, training activities, incidents, and compliance documentation related to scaffolding work. Reporting any safety concerns or incidents to appropriate management and regulatory authorities as required.

4.5 Scaffolding Supervisor/Structure Engineer

- To inspect and approve/disapprove erected scaffolds prior to their use.
- To erect scaffolds based on verified/certified plans/drawings
- Degree Structure engineer and scaffolding supervisor will both make scaffolding design and submit APO and LPD for review and approval.
- To carry out regular quality control checks on scaffolding materials and on erected scaffolds.
- On a daily basis check the integrity of scaffolds if maintained and not defective.
- To report to Construction Manager any unauthorized use or unauthorized modification of scaffolds, and prevent the use of such scaffolding until the scaffolding has been corrected.
- To ensure safe dismantling of scaffolding and proper site clearance upon completion of the job.

Structure Engineer

1. **Design and Planning**: Design and plan structures to ensure they can withstand various loads, including wind, snow, earthquakes, and other environmental factors.

2. **Structural Integrity**: Verify that structures are built according to design specifications and codes, ensuring they remain safe and stable throughout the construction process.
3. **Material Selection**: Ensure that materials used in construction meet industry standards and are suitable for the intended application.
4. **Load Calculations**: Conduct load calculations to ensure that structures can withstand expected loads, including dead loads (weight of the structure itself), live loads (weight of people, equipment, and materials), and environmental loads (wind, snow, etc.).
5. **Fatigue Analysis**: Analyze the potential for structural fatigue due to repeated loading and unloading cycles.
6. **Seismic Design**: Design structures to withstand seismic forces and ensure they meet local building codes and seismic design requirements.
7. **Inspections**: Conduct regular inspections during construction to ensure that structures are built according to design specifications and codes.

Key Responsibilities (OSHA 1926.701(a)):

1. The employer shall ensure that a structure engineer is responsible for:
    - Designing and planning structures
    - Verifying that structures are built according to design specifications and codes
    - Ensuring that structures are safe and stable throughout the construction process

Qualifications (OSHA 1926.701(b)):

1. The structure engineer shall:
    - Hold a bachelor's degree in civil engineering or a related field
    - Have at least 5 years of experience in structural engineering or a related field
    - Be familiar with relevant building codes, standards, and regulations (e.g., ASCE 7-16)
    - Possess a professional engineering license (PE) in the state where the work is being performed

Qualified Structural Engineer – an engineer working for the Specialized Scaffolding Contractor who has a college degree in civil/structural engineering and who is knowledgeable, experienced, and working in the field of engineering analysis and design of scaffolds. (as per GI 8.001 2.11)

4.6 Competent Scaffold Builders

- To erect and dismantle scaffold platform in a safe manner based on the provided work permit with approved scaffold plan / design / drawings.
- To construct and/or modify scaffolding platform with direct supervision from scaffolding supervisor or equivalent.

4.7 Scaffolding Inspector

Scaffolding should always be inspected by a competent Inspector and appropriately trained individual and in order to meet legal requirements scaffolding must be inspected at regular intervals such as;

- After installation /prior to being used
- At least weekly thereafter
- Following any circumstances which could jeopardize the safety of the installation such as adverse weather conditions. So even if a scaffolding structure was inspected just the day before it should be inspected again if for example there were high winds overnight or reports of event such as an earthquake in the region

A written report should be completed for each inspection and retained on site until work is completed. Once construction work is complete, reports should then be kept at an office location for a further three months.

4.8 All users

- To ensure at all times that scaffolding is safe prior to use and must not be modified by unauthorized personnel.
- To report defects and unauthorized modifications of the scaffolding to the scaffolding supervisor.

5 SCAFFOLDING SAFETY GUIDELINES

5.1 General Requirements

- This Procedure describes minimum safety-related technical requirements for personnel access scaffolds with fixed platform heights. Saudi Aramco (SA) General Instruction (GI) 8.001 provides minimum administrative requirements for the safe design, erection, supervision, inspection, use, tagging, alteration and dismantling of personnel access scaffolds.
- All scaffolds shall be built in accordance with the work process/decision flowchart in Attachment 1, including formal scaffold plan review, inspection and tagging. However, base-supported scaffolds less than 1.8 meters (6 feet) tall do not need to be in accordance Attachment 1, unless located near the edge of an elevated structure with a protected or un-protected fall potential of more than 1.8 meters (6 feet).
- **Anchorage** Safe points of anchorage for lifelines or lanyards, which are part of a personal fall arrest system, including fixed, substantial structural members. Anchorage points shall be fixed and able to support a load of at least 2,260 kilograms (5,000 pounds) ***(Saudi Aramco Scaffold Safety Handbook)***
- Special scaffolds and scaffolds over 12.2 meters (40 feet) tall shall only be designed, erected, altered, inspected, and dismantled by a SA approved Specialized Scaffolding Contractor.
- Specialized Scaffolding: Contractor: A contractor Scaffold Erector (organization) that specializes in and regularly performs all phases of scaffold design and erection. Scaffolding Contractor may be either an independent scaffolding company or the scaffold division/unit of a local company and shall be approved by SA. Scaffold design and erection shall be the sole business of a Specialized Scaffolding Contractor (company or division/unit). Contractors currently on the SA General Bid Slate (GBS) for Scaffolding Services are approved Specialized Scaffolding Contractors. On-GBS Specialized Scaffolding Contractors cannot erect scaffolds for use by proponent organizations or other contractors.
- For scaffolds equal to or less than 12.2 meters (40 feet) tall, the proponent shall decide whether to use a SA maintenance group or an outside contractor, giving due consideration to their in-house capabilities and the complexity of the required scaffold(s).
- Falling object protection shall be in place during scaffold erection, use, alteration and dismantling. Personnel not directly involved in scaffold activities shall be kept away from the area through the use of barricade tape or fencing to prevent unauthorized entry of personnel in the hazard area.
- All scaffolders shall wear scaffolding tool belt or holster and spark proof hammers while erecting scaffolding.

5.2 Materials

- Tubes, units, frames, etc. shall be straight to the eye and shall be free of cracks, splits, excessive corrosion or other defects. The ends shall be cut square with the axis of the tube. Any tube, unit or frame requiring a high degree of maintenance such as wire brushing or scraping shall be replaced. No tube, unit or frame will be painted. The only acceptable coating will be galvanizing and zinc primer. No black steel tube shall be used.

- Scaffold components from different manufacturers shall not be intermixed unless the components are compatible (e.g., fit together without mechanical force) and the scaffold's structural integrity is maintained. Scaffold components manufactured by different manufacturers shall not be modified in order to intermix them.
- All scaffolding material will be manufactured for construction with adequate strength and shall be constructed and maintained to international standards suitable for the project.
- Scaffold Tubing and Fittings Specifications
  - Scaffold tubing shall be 48.3 mm (1.9 in) nominal outside diameter.
  - Scaffold tubing (e.g., for tube-and-coupler, system and fabricated tubular frame scaffolds) shall be welded or seamless structural steel pipe, suitable for hot-dip galvanizing and fabricated in accordance with any of the following pipe fabrication specifications and as specified in this section:
    - ASTM A500, Grade B; 290 N/mm2 (42 ksi) minimum yield stress; 3.4mm (0.13 in) or 3.76 mm (0.15 in) nominal wall thickness.
    - EN 39 thickness type 4; 235 N/mm2 (34 ksi) minimum yield stress; 4.0mm (0.16 in) nominal wall thickness (Note: BS 1139 tubing is equivalent and is acceptable).
    - EN 10219; 320 N/mm2 (46 ksi) minimum yield stress; 3.2 mm (0.125in) nominal wall thickness.
    - Note: Even though EN 39 thickness type 3 tubing has a 3.2 mm (0.125 in) wall thickness, it is not equivalent and its use is prohibited (even if it is embossed/stamped) within SA since its minimum specified yield stress is only 235 N/mm2 and not the required 320 N/mm2.
  - Tubing shall meet the testing and inspection requirements of ASTM A500or EN 10021, including the flattening test for welded tubing. Percentage elongation after fracture shall be as per the pipe fabrication specification, but not less than 20%.
  - Actual yield strength, tensile strength, percent elongation, etc., shall be verified by the purchaser of scaffold tubing as meeting specifications by: (1) receipt from supplier and review of certified inspection test reports/certificates for each lot of tubing produced from the same heat of steel, and (2) by independent mechanical tensile testing, per ASTM A370 or EN 10002-1, of test specimens taken from two lengths of tubing for each lot of 500 lengths, or fraction thereof, received. Mechanical properties shall meet minimum requirements after galvanizing.
  - All test reports shall be written in English. All relevant inspection and tensile test reports/certificates for tubing shall be immediately made available to upon request.
  - Tubing for tube-and-coupler scaffolds shall be clearly, continuously and permanently marked (embossed) to distinguish it from unacceptable, substandard tubing. Tubing shall be marked prior to galvanizing with the pipe manufacturer's name or logo and applicable pipe fabrication specification (including Grade/minimum yield strength and nominal wall thickness) continuously along its full length, in a position remote from any electric resistance weld seam, using a low-stress rolling die embossed marking system. The marking interval shall not exceed 1.5 m (5 ft), with characters a minimum of 4 mm (0.16 in) high and impression depth of at least 0.2 mm (0.008 in) deep. Painted markings are not acceptable.
  - Scaffold tubing conforming to other specifications may be used only if approved beforehand by the SA Consulting Services Department (CSD) and if inspected and permanently marked as stated previously.
  - Steel tubing for tube-and-coupler scaffolds shall be hot-dip galvanized (not painted) in accordance with ASTM A123 or EN 10240 (coating quality B.2). Steel tubing for system and fabricated tubular frame scaffolds may be painted.

- Scaffold couplers shall be marked as conforming to EN 74 or an SA- approved equivalent specification (this includes girder couplers). Couplers may be either the pressed or drop-forged type.
- All fittings (e.g., couplers, clamps, joint pins) shall be galvanized or zinc coated to resist corrosion. All relevant test reports/certificates for couplers shall be made available to SA immediately upon request.
- Threaded parts of scaffold components and fittings shall be capable of attaining full thread engagement and shall be lubricated regularly.
- Scaffold components and fittings shall be installed per the manufacturer's instructions.

- Platform Units
  - Scaffold platform units shall be solid sawn wood planks, laminated veneer lumber (LVL) planks, fabricated planks or fabricated platforms. See Figure 2.9. All recommendations by the platform unit manufacturer or the lumber grading association or inspection agency shall be followed. Scaffolding boards are not acceptable if they have a knot larger than 50mm diameters.
  - Solid sawn wood planks shall be of solid sawn timber and shall be 2 x 10 inches (nominal), 2 x 9 inches (rough), 38 mm x 225 mm (basic) or 50 mm x 225 mm (basic). Warped boards shall not be used.
  - Solid sawn wood scaffold planks shall be a "scaffold plank" grade and shall be certified by and bear the grade stamp of the West Coast Lumber Inspection Bureau (WCLIB), Southern Pine Inspection Bureau (SPIB) or other lumber-grading agency approved by the American Lumber Standards Committee (see Certified Agencies and Typical Grade Stamps, published by the American Lumber Standards Committee).
  - LVL scaffold planks shall meet the following requirements:
    - LVL planks shall measure at least 38 mm (1 1/2 inches) thick and at least 225 mm (9 inches) wide.
    - Each LVL scaffold plank shall be permanently stamped or embossed along at least one edge with the following: (1) registered product mark or brand that, in conjunction with a published specification, clearly identifies the allowable LVL plank span; (2) name or mark of the Product Certification body; (3) the words "PROOF TESTED," "SCAFFOLD PLANK" and "OSHA;" and (4) month and year of manufacture.
    - LVL scaffold planks shall have an allowable span at least 1.8 m (6 ft) for the three-man concentrated load case. Allowable spans for the other concentrated load cases shall also be provided by the manufacturer. Allowable spans shall be determined in accordance with 29 CFR (OSHA) 1926.451 and 29 CFR 1926, Subpart L, Appendix A.
    - The allowable span for each concentrated load case shall be calculated for dry-use, single-span application using allowable strength properties determined in accordance with the requirements of ANSI/ASSE A10.8, Appendix C, Calculation of Allowable Stress for Wood Scaffold
    - Planks, and the design deflection not exceeding 1/60 of the span. Calculations shall use section properties based on the net cross-section taking into account specified tolerances.
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    - In addition to other quality-verification procedures normally used by the manufacturer, LVL scaffold planks shall be individually proof- tested and their rigidity monitored to verify the strength and rigidity claimed as the basis for determination of allowable spans. Test procedures and acceptance criteria shall be approved by the quality certification body or grading/inspection agency and shall form part of the basis for product certification.

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  - LVL scaffold planks shall be quality certified by an independent third-party product certification grading or inspection agency as suitable for use as a scaffold plank in exterior (wet use), weather-exposed applications and for compliance with the requirements in this chapter.
- Relevant test reports, certificates, etc., for planks shall be immediately made available to SA upon request.
- Scaffold planks shall conform to the following:
  - Plank ends shall not be split more than 25 mm (1 in) without metal banding. Even with banding, plank ends shall not be split over 300 mm (12 in).
  - Planks shall not be twisted from end-to-end or curled from side-to-side more than 13 mm (1/2 in).
- Planks shall be inspected for defects, including damage, decay and warping, prior to each use. Planks that are split, warped, twisted (more than allowed in Section 2.4.3 F), saw-cut, drilled, worn, decayed, broken or damaged shall not be used. However, the defective parts may be cut off to produce shorter planks. In this case, the cut end(s) of solid sawn planks shall be banded.
- Planks shall not be painted, treated or coated in any way (except at the ends/edges).
- Planks shall not be stood on end unattended.
- Planks shall be properly stacked, off the ground and on a suitable foundation. Where the height of a stack exceeds 20 planks, steps shall be taken to tie or bond succeeding layers.
- Scaffold planks shall not be used as concrete forms, excavation shoring or as sills for scaffolds.

- Couplers
  - Any coupler found to be broken or damaged or found to have rusty or damaged threads will be discarded.
  - Couplers will be sorted by type. They will be kept clean and lightly oiled to prevent rust.
- Storage of Materials
  - All scaffolding material will be properly and neatly stored in properly constructed scaffold racks.
    - Tubes will be sorted and stored by length.
    - Couplers will be sorted and stored by type.
    - Boards will be stored no more than 2 m high.
  - Where materials are being stored at the site of erection for immediate use, they will be stored in a neat manner which does not present a tripping hazard or block access routes.
  - Scaffolding materials will be stored only in areas approved by Site Management.

5.3 General Rules for Scaffolding

- Capacity
  - Every access scaffold and scaffold component shall be capable of supporting, without failure, its own weight (dead load) and at least four times the maximum intended load (live load) applied or transmitted to it (i.e., D+4L). Self-weight of platform units (including planks) may be considered as dead load.
  - Posts (standards) shall be capable of supporting, without failure, four times all gravity loads (i.e., 4D+4L).
  - The latest SA Scaffolding Structural Design Criteria (available from the SA Loss Prevention, Technical Services Unit) shall be used for structural design of scaffolds.
  - Scaffolds shall have a specified load rating, corresponding to the maximum intended load, of light-duty, medium-duty or special-duty. For design, the live load shall be taken as the scaffold's load rating.

- Light-duty scaffolds shall be designed and rated for 120 kg/m2 (1.2 N/m2) (25 lb/ft2 [psf]). Medium-duty scaffolds shall be designed and rated for 240 kg/m2 (2.4 N/m2) (50 psf). Special-duty scaffolds are designed and rated for more than 240 kg/m2 (2.4 N/m2) (50 psf).
- Scaffolds and scaffold components shall not be loaded in excess of their load rating, which shall be noted on the scaffold tag. See GI 8.001.
- The maximum allowable span for fabricated metal planks and fabricated metal platforms shall be determined by the manufacturer and shall be the shortest simple span required to support, without failure, the platform unit's own weight and at least four times the one-man and two-man concentrated load cases.
- The maximum deflection for all types of platform units (including fabricated planks, solid sawn wood planks and LVL planks) shall not exceed 1/60 of the span length when supporting any of the (unfactored) concentrated load cases in Figure 2.10 or the (unfactored) light-duty, medium-duty or special-duty uniformly distributed load, excluding the platform unit's self-weight.

- Foundations
  - Scaffold foundations shall be sound, rigid and capable of carrying the scaffold's self-weight plus the maximum intended (live) load without settling or displacement. Unstable objects such as barrels, boxes, loose bricks or concrete blocks shall not be used to support scaffolds, planks or timber sills.
  - The ground or floor on which a scaffold stands shall be carefully examined for its load-bearing capacity. Sand or made-up ground (fill) may need compacting to ensure there are no cavities. Bases such as floors, roofs, etc., may need shoring from underneath.
  - Timber sills (sole boards) at least 225 mm (9 in) wide by 38 mm (1 1/2 in) thick shall be used to spread the load on sand, made-up ground, asphalt pavement, wooden floors and other soft or slippery surfaces. Timber sills shall also be used where base plates may be exposed to corrosive materials. Scaffold planks shall not be used as sills.
  - The ground beneath sills shall be level and compact. A sill shall extend under at least two posts (standards), unless that is not feasible because of uneven or sloping ground. In this case, sills under individual posts (standards) shall be at least 765 mm (30 in) long.
  - All scaffold posts (standards) shall be pitched on steel base plates at least 150 mm (6 in) x 150 mm (6 in) and 6 mm (1/4 in) thick. See Figures 2.16 and 2.17. For "special scaffolds," the base plates shall be designed to safely support the maximum scaffold post (standard) load.
  - Screw jacks shall be used to compensate for variations in ground level. Screw jacks shall not be adjusted to more than 2/3 of the total length of the threaded section. Screw jacks shall be used and loaded in accordance with the manufacturer's specifications.
  - Front-end loaders, forklifts or other heavy equipment shall not be used to support scaffolds.
  - Scaffolds and scaffold planks shall not be hung from, or supported by, guardrails or handrails.
  - Cranes or other lifting devices shall not lift any scaffold, unless it is classified as a "special scaffold" that is specifically designed to be lifted and the scaffold plan was reviewed in accordance with GI 8.001.
- Falling Object Protection
  - Toe boards shall be installed along all edges of scaffold platforms and stair/ladder landings that are more than 1.8 m (6 ft) above a lower level, unless personnel access to the lower level is physically prevented.
  - Toeboards shall conform to the following requirements:
    - The vertical distance from the top edge of the toe board to the level of the walking/working surface shall be at least 100 mm (4 in).
    - Wood toeboards shall be at least 25 mm (1 in) thick.

    - Toeboards shall be securely fastened in place along the outermost edge(s) of the platform and have not more than 6 mm (1/4 in) clearance above the walking/working surface.
    - Toeboards shall be solid and capable of withstanding, without failure, a force of at least 23 kg (50 lb) in any downward or horizontal direction at any point.
    - Toeboards shall not be nailed to scaffold planks.
  - Where tools, materials or equipment are piled to a point higher than the top edge of a toeboard, and where there is the danger of objects falling through guardrails and striking personnel or equipment below, a protective screen consisting of a minimum No. 18 gauge wire with a maximum 13 mm (1/2 in) mesh shall be securely fixed to the toeboard, midrail and toprail.
  - In addition to wearing hardhats, additional protection from falling objects may be provided by:
    - Barricading the area below where objects can fall and not permitting personnel to enter the hazard area.
    - Erecting debris nets, catch platforms or canopy structures.
  - Debris nets, catch platforms or canopy structures shall be strong enough to withstand the impact forces of potential falling objects.
  - Materials shall not be piled, stacked or grouped unless they are stable and self-supporting.
- Standards (Tube & Coupler Scaffolds)
  - Standards shall be plumbed vertical.
  - The spacing between standards is determined by the intended use of the scaffold.
  - Joints in standards can be made with sleeve couplers or spigots (joint pins). Joints must be staggered, i.e. they must not occur at the same level in adjacent standards.
- Ledgers (Tube & Coupler Scaffolds)
  - Ledgers must be plumbed level and fixed to the inside of standards using right angle, load bearing couplers. The ledger must not extend more than 50mm past the load bearing coupler.
  - The vertical distance (lift height) between ledgers must not exceed 2 meters.
  - Joints in ledgers will be made with sleeve couplers, spigots (joint pins) are not acceptable. All joints must be staggered.
  - Right angle couplers (doubles or 90's) are the only fitting suitable as load bearing to join tubes at right angles.
- Transoms
  - Transoms should, whenever possible, be secured to standards using right angle couplers. They may however, be laid across ledgers and secured with putlog clips provided that they are not more than 300mm from each pair of standards. A transom must not extend more than 50mm past the right-angle coupler/putlog clip.
- Ties
  - Means of resisting inward and outward movement of a scaffold is normally achieved with ties to the facade at a number of points. All tie connections must be made with right angle couplers. Whatever type of tie is used, it must be established that the strength of the building / structure is adequate to sustain the loads, which will be transferred to it.
  - Through Tie
    - A tie assembly through a window or other opening in a wall. Safe Working capacity 6.25kN
  - Reveal Tie
    - The assembly of a reveal tube with wedges or screw fittings and timber pads, fixed between opposing faces of an opening in a wall, together with a tie tube.
    - Safe working capacity (when relying solely on friction) is 3.5kN inwards and outwards.

- Where the reveal tube is tight behind a load-bearing feature and there is a butt tube, the safe working capacity is 6.25kN.
- Reveal ties should not be used on sheeted scaffolds and the use of more than 50% reveal ties should be avoided on unsheathed scaffold.

- Box Tie
  - The assembly of tubes and couplers, usually around columns or other generally rectangular elements of the building / structure.
  - Safe working capacity 6.25kN. Where the tie is provided with two tubes and a butt, connected with two couplers the safe working capacity becomes 12.5kN.
- Lip Tie
  - An L-shaped arrangement of tubes and couplers to hook the scaffold behind elements of the building / structure, such as sill or lintels.
  - Inward movement is normally restricted by a butting transom.
  - The tie is made more effective by the fitting of a sway transom. Safe working capacity 6.25kN.
- Cast-in and Drilled anchorage Ties
  - Provided by casting in, or subsequently fixing a threaded anchor sleeve into the structure itself.
  - The attachment of the scaffold to the structure is either by a ring bolt (through which a scaffold tube is passed or which is tied by wire lashing or steel banding to a scaffold tube), or by a proprietary anchor.
  - It is essential that these types of ties are used in accordance with the manufacturer's recommendations.
  - The effectiveness of all anchorage systems is largely dependent on the structural condition of the material into which the sleeve is fixed. Such systems should have a minimum safe working capacity of 6.25kN and proof and pull-out tests should be carried out on selected anchor sleeves.
- Movable and Non-movable Ties
  - Ties, wherever practicable should be left undisturbed until the scaffold is dismantled.
  - This can normally be achieved by selecting appropriate types of ties and their positions.
  - Such ties are referred to as "non-movable". Sometimes, however, it may be necessary to remove a tie causing an obstruction to work.
  - This will make the scaffold less secure and additional ties will be required to compensate for this.
  - Ties that may be necessary to be removed temporarily are referred to as "movable".
  - Project Management must make it clear to the scaffold erectors when ties are required to be movable.
- Spacing of Ties
  - The spacing of ties should not exceed 8.5m horizontally or vertically.
  - Ties should be reasonably evenly distributed over the scaffold at the following minimum frequency.
  - Where up to 50% of reveal ties are used on an unsheathed scaffold, there should be movable ties every 25 square meters or a non-movable tie every 31 square meters.
  - The use of more than 50% reveal ties should be avoided, however, where this is necessary, there should be a non-movable tie every 22 square meters.
  - Reveal ties should not be used on sheeted scaffolds.
  - The aforementioned table assumes a tie capacity of 12.5kN at each tie position for sheathed scaffolds.

- Where ties with a safe working capacity of 6.25kN are used on sheeted scaffolds, there shall be a movable tie every 12.5 square meters or a non-movable tie every 16 square meters.

Ties	Un-sheathed Scaffold	Sheeted Scaffold	Height Limitation
Movable Ties	32 square meters	-	50 meters
	-	25 square meters	25 meters
Non-Movable Ties	40 square meters	-	50 meters
	-	32 square meters	25 meters

  - Rule of thumb
    - If B is the number of scaffold bays between ties and L is the number of scaffold lifts between ties, then product B x L must be less than:
      - 8 for unsheathed scaffolds.
      - 3 for sheathed scaffolds.

      Note: Ties must be less than 4 bays apart horizontally and 4 bays apart vertically.
    - If the scaffold structure is in excess of 50metres in height, the scaffold must be specially designed.
    - Buttresses and raker tubes are other means of resisting horizontal loads and sideways movements of scaffold structure.
- Braces
  - All scaffolds will be braced in both directions. Braces, whether façade or ledger to ledger, will extend to the full height of the structure.
  - Façade braces will be repeated at a maximum distance of every 10 meters.
  - Ledger to ledger bracing will be repeated at every alternate set of standards.
  - Joint in façade braces will be made with sleeve couplers, spigots are not acceptable.
  - Where braces are fixed to transoms, the transom itself must be fixed with right angle couplers.
- Working Platform
  - Working platform will normally be five boards wide but may be reduced to two boards where the scaffold has been erected for inspection or access purposes only.
  - All working platforms will be close boarded with boards butted together end to end. Boards will either be cut to fit around standards, pipe penetrations etc., or have the gaps filled in with the use of suitable fixed wooden boarding i.e. ply wood.
  - Each individual board will be securely lashed.
  - Guardrail system shall comply with the following provisions:
    - Guardrail systems (consisting of toprails, midrails and support uprights) shall be installed on all open sides and ends of scaffold platforms and stair/ladder landings where personnel could fall 1.8 m (6 ft) or more.Guardrail systems shall be installed before employees other than scaffold crews allowed to use the scaffold.
    - The top edge height of top rails or equivalent member on supported scaffolds shall be installed between 0.97 meter and 1.15 meters (38 inches and 45 inches) above the platform surface.
    - When mid-rails, screens, mesh, intermediate vertical members, solid panels, or equivalent structural members are used, they shall be installed between walking/working surface and the toprail.
    - When mid rails are used, they shall be installed at a height approximately midway between the top edge of the guardrail system and the platform surface.

- When screens and mesh are used, they shall extend from the top edge of the guardrail system to the scaffold platform and along the entire opening between the supports.
- Guardrails shall be surfaced to prevent injury to an employee from punctures or lacerations and to prevent snagging of clothing.
- Each top rail or equivalent member of a guardrail system shall be capable of withstanding, without failure, a force in any downward or horizontal section at any point along its top edge of at least 45.3 kilograms (100 pounds) for guardrail systems installed on single-point adjustable suspension scaffolds or two-point adjustable suspension scaffolds, and at least 90 kilograms (200 pounds) for guardrail systems installed on all scaffolds.
- Suspension scaffold hoists and non-walk-through stirrups may be used as end guardrails, if the space between the hoist or stirrup and the side guardrail or structure does not allow passage of an employee to the end of the scaffold.
- Steel or plastic banding shall not be used as a top rail or mid-rail.
- Mid rails, screens, mesh, intermediate vertical members, solid panels, and equivalent structural members of a guardrail system shall be capable of withstanding, without failure, a force applied in any downward or direction at any point along the mid-rail or other member of at least 33.3 kilograms (75 pounds) with a minimum 45 kilograms (100 pounds) top rail capacity, and at least 66.6 kilograms (150 pounds) for a guardrail system with a minimum 90 kilograms (200 pound) top rail capacity.
- The ends of all rails shall not overhang the terminal posts except when such overhang does not constitute a projection hazard to employees.
- Manila or plastic rope shall not be used for top rails or mid-rails. Wire rope of at least 13 millimeters (1/2 inch) could be used and must be properly secured with minimum deflection.
- Cross bracing is acceptable in the place of a mid-rail when the crossing point of the two (2) braces is between 0.5 meters (20 inches) and 0.8 meters (30 inches) above the work platform or as no more than 1.3 meters (48 inches) apart.

  - Toe boards including stop end boards will be fitted to all working platforms. The minimum height will be 150mm.
  - If materials are to be stacked above the height of the toe board, a suitable barrier (brick guards) will be erected.
  - Ladder access openings will not be more than 500mm wide (2 boards) and will be as short as possible in the other direction.
  - The maximum span of any board forming the working platform will be 1.2 meters.
  - The minimum overhang of any board will not be less than 50mm and the maximum overhang will not exceed 150mm.
  - No more than 2 board's width will be supported on needle transoms unless the transoms are fixed with right angle coupler and 'picked up'.

- Ladder Access Platforms
  - The vertical height between ladder access platforms will not exceed 9 meters.
  - Ladder access platforms will be close boarded and will have guardrails and toe boards secured.
- Ladders
  - Ladders will project beyond working platforms or ladder access platforms by a minimum distance of 1.05 meters (five rungs).
  - Ladders will be based on a sound footing. They will be lashed or secured by a proprietary clamp at both the foot and near the top.

- The angle at which the ladder is set will (with the exception of scaffold towers) be 75° degree angle or 300 mm out for every 1.2 meters of vertical length.
- Long ladders will be supported and lashed at their mid-point to remove any bounce.
- Ladders shall be constructed of aluminum or wood. Only properly constructed and manufactured ladders shall be used. 'Home made' ladders are strictly forbidden.
- All ladders will be of good repair and sound construction. They will be checked for damage, faults and wear & tear, by the approved scaffolding supervisor, before use.
- Metal tie rods will be in place.
- Ladders may be on the outside of a scaffold for the first two lifts, above ground level. In every other instance, the ladder run will be internal to the scaffold.

- Protective Fans
  - Where it is likely that material may fall from a building or a scaffold and where people are working in, or passing in close proximity to the structure, a protective fan will be erected.
  - The fan consists of a structure extending outward from the scaffolding, often fitted with boards or decking to capture any debris that accidentally falls from the scaffold.
  - Protective fans will not be used to store scaffolding or other materials.
  - The protective fan shall not be more than 5 meters above ground level, shall be at least 2 meters wide and at an angle not exceeding 20°.
- Check Fittings
  - Without exception, check fittings will be used whenever a scaffold tube is punched up, picked up, rakered or hanging.
- Scaffold Load / Capacity
  - It is the responsibility of the approved scaffold supervisor to ensure that the scaffold construction and strength is suitable for the purpose to which it shall be used.
  - Design calculations shall be submitted to the construction department for any scaffolding other than a common access scaffold. The calculation will show both dead and live loading.
  - Scaffold and scaffold components shall be capable of supporting, without failure, its own weight and at least four (4) times the maximum intended load.
  - The design load of all scaffolds shall be calculated on the basis of:

Category	Load / Capacity	
Light Duty	1.2 kN/m2	120 kg/m2
Medium Duty	2.4 kN/m2	240 kg/m2
Special Duty	3.5 kN/m2	Greater then 240kg/m2

- Traffic Movements
  - Where a scaffold is erected in an area where it is likely to be struck by a vehicle, the base of the scaffold shall be properly barricaded off using solid barriers. The barrier shall be illuminated with flashing warning lights during the hours of darkness.
- Mobile Scaffolds
  - A mobile scaffold shall only be used and moved on surfaces sufficiently firm and level to ensure stability. Where the scaffold is to be used on an elevated floor or roof, it shall be designed to apply loads no greater than the capacity of the floor or roof.

- A mobile scaffold shall be moved only by manually pushing at the base. Pushing force shall not be applied at a height greater than 1.5 m (5 ft) above the scaffold's base/supporting surface.
- Personnel, equipment or materials shall not be on the working platform or elsewhere on a mobile scaffold while it is in motion.
- Caster wheels shall be locked at all times, except during movement of the mobile scaffold.
- Temporary foundations or tracks shall be properly set in place on soft or uneven ground to facilitate safe movement of the mobile scaffold. The temporary foundation or track shall be level and properly secured. The design load of all scaffolds shall be calculated on the basis of:

• Tower Scaffolds
  - The Tower scaffolds shall be plumb, level and square, and shall be horizontally and vertically braced (in both directions) by diagonal braces.
  - Plan (horizontal) bracing shall be installed at the base lift, at the top lift and at least every third lift of all mobile and tower scaffolds to prevent racking (twisting).
  - Light-duty tube-and-coupler mobile and tower scaffolds (e.g., used only for personnel access and inspection) that are one bay long by one bay wide (only four posts) shall be constructed entirely of steel tubing manufactured and "embossed" per Section 2.4.2 and shall have a maximum post spacing of 2 m (6.5 ft) in both directions. In this case, at least two equally spaced board bearers (intermediate transoms) shall be used at the platform level.
  - Medium-duty tube-and-coupler mobile and tower scaffolds that are one bay long by one bay wide (only four posts) shall be constructed entirely of steel tubing manufactured and "embossed" per Section 2.4.2 and shall have a maximum post spacing of 1.5 m (5 ft) in both directions.
  - For mobile and tower scaffolds, an internal ladder (with a hinged cover over the access hole in the platform) is preferred over an external ladder. If an external ladder must be used, it shall be installed vertically on the narrow side of the scaffold (to minimize the potential for overturning) and a step-through opening in the guardrail system (protected by a self-closing drop
  - Screw-jacks shall be used to level mobile or tower scaffold as needed.
• System Scaffolds
  - Only specific manufacturers and brands of system scaffolding are permitted to be used within SA. Contact the SA Loss Prevention (LP) for details. No other manufacturer or brand of system scaffolding may be used. System scaffolding shall be designed and constructed in full compliance with the system scaffolding manufacturer's information (e.g., grid size tables) for proper use of their system scaffolding within SA.
  - System scaffolding from different manufacturers shall not be intermixed, unless permitted in writing by each manufacturer whose systems will be intermixed. Also, tube-and-coupler scaffolding shall not be intermixed with system scaffolding (except bracing as noted below).
  - Unless otherwise specified in the system scaffolding manufacturer's instructions, all outdoor system scaffolds shall be vertically braced in both directions with diagonal braces (between 35 degrees and 55 degrees) to its full height for each 10 m (33 ft) of run.
  - Bracing for system scaffolds shall be specially designed for the grid size of the scaffold. However, where specially designed system bracing cannot be used, tube-and-coupler scaffold components may be used as bracing for system scaffolds.
  - Connections shall be tightened with a single hammer blow to the wedge or cup to provide a high degree of rigidity.
  - The locking-pin type of system scaffolding shall not be used.

- Posts (standards) shall be connected by bolted spigots and they shall be secured into place using two spigot pins for situations where uplift may occur. The upper post (standard) shall slide over the spigot.
- Ladders manufactured for use with a specific system scaffolding shall conform to the requirements for ladders.

5.4 Erection of Scaffolding

- Scaffolds shall be erected by competent workmen or holding licenses, certificated person to carry out such activities.
- All such competent scaffolder shall operate under the control of a competent supervisor.
- Whenever possible, competent scaffolder erecting the scaffold will work from the minimum of a two board run. It is not acceptable for scaffolders to be perched on tubes, unless a fall arrest device is provided and secured to a suitable anchorage point at all times.
- Ladders will be properly lashed throughout the vertical height of a scaffold as it progresses. Scaffolder, erecting the scaffold will use the ladders to gain access to the working level.
- Tubes or boards being used in the construction of the scaffold will be stored flat in a neat and tidy manner. They will not be stacked vertically against the scaffold.
- Loose tubes or boards will not be left on scaffolding after its completion.
- Where men are erecting a slung or cantilevered section or crawling around on a pipe bridge or other structural steelwork they will, in all instances, where there is a possibility of falling more than 2 meters, wear a full body harness with double lanyard and must be hooked at 100% tie-off at all times.
- Where a scaffold is left in an incomplete state, the bottom ladder will be removed and a notice will be secured to the lower lift stating 'Danger Incomplete Scaffold. Keep Off'.
- Where one section of a working platform is incomplete, access may be gained to the completed section provided that a stop end, preventing entry, is placed over the working platform at guardrail height. A notice stating 'Danger Incomplete Scaffold, Keep Off' will be secured to the stop end. This notice will be in the appropriate languages.

5.5 Dismantling of Scaffolding

- DO
  - Clear all materials and debris of platforms before dismantling commences.
  - Dismantle in the reverse order of erection-last up, first down.
  - Lower all scaffolding components carefully to the ground.
  - Stack, clean and check whilst dismantling.
  - Dispose of any damaged components.
- DO NOT
  - Remove any ties or braces in advance of general dismantling-it may be necessary to provide additional ties to give stability during dismantling.
  - Overload platforms with stacked fittings or tubes.
  - Throw tubes, fittings and platforms to the ground.

5.6 Scaffold Use

- Scaffolds and its components shall not be loaded in excess of their maximum intended loads or rated capacities.

- A competent person shall inspect scaffolds and scaffold components for visible defects before and after each work shift, which could affect a scaffold's structural integrity. When inspections are conducted on scaffolds, a tagging system shall be applied.
- The use of shore or lean-to scaffolds is prohibited.
- Any part of a scaffold damaged or weakened so that its strength is less than that required by this standard shall be immediately repaired, braced to meet those provisions, or removed from service until repaired.
- Where swinging loads are being hoisted on or near scaffolds such that the loads might contact the scaffold, non-conductive tag lines or equivalent measures shall be used to control the loads.
- Scaffolds shall be erected, moved, dismantled, or altered only under the supervision and direction of a competent person. Only qualified employees experienced and trained for the erection, moving, dismantling, or alteration shall perform such activities.
- Scaffolds shall not be moved horizontally while employees are on board.
- Work on or from scaffolds is prohibited during storms, high winds, heavy rains, platforms covered with snow, ice and/or other slippery materials unless a competent person has determined that it is safe for use and provided that a personal fall arrest system or windscreens protect employees working on scaffold and/or may work under the direct supervision of Scaffold Supervisor. Windscreens shall not be used unless the scaffold is secured against the anticipated wind forces imposed. Such activities shall only be performed by experienced and trained employees selected for such work by the competent person.
- Debris shall not be allowed to accumulate on platforms.
- Scaffolding shall not be used as a point of attachment for lifting devices such as chain falls, unless the scaffolding is specifically designed for that purpose. See Amiral CSM Chapter II-2, Scaffolding.
- Makeshift work platforms such as, but not limited to, boxes and barrels, shall not be used on top of scaffold platforms to increase the work height level of employees.
- The clearance between scaffolds and power lines shall be as follows: scaffold shall not be erected, used, dismantled, altered or moved such that they or any conductive material handled on them might come closer to exposed and energized power lines than as follows:

Insulated Lines Voltage	Minimum Distance	Alternatives
Less than 300 volts	1m (3 ft)	2 times the length of the line insulator, but never less than 3m (10 ft)
300 volts to 50 kV.	3m (10 ft)	
More than 50 kV.	3m (10 ft) plus 0.4 inches (10 mm) for each 1 kV. over 50 kV.	

Un-insulated Lines Voltage	Minimum Distance	Alternatives
Less than 50 kV.	1m (3 ft)	2 times the length of the line insulator, but never less than 3m (10 ft)
More than 50 kV.	3m (10 ft) plus 0.4 inches (10 mm) for each 1 kV. over 50 kV	

Note: Scaffolds and materials may be closer power lines than specified above where such clearance is necessary for performance of work and only after the utility company or electrical system operator has been notified of the need to work closer and the utility company or electrical system operator has de-energized the lines, relocated the lines or installed protective coverings to prevent accidental contact with the lines.

- Ladders shall not be used on scaffolds to increase the working level height of employees, except for scaffolds with large area where employees have satisfied the following criteria:
  - When the ladder is placed against a structure, which is not part of the scaffold, the scaffold shall be secured against the sideways thrust exerted by the ladder.
  - The platform units shall be secured to the scaffold to prevent their movement.
  - The ladder legs shall be secured to prevent them from slipping or being pushed off the platform.
  - The ladder legs shall be on the same platform or other means shall be provided to stabilize the ladder against unequal platform deflection.
  - The platform shall not deflect more than one sixtieth (1/60) of the span when loaded.
  - An insulated thimble shall be used to attach each suspension wire rope to its hanging support. Excess suspension wire rope and any additional independent lines shall be insulated.

5.7 Training Requirements

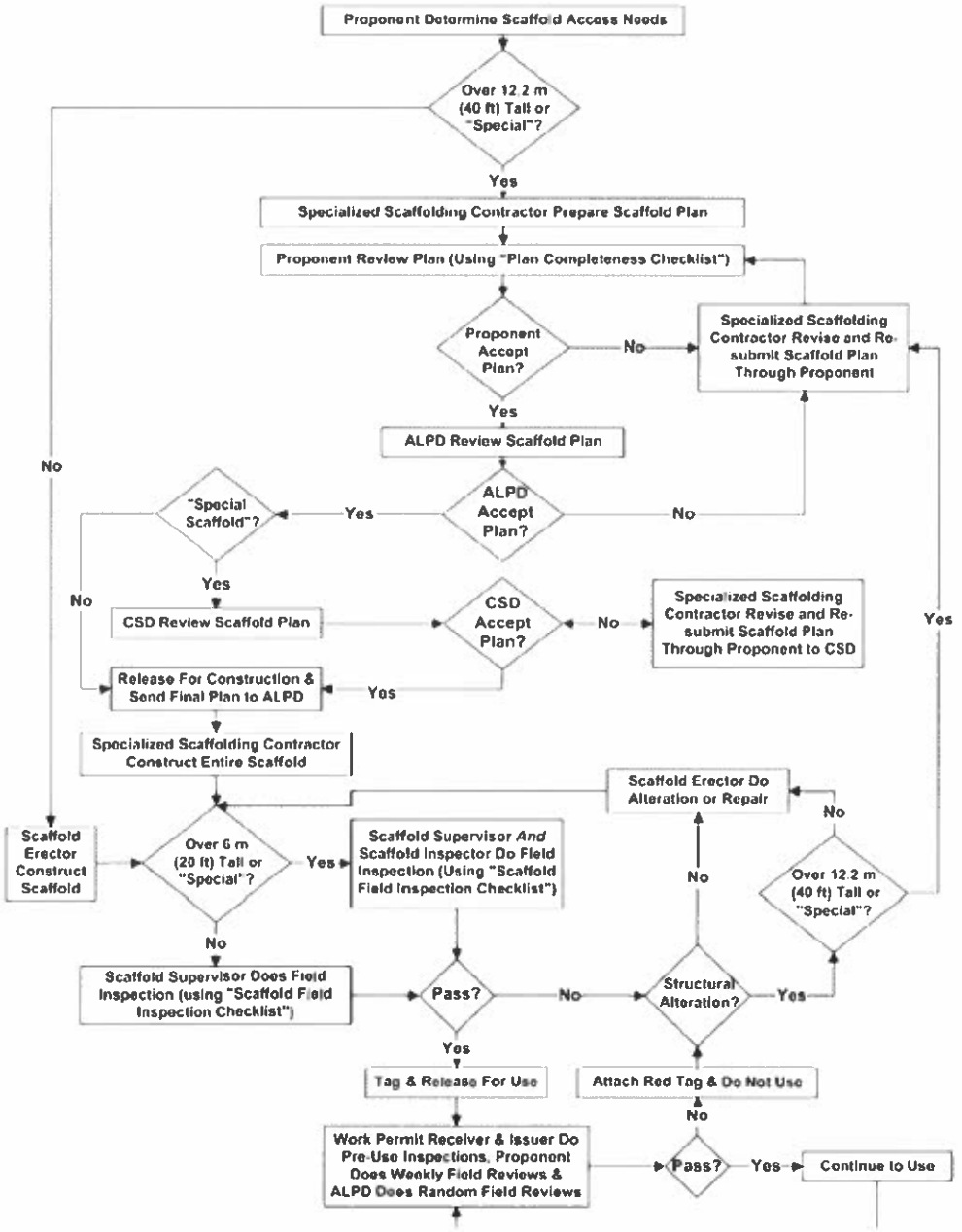
- Each employee who performs work on a scaffold shall be trained by a person qualified in the subject matter to recognize the hazards associated with the type of scaffold being used and to understand the procedures required to control or minimize those hazards. The training shall include the following areas, as applicable:
  - The nature of any electrical hazards, fall hazards, and falling object hazards in the work area;
  - The correct procedures for dealing with electrical hazards and for erecting, maintaining, and disassembling the fall protection systems and falling object protection systems being used;
  - The proper use of the scaffold and the proper handling of materials on the scaffold;
  - The maximum intended load and the load-carrying capacities of the scaffolds used; and
- Each employee who is involved in erecting, disassembling, moving, operating, repairing, maintaining, or inspecting a scaffold shall be trained by a competent person to recognize any hazards associated with the work in question. The training shall include the following topics, as applicable:
  - The design criteria, maximum intended load-carrying capacity and intended use of the scaffold
  - The nature of scaffold hazards
  - The correct procedures for erecting, disassembling, moving, operating, repairing, inspecting, and maintaining the type of scaffold in question;
  - Any other pertinent requirements of this subpart.
- When an employee believed that he still lacks the skill or understanding needed or safe work involving the erection, use or dismantling of scaffolds, the responsible supervisor shall retrain the employee so that the requisite proficiency is regained. Retraining is required in at least the following situations:
  - Where changes at the work-site present a hazard for which an employee has not been previously trained;
  - Where changes in the types of scaffolds, fall protection, falling object protection, or other requirements present a hazard for which an employee has not been previously trained; or
  - Where inadequacies in an affected employee's work involving scaffolds indicate that the employee has not retained the requisite proficiency.

5.8 Scaffold Inspection / Tagging System

- It is a system whereby weather proofed plasticized tag is placed at all access points of a scaffold to show whether or not a scaffold meets CONTRACTOR requirements. Information on the tag will include the date built, safe working load, initial inspectors name and signature and company. Scaffold Tags are color coded as follows:
  - Red Scaffold Tag – indicates that the scaffold has not been inspected or is not safe for use (by anyone other than Scaffolder). The red scaffold tag may also be a holder into which either green or yellow scaffold tag inserts are to be placed as applicable.
  - Green Scaffold Tag – indicates that the scaffold is complete, has been inspected and is safe for use at the time of inspection.
  - Yellow Scaffold Tag – indicates the scaffold has been inspected and may be used only by workers wearing a properly anchored personal fall arrest system, including full body harness and double lanyard. A yellow scaffold tag is required whenever all guardrails or planks cannot physically be installed (i.e., due to interferences) or must be temporarily removed. A yellow scaffold tag does not permit intentional erection of an incomplete scaffold. A yellow scaffold tag is valid only for a maximum of two weeks.
- The responsible scaffold supervisor/foreman shall initially inspect the scaffold at the work site as soon as it was completed by the assigned scaffolders and before workers other than the scaffolding crew may use the scaffold to assure that all applicable safety measures such as handrails, toe boards, ladders, etc., have been provided.
- The responsible scaffold supervisor/foreman will place a GREEN "SAFE FOR USE" tag on all scaffoldings meeting Scaffolding standards and requirements. This tag is to be attached at some point near the access ladder where it is visible to anyone climbing the ladder. This tag is also to be signed and dated by the responsible Scaffold Supervisor / Foreman.
- All scaffolds shall be re-inspected on a weekly basis by a Qualified Scaffold Inspector. The signature and date of inspection shall appear on the tag. Where a scaffold does not meet safety standards the tag will be removed and a prohibition notice placed at the access to inform personnel not to use.
- A separate record of all scaffold inspections will be kept in an approved scaffold register.
- Scaffolds shall be RED tagged "DO NOT USE" while being erected, dismantled and/or has been found to be defective that needs rectification.
- The scaffold inspection tag shall show the Contractor's name, scaffold number, the area, type of scaffold, inspector's name, date of inspection and signature.
- In the event a scaffold or platform cannot be erected in accordance with the applicable codes and standards, i.e., handrails or equivalent fall protection. The responsible supervisor shall coordinate such condition to HSSE Representative for approval.
- Employees are not permitted to work on a red-tagged scaffold. Any scaffold that is not tagged, regardless of reason, shall be assumed to be "Unsafe for Use." Employees observed working on a red-tagged scaffold are subject to disciplinary action.
- Alterations or modifications, which must be made to a Green tagged scaffold, are to be re-inspected and re-tagged by the foreman who is responsible for the modification. A new tag is to be placed on the scaffold or platform.

6 ATTACHMENTS

[Attachment 1] Scaffold Work Flow Process



[Attachment 2] Scaffolding Tags